OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.

DISCLAIMER

FAIR USE POLICY

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org

Independent Evaluation

UNIDO-UNEP

Cleaner Production Programme



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

UNITED NATIONS
ENVIRONMENT PROGRAMME

UNIDO EVALUATION GROUP

Independent Evaluation
UNIDO-UNEP

Cleaner Production Programme

Prepared in cooperation with the
United Nations Environment Programme
Evaluation and Oversight Unit

Supported by:
Austrian Ministry of International and European Affairs
Swiss State Secretariat for Economic Affairs (SECO)

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna, 2008

Distr. GENERAL

OSL/EVA/R.5
15 May 2008

Original: ENGLISH

Acknowledgement

This programme evaluation of the Cleaner Production Programme of the United Nations Industrial Development Organisation (UNIDO) and United Nations Environment Programme (UNEP) was prepared under contract for the UNIDO Evaluation Group/Bureau for Organisational Strategy and Learning. The evaluation was co-funded by the Governments of Switzerland and Austria. The Evaluation Team was guided by a Steering Committee, comprising of:

- Government of Austria (Austrian Development Agency (ADA)): Mr Erwin Kuenzi;
- Government of Switzerland (State Secretariat for Economic Affairs (SECO): Mr Stefan Denzler;
- UNIDO Evaluation Group: Ms Margareta de Goys (chair);
- UNIDO Energy and Cleaner Production Branch: Mr Heinz Leuenberger;
- UNEP Evaluation and Oversight Group: Mr Segbedzi Norgbey; and
- UNEP Sustainable Consumption and Production Branch: Ms Garrette Clark.

The evaluation team would like to acknowledge the many and diverse contributions made to this evaluation, by the aforementioned members of the Steering Committee, staff members of the UNIDO Cleaner Production Unit (in particular Mayra Sanchez, Petra Schwager and Elisa Tonda), the UNEP Sustainable Consumption and Production Branch (in particular Garrette Clark, Arab Hoballah and Niclas Sevenningsen) and directors and staff of all National Cleaner Production Centres, and national consultants that assisted with the country level evaluations.

Dr Rene Van Berkel (team leader) ([1])
Mr Johannes Dobinger ([2])
Mr Matthias Meyer ([3])
Prof Hans Schnitzer ([4])

[1] Principal, ECO-INNOVATION, PO Box 523, Inglewood WA 6932, Australia, eco-innovation@bigpond.com
[2] Evaluation Officer, Evaluation Group/Bureau for Organizational Strategy and Learning, UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION, P.O. Box 300, 1400 Vienna, Austria. j.dobinger@unido.org
[3] Executive Director, PRAXIMONDO, Rue de l'Arquebuse 10, 1204 Genève, Switzerland, matthias.meyer@praximondo.ch
[4] Professor, Institute for Process Engineering, Graz University of Technology, Inffeldgasse 21 B, A-8010 Graz, Austria, hans.schnitzer@tugraz.at

Contents

Glossary

ADA	Austrian Development Agency
ADB	Asian Development Bank
ARSCP	Africa Roundtable on Sustainable Consumption and Production
APRSCP	Asia Pacific Roundtable on Sustainable Consumption and Production
BAT	Best Available Technology
BEP	Best Environmental Practice
CL	Chemicals Leasing
CP	Cleaner Production
CP+	Cleaner Production Plus
CPU	Cleaner Production Unit (UNIDO)
CSR	Corporate Social Responsibility
DESIRE	DEmonstrations in Small Industries for Reducing wastE (India)
DfE	Design for Environment
DTIE	Division of Industry, Technology and Economics (UNEP)
D4S	Design for Sustainability
EE	Eco-Efficiency
EECPEMS	Energy Efficiency through Cleaner Production and Environmental Management Systems (GEF)
EERE	Energy Efficiency and Renewable Energy
EIA	Environmental Impact Assessment
EIP	Eco-Industrial Park
EMA	Environmental Management Accounting
EMS	Environmental Management Systems
EnTA	Environmental Technology Assessment
EP3	Environmental Pollution Prevention Project (USEPA and USAID)
ERSCP	European Roundtable on Sustainable Consumption and Production
ESTs	Environmentally Sound Technology(ies)
FIP	Factory Improvement Programme
GC	Global Compact
GEF	Global Environmental Fund
GERIAP	Greenhouse gas Emissions Reduction from Industry in Asia Pacific
HWM	Hazardous Waste Management
ILO	International Labour Organisation
IRC	International Reference Centre
LatinNet	Latin-American Cleaner Production Network
LCA	Life Cycle Assessment
MDGs	Millennium Development Goal(s)
MEAs	Multilateral Environmental Agreement(s)
MVA	Manufacturing Value Added
NCPCs	National Cleaner Production Centre(s)
NCPPs	National Cleaner Production Programme(s)
OH&S	Occupational Health and Safety
PoI	Johannesburg Plan of Implementation

PREMA	Profitable Environmental MAnagement
PRISMA	Project Industrial Successes with Waste Prevention (The Netherlands)
REAP	Responsible Entrepreneur Achievement Programme (UNIDO)
SCP	Sustainable Consumption and Production
SDR	Sustainable Development Reporting
SECO	Swiss State Secretariat for Economic Affairs
SIRM	Sustainable Industrial Resource Management
TBL	Triple Bottom Line
TEST	Transfer of Environmentally Sound Technologies (UNIDO)
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environmental Programme
UNIDO	United Nations Industrial Development Organisation
USAID	United States Agency for International Development
USEPA	United States Environmental Protection Agency
WB	World Bank
WBCSD	World Business Council for Sustainable Development
WSSD	World Summit on Sustainable Development

Management Summary

Since 1994 UNIDO and UNEP cooperate specifically to establish and support National Cleaner Production Centres/Programmes (NCPCs/NCPPs) in developing countries and economies in transition. For ease of reference this initiative is throughout this evaluation referred to as the UNIDO-UNEP Cleaner Production (CP) Programme. In the absence of a programme document, strictly speaking, however, this is rather a collection of mostly national and some multi-country projects. Moreover, the roles and responsibilities of both agencies are in no way equal or comparable in terms of finances, management and organisational mandate. UNIDO administers the operation of institutionally funded NCPCs/NCPCs and has the majority of the total resources available for the total programme. UNEP provides strategic inputs, primarily through separately funded multi-country projects on emerging topics in Sustainable Consumption and Production (SCP) and also involves the NCPCs/NCPPs in its series of regional and global strategic dialogues.

In 2007, the Programme encompassed activities in 37 countries. UNIDO and UNEP view this CP Programme as a cornerstone of their activities to foster sustainable industrial development, and agreed to undertake with funding support from the Governments of Austria and Switzerland, this independent programme evaluation, "*to provide conclusive evidence with regard to the current status, the potential and the needs of the NCPCs and related initiatives. It will do this by carrying out an independent programme evaluation of the CP programme, leading to concrete recommendations with regard to the future strategy of the programme*".

The current *status* is best summarised as '*youth*' stage. NCPCs/NCPPs have been established and are reportedly undertaking CP and CP-related activities. There is a richness of experience and expertise, and reasonable progress has been made in putting CP on the agenda, delivering professional training and implementation in particular of low to medium technology options. There are pockets of excellent results, but also of poorer quality work, and the Programme has the potential to effectively capture and disseminate best practices through a strong partnership with the emerging network of CP support institutions.

The relevance of CP is on the rise, due to worsening industrial pollution, resource scarcity, globalisation and resulting market pressure and other factors, but the presence and significance of these trends varies largely between the host countries. Increased relevance can be expected to lead to higher awareness and demand from public and private sectors with regard to support for CP services. The remaining gap between the performance of industry in developing countries and global best practices is considerable which underlines the relevance and the potential of CP also from a technical perspective.

The biggest challenge for the Programme is to adapt to the changing interests and demands from governments and private sector. For this, the Programme urgently needs a consistent Strategy that is impact-focused, delivers and values excellence and takes due

account of the specific situation of host countries. The Strategy should drive the institutionalisation, positioning and profiling of NCPCs/NCPPs into nationally appropriate niches with customised service and capacity profiles. It should effectively promote the sharing of leading practices within a competence based network of CP support institutions, including qualifying NCPCs/NCPPs and other CP service providers not established through the UNIDO-UNEP CP Programme. The funding, management and governance models should then also be brought in line with the demands of a maturing Programme, including more programme and less project-by-project funding and a truly joint programme management by UNIDO and UNEP. NCPCs will demonstrate performance against the Programme's outcomes and impacts to continue their association with the Programme.

This vision of a strengthened and re-energised Programme has been further expanded in twelve sets of recommendations:

1. *Relevance*: the Programme should be continued to assist developing and transition economies to develop capacity to apply CP practices, technologies, methodologies and policies in support of their national socio-economic and environmental priorities;
2. *Impact:* the NCPCs/NCPPs should capitalise on their achievements and target their service delivery better to increase impact of their services on the uptake of CP practices, technologies and policies, in particular during the phase of support through UNIDO-UNEP and donors;
3. *Design and Strategy*: the Programme should be guided by a succinct programme document, with a clear strategy, a justification of the intervention logic and the specific roles and contributions from UNIDO, UNEP and local and international stakeholders;
4. *Focus (Contents):* the Programme should re-establish its primary focus on CP and articulate a dual strategy for its further development to enable *specialisation* (in policy and/or technology) and *diversification* (socially driven and/or environmentally driven) of NCPCs/NCPPs as they and their national stakeholders see fit in their respective national contexts;
5. *Networking:* the Programme should formulate a clear networking strategy with tangible and realistic outcomes, outputs and activities, which could be realised by supporting a membership based network that would be open to qualifying institutions, including NCPCs established by the UNIDO-UNEP CP Programme as well as eligible other CP service providers;
6. *Funding Model:* the Programme should adopt a dual funding model at Programme and national levels: (1) country-based block funding to support NCPCs in their establishment phase; and (2) programme funding for (i) competitive grants to multiple eligible NCPCs and possibly qualifying other CP service providers for project based specialisation and/or diversification; and (ii) networking initiatives;
7. *Centre Model:* the Programme should articulate institutional objectives and scenarios for a NCPC so that institutionalisation of the NCPC can be monitored and provisions be created to accommodate both the public interest and private benefit functions of the NCPC services over time;
8. *NCPC Services:* the Programme should support the NCPCs/NCPPs to undertake periodic assessments of the national status of CP, to define and review their strategic

niche with service portfolios that are most appropriate and effective in their respective national contexts;

9. *Management and Monitoring:* the Programme should adopt a results-based management model at Programme and national levels and develop a comprehensive system to monitor performance in capacity building, institutional development and results and impacts from CP service delivery. It should also monitor that agreed project structures, governance arrangements and contributions from host countries and institutions are being achieved.
10. *Administration:* the Programme management should streamline programme administration and shift to the extent feasible financial responsibility and accountability to the NCPCs/NCPPs and/or national stakeholders;
11. *Governance and Ownership:* the Programme and the NCPCs should adopt transparent and accountable governance structures at Programme and national levels, preferably with small boards with participation of private sector, government and civil society, that assume accountability for the success of the Programme and the NCPCs; and
12. *Excellence:* the Programme should establish a culture of experimentation and continuous improvement in CP service delivery. Sufficient programme funding should be made available for that purpose.

These main recommendations provide an integrated framework for developing and managing the UNIDO-UNEP CP Programme for growth and quality of the NCPCs/NCPPs and related CP initiatives. It is a broad agenda for change that will require stepwise implementation.

Executive Summary

The United Nations Industrial Development Organisation (UNIDO) and United Nations Environment Programme (UNEP) cooperate in the promotion of Cleaner Production, with funding support from various donors, at present in particular the Austrian Ministry of International and European Affairs and the Swiss State Secretariat for Economic Affairs. CP is a preventive environmental strategy that can be applied to processes, products and services to reduce environmental impacts and improve resource productivity.

Since 1994 UNIDO and UNEP cooperate specifically to establish and support National Cleaner Production Centres/Programmes (NCPCs/NCPPs) in developing countries and economies in transition. For ease of reference this initiative is throughout this evaluation report referred to as the UNIDO-UNEP CP Programme. In the absence of a programme document, strictly speaking, this is rather a collection of mostly national and some multi-country projects. Moreover, the roles and responsibilities of both agencies are in no way equal or comparable in terms of finances, management and organisational mandate. UNIDO administers the operation of institutionally funded NCPCs/NCPCs and has the majority of the total resources available for the total programme. UNEP provides strategic inputs, primarily through separately funded multi-country projects on emerging topics in Sustainable Consumption and Production (SCP) and also involves the NCPCs/NCPPs in its series of regional and global strategic dialogues.

In 2007, the Programme encompassed activities in 37 countries. UNIDO and UNEP view this CP Programme as a cornerstone of their activities to foster sustainable industrial development, and agreed to undertake with funding support from the Governments of Austria and Switzerland, this independent programme evaluation.

Scope and Methodology (Chapter 1)

This programme evaluation was initiated to document and asses the activities and results of the NCPCs/NCPPs established by UNIDO in cooperation with UNEP, taking the historic programme documentation as a reference point. It was also aimed to provide suggestions and recommendations for strengthening the global network of NCPCs/NCPPs, for improving service delivery in the host countries and for further catalysing sustainable industrial development in developing countries and economies in transition.

The evaluation considered six evaluation criteria, including four primary criteria that relate to the uptake of CP (respectively: relevance, effectiveness, efficiency and sustainability) and two secondary criteria that assess two important overall quality dimensions for development assistance initiatives (respectively: capacity development and ownership).

The evaluation is based on three information sources, respectively: review of programme and its management; self-evaluations of the 38 current NCPCs/NCPPs, and independent

country evaluations for 18 NCPCs[5]. The findings were considered in an integrated manner to: analyse the diversity in programme implementation at the national levels ('*portfolio analysis*'); assess the Programme against the evaluation criteria; and provide overall conclusions and recommendations.

The evaluation was executed between April and December 2007, by an international expert team, assisted by national consultants in the visited countries, operating under the guidance of a Steering Committee of UNIDO, UNEP and donor representatives. Interim results including draft conclusions and recommendations were presented for review to the 9th Annual Meeting of NCPC Directors, held in Semmering (Austria) on 24-26 September 2007. A comprehensive draft was released in January 2008. The report was then finalised in April 2008 taking into due consideration the comments and suggestions from UNIDO, UNEP and donor representatives.

Programme Review (Chapter 2)

The explicit and implicit objectives of the UNIDO-UNEP CP Programme were reviewed, and activities of UNIDO and UNEP to achieve those objectives were analysed.

It was found that the CP concept is well reflected in the Programme and that the original Programme was a coherent approach to building CP into an international cooperation initiative. The consistency and clarity of the Programme have diminished over time as a result of the repeated attempts to re-design and re-shape the Programme that were only partially incorporated into national project plans and lacked a clear vision and logical framework for the Programme as a whole. The NCPC model is largely successful, given its replication within and outside the Programme, and continued demand for the set up of new NCPCs. Cooperation between UNIDO and UNEP as well as networking among NCPCs/NCPPs have not yet been designed into the Programme. There is also no strategy to deal with NCPCs that are no longer funded through the UNIDO-UNEP CP Programme.

The Programme started with a programmatic approach which included a generic cooperation agreement between UNIDO and UNEP, a programme document for establishing NCPCs in five countries and a competence based application process for establishing these first NCPCs. Over time this weakened considerably in favour of management of individual CP projects (predominantly to set up or support one, or several co-located, NCPC(s)) with little steering and monitoring at programme level. The approach has been successful in establishing NCPCs/NCPPs. It limited however the potential to learn from past and parallel experience within the Programme to improve quality and effectiveness of CP interventions (including projects not exclusively related to NCPCs) and build and exercise professional and thematic leadership in CP.

The Programme has used a select group of CP service providers to act as International Reference Centres (IRCs) to the NCPCs/NCPPs. This has been beneficial for fostering

[5] Country reports will be made available by UNIDO Evaluation Group upon request.

coherence in programme implementation among recipient countries, and the use of more experienced NCPCs as IRCs for newly established NCPCs/NCPPs is being applauded. With the maturing of the Programme, more attention is needed to expose NCPCs/NCPPs to different methods and practices for CP service delivery, and thereby enable NCPCs/NCPCs to develop methods and practices that are most suited to the local circumstances in their home countries.

The limited internal (within UNIDO) and external (inter-agency) cooperation presents a barrier for wider impact at programme level. These shortcomings were in part outside the control of the CP Programme due to systemic constraints within the UNIDO management and administrative systems, leading to a project-by-project approach and a general lack of programme-based funding.

Self Evaluation (Chapter 3)

The self evaluation was undertaken to obtain comparable baseline information on the operation, management and activities of all NCPCs/NCPPs directly from the Directors in charge of running these on a daily basis. It was executed by means of two surveys, one on operational, institutional and managerial aspects of the NCPC (completed by 36 NCPCs/NCPPs, i.e. response rate 95%) and one on emerging topics and tools and available resource materials within the UNIDO-UNEP CP Programme (completed by 23 NCPCs/NCPPs, i.e. response rate of 61%).

The majority of NCPCs/NCPPs operates with limited independence, either as subsidiary of their host organisation (formally or informally as an administratively and financially isolated activity area) or otherwise semi-autonomously, with only some 30% being fully independent. They therefore typically assume the legal status of their host institutions, which in about half of the countries is a public sector entity and in some 10% of the countries a private sector institution. About 30% of the NCPCs/NCPPs describe their legal status as unresolved.

Just over 80% of the responding NCPCs/NCPPs reported to have received some institutional funding through the UNIDO-UNEP CP Programme, most often for 3 to 4 years, even though several centres have been funded for much longer. The accumulated funding amounts reported by the Directors vary widely (70-fold), with an average of some USD 863,000 per country. Reported annual budgets for the NCPC/NCPP vary between USD 50,000 and USD 3,600,000, with an average (excluding the lowest and highest outlying values) of USD 463,000. The average percentage contribution to the operating budget of all NCPCs/NCPPs is 28% from UNIDO-UNEP CP Programme, 26% from private sector, 23% from other donor programmes, and 18% from national governments. The average staff strength (upon exclusion of the outlying lower and higher values) is 11.3 full time equivalent, comprising 1.9 in management, 6.9 at professional level and 2.5 at administrative and support levels.

The activity information confirmed that three of the Programme's key CP services are provided by at least 80% of the NCPCs/NCPPs, respectively: information dissemination,

training and CP assessments (and/or in plant demonstrations). The two other service areas (policy advice and technology transfer) are delivered by about half of the NCPCs/NCPPs. About one third of the NCPCs/NCPPs delivers other services, most commonly related to Occupational Health and Safety (OH&S), Environmental Impact Assessment (EIA), Life Cycle Assessment (LCA) and/or Design for Environment/Sustainability (DfE/D4S). There is general agreement for the potential for service delivery in some CP-related fields, in particular OH&S, Energy Efficiency and Renewable Energy (EERE), Hazardous Waste Management (HWM), Environmental Management Systems (EMS) and Environmental Technology Assessment (EnTA). About three quarters of the NCPCs/NCPPs claims to have expertise in these areas, except for OH&S. In regard to key Multilateral Environmental Agreements (MEAs), with the exception of the Marrakech process on Sustainable Consumption and Production (SCP), reported expertise and involvement is relatively low and patchy among the NCPCs/NCPPs.

The Directors also self-assessed their NCPC/NCPP against five of the evaluation criteria, respectively: relevance, effectiveness, efficiency, sustainability and ownership (see Table S1). The responses indicated a high level of confidence from the Directors that their NCPC/NCPP performs well. The self-assessment is most optimistic about relevance and effectiveness, rated '*high*' by respectively 67% and 61% of the respondents. The self-assessment is also good for efficiency, rated '*high*' and '*medium*' by respectively 50% and 25% of the respondents. It would appear that there is some more doubt about performance on sustainability and ownership, with the '*high*' scores for self assessments falling to 39% and 28% of respondents and '*medium*' ratings increasing to respectively 36% and 39%.

Table S1: Self assessment against evaluation criteria (36 responses)

Evaluation Criteria	**Self Assessment Rating**									
	High		**Medium**		**Low**		**Unknown or No Response**		**Total**	
1. Relevance	24	67%	7	19%	1	3%	4	11%	36	100%
2. Effectiveness	22	61%	8	22%	0	0%	6	17%	36	100%
3. Efficiency	18	50%	9	25%	2	6%	7	19%	36	100%
4. Sustainability	14	39%	13	36%	3	8%	6	17%	36	100%
5. Ownership	10	28%	14	39%	8	22%	4	11%	36	100%

Independent Country Evaluations (Chapter 4)

Independent evaluation missions were undertaken to obtain first hand information from the Director and staff of the NCPC, members of its board, national government agencies, industry associations and clients of NCPC services.

The countries were selected with a view to achieve maximum diversity among countries to be evaluated in detail, in regard to location, donor for and maturity of the NCPC and size/structure of the national economy. The final sample was endorsed by the Steering Committee and included 18 countries, respectively China, Columbia, Costa Rica, Croatia, Egypt, El Salvador, Guatemala, India, Kenya, Mexico, Morocco, Mozambique,

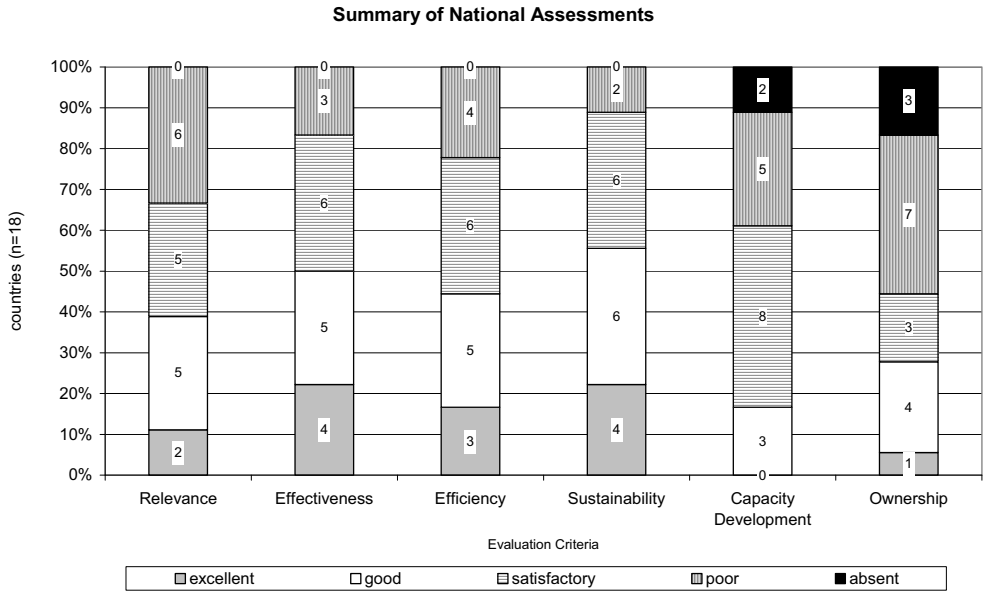
Nicaragua, Peru, South Africa, Sri Lanka, Uzbekistan and Vietnam. Even though the results from these 18 countries are considered *illustrative* for the status of the Programme, they are *not representative* for the entire Programme due to non-randomised country selection and potential differences in the interpretation of data and judgements by individual evaluators.

For the visited countries, the activities of Programme management and NCPCs were reviewed, including the establishment and operational stages and the participation of the NCPCs in the global Programme. It was found that the establishment stages have been dominated by the fund raising, leading to minimalist approaches to project justification and feasibility analysis. It was also found that in the operational stages there were shortcomings in regard to transparency and accountability of governance (in particular to national stakeholders) and professionalisation of service delivery of the NCPCs/NCPPs across all their service areas. Moreover, there is no provision for ongoing interaction with NCPCs that are no longer institutionally funded through the Programme. The NCPCs/NCPPs and their national stakeholders remain loyal to the Programme, but there is a strongly felt need to streamline Programme administration and to increase the availability and intensity of networking opportunities within the Programme.

The national results in regard to the five core service areas were also analysed. Schemes were established to classify and compare results between countries. In over 75% of the visited countries outputs were substantive for three service areas (information dissemination technology transfer and CP assessments). This was markedly lower for policy advice (some 60% of countries) and training (some 50% of countries). Generally achievements in terms of outcomes are less substantive and data availability in regard to outcomes and particularly impacts is very limited. In spite of that, there is typically reasonable ground to confirm some positive outcomes, which in turn is a weak leading indicator for impact. There is however not always a causal link between level of output and level of outcomes, as outcomes have in some countries been achieved through non-NCPC activities.

The 18 visited NCPCs were also assessed on the six evaluation criteria by the independent evaluators. Figure S1 shows the frequency distributions of all countries. The distributions are quite similar for the

Figure S1: Summary of results of national level evaluation on programme level evaluation criteria



four primary evaluation criteria. The highest score is achieved for sustainability, closely followed by effectiveness, efficiency and relevance. For each of these criteria 39% to 56% of the NCPCs achieved a score in either of the two highest assessment categories (*'excellent'* or '*good*'). The evaluation on the secondary criteria is markedly weaker, as just 16% and 28% of the visited countries, respectively on capacity development and ownership, attained either of two highest assessment categories.

Portfolio Analysis (Chapter 5)

The portfolio analysis reviewed similarities and differences in the establishment and operation of NCPCs/NCPPs to gain a better understanding of the current richness and diversity in the CP Programme and identify possible avenues to bolster these as the Programme develops further. The current diversities at the national level are a result of *internal* factors (those controlled or at least to a considerable degree controllable by the Programme, including centre-, project- and programme-factors) and *external* factors (those that are not under the control of the Programme but that the Programme can adapt to, including state of environment and the economy and status of knowledge). The portfolio analysis was complemented with suggestions for further development of concept, methods, tools and institutional arrangements for the Programme which illustrate how the findings of the analysis shed new light on the design, strategy, management and administration of the Programme.

At the Centre level the portfolio analysis found that even though some kind of governance structures exist for most NCPCs/NCPPs, considerable scope exists for better governance to improve transparency and accountability of decision making, in particular to national stakeholders, equally from the private and public sectors.

The UNIDO-UNEP CP Programme has over time expanded its scope to include new topics and tools, but a major weakness remains that these have essentially been '*added on*' instead of '*integrated into*' the key service areas and core CP concepts. It is being suggested that a distinction be made in *'specialisation'* (improving the rigour and depth of service delivery related to CP implementation, for policy and/or technology) and *'diversification'* (introducing services pertaining to topics related to CP, for CSR and/or SCP). NCPCs will also have to adapt, and some have started doing so, to the fact that other national institutions have considerable CP capacities, so that the traditional CP services may no longer be appropriate and/or sufficient. It is being suggested to differentiate in service tiers, respectively: audit and training services (Tier 1); technology and policy development services (Tier 2); and networking services (Tier 3). Each NCPC can develop its own niche, in regard to the balance of its capabilities among core, specialised and diversified CP topics, as well as balance between Tier 1, Tier 2 and Tier 3 services.

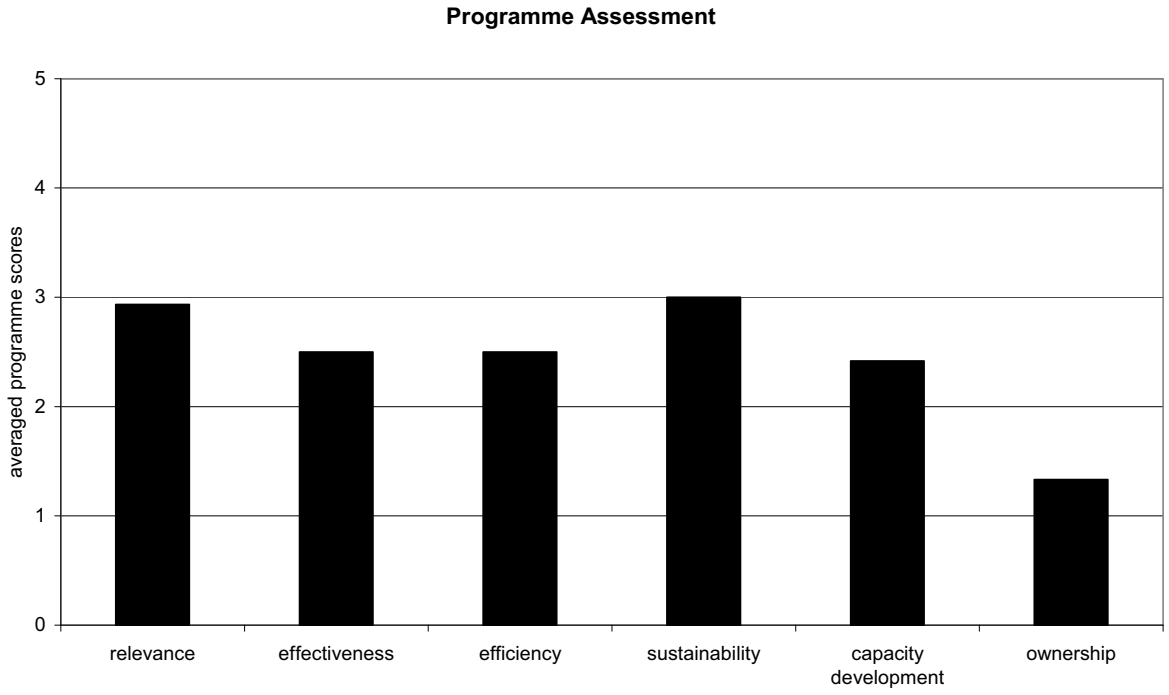
The portfolio analysis found relatively minor differences among NCPCs/NCPPs in regard to information dissemination and training, even though there remains a need for developing strategies to maximise the impact of these services, including through the adoption of best professional practices. The approaches to service delivery in the other three core services are quite different between the NCPCs/NCPPs. In regard to CP assessments standardisation and professionalism within each NCPC/NCPP deserve improvement whilst there is also potential to improve service delivery through concepts and methods that are customised to national circumstances. For policy advice, the degree of pro-activeness of NCPCs/NCPPs differs quite substantially. Overall there is an opportunity to expand the scope of policy advice beyond the traditional environmental policy domain, to cover economic and technology domains. Only some NCPCs have substantial experience in developing and delivering technology transfer services. It is suggested that current leading insights in EST transfer are used to develop a balanced and integrated set of programme activities on EST transfer within the UNIDO-UNEP CP Programme.

As NCPCs/NCPPs find their strategic niches in their respective national contexts the UNIDO-UNEP CP Programme will change qualitatively. This can be fostered by supportive changes in funding and network management. The funding basis could be split between block funding (for specific countries for establishment of a NCPC) and competitive grant funding (for eligible NCPC to develop and deliver specific activities or services), with the balance between the two shifting towards competitive grants over the life-time of each NCPC. The network could be managed as a membership-based association of CP service providers, with different membership categories having to meet different membership criteria and having different rights and obligations, including the ability to benefit from services and funding through the UNIDO-UNEP CP Programme.

Programme Assessment (Chapter 6)

The Programme as a whole has been assessed by the international evaluation team on all six evaluation criteria, using itemised scorecards based on the various programme documents. The assessments itself are based on the three main sources of information (programme review, self evaluation and independent country evaluations). The overall result is presented in Figure S2. The variation in the averaged programme level assessment scores for the six evaluation criteria is relatively limited. Sustainability and relevance have the highest scores (respectively 3.0 and 2.9), followed by effectiveness, efficiency and capacity building (respectively 2.5, 2.5 and 2.4), and then followed by ownership (score of 1.3). Figure S2 shows that the programme assessments are in the range of being satisfactory. Given the high ambitions, complexity and scope of the UNIDO-UNEP CP Programme this should be regarded as a good assessment result.

Figure S2: Averaged programme-level assessment for all evaluation criteria
Programme Scores: 1 = unsatisfactory, 2 = low, 3 = satisfactory, 4 = good and 5 = excellent



This programme assessment is underpinned by the following key findings.

1. CP is of continued and rising relevance.

CP is generally considered relevant by government, private sector and other stakeholders in host countries for the UNIDO-UNEP CP Programme. Several current global trends cause the relevance of CP to rise, but the presence and significance of these trends varies greatly between the host countries.

2. ***The UNIDO-UNEP CP programme has produced valuable outputs and outcomes in all 18 countries visited for an independent evaluation.***

Its principal achievement has been in putting CP on the agenda of government and business, building capacity for CP, development of information materials, implementation of good housekeeping and low/intermediate technology options in selected companies and policy change in some countries.

3. The potential of the CP Programme has not been fully exploited.

The country visits demonstrated that each NCPC is unique in its institutional setting, activities and achievements, with considerable differences from the *'idealised'* NCPC as being portrayed by the UNIDO-UNEP CP Programme and advocated by its management. The Programme has not yet demonstrated flexibility to sufficiently adapt its support to the specific needs and activities of the different countries and to enable different types of NCPCs to fulfil niche roles that are most appropriate and effective in their specific national contexts. The absence of programme-based funding has contributed to a scattered approach to networking and learning, with limited opportunities for capturing and advancing best practices and for strengthening and managing the network.

4. ***Design and strategy of the CP Programme have major shortcomings****.*

There is no over-arching programme document. The overall objectives of the UNIDO-UNEP CP Programme are therefore not always explicit causing stakeholders' expectations of the Programme to vary. A logical means-end relationship between the overall objectives, impacts, outcomes and outputs, and activities of the Programme has not been established, which has led to a rather standardised approach for the introduction of CP on a project-by-project basis and to a lack of demand-based models for national implementation of the Programme that customise to the unique national institutional set up and capability portfolios of each of the Centres.

5. ***Weak monitoring and reporting limits adaptive and effective programme management.***

Monitoring of outcomes and impacts is generally insufficient to allow reporting of Programme achievements against Programme objectives. This hinders adaptive management and continuous improvements in service delivery, at national and programme levels.

6. ***The 'win-win' premise of CP is true only under specific circumstances.***

The *'win-win'* premise on which the UNIDO-UNEP CP Programme is largely based is not universally achievable in the host countries. The continued reference to this premise has created expectations among national stakeholders that cannot be met and in turn weakened their buy-in into the Programme.

7. ***The UNIDO-UNEP CP Programme was not very successful in EST Transfer***

Some CP technology investments have been facilitated through the Programme, often by utilising available green credit lines and/or deployment of local engineering design and fabrication capacities. Overall however the Programme has made little headway in

transferring ESTs, neither through the regular activities of the NCPCs nor through specific CP technology transfer initiatives.

8. ***Creation of NCPCs/NCPCs is an appropriate way for capacity building in CP but attention for their institutionalisation has been limited.***

The UNIDO-UNEP CP Programme has defined NCPCs by their portfolio of standardised CP services. The institutional dimension of the NCPCs (e.g. the NCPC's role vis-à-vis other types of institutions, the NCPC's role in the national innovation system) has therefore not been sufficiently considered in many cases.

9. ***The potential for cooperation with other initiatives has not been exploited.***

The evaluation found only limited evidence of ongoing collaborations within the UN agencies, with other UN Agencies, with donors other than the '*current*' UNIDO CP Programme donors, and with other initiatives in the field of industry, environment and sustainability. Given the multitude of such initiatives, there is an unexploited potential to leverage expertise and resources at the programme and national levels.

10. ***The valuable contribution of the programme to national capacity building is not sufficiently communicated****.*

UNIDO, UNEP and Donors have a tendency to present NCPCs as '*their'* institutions, despite of their national ownership and governance structures, substantially different activity portfolios and funding models. This ignores the fact that many NCPCs do no longer have a close relationship with the CP Programme and does not reflect the role of the Programme in building up and supporting national capacities and ownership.

11. ***There is a trade-off between financial independence and sustained impact****.*

The evaluation showed that the sustainability of the Programme's achievements in building CP capacity, implementing CP in companies and CP-promoting policies is generally high. It is however noted that the priority assigned to financial sustainability (or rather independence) of the NCPC as a national institution (largely through income from services) can become counterproductive to achieving sustained effects and impacts as measured by the Programme's objectives.

Conclusions and Recommendations (Chapter 7)

The evaluation team found that relevance and sustainability of the UNIDO-UNEP CP Programme are good, with scope for improvement particularly for effectiveness and efficiency, which could result in better targeted, customised and streamlined interventions at the national level, which in turn could further bolster relevance and sustainability, as well capacity development and ownership. The conclusions and recommendations are organised in twelve clusters, respectively: relevance; impact; design and strategy; focus; networking; funding model; centre model; NCPC services; management and monitoring; administration; governance and ownership; and excellence. The main recommendations of these clusters provide an integrated framework for developing and managing the UNIDO-UNEP CP Programme for growth, impact and maturity of the NCPCs/NCPPs. The twelve clusters with their main conclusion and overarching recommendation are

provided in Table S2. Detailed supportive conclusions and recommendations are provided for each cluster (see Section 7.2).

Table S2: Overview of main conclusions and overarching recommendations

Cluster	Main Conclusion	Overarching Recommendation
1. Relevance	CP is relevant and its relevance is on the rise due to worsening industrial pollution, resource scarcity, entering into force of MEAs, trade liberalisation and globalisation, buyer pressure and greater government and community awareness.	The CP Programme should be continued to assist developing and transition economies to develop capacity to apply CP practices, technologies, methodologies and policies in support of their national socio-economic and environmental priorities.
2. Impact	The Programme was successful in establishing CP initiatives in each host country and all were reported to be active. For the visited countries it could be confirmed that the NCPC had produced valuable outputs and outcomes in particular with regard to awareness raising, training, implementation of low and intermediate technology CP options and, in some countries, policy change.	The NCPCs/NCPPs should capitalise on their achievements and target their service delivery better to increase impact of their services on the uptake of CP practices, technologies and policies, in particular during the phase of support through UNIDO-UNEP and donors.
3. Design & Strategy	There is no programme document covering the overall objectives, the strategy and intervention logic and the different expected contributions from UNIDO, UNEP and local stakeholders. Existing strategy documents are not useful for Programme management.	The Programme should be guided by a succinct programme document, with a clear strategy, a justification of the intervention logic and the specific roles and contributions from UNIDO, UNEP and local and international stakeholders.
4. Focus (Contents)	The expansion of the scope of the CP concept that has gradually occurred in the Programme over time catalysed by interests of the donors and the UN agencies, is not widely understood by all programme stakeholders and lacks widespread endorsement by the NCPCs/NCPPs and their national stakeholders.	The Programme should re-establish its primary focus on CP and articulate a dual strategy for its further development to enable *specialisation* (in policy and/or technology) and *diversification* (socially driven and/or environmentally driven) of NCPCs/NCPPs as they and their national stakeholders see fit in their respective national contexts.

Cluster	Main Conclusion	Overarching Recommendation
5. Networking	The Programme has not formulated a distinct strategy with tangible objectives, outcomes and outputs for networking among NCPCs and the resource needs for its facilitation and technical support through the UNIDO-UNEP Programme management have not been identified.	The Programme should formulate a clear networking strategy with tangible and realistic outcomes, outputs and activities, which could be realised by supporting a membership based network that would be open to qualifying institutions, including NCPCs established by the UNIDO-UNEP CP Programme as well as eligible other CP service providers
6. Funding Model	The predominant model for funding of the Programme as a collection of country projects has hindered effective networking and constrained the Programme in developing and delivering specialist services on a multi-country basis.	The Programme should adopt a dual funding model at Programme and national levels: (1) country-based block funding to support NCPCs in their establishment phase; and (2) programme funding for (i) competitive grants to multiple eligible NCPCs and possibly qualifying other CP service providers for project based specialisation and/or diversification; and (ii) networking initiatives.
7. Centre Model	The capacity building model through NCPCs/NCPCs is relevant, even though the Programme defines NCPCs by their service categories without providing clear institutional perspective(s) for the NCPC, both during and beyond their phase of institutional funding through the UNIDO-UNEP CP Programme.	The Programme should articulate institutional objectives and scenarios for a NCPC so that institutionalisation of the NCPC can be monitored and provisions be created to accommodate both the public interest and private benefit functions of the NCPC services over time.
8. NCPC Services	The Programme has outlived its initial design of services which was based on a standard package of NCPC services to be delivered through one single national centre, as countries that have built CP capacity in different institutions require more tailor made NCPC services.	The Programme should support the NCPCs/NCPPs to undertake periodic assessments of the national status of CP, to define and review their strategic niche with service portfolios that are most appropriate and effective in their respective national contexts.

Cluster	Main Conclusion	Overarching Recommendation
9. Management & Monitoring	Reporting on Programme achievements is generally insufficient to assess outcomes and impacts against Programme objectives which prevents adaptive management and continuous improvement of the Programme's performance.	The Programme should adopt a results--based management model at Programme and national levels and develop a comprehensive system to monitor performance in capacity building, institutional development and results and impacts from CP service delivery. It should also monitor that agreed project structures, governance arrangements and contributions from host countries and institutions are being achieved.
10. Administration	The UNIDO CP Unit and NCPCs/NCPPs have ultimately been able to meet administrative requirements, including financial administration and contracts' management and disbursement of funds, but repeatedly not in a timely manner.	The Programme management should streamline programme administration and shift to the extent feasible financial responsibility and accountability to the NCPCs/NCPPs and/or national stakeholders.
11. Governance & Ownership	The Programme has not established a transparent and accountable governance structure for gathering feed back from stakeholders, beneficiaries and NCPCs into its strategic planning and ensuring adequate oversight over implementation of the Programme. The governance of NCPCs is of varying effectiveness, accountability and transparency.	The Programme and the NCPCs should adopt transparent and accountable governance structures at Programme and national levels, preferably with small boards with participation of private sector, government and civil society, that assume accountability for the success of the Programme and the NCPCs.
12. Excellence	Despite its ambition for excellence, thematic leadership in the Programme management is weak, as well as its incentives and opportunities for realising continuous improvements in development, adaptation and replication of CP services and initiatives.	The Programme should establish a culture of experimentation and continuous improvement in CP service delivery. Sufficient programme funding should be made available for that purpose.

The output of this evaluation study is a sound evidence basis on the status, potential and needs of the NCPCs/NCPPs as well as practical recommendations and suggestions for improving the Programme. It is hoped that the planned outcome will now also be forth-coming, namely: *"UNIDO management, UNEP management, donors and other stakeholders will use the conclusions and recommendations of the evaluation to elaborate an evidence-based, comprehensive strategy for future assistance to and cooperation with Cleaner Production Centres and Programmes and related initiatives and institutions"*. It

is understood that the scope of recommendations is broad and that implementation of recommendations should therefore be undertaken step-by-step.

1 Introduction

1.1 Cleaner Production

The United Nations Environment Programme (UNEP) coined the term Cleaner Production (CP) at its first International Expert Group Meeting on Preventive Environmental Strategies in Canterbury in the United Kingdom in 1990. The meeting coincided with demonstration, research and policy projects on preventive environmental management strategies (e.g. [1-4]), the emergence of a network of national pollution prevention programmes (www.p2.org) and the launch of federal and state Pollution Prevention and Toxic Use Reduction legislation in the USA (e.g. [3, 5, 6]) and the completion of the first set of waste prevention demonstration projects in Europe (e.g. [7, 8]).

The scope of CP has been subject of much debate in particular in the early 1990s, with a consolidation by about 1994 into a consensus definition that has since been widely used within the United Nations System (including United Nations Industrial Development Organisation (UNIDO)), intergovernmental banks (e.g. World Bank (WB) and Asian Development Bank (ADB)) and national governments in different parts of the world. The definition states:

> *"Cleaner Production is the continuous application of an integrated environmental strategy to processes, products and services to increase efficiency and reduce risks to humans and the environment" [9].*

A number of related terms exists that for practical purposes can be considered as essentially equivalents for CP. Table 1.1 provides some examples. The overlap with Eco-Efficiency (EE) is greatest. Championed by the World Business Council for Sustainable Development (WBCSD), Eco-Efficiency is best characterised as '*doing more with less'*, that is using materials, energy and other natural resources more efficiently for the delivery of more valuable goods and services. In a similar vein, CP can then be characterised as '*turning waste to profit'*, that is eliminating waste and pollutants at source to reduce environmental impacts [10]. CP can notionally be measured with a ratio of units of pollution or resource use per unit of production (or Manufacturing Value Added, MVA). EE can be measured by the inverse ratio of units of production per unit of pollution and/or resource use [11]

Table 1.1: Examples of CP-related terminology

Term	Definition
Eco-Efficiency	The delivery of competitively priced goods and services that satisfy human needs and bring quality of life, while progressively reducing ecological impacts and resource intensity throughout the life-cycle, to a level at least in line with the earth's estimated carrying capacity [12]
Green Productivity	A broad strategy for enhancing productivity and environmental performance and leading to positive change in socio-economic development [13]
Pollution Prevention	Reducing or eliminating waste at the source by modifying production processes, promoting the use of non-toxic or less-toxic substances, implementing conservation techniques, and re-using materials rather than putting them into the waste stream [6]
Waste Minimisation	Application of a systematic approach to reducing the generation of waste at source…. It is about optimising all areas of the business to be more resource efficient and thus prevent, or at least minimise, the production of waste [14]

CP combines technological and organisational dimensions. There is a tendency to view the technological part or the cleaner process technologies (i.e. production technologies that are inherently less resource intensive or less wasteful) as a subset of Environmentally Sound Technologies (ESTs). EST refers to a set of technologies that is applied to deliver environmental benefits. Chapter 34 of Agenda 21 provides a basic definition [15]:

> *"ESTs protect the environment, are less polluting, use all resources in a more sustainable manner, recycle more of their wastes and products, and handle residual wastes in a more acceptable manner than the technologies for which they were substitutes (34.1)"*

ESTs include other subsets for example end-of-pipe (or clean-up) technologies, renewable energy technologies, etc. Even though these are supportive of achieving CP outcomes, they are not commonly understood as being part of core CP.

CP is strongly embedded in international environmental and sustainable development policies and strategies.

- Chapter 30 of Agenda 21 [15] calls upon national governments, industry and international organisations to collaborate on the dissemination and implementation of CP technologies and practices (http://www.un.org/esa/sustdev/documents/agenda21/english/agenda21chapter30.htm).

- CP is well aligned with the Millennium Development Goals (MDG), in particular MDG 7 (ensuring environmental sustainability) (http://www.un.org/millenniumgoals/). Implementation of CP can, on a case by case basis, also contribute to other MDGs, in particular MDG 1 (reducing poverty, for example when CP enhances productivity leading to more jobs, or reduction of environmental health burden on the poor), MDG 3 (promote gender equality and empower women, for example when CP empowers working women and improves their work environment) and MDG 8 (developing a global partnership for development, for example where government, private sector and community collaborate on CP to foster development).

- CP is also supportive of the Global Compact, in particular for the environmental principles, respectively: business should support a precautionary approach to environmental challenges (principle 7); business should undertake initiatives to promote greater environmental responsibility (principle 8) and business should encourage the development and diffusion of environmentally friendly technologies (principle 9) (http://www.unglobalcompact.org/AboutTheGC/TheTenPrinciples/environment.html)

.

- The Johannesburg Plan of Implementation (PoI) [16] provides the most recent endorsement for CP. Chapter 3 positions CP in the framework of "*changing unsustainable patterns of consumption and production*". Paragraph 15 calls to "*increase in investment in cleaner production and eco-efficiency in all countries, through inter alia, incentives and support schemes and policies directed at establishing appropriate regulatory, financial and legal frameworks. This would include actions at all levels to establish and support cleaner production programmes and centres and more efficient production methods by providing, inter alia, incentives and capacity building to assist enterprises, especially small and medium sized enterprises and particularly in developing countries, in improving productivity and sustainable development"* (3.15) (http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POIChapter3.htm).

The Johannesburg World Summit on Sustainable Development (WSSD) has markedly expanded the mandate of UNEP from CP into Sustainable Consumption and Production (SCP). Within the United Nations System, UNEP is the custodian of the global effort to "*develop 10 year frameworks of programmes in support of national initiatives to accelerate the shift towards sustainable consumption and production to promote social and economic development within the carrying capacity of ecosystems by addressing and, where appropriate, delinking economic growth and environmental degradation through improving efficiency and sustainability in the use of resources and production processes, and reducing resource degradation, pollution and waste"* (paragraph 14, chapter 3) (http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POIChapter3.htm). This effort on 10 year framework programmes is commonly referred to as the '*Marrakech process*'.

Considerable effort has been devoted to develop a further understanding of SCP in local and regional context. A recent summary states that [17]: "*Changing consumption and production patterns towards more sustainable ones means improving:*

- *The technologies (or in some cases adopting the local indigenous knowledge) and processes involved in the productive activities;*
- *The way basic services are provided, managed and distributed to the population;*
- *The way communication and information are provided; and*
- *The way consumers purchase"*

Whilst CP continues to be an important building block for SCP, UNEP has developed complimentary SCP activities, including energy efficiency (both industrial (typically part of CP) and non-industrial (e.g. buildings, not typically part of CP)), Multilateral Environmental Agreements (MEAs), sustainable procurement, sustainable consumption, Design for Sustainability (D4S) and Global Compact (GC).

1.2 Cleaner Production Programme

As summarised in section 1.1 the United Nations Conference on Environment and Development (UNCED) in Rio in 1992 had provided in Agenda 21 [15] a clear mandate to the international community to support developing countries and economies in transition with capacity building and implementation of CP. UNIDO and UNEP had already started to collaborate on specific projects, for example on a collaborative CP audit manual [18], and then both launched in 1993 a comparable CP demonstration project [19], respectively in India (UNIDO) [20] and China (UNEP with funding support from the World Bank). Despite a number of differences, both projects were essentially modelled on the Dutch PRISMA Project [7], and combined in-plant demonstrations, with the development of manuals and policy analysis, and capacity building. Simultaneously, several other donors funded bilaterally programmes on CP or related topics in developing countries, for example the Environmental Pollution Prevention Programme (EP3) in about a dozen countries (see [21] for a summary of key pioneering initiatives on CP in developing and transition economies). The UNIDO and UNEP projects in India and China were successful in demonstrating the potential for CP implementation in local industries, and identified the need for some ongoing platform at the national level for fostering CP uptake. Hence the notion of National Cleaner Production Centres (NCPC) was conceived, which some resemblance to the Pollution Prevention Programmes in the USA and CP-related centres in Europe.

The core idea was that NCPCs would be created within national host institutions, to establish an entity that provides four types of CP services:

1. *CP assessments/in-plant demonstrations*: technical assistance provision to companies and other organisations for the identification, evaluation and implementation of CP opportunities;

2. *Information dissemination and awareness raising*: development and distribution of promotional materials and delivery of awareness sessions or workshops to put CP nationally on the agenda of government and the private sector;

3. *Training:* delivery of training programmes to establish a cadre of CP professionals who could assist businesses and other organisations with CP implementation; and

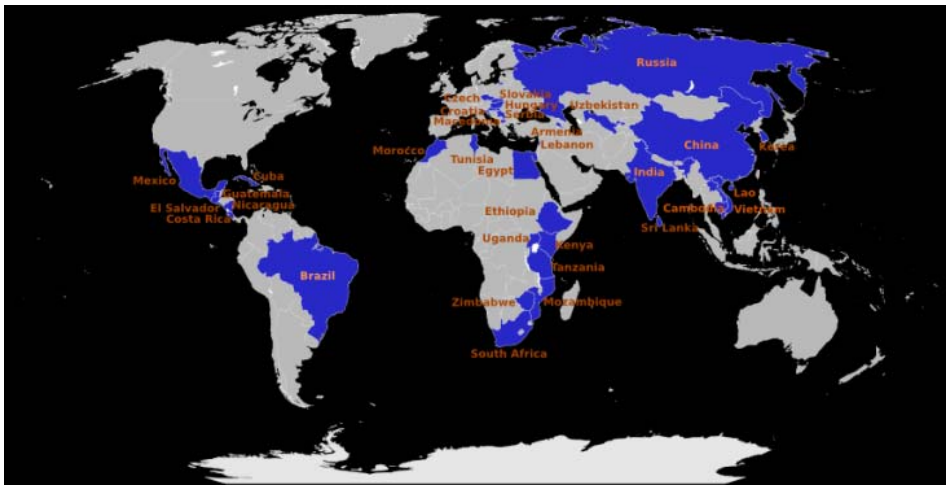
4. *Policy advice*: liaison with government and other key stakeholders to identify ways to create a policy environment more conducive to CP.

In this initial set up the NCPC was perceived as an entity that could on an ongoing basis '*deliver CP demonstration projects*' in a manner that UNIDO and UNEP had just gained experience with respectively in India and China. A *'lean'* implementation model was adopted where NCPCs would get some funding support to fund a Director and some project activities, for a limited period of 3 to 5 years. The local host institution would then provide in kind support, in principle through a Deputy Director and access to facilities and services of the host institution. It was expected that such lean model would have more chance to be locally sustainable in the longer run. Upon initial training, it was expected that the NCPC would launch activities on its own, under the guidance and direction of an International Reference Centre ((IRC) the term counterpart institution was initially used) with would essentially '*twin'* with a NCPC.

The Government of The Netherlands provided seed money to kick start the Programme, and with further funding support from UNEP, Denmark and Austria the first NCPCs were established in late 1994 in China, India, Tanzania, Zimbabwe, Mexico, Brazil (self funded), Czech Republic and Slovakia. A second generation of NCPCs was established from 1998 onward when the Governments of Switzerland and Austria provided funding to set up NCPCs in Central America. A fifth core service area was added, namely support for the identification, evaluation and transfer of ESTs. While some of UNIDO's activities in regard to EST transfer were from then on channelled through the UNIDO-UNEP CP Programme, other EST initiatives were undertaken in isolation from this Programme (for example the programmes on EST transfer for environmental remediation of the Danube River and the Black Sea).

From 1998 onward the programme gradually expanded and now has activities in some 35 countries. About half of these (still) receive institutional funding through the UNIDO-UNEP CP Programme, while the other half is strictly speaking independent from the Programme, even though they may still be involved on a project basis. Figure 1.1 shows the map of the geographical scope of the Programme in 2007.

Figure 1.1: Map of project locations in the UNIDO-UNEP CP Programme (http://www.unido.org/doc/4450)

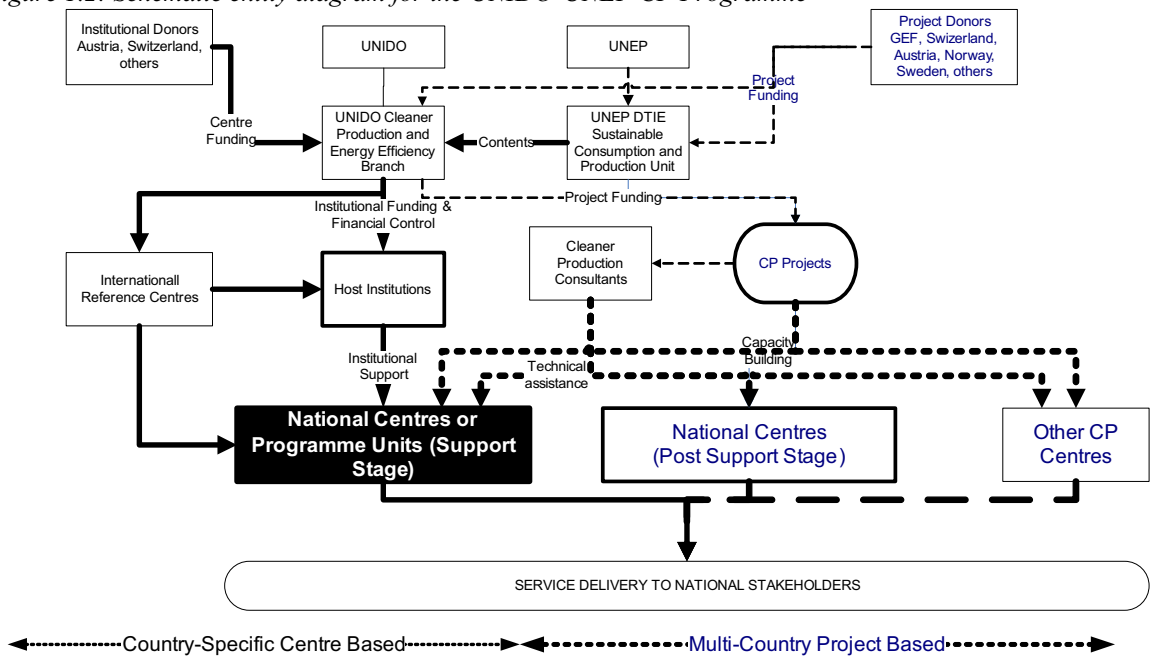


Though initially the management and programming of the activities for the NCPCs was shared between UNIDO and UNEP, this changed by the late 1990's as a result of multiple changes in project staff, organisational support and organisational priorities within both agencies. In the following period, UNEP had relatively little input to the development of NCPCs and the overall strategic direction. UNEP worked on specific projects with selected centres, for example with regard to energy efficiency and product design. UNIDO maintained control over the institutional funding for establishment and operation of NCPCs, and therefore controlled the bulk of the finances available to the Programme and also providing a greater management contribution. Even though this programme evaluation uses the term joint UNIDO-UNEP CP Programme this in no way implies that both organisations have had, and/or will continue to have an equal role in programming, management and administration of the programme.

Programme implementation is therefore currently achieved through multiple project agreements, mostly on a one-on-one basis for a given period (initially three years) with a donor and host country. In addition some multiple country projects have been implemented, many of these under the auspices of UNEP (for example projects funded by the Global Environment Fund (GEF) on '*Energy Efficiency through Cleaner Production and Environmental Management Systems*' (EECPEMS) and CP in Multilateral Environmental Agreements (MEAs), multi-country projects funded by the Government of Sweden on CP in Asia Pacific (including Greenhouse Emissions Reduction in Industries in Asia Pacific (GERIAP), and a multi-country project funded by the Government of Norway on CP financing). The UNIDO-UNEP CP Programme is thus in principle a theoretical notion as there is no current, overarching programme strategy and implementation agreement between UNIDO and UNEP. Most recently however there is a genuine commitment at the highest levels in both organisations to strengthen coordination and cooperation around the network of NCPCs. A tangible output from renewed commitment is this programme evaluation, which also aimed to strengthen collaboration in the UNIDO-UNEP CP Programme significantly.

The Programme has thus evolved as the sum of inputs, outputs and outcomes of a series of similar but not identical projects with different timelines, scales, budgets, donors and host institutions in different countries. Figure 1.2 provides a conceptual entity diagram for the Programme. A distinction is made between institutional funding (on left hand side) and project based funding (on right hand side) ([6]). However with the diversity of the different NCPC projects, many variations exist.

Figure 1.2: Schematic entity diagram for the UNIDO-UNEP CP Programme



[6] It should be pointed out that after an initial establishment period, in some countries, other donors or intergovernmental financial institutions have become the source of institutional funding for the NCPC established through the UNIDO-UNEP Programme. The distinction between institutional and project funding is therefore to a certain degree fluid. In the remainder of this report, the term institutional funding will be used for funding provided through the UNIDO-UNEP Programme for establishment and operation of the NCPC/NCPP and that is not, or not exclusively, linked to specific service delivery by the respective NCPC/NCPP to its national customers.

As per Figure 1.2, in the context of this programme evaluation, the Programme is understood to comprise of four components, respectively:

1. *National Centres or Programmes* (NCPCs/NCPPs): service delivery institutions established in the host countries that deliver CP and CP-related services;

2. *Programme Management*: the activities of the CP Unit in UNIDO Headquarters in charge of project administration, strategy development, liaison with donors, reporting and financial control;

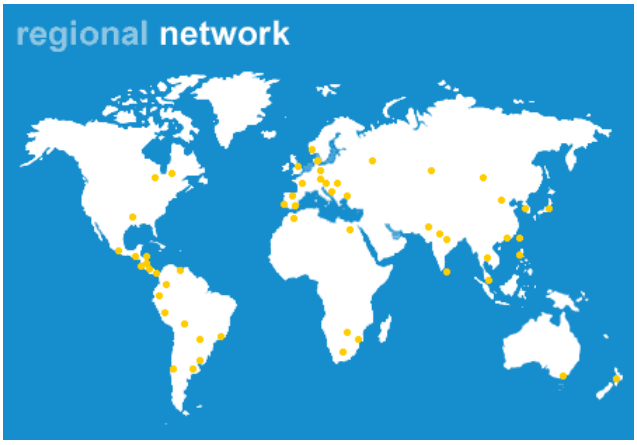
3. *Technical Assistance*: providing access to know-how, expertise and skills in CP and related areas to the NCPCs, through training and provision of international experts; and

4. *Regional Networking*: activities organised by UNIDO to achieve exchange of know-how and experience between staff of the NCPCs/NCPPs in different countries, for example through meetings of the directors, regional projects etc.

The NCPCs/NCPPs have highly similar features and activities in the different countries (as summarised in particular in Chapters 3 and 4 of this report). Other CP like entities have been established with comparable roles by other donors in other countries, in relative isolation of the UNIDO-UNEP CP Programme. The Government of Denmark has sponsored sector and policy specific CP projects for example in South Africa and Vietnam, both countries with a NCPC under the UNIDO-UNEP CP Programme, and Thailand and Malaysia, both countries without a NCPC. The Government of Germany sponsored GTZ for the implementation of training and capacity building in profitable environmental management – some of these activities have taken place in countries with NCPCs (e.g. Egypt, India, Vietnam) and others in countries without a NCPC (e.g. Indonesia and Thailand).

Outside the UNIDO-UNEP CP Programme, it would appear that the Regional Network of the World Business Council for Sustainable Development (WBCSD) is currently the only network with a comparable global spread. The WBCSD regional network is however business driven and membership based, and includes activities on Eco-Efficiency as well as other corporate sustainability topics (e.g. business for the poor, corporate social responsibility, accountability and transparency). The Regional Network of the WBCSD puts an emphasis on business self-initiative, awareness raising and business and policy dialogues, and does not deliver services as in the case of the NCPCs (however in most of the developing countries the national secretariat does have a capacity to undertake project-based services to member companies). For information purposes, Figure 1.3 shows the geographic distribution of the Regional Network of the WBCSD. About half the NCPCs/NCPPs are in countries where there is also a Regional Partner of the WBCSD. In some countries the Regional Network and NCPC operate in relative isolation (for example South Africa, China, India) whereas in other countries there is a direct link (e.g. Regional Partner of the WBCSD being the host institution for the NCPC (notionally in Mozambique and previously also in Zimbabwe)).

Figure 1.3: Regional Network of the World Business Council for Sustainable Development (http://www.wbcsd.org/templates/TemplateWBCSD5/layout.asp?type=p&MenuId=NjM&doOpen=1&ClickMenu=LeftMenu)



1.3 Independent Evaluation

This Independent Programme Evaluation for the UNIDO-UNEP CP Programme was initiated to document and assess the activities and results of the NCPCs/NCPPs established, taking the available programme documentation as a reference point. It was also aimed to provide suggestions and recommendations for strengthening the global network of NCPCs/NCPPs, for improving service delivery in the host countries and for further catalysing sustainable industrial development in developing countries and economies in transition.

Originally several related initiatives, in particular from bilateral donors, were meant to be included in this evaluation project in order to broaden the scope of the evaluation and ensure learning effect for CP implementation beyond UNIDO and UNEP. However, the complexity of the programme evaluation finally allowed only for the inclusion on one such initiative, by including two NCPCs funded bilaterally by the Government of Switzerland in the independent evaluations (Colombia and Peru) and by reviewing evaluation reports prepared on NCPCs/NCPPs.

1.3.1 Previous Evaluations

Even though this programme evaluation is unique in its scope and coverage, there have been earlier evaluations at programme level, in particular:

- *1996 Programme Evaluation* [22]: This evaluation was undertaken some 2 years after selection of the host countries for the first generation of NCPCs. Field visits were undertaken by evaluators of the International Institute of Industrial Environmental Economics (IIIEE) (of Lund University, Sweden) to China, India, Zimbabwe, Slovakia and Czech Republic (five of the eight first NCPCs) to interview staff and clients of the NCPCs. The evaluation found that the NCPC programme was relevant and viable, but needed adjustment, in particular in regards to customising the NCPC concept and its services' portfolio to national circumstances, increasing transparency in programme management, improving networking, and measurement of programme success. It was also pointed out by the evaluators that a NCPC with a primarily

information and networking function would not be a value proposition that could be expected to become financially self-sustainable on the short to medium term.

- *UNIDO Programme Evaluations:* in separate exercises UNIDO evaluated the performance of the NCPCs in Central Europe (2002) and developing countries (1999) [23]. The evaluation found that CP was a cost effective approach towards sustainable development and that the CP methodology as being advocated by the NCPCs was an effective tool for identification and prioritisation of technology changes that yield both environmental and economic benefits. It was also found that dissemination and application of the CP concept among small and medium sized enterprises on the basis of its economic merits did not occur easily and needed support through promotional activities and policy changes. The Programme was found to be most effective in regards to awareness raising, training of CP assessors and introduction of CP in university curricula and policy frameworks, whilst economic and environmental benefits at industry level were rather modest compared to the potential existent in the industry sector. The evaluators found that NCPCs should not be evaluated exclusively or primarily by impact at the company level, but rather by the impact at the industry level in terms of their success in transferring the CP concept and its tools to other organisations/consultants and their contribution to the formulation of conducive CP policy frameworks. On the basis of their findings they also postulated that the NCPC programme would have better chances of achieving significant impact in countries that have a larger segment of well performing industry with consolidated management systems than in countries in which large segments of industry face rudimentary problems of survival and are in need of restructuring and consolidating management functions first.

- *NCPC Lessons Learned:* in the lead up to the Johannesburg WSSD, UNEP prepared a booklet of lessons learned from the NCPC programme [24]. It appears that the booklet was largely based on information obtained from previous evaluations, and experience of UNEP and UNIDO staff in working with the NCPCs. The guiding messages are organised according to the start up phase, support phase and post-support phase for funding under the NCPC programme. The messages argue for targeted and focused service delivery, commitment to information dissemination and liaison, outcome and result oriented service delivery, local implementation and managing the tension between private and public interest role of the NCPC. Concern is also expressed that emphasis on commercial service delivery drives the NCPC into becoming a commercial service provider to large, creditworthy businesses.

- *SECO Impact Evaluation* [25]: the Swiss government commissioned a separate impact evaluation for seven NCPCs or alike Sustainable Enterprise Development (SED) centres funded by the Government of Switzerland (respectively in Columbia, Costa Rica, El Salvador, Guatemala, Morocco, Peru and Vietnam). Only direct impacts from CP implementation in companies were considered. The evaluation focused on quality of the CP assessment services and reports of the respective centres. The report stated that there was better potential for impact from CP service delivery in medium to large enterprises, and that group based approaches with follow up implementation support should be considered.

  The centrepiece of this impact evaluation was an estimate of the financial benefits from CP assessments. These were estimated on the basis of determining the percentage share of options implemented in a selection (but not necessarily a

randomised selection of assessment reports) multiplied by the total savings identified in each of the CP assessment reports, and kept constant for five years. A proxy cost benefit ratio was then calculated on the basis of 1/3 of the Swiss donor contribution (cost) versus the financial savings achieved over the five-year period in all companies (benefit). In doing so, it was found that "*every dollar invested by SECO had resulted in 3.5 dollar saved in a participating company*".

Even though an impact evaluation is in principle to be applauded, this particular SECO impact evaluation could not be endorsed by this programme evaluation, for a number of inter-related reasons. Full project benefits (CP implementation) are related against partial costs (only part of the costs of one of the project contributors), and the methodology overestimates savings and underestimates costs. The country datasets are also statistically unlikely. The limitations of this impact evaluation have been reviewed in detail in the country evaluation report for Vietnam but they apply to all countries covered by the impact evaluation.

The findings of these programme evaluations have influenced the overall direction and administration of the UNIDO-UNEP CP Programme. This is covered in the results of the programme documents' review in Chapter 2 of this report.

In addition to these programme evaluations there have been several project level evaluations as part of the funding cycles for most, but not all, of the NCPCs. All except one (Sri Lanka) of such country level evaluations were performed by international evaluators assisted with national consultants [26]. The Sri Lankan experience showed that rigorous and independent evaluation of a NCPC does not have to depend on international consultants. The country level project evaluations are however not reviewed here in any further detail. Instead, the independent country level evaluations undertaken for the selected NCPCs/NCPPs for this programme evaluation cover key findings from any project evaluations that have been undertaken in the respective countries (see chapter 4, and annex II to this main report).

1.3.2 Evaluation Methodology

This global programme evaluation was structured around four primary and two secondary evaluation criteria. The *primary* criteria relate to the uptake of CP, and are:

1. *Relevance*: are the elements of the programme (i.e. the CP concept, the CP services, the NCPC institution, the global network and the technical assistance inputs) applicable and valuable for the intended beneficiaries (i.e. the private sector, government, academia and research institutes in the host country)? ;

2. *Effectiveness*: does the design of the programme (i.e. national centres, global management and networking, and technical assistance) and its implementation enable the Centres and beneficiaries to achieve the programme's intended results (i.e. uptake of CP)?;

3. *Efficiency*: is the programme designed and implemented to achieve optimal benefit from its available resources? Are the Centres and other programme activities managed and administered in a manner that fosters service delivery to beneficiaries?; and

4. *Sustainability*: is it probable or likely that the benefits (e.g. availability of CP services, environmental and productivity benefits in industry, etc) achieved from the programme will continue into the future?

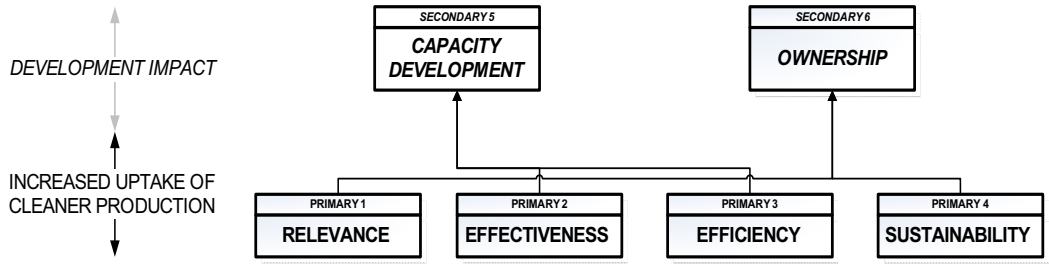
The *secondary* criteria assess the success of the CP Programme as a development assistance intervention. These represent two elements of best practice for project execution and management, and are therefore highlighted separately. These cover:

5. *Capacity Development*: does the programme develop essential capacities (e.g. in regards to resource productivity, environmental management, entrepreneurship, and/or public private partnerships) for local stakeholders to improve their current and future well-being?; and

6. *Ownership*: do local stakeholders regard the programme as their own and do they make commitments to advance the programme's aims and objectives and act on its outputs?

To a certain extent the primary criteria are hierarchical and sequential, as a reasonable degree of relevance is required to achieve some effectiveness, and effectiveness is conditional for both efficiency and sustainability. There is also some overlap between the secondary and primary evaluation criteria. Capacity development is mostly related to effectiveness and efficiency. Ownership on the other hand is principally influenced by relevance and sustainability. This inter-relatedness of the evaluation criteria is displayed in Figure 1.4.

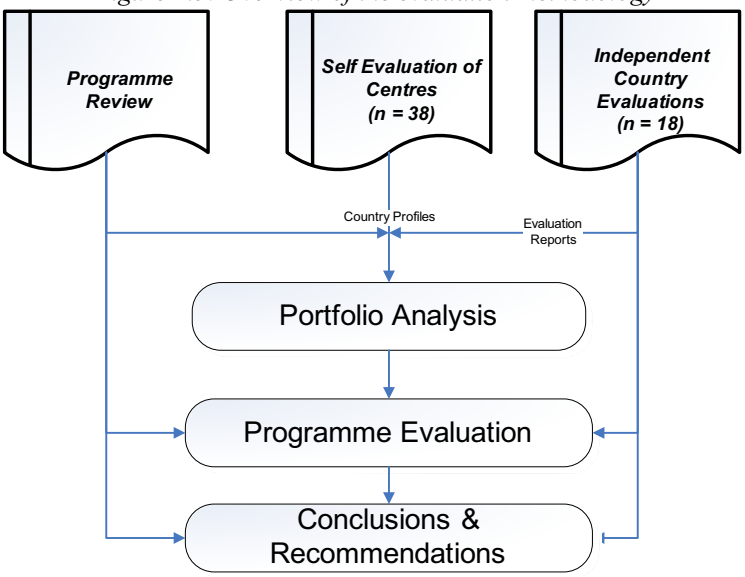
Figure 1.4: Evaluation criteria for the programme evaluation



The evaluation was performed by an international expert team comprising of three independent consultants and one programme officer from UNIDO's Evaluation Group/Bureau for Organisational Learning. It was overseen by a Steering Committee with representatives of UNIDO and UNEP (both the programme units involved, as well as the respective evaluation units) and the Governments of Switzerland and Austria. Norway and Germany participated partially as observers. The evaluation kicked off in April 2007, and substantive interim findings were presented to the Meeting of the Directors of the NCPCs/NCPPs, held in Semmering (Austria) from 24-26 September 2007. This report (including the annexed country evaluation reports) have been finalised thereafter taking into consideration the valuable feed back received during and after the Semmering meeting.

The evaluation methodology is displayed in Figure 1.5. There are three main '*pillars'* on which this global programme evaluation is based, respectively: programme review, self evaluation and independent evaluations.

Figure 1.5: Overview of the evaluation methodology



1. *Programme review*: a review of developments in the Programme over time, with particular emphasis on programme strategy, management and administration, and adaptive management and learning over time. This review is largely based on a review of various strategies, business plans and reports produced by the CP Unit in UNIDO in charge of the day-to-day management and administration of the UNIDO-UNEP CP Programme.

2. *Self Evaluations (by Centre Directors):* a comparative analysis of the experiences and views of the directors of the NCPCs/NCPPs, as expressed by them in response to two email-administered questionnaires. The first survey covered characteristics of the NCPC/NCPP (e.g. its institutional set up, budget, staffing, activities) and an assessment of the performance of their NCPC/NCPP against five evaluation criteria (relevance, effectiveness, efficiency, sustainability and ownership). The follow up survey explored in greater detail the level of interest and involvement in various CP and CP-related service areas (such as sustainable procurement, occupation health and safety, Multilateral Environmental Agreements, etc.)). This self assessment covered all NCPCs and NCPPs (total of 38) in the UNIDO-UNEP CP Programme.

3. *Independent Country Evaluations (by evaluation team):* members of the international evaluation team visited a selection of the participating NCPCs for an independent review and assessment of the results and experiences of the NCPC from a programme level perspective. These independent evaluations were based on document reviews and discussions with NCPC staff, board members, clients and relevant government and industry representatives. One member of the international team spent between 2 and 5 working days in the country and was assisted by a national consultant who was independent from the NCPC. The selection of countries to be visited was made by the Steering Committee at the suggestion of the international evaluation team. In doing so, it was attempted to arrive at an illustrative selection, including NCPCs in different

stages of establishment and funding, with different types of host institutions, with different donors and in different parts of the world. Visits were undertaken to 19 countries, between April and September 2007. These were: China, Colombia, Costa Rica, Croatia, Egypt, El Salvador, Guatemala, India, Kenya, Mexico, Morocco, Mozambique, Nicaragua, Peru, Slovakia, Sri Lanka, South Africa, Uzbekistan and Vietnam. For 18 countries detailed country evaluation reports were prepared. Slovakia was excluded as it turned out that the Slovak NCPC no longer fulfils a public role in advocating CP to industry and government (albeit remaining active as commercial CP service provider to the UNIDO-UNEP CP Programme and other clients).

These three components provide the factual information (or '*evidence base'*) for the independent evaluation. The analysis and evaluation was also divided in three constituent parts, respectively:

1. *Portfolio Analysis*: an analysis of the status quo of the UNIDO-UNEP CP Programme in the participating countries, on the basis of a set of discriminating factors in the establishment, operation, management and governance of the NCPCs/NCPPs in the programme countries. The aim was to find common trends in development of NCPCs/NCPPs and potentially clusters of common activities or areas of common need in groups of NCPCs.

2. *Programme Assessment:* an overall assessment of the UNIDO-UNEP CP Programme against the primary and secondary evaluation criteria, i.e. relevance, effectiveness, efficiency, sustainability, capacity building and ownership.

3. *Conclusions and Recommendations:* an integrated set of conclusions from the independent evaluation and associated recommendations organised in clusters, that each provide a lever for improvement of the Programme.

The evaluation was executed between April and December 2007. Interim results including draft conclusions and recommendations were presented for review to the 9th Annual Meeting of NCPC Directors, held in Semmering (Austria) on 24-26 September 2007. A comprehensive draft was released in January 2008, and was finalised in April 2008 taking into consideration the comments and suggestions from UNIDO, UNEP and donor representatives.

The evaluation faced several practical limitations: documentation was mainly available at the project/country level, not at the programme level; no financial figures at programme level were made available to the evaluation team; for some of the programme documents analysed the respective period of validity was not clear; and due to the long period covered not all people involved in design and implementation could be consulted.

1.4 Report Overview

The remainder of this main evaluation report is structured in three main parts and six chapters.

Part I (Findings) constitutes the evidence basis for this programme evaluation. The three chapters each cover one of the main information '*pillars'*, respectively findings from the programme review (Chapter 2), findings from the self evaluation (Chapter 3) and findings from the independent country evaluations (Chapter 4).

Part II (Analysis and Assessment) provides for an analysis and assessment of the Programme, integrated from the findings of the three sources of findings. Chapter 5 (Portfolio Analysis) focuses on the current status of the Programme and attempts to highlight parallels and synergies between activities of NCPCs/NCPPs in different countries with varying degrees of industrial development and national socio-economic and environmental priorities and objectives. Chapter 6 (Evaluation) contains the programme level assessment by the evaluation team of the performance of the UNIDO-UNEP CP Programme against the primary and secondary evaluation criteria, as well as an overall summary assessment of the Programme's main achievements.

Part III (Conclusions and Recommendations) provides a comprehensive set of conclusions and recommendations (Chapter 7).

This main report is accompanied by two sets of contributing reports that will be made available on request by the UNIDO Evaluation Group. The first set contains country profiles for all NCPCs/NCPPs. These have been based on the survey responses from the respective directors. The second set contains the independent evaluation reports for the 18 visited countries by the international consultants. These are comprehensive reviews of the status of development and achievement of the respective NCPC by the respective evaluator who visited the country and contain specific conclusions and recommendations at the national level.

Part I:

Findings

2
Programme Review

2.1 Overview

This chapter looks at the design, implementation and the results of the programme level activities in the UNIDO-UNEP CP Programme. As noted before, in the absence of an overarching project strategy and programmatic funding, the Programme evolved over time as a set of projects. Also roles and responsibilities were not equally shared, with UNIDO having the lead role in programming, implementation and ongoing review.

The programme review presented here therefore had to take as the basis the explicit and implicit objectives of the UNIDO-UNEP CP Programme. It then analysed the activities undertaken by UNIDO and UNEP to achieve these objectives, including the cooperation and coordination with donors (especially the current main donors Austria and Switzerland).

The need to include implicit objectives (i.e. objectives not formulated explicitly in a programme document) into the analysis of programme design arises from the fact that there is not a single, comprehensive programme document that would provide information with regard to the scope, actors and objectives of the Programme (see 2.2. below). The programme design is first reviewed (section 2.2), followed by reviews of programme implementation (section 2.3) and programme level results (section 2.3). The final section contains the key findings (section 2.5).

2.2 Programme Design

2.2.1 Programme Concept

The basis for the design of the UNIDO-UNEP CP programme is the concept of Cleaner Production (CP) itself (see section 1.2). The CP adopted in the initial programme document is consistent with the consensus definition arrived at in the mid 1990's: *"CP is the continuous application of an integrated preventive environmental strategy to processes, products and services to increase eco-efficiency and to reduce risks to humans and the environment"[9]*

This definition explicitly includes life cycle approaches for products. However, early programme documents point out that the emphasis of programme activities is on the production process and not so much on products. The concept of energy efficiency is also covered by the CP definition, even though it is not explicitly singled out as one of the applications of CP.

The above core definition of CP has been maintained as the centrepiece of the UNIDO-UNEP CP Programme until today. This is consistent with the use of CP in the international community. While UNIDO, given its mandate to promote industrial production processes, has focused its activities within the core concept's scope, UNEP has widened its own programme to include consumption issues into '*Sustainable Consumption and Production (SCP'* programme (see also section 1.1), in response to the Johannesburg Plan of Implementation of the World Summit on Sustainable Development (WSSD). Furthermore, there is an increasing tendency to use the NCPCs/NCPPs as local partners for the implementation of donor programmes in areas related to, but not necessarily part of the core concept of CP (in particular Corporate Social Responsibility (CSR) (or social entrepreneurship), and implementation of Multilateral Environmental Agreements (MEAs), including their financing mechanisms, like Clean Development Mechanism (CDM) and transfer of Environmentally Sound Technologies (ESTs)). Remarkably however, UNIDO has implemented its own programmes on CSR and EST transfer at arm's length of the UNIDO-UNEP CP Programme (e.g. the projects on EST transfer for environmental amelioration of the Danube and Black Sea and REAP (Responsible Entrepreneurs Achievement Programme (www.unido.org/index.php?id=o42159).

It can already be pointed out here that this evaluation found ample evidence that the relevance of the CP concept has been high throughout the implementation period. International developments such as trade liberalisation, increasing energy prices, advances in environmental legislation, all tend to increase the relevance even further. The extent to which these developments have influenced the performance of particular NCPCs/NCPPs and the impact of their activities depends heavily on the specific framework conditions (legislation, enforcement, resource prices, etc.) in the different countries and hence there continues to be variability in the relevance of the CP concept, in particular for the private sector.

2.2.2 Programme Strategy and Objectives

The UNIDO-UNEP CP Programme was designed as a capacity building programme. It has been applying an *'indirect'* approach to introducing CP in developing countries by first creating local capacities that are then for a defined period of time supported and further strengthened. These can then be utilised for implementation of national and international interventions. The specific approach to capacity building was to the set up new entities, the NCPCs, most often created as (semi-) autonomous centres, within existing host institutions or creating completely new institutions.

The original programme strategy had an almost exclusive focus on the establishment of NCPCs. The programme was then referred to as the UNIDO-UNEP *'NCPC Programme'*. Later both organisations developed documents that referred to a '*CP Programme'*, indicating a wider scope of the Programme, including interventions other than establishing and supporting NCPCs.

Based on the experience from the set up of the first sets of NCPCs, so-called National CP Programmes (NCPPs) were defined as alternatives to NCPCs. NCPPs were applied in countries where some demand for CP promotion existed but no sufficient capacity was available for the establishment of a NCPC. The activities of NCPPs resemble to a large extent those of NCPCs (demonstration projects, training, information dissemination) and in some cases are designed to '*prepare the terrain*' for the set up of a NCPC later on. This

deviation from the exclusive focus on NCPCs indicates that the programme management started considering models other than NCPCs to promote CP at the country level. The NCPP concept, however, was applied only in a small number of cases. Of the 34 NCPCs and NCPPs listed in 2007 on the UNIDO web page only Armenia and Lao PDR are officially registered as NCPP (Bulgaria, Romania, Ukraine and Montenegro do have ongoing NCPPs but these are not listed on the webpage).

As NCPCs in different countries matured, the need for general capacity building support to those NCPCs diminished. As a result, over time some elements were introduced to reflect a wider approach of CP promotion. This includes regional networking initiatives (such as the CP-LatinNet network in Latin America) and, more recently, also specific technical initiatives such as Chemical Leasing (CL) and SAICM (Strategic Approach to International Chemicals Management). Arguably the Latin American experience could, if proven successful, become a model for replication globally. In the other three key regions for the programme however there are reasonably active Regional Roundtables, that could be better utilised by the Programme as a means for regional networking (respectively in Asia Pacific, Africa and Europe).

As early as 1997 plans were made to create a global CP network that would be open not only to NCPCs supported by UNIDO but also to other CP-related institutions [27]. This plan has been reiterated throughout the years (see for example the Mayrhofen CP Programme Declaration from 2003). However, with exception of the Latin American regional network, the networking activities of the programme have until now not been developed in a systematic way.

This might be related to the fact that no clear strategy, objectives and outcomes have been defined for the global network. Instead, the definition of the network always started at the activity and output levels, listing the possible lines of activities and outputs without clearly explaining what the ultimate aims of these activities would be. Obviously this has also limited the possibilities to assess the potential effectiveness of a NCPC/NCPP network vis-à-vis other possible interventions (e.g. establishing a global information centre for CP) and the possible complementary nature of the UNIDO-UNEP network in relation to other networking initiatives (e.g. the regional roundtables on SCP, GTZ network on profitable environmental management, and regional network of the WBCSD, etc). Furthermore, no additional resources were made available for global networking. Given the very limited staff and funding resources of the UNIDO-UNEP CP Programme pro-active facilitation and support for networking could not be provided in parallel with the ongoing activities for the set-up of new and the support to existing NCPCs/NCPPs.

More has been achieved in the area of regional networking. The formation of the “CP LatinNet”, a networking initiative for the Latin American NCPCs (see box 2.1), overcomes most of the barriers described above. Separate resources were mobilised and an effort was made to establish clear goals for the network.

Apart from the common definition of the CP concept and a generic Letter of Agreement (LoA) [28] on interagency co-operation (see below) and despite of the frequent references to the joint UNIDO-UNEP CP Programme, at the time of evaluation in 2007 there was no joint document spanning the activities of both agencies for CP promotion in general or the management of the UNIDO-UNEP CP Programme specifically.

Objectives:
The overall objectives of the UNIDO-UNEP CP Programme are referred to in numerous documents, the most important of which are:

- The programme documents for the support for the establishment of the first batch of NCPCs in 1994 (the '*old*' NCPCs') [29];
- The information brochure of the UNIDO-UNEP NCPC Programme [30];
- The UNIDO Holistic and Sectoral CP strategy 2003 -2006 [31];
- The UNIDO CP Programme Business Plan 2003 – 2005 [32]; and
- The UNIDO NCPC webpage (www.unido.org/index.php?id=o5133).

The following development objectives have been extracted from these programme documents. They provide testimony for the wide scope of the objectives that have been formulated over the years:

- Reductions in risk to human health and the environment;
- Enhanced industrial productivity;
- Increased application of CP in the industrial sector;
- Incorporation of CP in the national environmental policy and legislation;
- Transfer of CP information and CP technology from developed and developing countries to industrial enterprises and environmental management agencies in (other) developing countries or economies in transition; and
- Economy-wide productivity gains for sustainable economic and social development.

The '*Holistic CP strategy*' [31] issued by UNIDO only, introduced further objectives, among them the Millennium Development Goals (MDGs) 1 (poverty alleviation), 7 (sustainable development) and 8 (global partnership) (see also section 1.1). It also refers to improved international market access of companies in developing countries.

UNIDO's business plan 2003-2005 for the CP Unit [32] established a number of '*strategic objectives*' for managing the UNIDO-UNEP CP Programme, such as:

- Strengthening the network of NCPCs and NCPPs;
- Fostering international business cooperation and investments in ESTs;
- Integration between CP and other tools (e.g. life cycle assessment);
- Promoting NCPCs and NCPPs as partners for the implementation of MEAs; and
- Fostering and establishing regional networking.

These objectives, and indeed the business plan, define the scope and activities of the CP programme management unit in UNIDO instead of the objectives for the UNIDO-UNEP CP Programme itself.

Currently the UNIDO web-page lists another set of objectives of the NCPC programme (www.unido.org/index.php?id=o5133):

- Increase competitiveness;
- Open access to new markets;
- Stimulate public-private partnerships; and
- Promote CP investments and CP technology development and transfer.

A review of these formulations of objectives shows that some are rather outputs (e.g. the establishment of regional network of NCPCs, integration of LCA into CP), and others are outcomes (incorporation of CP in legislation) or impacts (productivity gains). Some are also simply activities (strengthening the network, promoting NCPCs as partners for

MEAs). The formulation of objectives reflects that strategy documents have defined the objectives and activities of the programme management unit without clarifying the Programme itself, which in turn presents a barrier to more results-oriented programme management.

More importantly, there is no distinction between those objectives that constitute the Programme's development objectives and those that are not directly related to the Programme, but where positive contributions can be expected depending on specific applications. The main issue in this context appears to be the question whether poverty alleviation should be among the direct objectives of the UNIDO-UNEP CP Programme or not. Similar to what will be discussed below in regard to *'outcomes'*, in many instances a trade-off between poverty alleviation and reduction of environmental impact can exist. Cleaning up a pollution hotspot might require measures that do not directly (i.e. at least not in the short term) alleviate poverty (e.g. the preventive CP approach promotes the introduction of more efficient technologies which in turn might be less labour intensive and lead to loss of employment opportunities for poor families).

It is not argued here that poverty alleviation cannot be a direct objective of the UNIDO-UNEP CP Programme. However if it is, there should be a clear understanding what is being understood as poverty alleviation (e.g. better working conditions, better environmental health conditions in poor communities, or narrowly speaking only more jobs or higher incomes). Likewise not all of the Programme's interventions will contribute to poverty alleviation, productivity gains and environmental impact reduction at the same time and to the same extent. So when a component or project is designed to achieve the Programme's goals, it should be explicitly and clearly stated which of the Programme's goals will be aimed at and a logical means-end relationship between the objectives and the planned outputs and activities should be established ([7]).

Outcomes

The concept of CP implies that a programme for its promotion would contribute to uptake of CP practices, technologies and policies (outcome) with two parallel lines of benefits or impacts: reduced environmental impacts of industrial activities (including processes and products) and increased productivity of industrial activities (less resources used for same output or same resources used for higher output).

From an analysis of documents from the early phases of the Programme it would appear that at that time the focus of expected outcomes was clearly on '*reductions in risk to human health and the environment*'. Apparently less importance was assigned to '*to enhance industrial productivity*' [29], even though the CP definition used listed eco-efficiency (combined economic and ecological efficiency) as its first aim. It is however noted, that there was always a strong emphasis on cost-efficiency of CP options (i.e. on options that had a reasonably short pay back time in light of local environmental standards and their status of enforcement).

Looking at more recent documents, it appears that over the years the emphasis has shifted from the first to the latter main benefit. For example, the Business Plan 2003 – 2005 for the UNIDO CP Unit [32] defines the mission of the CP Programme as follows: "*assist the national industries in improving their productivity and competitiveness to facilitate*

[7] For example, the activities and outputs needed for a CP intervention that aims at poverty reduction might be very different from what is required for an intervention that focuses primarily on productivity gains or reduced environmental impact.

the access to new and more demanding markets through the diffusion of quality and productivity enhancing ESTs, following a holistic and sectoral CP approach". The document however falls short in defining specifically what is understood as '*holistic*' and '*sectoral*', and how this would be different or superior to other CP approaches.

This apparent shift in emphasis is probably related to the evolution of the institutional model of NCPCs/NCPPs towards financially independent service providers, who naturally depend on their good relations with client companies and the private sector in general. For the implementation of CP assessments in companies the productivity argument is certainly the better entry point, unless there are urgent issues in regard to enforcement and compliance with environmental legislation.

By and large the Programme appeared to have struggled to come to terms with the existence of these two seemingly equally important outcomes, trying to maintain the concept of a *"win-win*" situation, in which it is possible to achieve both benefits at the same time. It might be argued that this can be realistically expected only when environmental standards and legislation is being implemented and enforced and resource prices reflect environmental costs to some extent. In the absence of a cost to non-compliance or a reward for voluntary compliance or eventually beyond-compliance (e.g. improved market access through a recognised eco-label or buyer requirements), the *'win-win'* premise is limited mainly to the implementation of '*good housekeeping'* and other no or low cost CP options (as reflected in the lower levels of implementation of higher cost options reported by the visited NCPCs for the independent country evaluations (see Chapter 4)).

An emphasis on the reduction of environmental impact would probably imply a focus on: enforcement of existing, and where needed development of new, more stringent, environmental legislation; capacity building in the public sector; and more proactive targeting of sectors with significant environmental impact or most affected regions (pollution black spots). It would define public policies and maybe even raise awareness among civil society as to what can be expected from companies in terms of CP (Best Available Technologies/Best Environmental Practices).

The emphasis on competitiveness/productivity gains, i.e. the benefits for the enterprises concerned, implies being (private-) demand-driven with limited involvement in the promotion of enforcement and stricter environmental legislation, implementation of only the economically attractive (profitable) solutions. This in turn means that many solutions that would in principle be economically viable under existing environmental legislation (i.e. reasonable pay-back time, low risk) remain insufficiently attractive to warrant investment.

Both approaches have their pros and cons. Which one is the better approach for the CP Programme in a specific country or region depends on the local context and the priorities defined by stakeholders. This diversity is reflected in the different orientations of the NCPCs visited for this Programme evaluation (see Chapter 4). However, it is not reflected in the design of the Programme and the projects to support the establishment and strengthening of NCPCs, which in general assign a rather standardised role to a NCPC.

Outputs

The programme has produced outputs at the programme- and country levels. At the programme level the development of the NCPC model can be regarded the main output,

while the establishment of individual NCPCs is the core output at the country level. The NCPCs themselves then have also produced outputs (e.g. delivered training, undertaken CP assessments), leading to outcomes (capacity built, and CP options being implemented) and impacts (reduced environmental impact and improved resource productivity).

The establishment of a NCPC requires considerably more effort than the mere conduction of training programmes or the implementation of demonstration projects. It implies a long-term co-operation for institution building and requires continued efforts to create local ownership and commitment for sustainability of the CP concept and the NCPC as service providing institution.

While no evidence has been presented as to the logical design process that lead to the conclusion that establishment of NCPCs would be the most effective, efficient and sustainable way to achieve programme level objectives, the long-term approach implicit in the establishment of NCPCs appears to be warranted in most cases. However, it should also be noted that in some cases direct support to a number of existing institutions with ongoing activities in CP and with sufficient capacities for CP uptake might have been more effective, and should at least have been considered as an alternative to establishing a new NCPC. Most importantly, the NCPC model developed at the outset of the programme remained largely unchanged since then and continues to be a '*one-size-fits-all'* model, with no a-priori differentiation in services or institutional nature according to the very different needs and framework conditions found in countries as different as India and Nicaragua (see also paragraph 2.2.4). Other important outputs at the programme level are: networking of NCPCs; technical assistance through a pool of International Reference Centres (IRCs); fund raising; information and training materials; and monitoring & evaluation (see section 2.3.)

2.2.3 Rationale and Logical Framework

There are many ways to conceptualise the rationale of the UNIDO-UNEP CP Programme. One possible way is to use the concept of a logical framework, establishing thereby an idealised means-end relationship between the programme's objectives and outcomes on one side and the different outputs and activities at programme and country level on the other. The framework can then be used as a mechanism for systematic and periodic consultations among programme stakeholders, especially UNIDO and UNEP. The UNIDO-UNEP CP Programme has itself not yet produced such a logical framework.

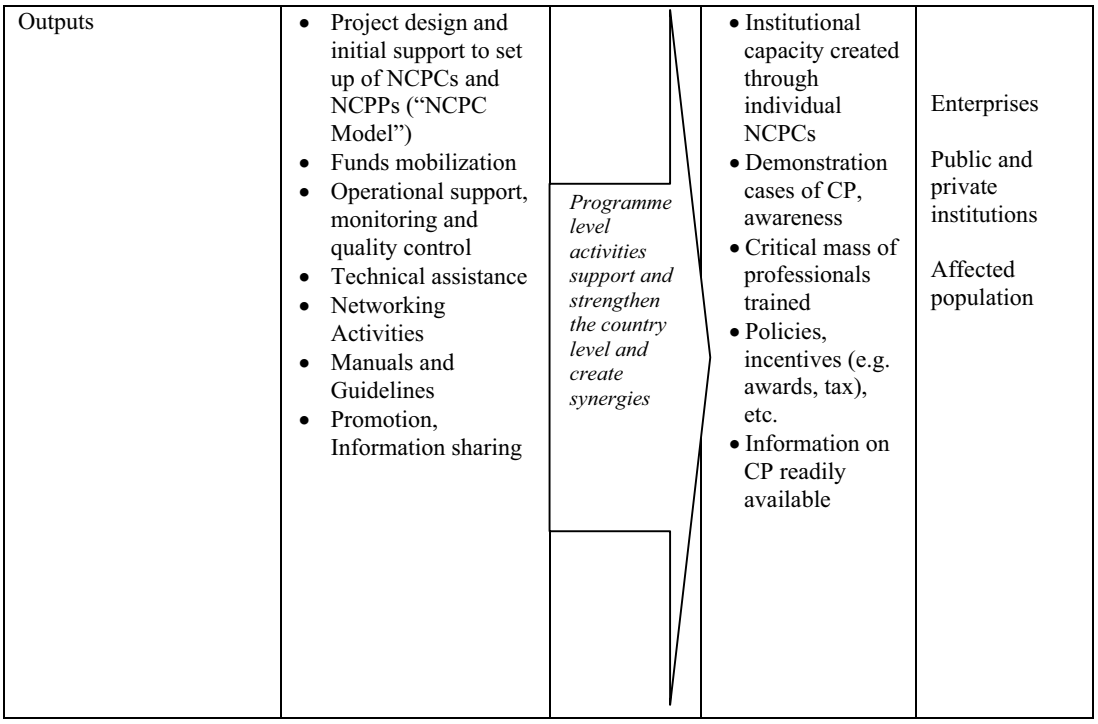
For the purpose of analysing the Programme's internal coherence, i.e. in how far the above-mentioned logical and consistent means-end relationship exists, the evaluation team undertook an attempt to re-construct a logical framework of the current Programme. As a result of the analysis of the different strategy documents, including UNIDO and UNEP initiatives, the overall programme logic found by the evaluation team is described in Figure 2.1. A full logical framework would require the definition of indicators, means of verification for such indicators and critical assumptions or risks that need to be observed in order to ensure timely response to changed circumstances.

The programme management of UNIDO, in close cooperation with donors, made considerable efforts to develop a set of meaningful indicators for monitoring of outcomes at country level, in particular the projected environmental and economic benefits achievable from in plant demonstrations. Less emphasis was on indicators at the

programme level and at the country level for institutional capacity development and ownership. Risk management, i.e. the continuous monitoring and observation of a set of critical assumptions and/or potential risks to the programme's success in achieving the objectives, has not been systematically undertaken in the programme. This is true for both, country and programme levels. An example for risk management would be the continuous monitoring of some international tendencies that influence the relevance and effectiveness of CP, such as international resource prices, trade liberalisation and environmental barriers to trade, etc.

Figure 2.1: Re-constructed Logical Framework of the UNIDO-UNEP CP Programme

	Programme level interventions	**Country level interventions**	Target groups
Impact/Objectives	Sustainable industrial development		National economies or sectors
	Increased productivity of the private sector in developing countries and international economic integration		Private sector in target countries, Global
	Global and local environmental benefits (e.g. climate change related, environmental health)		The environment in target countries, population at large in target countries, Global
	contribution		
Outcomes/immediate objectives	Reduced environmental impact of industrial activities ("**cleaner**" production)		The environment and population affected by pollution of client enterprises
	Increased productivity and enhanced competitiveness (incl. int. market access)		Client enterprises of NCPCs
	Sufficient institutional capacity to support introduction of CP, improved enabling environment		Public and private institutions
	Ownership of the CP concept		All target groups
	attribution		
	Programme level interventions	**Country level interventions**	



2.2.4 NCPCs and Core Services

As mentioned above, very early in the process of programme design it was decided that there was a need to establish '*National Cleaner Production Centres'* (NCPCs) as the principal output of the programme. The NCPCs were designed as vehicles to deliver a set of services (activities). The services were adapted from earlier CP demonstration projects (see also Section 1.2) in the expectation that Programme level objectives could then be achieved. The initial four core services were [29]:

- Information dissemination;
- In-plant demonstrations/cleaner production assessments;
- Training and capacity building; and
- Policy advice.

In the second generation NCPCs (established after 1998) a fifth core service has been added, namely:

- Transfer of Environmentally Sound Technologies (EST).

These services constituted the backbone of the NCPC model. They were applied in all cases and the evaluation team found them even in the bilaterally managed NCPCs that were established outside the UNIDO-UNEP CP Programme. The scope of these services includes some that can be offered on a commercial basis with potential for private benefits (at least under certain circumstances) and others that are of public nature and therefore need public funding support. It is this broad scope that makes the institutional model of the NCPCs suitable for countries or regions where no capacity and no specialised institutions exist to deliver some of these services. The model seems less adequate for countries or regions where considerable capacity exists for some of these services in different institutions (for example in university departments, research/technical institutes or business service providers (management consultants, engineering design firms, etc.). In such cases either a CP Programme providing direct

support to existing institutions or an alternative model for a networked CP centre might have been more effective. In the latter case the CP centre (or maybe a centre with a different name) could be more of a niche player in one or more of the service areas. An example for such a niche strategy could be a technology reference centre that specialises in technology information and assessment (see the further discussion on centre models and services in the portfolio analysis, in particular sections 5.3 and 5.4).

The design of the NCPC model does not include a description of the institutional nature of the NCPC, in particular with regard to its relationship to other institutions. Such a description would require the conceptual design of a number of possible models, depending on the institutional, environmental and economic framework conditions for CP.

2.3 Programme Implementation

This Section looks at the different aspects of the implementation of the CP programme, starting with a general view on the programme management and the support given to the set-up and operation of NCPCs. Then the aspects of networking, technical assistance and information management are discussed.

2.3.1 Programme Management

Programme management in UNIDO is the responsibility of the Cleaner Production Unit (CPU). The unit has four professional officers and one unit chief. Over the implementation period the position of unit chief has been occupied by four different individuals (and has been vacant from September 2007 to May 2008). One of the present professional staff of the unit has been involved in the Programme from 1998, while other professional staff has joined the CP unit more recently.

At UNEP programme management is with the Division of Technology, Industry and Economics (DTIE), based in Paris. DTIE's launched its CP Programme in 1990, in partnership with many organizations including OECD, EU, UNIDO, and the World Bank [33] (see also section 1.1). At the outset of the Programme the cooperation and division of labour between UNIDO and UNEP was described in a Letter of Agreement (LOA) in which UNIDO was assigned the role of '*executing agency*', whereas UNEP was the '*cooperating agency*'. The executing agency (UNIDO) would then take the lead in setting up 20 NCPCs in two phases, while the cooperating agency (UNEP) would provide professional support in terms of methodologies and information (see also paragraph 2.3.1.2.).

It is noteworthy that the first phase of the CP Programme applied a strong programmatic approach to the establishment of NCPCs. For the set-up of the first five NCPCs a project document with common objectives existed. Since the project was funded through UNIDO by a single donor (Government of The Netherlands, with co-funding by UNEP), the negative effects of patchwork funding that later on affected the programmatic character of the UNIDO-UNEP CP Programme did not exist during this early stages.

Another feature of the programmatic approach was the '*solicitation and application process*'. In the first phase I 39 Institutions from 25 countries [27] countries participated by submitting a proposal for establishing a NCPC (including administrative and technical

approaches and a budget) along the guidelines defined by UNIDO and UNEP. Among the applications, UNIDO and UNEP first selected the countries with the best perceived potential for CP and assimilative capacity for hosting a NCPC. This was followed by a competitive selection process within the countries to select the most capable host institution. This process shows that in the early phase programme level activities were more pronounced and a clear strategy was developed and implemented.

In the later phases of the programme (i.e. approximately from 1998 onwards), these programme level activities became less important and a more opportunistic approach to establish NCPCs was followed. Attempts were made to '*upscale*' the NCPC model, by developing tools for countries to establish NCPCs by themselves [34]. However, available staff resources of the UNIDO CP Unit were largely used to establish new NCPCs in the same way as in the early phase (i.e. with direct involvement of UNIDO staff in the NCPC management) wherever a request from recipient countries and donor funds were available.

The UNIDO CP Programme management faced a number of internal systemic constraints within UNIDO, which made pro-active programme development and effective thematic leadership difficult:

- Starting in the early 90's UNIDO had to downscale substantially its staff after the withdrawal of Canada, the USA and Australia from the Organisation. This resulted in increased pressure on remaining staff with less time for forward-looking activities like programme development and strategic planning.

- Not only in the case of the CP Programme, but the funding of UNIDO's technical cooperation in general, has been to a large extent on a project-by-project and not on a programme basis. This makes programme management more difficult, even if well-qualified staff is available.

- CP as a concept lends itself for being promoted and advocated by an '*epistemic community*'" (i.e. a network of knowledge-based experts) [35] UNIDO's dependence and/or focus on funding for technical assistance on a project-by-project basis allowed little room for programme-level activities (such as research, expert group meetings, etc.) and thus did not facilitate the emergence of such a group of experts with oversight over, and/or influence on, the state-of-the-art in development and implementation of CP concepts, methods, technologies and policies.

- UNIDO has a political mandate to be active in all its member countries. Requests for cooperation from the countries are taken as a basis for the development of technical cooperation activities. Management and staff therefore are bound to respond to such requests which precludes the possibility of strategic selection of countries or regions and for more innovative CP pilot activities.

- UNIDO implements technical cooperation with the agency execution model ([8]). At the same time country support capacities of UNIDO (through country offices or

[8] "*Agency execution entails management by UN Agencies where activities require technical sector expertise or specific management capacity and access to international networks; the government lacks the required management or substantive capacity; or the parties prefer agency execution for other reasons. Under agency execution, the UN Agency may plan and carry out the programme or project activities applying its own procurement procedures.*" (definition from UNDP website). Alternatives to agency execution are National Execution (NEX), Direct Execution (DEX) and NGO execution.

cooperation with UNDP) are in many cases very limited. This usually requires from HQ project managers a close involvement in operational issues (*'micro-management'*), draining valuable staff resources away from issues of strategic importance (guidance and coaching of NCPCs/NCPPs, peer review of products and services, innovation in services delivery, lesson learning, etc.).

The above-mentioned systemic internal constraints are not only faced by the UNIDO CP Unit in its management and administration of the UNIDO-UNEP CP Programme. However, they are important barriers for effective programme development and management and to some extent they might explain why no strategy existed from the beginning for how UNIDO and UNEP would deal with NCPCs after the direct support has ended. Nevertheless, the lack of such a strategy is certainly one of the central weaknesses of the Programme and needs to be addressed as soon as possible (see recommendations in section 7.2).

Adaptive management

The UNIDO-UNEP CP Programme has not remained static over the years. While the NCPC concept was not changed significantly and was kept as the core element of the Programme, some new elements were introduced and efforts were made to overcome identified barriers. Overall this shows a degree of adaptability in programme management, based to a large extent on an active dialogue between programme management, donors, NCPC Directors, local counterpart institutions and International Reference Centres (IRCs). However, at the same time, it should be noted that not all of the changes and modifications produced good results and in general a lack of strategic and thematic leadership of the UNIDO-UNEP CP Programme limited the translation of pilot project results and studies into a continuous development and consolidation of the Programme. The most important issues in this context were:

- *CP Finance:* already relatively early in the programme it was noticed by the parties involved that lack of finance (or of access to it) represented a major barrier for the introduction of CP at the company level. UNEP with support from the Government of Norway implemented a dedicated project with several studies and pilot projects with NCPCs in five countries were carried out to develop resource materials (e.g. [36]). UNIDO's programme management also made an effort to strengthen in-house cooperation with the investment promotion division.

  The Swiss donor, partly in cooperation with the UNIDO-UNEP programme, launched another successful initiative in this respect. It is the Green Credit Trust Fund of SECO, which was launched in 2004 and is being implemented in several countries and is producing valuable results (see country reports Peru and Colombia).

- *EST Transfer:* another problem area that was soon identified was the transfer of Environmentally Sound Technologies (ESTs). Most of the CP options implemented in companies fall into the category '*low (or even no) investment'* or *'good housekeeping'*. Programme management, in cooperation with donors, realised that generally the effectiveness of the Programme in achieving further reaching process changes and substitution of technologies was rather low. As an answer to this problem two pilot projects were carried out in India and China, providing special resources to the NCPCs in order to produce tangible and replicable results in the field of EST transfer. Unfortunately these projects did not eventuate as expected. The Indian project is still on track to achieve some EST transfer, but the Chinese project

has been abandoned. Nevertheless, through implementing these projects, important lessons were learned and barriers to EST transfer identified. Increasing effectiveness in EST transfer (including adaptation and replication of ESTs), however, remains one of the big challenges of the CP programme.

- *Environmental Management Systems:* at the outset of the CP programme in the early 1990's Environmental Management Systems (EMS) were not yet widespread tools (the British Standard BS 7750, which can be regarded the prototype of EMS, was published in 1992, and its international companion ISO 14001 was published in 1996)). Thus it is not surprising that EMS did not figure prominently among the tools to be employed by NCPCs in the original documents. However, the Programme, through its direct relation to a set of International Reference Centres who are familiar with state-of-the-art environmental practices in industrialised countries, introduced EMS into the work of NCPCs quite successfully. Since then, EMS has become an important service area and source of income in several NCPCs.

- *New Services:* in recent years the programme engaged more and more in the introduction of new services in the NCPCs. This was partly motivated by the aspiration of UNIDO and UNEP to fulfil its role as innovators and opinion leaders within the global CP community. To some extent it followed the request from the donors to introduce such services through the NCPCs. The relevance and applicability of the different services from the perspective of the NCPCs/NCPPs will be discussed in more detail in Section 3.3 (self-assessment results). From a programme level perspective it is important to mention two issues related to the new services. First, not all of these services fall into the CP concept (especially CSR and consumption related services). Second, the two agencies involved, UNIDO and UNEP, and the donors have not yet come to a common understanding what kind of services should be offered by NCPCs. While UNIDO has established set of new services under the heading of CP+, UNEP is aiming at the integration of sustainable consumption related services to better match with its mandate for SCP. Overall it would be necessary to strike a balance between perceived priorities of the countries (as reported by the NCPCs/NCPPs) and the global priorities (reflected in the mandates of the UN agencies).

The issue of new services has been discussed intensively with NCPCs, but at present no clear strategy has been defined as to what should and what should not be part of the CP Programme's area of services. It appears that the approach so far was to ask '*what could the NCPCs do next to sustain themselves?*" instead of asking '*what needs to be done to achieve widespread application of CP in a given national context?*' The latter approach would imply more development of new and innovative methods and policies within the Programme, based on a more regular and in-depth assessment of the demand and the experiences in different countries, sectors, companies and activity areas.

Internal collaboration within UNIDO

It is noteworthy, that despite many attempts from project managers to enhance cooperation with other relevant UNIDO technical branches (e.g. Investment Promotion, ICS Trieste) no significant cooperation between the CP Unit and other areas of UNIDO has been achieved so far. This is particularly surprising, given the CP-related activities of UNIDO in the following environmental areas: Montreal Protocol, CDM and Climate Change, Stockholm Convention. All these areas are closely related to the concept of CP. The capacity built up through the UNIDO-UNEP CP Programme in many countries could

have been enhanced in these areas and NCPCs/NCPPs could have been invited more frequently for the implementation of some of the before mentioned activities. To some extent related to this situation and as shown by the results of the self evaluation survey (see Section 3.3) the NCPCs/NCPPs report that their activity level and perceived competence in the areas of multilateral environmental agreements (MEAs) is lowest in the fields of Montreal Protocol and Stockholm Convention.

Several factors have contributed to this situation. First, UNIDO's policy to deliver its technical cooperation in so called '*integrated programmes'* at the country level did, in many cases, not succeed in establishing synergies and cooperation among modules at the country level. Second, the cooperation at the programme level between different UNIDO programmes has not been a high priority for management and no particular incentives were created for such a co-operation. Third, the funding of UNIDO's technical cooperation in general is to a large extent based on project-by-project funding from different bilateral donors. This situation does not only make programmatic approaches difficult, it also represents a barrier to cooperation between programmes, as the alignment of strategies and approaches to requirements at the project level reduces the flexibility of UNIDO to optimise its programmes through synergies at the programme level.

Interagency collaboration

CP as a concept spans the mandates of several UN agencies. CP is at the core of the mandates of UNIDO and UNEP and the leadership exercised by the two agencies reflects well the combination of industrial development aspects with the need for environmental sustainability. As mentioned before the LoA signed at the outset of the Programme was the basis for the cooperation between UNIDO and UNEP. However, actual cooperation between the two agencies was ad-hoc and depended to a large extent on the personal relationship between key staff involved in both agencies. It was not based on a mechanism with established procedures for joint programming, adaptive programme management and decision-making on the basis of monitoring and evaluation at the programme level. The absence of procedures and shared aims and objectives was further complicated by differing mandates in both agencies (e.g. the question whether consumption related issues should be dealt with by NCPCs).

In addition to the cooperation between UNEP and UNIDO, which is directly related to the concept of CP, cooperation was established in a few countries with ILO for the provision of environmental and CSR (corporate social responsibility) related services through NCPCs within ILO's '*Factory Improvement and Decent Work Programmes*'. The cooperation is based on a Memorandum of Understanding (MoU) between the two organisations and SECO. It was signed during the World Summit on Sustainable Development in Johannesburg in 2002. The MoU foresees pilot cases in Swiss-financed centres. Four such cases located in Latin American countries were evaluated on behalf of SECO in 2005. The evaluation report concluded that the introduction of Corporate Social Responsibility (CSR) on the basis of the ILO '*Factory Improvement Programme* (FIP)' was largely successful and led to local adaptation of the FIP. No evidence has been presented with regard to the collaboration strategy of the Programme in general and it is not known to what extent cooperation was undertaken with some of the more important multilateral and bilateral donor initiatives in the field of CP (e.g. GTZ, NORAD, IADB, and ADB).

Donor Involvement and Fund Raising

One of the principal activities of UNIDO's management of the UNIDO-UNEP CP Programme was the raising of funds for the different NCPCs. The work effort related to this activity was significant and resulted in a total funding volume of approximately USD 30 million ([9]) channelled through UNIDO to the different NCPCs. Additional funds were channelled through UNEP to the NCPCs within multi-country projects. More than 60% of this amount was provided by the two main donors: the Governments of Switzerland (SECO) and Austria. Other donors of the programme were Brazil, Canada, Czech Republic, European Union, Finland, Hungary, Italy, Japan, The Netherlands, Norway, South Korea, Slovenia, Sweden and UK (www.unido.org/index.php?id=o5133).

The main donors of the UNIDO-UNEP programme liaised with programme management with very different intensity. While SECO participated very actively, both at headquarters and field levels in programme strategies, country selection and implementation (e.g. through the development of indicators and evaluations of NCPCs commissioned by the donor), the Austrian donor was mainly involved at the field level and left implementation generally to UNIDO as the executing agency of the Programme. At the suggestion of SECO, the programme management for example introduced business plans for the NCPCs, and overall, these helped to improve viability of the NCPCs, as well as their financial independence from the UNIDO-UNEP CP Programme.

The only example of funding that was not granted for a specific country is the contribution from the Government of the Netherlands for the establishment of the first five NCPCs. Given the long lasting partnership and the relation of mutual understanding and trust between the two main donors of the Programme and UNIDO, it is surprising that the positive experience of a more programmable funding from the beginning of the Programme was not repeated at later stages of the Programme. This has limited the potential to further develop the Programme and to move strategically to the next level.

Monitoring and Reporting

Monitoring and reporting has been done on a systematic basis mostly at the level of individual NCPCs through reports prepared by the NCPCs/NCPPs to UNIDO. A set of indicators was developed together with SECO and applied by the NCPCs/NCPPs since 1998/1999.

The quantity and relevance of these indicators as well as the rigour of application varies widely and many NCPCs/NCPPs used erroneously expected benefits as a substitute for effective benefits in their reporting (potential savings of CP options suggested to enterprises were being reported as if they were savings actually made by enterprises). Indicators on training were often purely quantitative and did not comprise indications on the quality of training and achievements of trainees (test results, certification etc.). In many cases no significant effort was made to ensure the accuracy and comparability of data presented by NCPCs. As a result the information provided in annual reports of NCPCs/NCPPs varies a great deal in quality and accuracy. This indicates that programme management did not consider monitoring an important issue and did not pay enough attention to results. This is definitely an important issue for the next stage of support and should become a focus of attention.

[9] Based on figures included in Table 2.1 , projects other than NCPCs not included

Starting in 2003 UNIDO has carried out an annual self-survey of the NCPCs. The survey instrument was applied by an increasing number of NCPCs: in 2003 by 18 NCPCs, in 2004 by 26 NCPCs, in 2005 by 26 NCPCs and in 2006 by 23 NCPCs. The survey represents a tracking tool of the current situation of UNIDO related NCPCs/NCPPs with regard to the following information areas: industrial sectors covered by the NCPC; staffing situation and expertise; type of services provided and demand for these services (number of customers); CP relevant environmental legislation; degree of financial independence and cost/income structure by service type; implementation level of recommended CP options; and environmental benefits achieved (measured by a set of quantity indicators).

That self-surveys have to be carried out to compile basic information on NCPCs illustrates the fact that many NCPCs have no or very limited relation to the Programme (hence they do not report to programme management) and those who have use different formats and produce information of varying quality. If annual reporting of NCPCs/NCPPs followed a common standard, there would be no need for generic surveys. It is recognised, however, that those NCPCs that are no longer (partially) funded through the UNIDO-UNEP CP Programme, cannot be expected to report to UNIDO and UNEP unless there is a concrete benefit attached to it (such as membership in a network that provides effective services to the NCPCs).

The application of the survey instrument is in principle a step towards more proactive programme management as far as it does not duplicate existing information (contained in annual or other reports). However, the quality of the returned survey questionnaires varies highly and many lack the information that is more difficult to provide, i.e. the information regarding outcomes and impact of the NCPCs' interventions and services. Thus the usefulness of the survey for a more results based management of the Programme is yet limited.

Also UNEP has carried out surveys of NCPCs/NCPPs.[37]. They aimed at an assessment of needs for support from UNEP and UNIDO rather than on results of CP interventions. Such needs survey is certainly a good way of ensuring continued relevance of the support provided by UNEP and UNIDO to the NCPCs.

2.3.2 National Centres

For analytical purposes the support provided by the programme to the NCPCs can be divided into the following phases: pre-establishment phase, establishment phase, support phase and post support phase. The cooperation activities of the UNIDO programme concentrated mainly on the establishment and the support phases.

Prior to the establishment of the NCPC the cooperation of UNIDO was in the design of the project document. UNIDO acted here as a partner for institutions in recipient countries, offering its experience from other countries. This function of UNIDO is central to the success and the sustainability of the NCPC. The cooperation during this phase was not based on an analytical tool or method to determine the specific demand for CP support in a country. It was based on the standard NCPC model and the personal and professional judgement and experience of the UNIDO officers in charge, hence quality of this support depended to a large extent on the availability of appropriate staff resources.

The cooperation during the establishment and the support phase was characterised by a very deep and detailed involvement of UNIDO project managers in the daily operations of the NCPCs. This included frequent participation of project managers in meetings of the executive boards, revision and approval of business plans of the NCPCs, authorisation of staff recruitment and participation in selection panels and close control of the NCPCs budget (especially in the many cases where the bulk of the NCPC budget came from UNIDO). With a growing number of NCPCs in the UNIDO-UNEP CP Programme this close administrative oversight ("*micro-management*") put considerable stress on the limited resources of the programme management and diverted attention from strategic and programme level issues to the project administration of individual NCPCs.

Some examples for activities during the post support phase exist, such as the two UNIDO projects for transfer of EST carried out in cooperation with the Chinese and the Indian NCPCs and the UNEP project on energy efficiency, implemented in 6 countries: China, Vietnam, India, Hungary, the Czech Republic and Slovakia (EECPEMS: Energy Efficiency through Cleaner Production and Environmental Management Systems). The more recent strategy documents of UNIDO mention the importance of turning the NCPCs into long-term partners for the implementation of UNIDO and other agencies' projects. So far this has not materialised to a significant extent.

2.3.3 Networking activities

There are several initiatives world-wide that try to offer some kind of networking to CP-related institutions. These are brought together in the Regional Roundtables for Sustainable Consumption and Production, which have been established in Europe (since 1994), Asia Pacific (since 1998), Africa (since 2001) and Latin America (ad hoc only). Even though in many cases the NCPCs are active contributors to these roundtables, as are UNIDO and UNEP, the Roundtables operate at arm's length from the Programme and are governed by independent boards at the regional levels.

At the global level, the UNIDO-UNEP network is certainly the most important networking initiative. However, so far, the UNIDO-UNEP global network has been exclusively based on those NCPCs/NCPPs that at some stage have received assistance from UNIDO-UNEP.

The Programme has not addressed the important issue of institutional status of '*UNIDO-UNEP NCPCs*'. The question for how long after the UNIDO-UNEP assistance a NCPC can or should use the respective UN logos has not been answered yet. The introduction of quality standards to ensure that only compliant NCPCs are eligible participants for the network has been discussed but no concrete steps have been taken for the implementation of such standards. Furthermore the NCPCs have been frequently referred to as '*UNIDO-UNEP Centres*' ([10]), which suggests at least a certain institutional relationship between the Centres and the UN agencies. Such a relationship does not exist in many of these Centres, in particular those who do not receive any further funding from UNIDO or

[10] For example: "*Operationalising UNIDO Corporate Strategy*", p. 66 "*the Organization will continue to develop the technical cooperation services offered through its worldwide network of National Cleaner Production Centres (NCPCs) and National Cleaner Production Programmes (NCPPs).*"; *or page 83: "The cleaner and sustainable production (CP) strategy of UNIDO aims at utilizing the National Cleaner Production Centres (NCPCs) to implement the following two specific sets of interventions:....."*

UNEP. This situation is of particular concern and requires urgent action from UNIDO-UNEP management.

Some other important unresolved issues related to the global networking are:

- The issue of exclusiveness: who is or could be a member of the network is not entirely clear at the moment. For example, are members of a regional network, like the network in Latin America, who have not received funding through the UNIDO-UNEP CP Programme automatically members of the global network? Should there be only one member per country (normally the NCPC) or could several institutions (including regional, local and or sectoral CP Centres) participate?

- Complementary operation of the global and regional networking initiatives: currently the programme supports both types of initiatives without a clear strategy and definition of roles, thus creating a risk of duplication and reduced efficiency.

- Types of members: should only institutions be members of the network or could CP consultants

Box 2.1: Regional networking

Networking and co-operation among NCPCs has happened ad-hoc and as a result of specific interventions in- and outside the UNIDO/UNEP programme. Several examples exist where the programme facilitated the co-operation between individual NCPCs on a project basis but also in some cases mature NCPCs helped new ones to build up its capacity (e.g. Viet Nam NCPC in the case of Lao PDR and Cambodia). Examples for networking outside the UNIDO/UNEP programme are GTZ funded networks in Latin America and Africa (e.g. the 'Andres Bello Network for CP in Latin America') or the regional CP roundtables in Africa, Asia, Europe and Latin America.

Within the UNIDO/UNEP programme, the *CP LatinNet* is the most important regional networking initiative so far. UNIDO, with cooperation of UNEP, is executing a project to set up and strengthen the regional network, which aims at '*the establishment of an efficient Latin American & Caribbean CP Network that promotes the increased application of a holistic and sector Cleaner Production approach and enhances Environmentally Sound Technology transfer*'. Funding for the initial period is provided by the Austrian and Swiss Governments. The long-term plan foresees the network to become self-administered and sustainable on the basis of membership-fees. The incentive for the individual Centres to contribute to the CP LatinNet is based on the expected benefits to be derived from a set of activities:

- Regional projects: NCPCs cooperate in the design and joint implementation of regional projects;
- A Mechanism of regional experts exchange;
- Joint promotion of the Regional Programme to obtain additional members and interest from donors;
- A Knowledge Management System; and
- Training and CP awards

The evaluation team found that the progress of this initiative is encouraging. Most of the 14 members have paid their fees into a trust fund and an information management platform has been established currently including more than 500 technical documents in the database, accessible for close to 400 registered users. However, most of the stakeholders (especially member NCPCs) have expressed concerns about the effectiveness, efficiency and sustainability of the network and not much progress has been made yet in the development and implementation of regional projects. Before replicating the experience of LatinNet in other regions, it would seem advisable to carry out a mid-term evaluation of the LatinNet initiative, with special reference to the overall role of regional networking within the UNIDO/UNEP programme and vis-à-vis other networking initiatives at the global and regional levels.

and professionals join in? Should institutions from developing countries have a different status from such in industrialized countries and should the latter be members at all?

As mentioned in section 2.2.2., the objectives and the strategy for the global networking activities of UNIDO have not been made entirely explicit and specific funding was available only on an ad-hoc basis, primarily for the organisation of the '*annual Directors' meetings*' (see below). These meetings of the NCPC directors and a number of CP experts were the most important networking activities of the Programme. They were designed to facilitate the sharing of information, the dissemination of best practices among NCPCs/NCPPs and the participation of NCPCs/NCPPs in the strategy discussions at the programme level.

UNIDO has also supported the establishment of a regional network of NCPCs in Latin America (see box 2.1). The regional network has a number of interesting features that go beyond the services currently offered by the global network. More importantly, the regional network is open to such institutions that have never been part of the UNIDO-UNEP global network and who have not received any assistance through these agencies.

2.3.4 Technical Assistance

Throughout the Programme specialised firms or institutions with experience in CP supported the institutional capacity building of the NCPCs. These acted as International Reference Centres (IRCs). For the '*multilateral*' NCPCs (those that come under UNIDO-UNEP programme management) the two functions of administrative management and technical assistance were separated, i.e. UNIDO was in charge of the administrative and institutional management (e.g. budget and disbursement to the Centre, contracts of NCPC staff, monitoring of NCPC performance, participation in the executive board of the NCPC) and the IRCs provided technical inputs (e.g. training, advice for in-plant assessments). For the '*bilateral*' NCPCs (those without UNIDO-UNEP involvement) both of the above mentioned two functions were exercised by the IRC. It is however worth mentioning that typically the bilateral centres have been funded at levels 3 to 4 times higher than the NCPCs established under the UNIDO-UNEP CP Programme.

Both arrangements have their pros and cons. While the multilateral approach is less efficient and leads to longer administrative processes, the bilateral approach puts two ideally separated functions (administration and technical advice) under the responsibility of the same institution, thereby limiting the potential for a beneficiary country driven delivery of consultancy services. There is no clear evidence that one of the two approaches is more effective with regard to the creation of national capacity. The cases analysed show that NCPCs can be established by bilateral agencies as well as by multilateral one with similar results (see analysis of independent country evaluations and overall programme assessment). In both cases, there is a tendency to engage too much and for too long a period in the administrative '*micro-management*' of the NCPCs, including the recruitment of national staff and the management of the operational budgets of the centres.

The multilateral approach harbours a greater potential for creating a growing pool of IRCs with broad sectoral and country experience. This was actually envisaged to be turned into a main value added of the Programme over time [27]. Whether or not such an effect has materialised is not fully clear (no specific reporting available on this). However, anecdotal evidence exists that IRCs that have delivered successful services to some centres, are later on used by other NCPCs to deliver the same services. A case in point is the successful ECO Profit model promoted by Stenum. On the other hand, the multilateral approach adds complexity to the overall management of technical assistance,

sometimes obstructing a more efficient direct relationship between reference centres and NCPCs.

2.3.5 Publications and Information Management

The CP programme has produced a considerable number of manuals, training materials, sectoral CP guides and issue papers on specific CP issues. UNEP and UNIDO maintain specific CP websites offering most of these documents to the public (see also section 2.4. and the self evaluation of publications by the NCPCs/NCPPs in section 3.3)).

The information produced and provided by the Programme has not yet been assembled into an information and/or knowledge management system as in the case of the CP LatinNet. Prior to the launch of the UNIDO-UNEP CP Programme, UNEP operated in the 1990's the "*International Cleaner Production Information Clearinghouse*" (ICPIC) – an compilation of case studies, technical manuals and fact sheets on CP, initially provided by the United States Environmental Protection Agency, but complemented with the results from UNEP CP working groups. It was planned that the NCPCs would contribute their results and experiences into ICPIC, but this did not materialise. With the increased availability of the Internet, UNEP has discontinued ICPIC.

2.4 Programme Results

As per the re-constructed logical framework for the UNIDO-UNEP CP Programme results include the different dimensions, namely outputs, outcomes and impact (see also Figure 2.1). This section covers outputs at programme level. Outcomes and impacts are achieved principally at the national level in the host countries and are therefore analysed mainly on the basis of the independent country evaluations undertaken by the evaluation team (see Chapters 4 and 6).

2.4.1 NCPCs

The implementation of the CP programme foresaw the establishment of 20 NCPCs in a five-year period from 1994 to 1999 in two phases. In Phase I the first NCPCs in China, India, Mexico, Tanzania and Zimbabwe (all funded by The Netherlands) were established. This was then followed by the NCPCs in Slovak Republic and Czech Republic (funded by Austria), and Brazil (self financed by Brazil). These NCPCs have been referred to frequently as the '*first generation NCPCs'* (or '*old'*).

After this first set of NCPCs was established, the goal to create 20 NCPCs was achieved according to plans and later on further 14 NCPCs/NCPPs were established by the UNIDO-UNEP CP Programme. In 2007 another four (Bulgaria, Romania, Serbia and Montenegro) are either in the phase of NCPP or at the initial phase of NCPC establishment. Table 2.1 shows the 37 countries covered by this evaluation with the respective funding amounts. Another three countries are on the NCPC list (Armenia, Panama and Paraguay) but no budgetary or management information was available to the UNIDO CP Unit. The list includes four NCPCs that have not received any funding through the UNIDO-UNEP CP Programme but were to some degree connected to it either through original support in the design of a NCPC support project that then led to funding by a different source or through the bilateral funding through the SECO Programme on

Sustainable Enterprise Development Centres which maintained close cooperation with the UNIDO-UNEP CP Programme.

Table 2.1: Donor funding for NCPCs

UNIDO NCPCs	Start Operation	(expected) End of UNIDO/Donor support	Donor	Total Amount received (USD) ([11])	Amount per Year ([12]) (USD)
Armenia (NCPP)	2005	2007	Austria	221,240	110,620
Bolivia^	1995	2007 (ongoing)	Switzerland, USA, Denmark	-	-
Brazil	1995	1998	Brazil	330,000	110,000
Cambodia	2004	2007 (extension planned)	Switzerland	802,000	267,000
China	1995	1998	The Netherlands	310,000	103,000
Colombia^	1998	2006	Switzerland	2,800,000	400,000 [13]
Costa Rica	1998	2006	Switzerland	1,854,000	206,000
Croatia	1997	1999	Czech	175,000	58,100
Cuba	2001	2007	Austria	596,000 (4 years) 490,000 (3 years)	155,000
Czech Republic	1994	1999	Austria	603,000	120,600
Egypt	2004	2010	Austria, Switzerland	600,000	150,000
El Salvador	1999	2006	Switzerland	1,860,000	232,500
Ethiopia	2000	2008	Italy	900,000 (incl. extension to 2008)	100,000
Guatemala	1999	2006	Switzerland	1,588,000	198,500
Honduras^	2000	2005	Canada	*	
Hungary	1997	2001	Austria	404,000	101,000
India	1995	1998	The Netherlands	310,000[14]	103,000
Kenya	2000	2004	UNDP	637,200	127,440
Laos	2004	2007 (extension planned)	Switzerland	769,000	256,000
Lebanon	2002	2008	EU/Austria	310,000	52,000
Macedonia	2001	2007	Czech Republic, Austria	300,000	50,000
Mexico	1995	1998	The Netherlands	310,000	103,000
Morocco	2000	2007	Switzerland	1,580,000	226,000
Mozambique	2000	2007	Italy	678,000	84,750
Nicaragua	1997	2007	Austria	1,561,000[15]	156,100
Peru^	2002	2007 (ongoing)	Switzerland, USA	1,800,000[16]	360,000
Republic of Korea	2001	2005	Republic of Korea	593,000	118,600

[11] Includes technical assistance provided by international experts or International Reference Centres, rounded figures, source: UNIDO infobase as of October 2007
[12] Total amount received divided by duration of funding support period
[13] Approximation from budget data of annual reports
[14] Does not include specific project on cleaner technology promotion
[15] Includes specific project on Sustainable Industrial Resource Management (SIRM)
[16] Estimated amount, no exact figures for contributions from both donors available

Russia	2001	2007	United Kingdom, Austria	1,068,000	178,000
Slovakia	1995	2001	Austria	513,500	86,000
South Africa	2002	2007	Switzerland, Austria	1,619,000	324,000
Sri Lanka	2001	2007	Norway	1,030,000	172,000
Tanzania	1995	1998	The Netherlands	310,000	103,000
Tunisia	1996	1998	Norway	66,500	33,200
Uganda	2001	2007	Austria, Norway	1,586,000	264,000
Uzbekistan	2005	2007	Austria	102,000	34,000
Vietnam	1998	2007	Switzerland	3,985,000	443,000
Zimbabwe	1995	1998	The Netherlands	310,000	103,000
^ these NCPCs have not had funding support through the UNIDO-UNEP CP Programme					

With funds mobilisation being one of the most important outputs of programme management, it is obvious that a lot has been achieved in this respect. At the same time it should be made clear that more of the limited time and resources of programme management could have been devoted to more substantive issues if funding would have been available at the programme level. The annual support provided to NCPCs ranges from USD 33,000 (Tunisia) to USD 443,000 (Vietnam), indicating a wide range of funding volumes employed to support NCPCs. Also the duration of funding support varies widely (between 3 and 9 years).

The volume and duration of support can be compared with *'ex-ante'* criteria, i.e. such that are commonly applied in the planning stage of an NCPC (country size, level of industrial development, importance of industrial pollution, etc.; see for a more detailed discussion Chapter 5, portfolio analysis) and '*ex-post'* criteria, i.e. primarily the level of success in terms of sustainability and effectiveness. With regard to the ex-ante comparison it can be observed that there is no correlation between the volume of funding and the size of environmental and economic challenges to be addressed by the NCPC. Some small countries with relatively limited industrial pollution, like the ones in Central America, received relatively high and long support, while some big countries with significantly higher environmental pollution problems (e.g. China, India, and Mexico) received relatively low and short support.

With regard to the ex-post analysis Table 2.2 provides an overview of the NCPCs reviewed by this evaluation, including past and present linkages to the UNIDO-UNEP CP programme and current status of the NCPC as a leading agency in its country ([17]). Also here no easy lesson can be learned. There is no correlation between the fact that a NCPC/NCPP has positioned itself as lead agency and the volume or duration of financial support. However, the fact that funding support through the Programme is still ongoing shows a clear relation to the strength of the current linkage between the UNIDO-UNEP CP programme and the respective NCPCs. All eight NCPCs or NCPPs listed as maintaining a strong relationship with the programme are currently receiving funds through the Programme. While this might seem obvious, it clearly indicates that the Programme so far has not been able to establish a substantive relationship to NCPCs beyond the funding period.

[17] The ratings are based no the judgment of the evaluators. In some cases no such judgment could be formed due to lack of information.

Apart from the support to the establishment of NCPCs by UNIDO, UNEP also implemented a number of projects in cooperation with NCPCs, primarily to test new and innovative approaches to enhance the application of CP. The most important of these projects are:

- Cleaner Production Financing, In 1999 UNEP started a four-year project aiming at increasing investments in cleaner production in developing countries. The project, focused on five demonstration countries: Guatemala, Nicaragua, Tanzania, Vietnam and Zimbabwe and was conducted under a trust fund created by the Norwegian Government.

- Cleaner Production/EE projects: 'Promoting Industrial Energy Efficiency through a Cleaner Production/Environmental Management System Framework' (EECPEMS). The pilot projects were carried out in six countries: China, Vietnam, India, Hungary, The Czech Republic and Slovakia.

- The follow up project '*Greenhouse Gas Emission Reduction from Industry in Asia and the Pacific*' (GERIAP) was established to develop and apply a CP-EE methodology in four energy-intensive sectors in the Asia Pacific region and was supported by the Government of Sweden.

- Project on CP and Multilateral Environmental Agreements (ACME) building capacity in India and Ukraine to use CP to support implementation of Multilateral Environmental Agreements (MEA).

Table 2.2: Results of NCPC/NCPP establishment

Country	*past linkage to UNIDO-UNEP*				*current linkage to UNIDO-UNEP*				*a leading agency?* Techni-cally	Institu-tionally
Bolivia	none					marginal				
Brazil				Strong		marginal				
Cambodia				Strong				strong		
China				Strong	none				yes	yes
Colombia	none					marginal			yes	no
Costa Rica				Strong		marginal			yes	yes
Croatia				Strong		marginal				yes
Cuba				Strong			medium		yes	yes
Czech Republic				Strong		marginal				yes
Ecuador	none				none				no	no
Egypt				Strong				strong		
El Salvador				Strong			medium		yes	yes
Ethiopia										
Guatemala				Strong			medium		yes	yes
Honduras	none					marginal			no	no
Hungary				Strong	none				no	no
India				Strong	none				yes	yes
Kenya		Marginal			none					yes
Laos				Strong				strong		
Lebanon				Strong		marginal				
Macedonia				Strong				strong		
Mexico				Strong		marginal			yes	no
Morocco				Strong					yes	yes
Mozambique				Strong			medium		yes	no
Nicaragua				Strong			medium		yes	yes
Peru	none					marginal			no	no
Rep of Korea										
Russia (St. Petersburg)				Strong			medium		yes	yes
Slovak Republic				Strong		marginal				yes
South Africa				Strong		marginal			no	no
Sri Lanka				Strong				strong	no	yes
Tanzania				Strong	none					
Tunisia		Marginal			none				yes	yes
Uganda										
Uzbekistan				Strong				strong		
Vietnam				Strong				strong	yes	no
Zimbabwe				Strong	none					
	7	**2**	**0**	**28**	**9**	**13**	**6**	**8**	**64%**	**58%**

Source: Assessment by evaluation team

- Norwegian Project to support establishment of an African Roundtable on Cleaner Production.

- CP in the African Brewery Sector (ABREW, a first stage demonstration project for a larger scale second phase). The project includes demonstration CP assessments in two

breweries in Uganda and a Pan-African review of the potential for CP in the African brewery sector.

- Finnish Task Force on Sustainable Buildings and Construction and UNEP Sustainable Buildings and Construction Initiative (SBCI): Finland is hosting the Marrakech Task Force on Sustainable Buildings and Construction, in which UNEP's Sustainable Buildings and Construction Initiative (SBCI) is a close partner and has provided substantial support. Involves a compilation of a list of joint policy recommendations for the CSD (Commission for Sustainable Development) in May 2007 and the publication of best policy practices. UNEP Sustainable Building and Construction Initiative (SBCI*)* is a close partner of the Finnish TF and they have jointly published a baseline report entitled *Buildings and Climate Change: Status, Challenges and Opportunities* in 2007.

- UNEP-InWEnt projects on capacity building in Cleaner Production Centres.

- Application of Environmental Technology Assessment (EnTA). NCPCs were trained in a methodology to assess environmental technologies.

2.4.2 Networking

As mentioned in paragraph 2.3.3 the most important networking activities were the international meetings for the directors of the NCPCs/NCPPs organised by UNIDO and UNEP. Table 2.3 lists the time and location of the nine annual meetings that have been held since establishment of the Programme in 1994 (13 years).

Table 2.3: NCPC 'Annual' Meetings

NCPC Annual Meetings have been held as follows:		
Place	**Host Country**	**Date**
Vienna	Austria	13-15 December 1995
Nyanga	Zimbabwe	25-30 November 1996
Bangkok	Thailand	6-9 November 1997
Prague	Czech Republic	7-12 March 1999
Berne	Switzerland	7-12 May 2000
Seoul	Republic of Korea	5-9 November 2001
Mayrhofen	Austria	7-9 May 2003
Interlaken	Switzerland	7-12 June 2004
Semmering	Austria	24-26 September 2007

Source: UNIDO website

In addition to these annual meetings UNEP carried out the following networking activities in the period between 1992 and 2005:

- 8 International high level Seminars on (Sustainable) Cleaner Production;
- Support to S(CP) regional roundtables: twenty interventions;
- International Declaration on Cleaner Production (incl. signing ceremonies; declaration brochure and poster); and
- CP website (on-going).

It is very difficult to assess the effectiveness of such meetings, since the benefits of social interaction between CP experts can hardly be quantified. However, from interviews with NCPC Directors it can be concluded that the annual meetings are a valuable source of information and experience exchange between professionals.

The UNIDO-UNEP CP Programme has made an important contribution to the development of an international CP community by bringing together experts on CP from all over the world and by facilitating the experience exchange between these experts. In this context it should be noted that the main part of the technical assistance of the Programme was provided by a select number of International Reference Centres, i.e. qualified institutions with experience in different fields of CP (see Table 2.4). The relation between the CP Programme and some of these institutions was maintained throughout the programme. While no in-depth analysis has been undertaken of the interactions between these centres and the programme, it can be said that the approach to establish long-term relationships with internationally renowned institutions is mutually beneficial (to some extent the Programme might also have helped these institutions to position itself in the international community of CP) and represents a best practice. It is considered more effective and sustainable than relying on a network of individual consultants as is the case in many other UNIDO programmes.

The use of the select group of IRCs appears to have been beneficial for fostering coherence in programme implementation among recipient countries, and the use of more experienced NCPCs as IRCs for newly established NCPCs/NCPPs is being applauded. With the maturing of the Programme, more attention is needed to expose NCPCs/NCPPs to different methods and practices for CP service delivery, and thereby enable NCPCs/NCPCs to develop methods and practices that are most suited to the local circumstances in their home countries (see also portfolio analysis in Chapter 5).

Table 2.4: International Reference Centres utilised by the UNIDO-UNEP CP Programme

International Reference Centres	**Country**	Period of Service Delivery (*)
IVAM Environmental Research, University of Amsterdam	The Netherlands	1995-1998
Erasmus Centre for Environmental Science, Erasmus University	The Netherlands	1995-1998
Danish Technological Institute	Denmark	1995-1996
Danish Technological University	Denmark	1995-1998
University of Massachusetts at Lowell	USA	1995-1998
World Cleaner Production Society	Norway	1995-1997
STENUM	Austria	1995-ongoing
Fach Hochschule Nordwest Schweiz (University of Applied Life Sciences, Northwest Switzerland) (FHNW, formerly FHBB)	Switzerland	1998-ongoing
EMPA	Switzerland	1998-ongoing
Bob Partners	Switzerland	Ongoing
Urbaplan	Switzerland	Ongoing
Slovak Cleaner Production Centre	Slovakia	Ongoing
Czech Cleaner Production Centre	Czech Republic	Ongoing

(*) This refers to the period of active engagement as an International Reference Centre for any of the NCPCs. This excludes some minor project-related consultancies through UNEP projects supporting NCPCs and/or collaborative projects between IRC and selected NCPCs outside of the UNIDO-UNEP CP Programme.

2.4.3 Resource Materials

UNIDO and UNEP have produced a large number of resource materials for the NCPCs/NCPPs (training tools, guidelines, sectoral CP guides, etc.). These are typically also available to CP service providers outside the UNIDO-UNEP CP Programme. The usefulness of the most important of these resource documents has been analysed based on a survey among NCPCs (see section 3.3 for a detailed analysis).

In accordance with the originally envisaged division of labour between UNIDO and UNEP, the latter has been more active in producing such materials and in some cases in providing the corresponding training to NCPCs. Some examples are:

- *Support to the development of the D4S (Design for Sustainability) Manual and UNEP's D4S activities.* Including publication of '*D4S A practical approach for emerging economies' [38]* .

- *How to use Environmental Management Tools (called Environmental Management Navigator).* With Wuppertal Institute, NCPCs were trained on this web-based tool that explains a number of environmental management tools and how they can be best applied.

- *Facilitating implementation of Multilateral Environmental Agreements through Cleaner Production, Integrating Cleaner Production and Sustainable Consumption.* Both modules were delivered to NCPCs.

- *Cleaner Production and Environmental Management in Industrial Estates (follow up project with Slovak NCPC).* The module was developed and initially given in the Philippines and piloting is being carried out in Slovakia, one of the NCPCs that attended the first training.

- Building upon UNEP's projects in the area, a training package was prepared *(Energising CP) [39].*

Both organisations have organised their information on CP on their respective websites. No joint website and no central information management system exist for the UNIDO-UNEP CP Programme.

2.5 Key Findings

2.5.1 Quality of Design

The concept of CP is well reflected in the design of the Programme and originally the Programme was a coherent approach to building CP into an international cooperation initiative. Over time, the consistency and clarity of the Programme has diminished to some extent, given the frequent attempts to re-design and re-shape the Programme, without a clear strategy and logical framework. Simultaneously, insufficient provisions were made to ensure ongoing input from both UN agencies over time in particular on strategic matters.

The NCPC model can be described as largely successful and demand oriented, given its replication at a large scale and the continued demand for the set up of new NCPCs.

Not all of the interventions of the Programme will contribute to poverty alleviation, productivity gains and environmental impact reduction to the same extent. Thus, when a component or project is designed it should be clearly stated which of the Programme's goals is being primarily aimed at.

Already the NCPC Programme evaluation carried out in 1996 recommended the establishment of a *'firm programme concept'* and the '*establishment of a dialogue between UNIDO-UNEP and the partners*' [22]. The evaluation team concludes that the good potential of the Programme for increased effectiveness and relevance can be exploited fully only if a solid programming exercise is carried out.

A strategy to deal with NCPCs that do no longer receive funds through the Programme does not exist and this presents a major weakness, which should be addressed by the UNIDO-UNEP CP Programme in the immediate future.

2.5.2 Quality of Implementation

The UNIDO-UNEP CP Programme started in the early 90's with a strong programmatic approach, including a clear strategy and the target to set up of 20 NCPCs in the medium term. Over the years, this programmatic approach has weakened considerably and was replaced by a focus on the implementation of individual CP projects (mainly set up of NCPCs) with little steering and monitoring at the programme level. This approach has led to the establishment of 34 NCPCs and NCPPs worldwide and a continued demand for the establishment of new centres. On the other hand, the reduced importance given to programme aspects (including systematic programme-level planning, monitoring and evaluation) has limited the potential of the UNIDO-UNEP CP Programme to build on past experience for improved quality and effectiveness of CP interventions and to exercise thematic leadership within the Programme as well as in the broader international community. Also the relatively limited internal (within UNIDO) and external (inter-agency) cooperation in the UNIDO-UNEP CP Programme represented a barrier for wider impact at the programme level.

The main reasons for these shortcomings are UNIDO-internal systemic constraints and a general lack of programmatic funding. The institutional status and the objectives of networking activities also need urgent clarification.

The provision of technical assistance through the UNIDO-UNEP CP Programme has been largely effective and of good quality. Efficiency however needs to be improved by reducing the degree of micro-management (in particular on administrative matters) and centralised agency execution and by establishing a more direct relationship between NCPCs as contractors and international reference centres as technical advisors.

The UNIDO-UNEP CP Programme has produced a large number of outputs and valuable outcomes. A commendable effort has been made to support the establishment of NCPCs in more than 30 countries and the sustainability of these efforts is considered good. The main contribution of the programme to the institution building at country level has been in the planning and funds-mobilisation as well as in the organisation of technical assistance to the NCPCs.

So far the programme has been less effective in the field of networking and up-stream services. Efficiency has been relatively low, given the systemic constraints inherent in the current modalities of technical cooperation through multilateral agencies.

3
Self Evaluation

3.1 Introduction

The second '*pillar'* of the independent evaluation reported here was a self-evaluation by the centres. The primary aim of the self-evaluation was to obtain comparable baseline information on the operation, management and activities of all NCPCs/NCPPs directly from the Directors who run these on a daily basis. The secondary aim was to assist with the selection of countries to be visited by a member of the international evaluation team to undertake an independent country evaluation (as covered in Chapter 4 of this evaluation report).

The self-evaluation was based on two independent surveys conducted by email among the nominated Directors of 38 NCPCs/NCPPs covered by this programme evaluation.

- Survey 1: a broad based survey into the current status of the NCPC/NCPP, covering management information, activity information, results and assessment.

- Survey 2: a specialist survey into emerging topics and tools in the UNIDO-UNEP CP Programme. It was undertaken in response to suggestions at the first meeting of the Steering Committee to assess in greater detail the level of interest, expertise and experience of the NCPCs/NCPPs, in regard to such new service areas, Multilateral Environmental Agreements (MEAs) and resource materials (publications and training materials).

The first survey was issued immediately after the launch of the evaluation study (on 20 April 2007), and after repeated follow up, a total of 36 responses had been received by 7 October 2007. The two missing responses are Costa Rica (but Costa Rica was included in the list of countries visited for an independent country evaluation) and Ethiopia (no information obtained at all). For each respondent a country profile was compiled, and these are available on request from the UNIDO Evaluation Group.

The second survey email was distributed on 10 July 2007, and after repeated follow up, a total of 23 responses had been received by 20 September 2007. The responding countries are listed in Table 3.1.

Table 3.1: Survey responses

Region [total number of NCPC/NCPPs]	**Respondents**	
	First Survey [total responses]	**Second Survey [total responses]**
▪ Africa [10]	Egypt, Morocco, Mozambique, South Africa, Tanzania, Tunisia, Kenya,	Egypt, Kenya, Morocco, Mozambique, Tanzania and

	Uganda and Zimbabwe [9]	Zimbabwe [6]
▪ Asia [9]	Cambodia, China, India, Laos, Lebanon, Republic of Korea, Sri Lanka, Uzbekistan and Vietnam [9]	Cambodia, China, India, Laos, Lebanon, Republic of Korea, Uzbekistan and Vietnam [8]
▪ Central America [8]	Cuba, El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Paraguay [7]	El Salvador, Guatemala Mexico and Nicaragua [4]
▪ Central Eastern Europe [7]	Armenia, Croatia, Czech Republic, Hungary, Russia North West Region (St Petersburg), Russia (Oil & Gas Centre, Moscow) and Slovakia [7]	Croatia, Czech Republic and Slovakia [3]
▪ South America [4]	Bolivia, Brazil, Columbia and Peru [4]	Bolivia and Colombia [2]
Total: 38	Total: 36 responses [95%]	Total: 23 responses [61%]

The lower, but still very acceptable, response level for the second survey most likely reflects that fewer NCPCs/NCPPs have experience on the expanded set of topics covered in the second survey, while also a degree of survey-fatigue among the NCPCs/NCPPs may have been at play. The responding countries appear an illustrative sample of NCPCs/NCPPs in regard to their geographic, location, size and age, but no further analysis was performed to confirm that the respondents were a representative sample of all NCPCs/NCPPs in the UNIDO-UNEP CP Programme.

The findings from both surveys are summarised and reviewed here in an integrated manner. First, section 3.2 covers management, governance and institutional issues. Section 3.3 then covers the activities and services of the NCPCs/NCPPs, and section 3.4 covers the self-evaluation from the Directors on the competencies of their centres and against the evaluation criteria set for this programme evaluation.

3.2 Management Information

Table 3.2 contains the data for the history of the NCPCs/NCPPs on the basis of their reported establishment date. There are two peak periods in which most were established, respectively a first wave in 1993-1995 (9 Centres) and a second wave in 1999-2001 (14 Centres). A relatively large share of the current NCPCs/NCPPs should be regarded as mature; 28 (78%) were established prior to 2002 and thus have each an operational history of at least 5 years.

Table 3.2: Reported establishment date for the NCPCs/NCPPs (36 responses)

	Year														
	'93	**'94**	**'95**	**'96**	**'97**	**'98**	**'99**	**'00**	**'01**	**'02**	**'03**	**'04'**	**'05**	**'06**	**'07**
New Centres Established	2	1	6	1	1	3	4	6	4	3	1	2	1	1	0
Total Centres	2	3	9	10	11	14	18	24	28	31	32	34	35	36	36

The current institutional set up of these NCPCs/NCPPs is summarised in Table 3.3. The majority of the Centres (61%) operates with limited independence, either as subsidiary of the host organisation (44%) or otherwise semi-autonomously (17%). Only 31% of NCPCs/NCPPs operate fully independently. In their operation, many therefore adopt the

legal status of their host. A large share of Centres operates with legal status of a public entity (36%) or other NGO (typically a business association, respectively 17%). The host institutions are quite diverse, but public sector entities prevail with 14% hosted in a University, 19% in a Ministry/Department and 25% in other public entities. The large shares of the other categories for legal status (30%) and host institution (28%) are reflective of the fact that the institutional status of these centres is not resolved (for example operating as a joint project of different public and/or private sector entities), does not follow any of the standard categories used for the survey and/or that categories are understood differently within the respective national legal systems. Overall however, greater clarity on institutional set up would add to the achieving stability for the NCPC/NCPP and ultimately the sustainability of the CP programme in the

Table 3.3: Institutional information (36 responses)

Degree of Independence			**Legal Status**			**Host Institution**		
Fully independent	11	31%	Association	3	8%	Industry Association/ Chamber	4	11%
Semi autonomous	6	17%	Other Non Governmental Organisation	6	17%	University	5	14%
Subsidiary of existing organisation	16	44%	Registered Private Company	1	3%	Ministry/ Department	7	19%
Unknown	3	8%	Public Entity	13	36%	Other Public Entity	9	25%
			Other	11	30%	Other	10	28%
			Unknown	2	6%	Unknown	1	3%
Total	*38*	*100%*	*Total*	*36*	*100%*	*Total*	*36*	*100%*

respective countries.

Most of the NCPCs/NCPPs reported to have some kind of a board to guide their activities (32, or 89%). These include broadly constituted advisory boards (28%), smaller management or governing boards (44%) or steering committees (typically tri-partite with only host and donor governments represented, and UNIDO and the NCPC) (17%).

Table 3.4 provides the summary data provided by the Directors on institutional funding for their NCPCs/NCPPs received through the UNIDO-UNEP CP Programme. These could within the context of this programme evaluation not be reconciled with management records of the UNIDO CP Unit. Six respondents (17%) reported to have never received institutional funding through the UNIDO-UNEP CP Programme. Those that received institutional funding typically did so for 3 to 4 years (respectively 19% and 17% of respondents). However, some NCPCs have received institutional funding support for much longer (17% received institutional funding support for 7 or more years). 11 of the 30 countries that have been institutionally funded through the UNIDO-UNEP CP Programme still received support in 2007. 19 have continued to operate without institutional funding. About one third of these (37%, 7 countries) are in their first year of operation without institutional funding. However a considerable number has continued to operate without institutional funding for considerable time, for example 10 (33% of the Centres once funded) now operate for five or more years without institutional funding.

Table 3.4: Centres by institutional support cycle (36 responses)

Number of NCPCs/NCPPs	Total	Number of Years											
		0	1	2	3	4	5	6	7	8	9	10	11
▪ Length of institutional funding period	36	6	0	3	7	6	4	4	2	1	1	1	1
▪ Length of operation after institutional funding	30	11	7	1	1	0	1	1	1	2	4	1	0

There is a distinct underlying pattern in the funding. The first batch of NCPCs was funded by the Governments of The Netherlands and Austria (Brazil, Czech Republic, China, India, Mexico, Slovakia, Tanzania and Zimbabwe). With the exception of India and Tanzania, all of these NCPCs received relatively low institutional funding through the UNIDO-UNEP CP Programme, and support was only given for an initial period of 3 years. Most of the centres established thereafter have been able to secure higher funding levels in the first period and a second or even third institutional funding phase, implying much longer and higher financial support. Austria and Switzerland have been and are the main donors, as they contribute to the funding of respectively 12 and 11 Centres. There are also a number of smaller donors that contribute funding only to one or two Centres, e.g. Italy, Canada, Hungary, Czech Republic, European Union, United Kingdom and Norway.

The Directors also reported on the total institutional funding they received. Responses were obtained from 22 countries showing a range of USD 60,000 to USD 4.2 Million, with an average of USD 863,000. These responses are not internally consistent and there could have been differences in interpretation of this question. It was impossible to reconcile data from different sources within the context of this programme evaluation. It suffices here that directors reported as their total institutional funding between 19 and 331% of the funding level extracted from UNIDO records (and reported in Table 2.1). The responses from directors thus deviated substantially from the management records, as many directors reported lower total support budgets (up to five times lower) while some reported higher total support budgets (up to 3.3 times higher).

There is thus a large spread between the total funding contributions made to different countries (in the order of magnitude of the NCPC with the highest funding received at least 5 times more than the NCPC with the lowest funding levels). Moreover, it should be noted that the financial contribution to the NCPC does not relate to the size of the economy or its structure. Or in other words, the funding commitment made to the NCPC is not linked to the potential need or market for CP and CP-related services.

The reported annual budgets (i.e. resources at the disposal of the NCPC including national government support, fee-for-service income, and other donor funding) vary between USD 50,000 and USD 3.6 Million (data for 29 countries). This highest figure (for Republic of Korea) is nearly three times higher than the second highest (Vietnam, USD 1,333,000) and therefore excluded from calculation of the average annual budget. For the remaining 28 countries the average annual budget is USD 438,000. The relative shares of the various income sources are displayed in Figure 3.1. This is based on 35 centres that provided information on the sources of their income. The diamonds in the figure show the average values for all NCPCs/NCPPs, and the error bars show the variation between the highest and lowest. The average percentage contributions from various sources are: 28.2 % for UNIDO-UNEP CP Programme; 26.2 % for private sector (fee-for-service); 22.9 % for other donor programmes and 18.2 % for national

government. The contributions from other sources and other UNIDO projects are negligible on average, but can still be substantive for some centres.

Figure 3.1: Sources of income (35 responses)

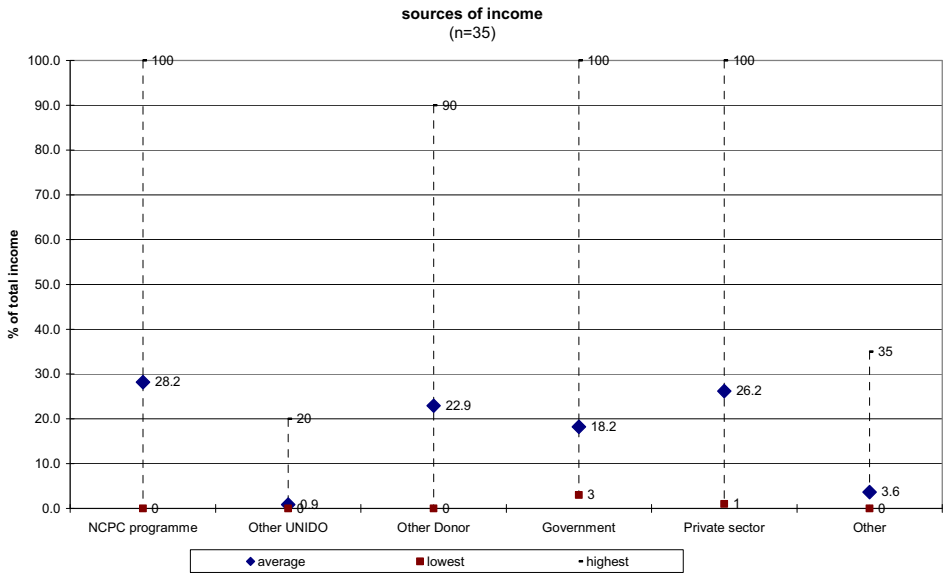
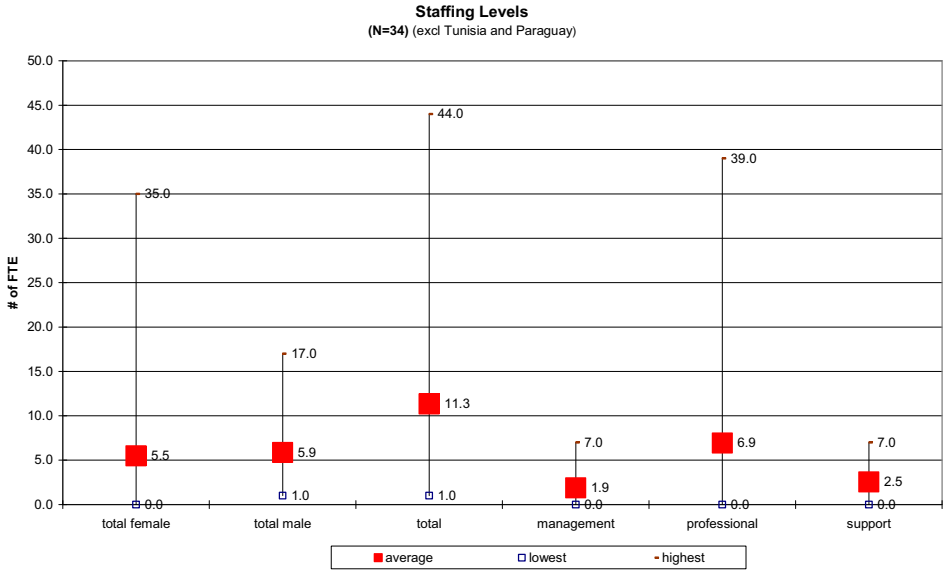


Figure 3.2: Staffing of the NCPCs/NCPPs (34 responses)



The variability in funding levels and annual budgets is reflected in the staff size of the NCPCs/NCPPs. Data on staff were obtained from all centres, but the highest (Tunisia, 112 staff) and lowest Panama (no staff) were further excluded from the analysis. Data for the remaining 34 responses are presented in Figure 3.2. The average for all centres is represented by the squares, whereas the range bars point to the lowest and highest numbers in this subset of centres. The average staff strength is 11.3 full time equivalent, comprising 1.9 in management, 6.9 at professional level and 2.5 at administrative and support levels. The gender balance is well attained, respectively on average 5.5 female and 5.9 male staff members.

3.3 Service Delivery

In the first survey, the centres were requested to provide their current activity levels in each of the five key service areas within the UNIDO-UNEP CP Programme, respectively: information dissemination/awareness creation; training; in-plant assessments; policy advice and transfer of Environmentally Sound Technologies (ESTs). The responses are summarised in Table 3.5. It shows that three core services are very common in the programme as they are delivered by at least 80% of the responding NCPCs/NCPPs, i.e. information dissemination, training and in-plant assessments. The other two service categories are less commonly delivered throughout the programme, respectively 56% of the respondents is involved in policy advice and 47% in EST transfer. Furthermore, 36 % of the responding NCPCs/NCPPs stated to be active in other service areas. The other category is quite diverse, and includes e.g. Occupational Health and Safety, environmental impact assessment, life cycle assessment and design for sustainability.

Table 3.5: Core service delivery (36 responses)

Service Category	Number of Countries							
	Active		Not active		No Response		Total	
1. Information Dissemination	29	81%	3	8%	4	11%	36	100%
2. Training	29	81%	3	8%	4	11%	36	100%
3. In-plant Assessments	29	81%	3	8%	4	11%	36	100%
4. Policy Advice	20	56%	12	33%	4	11%	36	100%
5. EST transfer	17	47%	15	42%	4	11%	36	100%
6. Other	13	36%	18	50%	5	14%	36	100%

3.3.1 Potential for CP-related Service Delivery

The first part of the second survey addressed the potential for CP-related service delivery. 16 such areas were identified from among the topics covered by UNIDO under the term '*CP Plus'*, by UNEP under the term '*SCP*' and donors under the term '*CSR'*. The NCPCs/NCPPs were requested to assess the opportunity these service areas presented in their countries, on the basis of their assessment of the potential for service delivery and the perceived interest of key stakeholders in their countries. It was also requested to identify whether and how they were active in regard to service delivery on these topics. As the initial discussions with Centre Directors and the Steering Committee had revealed a lack of common understanding on the meaning and scope of the different terms, an attempt was made to define all 16 CP-related service areas, as per the following ([18]):

[18] The umbrella terms (CSR, SCP and CP+) were purposely left out to avoid further confusion.

1. *Energy Efficiency and Renewable Energy (EERE)*: application of CP methods, tools and practices to increase energy productivity and use of renewable energy sources, and reduce net greenhouse gas emissions;

2. *Hazardous Waste Management (HWM)*: application of CP principles and practices to reduce hazardous waste generation and achieve environmentally sound treatment and/or disposal;

3. *Eco-Industrial Parks/ Environmental Management of Industrial Estates (EIPs)*: application of environmental best practices in planning, establishment and ongoing management of industrial zones, estates and/or parks;

4. *Life Cycle Assessment/ Management (LCA/M):* methodology for assessing the environmental impacts of products, services or processes considering all life cycle stages;

5. *Environmental Management Systems (EMS)*: planning, implementation, audit and review of organisation's effort to manage its environmental aspects in accordance with its objectives and targets;

6. *Environmental Management Accounting (EMA)*: use of materials and energy flow data and associated costs in decision making;

7. *Environmental Technology Assessment (EnTA)*: assessment of the environmental aspects of alternative technologies (and/or the systems they are part off);

8. *Financing CP/EST Investment Promotion (CP Finance)*: application of (advanced) financing methods and investment promotion strategies for implementation of CP and ESTs;

9. *Sustainable Industrial Resource Management (SIRM*): implementation of resource efficiency/ dematerialisation and closed loop approaches in production chains;

10. *Chemicals Leasing (CL)*: service oriented business model for provision of chemicals/materials to industrial consumers;

11. *Design for Sustainability/ Design for Environment/ Eco-Design (D4S)*: integration of environmental (and possibly social) aspects into all aspects of product and service development and delivery;

12. *Sustainable Procurement/ Greening of Supply Chains (SusProc)*: inclusion of environmental criteria in procurement of products and services by governments and/or businesses;

13. *Global Compact (GC)*: a set of overarching corporate responsibility codes to which companies can make a voluntary commitment;

14. *Triple Bottom Line/Sustainability Management (TBL)*: inclusion of environmental and social dimensions into all aspects of (business) decision making;

15. *Sustainability Development Reporting/Global Reporting Initiative (SDR)*: public disclose of the organisation's environmental, social and economic performance; and

16. *Occupational Health & Safety/Labour Practices (OH&S)*: achieving a safe, clean and productive workplace for all.

Figure 3.3: Estimated applicability of the service categories at the national level (23 responses)

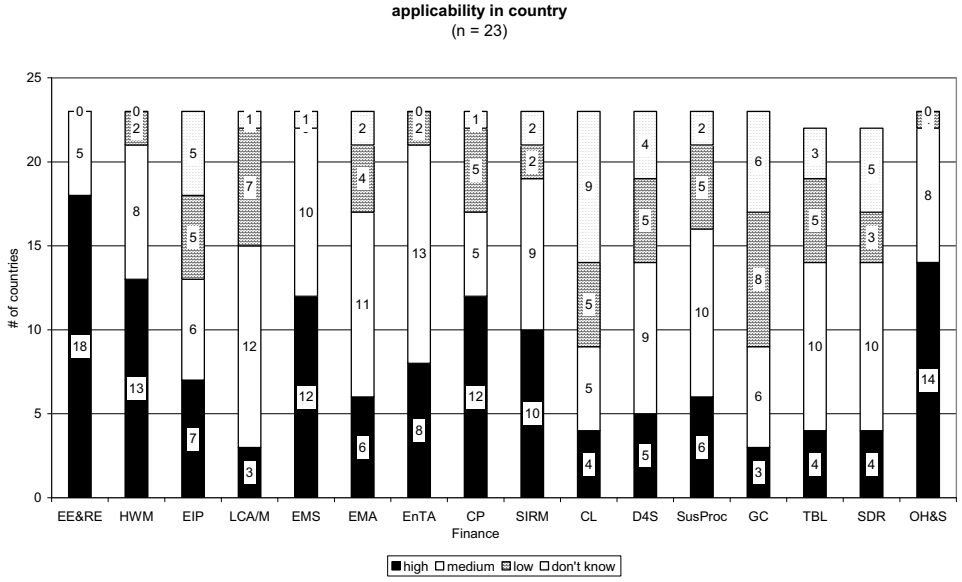
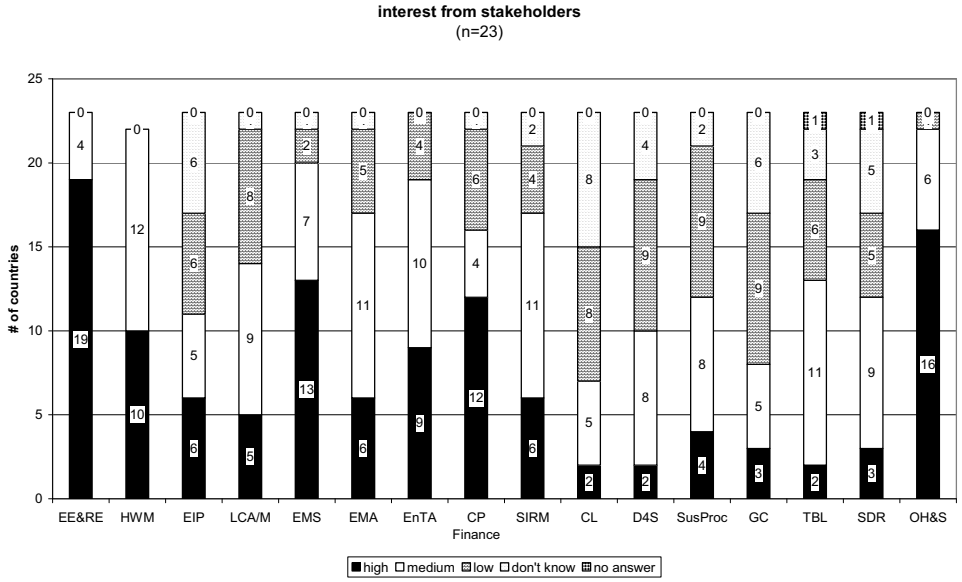


Figure 3.4: Perceived interest of stakeholders at national level in the service areas (23 responses)



The results in regard to estimated applicability of the service area and perceived interest from stakeholders in the country are presented in Figures 3.3 and 3.4 respectively. These figures show that:

- There are five service areas that are commonly regarded applicable, as evidenced by the fact that more than 90% of respondents estimated their potential as '*high*' or

'*medium*'. These are: Energy Efficiency and Renewable Energy (EERE), Hazardous Waste Management (HWM), Environmental Management Systems (EMS), Environmental Technology Assessment (EnTA) and Occupational Health & Safety (OH&S). The evidence is strongest for EERA (rated as '*high'* potential by 18 respondents and '*medium*' by the remaining 5 respondents) and lowest for EnTA (rated as '*high*' potential by 8 respondents, and '*medium*' by 13 other respondents).

- Three service areas form a middle group as their potential is rated '*high*' or '*medium*' by at least 75% of the respondents. These are Environmental Management Accounting (EMA), Cleaner Production Finance (CP Finance) and Sustainable Industrial Resource Management (SIRM).

- There is high uncertainty about the applicability of four service areas, as more than 20% of the respondents did not know-how applicable these would be in their home countries. These are: Chemical Leasing (CL), Global Compact (GC), Sustainable Development Reporting (SDR) and Eco-Industrial Parks (EIPs).

- The perceived interest (in Figure 3.4) is an almost exact copy of the estimated potential (in Figure 3.3). There are only minor changes, typically only 1 or 2 countries moved their response for stakeholder interest either one category higher or one category lower than their rating of perceived applicability. The trend is that for Life Cycle Assessment/Management (LCA/M) and Occupational Health and Safety (OH&S) the perceived interest from stakeholders is somewhat higher than the estimated potential. On the contrary, perceived interest from stakeholders appears to be slightly lower than the estimated potential, for Hazardous Waste Management (HWM), Eco-Industrial Parks (EIPs), Sustainable Industrial Resource Management (SIRM), Chemical Leasing (CL), Design for Sustainability (D4S), Sustainable Procurement (SusProc), Triple Bottom Line Management (RBL) and Sustainable Development Reporting (SDR).

- Some respondents added CP-related service delivery areas which they felt had significant potential in their countries. These were: Corporate Social Responsibility (CSR) (Kenya and Morocco), eco-labelling (Egypt), Profitable Environmental Management (PREMA) (Egypt), Clean Development Mechanism (CDM) (Mexico), Environmental Impact Assessment (EIA) (Morocco), chemicals management (Slovakia) and EH&S legislation and compliance (Slovakia).

Overall there is thus general agreement about the perceived potential for service delivery in areas that are focused on factories and technologies, i.e. Energy Efficiency and Renewable Energy (EERE), Hazardous Waste Management (HWM), Environmental Management Systems (EMS), Environmental Technology Assessment (EnTA) and Occupational Health and Safety (OH&S). Many respondents have also commented in the survey but also during the country visits that these have always been part of CP. There is a high appreciation for the potential of Environmental Management Accounting (EMA), CP Finance and Sustainable Industrial Resource Management (SIRM). The potential for SIRM, however appears to be somewhat opportunistic or even misleading due to the broad nature and appeal (or *'jazziness')* of the term as two profound practical examples of SIRM have been given a rather low rating (Eco-Industrial Parks (EIPS) and Chemicals Leasing (CL).

Figure 3.5: Activity level of NCPCs in CP-related service delivery (23 responses)

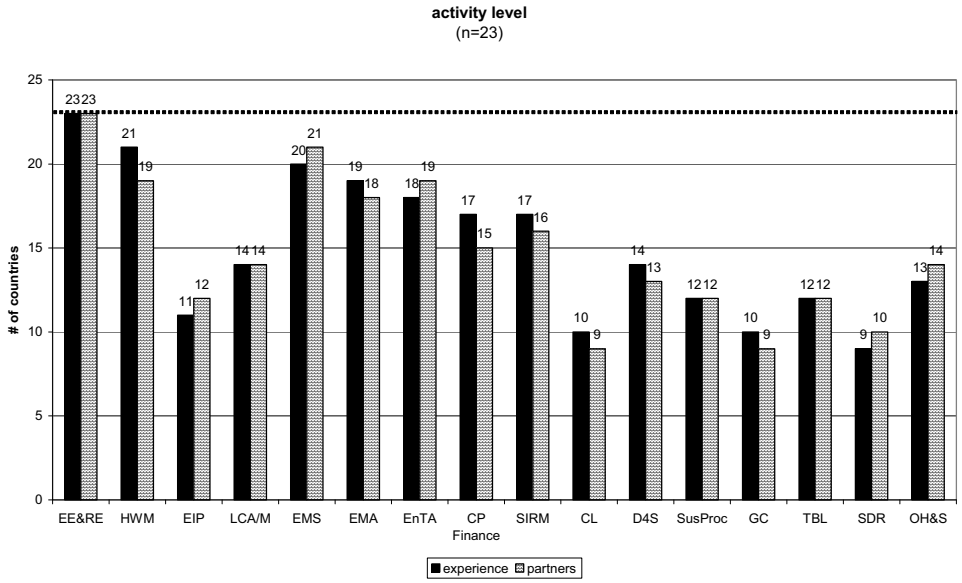


Figure 3.6: Types of services delivered in CP-related areas (23 responses)

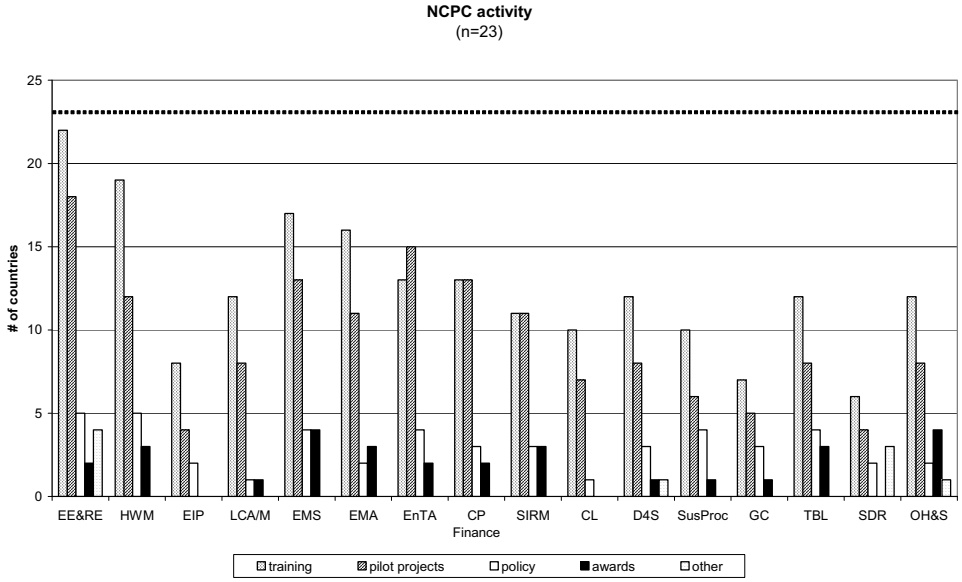
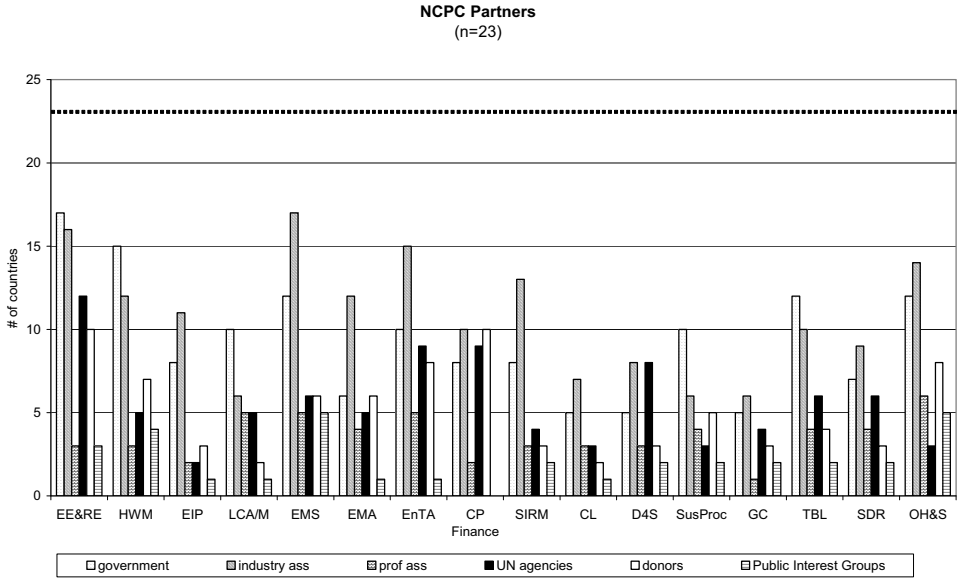


Figure 3.7: Partners for CP-related service delivery (23 responses).



The NCPCs were also requested to assess whether or not they are active in service delivery and/or had established partnerships for service delivery in these areas. The results are summarised in Figures 3.5, 3.6, and 3.7 and Table 3.6.

- Figure 3.5 shows that 75% or more of the responding NCPCs had experience in service delivery and most often also established partnerships in five of the CP-related service areas, respectively: Energy Efficiency and Renewable Energy (EERE), Hazardous Waste Minimisation (HWM), Environmental Management Systems (EMS), Environmental Management Accounting (EMA), and Environmental Technology Assessment (EnTA). Four of these (except EMA) were also the high potential areas (as per Figures 3.3 and 3.4). Table 3.6 lists the countries that have claimed experience and/or partnerships in the respective CP-related service areas.

- Overall it appears that the NCPCs claim to have experience and established partnerships in more service areas than which they perceive to have potential (as per Figures 3.3 and 3.4), with the only exception for Occupational Health and Safety (OH&S). This may be caused by opportunistic interpretations by the respondents of what constitutes *'experience'* and '*partnerships*'. It would appear that these topics are touched upon in mainstream service delivery (e.g. CP assessments and policy discussions) rather than made into separate service areas. To a certain extent, one could therefore also interpret Figure 3.5 as a statement of expressions of interest for service areas the NCPCs want to be in.

- Figure 3.6 shows that training and capacity building is by far the most common way in which the NCPCs are involved in the CP-related service areas, followed by pilot projects/implementation. Only for EnTA there are more respondents indicating that they are active in pilot projects than active in training.

- Figure 3.7 shows a more diverse result in regard to partners for CP-related service delivery. As a general observation it appears that NCPCs attempt to engage with government and industry associations in their CP-related service delivery. For some

topics they are slightly more focused on government (EERE, HWM, LCA/M, SusProc and TBL) while for others they are slightly more focused on industry associations (EIP, EMS, EMA, EnTA, CP finance, SIRM, CL, D4S, SDR and OH&S). The involvement of UN agencies and donors is also very prominent, evidencing that international cooperation and donor funding are an important catalyst for extension of service delivery into CP-related fields.

3.3.2 Multilateral Environmental Agreements

The second part of the second survey concerned the activities of the NCPCs/NCPPs in regards to implementation of MEAs. The Directors were asked to self-assess their level of expertise (relative in the country) and indicate whether or not they were actually involved at the national level (preparation of national strategies and action plans) or at the project level (actual implementation in a company, city or otherwise). The five most applicable MEAs in the CP area were included, respectively:

1. Johannesburg Plan of Implementation/Marrakech Process for Sustainable Consumption and Production (SCP), further referred to as '*Marrakech*";
2. Framework Convention on Climate Change, including Kyoto Protocol and Clean Development Mechanism, further referred to as '*Kyoto*';
3. Stockholm Convention on Persistent Organic Pollutants (POP), further referred to as '*Stockholm';*
4. Basel Convention on Hazardous Waste Management, further referred to as '*Basel*'; and
5. Montreal Protocol on Ozone Depleting Substances (ODS), further referred to as '*Montreal*'.

Two respondents replied to be involved in other MEAs, respectively the UNEP International Declaration on Cleaner Production (Czech NCPC) and the European Union's REACH directive (Slovak NCPC).

The detailed results are provided in Figures 3.8 and 3.9, and Table 3.7. The following can be concluded:

- Figure 3.8 shows the result of the self evaluation of the NCPCs/NCPPs of their expertise level on the different MEAs. The expertise level is highest for SCP (Marrakech) for which just over 40% of the responding centres considers itself as a leading expert in the country, with an additional 40% of the centres claiming to have some expertise. The expertise level is lowest on ODS (Montreal).

- Figure 3.9 shows that the activity level of NCPC is highest for SCP (Marrakech), Climate Change (Kyoto) and POPs (Stockholm), with between 40 and 50% of the responding NCPCs claiming to be involved in preparation of national plans and strategies or development and implementation of specific projects (most commonly with a particular company or business). The reported activity levels on HW (Basel) and ODS (Montreal) are rather low with only a quarter of the responding

Table 3.6: Experience and partnerships in CP-related service delivery (23 responses)

CP-related service area	Respondent countries with claimed experience	Respondent countries with established partnership
1. Energy Efficiency and Renewable Energy (EERE)	Bolivia, Cambodia, China, Colombia, Croatia, Czech Republic, Egypt, El Salvador, Guatemala, India, Kenya, Laos, Lebanon, Mexico, Morocco, Mozambique, Nicaragua, Republic of Korea, Slovakia, Tanzania, Uzbekistan ,Vietnam and Zimbabwe	Bolivia, Cambodia, China, Colombia, Croatia, Czech Republic, Egypt, El Salvador, Guatemala, India, Kenya, Laos, Lebanon, Mexico, Morocco, Mozambique, Nicaragua, Republic of Korea, Slovakia, Tanzania, Uzbekistan, Vietnam and Zimbabwe
2. Hazardous Waste Management (HWM)	Bolivia, Cambodia, Colombia, Czech Republic, Egypt, El Salvador, Guatemala, India, Kenya, Laos, Lebanon, Mexico, Morocco, Mozambique, Nicaragua, Republic of Korea, Slovakia, Tanzania, Uzbekistan, Vietnam and Zimbabwe	Bolivia, Cambodia, Colombia, Czech Republic, El Salvador, Guatemala, India, Kenya, Laos, Lebanon, Mexico, Morocco, Mozambique, Nicaragua, Republic of Korea, Tanzania, Uzbekistan, Vietnam and Zimbabwe
3. Eco-Industrial Parks (EIPs)	Cambodia, China, Colombia, Egypt, India, Lebanon, Mexico, Morocco, Mozambique, Nicaragua and Republic of Korea	Cambodia, China, Colombia, Egypt, India, Lebanon, Mexico, Morocco, Mozambique, Nicaragua and Republic of Korea,
4. Life Cycle Assessment/ Management (LCA/M)	Cambodia, Colombia, Czech Republic, Egypt, India, Kenya, Lebanon, Mexico, Mozambique, Nicaragua, Republic of Korea, Uzbekistan , Vietnam and Zimbabwe	Colombia, Czech Republic, Egypt, India, Kenya, Laos, Lebanon, Mexico, Mozambique, Nicaragua, Republic of Korea, Uzbekistan, Vietnam and Zimbabwe
5. Environmental Management Systems (EMS)	Cambodia, China, Colombia, Croatia, Czech Republic, Egypt, El Salvador, India, Kenya, Lebanon, Mexico, Morocco, Mozambique, Nicaragua, Republic of Korea, Slovakia, Tanzania, Uzbekistan, Vietnam and Zimbabwe	Cambodia, China, Colombia, Croatia, Czech Republic, Egypt, El Salvador, Guatemala, India, Kenya, Lebanon, Mexico, Morocco, Mozambique, Nicaragua, Republic of Korea, Slovakia, Tanzania, Uzbekistan ,Vietnam and Zimbabwe
6. Environmental Management Accounting (EMA)	Bolivia, Cambodia, Colombia, Croatia, Czech Republic, Egypt, El Salvador, Guatemala, India, Kenya, Lebanon, Mexico, Mozambique, Nicaragua, Republic of Korea, Slovakia, Uzbekistan, Vietnam and Zimbabwe	Bolivia, Cambodia, Colombia, Croatia, Czech Republic, Egypt, El Salvador, Guatemala, India, Kenya, Lebanon, Mexico, Mozambique, Nicaragua, Republic of Korea, Uzbekistan, Vietnam and Zimbabwe
7. Environmental Technology Assessment (EnTA)	Bolivia, Cambodia, Colombia, Croatia, Czech Republic, Egypt, El Salvador, India, Kenya, Laos, Mexico, Mozambique, Nicaragua, Republic of Korea, Tanzania, Uzbekistan and Vietnam	Bolivia, Cambodia, Colombia, Croatia, Czech Republic, Egypt, El Salvador, India, Kenya, Laos, Mexico, Morocco, Mozambique, Nicaragua, Republic of Korea, Tanzania, Uzbekistan and Vietnam
8. Cleaner Production Finance (CP Finance)	Bolivia, Cambodia, Colombia, Czech Republic, Egypt, El Salvador, Guatemala, Kenya, Lebanon, Mexico, Morocco, Mozambique, Nicaragua, Slovakia, Tanzania, Vietnam and Zimbabwe	Bolivia, Colombia, Czech Republic, Egypt, El Salvador, India, Kenya, Lebanon, Mexico, Mozambique, Nicaragua, Slovakia, Tanzania, Vietnam and Zimbabwe
9. Sustainable Industrial Resource Management (SIRM)	Bolivia, Cambodia, Colombia, Czech Republic, Egypt, El Salvador, Guatemala, India, Kenya, Laos, Mexico, Mozambique, Nicaragua, Republic of Korea, Uzbekistan, Vietnam and Zimbabwe	Bolivia, Colombia, Czech Republic, Egypt, El Salvador, Guatemala, India, Kenya, Laos, Mexico, Mozambique, Nicaragua, Republic of Korea, Uzbekistan, Vietnam and Zimbabwe
10. Chemicals Leasing (CL)	Cambodia, Colombia, Egypt, Guatemala, India, Kenya, Lebanon, Mexico, Nicaragua and Uzbekistan	Cambodia, Colombia, Egypt, India, Kenya, Lebanon, Mexico, Nicaragua and Uzbekistan
11. Design for Sustainability (D4S)	Cambodia, Colombia, Czech Republic, Egypt, Guatemala, India, Kenya, Mexico, Morocco, Nicaragua, Republic of Korea, Tanzania, Vietnam and Zimbabwe	Cambodia, Colombia, Czech Republic, Guatemala, India, Kenya, Mexico, Morocco, Nicaragua, Republic of Korea, Tanzania, Vietnam and Zimbabwe
12. Sustainable Procurement (SusProc)	Bolivia, Cambodia, Colombia, Czech Republic, Egypt, El Salvador, India, Kenya, Mexico, Nicaragua, Republic of Korea and Zimbabwe	Bolivia, Cambodia, Colombia, Czech Republic, Egypt, El Salvador, India, Kenya, Mexico, Nicaragua, Republic of Korea and Zimbabwe
13. Global Compact (GC)	Cambodia, Colombia, Egypt, India, Kenya, Mexico, Morocco, Tanzania, Vietnam and Zimbabwe	Cambodia, Colombia, Egypt, India, Kenya, Mexico, Morocco, Vietnam and Zimbabwe
14. Triple Bottom Line Management (TBL)	Bolivia, Cambodia, Colombia, Croatia, Egypt, El Salvador, Guatemala, India, Kenya, Mexico, Nicaragua and Zimbabwe	Bolivia, Cambodia, Colombia, Croatia, Egypt, El Salvador, Guatemala, India, Kenya, Mexico, Nicaragua and Zimbabwe

CP-related service area	Respondent countries with claimed experience	Respondent countries with established partnership
15. Sustainable Development Reporting (SDR)	Bolivia, Colombia, Egypt, India, Kenya, Mexico, Nicaragua, Republic of Korea and Zimbabwe	Bolivia, Colombia, Egypt, India, Kenya, Mexico, Nicaragua, Republic of Korea, Vietnam and Zimbabwe
16. Occupational Health and Safety (OH&S)	Bolivia, Cambodia, Colombia, Egypt, India, Kenya, Mexico, Morocco, Mozambique, Nicaragua, Uzbekistan, Vietnam and Zimbabwe	Bolivia, Cambodia, Colombia, Egypt, Guatemala, India, Kenya, Mexico, Morocco, Mozambique, Nicaragua, Uzbekistan, Vietnam and Zimbabwe

Figure 3.8: Self-evaluation of expertise level of NCPCs/NCPPs in regard to MEAs (23 responses)

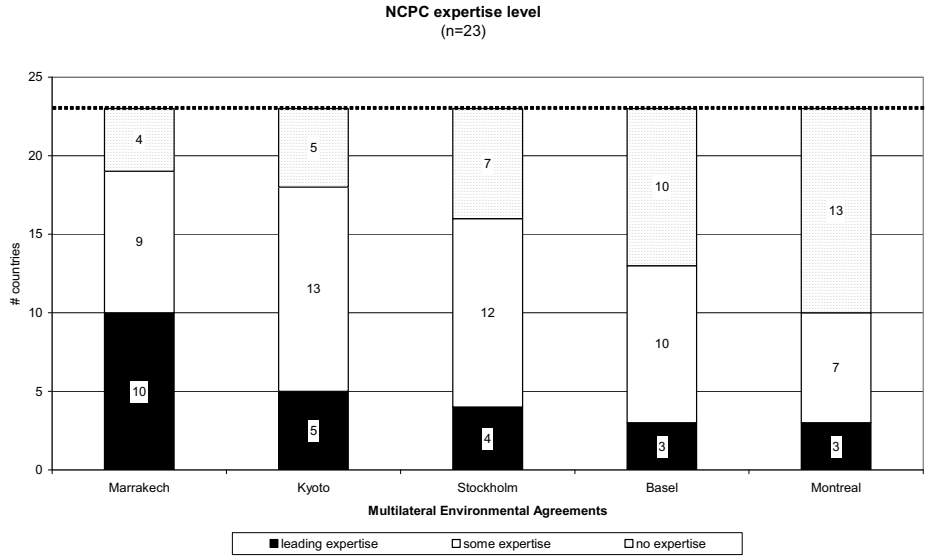
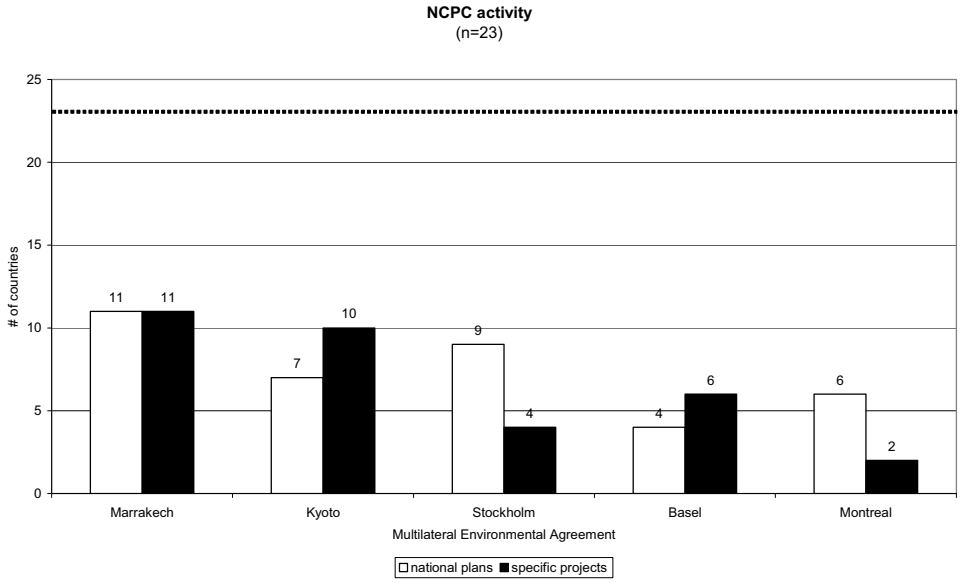


Figure 3.9: Activity level of NCPCs in regard to implementation of MEAs (23 responses)



NCPCs being involved in some form in implementation of these agreements. Table 3.7 details which countries claim to be involved in activities for each of the MEAs.

An opportunity was also provided for the NCPCs to detail their support needs. There were only responses to this from 3 or 4 NCPCs on this for each MEA, and the support needs were not specific, but rather generic for information materials and training (in particular on consumption (for Marrakech) and Clean Development Mechanism (Kyoto)), and support for project preparation (in particular for Kyoto and Stockholm).

Overall it can be concluded that the activity level of the responding NCPCs/NCPPs is relatively modest. It would therefore appear that might be an opportunity for the Centres to become more effective partners for their national governments and other stakeholders for implementation of the various MEAs. In doing so, it should however be kept in mind that typically the NCPC/NCPP is not the only institution in the country that is, or could become, active on the various MEAs, as several countries have already set up dedicated support structures for Kyoto and Montreal. It does appear that NCPCs/NCPPs can only claim a degree of *'exclusiveness'* in regard to the Marrakech process in that they are typically the only, or at least one of the leading institutions on SCP in their home countries.

Table 3.7: Experience of NCPCs in regard to implementation of MEAs (23 responses)

Multilateral Environmental Agreement	NCPCs with activities in regard to development, implementation and or review of national strategies or action plans	NCPCs with project-related activities for implementation of MEA in specific companies, technologies or cities
1. Johannesburg Plan of Implementation/ Marrakech Process for Sustainable Consumption and Production (SCP)	Bolivia, Czech Republic, Egypt, Kenya, Mexico, Mozambique, Nicaragua, Republic of Korea, Slovakia, Tanzania and Zimbabwe	Bolivia, Cambodia, Czech Republic, Egypt, El Salvador, Kenya, Mexico, Morocco, Mozambique, Republic of Korea, and Vietnam
2. Framework Convention on Climate Change, including Kyoto Protocol and Clean Development Mechanism (CDM)	Cambodia, India, Kenya, Morocco, Nicaragua, Slovakia and Zimbabwe	Bolivia, Egypt, El Salvador, Guatemala, India, Nicaragua, Republic of Korea, Slovakia and Vietnam
3. Stockholm Convention on Persistent Organic Pollutants (POPs)	Cambodia, Croatia, Egypt, Guatemala, Kenya, Morocco, Nicaragua, Slovakia and Zimbabwe	Bolivia, Guatemala, India and Vietnam
4. Basel Convention on Hazardous Waste Management	Cambodia, Egypt, India and Zimbabwe	Bolivia, El Salvador, India, Slovakia and Vietnam
5. Montreal Protocol on Ozone Depleting Substances (ODS)	Cambodia, Egypt, Morocco, Nicaragua, Tanzania and Zimbabwe	India and Morocco

3.3.3 Resource Materials

The third part of the second survey dealt with current use and perceived usefulness of selected resource materials. A listing of 16 resource materials was compiled at the suggestion of project staff from UNIDO and UNEP from their recent offerings. These were ([19]):

1. Cleaner Production Toolkit (UNIDO) (CD Rom) [40]
2. Training Kit on Cleaner Production Policy (UNIDO) (CD Rom) [41]
3. Chemical Leasing Business Models (UNIDO) (DVD) [42]
4. Energy Efficiency Guide for Industry in Asia (UNEP/SIDA) (web-supported CD Rom [43]

[19] Unfortunately the resource package on Responsible Enterpreneurship Achievement Programme (REAP) of UNIDO was not brought to the attention of the evaluation team, as it would have been most appropriate to have included this CSR package in this survey.

5. Energising Cleaner Production: a guide for trainers (UNEP/InWent Training Package) [39]
6. Sustainable Consumption and Production: Making the Connection (UNEP Training Package) [44]
7. Cleaner Production and Multilateral Environmental Agreements (UNEP Training Package) [45]
8. The Application of Environmental Technology Assessment (UNEP/SIDA Training Package) [46]
9. Advancing Sustainable Consumption in Asia: a guidance manual (UNEP-Asia ECO) [47]
10. UNEP/IAPSO Product Criteria Database for Sustainable Public Procurement [48]
11. Design for Sustainability: a practical approach for developing economies (UNEP/InWent) [38]
12. EcoDesign a Promising Approach to Sustainable Production and Consumption (UNEP) [49]
13. Profiting from Cleaner Production; series of resource materials for raising capital and finance for CP (UNEP) [36]
14. Capacity Building in Cleaner Production Centres; a training resource package (UNEP) [34]
15. The Efficient Entrepreneur Calendar and Guidebook (UNEP and Wuppertal Institute) [50]
16. Policy Instruments for Resource Efficiency: towards sustainable consumption and production (UNEP CSRP) [51]

The results with regard to current use of these materials are presented in Figure 3.10. It shows that only the CP toolkit is genuinely in common use in the NCPC/NCPP network (21 current users), followed by the Capacity Building Package for CP Centres. Several materials are also regularly used, in particular the Profiting from CP Package, the guide on CP in MEAs, the Energising CP training package, EE Guide for Asia and the SCP/connection guide. The two resource materials on Sustainable Consumption and Sustainable Procurement are not yet used by any of the respondents, but as with other resource materials there is good intent from several centres to start using them. However, overall it is clear that there is potential for greater use of the resource materials. As was also evidenced from

Figure 3.10: Current use of selected resource materials by NCPCs (23 respondents)

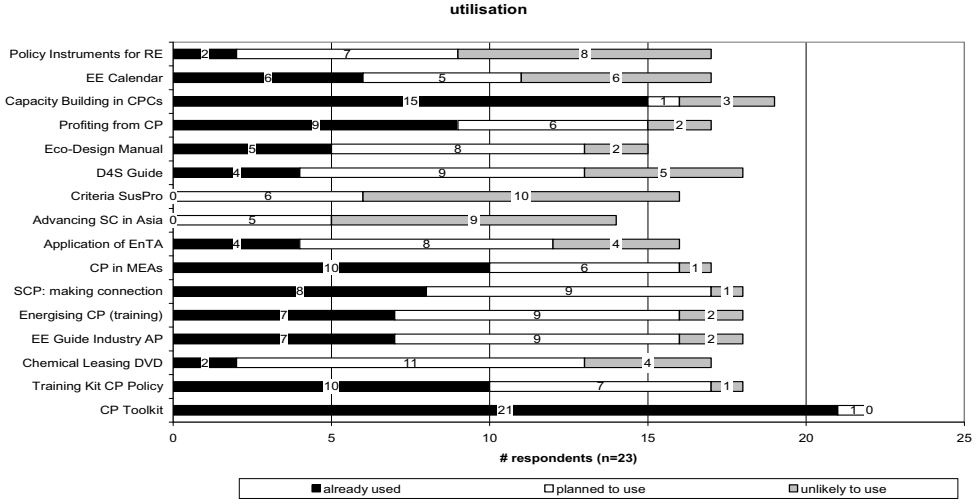
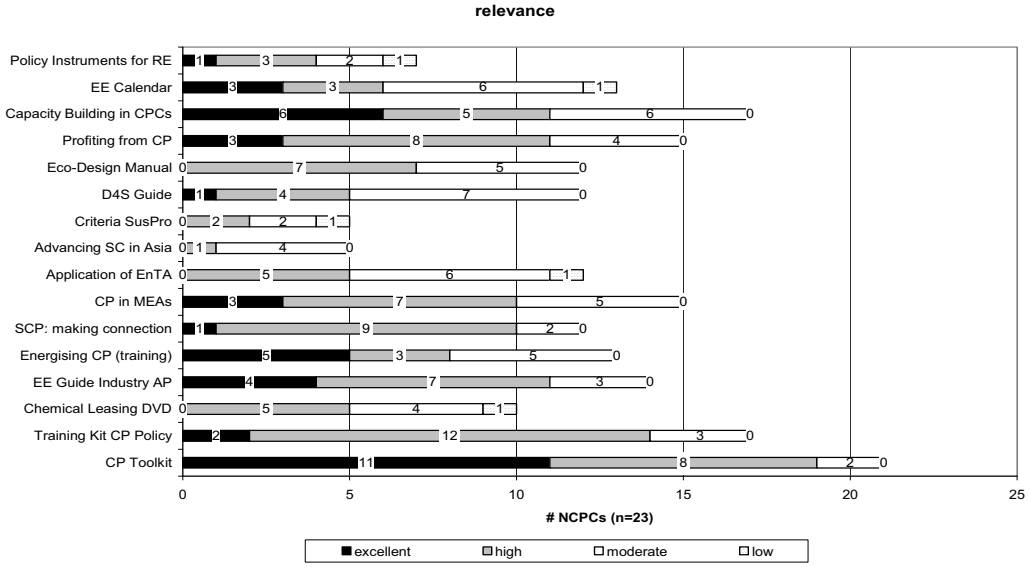


Figure 3:11: Perceived relevance of selected resource materials (23 respondents)



the informal feed back on the survey (e.g. requests for access to electronic or hard copies of resource materials), the resource materials appear to be not generally known within the NCPC/NCPP network.

The quality of the resource materials was also surveyed, respectively in terms of relevance of the contents, user-friendliness of the presentation and overall usefulness.

- Figure 3.11 shows the results on relevance of the contents. The relevance is generally considered good, as is evidenced by the fact that the majority of publications received either an '*excellent*' or '*high*' rating on relevance from at least 50% of the respondents, with as a very positive example the CP toolkit (rated '*high*' or '*excellent*' by over 90% of the respondents). The only publications with lower relevance (i.e. less than 50% of respondents rating it '*high*' or '*excellent*'), are the EE Entrepreneur Calendar, the D4S Guide, the Sustainable Procurement Criteria, Sustainable Consumption Guide and the EnTA training package.

- Figure 3.12 shows the results on user-friendliness of resource materials, i.e. style, modular design, presentation etc. The trend is very similar, suggesting that perceptions of relevance and user-friendliness match reasonably well, albeit with a slight tendency to rate some of the materials slightly lower on user-friendliness than on content (e.g. the CP toolkit).

Figure 3.12: Perceived user-friendliness of selected resource materials (23 respondents)

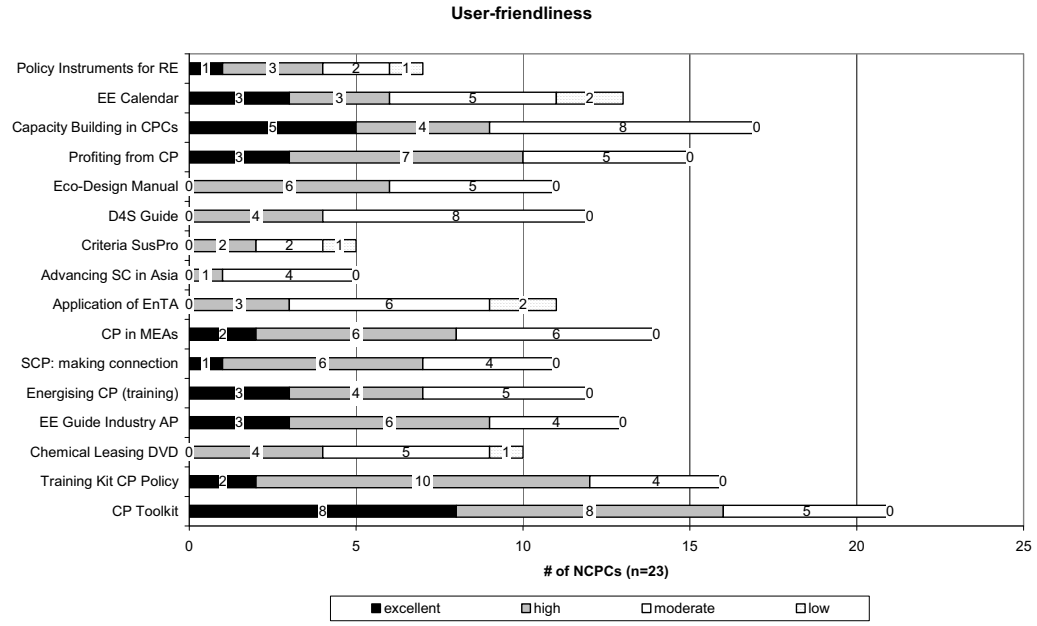
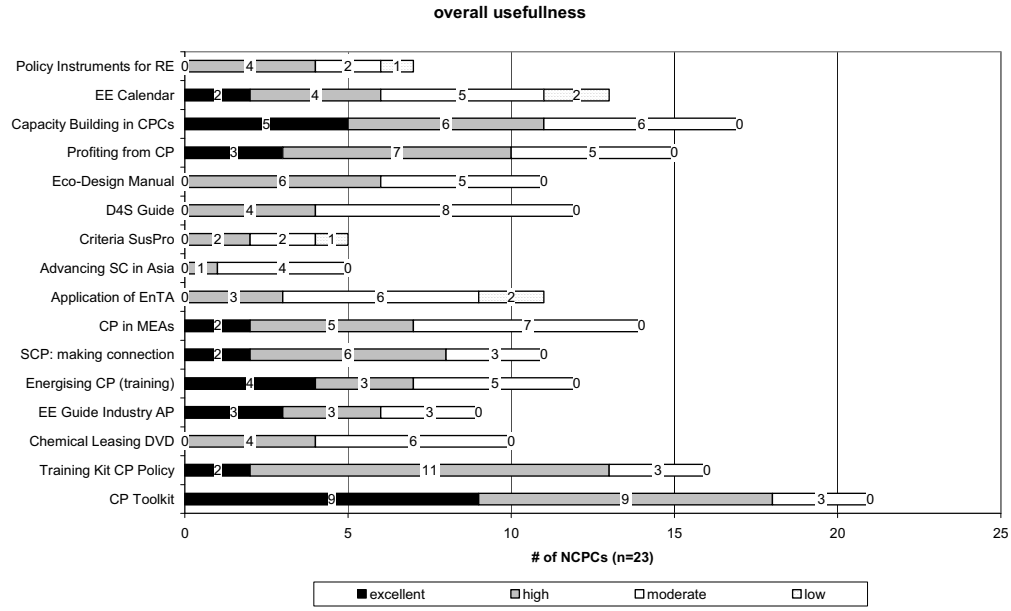


Figure 3.13: Overall usefulness of selected resource materials (23 respondents)



- In terms of overall usefulness (Figure 3.13), the general trend is that the majority of respondents regard the materials as either '*moderately*' or *'highly'* useful. There are positive exceptions, most notably the CP toolkit, which is considered *'extremely useful'* by 43% of respondents, and the Energising CP training and EE guide for AP, both considered '*useful*' by over 25 % of the respondents. The fact however that none of the respondents considered seven (of the total of 16) resource materials '*extremely useful*', is of some concern, as it suggest that these publications do not address the needs and opportunities of the NCPCs.

The second survey provided an opportunity for general feed back and requests. Most of the open answers referred back to intents to use specific materials or start CP-related service areas, confirming answers to earlier parts of the survey. Two overarching comments were made, respectively to improve information flows within the NCPC network (to ensure that NCPCs are aware of new initiatives and materials, and exchange information between NCPCs) and a requests for training of NCPCs in new service areas, for example on MEAs, funding mechanisms (including CDM) and product design and consumption issues.

3.4 Self Assessment

The first survey invited the Directors to rate the expertise of their NCPC/NCPP in the national context. Four major expertise areas were distinguished: cleaner production ([20]), industrial environmental management ([21]), environment and industry policy ([22]) and corporate sustainability ([23]). The results are presented in Table 3.8 ([24]). Over 80% of the responding NCPCs/NCPPs claim to be a '*leading expert*' in CP in the national context. For the other expertise areas, the result is less outspoken. For industrial environmental management and environment and industry policy, just over half of the respondents rate their respective NCPC/NCPP as having '*some expertise'*, and just under 1/3 as being a '*leading expert*' in the respective area. In case of corporate sustainability, 2/3 of the NCPC claims to have '*some expertise*', while the remainder split quite even between either having '*leading expertise'* or '*no expertise*' in this area. Even though the result should be interpreted with some care, as the self-evaluations could not be verified with national stakeholders, it is apparent that the NCPCs/NCPPs feel confident being one of the leading sources of CP expertise in their respective countries, while also being familiar with related topics in industrial environmental management and environment and industry policy.

Table 3.8: Self evaluation of key expertise areas (36 responses)

Expertise Areas	**Expertise Level of NCPC/NCPP**									
	Leading expertise		**Some Expertise**		**No Expertise**		**Unknown/ No Response**		**Total**	
1. Cleaner Production	29	81%	5	14%	0	0%	2	6%	36	100%
2. Industrial Environmental Management	12	33%	21	58%	1	3%	2	6%	36	100%
3. Environment and Industry Policy	11	31%	20	55%	3	8%	2	6%	36	100%
4. Corporate Sustainability	5	14%	24	67%	5	14%	2	6%	36	100%

[20] Described as: "*process-integrated improvements in resource productivity and environmental performance"*
[21] Described as "*environmental management accounting, environmental management systems, environmental and sustainability reporting, life cycle assessment, eco-design, environmental labelling, closed loop systems"*
[22] Described as "*e.g. stewardship, producer responsibility, Clean Development Mechanism, etc"*
[23] Described as "*corporate social responsibility, global compact"*
[24] This evaluation is based on know-how and expertise, which complements the evaluation by the independent evaluators based on institutional strength, as displayed in Table 2.2.

The final part of the self evaluation solicited a response from the NCPC/NCPP Directors on the performance of their Centre/Programme against the evaluation criteria set for this programme evaluation, namely ([25]):

1. *Relevance:* do businesses and other organisations in the country derive a benefit from the Cleaner Production programme?

2. *Effectiveness*: are the services offered by the Centre and through the UNIDO programme useful for implementation of Cleaner Production?

3. *Efficiency*; does service delivery through the Centre and UNIDO Programme make best use of available resources?

4. *Sustainability*: is it likely that the benefits from the Centre and UNIDO Programme will continue into the future? and

5. *Ownership*: to what extent are local stakeholders (industry, government, etc) contributing resources to implementation of Cleaner Production and/or operation of the Centre.

The results are presented in Table 3.9. The table displays a high level of confidence from the Directors that their NCPC/NCPP performs quite well across the board, in particular if the no responses are taken out of the comparison. The self evaluation is most optimistic about relevance and effectiveness, rated '*high*' by respectively 67% and 61% of the respondents and rated '*medium*' by respectively 19% and 22% of the respondents. The assessment is still good for efficiency, rated '*high'* by 50% of the respondents and '*medium*' by 25% of the respondents. It would appear that there is some more doubt about performance against sustainability and ownership, with the '*high*' self-evaluations falling to respectively 39% and 28% of the respondents and the '*medium'* ones increasing to respectively 36% and 39%.

Table 3.9: Self evaluation against evaluation criteria (36 responses)

Evaluation Criteria	**Self Assessment Rating**									
	High		**Medium**		**Low**		**Unknown or No response**		**Total**	
1. Relevance	24	67%	7	19%	1	3%	4	11%	36	100%
2. Effectiveness	22	61%	8	22%	0	0%	6	17%	36	100%
3. Efficiency	18	50%	9	25%	2	6%	7	19%	36	100%
4. Sustainability	14	39%	13	36%	3	8%	6	17%	36	100%
5. Ownership	10	28%	14	39%	8	22%	4	11%	36	100%

[25] After the survey instrument was distributed, the evaluation criteria were slightly adjusted and a sixth added (capacity building).

4
Independent Country Evaluations

4.1 Introduction

The findings from the third '*pillar'* for the programme evaluation are summarised in this chapter. Independent evaluation missions were undertaken to obtain first hand information from the Director and staff of selected NCPCs, members of their boards, national government agencies, industry associations, clients of NCPC services (including former trainees, audited companies and other collaborators). Other initiatives not directly associated with the NCPC but with a role in CP and/or related fields in the country were also considered. The respective visit schedules were organised by a national consultant under the direction of a member of the international evaluation team and in consultation with the NCPC. The international and national consultant then spent some 2 to 5 working days in the country to undertake semi-structured interviews with the nominated representatives of the selected organisations. A detailed country review report was then prepared by the international consultant with substantive input form the national consultant. This contains a comprehensive analysis of arrangements in the preparation and operation stages of the NCPC, participation of the NCPC in the global UNIDO-UNEP CP Programme, detailed analysis of results achieved in each of the main service categories and a country level assessment against the programme evaluation criteria. Moreover specific recommendations were made for the further development of the respective NCPC in its specific national context. These detailed country evaluation reports will be available on request from the UNIDO Evaluation Group.

Resource constraints to complete this programme evaluation within the available budget and within reasonable timeframes meant that only one member of the international evaluation team could undertake each evaluation mission. The diverse backgrounds and experiences of the team members and the need to undertake any evaluation with a reasonable degree of professional judgement have introduced some variability between the sets of independent country evaluations undertaken by the four international evaluators. The comparison of country level findings is therefore bound to limitations, and this is herewith explicitly acknowledged by the evaluation team. As the differences between countries from the different regions and within these regions are already very considerable, no further attempt was made to ascertain whether an evaluator-bias exists in the evaluation results.

This chapter provides a summary of the 18 country review reports prepared for this programme evaluation. It focuses on key issues and trends that emerged from these independent country evaluations and that are important and relevant for the future of the UNIDO-UNEP CP Programme (rather than just relevant within the respective country). In so doing, this summary chapter does in no way justice to the richness of analysis and

evaluation that has been performed at the country level. The reader is therefore encouraged to access the additional details in the respective country evaluation reports.

This chapter has been structured in four main sections. Section 4.2 provides a justification for the selection of countries for which an independent evaluation was undertaken. Section 4.3 then provides a qualitative summary of key issues identified in regard to preparation and operation stages of the NCPC, and its participation in the global UNIDO-UNEP CP Programme. Next, sections 4.4 and 4.5 provide a semi-quantitative summary respectively of the comprehensive analyses of the results achieved by the visited NCPCs (section 4.4) and of the detailed country level assessments by the evaluator against the six evaluation criteria for this programme evaluation (section 4.5).

4.2 Country Selection

The selection of countries for the detailed independent evaluation was an iterative process within the evaluation team, and then with the Steering Committee to arrive at the final list.

In the first instance a rough cut was made of countries that needed to be either included or excluded. At the request of the Government of Switzerland five countries were included that needed in any case an evaluation as part of their funding cycle. These were: Colombia, Costa Rica, El Salvador, Guatemala and Nicaragua. Moreover it was decided to exclude the countries where only a NCPP is in operation, i.e. for which a decision has not yet been made as to whether a full NCPC will be set up. This excluded Armenia, Cambodia and Laos.

This left 30 countries from which 14 could be selected for inclusion on the list of countries to be visited for an independent evaluation. This selection was approached with a view to achieve maximum diversity within the subset of selected countries on a range of characteristics of both the country as well as the NCPC, in particular:

- *Geographically*: inclusion of approximately half of the NCPCs in each of the five regions in which the programme operates (respectively: Africa (10 NCPCs), Asia (9 NCPCs/NCPPs), Central America (8 NCPCs), South America (4 NCPCs) and Central and Eastern Europe (7 NCPCs/NCPPs), and within each region a reasonable distribution geographically and socio-economically.

- *Donors:* diversity of donors in order to include also some NCPCs which are funded by donors who make a relatively smaller contribution to the programme (respectively (Mozambique (funded by Italy), Sri Lanka (funded by Norway), Croatia (funded by Czech Republic and Hungary), Kenya (funded by UNDP and Sweden)) or are no longer funding the programme (The Netherlands as main donor for establishment of the first generation of NCPCs in India, China and Mexico). It was also decided to include countries in which a NCPC-like centre had been funded by one of the main donors, but not through the UNIDO-UNEP CP Programme (the NCPCs in Colombia and Peru which are directly funded by SECO).

- *Maturity:* inclusion of NCPCs from first and subsequent generations. This automatically resulted in the inclusion of some NCPCs which have been operating for at least several years without institutional funding from the UNIDO-UNEP CP Programme.

- *Size (of national economy and contribution of industry):* a reasonable distribution of NCPCs in large, medium and small countries, and within those some diversity in regard to the level of development of the manufacturing sector.

Upon a number of iterations the final selection of 19 countries was confirmed. Each country included in the list can be justified, as it might also have been possible to argue individually for each of the not-selected countries that they should have been in the shortlist. Doing so goes however beyond the scope of this programme evaluation. It suffices here to demonstrate that the list of selected countries does meet the objective of being diverse and inclusive, as per the above criteria.

Table 4.1: Visit list for independent evaluations by region

Region [selected/all NCPCs/NCPPs]	**Visit List [evaluator, year of establishment] (*)**	**Non-Visit List**
Africa [5/10]	Egypt [HS, 2004], Kenya [HS, 2000], Morocco [MM, 2000] Mozambique [RvB, 2001] and South Africa [RvB, 2002]	Ethiopia, Tanzania, Tunisia, Uganda and Zimbabwe
Asia [5/9]	China [RvB, 1995], India [RvB, 1995], Sri Lanka [RvB, 2002], Uzbekistan [HS, 2002] and Vietnam [RvB, 1998]	Cambodia, Laos and Republic of Korea
Central America [5/8]	Costa Rica [MM, 1999], El Salvador [MM, 1999], Guatemala [MM, 1999], Mexico [MM, 1995] and Nicaragua [MM, 1999]	Cuba, Honduras and Paraguay
Central and Eastern Europe [2/7]	Croatia [HS, 2000] and Slovakia [HS, 1995]	Armenia, Czech Republic, Hungary and Russia (**),
South America [2/4]	Columbia [JD, 1998] and Peru [JD, 2001]	Bolivia and Brazil,

(*) HS = Hans Schnitzer, JD = Johannes Dobinger, MM = Mathias Meyer and RvB = Rene van Berkel
(**) Russia has a regional CP Centre (in St Petersburg) and a sector specific CP Centre (in Moscow for the oil and gas industry). Both operate independently within the UNIDO-UNEP CP Programme

Table 4.1 contains the country list by region, along with the date of establishment of the NCPCs on the visit list and the evaluator who undertook the respective independent country evaluation. Exactly half of the NCPCs in Africa and South America were included, whilst Central and Eastern Europe was somewhat under-represented and both Asia and Central America slightly over-represented. In terms of maturity, four of the NCPCs on the visit list were established in 1995, two in 1998, four in 1999, three in 2000, two in 2001, three in 2002 and one in 2004. This compares reasonably well with the establishment history of the NCPCs as summarised in Table 3.2.

Table 4.2 provides a matrix listing of the host countries of the NCPCs/NCPPs by their level of industrialisation (measured by Manufacturing Value Added (MVA) per head of population) and total size of their economy (measured by their absolute Gross Domestic Product). Data are for 2005 from internal sources in UNIDO and using standard UNIDO categories. The countries on the visit list are underlined. The distributions are reasonably good by column and by row, even though not all matrix cells are represented in the visit list. Overall, '*medium*' level industrialised countries are somewhat over-represented in the visit list with marginal under-representations for the '*low'* and '*extremely low*' levels of industrialisation. Also '*medium*' and '*big-sized*' economies are slightly over-represented with an under-representation of the '*small sized*' economies.

Table 4.2: Host countries for NCPCs/NCPPs by level of industrialisation and total size of economy (based on UNIDO internal data) (underlined countries have been visited for an independent evaluation).

		Level of Industrialisation (on basis of per capita MVA)			
		Extremely Low [4/9]	**Low [5/11]**	**Medium [8/12]**	**High [2/5]**
Size of Economy (absolute GDP)	**Small [6/16]**	Cambodia Ethiopia Kenya Laos Mozambique Nicaragua Tanzania Uganda	Armenia Bolivia Honduras Paraguay Zimbabwe	Costa Rica El Salvador Uzbekistan	
	Medium [8/13]		Cuba Egypt Guatemala Morocco Sri Lanka Vietnam	Lebanon Peru Tunisia	Croatia Hungary Korea Slovakia
	Big [2/3]			Columbia South Africa	Czech Republic
	Very Big [3/5]	India		Brazil China Mexico Russia	

In light of the limited number of countries and the very different socio-economic, size, location and maturity criteria, it is concluded from Tables 4.1 and 4.2 that the visit list is illustrative for the total set of host countries. The selection was however *NOT RANDOMISED* which essentially means that the results for the visited countries *CAN NOT BE EXTRAPOLATED* to the set of all NCPCs. However, as detailed in the remainder of this chapter, each NCPC was found to be largely unique in its combination of activities, results and organisational and institutional set up, which would have meant that even with randomised country selection meaningful extrapolation may not have been possible.

Unfortunately one country dropped out on the basis of the country visit, as in Slovakia it turned out that the NCPC is no longer significantly involved in public interest advocacy for CP, and therefore difficult to compare with the other NCPCs. No detailed country evaluation could therefore be prepared as it was felt inappropriate to prepare an evaluation of a private consulting company. The drop out of Slovakia, meant that the quality of the remaining list of 18 visited countries worsened in particular in regards to regional representation (as per Table 4.1) as only one of the seven NCPCs in Central and Eastern Europe remained on this visit list for the detailed evaluation. However, due to the given time-line of this programme evaluation, it was not possible to make adjustments to the country selection. To a certain extent however, a case could be made that Uzbekistan could have been added to this group, as Uzbekistan may have more in common with the former Soviet-type of planning economies than with the rest of Asia. The Slovakia example however proofs that the UNIDO-UNEP CP Programme is focusing on developing countries, and as these countries reach higher levels of industrialisation the NCPC will change its service portfolio, governance and operations.

4.3 National Implementation

This section discusses findings from the reviews of the activities undertaken to prepare, establish and operate the NCPC in the host country. It focuses on findings that are of significance at the programme level (not only in the specific national context). The summary is organised in three main clusters, respectively pertaining to preparation stage for the NCPC (paragraph 4.3.1), pertaining to the operational stage of the NCPC (paragraph 4.3.2) and concerning participation of the NCPCs in global programme activities (section 4.3.3).

4.3.1 Preparatory Stage

The independent country evaluations reviewed the preparatory activities and strategic planning which were undertaken by, or on behalf of, the programme management prior to the establishment of the respective NCPC. It should be noted however that this programme evaluation did not attempt to revisit the pre-establishment stages for the visited NCPCs in great detail as many had been operating for five years or more, and it was therefore difficult to assess properly what had been done during the pre-establishment phase and confirm its appropriateness in the circumstances that prevailed at that time. Two aspects are of critical importance for the quality of the preparatory activities, i.e. justification and feasibility.

The project *justification* is expected to confirm that CP is relevant, timely, applicable and valuable to industry and government, and ascertain that establishment of a NCPC is an appropriate mechanism for fostering the uptake of CP in the country. From a programme perspective this national justification can also be interpreted as country selection. A number of common issues appeared in several of the reviewed countries, including:

- For the first five NCPCs, established in 1994-1995, no country specific justification was undertaken (China, India, Mexico, Tanzania and Zimbabwe). These were established under a common multi-country project agreement that was justified in the context of the Agenda 21 commitment of industrialised countries to assist developing countries with capacity building for and implementation of CP. The countries were selected following an open call for expressions of interest, and this de-facto substituted very well for country specific justifications (see also paragraph 2.3.1). Interested countries had to apply to have a NCPC established and those with the best applications were selected by the programme management. Automatically these were the countries that had the best understanding of how CP could help their respective country's development.

- Later on the programme implementation model changed and host countries for new NCPCs were essentially decided upon in principle between the host country, a donor country willing to provide in principle support and the programme management (UNIDO, nationally and/or at headquarter level). The project documentation was then prepared with project justification being a formality for signing off the project agreement rather than an in-depth analysis of the country context and needs for CP. While this is understandable in light of the systemic constraints faced by programme management (see also Chapter 2), in most cases this resulted in fairly generic justification statements, providing some data on the severity of industrial environmental pollution, and arguing that industry faced challenges in a globalising

economy and that CP was aligned with MEAs that the host country had committed to. These statements, while correct in principle, do not demonstrate that CP is the right intervention, i.e. that industrial environmental pollution was being recognised as a national priority and that the target industries would be able to implement CP and achieve benefit from so doing.

- In several countries, the project justification was strengthened by referring back to the success of earlier CP demonstration projects (South Africa, India, China, Sri Lanka, etc.), making the assumption that because some companies were able to implement CP as part of such demonstration projects, a majority of industries in the country would be able to do so (which at least is questionable due to the self-selection bias for environmentally motivated companies to participate in CP demonstration projects). While in some of such countries, the NCPC project then retained the capacity created with such earlier demonstration projects (e.g. China, India, Vietnam and Sri Lanka) in other countries the NCPC project set out to build new capacity in parallel to existing CP capacity created under earlier projects (e.g. South Africa).

Overall it appeared that project justification was approached as a formality that needed completion prior to sign off of the project agreement, instead of an opportunity to assess the national context, identify ways to harness any existing capacity, and target the NCPC project to national socio-economic and environmental priorities. Prior to this programme evaluation it had already been pointed out by several country level project evaluations (e.g. [52, 53]) that this had resulted in project models and delivery strategies that did not sufficiently address local circumstances.

There are also a few good examples in regard to project justification, for example Egypt, Morocco and South Africa (the latter two in their second project period). In all of these, the national government, either directly or in very close consultation with the host institution and the private sector, took charge of justification and customisation of the project model and strategy to existing national CP and related capacities. It should also be noted that with the commencement of operations of the NCPC typically more information on national context (legislation, economy, technology, etc.) and private and public sector needs has become available, which then strengthened the justification for the NCPC. Moreover, CP service delivery created CP examples and advocacy for CP-conducive policy change, all of which contributed to clarifying the relevance of CP in the national context and hence indirectly bolstering the justification for establishment of the NCPC.

Another key consideration in the project preparation is *feasibility*, i.e. the likelihood that the project can be implemented as per the project agreement. A few trends appeared in the visited countries:

- Most project agreements attempted in one way or another to justify the creation of an NCPC by claiming that on the medium term there would be a market for CP service delivery that could underpin a financially-self sustaining NCPC. Throughout the Programme these claims have been overtly opportunistic, and been lacking a reality check (for example in regard to the size of the industry sector, existence of markets for other business services, etc, etc.). This has been repeatedly pointed out in the independent country evaluations done for this programme evaluation also in the earlier programme [22, 23] and impact [25] evaluations as well as national evaluations for several countries [26, 52, 53]. These over-estimations of the market for CP services appear to be rooted in unrealistic expectations regarding the economic

benefits from CP implementation (that CP would be a win-win proposition for all businesses) and an over-estimation of the willingness of businesses to pay (in particular in developing countries where many services to businesses are either highly subsidised or free). Even the NCPCs themselves and representatives of their national governments and industry associations in several cases expressed their beliefs that there was no ground to justify claims in regard to the size of the market for CP services. Over-optimistic appreciation of the existence and/or potential for development of a CP market appears related to the generally supply-driven approach for establishment of new NCPCs.

- The initially lean project implementation model has been abandoned over time, as current donors have been willing to invest considerably more on each NCPC than initially envisioned when the Programme was conceptualised and launched (see Table 2.1 for specific data). There is a valid argument that supporting a NCPC with substantial international expertise is helpful to position it as '*THE'* leading institution and that this could assist with long term survival of the NCPC. From the country evaluations it did however appear that the downsides of this approach in terms of overall feasibility of NCPC establishment have not been identified or no risk management strategies put in place. Firstly, the NCPC develops a dependency on the international experts. Even though the quality of the NCPC work might be outstanding, there is no guarantee that such quality can be maintained if the hot-line to the international consultants is no longer available or has to be factored into the cost of local service delivery. Even though there is not yet any evidence for this (as none of the higher funded NCPCs has yet had to transition to operation without institutional funding support), there are challenges for several NCPCs, most urgently in Vietnam. Secondly, as the Programme is based on a co-investment (cash and/or in kind) from the host institution and/or its national government, the increase in donor funding has upped the stakes for the national counterparts. In several countries this has stretched the host institutions to make commitments for in kind and/or cash commitments to the operation of the NCPC. The programme management appeared not to have procedures in place to ascertain whether or not it was realistic to expect that the host institution could meet such commitments. In case of Sri Lanka and Mozambique for example the commitments could not be met as they were beyond the means of the respective host institutions.

- The UNIDO-UNEP CP Programme has been based on a host institution model that establishes the NCPC in an existing institution, e.g. university, industry association, public research institute or government agency. The CP centres in Colombia and Peru evaluated here were however established as new institutions (similarly to earlier programmes in the 1990s, such as those by the World Environment Centre, and the US Environmental Pollution Prevention Programme). No clear evidence emerged from the country evaluations to favour either institutional model or a particular type of host institutions, as for each institutional set up there are countries with positive and countries with negative experiences. As an overarching observation it can however be pointed out that none of the project agreements appeared to have undertaken serious risk analysis and management in regard to the host institution arrangements. For example, working out '*what if*' scenarios, in case the host institution would not meet its commitments, would bail out completely, or would cease to exist. This may not be a serious concern when the NCPC is hosted by a major well-established national institution (university, research institute or alike) but certainly deserved more attention where NCPCs are set up in small NGOs (e.g.

Mozambique), industry associations (e.g. Guatemala) or within another donor-funded project (e.g. Sri Lanka).

The above concerns in regard to feasibility assessments as part of project preparation re-confirm the findings from the review on project justifications. Preparation for new NCPCs has been approached with an emphasis on the fund-raising perspective, and once a donor had in principle committed funds, project preparation mainly meant reaching consensus with the local stakeholders regarding the operational modalities for the future NCPC.

4.3.2 Operational Stage

The independent country evaluations considered the Programme's approach to support the NCPCs in establishing themselves as professional CP service delivery institutions. The following key points appeared in several countries.

- The project documentation for the NCPCs normally includes some provision for a governance structure, most commonly a combination of a smaller management or governing board, with decision-making powers, and a larger advisory board, with just advisory capacities. The evaluation found that in most cases the governance arrangements had been attended to and that these had to some extent contributed to fostering local ownership in particular from national government. However it was also found that governance could be significantly improved. Firstly, the importance of governance appears to be underestimated and/or not sufficiently communicated in the Programme. In several countries governance appeared to have been regarded by the NCPC as a necessary condition for funding, and board structures were abandoned shortly after the institutional funding to the NCPC through the UNIDO-UNEP CP Programme ended (including e.g. China, India, Mexico and Croatia). Secondly, several countries set up tripartite decision-making boards, comprised of representatives of the donor government, the host country government and UNIDO. Such tripartite boards do not invite input of key national stakeholders (e.g. industry associations, NGOs, etc.), which reinforces a view that the board is a project implementation mechanism rather than a mechanism to foster national ownership of the NCPC and make its activities most relevant to various stakeholders (and hence bolster the sustainability prospects of the NCPC). The meeting frequency of these boards has been insufficient to provide timely and consistent guidance (once every 1 or even 2 years, whereas effective governance might be needed with e.g. a quarterly frequency). Thirdly, the roles and decision-making protocols for the boards have not been sufficiently clarified at the national level and guidance available at programme level not implemented. For example at least the role of the NCPC director in the board is problematic when it comes to decision making. As in the corporate world it is by far preferred that at least the NCPC Director, but probably also the UNIDO and donor representatives, have an ex officio role in the board, which is so far not the case, and would then not have a vote in the board. Fourthly, in regard to advisory boards it was found that attendance was in many countries reportedly low which appeared to reflect a lack of interest and/or willingness on the part of sufficiently senior representatives of key stakeholders to make board membership a priority. Among the NCPCs there are some praiseworthy attempts to improve governance, among the visited countries in particular in South Africa.

- The programme management is to be applauded for emphasising the need for NCPCs to develop and implement regular business plans, and providing training on business plan development. There remains however scope for improvement in the business planning processes, as there remains a tendency among NCPCs to operate opportunistically and drift in its mission. Even though it is commendable that the NCPC retains some flexibility to respond to needs and opportunities as they arise nationally, there is a need for greater discipline among NCPCs to focus their limited resources in selected critical activities rather than spread these too thin about too many activity and topic areas. It is particularly challenging to avoid such mission drift when the market for CP services does not yet exist, and needs to be established through concerted and strategic activities of the NCPC.

- Several of the visited NCPCs provided samples of recent training materials, assessment reports and/or publications. Their review as part of this programme evaluation showed that even though their average standard is professionally acceptable, there remain opportunities for standardisation and professionalization of the service delivery, and hence potential for greater effectiveness of services and efficiency of service delivery. For example, consistent use of logos and presentation styles, consistent use of concepts and methods, maximum use of national success stories in promotional material and similar reporting formats, etc. It appeared that such professionalization opportunities have so far remained unnoticed. The set up of management systems certified or otherwise, would be a good incentive to standardise service delivery (as demonstrated in Vietnam where the NCPC achieved certification on both ISO 9001 and 14001, respectively for its quality and environmental management systems). It was also noted that some of the multi country projects, for example those on integration of energy efficiency into core CP, enforced assessment methods and presentation formats that were not consistent with the national models used by some of the NCPCs who implemented these projects. This issue of professionalization and standardisation deserves greater consideration at programme management level, from UNIDO, UNEP and donors.

- Many NCPCs have invested significant resources in training of CP auditors, advisors or trainers (for example up to some 8,000 in China alone), and are now increasingly using these external CP professionals for delivery of NCPC services (e.g. conducting CP assessments in companies, etc.). The creation and utilisation of a cadre of CP professionals is supported as a multiplier mechanism. This means that the NCPC increasingly assumes a project management and quality control role (or exclusively, as the case would be in for example South Africa). While this is in principle a perfectly valid strategy option for a NCPC, in several countries there is now ground for concern that with a fully, or near fully, outsourced model, the NCPC may weaken its core CP capacities, and in the end limit its own ability to do proper quality control over outsourced activities.

Overall it appears that the Programme's performance in supporting NCPCs in the visited countries during their institutionally funded operational stage was on average satisfactory. The most tangible areas for improving support to NCPCs are: transparent and effective governance structures; strengthened ('*tighter*') business planning protocols; and standardisation and professionalization of service delivery.

4.3.3 Programme Participation

The NCPCs are supported through programme level activities carried out by, or on behalf of UNIDO, UNEP and donors. At this global level the UNIDO-UNEP CP Programme provides for overall programme management and administration, networking activities and technical assistance inputs (including international experts, training opportunities and information materials). The country evaluations canvassed the experiences of the visited NCPCs and their national stakeholders in regard to these global programme activities. The following overarching issues emerged.

- There are no formal management arrangements that define the relation of the UNIDO-UNEP CP Programme with the NCPCs which are no longer institutionally funded through the Programme. The programme management is therefore not aware of the activities and achievements of these NCPCs, while they remain advertised and acknowledged as UNIDO-UNEP NCPCs. This has raised different issues, which have been recognised by programme management and contributed to the decision to undertake this programme evaluation. Firstly, the impression is being maintained that these NCPCs are obliged to implement the UNIDO-UNEP CP programme strategy, while the programme management has no means to entice these NCPCs to do so. Secondly, the NCPCs go on to develop activities as per their own assessment of local business opportunities, and this may no longer be consistent with the UNIDO-UNEP CP Programme or even general UN Policy. There is a need for the Programme to establish appropriate means to engage with NCPCs after their institutional funding through the UNIDO-UNEP Programme has ended. Even though formerly funded NCPCs recognise the importance and relevance of the Programme, many of these NCPCs are not in close contact with the Programme and they do not perceive to receive concrete and practical benefits from it, apart from the prestige associated with membership of a UNIDO-UNEP network. This was encountered in all visited NCPCs that are no longer funded, in some countries even quite strongly (e.g. China and India).

- There is widespread concern among funded and previously funded NCPCs that administrative arrangements and funding disbursements are too time-consuming. Even though most NCPCs manage to cope with these problems, often with support of local UNIDO representatives, others have struggled and at times had to prepay Centre expenditures from their private funds to keep the NCPC going.

- In principle, there is appreciation in most countries for the initiatives of the programme management to extend the scope of CP and introduce new services. However, there is concern about donor-driven identification of potential service areas, and insufficient endorsement by NCPCs for their further scoping and integration with core CP service areas. Moreover, government representatives in several visited countries expressed a strong desire for the NCPC to remain relatively narrowly focused on plant level CP activities, as the job of fostering CP uptake is by far not yet completed (e.g. China and India). This highlights the current absence of a provision in the Programme to survey periodically CP, and CP-related, needs of NCPCs and their national stakeholders, to inform and guide strategic developments in the Programme.

- There are very high, but non-specific, expectations regarding networking, which remain so far largely unmet. Positive developments are the LatinNet network of

NCPC and related activities in Latin America (see Box 2.1), the regional multi-country projects in Asia Pacific (e.g. GERIAP) and through the Central American Environmental Committee. Some steps have also been taken in Africa, but follow up has not been forthcoming. There is a general preference in particular from the NCPCs that networking would work best when focused around specific initiatives.

- The availability of international expert inputs to the different NCPCs has varied greatly. While some NCPCs operated essentially without access to international expert inputs, others had for substantive periods of time access to short term and/or resident part or full time technical advisors. The quality of the expert inputs has generally been good. Several NCPCs would however appreciate greater involvement in selection of international experts and customising their Terms of Reference better to their immediate needs. As evidenced by the self-evaluation surveys (section 3.3) the resource materials produced by UNIDO and UNEP for use by the NCPC network are also generally perceived as informative and useful. However on the flip side, the self assessment had revealed that NCPCs/NCPPs are insufficiently aware of the complete range of information and resource materials made available by UNEP and UNIDO (see paragraph 3.3.3).

In the visited countries the NCPCs and their national stakeholders remain loyal to the global UNIDO-UNEP CP Programme, and are in principle supportive of initiatives to broaden and/or deepen the Programme with additional service areas, while also creating more networking opportunities. There is however a strongly felt need to address concerns with regard to efficiency of programme administration, and effectiveness of networking through increased availability and intensity of networking opportunities within the Programme.

4.4 National Results

The results achieved through the establishment and operation of the NCPCs in the visited countries were reviewed, in each of the five core service areas distinguished in the UNIDO-UNEP CP Programme, respectively: information dissemination/awareness raising; training; in-plant demonstrations; policy advice and EST transfer. The available information on results was considered at three levels, namely:

- Result Level 1: *Outputs*: activities undertaken or delivered by the NCPC;
- Result Level 2: *Outcomes:* activities of the direct customers of the NCPC; and
- Result Level 3: *Impacts*: benefits for local industry and other stakeholders in the host country.

Where meaningful, a further distinction was made between '*leading'* and '*lagging*' evidence. Leading evidence is *prospective* and refers to the presence of initiatives that could result in the uptake of CP (for example the definition and planning of a training programme in regards to target group, learning outcomes and topics; initiation of a demonstration project; engineering design for a CP technology option). Lagging evidence is *retrospective* and refers to completed initiatives that have contributed to the realisation of CP (for example people trained or CP options identified).

4.4.1 Information Dissemination

Information dissemination is achieved by means of production and distribution of information materials (booklets, flyers, websites, etc.) and delivery of awareness type of seminars. The latter are typically done in collaboration with other organisations, for example regional or national government agencies, professional or industry associations, universities and/or other NGOs.

The diversity of information and awareness initiatives in the visited countries is quite large. In the country-specific evaluation reports detailed comments are provided in regards to the current status of information and awareness initiatives in the visited countries. For this global programme level summary a comparative analysis was performed of the scope and results of the information activities in the visited countries. Semi-quantitative scales were therefore used, as in Table 4.3. The results achieved are presented in Table 4.4, and Figure 4.1 presents the main analysis results graphically.

Table 4.3: Categories used in comparative analysis of NCPC results on information dissemination in the visited countries

Service Area 1: Information Dissemination/Awareness Raising											
Level	**Scale of Results (*)**				**Type of Evidence**				**Strength of Evidence**		
	Unknown	**Some Result**	**Good Result**	**Excellent Result**	**Unavailable**	**Leading**	**Lagging**	**Both**	**Unavailable**	**Weak Evidence**	**Strong Evidence**
1. Outputs	No information available	2 or less per year	3-6 per year	7 or more per year	No evidence available	Systems in place to plan and deliver activities, and monitor participation levels	Quantitative information on number of activities and participation levels	Leading and lagging	No evidence available	Some data available but not comprehensive	Extensive data available, covering all activities
2. Outcomes	No information available	Less then 2 % of recipients known to have acted	Between 2 and 10% of recipients known to have acted	More then 10% of recipients known to have acted	No evidence available	Systems in place to monitor follow up by recipients of information	Quantitative information on share of participants undertaking some CP activity	Leading and lagging	No evidence available	Some data available but not comprehensive	Extensive data available, covering all activities
3. Impacts	No information available	Less then 2 % of recipients have achieved some CP implementation	Between 2 and 10% of recipients have achieved some CP implementation	More then 10% of recipients have achieved some CP implementation	No evidence available	Systems in place to monitor impacts achieved by participants in information activities	Quantitative information on benefits achieved by participants	Leading and lagging	No evidence available	Some data available but not comprehensive	Extensive data available, covering all activities

(*) Number of information or awareness initiatives organised by NCPC and/or information materials produced.

Table 4.4: Findings from analysis of results for information dissemination
Refer Table 4.3 for explanation of the categories

Service Area 1: Information Dissemination										
		Level 1: Outputs			Level 2: Outcomes			Level 3: Impacts		
Country	Region	Scale	Evidence Type	Evidence Strength	Scale	Evidence Type	Evidence Strength	Scale	Evidence Type	Evidence Strength
China	Asia	Good	Both	Weak	Some	Lagging	Weak	Unknown	Unavailable	Unavailable
Columbia	S America	Some	Both	Weak	Some	Lagging	Weak	Unknown	Unavailable	Unavailable
Costa Rica	C America	Good	Both	Strong	Some	Lagging	Weak	Some	Lagging	Weak
Croatia	CE Europe	Good	Both	Strong	Some	Unavailable	Weak	Unknown	Unavailable	Unavailable
Egypt	Africa	Good	Both	Strong	Good	Lagging	Strong	Some	Lagging	Unavailable
El Salvador	C America	Good	Both	Strong	Some	Lagging	Weak	Some	Lagging	Weak
Guatemala	C America	Excellent	Both	Strong	Good	Lagging	Weak	Unknown	Unavailable	Unavailable
India	Asia	Good	Leading	Weak	Some	Lagging	Weak	Unknown	Unavailable	Unavailable
Kenya	Africa	Good	Leading	Weak	Some	Lagging	Weak	Some	Both	Unavailable
Mexico	C America	Some	Lagging	Strong	Some	Lagging	Weak	Unknown	Unavailable	Unavailable
Morocco	Africa	Excellent	Both	Strong	Good	Lagging	Weak	Some	Lagging	Weak
Mozambique	Africa	Some	Both	Strong	Some	Lagging	Weak	Unknown	Unavailable	Unavailable
Nicaragua	C America	Excellent	Both	Strong	Good	Lagging	Strong	Some	Lagging	Weak
Peru	S America	Good	Both	Strong	Unknown	Unavailable	Unavailable	Unknown	Unavailable	Unavailable
South Africa	Africa	Good	Both	Weak	Some	Lagging	Weak	Unknown	Unavailable	Unavailable
Sri Lanka	Asia	Excellent	Both	Strong	Some	Lagging	Weak	Unknown	Unavailable	Unavailable
Uzbekistan	Asia	Excellent	Both	Strong	Some	Lagging	Weak	Unknown	Unavailable	Unavailable
Vietnam	Asia	Excellent	Both	Strong	Some	Lagging	Weak	Unknown	Unavailable	Unavailable

Note: evidence categories are: *leading* = leading evidence only, *lagging* = lagging evidence only, and *both* = leading and lagging evidence.

Figure 4.1: Comparative analysis of results in regards to information dissemination

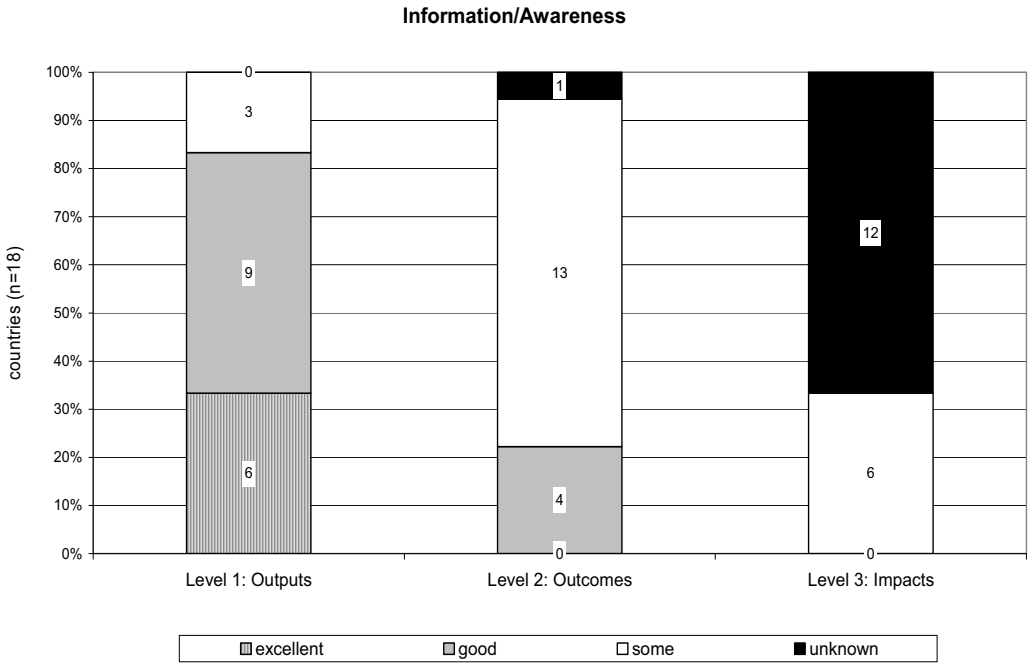


Figure 4.1 shows that there was good performance in information dissemination. The data are most comprehensive at output level, showing that 6 countries achieved '*excellent*' output levels and 9 countries '*good*' output levels (as per the categories in Table 4.3). Data at outcomes level are less comprehensive, but regardless it was found that 4 countries had '*good*' outcome levels and 13 countries '*some*' outcomes. Impacts however could not be rated for most countries (12 counties), whereas for the remaining 6 only '*some*' impacts could be confirmed.

Table 4.4 also provides a more detailed summary of the available evidence for results on information dissemination. The evidence basis is strongest at output level, as most countries (15 countries) had '*leading*' and '*lagging*' evidence, and in most cases (13 countries) this was rated '*strong'*. This means that these NCPCs have systems and processes in place to prepare and deliver information events, and do maintain some kind of database of participants. The evidence basis at outcome level is much more limited. It was rated '*weak*' for the majority of countries (15 countries) and was also limited to '*lagging'* evidence for the majority (16 countries). This essentially means that the NCPC is aware that some of the former participants in the information events have taken some steps towards CP uptake (for example signed up for training, or requested a CP assessment). However, such data are not routinely collected. At impact level, there is hardly any firm evidence. But there is anecdotal information confirming that one or a few former participants have gone on and become CP advocates or implemented CP in their own organisations.

From this comparative analysis of results on information dissemination (as presented in Table 4.4 and Figure 4.1) it is concluded that the majority (> 80%) of the visited NCPCs have a good portfolio of information dissemination and awareness building activities.

They have demonstrated their capability for preparing and delivering information materials and awareness sessions, and have established some systems for keeping records on attendance levels etc. Collection of data on outcomes and impacts

Table 4.5: Categories used in comparative analysis of NCPC results on training in the visited countries

Service Area 2: CP Training											
Level	**Scale of Results**				**Type of Evidence**				**Strength of Evidence**		
	Unknown	**Some Result**	**Good Result**	**Excellent Result**	**Unavailable**	**Leading**	**Lagging**	**Both**	**Unavailable**	**Weak Evidence**	**Strong Evidence**
1. Outputs	No information available	2 or less training programmes per year	3-6 training programmes per year	7 or more training programmes per year	No evidence available	Systems in place to plan and deliver training, and monitor participation levels	Quantitative information on number of training programs and participation levels	Leading and lagging	No evidence available	Some data available but not comprehensive	Extensive data available, covering all activities
2. Outcomes	No information available	Less then 20 % of trainees are known to be active in CP	Between 20 and 50% of trainees are known to be active in CP	More then 50% of trainees are known to be active in CP	No evidence available	Systems in place to monitor follow up initiatives by former trainees	Quantitative information on share of trainees which are active in CP	Leading and lagging	No evidence available	Some data available but not comprehensive	Extensive data available, covering all activities
3. Impacts	No information available	Less then 20 % of trainees have achieved demonstrable CP implementation	Between 20 and 50% of trainees have achieved or contributed to demonstrable CP implementation	More then 50% of trainees have achieved or contributed to demonstrable CP implementation	No evidence available	Systems in place to monitor impacts achieved by former trainees	Quantitative information on benefits achieved by former trainees	Leading and lagging	No evidence available	Some data available but not comprehensive	Extensive data available, covering all activities

Table 4.6: Findings from analysis of results for training
Refer Table 4.5 for explanation of the categories

Service Area 2: CP Training										
		Result Level 1: Outputs			Results Level 2: Outcomes			Result Level 3: Impacts		
Country	**Region**	**Scale**	**Evidence Type**	**Evidence Strength**	**Scale**	**Evidence Type**	**Evidence Strength**	**Scale**	**Evidence Type**	**Evidence Strength**
China	Asia	Excellent	Both	Strong	Excellent	Both	Weak	Unknown	Unavailable	Unavailable
Columbia	S America	Unknown	Lagging	Weak	Unknown	Unavailable	Unavailable	Unknown	Unavailable	Unavailable
Costa Rica	C America	Good	Both	Strong	Good	Lagging	Weak	Good	Lagging	Weak
Croatia	CE Europe	Some	Both	Strong	Some	Unavailable	Unavailable	Unknown	Unavailable	Unavailable
Egypt	Africa	Some	Leading	Weak	Some	Lagging	Weak	Unknown	Unavailable	Unavailable
El Salvador	C America	Good	Both	Weak	Good	Lagging	Weak	Some	Lagging	Weak
Guatemala	C America	Good	Both	Strong	Good	Lagging	Weak	Some	Lagging	Weak
India	Asia	Unknown	Leading	Weak	Some	Lagging	Weak	Unknown	Unavailable	Unavailable
Kenya	Africa	Excellent	Leading	Weak	Good	Both	Strong	Some	Unavailable	Unavailable
Mexico	C America	Good	Both	Strong	Some	Lagging	Weak	Some	Lagging	Weak
Morocco	Africa	Some	Both	Strong	Some	Lagging	Weak	Some	Lagging	Weak
Mozambique	Africa	Some	Both	Strong	Good	Lagging	Strong	Unknown	Unavailable	Unavailable
Nicaragua	C America	Excellent	Both	Strong	Excellent	Lagging	Strong	Excellent	Lagging	Weak
Peru	S America	Unknown	Leading	Weak	Some	Lagging	Weak	Unknown	Unavailable	Unavailable
South Africa	Africa	Some	Both	Strong	Some	Lagging	Strong	Unknown	Unavailable	Unavailable
Sri Lanka	Asia	Unknown	Lagging	Strong	Some	Lagging	Weak	Unknown	Unavailable	Unavailable
Uzbekistan	Asia	Excellent	Both	Strong	Some	Lagging	Weak	Unknown	Unavailable	Unavailable
Vietnam	Asia	Excellent	Both	Strong	Some	Lagging	Weak	Unknown	Unavailable	Unavailable

Note: evidence categories are: *leading* = leading evidence only, *lagging* = lagging evidence only, and *both* = leading and lagging evidence.

from information and awareness activities is hardly done at all and those few countries that have attempted it do so in a relatively un-systematic manner.

4.4.2 Training

NCPCs deliver training on CP and CP-related topics to various target groups. Target groups include: technical staff and/or management representatives from companies, future CP auditors (e.g. from consultancies, universities, technical institutes and/or government agencies) and government representatives (legislators, policy makers, etc., at national, regional and/or local level). CP concepts and assessment methods form the core of most training programmes, while some NCPCs have complemented this with one-off specialist training programmes, for example for specific industry sectors or on topics considered as advanced (e.g. Environmental Management Systems, Life Cycle Assessment, etc.).

The training portfolios of the NCPCs in the visited countries are therefore rather different. While for some NCPCs training is one of the core activities (e.g. China) in others training is only delivered in support of other main activities, like company demonstration projects (e.g. Mozambique). The country-specific evaluation reports provide a detailed summary and review of the training activities in the visited countries. For this summary a comparative analysis was performed of the scope and results of training activities in the visited countries. Semi-quantitative scales were therefore used, as in Table 4.5. The results achieved are presented in Table 4.6, and Figure 4.2 presents the main analysis results graphically.

Figure 4.2: Comparative analysis of results in regards to training

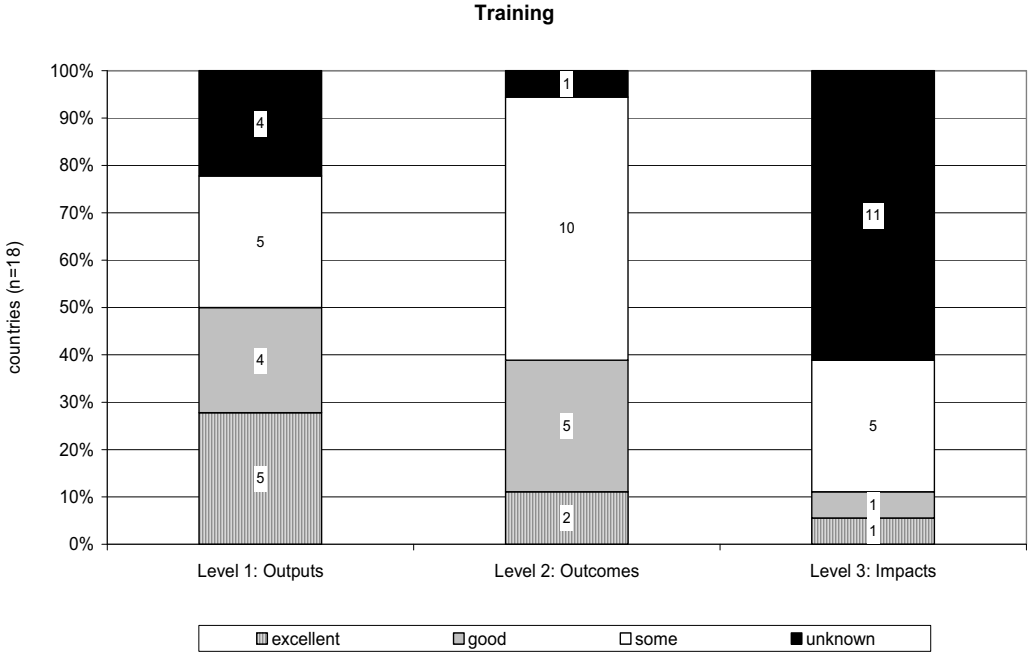


Figure 4.2 shows a quite diverse picture in regard to the scale of the training results among the visited NCPCs. At output level, there is an almost even split of the visited countries between the four category levels, respectively: '*excellent*' (5 countries), '*good*' (4 countries), '*some*' (5 countries) and '*unknown*' (4 countries) (using the category

definitions as in Table 4.5). At outcome level, the distribution of countries was: '*excellent*' (2 countries), *'good'* (5 countries), '*some*' (10 countries) and '*unknown*' (1 country). The higher certainty for training outcomes (only 1 country '*unknown'*) than for training outputs (4 countries *'unknown')* is largely caused by a time factor. There was insufficient information on recent training volume (to rank performance at output level), whilst it could be confirmed that several former trainees now deliver CP services (which justified a rating on training outcome with weak evidence). At impact level, information was insufficient to rank most of the countries (11 countries therefore scored an '*unknown*'). Of the NCPCs for which some impact data could be derived, one was ranked as '*excellent*' result, one as '*good*' result and five as '*some'* result.

Table 4.6 provides more detail in regard to datasets available at the NCPCs to demonstrate training results. The majority of visited NCPCs (12 countries) have diverse records at the level of outputs, including both '*leading'* and '*lagging'* evidence, that provides a '*strong'* evidence basis that training is being prepared and delivered on a routine basis. The evidence basis at outcome level is much weaker, as the majority of visited NCPCs (12 countries) only have lagging and incomplete records, i.e. they might know that some trainees are using their newly acquired CP skills (most commonly as contractors to the NCPC for undertaking CP activities (e.g. CP assessments)), but are not aware whether and how the other trainees have used their CP training. At impact level the evidence basis is even weaker than at outcome level.

From the comparative analysis of training results (as presented in Table 4.6 and Figure 4.2) it is concluded that for half of the NCPCs training is a core activity in its own right with a considerable and sustained level of outputs. For the other visited NCPCs training appears to be more narrowly focused and delivered only in support of other core activities. Despite the considerable training efforts, data on outcomes and impacts are scarce, incomplete and irregularly maintained.

4.4.3 Demonstration

NCPCs assist companies and other organisations with the identification and evaluation of CP options, through the execution of CP assessments. In the early stages of establishment of a NCPC such CP assessments are all done as demonstration projects, i.e. with the explicit aim to develop CP assessment capabilities (of NCPC staff and associated experts) and develop success stories/business examples for the further promotion of CP in the country. Over time, a greater share of CP assessments is expected to be done on a fee-for-service basis. Likewise the CP assessments are then typically conducted as either full CP assessments (i.e. comprehensive root source and cause analysis, quantified waste streams and investment costs, savings and environmental benefits) or as walk-through CP assessments (also quick scans, pre-assessment, rapid assessment or otherwise, with limited option generation, and only qualitative analysis of likely costs and benefits). Some NCPCs have focused their CP assessment services in a few priority sectors (typically 3 to 5 sectors, for the countries with a well established manufacturing sector, e.g. South Africa, Vietnam, Morocco, Egypt, Colombia) while others have not been able to develop and/or maintain a clear focus (typically in those countries with a more narrow manufacturing basis, e.g. Sri Lanka, Mozambique). This is important, as there is a widespread view that sector focus increases the probability of impact through replication of well-demonstrated CP successes.

The CP assessment portfolios of the NCPCs in the visited countries are rather different, and within each country a degree of differentiation occurred, with regard to for example individual and collective approaches, consulting or coaching models for CP assessments, and level and type of support after completion of the CP assessment. An observation that applied to most of the countries, albeit to different degrees, is that consistency in CP concepts and assessment methods can be improved, leading to more standardised service delivery with greater replication and marketing potential of completed CP demonstrations (and hence effectiveness and efficiency of CP service delivery). There is a strong case for customised concepts and methods at the national level, so that CP is made most relevant to national circumstances, and that these develop over time as the national context changes (for example with the current revision of the scope of the '*China CP enterprise CP audit manual'* [54]). However, it is recognised that this creates a tension with the desire to achieve uniformity at international level (which created some tension with the energy efficiency projects as discussed in paragraph 4.3.3)).

Table 4.7: Categories used in comparative analysis of NCPC results on CP Assessments/demonstrations in the visited countries

Service Area 3: Cleaner Production Assessments											
Level	**Scale of Results**				**Type of Evidence**				**Strength of Evidence**		
	Unknown	**Some Result**	**Good Result**	**Excellent Result**	**Unavailable**	**Leading**	**Lagging**	**Both**	**Unavailable**	**Weak Evidence**	**Strong Evidence**
1. Outputs	No information available	2 or fewer full CPA's/year or 5 or fewer rapid CPA's/year	3-5 full CPA's/year or 6-15 rapid CPA's/year	6 or more full CPAs/yr or 16 or more rapid CPA's/year	No evidence available	Systems in place to conduct CP assessments	Quantitative information on number of audited companies	Leading and lagging	No evidence available	Some data available but not comprehensive	Extensive data available, covering all CP assessment
2. Outcomes	No information available	Less then 25 % of CP options have been implemented (or only qualitative information available on implementation levels)	Between 25 and 75% of CP options have been implemented	Over 75% of CP options have been implemented	No evidence available	Systems in place to monitor follow up on the implementation of recommendations from CP assessments	Quantitative information on share of options implemented	Leading and lagging	No evidence available	Some data available but not comprehensive	Extensive data available, covering all CP assessments
3. Impacts	No information available	Benefits achieved quantified for less then 25% of audited companies	Benefits achieved quantified for 25 to 75% of audited companies	Benefits achieved quantified for at least 75% of audited companies	No evidence available	Systems in place to monitor environmental and productivity benefits achieved after implementation of recommendations from CP assessment	Quantitative information on benefits achieved by audited companies	Leading and lagging	No evidence available	Some data available but not comprehensive	Extensive data available, covering all CP assessments

Table 4.8: Findings from analysis of results for in-plant demonstrations (CP assessments)
Refer Table 4.7 for explanation of the categories

Service Area 3: CP Assessment										
Country	Region	Level 1: Outputs			Level 2: Outcomes			Level 3: Impacts		
		Scale	**Evidence Type**	**Evidence Strength**	**Scale**	**Evidence Type**	**Evidence Strength**	**Scale**	**Evidence Type**	**Evidence Strength**
China	Asia	Excellent	Both	Weak	Some	Lagging	Weak	Some	Lagging	Weak
Columbia	S America	Excellent	Both	Strong	Good	Lagging	Weak	Unknown	Unavailable	Unavailable
Costa Rica	C America	Excellent	Both	Strong	Good	Lagging	Weak	Some	Lagging	Weak
Croatia	CE Europe	Some	Both	Weak	Some	Unavailable	Unavailable	Unknown	Unavailable	Unavailable
Egypt	Africa	Some	Both	Weak	Good	Both	Weak	Some	Unavailable	Unavailable
El Salvador	C America	Excellent	Both	Strong	Good	Both	Strong	Excellent	Both	Weak
Guatemala	C America	Excellent	Both	Strong	Good	Both	Strong	Excellent	Both	Strong
India	Asia	Good	Both	Weak	Some	Lagging	Weak	Unknown	Unavailable	Unavailable
Kenya	Africa	Excellent	Both	Weak	Some	Lagging	Weak	Some	Lagging	Weak
Mexico	C America	Excellent	Both	Strong	Some	Lagging	Weak	Some	Lagging	Weak
Morocco	Africa	Excellent	Both	Strong	Good	Lagging	Weak	Good	Lagging	Weak
Mozambique	Africa	Some	Both	Strong	Some	Lagging	Weak	Unknown	Unavailable	Unavailable
Nicaragua	C America	Excellent	Both	Strong	Good	Both	Weak	Good	Both	Weak
Peru	S America	Excellent	Both	Strong	Good	Lagging	Weak	Excellent	Lagging	Weak
South Africa	Africa	Some	Both	Strong	Some	Lagging	Weak	Unknown	Unavailable	Unavailable
Sri Lanka	Asia	Excellent	Both	Strong	Good	Lagging	Weak	Unknown	Unavailable	Unavailable
Uzbekistan	Asia	Excellent	Both	Strong	Some	Both	Weak	Some	Unavailable	Unavailable
Vietnam	Asia	Excellent	Both	Strong	Good	Lagging	Strong	Good	Lagging	Weak

Note: evidence categories are: *leading* = leading evidence only, *lagging* = lagging evidence only, and *both* = leading and lagging evidence.

The country-specific evaluation reports provide a detailed summary and review of the CP assessment activities in the visited countries. For this summary a comparative analysis was performed of the scope and results of these demonstration activities in the visited countries. Semi-quantitative scales were therefore used, as in Table 4.7. The scales are based on the number of assessment projects and the implementation status in assessed companies. With this global programme-level summary it was not possible to properly capture the quality and impact of these CP assessments more widely on the sectors and clusters that the assessed companies are part of. The results of the classifications of the visited countries are presented in Table 4.8, and Figure 4.3 presents the main analysis results graphically.

Figure 4.3: Comparative analysis of results in regards to demonstrations/CP Assessments

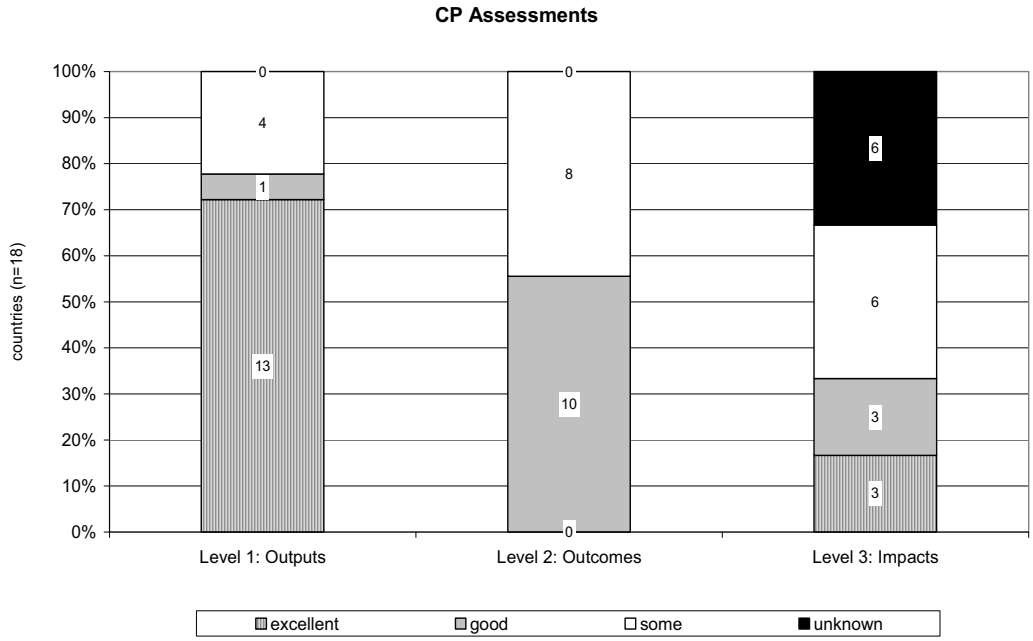


Figure 4.3 shows that all visited NCPCs are active in delivering CP assessment services, and the vast majority of them achieve '*excellent*' (13 countries) or '*good*' outcomes (1 country), as per the category descriptions in Table 4.7. The results at outcome level are also good as the NCPCs could confirm that for all assessments undertaken at least '*some*' implementation had followed by the companies, and in 10 countries it could be confirmed that between 25 and 75% of the recommended CP options had been implemented (as reflected in a '*good*' rating on outcomes). The results at impact level are less clear, with six countries each in the categories of '*unknown*' and '*some'* impact. Substantive impact data are only available for 6 countries, rated as '*excellent*' (3 countries which claim to have investment and benefit data for over 75% of the audited companies) and as '*good*' (3 countries have investment and benefit data for at least 25% of the audited companies).

Table 4.8 provides more detail in regard to datasets available at the NCPCs to demonstrate results from CP assessments. All countries have leading and lagging evidence to prove outputs, and in most countries the data are comprehensive (as reflected in rating of the evidence strength as '*strong'* for 13 countries). At outcome level, the evidence base is weaker, as only 5 countries have both leading and lagging evidence, and

12 have only lagging evidence, resulting in the evidence basis being rated '*weak*' in 14 countries. This implies that most NCPCs have data on the implementation status of some but not necessarily the majority of CP options. At the level of impacts, the evidence base is smallest, as NCPCs in only 10 countries maintain some kind of data on costs and benefits of options implemented in the audited companies, most of these however only lagging (7 countries) and incomplete (hence 9 countries with evidence rated as *'weak'*).

From the comparative analysis of results presented in Table 4.8 and Figure 4.3 it can be concluded that CP assessments/in-plant demonstrations are indeed a core activity of the NCPCs. Record keeping for the number of assessments undertaken (output level) is good and shows sustained CP assessment activity over time. The follow up to CP assessments, including monitoring of investments made and benefits achieved, have historically not been strong, but it is now being recognised by most NCPCs as important, leading to some kind of tracking, albeit not yet comprehensively, of the implementation of CP options in audited companies in 17 countries. It should be noted, however, that a general trade-off remains, as companies appear to be unwilling to pay for follow up and monitoring, while NCPCs are encouraged to deliver services on a commercial basis.

4.4.4 Policy Advice

NCPCs engage with government and other stakeholders, including for example the business community, academia and schools, to foster the development and adoption of policy change conducive to the uptake of CP. While some NCPCs have been actively advocating policy change right from their establishment, most have only done so after having gained some national recognition through completion of CP demonstration projects or otherwise. The potential to be active on policy matters is also influenced by the host institutions. For example, those NCPCs hosted in industry associations or alike tend to be primarily involved at executive level with for example support for national implementation of MEAs (e.g. Morocco, Kenya, Colombia), promotion and administration of voluntary agreements and/or development of sector guidelines and standards (e.g. Guatemala). The NCPCs hosted in academia have been able to engage with a broader set of government portfolios to advocate CP-conducive policy change (e.g. Vietnam). For other NCPCs their national mandate to work on policy development has been tightly limited (e.g. South Africa, Egypt). Finally, there are also several NCPCs that conduct substantive policy relevant background studies that support the implementation of CP-conducive policy, for example on harmonisation of environmental legislation (Croatia), technical potential for CP (e.g. India and China) etc.

The achievements of the visited NCPCs on policy development are thus very diverse. Specific remarks and suggestions have been provided on a country-by-country basis in the respective country evaluation reports. An attempt is however made here to provide a summary impression of the activity and results of all NCPCs. As with the other service areas, a scaled system was developed to classify each NCPC in regard to the scope of its policy advisory services, and the impacts thereof. This classification scheme is provided in Table 4.9. The resulting classification of the visited NCPCs is provided in Table 4.10. Figure 4.4 provides a graphical presentation of the overall results in policy advice.

Table 4.9: Categories used in comparative analysis of NCPC results on CP policy advice in the visited countries

Service Area 4: Cleaner Production Policy Advice											
Level	**Scale of Results**				**Type of Evidence**				**Strength of Evidence**		
	Inactive	**Some Result**	**Good Result**	**Excellent Result**	**Unavailable**	**Leading**	**Lagging**	**Both**	**Unavailable**	**Weak Evidence**	**Strong Evidence**
1. Outputs	No specific activity from NCPC	Regular liaison on policy issues with government agencies	Regular submissions with policy suggestions to government	Coordinated approach to draft CP-conducive policy and lobby government for endorsement	No evidence available	Systems in place to record interactions with government, their content and follow up	Quantitative information on frequency and types of government interactions	Leading and lagging	No evidence available	Some data available but not comprehensive	Extensive data available, covering all NCPC activity
2. Outcomes	No specific activity from NCPC	Regular invitations from government to NCPC to comment on policy issues	Regular invitations from government to be part of policy working groups	Outsourcing of policy preparation and/or implementation tasks from government to NCPC	No evidence available	Systems in place to record communications from government, their content and follow up	Quantitative information on frequency and types of government invitations	Leading and lagging	No evidence available	Some data available but not comprehensive	Extensive data available, covering all NCPC activity
3. Impacts	No specific activity from NCPC	Recognition from government for CP policy advice received	Inclusion of CP in implementation of existing policies and strategies	Enactment of new CP-conducive policies and strategies	No evidence available	Systems in place to review changes in government policy and strategy	Qualitative information on scope and nature of changes in policies and strategies and their implementation arrangements	Leading and lagging	No evidence available	Some data available but not comprehensive	Extensive data available, covering all NCPC activity

Table 4.10: Findings from analysis of results in CP policy advice
Refer Table 4.9 for explanation of the categories

Service Area 4: CP Policy										
		Level 1: Outputs			Level 2: Outcomes			Level 3: Impacts		
Country	**Region**	**Scale**	**Evidence Type**	**Evidence Strength**	**Scale**	**Evidence Type**	**Evidence Strength**	**Scale**	**Evidence Type**	**Evidence Strength**
China	Asia	Excellent	Both	Strong	Excellent	Both	Strong	Excellent	Both	Strong
Columbia	S America	Good	Lagging	Weak	Good	Lagging	Weak	Some	Lagging	Weak
Costa Rica	C America	Excellent	Both	Strong	Good	Lagging	Weak	Good	Both	Weak
Croatia	CE Europe	Some	Lagging	Weak	Good	Lagging	Strong	Some	Lagging	Weak
Egypt	Africa	Inactive	Unavailable	Unavailable	Inactive	Unavailable	Unavailable	Inactive	Unavailable	Unavailable
El Salvador	C America	Excellent	Both	Strong	Excellent	Both	Weak	Good	Both	Weak
Guatemala	C America	Good	Lagging	Strong	Good	Lagging	Strong	Some	Lagging	Weak
India	Asia	Some	Lagging	Weak	Good	Lagging	Strong	Good	Lagging	Weak
Kenya	Africa	Good	Both	Strong	Good	Lagging	Strong	Excellent	Lagging	Strong
Mexico	C America	Some	Lagging	Weak	Inactive	Lagging	Weak	Inactive	Lagging	Weak
Morocco	Africa	Good	Both	Strong	Good	Lagging	Strong	Good	Lagging	Weak
Mozambique	Africa	Inactive	Unavailable	Unavailable	Inactive	Unavailable	Unavailable	Inactive	Unavailable	Unavailable
Nicaragua	C America	Excellent	Both	Strong	Good	Both	Strong	Good	Lagging	Weak
Peru	S America	Good	Lagging	Weak	Some	Lagging	Weak	Good	Lagging	Strong
South Africa	Africa	Some	Lagging	Strong	Some	Lagging	Weak	Some	Lagging	Weak
Sri Lanka	Asia	Good	Both	Strong	Excellent	Both	Strong	Excellent	Lagging	Strong
Uzbekistan	Asia	Inactive	Unavailable	Unavailable	Inactive	Unavailable	Unavailable	Good	Unavailable	Unavailable
Vietnam	Asia	Excellent	Both	Strong	Excellent	Both	Strong	Excellent	Both	Strong

Note: evidence categories are: *leading* = leading evidence only, *lagging* = lagging evidence only, and *both* = leading and lagging evidence.

Figure 4.4: Comparative analysis of results for policy advice

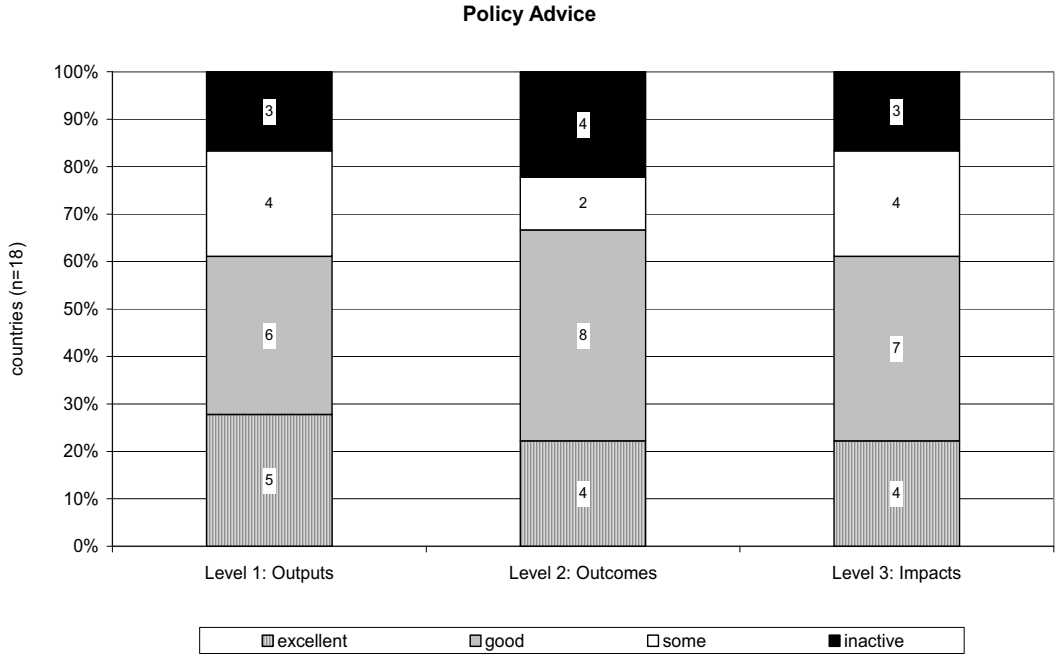


Figure 4.4 shows consistently high results at all three result levels, as per the classification scheme provided in Table 4.9. 11 countries have '*good'* or *'excellent*' classification on policy output (i.e. NCPC is on regular basis in liaison with government and provides recommendations on CP-conducive policy), 12 countries have a '*good*' or '*excellent*' classification on outcomes (i.e. NCPC is regularly invited to contribute to policy formulation and/or implementation) and 11 countries have a *'good'* or '*excellent'* classification on impacts (i.e. enactment of CP-conducive policies and/or strategies),. Some caution is needed for attribution, as in particular impacts through enactment of new strategies and legislation, is not exclusively the result of activities of the NCPC. This explains why for some companies the classification is lower for outputs, then for subsequent outcomes and impacts (for example India, where new energy efficiency legislation was enacted that fosters CP consideration and implementation (impact), and the NCPC is involved in preparing technical/operational guidelines (outcome), but appeared to have been only a minor party for creating the political commitment to establish this legislation). For other countries, the reverse is true, i.e. that regardless of significant effort from the NCPC to lobby for policy change, there has been hardly any outcome or impact, apparently due to lacking commitment from other key stakeholders (e.g. Costa Rica, Nicaragua and Peru).

Table 4.8 contains details on the type and strength of the evidence. It is remarkable that lagging evidence dominates, as at least half of the countries for which some evidence was available this was only lagging evidence, and this was equally so at the level of outputs, outcomes and impacts. So, there is more information available about what was delivered or achieved, rather than on systems or plans in place for engaging strategically and tactically with government and other stakeholders on opportunities for effective CP policies. This suggests that there is scope for better strategising in the policy activities of the NCPCs.

From the comparative analysis of results on policy advice presented in Table 4.10 and Figure 4.4.it can be concluded that 2/3rd of the visited NCPCs have achieved and/or contributed to demonstrable CP-conducive policy change. Recordkeeping for intervention in and contribution to policy processes is unfortunately weak, which add to the inherent complexities of attribution of policy change to project activities. NCPCs may need to develop a more strategic approach to policy change to increase results from policy advice and have a reference for monitoring policy related activities.

4.4.5 Technology Transfer

Technology Transfer, specifically for Environmentally Sound Technologies (ESTs), was added as an explicit aim and service area for the UNIDO-UNEP CP Programme from 1998. There are quite different expectations what is covered by technology transfer. It is in some cases narrowly viewed as import of best available environmental process equipment from donor or other industrialised, or, as the case might be, developing, country to the NCPC host country. In a broader interpretation it entails all activities that improve the demand and/or supply of environmental process technologies and know-how, both locally as well as internationally (covering both North–South and South-South transfers). In the narrow view, the programme's success has been very limited as only for a couple of countries specific international environmental technology transfers could be identified that had come about as a result of the UNIDO-UNEP CP Programme directly (e.g. Morocco, in olive processing industry) or indirectly (e.g. India, for the dyestuff intermediates manufacturing industry). In the broader interpretation, quite a number of NCPCs have made considerable progress in EST transfer, adaptation and replication, through various initiatives that they themselves may not even regard as relevant for technology transfer. These include for example: advisory services for establishment or implementation of green credit lines (e.g. Vietnam and Columbia), definition of CP standards for specific industry sectors (in particular in China), engineering drawings (or '*blueprints*') for minor technology upgrades (in particular in India).

The activities relevant for EST transfer have been summarised for each of the visited countries in the respective country review reports, and results analysed as a basis for specific suggestions for future activities. Given the diversity of NCPC activities that are supportive of EST transfer in the visited countries, classification of the respective countries' results exclusively on the volume or scope of EST transfer services was not meaningful. For classification purposes a distinction was made between '*bottom-up'* and '*top-down*' approaches to technology transfer. '*Bottom-up*' Approaches start with technology needs assessment at company level, followed by technological capability building, gap identification, technology sourcing and investment appraisal to initiate the purchase, installation and adaptation of specific pieces of imported hardware. This '*bottom up*' approach is most illustrative for the above-referred narrow interpretation of technology transfer. '*Top- down*' approaches are more commonly government-driven and start with benchmarking and definition of environmental best practice standards that companies will have to meet, forcing them to consider and adopt ESTs. This '*top-down*' approach is more illustrative for the above-referred broad interpretation of technology transfer. There is merit in combining both approaches, which has been classified as a '*comprehensive approach*'. Table 4.11 contains the details of the classification scheme used for technology transfer results. The findings for the visited countries are summarised in Table 4.12. Figure 4.5 provides a graphical presentation of the main findings.

Table 4.11: Categories used in comparative analysis of NCPC results on EST Transfer in the visited countries

Service Area 5: EST Transfer											
Level	**Scope of Results**				**Type of Evidence**				**Strength of Evidence**		
	Inactive	**Bottom-Up**	**Top Down**	**Balanced/ Comprehensive**	**Unavailable**	**Leading**	**Lagging**	**Both**	**Unavailable**	**Weak Evidence**	**Strong Evidence**
1. Outputs	No specific activity from NCPC	NCPC routinely delivers services for technology needs and gap assessment	NCPC routinely drafts environmental best practice specifications for standard setting by government	NCPC implements coordinated strategy to grow demand and supply for ESTs	No evidence available	Evidence for accumulation of technological expertise, information and tools in NCPC	Records of nature and volume of service delivery specifically related to EST transfer	Leading and lagging	No evidence available	Some data available but not comprehensive	Extensive data available, covering all NCPC activity
2. Outcomes	No specific activity from NCPC	Regular requests to NCPC for EST technology assessment and/or investment advice	Regular requests from government to NCPC to advice on EST standards for specific sectors	Outsourcing of policy development to NCPC, and some specific success from top down and/or bottom up approaches	No evidence available	Systems in place to record requests for EST services and their follow up	Quantitative information on volume and nature of EST service requests	Leading and lagging	No evidence available	Some data available but not comprehensive	Extensive data available, covering all NCPC activity
3. Impacts	No specific activity from NCPC	Successful implementation of EST in specific companies	Adoption of sector EST standards by government	EST-conducive policy and strategy is being enacted, and some specific success from top-down and/or bottom up approaches	No evidence available	Systems in place to track EST investments and policy developments	Quantitative information on number of ESTs transferred and further disseminated	Leading and lagging	No evidence available	Some data available but not comprehensive	Extensive data available, covering all NCPC activity

Table 4.12: Findings from analysis of results on transfer of ESTs

Refer Table 4.11 for explanation of the categories

Service Area 5: EST Transfer										
		Level 1: Outputs			Level 2: Outcomes			Level 3: Impacts		
Country	**Region**	**Approach**	**Evidence Type**	**Evidence Strength**	**Approach**	**Evidence Type**	**Evidence Strength**	**Scope**	**Evidence Type**	**Evidence Strength**
China	Asia	Top-down	Lagging	Strong	Top-down	Both	Strong	Top-down	Both	Strong
Columbia	S America	Top-down	Both	Strong	Top-down	Both	Strong	Top-down	Lagging	Weak
Costa Rica	C America	Comprehensive	Both	Weak	Bottom-up	Both	Weak	Bottom-up	Lagging	Weak
Croatia	CE Europe	Inactive	Unavailable	Unavailable	Inactive	Unavailable	Unavailable	Inactive	Unavailable	Unavailable
Egypt	Africa	bottom-up	Lagging	Weak	Inactive	Unavailable	Unavailable	Inactive	Unavailable	Unavailable
El Salvador	C America	Comprehen-sive	Both	Weak	Comprehen-sive	Both	Weak	Bottom-up	Lagging	Weak
Guatemala	C America	Bottom-up	Both	Weak	Bottom-up	Both	Weak	Bottom-up	Both	Weak
India	Asia	Bottom-up	Both	Strong	Top-down	Lagging	Strong	Top-down	Lagging	Weak
Kenya	Africa	Bottom-up	Lagging	Weak	Inactive	Unavailable	Unavailable	Inactive	Unavailable	Unavailable
Mexico	C America	Bottom-up	Leading	Weak	Inactive	Leading	Weak	Inactive	Leading	Weak
Morocco	Africa	Comprehen-sive	Both	Strong	Comprehen-sive	Both	Strong	Comprehen-sive	Both	Weak
Mozambique	Africa	Inactive	Unavailable	Unavailable	Inactive	Unavailable	Unavailable	Inactive	Unavailable	Unavailable
Nicaragua	C America	Bottom-up	Both	Strong	Comprehen-sive	Both	Strong	Bottom-up	Both	Strong
Peru	S America	Inactive	Unavailable	Unavailable	Inactive	Unavailable	Unavailable	Inactive	Unavailable	Unavailable
South Africa	Africa	Inactive	Unavailable	Unavailable	Inactive	Unavailable	Unavailable	Inactive	Unavailable	Unavailable
Sri Lanka	Asia	Bottom-up	Lagging	Weak	Inactive	Unavailable	Unavailable	Inactive	Unavailable	Unavailable
Uzbekistan	Asia	Bottom-up	Unavailable	Unavailable	Inactive	Unavailable	Unavailable	Inactive	Unavailable	Unavailable
Vietnam	Asia	Comprehen-sive	Both	Strong	Comprehen-sive	Both	Strong	Comprehen-sive	Both	Strong

Note: evidence categories are: *leading* = leading evidence only, *lagging* = lagging evidence only, and *both* = leading and lagging evidence.

Figure 4.5: Comparative analysis of results for technology transfer (ESTs)

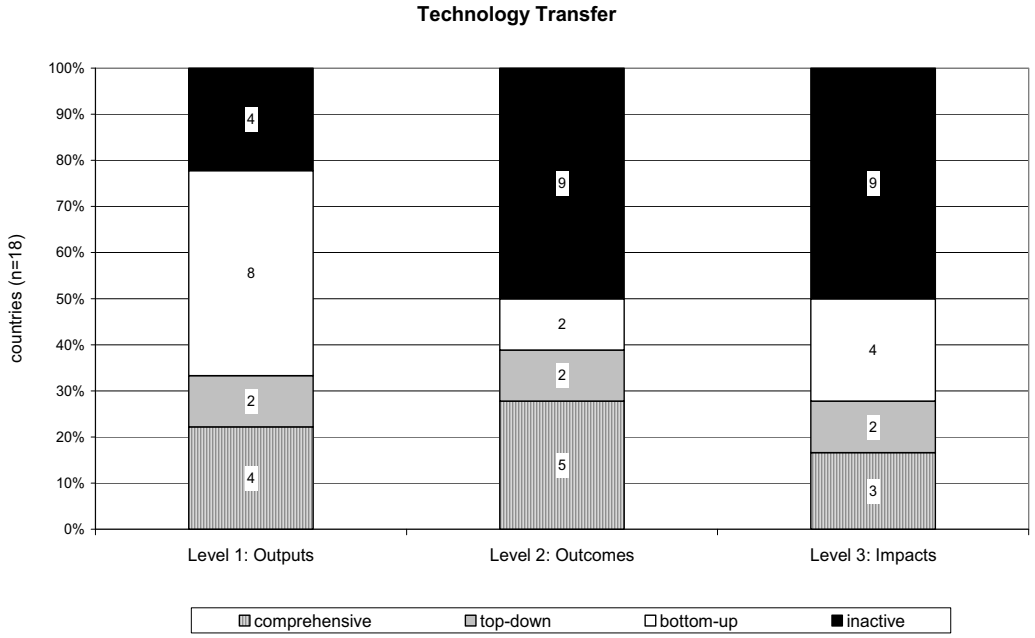


Figure 4.5 shows that in 14 countries the NCPC is undertaking some activities that are relevant for technology transfer, most of these through '*bottom-up*' approaches (12 countries, respectively the total of countries classified as '*bottom up*' and as '*comprehensive*') emanating from extension of CP assessment services, followed by '*top-down'* approaches (6 countries, respectively the total of countries ranked as '*comprehensive*' and ranked as '*top down'*). In half of the countries, the NCPC is ranked inactive on technology transfer outcomes and impacts (9 countries). As discussed in paragraph 4.4.4 on policy change, there could be a disconnection that results at outcome and impact level are broader than at output level. A case in point is India, which at output level has been most successful with '*bottom up*' approaches for technology upgrades in small scale industries using local manufacturing capability. At outcome and impact level, India is rated as '*comprehensive*' as the NCPC has been called in to undertake for the Government of India technology studies to define best practice water and energy saving technologies and practices for different sectors, and these have been incorporated into government policy.

The type and strength of the evidence is also contained in Table 4.12. The NCPCs that have been rated as being active in technology transfer generally have both leading and lagging evidence available to underpin it (respectively for 8 countries on outputs and outcomes and for 5 countries on impacts). However the evidence is in most cases relatively weak as data on activities and results are not maintained on a routine basis.

The comparative analysis of results for technology transfer presented in Table 4.12 and Figure 4.5 shows that in half of the visited countries the NCPC makes successful contributions to EST transfer. The contribution is in many instances indirect, by contributing to creating an enabling environment (e.g. with standard setting and benchmarking) for EST investment. However on a case-by-case basis some NCPCs also undertake technology gap assessment, technology sourcing and technology assessment for selected companies and/or industry sectors.

4.5 National Assessments

The country reviews concluded with an evaluation of the activities and achievements at the national level against the evaluation criteria set for this global programme evaluation. As summarised in section 1.3 these were: relevance, effectiveness, efficiency and sustainability, as the primary evaluation criteria, and ownership and capacity building, as the secondary evaluation criteria. The findings from these 18 national evaluations are covered in this section, for each of the evaluation criteria separately (paragraphs 4.5.1 to 4.5.6) and an integrative summary.

To enable transparent assessment scorecards were developed to capture elements that would contribute to each of the main evaluation criteria. The evaluators completed these scorecards, leading to national level assessments using a three-point ordinal scale, respectively, *'high', 'medium'* and '*low*'. For the summary at programme level this turned out to mask all differences, and hence it was decided to expand to a five point ordinal scale, respectively *'excellent', 'good', 'satisfactory', 'poor'* and *'absent'*. This was done in a manner that utilised the full performance range ([26]).

4.5.1 Relevance

Relevance is the first of the primary evaluation criteria. It results from a combination of applicability (evidence or at least a reasonable expectation that the intended beneficiaries have the financial, human, technical, managerial and other resources that are required to implement CP) and value (evidence of at least a reasonable expectation that the intended beneficiaries can gain a net benefit (financial, health and safety, environment, reputation, etc) for themselves of their organisation from the implementation of CP).

A scorecard was developed and applied to assess the relevance, in regard to five programme elements (respectively: CP concept, CP services, NCPC institution, regional and global networking and technical assistance inputs) for three main target beneficiary groups in the host country (respectively: private sector, government and academia/research institutes). The scorecard with the basic results for the 18 visited countries is provided in Table 4.13. Figure 4.6 and 4.7 provide the frequency.

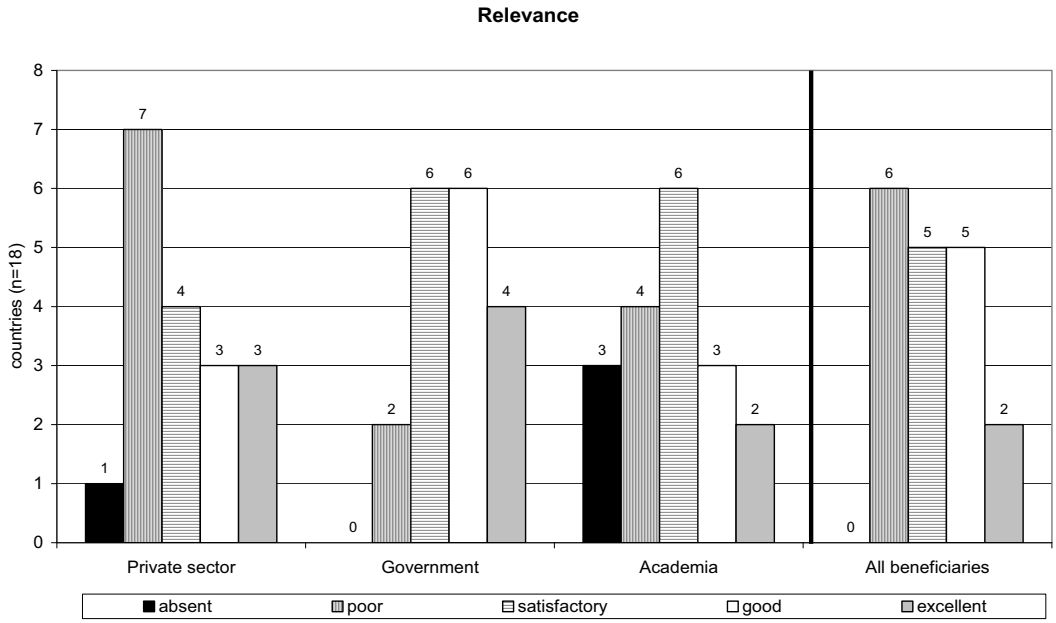
Table 4.13: National assessment results for relevance (number of countries, total 18 countries)

Programme Elements	Ranking	Beneficiaries (host country)		
		Private Sector	Government	Academia
1. CP Concept	**Low**	5	1	1
	Medium	5	3	7
	High	8	14	10
2. CP Services (national)	**Low**	2	1	10
	Medium	8	8	4
	High	8	9	4
3. NCPC	**Low**	5	1	5

[26] This was achieved numerically, as per the following procedure. The low, medium and high values in the ordinal scale were assigned numbers 1, 2 and 3 respectively, and were needed an un-weighted average of scores (S[old]) was calculated, resulting in a number in the range between 1 and 3. This old score was then expanded to the 1-5 range into a new Score (S[new], using the formula S[new] = 1+2*(S[old]-1). The S[new] was then rounded to the nearest integer, resulting in a number 1, 2, 3, 4 or 5 which was then assigned to the new categories, respectively absent, poor, satisfactory, good or excellent.

Institution	**Medium**	7	5	8
	High	6	12	5
4. Networking (regional and global)	**Low**	14	8	8
	Medium	2	9	9
	High	2	1	1
5. Technical Assistance (international)	**Low**	7	5	5
	Medium	4	11	11
	High	7	2	2

Figure 4.6: Relevance by beneficiary group (18 countries)



distributions for the aggregated results, respectively by beneficiary group and by programme element. Cross reference to the respective countries can be found in the summary table for all evaluation criteria, Table 4.19 in paragraph 4.5.7.

Figure 4.6 shows that overall relevance is rated relatively good in the majority of the visited countries, respectively '*excellent*' in 2 countries, '*good*' in 5 countries, '*satisfactory*' in 5 countries, and '*poor*' in six countries, as in the set of columns of the right (cross reference to the respective countries can be found in the summary table, Table 4.18 in paragraph 4.5.7). Among the three main beneficiaries, relevance rates highest for government (rated '*good'* or '*excellent*' in total of 10 countries), followed by private sector (rated '*good*' or '*excellent*' in total of 6 countries), followed by academia (rated '*good*' or '*excellent*' in 5 countries).

The evaluation of relevance was a result of various factors, in particular:

- The alignment of CP with obligations under various MEAs to which the host countries are signatory. This was present in all visited countries, and most strongly for government;

- Competition for national industries on domestic markets is on the rise, as are customer demands, including for environmental performance, from overseas buyers, as a result of trade liberalisation and globalisation of the national economies. This is particularly prominent for the private sector and national government. However it is not universally present in all visited countries; and

- The worsening environmental burden caused by the manufacturing sector. Even though this is evident in most countries, industry's environmental impact is still only regarded a national priority in some of the visited countries (e.g. China, India, Vietnam, South Africa, Egypt, Mexico).

There is a trend in all countries that each of these factors gains importance, supporting the expectation that CP will be increasingly relevant in the future. However, the relative rate of change in these driving factors for CP relevance is also quite different among the visited countries.

Figure 4.7: Relevance by programme element (18 countries)

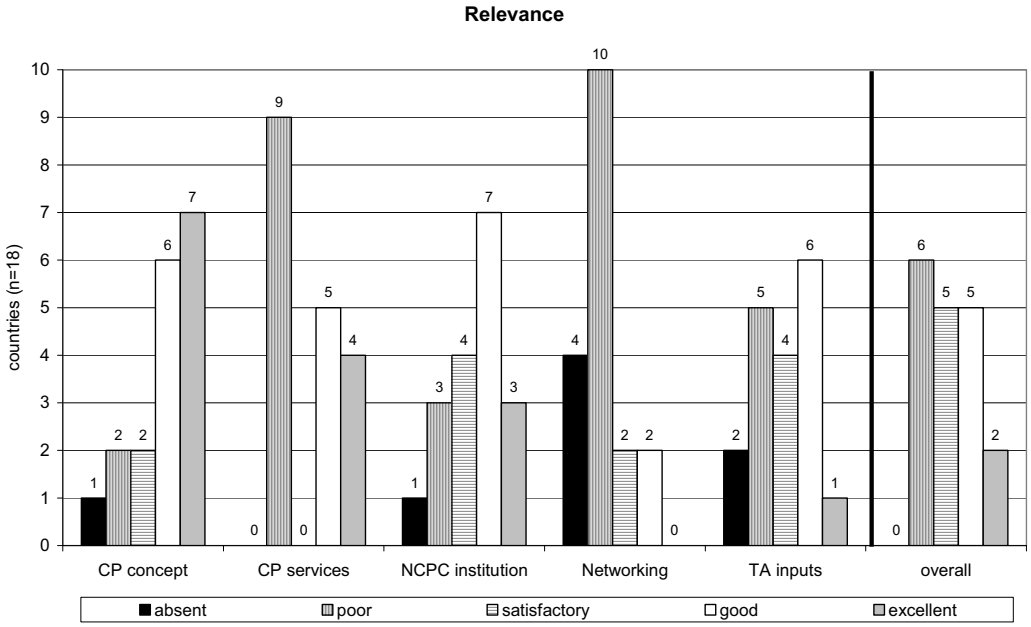


Figure 4.7 reveals quite large differences in relevance between the five key programme elements. Overall the relevance of the national components is rated high, with at least half of the countries achieving a '*good*' or '*excellent'* relevance score for CP concept (13 countries), NCPC institution (10 countries) and CP services (9 countries). In half of the countries the relevance of the CP services is rated *'poor'*. This is partially a reflection of the fact that only a few NCPCs (e.g. Sri Lanka, China, Mexico) have developed services that are particularly catered to academia (leading to lack of relevance for one beneficiary group pulling down the average score). A compounding factor is however that the standard CP services are catered to the manufacturing sector, and in countries with limited development of this sector, opportunities to develop the CP concept specifically to sectors of national priority has not sufficiently taken place (e.g. agriculture, forestry, fisheries, crafts sectors, as for example in Mozambique, Sri Lanka and Kenya).

As per Figure 4.7 the relevance of the international components is rated markedly lower, as reflected by the fact that the relevance of international expert inputs and of networking is rated '*excellent*' or '*good*' in only 7 (international technical assistance) or 2 (network) of the visited countries. This appears in part a reflection of the current low intensity of networking (for nearly all countries) and technical assistance inputs (in many of the visited countries no further technical assistance inputs are being provided as the institutional funding period has ended, or as only a very limited budget had been allocated). Strictly speaking, even in those countries there could still be an expectation that more intensive networking and more substantive technical assistance could be beneficial, even through the NCPC currently manages to operate without such.

4.5.2 Effectiveness

Effectiveness is the second of the primary evaluation criteria. It addresses whether or not the combination of the national centres, their networking and management and the technical assistance they receive, enable the uptake of CP practices, technologies and policies by the intended beneficiaries in the host countries.

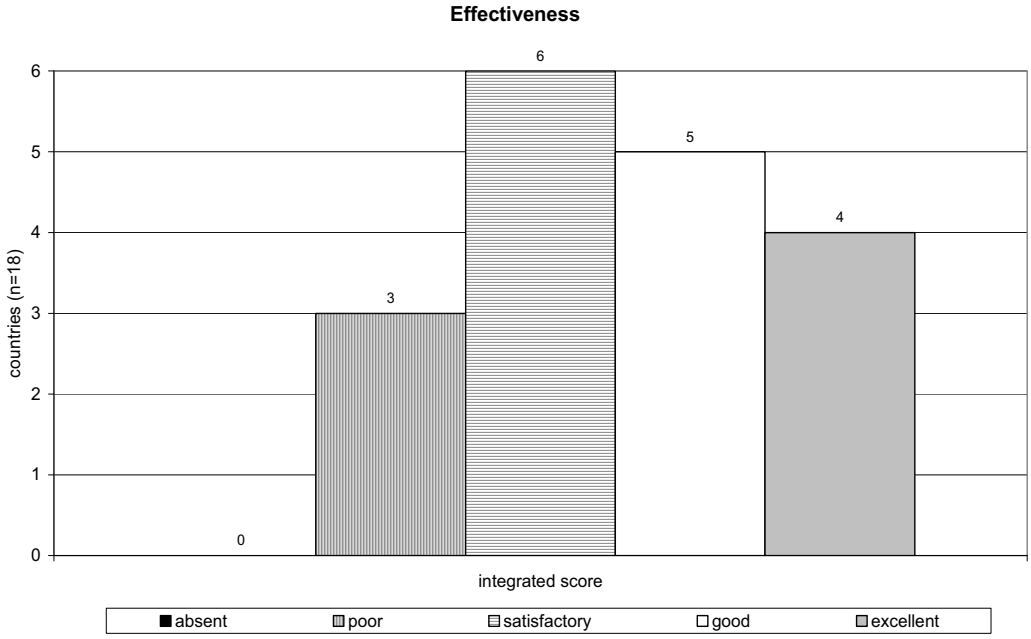
A scorecard was developed and applied for each of the visited countries. The results are presented in Table 4.14. This table reveals that the effectiveness of the programme to establish NCPCs for CP service delivery has been generally good. This is further illustrated with Figure 4.8 which shows that integrated across the programme components the effectiveness was rated as '*good*' or '*excellent*' in half of the visited countries (respectively in 5 and 4 countries) and '*satisfactory*' in one third (6 countries). Cross-reference to the respective countries can be found in the summary table, Table 4.19 in paragraph 4.5.7.

Table 4.14: National assessment results for effectiveness (18 countries)

Programme			**Effectiveness Score**	
Component	**Contributing Elements**	**Intended Result**	**Rating**	**No of Countries**
1. Programme Management	Programme Strategy; Liaison with Programme Stakeholders and Donors; Planning and Reporting; Budget and Financial Control; Mentoring and Coaching	Assist Centre and host organisation with the establishment and operation of an NCPC	Low	6
			Medium	9
			High	3
2. National Centre	Information Dissemination; Training; In-plant Demonstrations; Policy Advice; EST Transfer	Uptake of CP by companies CP awareness CP-conducive policy change	Low	1
			Medium	9
			High	8
3. Technical Assistance	Specialist Expertise/ Consultant; Training of NCPC Staff; Resource Materials; CP Award Scheme	Improve the capability of the NCPC to deliver effective CP services in professional manner	Low	2
			Medium	10
			High	6
4. Networking	(Annual) Directors' Meeting; Regional Cooperation; Publication and Promotion	Assist NCPC to utilise complementary skills and know-how from 'sister' NCPCs	Low	4
			Medium	9
			High	5

Among the programme components, the effectiveness was rated highest for the national centre (as per Table 4.14, rated '*high*' or '*medium'* in 17 countries), followed by technical assistance (rated '*high*' or '*medium'* in 16 countries) and networking (rated *'high'* or '*medium*' in 14 countries). The effectiveness was ranked lowest for programme management (rated '*low*' in 6 countries). This reflects the fact that the NCPCs that have operated for a number of years without institutional funding through the UNIDO-UNEP CP Programme, displayed differing degrees of alienation from the Programme (e.g. China, India, Mexico, Croatia). These centres are barely aware of changes in direction in the Programme (e.g. in regard to introduction of new service areas) and are at best in irregular contact with the programme management unit. Even though it can be argued that for these NCPCs some elements of the programme management do no longer apply (financial control, donor liaison etc.) by virtue of their ongoing association with the UNIDO-UNEP CP Programme, it is portrayed that they are still to some extent influenced by the overall direction of the Programme and should have be heard by the programme management unit, in regard to for example planning of networking opportunities.

Figure 4.8: Effectiveness scores for visited countries (18 countries)



4.5.3 Efficiency

The third of the primary evaluation criteria is efficiency. It pertains to maximising the results (outputs outcomes and impacts, as detailed in section 4.4) within the limits of the resources available to the NCPC, including financial, human, technical and organisational/institutional resources.

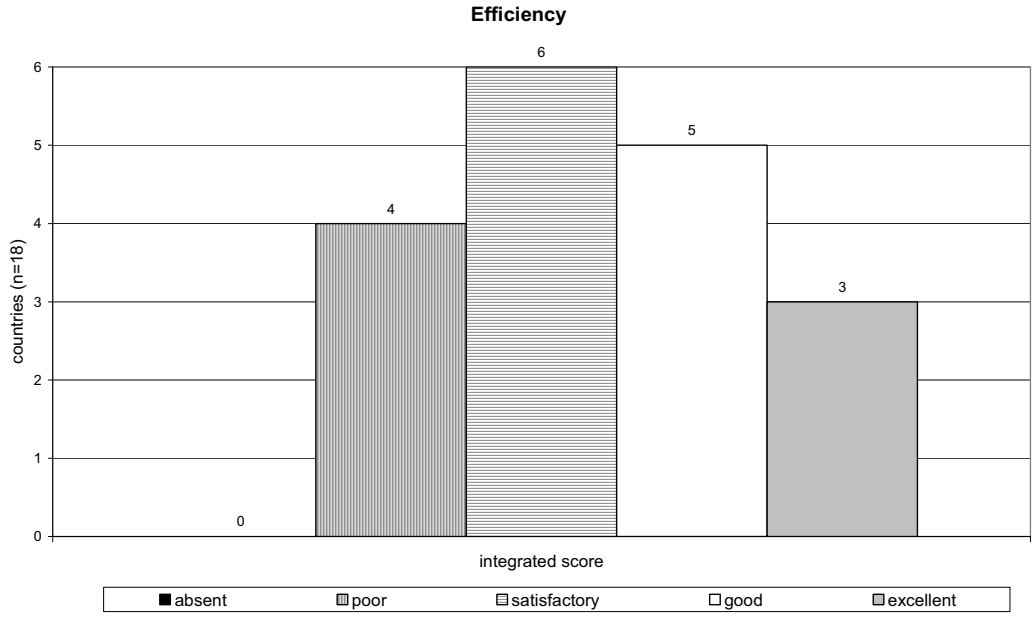
A scorecard was developed for rating the efficiency of the different programme components, and applied for the 18 visited countries. Table 4.15 contains the summary of the findings. This table reveals that the efficiency of the programme to establish NCPCs for CP service delivery has been adequate. This is further illustrated with Figure 4.9

which shows that integrated across the programme components the efficiency was rated as '*excellent*' in 3 countries, '*good*' in 4 countries and '*satisfactory*' in another 6 countries. Cross-reference to the respective countries can be found in the summary table, Table 4.19 in paragraph 4.5.7.

Table 4.15: National assessment results for efficiency (18 countries)

Programme Elements		Efficiency Score	
Component	**Implementation Arrangements**	**Rating**	**No of Countries**
1. Programme Management	Centrally through UNIDO (agency implementation)	Low	5
		Medium	10
		High	3
2. National Centre	Created within existing host institution	Low	2
		Medium	5
		High	11
3. Technical Assistance	Provided through International Reference Centres	Low	3
		Medium	11
		High	4
4. Networking	Coordinated centrally by programme management unit in UNIDO headquarters	Low	8
		Medium	6
		High	4

Figure 4.9: Efficiency scores for visited countries (18 countries)



From Table 4.15 it can further be concluded that among the programme components, the national centre scored best in regard to efficiency, as reflected in a rating as '*high*' in over 60% of the visited countries (11 countries). The NCPCs are generally professionally operated and managed and achieve a sustained level of outputs with in many cases fairly modest budgets. However, further to the comments made throughout section 4.4 it should be noted that efficiency could only be ascertained in regard to outputs (activities undertaken) due to lack of information on outcomes and impacts. In several of the countries, the evaluators found that a more targeted approach with fewer, but more

strategic outputs, would have potential to increase outcomes and impact from the Programme. However in the current approach to measure outputs, this could have a perceived negative impact on efficiency.

The relatively high number of countries achieving only a *'low'* efficiency score on programme management (5 countries) and on networking (8 countries) are reflective of the issues discussed in section 4.3 on national implementation of the UNIDO-UNEP CP Programme. In regard to programme management, this is a volume problem, as NCPCs spent too much of their available time and resources on meeting the programme requirements for project administration and financial control. Even though this applies to all countries, there are considerable differences among countries in regard to the degree to which UN staff involved locally and/or at headquarters succeeds in easing the administrative and budgetary burdens for the respective NCPC. NCPCs have invested much less efforts into networking then in meeting administrative requirements. However, due to lack of follow up, or, as the case might be, perception thereof, from the Programme management, there has been hardly any output or outcome for the NCPC from the effort it put into networking, leading to a low efficiency rating at national level for networking.

4.5.4 Sustainability

Sustainability is the fourth and final of the primary evaluation criteria. It covers the probability or likelihood that the benefits achieved from the UNIDO-UNEP CP Programme will continue into the future, at a level equal to achievements during programme implementation ('*continuing*'), or at levels greater ('*expanding*') or smaller ('*declining*') than during programme implementation. Such benefits include the availability of CP services (or the outputs from the current programme), the productivity gains and environmental benefits from CP uptake (or the outcomes from the current programme), and the overall contribution of CP to sustainable industrial development of the host country (or impact of the current programme). It is worth re-iterating here that this interpretation of sustainability is different from the most frequently used interpretation by the NCPCs, the programme management and the current donors, namely as the financial independence of the respective NCPCs as institutions for CP service delivery.

The sustainability has been estimated on the basis of the actual or likely presence of drivers/incentives for CP, or more generally, programme sustainability factors, including:

- Willingness of target industries, governments and/or other organisations (including current and potentially other donors) to pay for the provision of CP services;
- Continued availability of the know-how and skills to deliver high quality and effective CP services;
- Consensus about the relevance and benefits of CP (*'critical mass');*
- Presence of framework conditions conducive to CP (e.g. legislative framework, policy, tax, financial incentives, etc.);
- Technology push (availability of new CP technologies and practices customised to local industry needs and capabilities);

- Market push for CP (through prices for water, energy, waste, materials, etc.); and

- Market pull for CP (exerted through the supply chains that the target industries are part of or would aspire to become part of).

A detailed scorecard was prepared as the basis for the assessment on sustainability of the programme at the national levels. The results are presented in Table 4.16 and 4.10. Figure 4.10 presents the integrated assessment based on consideration of availability of CP services, environmental and productivity benefits and catalyst role for sustainable industrial development. The overall sustainability of current programme benefits is rated '*excellent*' for 4 countries, '*good*' for 6 countries, '*adequate*' for another 6 countries and '*poor*' for the remaining 2 countries. Cross-reference to the respective countries can be found in the summary table, Table 4.19 in paragraph 4.5.7.

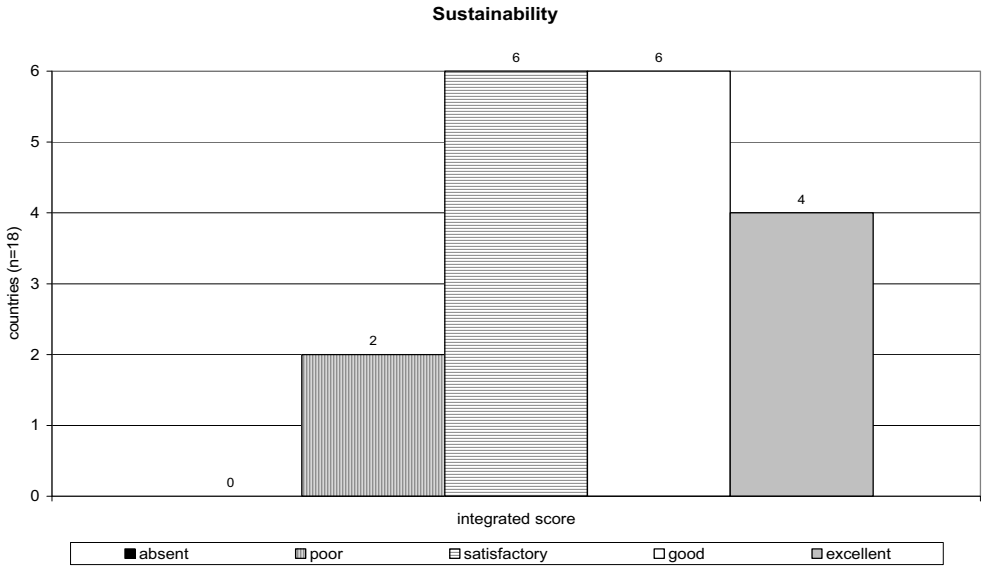
Table 4.16 shows the constituent ratings for the three categories of programme benefits. This reveals that the scores on sustainability are dominated by the high scores on sustainability of the environmental and productivity benefits achieved from CP uptake. This was rated 'high' in the vast majority of countries (15). This reflects the high degree of certainty that companies that have implemented CP options will continue to do so in the future, as they will seek to maintain the real time benefits they are achieving from doing so. There is some concern about waning off of the benefits from good housekeeping and other softer low or no cost options, as people and organisations tend to revert back to old habits. However there is a reasonable expectation that this waning off will be compensated through gradual increases in the share of options implemented. However, no autonomous step change in the level of benefits can be achieved.

The continued availability of CP services at a comparable level then during programme implementation is also likely, and therefore rated '*medium*' in 11 countries and '*high*' in another 6 countries. Even if the NCPC would dissipate, its staff would most likely continue to practice its CP skills in a different set up. However, over time the currency and quality of services is likely to decline, in the absence of continued professional development and other opportunities to benchmark and improve skills. Albeit lowest among the benefit categories considered, the sustainability of the catalyst function for sustainable industrial development is also still reasonably good (rated as '*high*'

Table 4.16: National assessment results for sustainability (18 countries)

Programme Benefits	**Sustainability Score**	
	Rating	**No of Countries**
1. Availability of CP Services	Low	2
	Medium	11
	High	5
2. Productivity and Environmental Benefits	Low	0
	Medium	3
	High	15
3. Catalyst for Sustainable Industrial Development	Low	7
	Medium	6
	High	5

Figure 4.10: Sustainability scores for visited countries (18 countries)



for 5 countries and '*medium*' for 6 countries). This is also largely attributed to the people factor, in that skilled CP professionals will remain active as individual lobbyist for CP, albeit of course less effective than done from within an institutional framework.

Overall however some care is needed with the interpretation of the sustainability scores, as they related to the current level of CP uptake. As discussed in previous paragraphs and section 4.4, the impact of the Programme is in most countries still relatively modest. Even if benefits are maintained at this level, one cannot expect that CP dissemination and implementation is from now on an autonomous process that will achieve widespread uptake of CP in the near future without further support.

4.5.5 Capacity Development

Capacity development is the first of the secondary evaluation criteria. It refers to the extent that the programme develops essential capacities for local stakeholders to improve their current and future well being. It is related to the primary evaluation, in particular on effectiveness and efficiency.

Four target capacities were distinguished, respectively:

1. *Resource Productivity*: the efficient utilisation of natural resources (materials, energy, water, etc.) for the production of goods and services that bring quality of life;

2. *Environmental Management*: minimising the impact of business on the environment to protect the health of workers and community and the ecological integrity of the natural environment;

3. *Entrepreneurship:* skills, tools and systems of the owners/operators of businesses to run their businesses in a rational and planned way achieving a solid balance between short term profit and medium to long term viability; and

4. *Public Private Partnership*: recognition by government and business sector that collaboration on issues of national concern (including environmental management and productivity) is necessary and the skills to do so.

In addition three principal target groups were singled out for capacity development, respectively individual enterprises (in particular those having received services directly or indirectly from the NCPC), the private sector (industry peak bodies, sector associations and professional associations) and government (national and sub-national level in different portfolios).

A scorecard was prepared to assess the programme's capacity development achievements at the national level. The results are presented in Table 4.17. Figure 4.11 and 4.12 provide the frequency distributions for the aggregated results, respectively by target group and by target capacity.

Table 4.17: National assessment results for capacity development (number of countries, total 18 countries)

Target Capacities	Ranking	Target Groups (in host country)		
		Enterprises	Private Sector	Government
1. Resource Productivity	**Low**	1	6	4
	Medium	4	10	11
	High	13	2	3
2. Environmental Management	**Low**	1	4	3
	Medium	10	13	6
	High	7	1	9
3. Entrepreneurship	**Low**	12	17	15
	Medium	6	1	3
	High	0	0	0
4. Public Private Partnership	**Low**	13	10	10
	Medium	3	2	1
	High	2	6	7

Figure 4.11 reveals on average among all target groups a reasonable degree of capacity building. This is evidenced in the last set of bars, showing that in 8 countries capacity building averaged over the three target groups was rated as '*satisfactory'* and in 3 countries as '*good*'. Among the three target groups, capacity development was most profound among individual enterprises, for which capacity development was evaluated as '*good*' in 6 countries and '*satisfactory*' in 10 countries. The results for the two other target groups, private sector and government, are identical, namely '*excellent*' in 1 country, '*good*' in 1 country, '*satisfactory*' in 5 countries, '*poor*' in 8 countries and '*absent*' in 3 countries. However, these are not necessarily the same sets of countries. Cross-reference to the respective countries can be found in the summary table, Table 4.19 in paragraph 4.5.7.

Figure 4.11: Capacity development by target group (18 countries)

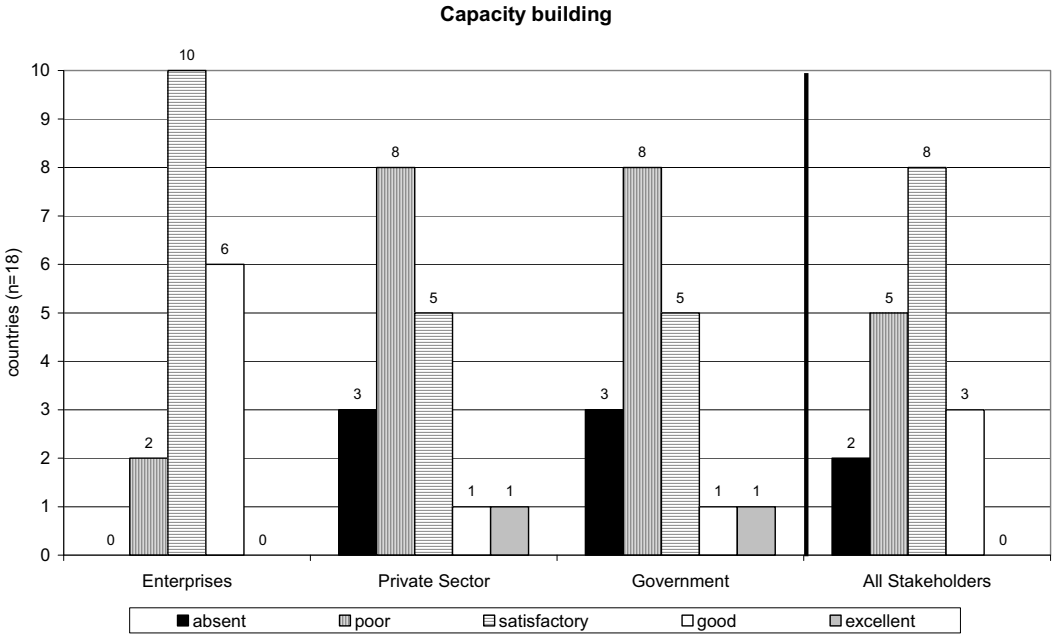


Figure 4.12: Capacity development by target capacity (18 countries)

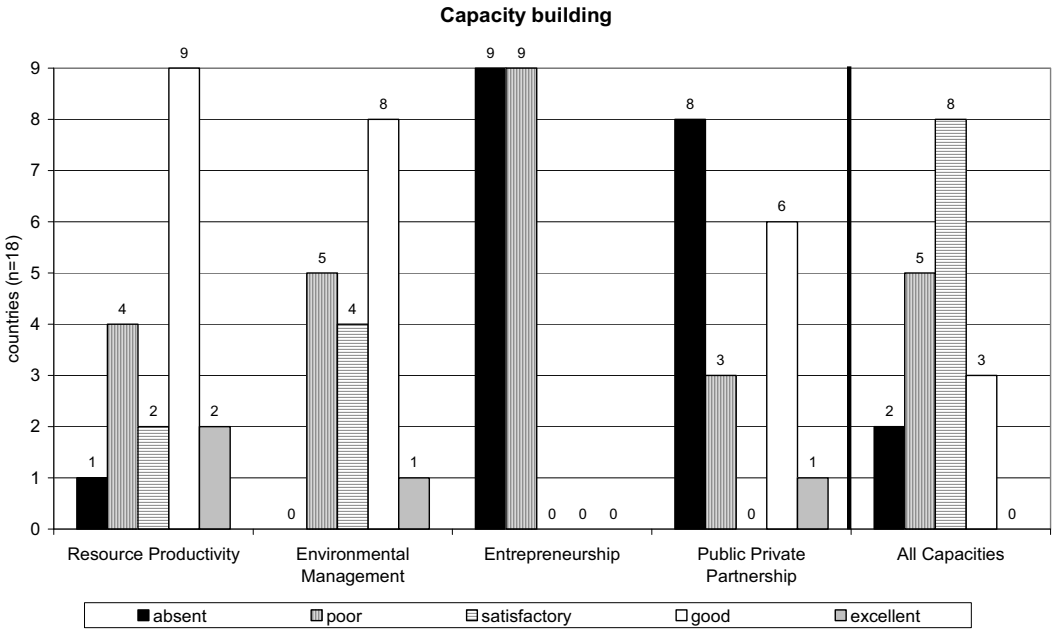


Figure 4.12 provides further background on capacity development. It summarises results by the target capacity. The average over all capacities (set of bars on the far right side) is identical to the average for all stakeholders in Figure 4.11. Figure 4.12 however shows that capacity development in two target capacities, respectively resource productivity and environmental management, is good, and in the two other target capacities, respectively entrepreneurship and public private partnerships, capacity development has been minimal in the vast majority of the countries. The overall results are thus pulled down by the near absence of capacity development in entrepreneurship and public-private-partnerships.

Despite their presence in programme documents (see Section 2.2), programme delivery in the host countries is not geared towards delivery on those capacities.

Figure 4.12 demonstrates a slightly higher assessment on capacity building for resource productivity (rated '*excellent*' in 2 countries and *'good'* in 9 countries) than for environmental management (rated '*excellent*' in 1 country and '*good*' in 8 countries). This difference is however very minor. There is however a tendency for many NCPCs to either focus slightly more on resource productivity (including energy savings etc., as for example in India) while other focus more on environmental management (reduction of waste, waste water and air emissions, as for example in Sri Lanka).

4.5.6 Ownership

Ownership is the second of the secondary evaluation criteria. It reflects upon the commitment of local stakeholders to maintain the CP programme, locally in the host country, as well as globally through the UNIDO-UNEP CP Programme. It could cover (co-)funding of centre activities, providing expert inputs, implementation of policy conducive to CP implementation and other forms of recognition and endorsement). Ownership is related to the primary evaluation criteria, in particular relevance and sustainability.

In assessing ownership a distinction was made between ownership of the CP concept (as a business practice and environmental improvement tool), of the national centre (as a CP service delivery organisation) and of the global programme. The results are presented in Table 4.18. Figure 4.13 and 4.14 provide the frequency distributions for the aggregated results, respectively by stakeholder grouping and by programme element.

Table 4.18: National assessment results for ownership (number of countries, total 18 countries)

Target Capacities	Ranking	Stakeholders (in host country)		
		Enterprises	Private Sector	Government
1. Ownership of CP (concept, business practice, environmental improvement tool)	**Low**	7	4	1
	Medium	8	9	3
	High	3	5	14
2. Ownership of national centre (institution for CP service delivery)	**Low**	12	10	1
	Medium	4	3	9
	High	2	5	8
3. Ownership of global programme (UNIDO-UNEP CP network)	**Low**	16	13	12
	Medium	2	3	6
	High	0	2	0

Figure 4.13 reveals on average among all stakeholder groupings a fair level of ownership. This is evidenced in the last set of bars (furthest to the right), showing that in 3 countries capacity building averaged over the three stakeholder groupings was rated as '*satisfactory*', in 4 countries as '*good*' and in 1 country as *'excellent'*. Among the three national stakeholder groupings, ownership was most profound among government, for which ownership was evaluated as '*good*' in 9 countries and '*satisfactory*' in 5 countries. Ownership between the two other stakeholder groupings is markedly lower. The private sector (associations, peak industry bodies etc) however display a slightly higher level of ownership than individual enterprises, as evidenced by total of countries evaluated as

'excellent' or '*good*' being 5 for private sector and 2 for enterprises. Cross-reference to the respective countries can be found in the summary table, Table 4.19 in paragraph 4.5.7.

Figure 4.13: Ownership by stakeholder grouping (18 countries)

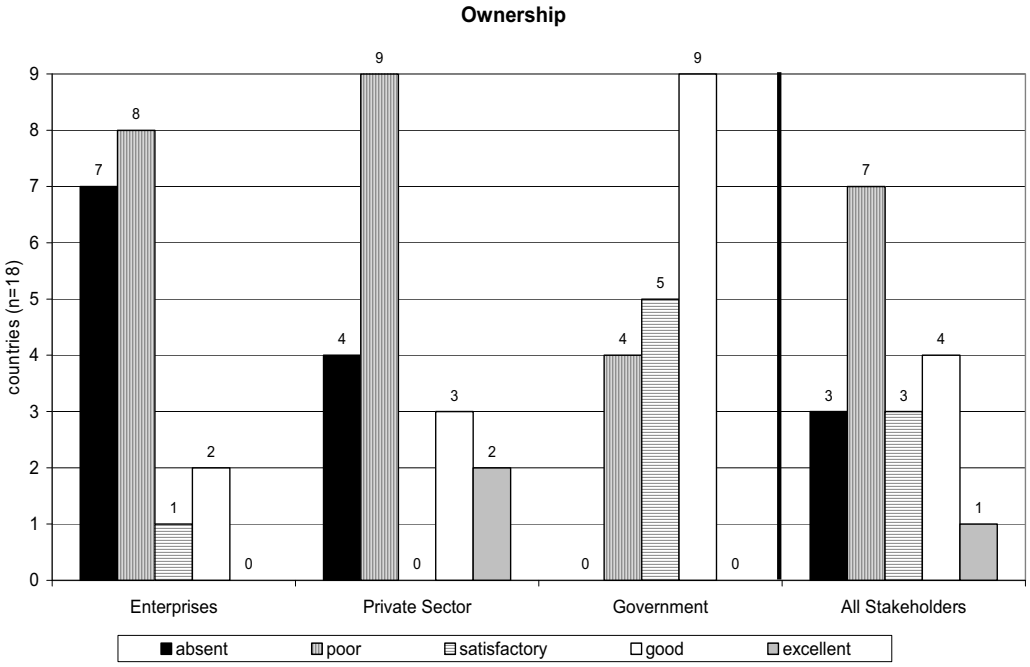
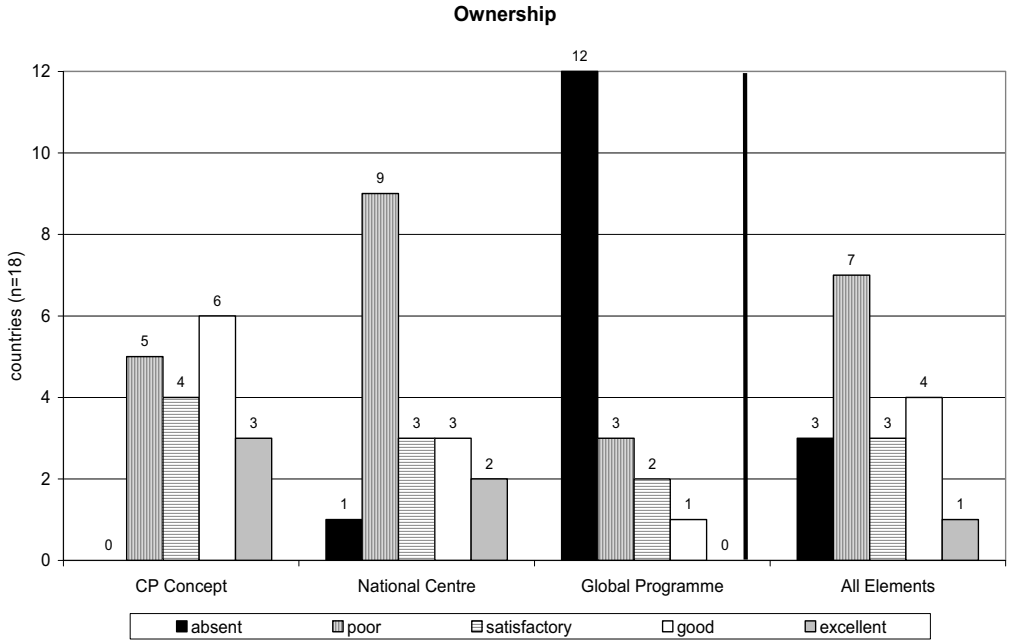


Figure 4.14 provides further background on ownership. It summarises the assessment results by programme elements. The average over all programme elements (set of bars on the far right side) is identical to the average for all stakeholders in Figure 4.13. Figure 4.14 however displays a great difference in the level of ownership between the programme elements. Ownership over the CP concept (i.e. as business practice and environmental improvement tool) is by far the highest, with half of the countries having '*excellent*' (3 countries) or '*good*' ownership (6 countries). Ownership of the national centre is still modest, with 2 countries evaluated as '*excellent*', and 3 countries each as *'good'*

Figure 4.15: Ownership by programme element (18 countries)



or '*satisfactory*'. The level of ownership of the global programme is very low, rated as '*absent*' in 2/3rd of the countries. The later appears to reflect that the networking and technical assistance inputs are not profoundly present in most countries.

4.5.7 Overall Assessment

The previous paragraphs discussed the national assessments against the programme evaluation criteria (respectively: relevance, effectiveness, efficiency, sustainability, capacity development and ownership). A comparative summary covering all criteria is provided here.

Table 4.19 is provided as a cross-reference table. It provides for each of the 18 visited countries the detailed assessment ratings. These are not further discussed here. These are provided here to provide a link to the country evaluation reports.

Figure 4.15: Summary of results of national level evaluation on programme level evaluation criteria

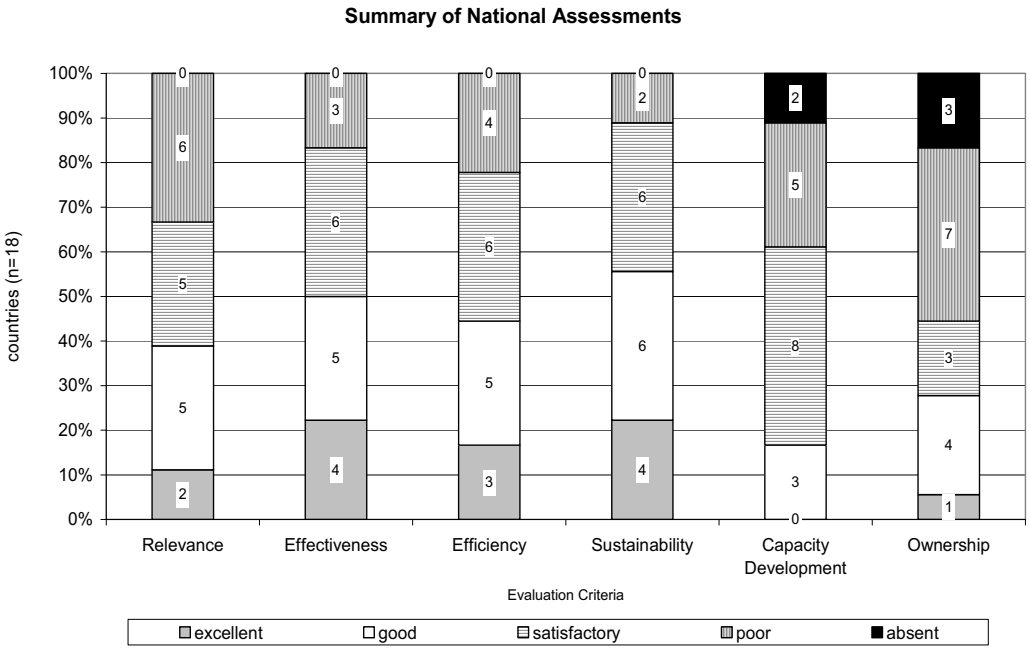


Figure 4.15 shows the frequency distributions of all countries on all six evaluation criteria. This figure illustrates that the distributions are quite similar for the four primary evaluation criteria. The highest score among these four criteria is achieved for sustainability (10 countries achieving either '*excellent*' or '*good*' assessment), closely followed by effectiveness (9 countries in these two categories), efficiency (8 countries in these two categories) and relevance (7 countries in these two categories). Each of these thus achieved a score in either of the two highest categories for 39 to 56% of the visited countries. In light of ongoing concerns about sustainability of NCPCs by the programme management and donors, this is somewhat surprising. It is explained by the fact that this programme evaluation took a different interpretation of sustainability, compared to the prevailing interpretation of sustainability as financial independence of the NCPC from the UNIDO-UNEP CP Programme. Environmental and productivity benefits from CP implementation in businesses and CP trained staff that can deliver CP services will very likely continue, at least at the current levels. The weakest score among the primary criteria for relevance suggests that more can be done to tailor CP concepts and practices to national priorities (in regards to key sectors of economy (e.g. rural and service sectors), and socio-economic and environmental objectives).

Figure 4.15 also shows that the assessment on the secondary criteria is markedly weaker than on the primary criteria. Focusing again on the two highest-ranking categories, these are only achieved in 5 countries for ownership and 3 countries for capacity development. Country level implementation of the UNIDO-UNEP CP Programme appears to be focused towards delivery of short term environmental and productivity benefits, and this appears to somewhat overshadow the potential for longer term benefit through capacity development and co-ownership of the CP programme. It should however also be pointed out that in both cases, this overall result is dragged down by an interpretation of

ownership and capacity development that is different from those commonly used within the Programme. Even though these interpretations are supported by the Programme's documents (see section 2.2) they are not focused upon in programme delivery and national implementation by the NCPC. In case of ownership, this involved extension of ownership from just ownership of centre, to also include ownership of the CP concept (which improved the overall assessment on ownership) and ownership of the global programme (which reduced the overall assessment on ownership). This was further enunciated by considering ownership separately for enterprises and the private sector, compared to a narrower view considering only ownership from, or on behalf of, the national government. In case of capacity development, this programme evaluation did cast the net wider to include consideration for capacities in regard to entrepreneurship and public-private partnerships. Both turned out to score very low, in turn lowering the overall assessment on capacity development.

Table 4.19: Detailed summary table of the national assessments

Evaluation Criteria	China	Columbia	Costa Rica	Croatia	Egypt	El Salvador	Guatemala	India	Kenya
1. Relevance	**Satisfactory**	**Satisfactory**	**Good**	**Poor**	**Poor**	**Good**	**Good**	**Satisfactory**	**Poor**
Private sector	Satisfactory	Satisfactory	Good	Poor	Poor	Good	Excellent	Poor	Poor
Government	Excellent	Satisfactory	Good	Satisfactory	Satisfactory	Good	Good	Good	Good
Academia	Poor	Satisfactory	Satisfactory	Poor	Absent	Satisfactory	Good	Absent	Absent
CP concept	Good	Good	Excellent	Poor	Absent	Excellent	Excellent	Good	Good
CP services	Good	Good	Good	Poor	Poor	Good	Good	Poor	Poor
NCPC institution	Poor	Good	Good	Satisfactory	Satisfactory	Good	Excellent	Poor	Satisfactory
Networking	Poor	Poor	Poor	Poor	Poor	Poor	Satisfactory	Poor	Poor
TA inputs	Good	Satisfactory	Good	Poor	Satisfactory	Good	Good	Satisfactory	Poor
2. Effectiveness	**Poor**	**Good**	**Good**	**Good**	**Satisfactory**	**Excellent**	**Excellent**	**Poor**	**Satisfactory**
3. Efficiency	**Satisfactory**	**Good**	**Good**	**Satisfactory**	**Satisfactory**	**Excellent**	**Good**	**Poor**	**Satisfactory**
4. Sustainability	**Good**	**Excellent**	**Good**	**Poor**	**Satisfactory**	**Excellent**	**Good**	**Satisfactory**	**Satisfactory**
5. Capacity Development	**Poor**	**Satisfactory**	**Good**	**Absent**	**Poor**	**Good**	**Satisfactory**	**Poor**	**Satisfactory**
Enterprises	Satisfactory	Good	Good	Poor	Satisfactory	Good	Good	Satisfactory	Satisfactory
Private Sector	Poor	Satisfactory	Satisfactory	Poor	Poor	Excellent	Satisfactory	Absent	Poor
Government	Satisfactory	Satisfactory	Good	Absent	Poor	Good	Satisfactory	Poor	Satisfactory
Resource Productivity	Poor	Good	Good	Poor	Good	Excellent	Good	Satisfactory	Good
Environmental Management	Good	Satisfactory	Good	Poor	Satisfactory	Excellent	Satisfactory	Poor	Good
Entrepreneurship	Absent	Poor	Poor	Absent	Absent	Poor	Absent	Absent	Poor
Public Private Partnership	Absent	Good	Good	Absent	Absent	Good	Excellent	Absent	Absent
6. Ownership	**Satisfactory**	**Satisfactory**	**Good**	**Absent**	**Poor**	**Good**	**Good**	**Poor**	**Poor**
Enterprises	Poor	Poor	Poor	Absent	Absent	Satisfactory	Poor	Poor	Absent
Private Sector	Poor	Poor	Good	Absent	Poor	Excellent	Good	Poor	Poor
Government	Good	Satisfactory	Good	Poor	Good	Good	Good	Satisfactory	Poor
CP Concept	Good	Good	Good	Poor	Satisfactory	Excellent	Good	Good	Poor
National Centre	Satisfactory	Satisfactory	Good	Poor	Poor	Good	Good	Poor	Poor
Global Programme	Absent	Absent	Poor	Absent	Absent	Satisfactory	Poor	Absent	Absent

Table 4.19: Detailed summary table of the national assessments (continued)

Evaluation Criteria	Mexico	Morocco	Mozambique	Nicaragua	Peru	South Africa	Sri Lanka	Uzbekistan	Vietnam
1. Relevance	**Good**	**Excellent**	**Poor**	**Excellent**	**Poor**	**Satisfactory**	**Satisfactory**	**Poor**	**Good**
Private sector	Satisfactory	Excellent	Absent	Excellent	Poor	Satisfactory	Poor	Poor	Good
Government	Satisfactory	Excellent	Poor	Excellent	Poor	Satisfactory	Good	Satisfactory	Excellent
Academia	Excellent	Good	Poor	Excellent	Poor	Satisfactory	Satisfactory	Satisfactory	Good
CP concept	Excellent	Excellent	Poor	Excellent	Good	Excellent	Satisfactory	Satisfactory	Good
CP services	Excellent	Excellent	Poor	Excellent	Poor	Poor	Poor	Poor	Excellent
NCPC institution	Satisfactory	Excellent	Poor	Excellent	Absent	Good	Good	Good	Good
Networking	Poor	Good	Absent	Good	Absent	Absent	Poor	Absent	Satisfactory
TA inputs	Satisfactory	Good	Absent	Excellent	Absent	Poor	Poor	Poor	Good
2. Effectiveness	**Good**	**Excellent**	**Poor**	**Excellent**	**Satisfactory**	**Satisfactory**	**Satisfactory**	**Satisfactory**	**Good**
3. Efficiency	**Good**	**Excellent**	**Poor**	**Excellent**	**Poor**	**Satisfactory**	**Poor**	**Satisfactory**	**Good**
4. Sustainability	**Satisfactory**	**Excellent**	**Poor**	**Excellent**	**Good**	**Good**	**Satisfactory**	**Satisfactory**	**Good**
5. Capacity Development	**Poor**	**Satisfactory**	**Absent**	**Good**	**Poor**	**Satisfactory**	**Satisfactory**	**Satisfactory**	**Satisfactory**
Enterprises	Satisfactory	Good	Poor	Good	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
Private Sector	Absent	Satisfactory	Absent	Good	Poor	Satisfactory	Poor	Poor	Poor
Government	Absent	Good	Poor	Good	Poor	Satisfactory	Satisfactory	Satisfactory	Good
Resource Productivity	Poor	Good	Absent	Excellent	Poor	Satisfactory	Good	Good	Good
Environmental Management	Poor	Good	Poor	Good	Poor	Good	Good	Satisfactory	Good
Entrepreneurship	Absent	Poor	Absent	Poor	Absent	Absent	Poor	Poor	Poor
Public Private Partnership	Absent	Good	Absent	Good	Poor	Good	Absent	Poor	Poor
6. Ownership	**Absent**	**Excellent**	**Absent**	**Good**	**Poor**	**Satisfactory**	**Poor**	**Poor**	**Poor**
Enterprises	Absent	Good	Poor	Good	Absent	Poor	Absent	Absent	Poor
Private Sector	Poor	Excellent	Absent	Good	Poor	Poor	Poor	Absent	Absent
Government	Poor	Good	Poor	Good	Satisfactory	Good	Satisfactory	Satisfactory	Good
CP Concept	Poor	Excellent	Poor	Excellent	Satisfactory	Good	Satisfactory	Poor	Satisfactory
National Centre	Absent	Excellent	Poor	Excellent	Poor	Satisfactory	Poor	Poor	Poor
Global Programme	Absent	Good	Absent	Satisfactory	Absent	Absent	Absent	Absent	Poor

Part II:

Analysis & Assessment

5
Portfolio Analysis

5.1 Introduction

The key findings from each of the three '*pillars'* of this programme evaluation have been covered in the previous chapters, respectively from the review of programme documents (Chapter 2), of the self evaluations (Chapter 3) and of the independent country evaluations (Chapter 4). This chapter analyses the findings from these three '*pillars'* in an integrated manner, with a view to analyse similarities and differences in the establishment and operation of NCPCs/NCPPs. The analysis of the portfolio of activities and institutional arrangements of the NCPCs/NCPPs is made to gain a better understanding of the current richness and diversity in the UNIDO-UNEP CP Programme and identify possible avenues to bolster this as the Programme evolves further. The detailed programme-level assessment on the programme evaluation criteria is covered in the companion Chapter 6 (programme assessment).

This chapter is thus analytical and not intended to be evaluative or judgemental. The analysis is complemented with suggestions for further development of concept, methods, tools and institutional arrangements for the Programme. These are presented here to illustrate how the findings from the portfolio analysis can shed new light on the Programme. Moreover in its recommendations (in Chapter 7) this evaluation refers back to the typologies and terminology derived from the portfolio analysis presented here. In so doing, this chapter provides the core ideas for the recommended changes in the Programme.

The remainder of this chapter is organised in four sections. Section 5.2 provides a background on key factors that have contributed to the current diversity among the NCPCs/NCPPs. Section 5.3 then analyses differences at institutional level, followed by an analysis for the main service areas (section 5.4). The final section (section 5.5) discusses practical ways forward for managing the diversity of CP initiatives at the national level to achieve success at the global programme level.

5.2 Background

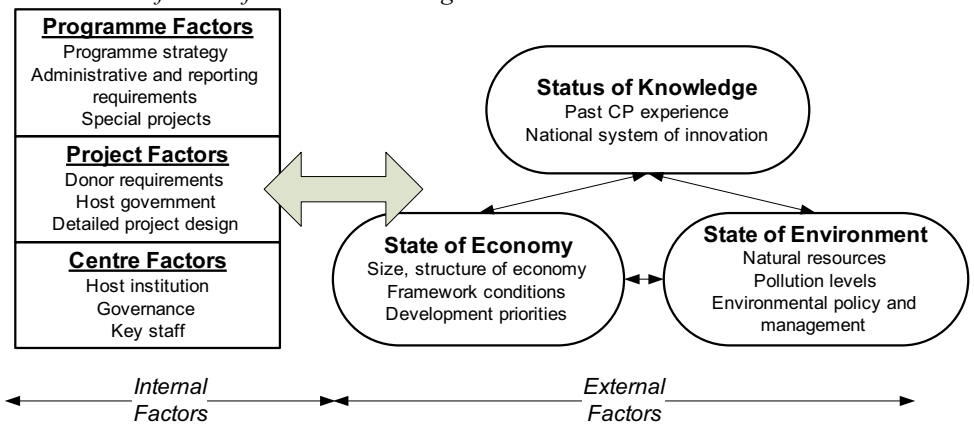
The UNIDO-UNEP CP Programme has been designed and implemented to use a quasi-standardised model approach for development of national entities for CP service delivery that would undertake information dissemination, training, in-plant demonstrations, policy advice and technology transfer. This evaluation confirms that after 13 years a diverse set of national centres/programmes has evolved, each which a high degree of uniqueness. The project model for the NCPC evolved in each of the countries, influenced by a variety of factors. In analysing the roots of the current diversities at the national level, it is worthwhile to differentiate between *internal* factors (those controlled or at least to a

considerable degree controllable by the CP Programme) and *external* factors (those that are not under direct control of the CP Programme, but that the Programme can adapt to). Figure 5.1 provides a schematic presentation for such roots of diversification. These categories are provided here to understand differences, so that these can be considered in a meaningful way in the remainder of this chapter for analysing the different institutional arrangements and operational models. Also, the categories of internal and external factors may not necessarily cover all relevant factors.

The internal factors can be clustered at three levels (or scales), respectively centre, project and programme level.

At *centre* level, diversification is created by the host institution (its own mission and mandate (e.g. technical institute, university or industry association), its reputation with key stakeholders in the public and private sectors, its own in house technical, managerial and analytical capabilities, etc.), the centre's governance structure (accountability and transparency, stakeholder involvement in oversight of the host institution etc.) and director and other key centre staff (their disciplinary background, professional experience and standing, management and networking skills and other personal attributes).

Figure 5.1: Roots of diversification in CP Programme



- At the *project* level, diversification is being created by project level features, e.g. donor government requirements and commitments, project design and funding levels, partner agency in the host government (e.g. environment, trade or science ministry) and nature, quality and volume of international expert inputs, training, networking and knowledge management and sharing.

- At the *programme* level, the evolution of the programme strategy (e.g. in regards to new service areas), administrative and reporting requirements and special initiatives (e.g. multi-country projects on specific topics (such as energy efficiency or MEAs)) all provide a different balance of drivers over time, to which individual NCPCs/NCPPs respond as they see fit within their national set up.

The external factors are also diverse and define the national framework within which the NCPC/NCPP is to operate. It appears worthwhile to differentiate at least three categories of background factors, respectively:

- *State of Economy*: the size of the economy, its key sectors (in particular of manufacturing and related sectors), investment climate and national socio-economic development priorities);

- *State of Environment:* the natural resource endowments of the country (productive land, seashores, forests, minerals, energy etc.) and the status of the environment, including national environmental priorities and development status of the environmental regulatory framework and its enforcement; and

- *Status of Know-how:* a relatively broad category, capturing specifically the past experience with CP (including individuals and organisations already active in CP, type and standing of companies with CP experience and possibly government initiatives on or related to CP, including the availability of incentives and or funding for CP), as well as more generally the development and functioning of the '*national system of innovation'* ([27]) [55-57].

Improving the understanding of the external and internal factors at play at the national level provides a basis for tailoring the specific national implementation strategy and formulation of specific national outcomes and impacts and thereby increases the likelihood of successful uptake of CP in the host country and sustainability of the NCPC/NCPP.

5.3 Institutional Features

This section focuses on institutional and strategic features in establishment and operation of the national centres. It covers consecutively governance (paragraph 5.3.1), focus (paragraph 5.3.2) and operational strategy (paragraph 5.3.3).

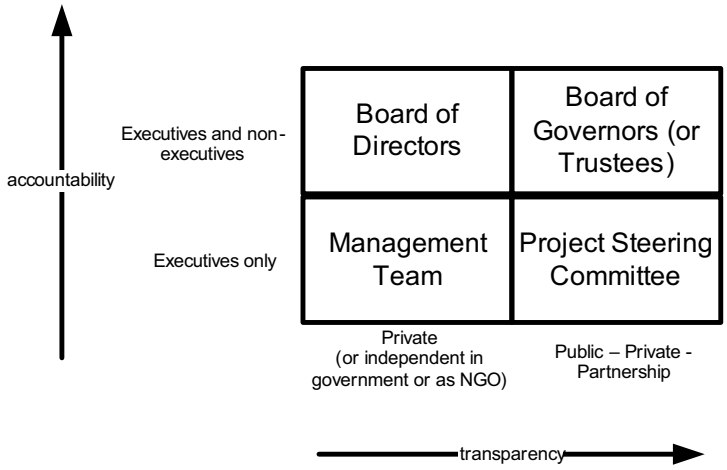
5.3.1 Governance

The independent country evaluations found that governance arrangements could be improved in many of the visited countries (as discussed in paragraph 4.3.2). The importance of governance appeared to be underestimated and/or misunderstood, and as result decision-making rules and membership categories of the highest decision-making and oversight bodies were often sub optimal. Moreover, several NCPCs that did no longer receive institutional funding from the UNIDO-UNEP CP Programme had abandoned their governance structures. The self-evaluations (covered in Chapter 3) also showed that in several countries there are more members (directors) in the highest governing board then staff members in the Centre.

[27] The term national systems of innovation is used to reflect a complex mixture of institutions (e.g. financial, legal, scientific and technological and educational), public policies (regarding e.g. taxation; import/export promotion; science, technology and innovation) and business and social relationships, that deliver research and technology development on new technologies and on improving existing technologies, and bring these into widespread use.

In terms of the highest oversight/decision making body, different models did emerge. Figure 5.2 contains four types on the basis of two criteria, respectively: executive only or combined executive/non-executive and private or public-private set up.

Figure 5.2: Governance options



The four main governance options are:

- *Management Team:* there is no effective external governance and all decisions, including on strategy and budget are made by the same staff that execute the decisions. Several NCPCs operate on this basis, either on purpose (when they are fully independent units, e.g. as a private business (e.g. Slovakia) or an independent business unit or centre within a larger semi-governmental organisation (e.g. China, India)) or by default (where the NCPC did not succeed to establish effective external governance arrangements (e.g. Sri Lanka)).

- *Board of Directors:* a typical set up for larger private sector organisations where a board of directors, both executive and non-executive, provides oversight to the management team, in regard to strategy, budgets, etc. This evaluation did not uncover any straight examples of this governance model among the NCPCs/NCPPs.

- *Project Steering Committee*: traditionally a short-term arrangement, that primarily oversees whether project objectives are being achieved as per planning with the available resources. This model is also known as a Funding Board, within the UNIDO-UNEP CP Programme typically a tripartite arrangement with membership from host and donor governments and UNIDO, as for example currently in Vietnam, Laos and Cambodia, and previously in South Africa. There is no long-term membership or commitment to the operation and success of the NCPC/NCPP (i.e. beyond the current funding period), which may explain why similar boards have folded for those national centres that are no longer institutionally funded through the UNIDO-UNEP CP Programme (e.g. India, China, Mexico).

- *Board of Governors (or Trustees) ([28]):* a multi-stakeholder model that engages representatives from public, private and civil sectors in defining strategy, business

[28] May also be referred to as a Board of Directors, but then with Directors representing a diverse set of national stakeholders (public and private sector), as opposed to narrowly composed Board of Directors representing only shareholders.

plans, budgets etc. for the NCPC and oversight over their implementation. When the NCPC is not an independent organisation, but instead an isolated, stand alone (or '*ring-fenced*') entity within a host institution, it may strictly not be possible to have such board structure. However, using less formal arrangements and delegated authorities, it will generally be possible to achieve a similar outcome, as with the executive committee of the NCPC in South Africa.

Including non-executives in the highest decision making body improves accountability. A stronger discipline is established to define a realistic business plan and achieve its implementation on time and on budget. On the other hand, stakeholder involvement improves transparency. External stakeholders have a say in approving strategy, and this will generally mean that the strategy tailors to some extent to their priorities, which makes the NCPC more relevant to them. Both transparency and accountability foster local engagement and ownership so that it may be desirable to move to a set up with a Board of Governors (the top right hand category in Figure 5.2). Even though this may not always be necessary or possible, it is worth investigating ways to enhance transparency and accountability, and share decision-making powers on direction and future of the national centre in a meaningful way with the public and private sectors of the host country.

Regardless of the nature of the highest decision making body, common good governance practices should be adhered to, in particular:

- *Increase frequency of meetings*: meaningful input to define strategy, business plans and budgets and oversee their implementation is only possible with regular meetings, for example every 2nd or 3rd month. A lower frequency (in some countries annually or even less) turns the board into a pseudo audit committee, that can only check whether agreed outputs have been delivered on time and on budget, but with no opportunity for mid term adjustment, strengthening and improvement.

- *Clarify decision-making rules*: what board members can decide on and who has a vote on the board. Preferably executive and administrative functions (i.e. NCPC director and possibly UNIDO) do not interfere in board decision making by assuming ex-officio membership. In one of the visited countries (Mozambique) there was for example a discrepancy between memberships of board as reported by the NCPC and as reported by the backstopping officer in Head Quarters. Elsewhere it was observed that board members had conflicting roles that had not been sorted out (e.g. in Sri Lanka where the chair of the board was also president of the industry association, chair of the board of the host institution and UNIDO representative).

- *Size*: effectiveness and efficiency suffer when boards are expanded, but some diversity is needed to enrich decision-making. Top heavy boards were found for many NCPCs, with up to 2-3 times more board members than NCPC staff, and most often these would all represent the government and/or semi-governmental sector. A small uneven number of board members generally works well for small organisations, in case of a NCPC for example 5 or 7, all coming from different organisations and stratified (e.g. 1/3 national government, 1/3 national private sector and 1/3 other NGO (including donors), with an independent chair).

Many of the NCPCs that did no longer receive institutional funding from the UNIDO-UNEP CP Programme appeared to have downscaled or even abandoned their governance structures. Which governance structure is most likely to be effective depends obviously

on a number of factors and cannot be determined a-priori at programme level. An in-depth analysis is required for each country, including an assessment of counterpart contributions, absorptive capacity and projection of the institutional development of the NCPC.

In addition to the decision making body, it is useful for NCPCs/NCPPs to establish an advisory body with broader and larger membership. The aim of an advisory board is to garner input from a variety of stakeholders and experts for strategy formulation and review of centre performance. If approached strategically, members of the advisory board then become advocates or champions for CP in their respective organisations, and thereby catalyse institutional commitment to CP and NCPC. To do so, processes need to be established so that input from the advisory board members is taken seriously and that records are kept why some of it is acted upon and other not. To improve credibility for the process the advisory board is preferably set up as advising the governing board and empower the board to exercise its control over the executive management of the NCPC.

5.3.2 Focus

The UNIDO-UNEP CP Programme started with a strict focus on CP in particular for application in manufacturing industries (e.g. pulp and paper, textile, metal fabrication, food and agro-industrial sectors). As discussed in Chapter 2, the focus of the Programme expanded over time, in response to:

- Donors' interests to use NCPCs as vehicle for delivery of programmes on CSR, setting up of green credit lines, etc;

- Evolving agendas in the international community and in particular in the two United Nations agencies administering the Programme, in particular towards Sustainable Consumption and Production (UNEP), and to a lesser extent the launch of the Global Compact and Millennium Development Goals (both UNEP and UNIDO) and REAP/CSR (UNIDO); and

- Feed back from the Centres, including the need and/or desire to include non-manufacturing sectors (e.g. hotels, fisheries, etc.).

The self-assessments presented in paragraph 3.3.1 demonstrated a commonly shared interest among NCPCs in extended topics closely related to factories/plants and technologies.

Positively, the expanded scope can be taken as evidence for adaptive management and development of the Programme. Negatively, it can also be interpreted as *'mission drift'* within the Programme, as the initial task of achieving widespread awareness and implementation of CP is just starting in the host countries. This evaluation found evidence on both sides of this argument, with perhaps a tendency of NCPCs to embrace expansion and diversification of services in the expectation that this will enhance their financial independence, and a tendency of national governments to prefer the NCPC to sustain a clear focus on '*core*' CP.

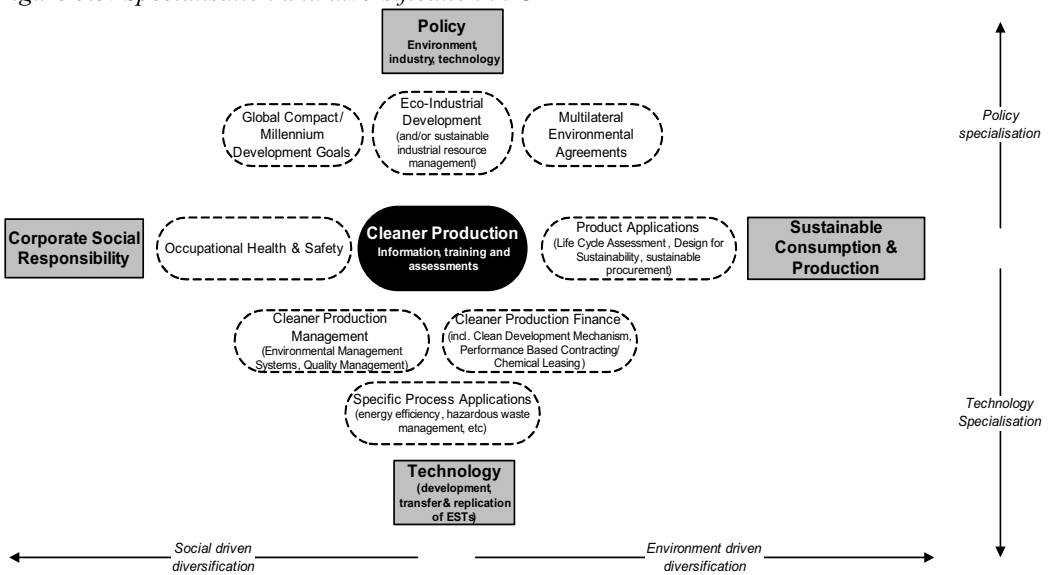
The recent expansions have raised some concerns:

- A plethora of new terms have been added in most cases to introduce concepts or tools that were relatively new to the Programme, but already existed elsewhere. Some terms were invented for the Programme (e.g. CP Plus, sustainable industrial resource management), others were incorporated from other programmes and initiatives (e.g. SCP, CSR, Design for Sustainability etc) whilst yet others are specific examples of funding mechanisms with much wider application (e.g. chemical leasing as one of many applications for Performance Based Contracting (PBC), and Clean Development Mechanism (CDM) as one mechanism under a MEA). A further complication is that no integrative framework has been provided that links the terms, using definitions and terminology that is accepted in the international public and private sectors. Instead the '*new*' concepts are now being promoted as part of an *'integrated'* and '*holistic'* strategy, without explaining nor clarifying what holistic and integrated mean in relation to core CP concepts and services and how they contribute to programme objectives and outcomes.

- Due to resource constraints within national centres, new services have evolved regularly as *substitutes* for, instead of *additions* to, existing services. Those staff that were in the past trained in CP and gained experience through on the job learning in CP assessments and service delivery are now withdrawn from such CP service delivery, to be retrained in new service areas and start a new learning journey. The benefits from their past CP training/capacity building are being compromised, as they are not using their CP skills but instead acquiring alternative skills. The prospect of greater CP service availability and hence greater CP uptake, which justified their past CP training/capacity building is thus not being realised.

This evaluation found that some of the extensions could be regarded as '*specialisation'* (improving the rigour and depth of service delivery related to CP implementation) whilst others are better understood as '*diversification*' (introducing services pertaining to topics related to CP, for example SCP, CSR). This is illustrated in Figure 5.3.

Figure 5.3: Specialisation and diversification in CP



The starting position for all NCPCs/NCPPs has been CP, in particular capacity development in CP through combined training, CP demonstrations and information dissemination and creating awareness. This is the starting point in the centre of Figure 5.3. NCPCs have specialised in two directions, along the vertical axis (North and/or Southward) and along horizontal axis (East and/or Westward). These specialisations and diversifications are:

1. *Technology Specialisation ('southward')*: providing more detailed services on CP implementation, financing and technology assessment and transfer. Typical initiatives are training and advisory services on Environmental Management Systems, Chemical Leasing, CP finance, targeted CP applications for energy efficiency, chemicals management and/or hazardous waste management and technology assessment and selection for transfer (including investments);

2. *Policy Specialisation ('northward')*: servicing government agencies with the development and implementation of policies and strategies conducive to CP. Typically NCPCs have started to work in a policy advisory capacity with the agency in the government responsible for the NCPC (in most cases the environmental or industry department), with the possibility to branch out to other policy domains (as the case might be for example regional development, fisheries, etc). The NCPC/NCPP can then also get more involved in national implementation of Multilateral Environmental Agreements;

3. *Environment-driven Diversification ('eastward')*: expanding the scope of services towards Sustainable Consumption and Production. This commonly started with training and/or pilots on Life Cycle Assessment and Design for Sustainability, municipal waste management, general environmental awareness initiatives for schools and communities, and sustainable procurement for government agencies; and

4. *Social-driven Diversification ('westward')*: branching out towards Corporate Social Responsibility, in particular through factory-improvement initiatives that address Occupational Health and Safety, community environmental health and labour relations.

These four directions are not mutually exclusive. NCPCs/NCPPs can develop simultaneously in different directions. However with limited resources it is generally impossible to become a specialist provider in all areas. Therefore the NCPCs/NCPPs have to prioritise and position themselves. This has to a certain extent happened in the visited NCPCs, often however by default rather than by choice. This explains the diversity in NCPCs/NCPPs that was found in this evaluation, which can then be graphically displayed as in Figure 5.4. A more conscious and strategic approach to positioning of the Centre in regard to diversification and specialisation options could contribute to their success and avoid situation that limited resources are spread too thin to make a considerable impact.

5.3.3 Service Strategy

The Programme was designed to set up service delivery centres, with the clear intent for each centre to become significant, if not leading, at the national level in the host country. This has turned out to be unfeasible, as NCPCs had to position themselves amidst other service providers in a growing number of countries. Some of such initiatives are complementary and others competing, some are donor-driven (including both bilateral as

well as multilateral (including UNIDO projects) and others local-driven through initiatives of government and/or private sector. The service provider model therefore had to change gradually to accommodate national circumstances, in particular: the size of the country and its economy; size, structure and capacity of its industrial/manufacturing sectors; existence of a system of providers of business services (e.g. engineering and management consultants); and/or emergence of other institutions able to deliver CP or CP-related services.

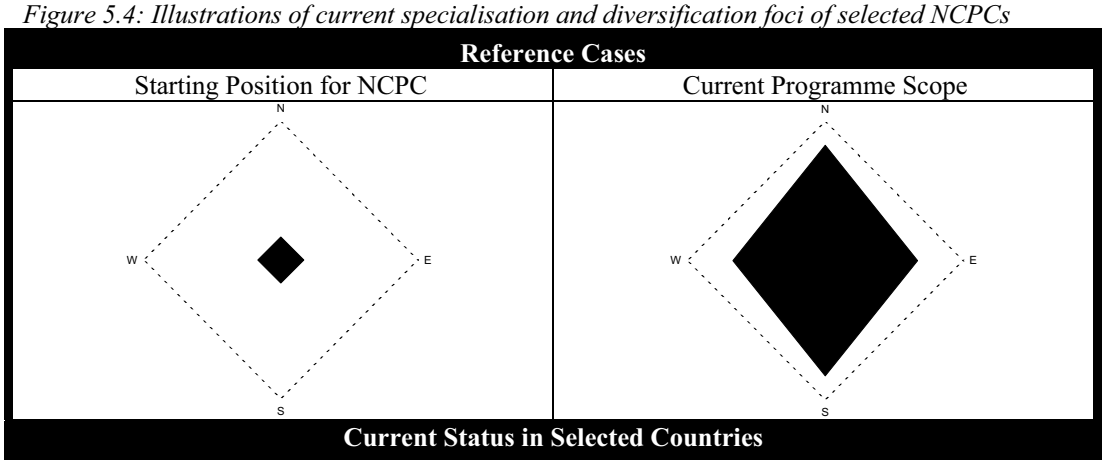
The Programme has introduced terminology as first and second tier (or respectively sub-national and national) centres, but there is no clear definition of such tiers and the differences between them. The tiered system is most visible in China where at least some 35 CP Centres exist, representing each of the three layers of government, respectively local level (city CPCs mostly involved in supervising CP audits and administering the mandatory CP audit provisions of the China CP Promotion Law), province level (Province Level CPCs involved in policy planning and evaluation) and national level (China NCPC and CPCs in sector ministries and/or research institutes, involved in policy formulation and evaluation, training, and development of technical standards). However, even in China the role division is not commonly agreed. An alternative approach is to consider tiers at the level of services, rather than centres. Each centre would have a unique balance between services from the different tiers of services, instead of being exclusively dedicated to one tier of services. As a suggestion, a three-tiered system would be possible:

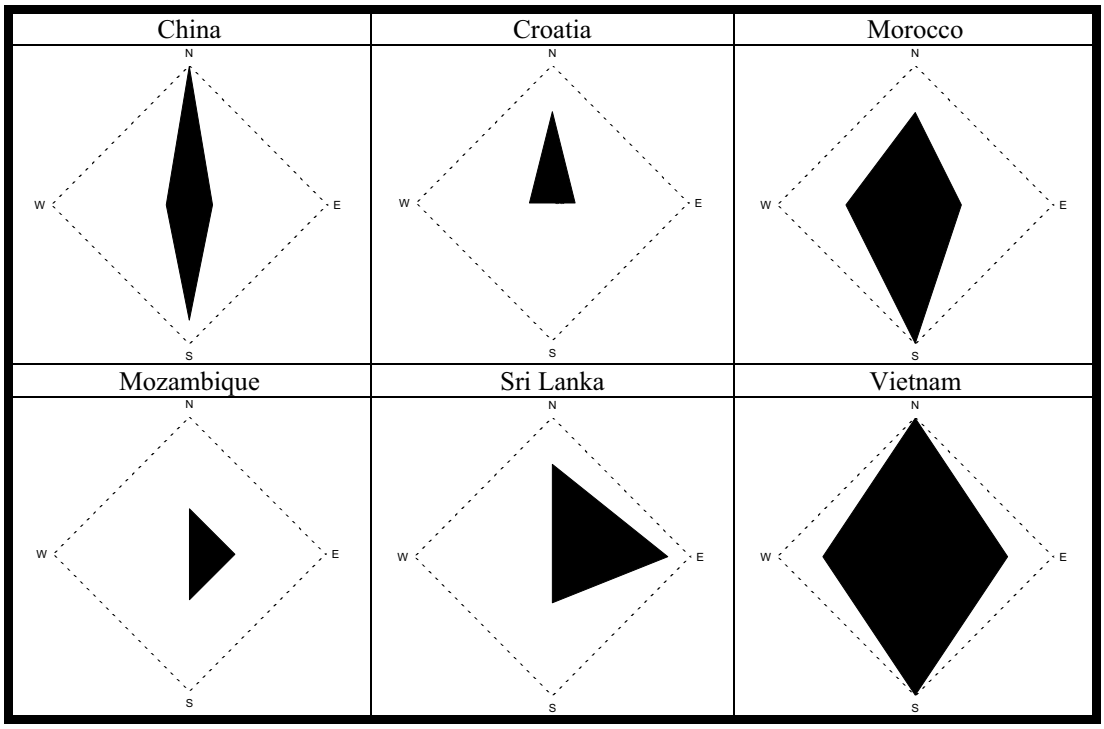
- *Tier 1: Audit and Training Services*: advising companies and other organisations on CP opportunities specific to their operations, and training their staff in developing, evaluating and implementing these opportunities;

- *Tier 2: Development Services (policy and/or technology)*: undertaking enabling activities to strengthen the policy environment for CP and increase availability of finance and technology for CP implementation (through technology development, assessment, adaptation and replication); and

Tier 3: Networking Services: improving communication and information exchange between CP service providers, and providing a platform for learning, best practice sharing and professional development (including training in e.g. CP assessments) for and among CP practitioners.

Figure 5.4: Illustrations of current specialisation and diversification foci of selected NCPCs





Refer to Figure 5.3. The size of the shape displays the competence areas of the NCPC. The four outlying points are:
N = policy, resulting from policy specialisation
E = SCP, resulting from environment-driven diversification;
S= technology, resulting from technology specialisation; and
W= CSR, resulting from social-driven diversification).

Tier 1 services are delivered to organisations that can implement CP opportunities. Tier 2 services are provided to intermediaries, including government agencies, business and professional associations, universities and providers of EST and CP services. Tier 3 services are provided for CP professionals. Most NCPCs are still predominantly delivering Tier 1 services, while a growing number are engaged in Tier 2 services. It appears that a niche remains for development and delivery of Tier 3 services, even though some NCPCs already have a clear mandate for such services (in particular South Africa) or face a demand for such services (for example China, Columbia, India).

The tiered service model can be developed nationally and/or regionally. To a certain degree the regional roundtables for sustainable consumption and production provide a platform for Tier 3 service delivery, but this is essentially outside of the UNIDO-UNEP CP Programme and they have been insufficiently resourced to capture and advance best practices. Also for Tier 2 services there are clear possibilities for international collaboration in particular among NCPCs in smaller, neighbouring countries (e.g. East Africa, Central America, etc), for example in development of CP standards and technology transfer. This would enable NCPCs to specialise in selected sectors, deliver Tier 2 services for these sectors locally and regionally, and in exchange benefit from Tier 2 services for other sectors developed by sister NCPCs in the region.

5.4 Service Delivery

This section discusses differences in approach among the NCPCs/NCPPs towards service delivery in each of the five core service categories of the UNIDO-UNEP CP Programme, respectively: information dissemination (paragraph 5.4.1), training (paragraph 5.4.2), in-plant demonstrations (paragraph 5.4.3), policy advice (paragraph 5.4.4) and technology transfer (paragraph 5.4.5).

5.4.1 Information Dissemination

This analysis of self-evaluation results showed that at least 80% of the responding countries claimed to be active in regards to production of information dissemination materials and/or delivery of awareness-type seminars (see Table 3.5). The independent evaluations furthermore confirmed that over 80% of the visited counties had a good portfolio of information dissemination and awareness building activities (see paragraph 4.4.1).

Throughout the Programme there is a great variety in information materials, covering primers/mini guides, manuals, case studies, websites, fact sheets, cartoon books, videos, etc. Likewise the formats and methods for awareness activities are quite diverse. Despite this great variety, both within and between the NCPCs/NCPPs and the UN agencies involved, there are no substantively different approaches in this service category. However, a number of overall observations can be made:

- A planned strategy for information dissemination and awareness creation is in most countries insufficiently developed or missing at all. It appears that information products and awareness events are taken on opportunistically. The justification for each specific initiative is insufficiently developed, in terms of: specific target groups, objectives, outcomes and desirable follow-up actions from recipients and participants; necessary key messages, detailed content and presentation; distribution channels; and evaluation. Similarly the relationships between information materials and awareness activities are not sufficiently developed, for example how a mini guide relates to CP success stories, can be used for awareness raising and is linked to technical information sheets. NCPCs, supported by the programme management, could put more effort in planning their information and awareness activities for maximum impact, for example by establishing a limited number of types/categories, adopting a common template for each type, and ensuring an ongoing stream of activities over time. The planning for each awareness and information initiative should then feed into a consistent communication strategy with outcome based indicators, monitoring and evaluation tools.

- The presentation styles varied considerably both within and between NCPCs/NCPPs. There is a need to adopt a common branding and consistent use of terms and concepts at least within each NCPC, and preferably also to some degree within the UNIDO-UNEP CP Programme as a whole.

- A considerable share of the information materials appeared to lack evidence from CP implementation at the national level. There is an opportunity to improve the

effectiveness of information dissemination and development of awareness by actively developing more CP success stories (including post implementation evaluation of the environmental, economic and other benefits achieved) and using these CP success stories profoundly in all information and awareness initiatives (as visited NCPCs in e.g. Guatemala and India are doing with videos etc.).

5.4.2 Training

For the self-evaluation, 80% of the responding NCPCs reported to be involved in developing and delivering CP training (see Table 3.5). The review of the independent evaluations for the 18 visited countries showed that for half of the visited NCPCs training is a core activity in its own right with a considerable and sustained level of training outputs over time, whilst for the other NCPCs training appeared to be more narrowly focused and delivered only in support of other core activities (see paragraph 4.4.2).

Training programmes for CP auditors, trainers and/or other intermediaries (train-the-trainers) are most common. Such training appears to be quite well structured using CP methodology as the framework. The UNIDO CP toolkit [40] is commonly regarded as a valuable resource for planning and delivering this type of training. There are some differences among the NCPCs in regard to delivery of this auditors' training, for example with regard to the inclusion of a supervised CP assessment as completion criterion, the use of case studies to illustrate application of the CP methodology and the establishment of a register of qualified CP auditors. There is a potential to improve the training result by targeted and selective recruitment of trainees, to ensure their qualifications and professional roles are likely to enable them to undertake CP audits on completion of the training. Likewise, the formulation of completion criteria is worthwhile to ensure that registers of qualified auditors can be established, as has been formalised in China (for CP auditors) and India (for energy auditors). However some flexibility is required for such registers, as auditors with substantive, demonstrable experience should be eligible for registration without having to sit through an introductory CP auditors' training (which for example surfaced as an issue for getting CP consultants in South Africa to register with the NCPC).

In addition to this auditors' training, many NCPCs deliver other training, either as professional development in '*advanced'* CP topics (e.g. EMS, Design for Sustainability, Life Cycle Assessment, etc.) or as part of curricula at universities and/or schools. Some NCPCs have developed and delivered such advanced training largely on their own, while several other NCPCs did receive extensive training of their own staff and expert inputs in developing new training content and programmes. This indicates a need for more equitable access to international expert inputs for development of a balanced and reasonably consistent system of training across the host countries. There is a tendency for the advanced training category to be equally opportunistic as information dissemination. In parallel with an information and awareness strategy (as discussed in paragraph 5.4.1), it is desirable to develop a training strategy.

5.4.3 Assessment and Demonstration

Just over 80% of the respondents to the self-evaluation survey reported to undertake in-plant CP assessments (as per Table 3.5). The comparative analysis of results from in-plant demonstrations in the 18 visited countries showed that substantive CP assessment activity

is taking place in nearly 80% of these NCPCs (as per paragraph 4.4.3). It was however also noted that follow up to in-plant demonstrations was insufficient to ascertain impacts from in-plant demonstrations.

There are considerable differences among the NCPCs/NCPPs in how CP assessments are undertaken. These pertain to:

- *Service Model*: the basic distinction is between a *consultancy service*, in which the NCPC or its consultants, take charge of completion of the CP assessment with inputs from company staff, or a *training and coaching service*, in which the NCPC trains a team comprised of company staff and supervises completion of the CP assessment by the team. The training and coaching model has been adopted from the start by NCPCs in for example Vietnam, India and China, while other NCPCs are moving towards this approach, e.g. in El Salvador, Morocco and Costa Rica. The consultancy model prevails in for example South Africa, Sri Lanka, Egypt and Kenya. There is a widespread expectation that the training and coaching model is superior for achieving actual implementation of CP (e.g. [25]), but this evaluation does not provide evidence to support this argument. This suggests that there are also other factors at play in determining the success of a CP assessments, as was found elsewhere in regard to technological capability and environmental motivation of the company (e.g. [23, 58]) and choice of assessment methodology (e.g. [10, 59]).

- *Staffing*: some NCPCs use staff members to undertake the CP assessments (e.g. Vietnam, China), while others use only external consultants (explicit strategy in for example South Africa) or a combination of staff and external consultants (common model in e.g. Sri Lanka, Morocco). The external consultants are recruited from the pool of former trainees in the respective centre's CP audit training. This evaluation does not provide evidence for preference either way. The use of former trainees as CP consultants is in principle to be applauded, if managed properly. The evaluation showed that heavy reliance on external consultants for '*core*' CP assessment services, can compromise the ability of the NCPC to do effective quality control for CP assessments as it starts to lack experience and skills in CP assessments. Moreover, the externally contracted consultants will typically have a broader environmental consultancy background and not be equally determined to demonstrate CP as would be expected from NCPC staff. The latter is increasingly managed by prescribing in great detail the assessment methodology, which can however deter well established CP consultants from undertaking CP consultancy services for the NCPC (due to inability to use the assessment approaches they are most comfortable with).

- *Output*: the findings from CP assessments are presented in different ways. Some NCPCs present the findings as per the steps of the CP assessment methodology, while others present findings with an actionable implementation plan for the business. There are also substantive differences in the effort made to evaluate and where possible quantify costs and benefits (economic and environmental). This applies in particular to technology intensive options, which are just listed by some NCPCs, whilst others have developed capacity for technology assessment and selection (see also paragraph 5.4.5). This evaluation could not investigate the impact of the reporting style on uptake of CP, even though based on the evaluators' professional judgement there is a preference for presenting the CP assessment results as an actionable schedule of CP options with estimated costs and benefits.

- *Follow Up*: there is a degree of variation in follow up to audited companies. It is common, but not yet standard practice that the report of the in-plant assessment is at least presented to the company in a meeting with management. Several of the NCPCs now provide more follow up, by phone once or twice in the first couple of months after completion of the CP assessment, or through additional site visits, depending on logistics. Under several of the special projects (including e.g. GERIAP), follow up was intended to result in compilation of a success story with post-implementation results for general circulation. It is suggested to make this standard practice within the UNIDO-UNEP CP Programme, as compiling CP success stories from CP demonstrations would provide a good feed back on CP assessment service delivery, provide more factual evidence for CP promotion, and be a fair request to companies in light of the highly subsidised nature of the in-plant demonstration assessments.

- *Methodology:* NCPCs/NCPPs start off with one type of CP assessment service, generally referred to as a comprehensive or full CP assessment. Different methodologies are being used for this, either a CP assessment method developed and trialled as part of earlier CP projects (e.g. in India [60] and China [54]) or one of the other international examples (most commonly e.g. [3, 6, 61, 62]). Increasingly the UNIDO CP Toolkit [40] is being promoted as the preferred, or in some countries even prescribed, methodology for CP assessments. After some local CP assessment capacity has been created, most NCPCs start to develop simplified assessment services, typically under the name of Quick Scans or Preliminary Assessments. This evaluation revealed that while there is a degree of common understanding what constitutes a comprehensive (or full) CP assessment this is not the case for the abridged versions. Some still use a consistent CP methodology (including root source and cause analysis and option generation) but apply this with less detailed and often only order of magnitude data on materials, energy, waste and costs (e.g. Vietnam, Mozambique). In other countries the Quick Scans are just lists of observations from a quick plant walk-through (e.g. in Sri Lanka). A positive example was found in Nicaragua where the NCPC has defined practical menus to match its service, and necessary methodology, with company needs. Throughout the UNIDO-UNEP CP Programme, the methodologies are predominantly *engineering based* (also known as traditional) ([29]) ([10, 59]) and therefore rely heavily on the preparation of materials and energy balances as the basis for generation and evaluation of CP opportunities.

It is noted that there are no attempts to develop and use localised CP methodologies that tailor to the opportunities, capabilities and drivers of the business community in the host countries (whilst there is a body of literature that suggests that tailoring CP concepts and methods is key for its acceptance in different industry segments (e.g. [59, 63-67]). The Programme relies heavily on the IRCs for CP assessment methodology and capacity development. There is no methodological diversity among the active IRCs in the Programme. NCPCs are therefore not exposed to alternative ways of doing CP assessments. The IRCs' approach therefore remains uncontested and becomes the prescribed methodology (which is now embedded in the UNIDO CP Toolkit). Whilst this *'engineering-based'* methodology is proven in many applications, its weaknesses are also evident in particular when technological capability and environmental commitment in audited companies is low, which is often the case in target companies for the NCPCs/NCPPs. It is therefore suggested that the Programme places priority on improving

[29] Alternatives to this traditional engineering based CP assessment methodologies are management systems'-based methods (which incorporate CP in existing or to be developed management systems for environmental and/or quality management) and quality-based methods (which originated from lean manufacturing and KAIZEN engineering).

CP assessment methodologies, with the ultimate aim that NCPCs/NCPPs will make an informed choice of which method to use for a particular company (depending on its size, sector, capabilities and commitment). Establishment of an NCPC-led *Community of Practice* on CP assessment methods could be instrumental for achieving this aim.

5.4.4 Policy Advice

The survey results for the self-assessment showed that just over half of the responding NCPCs/NCPPs were active in regards to policy advice (see Table 3.5). The detailed comparative analysis of the 18 countries visited for the independent evaluations showed that about 60% of these achieved a significant result in their policy advisory role. However it was also noted that there appeared to be scope for better strategising in the policy activities of the NCPCs (see paragraph 4.4.4).

The policy advice turned out to be partially *pro-active* and partially *reactive* (or *responsive)*, with the balance between both varying among the NCPCs. Proactively, NCPCs/NCPPs have gone out and engaged with government to lobby for policy change conducive to CP, and suggested practical ways to do so (drafted strategies, plans etc, and made policy submissions to government). Reactively, NCPCs/NCPPs have responded to government initiatives and endeavoured to ensure that CP was given proper consideration in consultative processes, working parties etc., related to changes in environmental and energy policy and legislation and national implementation of MEAs. The Programme's support to NCPCs/NCPPs has been very strongly focused on environmental policy instruments (as for example reflected in the Training Kit on CP Policy [41] and to a lesser extent in the older UNEP publications on CP Policy [9]) and training in implementation provisions of the MEAs (for example the Clean Development Mechanism) [45]. The Programme did not yet place priority on CP-related economic and technology policies.

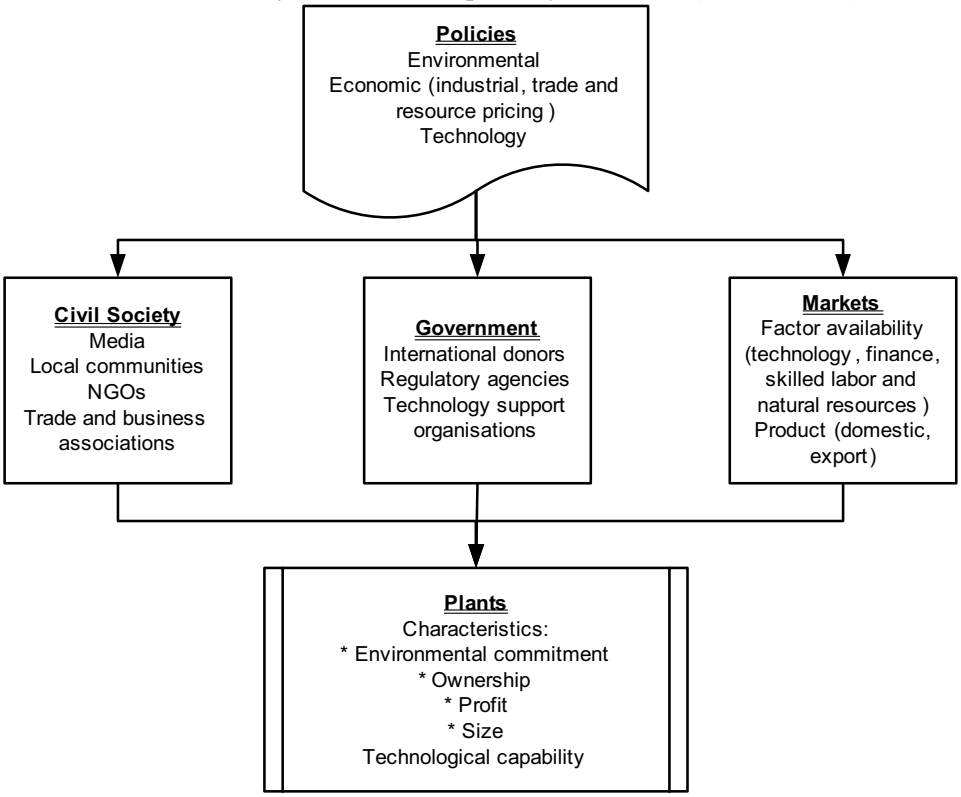
The CP Policy activities by the NCPCs/NCPPs have thus been strongly focused on environmental policy and a lesser extent energy policy, with the only profound exemption being the work on technology transfer legislation in Vietnam. Even though this environmental focus is understandable in light of the technical inputs provided through the Programme, it is not properly justified in light of current insights on uptake of ESTs and CP by manufacturing industries in developing countries. Recent work by UNIDO [58] and others (including WorldBank [68]), has led to a heuristic model (as in Figure 5.5) for EST/CP uptake. It reflects the understanding that a company's incentive structure to adopt ESTs is created by three policy regimes, environmental, economic (with subdivisions for industrial, trade and resource pricing policies) and technology. This is transmitted to plant managers via the three pathways of governments, markets and civil society. In turn internal plant characteristics determine the extent to which plants can respond to these incentives [58]. A limited set of in-plant factors, market forces and government intervention turned out to be ([30]) the most influential determinants for adopting more complicated ESTs (in particular CP), and committing to higher

[30] This heuristic model has been validated on the basis of a study of uptake of ESTs in 98 plants in three sectors (pulp and paper, textile and leather/tanning) in eight countries (Brazil, China, India, Kenya, Thailand, Tunisia, Vietnam and Zimbabwe). The findings on the perceptions of the drivers for EST adoption supported the view that various drivers across government, markets and civil society are all motivators of compliance with environmental standards in developing countries. Governmental pressure, either in the form of current or future regulations, and market pressure, in particular cost competition, appear to be much more important as drivers than civil society pressure. Plant specific factors, specifically environmental commitment, foreign (part) ownership and technological capacity, and market factors, in particular resource pricing and technology availability, mattered significantly in determining the type of technological response, and thus in explaining the adoption of higher order ESTs, in particular technologically complex cleaner technologies

environmental standards. Public intervention should therefore go beyond the traditional domain of environmental policy and its associated implementation strategies to the use of economic and technology policies to achieve the dual objective of reducing resource intensity and protection of the environment [58]. This favours government intervention, in particular to support technology-upgrading programmes and synergistic initiatives on environment and technology policy.

The UNIDO-sponsored studies on EST transfer (but also other work) show the limitations of the current environment-focused CP policy advice delivered though the UNIDO-UNEP CP Programme. It highlights the need to broaden the programme's policy focus, which could build upon experience available elsewhere in UNIDO (and possibly other UN agencies). More emphasis could be placed on framework conditions for technology development and innovation (e.g. performance based funding of public sector research, protection of intellectual property rights, fiscal incentives for businesses investment in research and development) and productivity initiatives (e.g. support for enterprise development service centres).

Figure 5.5: *Heuristic model for EST/CP adoption by industries (source: [58])*



5.4.5 Technology Transfer

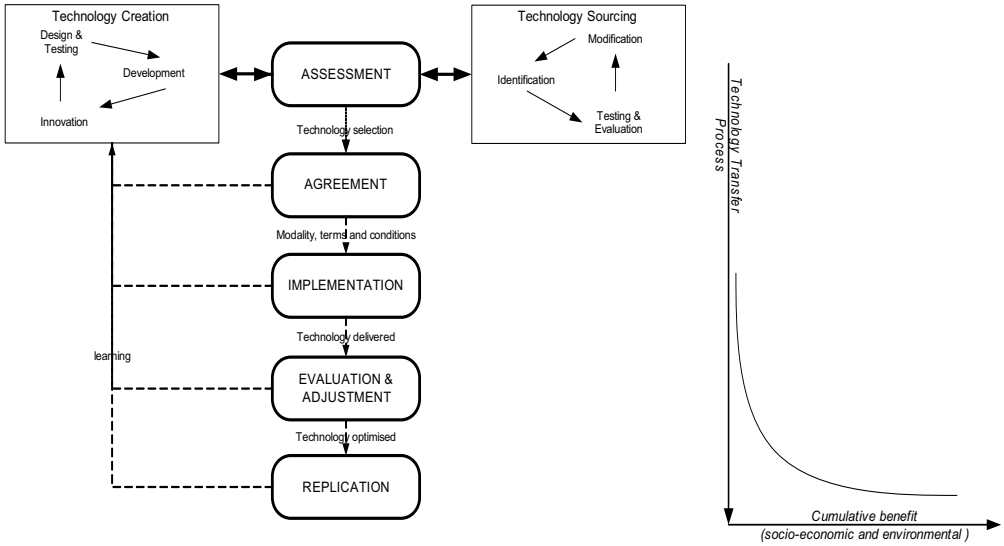
The survey responses for the self evaluation showed that just under 50% of the NCPCs/NCPPs claimed to be active in regard to EST transfer (see Table 3.5). The comparative analysis of technology transfer results in the 18 countries visited for the independent evaluations revealed highly different expectations on what is being covered by technology transfer. It also revealed that nearly 80% of these visited countries had

activities that could be regarded as supportive of technology transfer, even though in many cases the NCPC itself would not qualify these as such (but rather a spin off from CP technical standard setting or extensions of CP assessment activity) (see paragraph 4.4.5).

It is noted that even though some praiseworthy results are being achieved by some NCPCs, overall the technology transfer initiatives within the UNIDO-UNEP CP Programme lack strategy and focus. This is largely attributable to the absence of clarity on terms and scope, as the Programme has not attempted to define technology transfer or elements of successful EST transfer. It is possible to improve this situation by building upon the excellent work done elsewhere in regard to the provisions for technology transfer under the MEAs. In particular:

- The Intergovernmental Panel on Climate Change (IPCC) prepared an extensive review of methodology and policy for technology transfer [69]. It defined: *"Technology Transfer is defined as the broad set of processes covering the flows of knowledge, experience and equipment amongst different stakeholders, such as governments, private sector entities, financial institutions, Non Governmental Organisations (NGOs) and research/educational institutions. The broad and inclusive term 'transfer' encompasses diffusion of technologies and technology cooperation across and within countries. It comprises the process of learning to understand, utilise and replicate the technology, including the capacity to choose it and adapt it to local conditions (pg 55, [70])".*
- There is broad consensus (e.g. [69, 71, 72]) that the transfer of technology follows a number of distinct stages, regardless of the specific pathway. An integrated model comprising five stages is presented in Figure 5.6. These stages are: *assessment* (identification and selection of technology, potentially including elements of technology sourcing and technology creation); *agreement* (terms, conditions and modality of transfer); *implementation* (execution of the technology transfer); *evaluation and adjustment* (learning and continuous improvement); and *replication* (widespread use of the transferred technology). The stakeholders involved and the specific decisions and actions taken at each stage differ greatly depending upon the pathway. By analysing the interests and influences of different stakeholders at each stage it is possible to determine how various challenges in technology transfer can be effectively addressed.

Figure 5.6: Main stages of EST transfer and development of its benefits
(Source [72]: integrated from [70] and [71])



Using Figure 5.6 as reference point, it is noted that the current programme efforts for technology transfer are geared towards the first stage, assessment, particularly towards technology sourcing, through activities like benchmarking, technology gap analysis and technology identification. This is most profound in for example Vietnam - the NCPC receiving extensive programme support for technology transfer. There is also some activity in regard to evaluation, adjustment and replication, but this is initiated locally at the national level by the NCPC and not yet acknowledged at the programme level, in particular in India, where the NCPC is hosted by an organisation with a strong track record in technology up-grading. Overall, it is clear that adopting current leading insights in EST transfer could result in a more balanced and integrated set of programme activities on EST transfer within the UNIDO-UNEP CP Programme.

5.5 Portfolio and Network Management

The previous sections discussed the diversity within the portfolios of the NCPCs/NCPPs both in regard to their institutional arrangements (including governance, focus and service model/strategy) and their approaches to delivery of each of the five key services. With the widening scope of CP activities in the Programme, it is not possible for each NCPC to claim expert status on all aspects of the programme. The human, financial and other resources are not available for doing so ([31]). It is therefore strongly suggested that the UNIDO-UNEP CP Programme supports each centre to position itself taking due consideration of the national status of CP implementation (including activities of other actors), national socio-economic development and environmental protection priorities and technological capability and environmental commitment of key manufacturing sectors. This positioning considers both the *focus* (in light of the discussion on diversification and specialisation in paragraph 5.3.2) and *service model* (with regard to a split between Tier

[31] Even though it could be argued that these limitations could be addressed by increasing the funding of the centres, but given that in current situation many of the NCPCs already do not manage to spend the allocated finances in the agreed timeframes (e.g. Mozambique, South Africa, Sri Lanka, etc.), it is unlikely that increasing funding can substantially alleviate the resource constraints.

1, Tier 2 and Tier 3 services as discussed in paragraph 5.3.3). Effective positioning will benefit from increased accountability and transparency of decision making for each NCPC, as per the discussion on governance (in paragraph 5.3.1), which in turn can also bolster local ownership of the NCPC.

The process of national positioning would result in NCPCs that display different balances between Tier 1 (audit and training services), Tier 2 (development services) and Tier 3 (networking services). The network of CP Centres would then evolve as conceptually displayed in Figure 5.7. CP Centres predominantly providing Tier 3 services would service several other CPC's that are predominantly providing Tier 1 and/or Tier 2 services. This could be on a national basis within the large countries (e.g. China, South Africa, Brazil) or on a regional basis among smaller countries (for example in Latin America). The CP Centres providing predominantly Tier 2 services would service a number of CP Centres that predominantly provide Tier 1 services, and collaborate with other CP Centres that also provide predominantly Tier 2 services, but for example in other policy or technology areas. There is no need to limit the number of providers of Tier 1 services, as this would ultimately be determined by the size of the CP market.

Similarly, the strategic positioning of the NCPC in regard to focus of its activity area, would lead to CP Centres that have a different blend of activities on diversification (socially and/or environmentally towards CSR or SCP respectively) and specialisation (towards policy and/or technology). As illustrated for six countries in Figure 5.4, this is already happening. It can be further strengthened, and would then lead to a network of CP centres with diverse foci, as illustrated in Figure 5.8.

Figure 5.7: Conceptual outline for the network of CP centres based on diversified service models

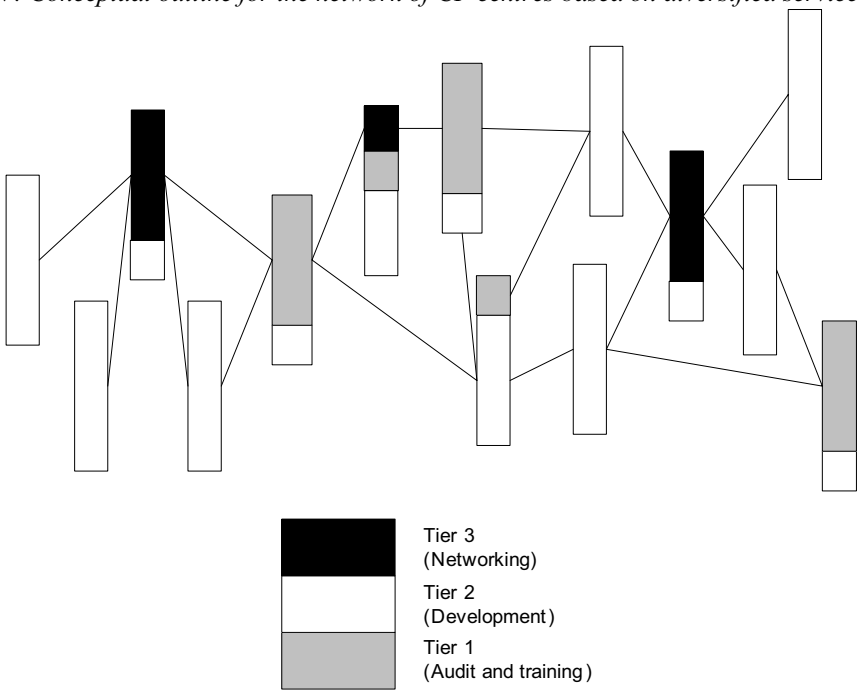
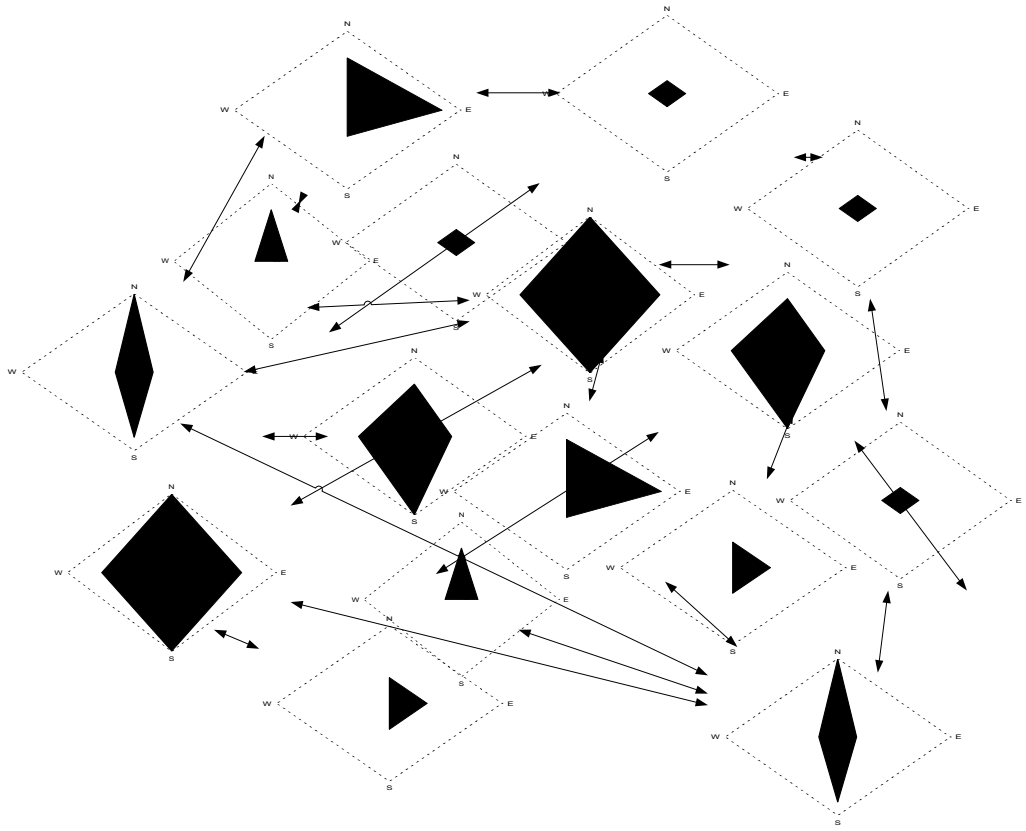


Figure 5.8: Conceptual outline for the network of CP centres based on diversified foci



It is likely that the strategic positioning of each CP Centre would change over time in response to changing national circumstances (e.g. in macro-economic conditions, national priorities and emergence of other providers of CP or CP-related services). The positioning can therefore be reviewed as part of e.g. 2 or 3-yearly forward business planning cycles. However once a position has been determined, some discipline is required to adhere to it, to avoid drifting back to opportunistic operation in which human, technical and financial resources are spread thinly at the detriment of quality and ultimately impact of service delivery and recognition and status of the respective NCPC.

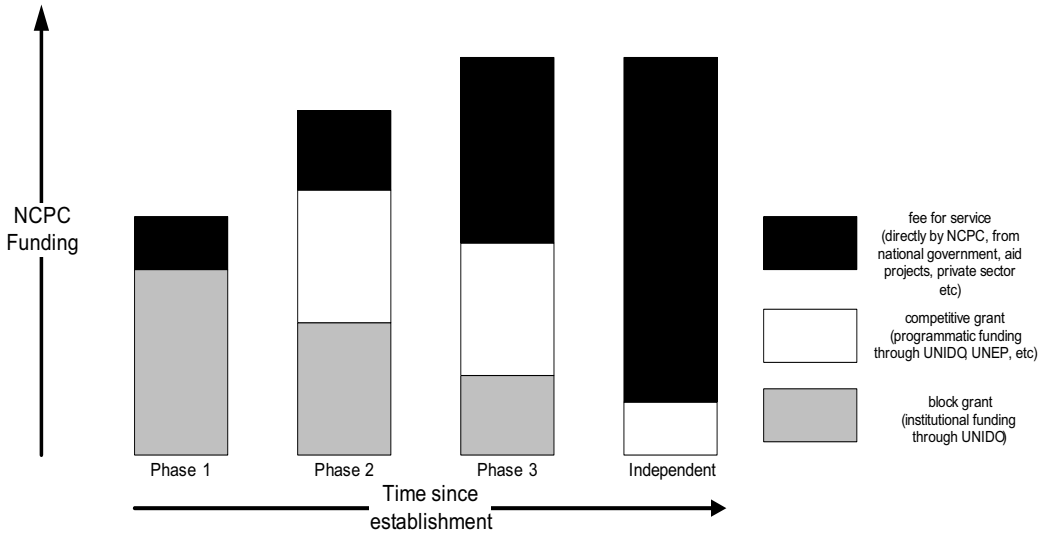
This tailoring of the NCPC and its activities to the local content is a process that needs strategic support through the Programme, in addition to the predominant technical and operational support provided so far through the IRCs. Diverse NCPCs will then coexist which will pose further challenges to programme management. A change of the funding model is required to manage the diversity among NCPCs (eventually including other CP Centres not established under the UNIDO-UNEP CP Programme). The funding could be split in at least two categories, respectively:

- *Block Funding*: guaranteed funding on a country-basis to selected NCPCs to establish core capacity in CP, and enable planning and institutionalisation of the NCPC as a local CP institution. This is similar to the current institutional funding model. As in the past, the source of this block funding would be country specific project agreements between UNIDO, the host country and at least one donor country.

- *Competitive Grant Funding*: funding budgets for targeted activities, regardless of specific location, available on a competitive basis for NCPCs and other CP Centres meeting predetermined standards and conditions. The NCPCs (and eventually also other CP Centres not established under the UNIDO-UNEP CP Programme) would compete amongst each other for access to funding from this programmatic funding pool and this would then be made available against specific deliverables. This is similar to some of the past funding provided through UNEP's multi-country projects to which some of the NCPCs have contributed, including for example the GERIAP project on energy efficiency through CP in Asia Pacific. The source of this competitive grant funding would be programmatic funding provided by one (or possibly several) donor to specific activities within the NCPC programme (for example on Design for Sustainability, etc.).

In the start up phase the NCPC would be largely, if not exclusively, funded with block funding, and at this stage it would be unlikely that the new NCPC could successfully compete for programmatic funding. In a second phase, the block funding would reduce, and the NCPC could complement this with competitive funding from programmatic sources. As time progresses, the block funding could completely be phase out. The block and competitive funding through the UNIDO-UNEP CP Programme would be supplemented by fund raising locally by the NCPC, including grants from national government, project related funding from other bilateral or multilateral donors and fee-for-service (e.g. training, auditing etc.). This funding approach is illustrated in Figure 5.9. The figure includes as the last phase an independent NCPC that does not receive any block funding through the UNIDO-UNEP CP Programme. This would be the target situation for the NCPCs established by the Programme, but it could also be viewed as the model by which CP Centres not established by the Programme could participate in the Programme (and possibly receive some competitive grant funding for programmatic activities).

Figure 5.9: Schematic presentation of the funding model for NCPC over time



It is strongly suggested that the introduction of programmatic funding be accompanied by appointment of *capability leaders* in the programme management. These capability leaders would be in charge of programmatically funded activities in multiple countries.

Their main responsibility would be to ensure delivery of programmatic activities, quality control and effective dissemination of the results, experiences and lessons learned to all CP Centres in the Programme. This would lead to a matrix management structure for the Programme, with national project managers, having responsibility for the block funding to selected countries, and the capability leaders. Some capability leaders could be positioned in the UNIDO programme management unit, others might be found in other UNIDO units (e.g. POPs, energy, water). UNEP could also provide capability leaders for some topics related to sustainable consumption and production, and possibly other United Nations agencies for other topics (for example International Labour Organisation for e.g. Occupational Health and Safety). Moreover it could also be considered that senior staff from some NCPCs would assume a capability leadership role.

The changes discussed above involve a qualitative change in the Programme, as it would turn from the current project-by-project mode increasingly into a network-managed approach. The activity to establish NCPCs in developing countries with a substantive industry basis is largely completed, certainly if consideration is given to comparable CP centres that have been established by other donors or international programmes in other counties. The share of the block grants, for establishment of the NCPCs, in the total budget (both at Centre and Programme level) will therefore diminish, with the greater share becoming programmatic funding, for ongoing professional development and strengthening of existing NCPCs. The question is then which NCPCs and/or other CP Centres can undertake activities funded by the Programme and/or participate in the networking activities. This can in principle be done via a set of Memoranda of Understanding, on a one-on-one basis between a CP Centre and the UNIDO-UNEP CP Programme management. However, a transparent and inclusive process would be preferable in particular to engage CP Centres that have not been established by the Programme, and achieve maximum leverage from the programme's networking activities among all CP Centres that commit to the Programme's mission and aims.

One possible way to implement this would be to support the establishment of an association of CP Centres, for which several examples exist but with different niches, e.g. the association of Pollution Prevention Programmes in the USA (www.p2.org) and the Regional Network of the Word Business Council for Sustainable Development (www.wbcsd.org). The association of CP Centres would establish its statutes, and define membership criteria. Any CP Centre that would like to join, could apply, and would have to demonstrate that it meets the membership criteria. Membership could be time-bound, so that after say 2 or 3 years any member would have to re-apply for membership to demonstrate its ongoing ability to meet the eligibility criteria. The networking and programmatic activities of the UNIDO-UNEP CP programme would then be delivered to members of the association.

It is strongly suggested that the Association would introduce various categories of membership. These could be:

- *Ordinary member:* CP Centres that are aligned with the aims and objectives of the UNIDO-UNEP CP programme, and fulfil a demonstrable public interest role in promoting CP and related topics. Ordinary members would be entitled and sponsored to participate in network meetings (training and other professional development, NCPC Directors' meetings, etc). They would also have to provide regular inputs to the Programme (e.g. new case studies, lessons learned, etc), in exchange for right to use UNIDO and/or UNEP logos and endorsements.

- *Associate member*: CP centres (or other organisations, including e.g. government agencies, non-governmental organisations, private sector consultants and/or individual professionals) that have an interest in CP promotion but do not fulfil a demonstrable public interest role in promoting CP. Associate members can participate in the public information sharing, for example through regular newsletters, access to publications, etc. They cannot participate in network meetings, unless specifically invited to present an element unique or new to the Programme. They also would not get the right to use UNIDO and/or UNEP logos and/or endorsements.

- *Programme Member*: CP Centres that consistently meet high professional standards, and in their mission and business plans are exceptionally aligned with the aims and objectives of the UNIDO-UNEP CP Programme. The Programme Members have more rights and obligations than the ordinary members, including the right to compete for programmatic funding. It may be necessary to differentiate the programme member category further as the programme activities could require quite different skill sets (e.g. for specialist work on technology or on policy).

It might be considered to establish further membership categories for example of founding members and/or sponsors (donors and possibly private sector contributions). For illustration purposes, Table 5.1 contains preliminary suggestions on how the membership criteria could be set up for Ordinary members only. Developing a full and balanced set of membership criteria for a restructured network of NCPC and other CP Centres was however well beyond the scope of this evaluation. It is therefore suggested that a follow up project be launched for the further development of the proposals made here for revised network management strategy and associated membership criteria.

Table 5.1: Some starting suggestions for membership criteria for association of CP Centres

Eligibility Criteria	Obligations	Benefits
Category: Ordinary Members		
Independence: ➢ Own business plan, budgets, reports and board ➢ Effective government and industry representation in board ➢ CP identified as a core service area (for example being a signatory to International CP Declaration) ➢ Not-for-profit operation ➢ Code for fair-trade	CP Practice ➢ Report annually on CP practice, and keep records in auditable manner ➢ Annual review meeting with CEO of network regarding expectations and outcomes from membership ➢ Ensure flow on benefit from membership to stakeholders	Information Access: ➢ x hrs/yr from helpdesk ➢ newsletters ➢ member contacts ➢ access to databases ➢ access to training ➢ access to thematic working groups (Funding rules to be ascertained)
Track Record: ➢ CP service delivery (training, assessment, information sharing, advocacy etc) ➢ Public benefit (networking nationally and internationally, funded and non-funded) ➢ Professionalism and accountability (preferably	Participation: ➢ Regular attendance at designated networking meetings ➢ Evidence of sharing of experience, knowledge etc into the network ➢ Be an ambassador for the network	Business development ➢ Assistance for execution of national assessment of CP status, and positioning of the CP Centre therein

through ISO 9000/1400 for CP service delivery		
Application Process: ➢ Provide evidence from past 3 years for peer review by membership committee at application stage, to be renewed after 3 years		Recognition: ➢ Rules to be established for use of UNIDO and/or UNEP logos

6

Programme Assessment

6.1 Introduction

This chapter contains the overall assessment of the UNIDO-UNEP CP Programme by the international evaluation team. It integrates the findings from the three constituent parts of the evaluation study, respectively the programme review (as reported in Chapter 2), the self-evaluation (as reported in Chapter 3) and independent country evaluations (as reported in Chapter 4. It also takes into consideration the analysis of differences that were found among the NCPCs/NCPPs (as covered in the portfolio analysis in Chapter 5).

This global programme-level evaluation was structured around four primary and two secondary evaluation criteria. The *primary* criteria relate to the uptake of CP, and were relevance, effectiveness, efficiency and sustainability. The *secondary* criteria assessed the performance of the UNIDO-UNEP CP Programme as a development assistance programme, in particular for capacity development and ownership. The primary evaluation is covered in Section 6.2, and the secondary evaluation in Section 6.3. Section 6.4 summarises the main findings from the programme assessment.

6.2 Uptake of Cleaner Production

The primary evaluation assessed the success of the UNIDO-UNEP CP Programme in achieving uptake of CP practices, methodologies, technologies and policies by businesses, the private sector, government, academia and other relevant stakeholders in the host countries. This success is determined by relevance, effectiveness, efficiency and sustainability of the Programme's activities. These four criteria are closely related: If the Programme is relevant for the country and its stakeholders, it stands a good chance to be effective, because it will have the support of the main stakeholders. The programme is judged to be sustainable if it is likely that its present positive results (effectiveness) will continue into the future. Finally, given that programme resources, both human and financial, are limited, an efficient use of these resources will enhance the possibility of the programme to be effective, that is to achieve positive results.

6.2.1 Relevance

Relevance is concerned with the applicability and value of the programme elements (i.e. the CP concept, the CP services, the NCPC institution, the global network and the technical assistance inputs) for the intended beneficiaries (i.e. the private sector, government, academia and research institutes in the host country).

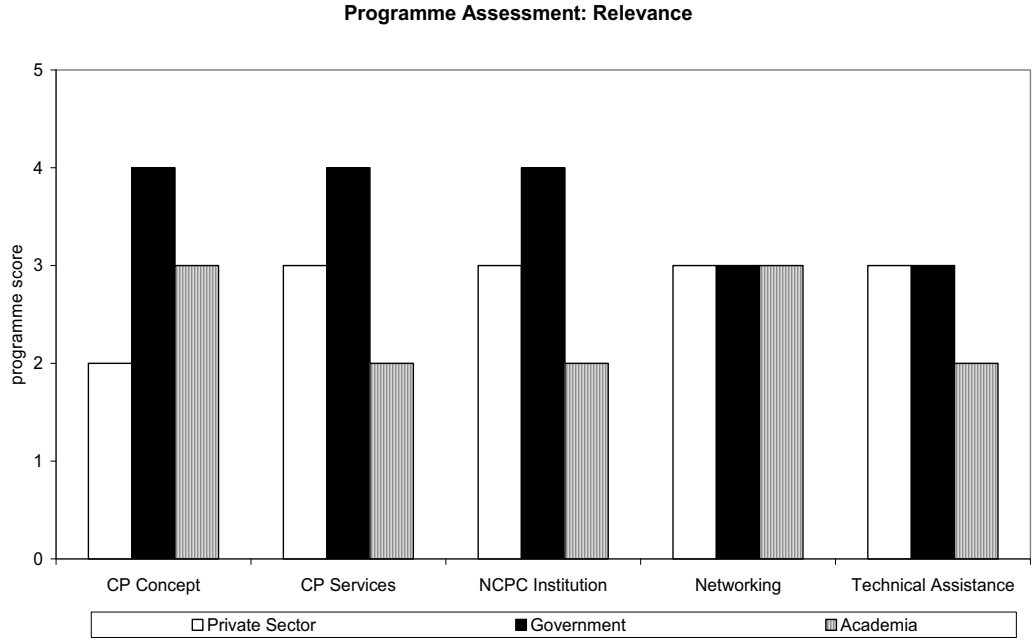
The result of the programme level assessment on relevance is presented in Figure 6.1. It shows that the relevance of the UNIDO-UNEP CP programme is satisfactory. Specifically, it can be seen that:

- Among the target beneficiaries, relevance is highest for government, followed by private sector (except for the CP concept), and then academia.

    - Relevance for government is good due to the alignment of CP with the entering into force of MEAs and ongoing trade liberalisation and economic reform. CP also becomes more urgent with increased industrial pollution and resource use, despite this not yet being a national priority in the host countries with a relatively lower level of industrialisation.

    - Relevance ranks second highest for the private sector, largely on the basis of its economic merit for businesses. The technical potential for CP is high due to performance gap between commonly used technologies in developing countries and international best practices [58]. CP

Figure 6.1: Programme-level assessment on relevance
Programme Scores: 1 = unsatisfactory, 2 = low, 3 = satisfactory, 4 = good and 5 = excellent



has been sold to the local stakeholders on the basis of a '*win-win*' premise, claiming that CP would merge environmental and economic benefit. This premise can however not universally be achieved in developing countries, largely because compliance initiatives for environmental regulations lag behind. This evaluation found that the inability of NCPCs to demonstrate universal, clear cut, win-win examples of CP has somewhat weakened the buy-in from enterprises and private sector stakeholders.

- Relevance ranks third highest for academia. It is being recognised that CP can add value to teaching and research, but no programme element is specifically targeted at opportunities for, and/or needs of, academia and research institutes. In some countries the NCPC has however developed specific programmes to service academia, in particular in their education programmes. This is particular the case for NCPCs that are hosted by universities, for example in Vietnam, Nicaragua and Mexico.

- On average among all stakeholders there is hardly any difference in relevance between the different programme elements. However, some programme elements (in particular the NCPC institution, CP concept and the CP services) are markedly more relevant to government than to the other stakeholders (in particular academia). Specifically, in regards to each programme element it can be noted that:

  - *CP Concept*: continues to be understood differently by different stakeholders in the Programme, and at the national level among beneficiaries of the NCPCs/NCPPs. It would appear that this situation is not helped by the expanding focus of the Programme, in particular the diversification (towards CSR and SCP) and to a lesser extent the technology and policy specialisations (as discussed in paragraph 5.3.2).

  - *CP Services*: the Programme's focus on capacity building through delivery of assessment, training and information services is generally supported. More specific services are however needed to create an enabling environment for CP and as a result thereof a sustainable demand for CP services. These could for example include support for establishment of a national system of business advisory services, strengthening of vocational training, Research and Development initiatives, etc.

  - *NCPC Institution*: while governments in the host countries seemed to be attached to the notion of having a dedicated CP Centre as demonstrable evidence of environment and sustainable development policy, the business sector and academia view the NCPC more as a means for service delivery (and not an '*end*' in itself).

  - *Regional and Global Networking*: networking is generally considered relevant for learning, professional development and information sharing in and between the NCPCs. The relevance of networking is so far largely hypothetical due to low networking intensity, leaving expectations of programme stakeholders unmet.

  - *Technical Assistance Inputs*: are considered relevant and essential for up-skilling the NCPCs/NCPPs in particular in its early establishment stages. The current and/or past levels of technical assistance received by many of the NCPCs are however low. Expectations for technical assistance are in those countries currently not being met, in particular not for academia.

6.2.2 Effectiveness

Effectiveness addresses whether the design of the programme (i.e. national centres, global management and networking, and technical assistance) and its implementation enable the Centres and beneficiaries to achieve the programme's intended results (i.e. uptake of CP).

Figure 6.2: Programme-level assessment on effectiveness
Programme Scores: 1 = unsatisfactory, 2 = low, 3 = satisfactory, 4 = good and 5 = excellent

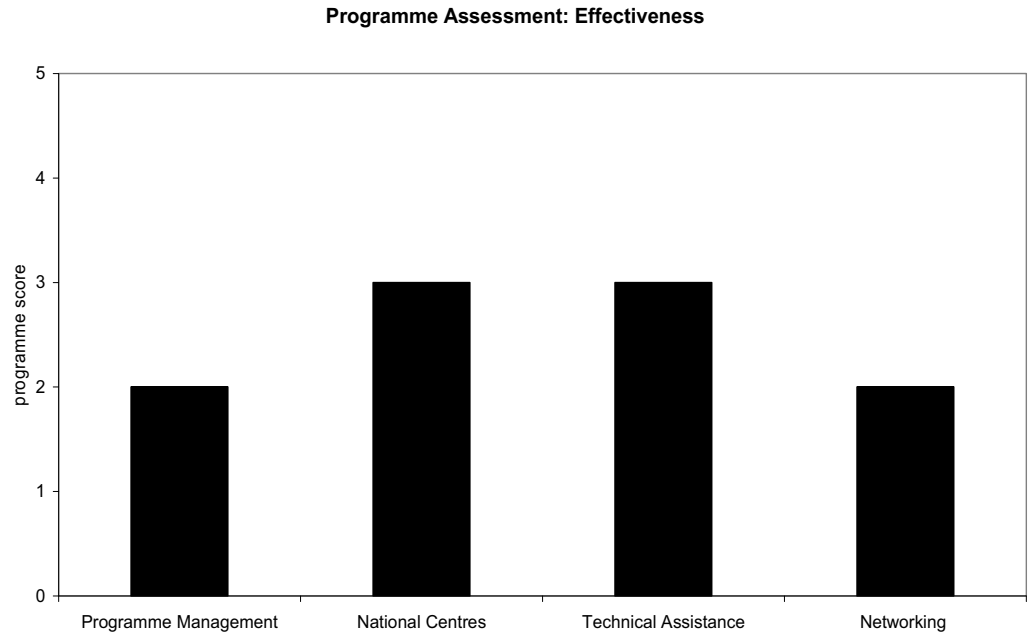


Figure 6.2 shows the assessment result on effectiveness. Overall effectiveness is rated as moderately satisfactory. As evidenced by the independent national evaluations, the results varied considerably between NCPCs and between different components of the Programme. Specifically, for each of the main programme elements, the following can be observed:

1. *Programme Management*: this covers the programme strategy, liaison with donors and programme stakeholders (including UNIDO UNEP collaboration), planning and reporting, budget and financial control and mentoring. Across these elements the effectiveness was rated relatively low, because:

    - Programme goals are ambitious and not consistently included in national projects, lack an institutional dimension for NCPCs and are weakly linked to activities. The ongoing diversification and specialisation with CP+, SCP and/or CSR distracts from initial objectives. Moreover, the initial expectations that the Programme would contribute to creating national markets for CP services and decoupling of economic growth from environmental impact have not been integrated in the Programme's design and strategy.

    - Outcomes have not been appropriately defined and/or have been mixed up with outputs, and can therefore not be appropriately monitored for strategic and adaptive management of the Programme and customisation to national needs;

    - National contexts are insufficiently analysed and NCPC service areas are therefore insufficiently customised to national needs;

- The CP capabilities available for Programme Management were insufficient to oversee the development of the Programme, in particular of its strategy and focus, and ensure their consistency with mainstream and evolving CP methods, policies and tools and alignment with key policy and industry developments;

- The Programme management unit did not have the necessary human resources to claim thematic leadership in the international CP community and coach the NCPC Directors. It could also not ensure that best practice was being applied in business planning, communication and service delivery by the NCPCs;

- Contact with NCPCs no longer institutionally funded through the UNIDO-UNEP CP Programme has become sporadic; and

- Lack of unified direction among the UN programme stakeholders and donors.

2. *National Centres*: these are the national institutions created through the Programme (as NCPCs or NCPPs) that deliver CP services, in particular information dissemination, training, CP assessments and in-plant demonstrations, policy advice and technology transfer services. Across this category, the Programme's performance was rated as satisfactory, because:

   + NCPCs do reach their target groups and implementation of low/intermediate technology options takes place in selected companies with some, albeit significant, contributions to economic development, resource conservation and environmental protection;

   + The effectiveness of participatory delivery of CP assessment services (training and coaching of company assessment teams) is perceived to be higher than for consultant-driven CP assessments;

   - Service delivery is not based on rigorous planning and feasibility studies which identify the demand for CP services by different enterprise groups and other clients and their willingness to implementation. Service delivery therefore becomes opportunistic, lacking strategic planning and targeting, which reduces effectiveness. There is also no consistent evidence for the application of best practices in the areas of communication, advocacy and stakeholder engagement, professional and vocational training, and CP auditing;

   - NCPCs are not yet effective as catalysts for innovation, as they do not yet achieve substantive EST transfer or initiate R&D for CP. Several factors could be at play, e.g. selection of client industries that have insufficient financial, technical and/or managerial resources to innovate or assimilate innovative technologies from elsewhere, insufficient technological acumen of the NCPC and/or lack of supportive policy framework;

   o Within their national contexts, NCPCs appear to be able to contribute to, albeit <u>not</u> drive, the diversification of the CP agenda into SCP and CSR; and

- There are varying degrees of mission drift away from CP service delivery by the NCPCs, in particular after ending of their institutional funding phase through the UNIDO-UNEP CP Programme (but also before).

3. *Technical Assistance*: this covered the provision of specialist technical, methodological and policy assistance (from international consultants), training of NCPC staff, production and distribution of resource materials and the establishment of an award scheme for CP practitioners. Across these components, the effectiveness was rated largely satisfactory, specifically because:

   + The technical assistance provided has in most country been effective in equipping the NCPC with the technical and methodological skills and resources to undertake CP training and in-plant assessments;

   o Only some NCPCs have received substantially more technical assistance to support them in undertaking policy and technology transfer initiatives, and

   - NCPCs that are no longer institutionally funded through the UNIDO-UNEP CP Programme do not receive any ongoing support to improve, or even just retain, their core CP competencies.

4. *Networking:* this covers activities aimed at improving collaboration, learning and information exchange between NCPCs/NCPPs in different countries, currently mainly through the '*annual*' meetings of the NCPC/NCPP directors, regional cooperation initiatives and network promotion. For these components the effectiveness was rated low, specifically because:

   - The networking intensity is low and learning and exchange between NCPCs has not yet been achieved to a significant extent, nor has access to specialist CP technology information been provided;

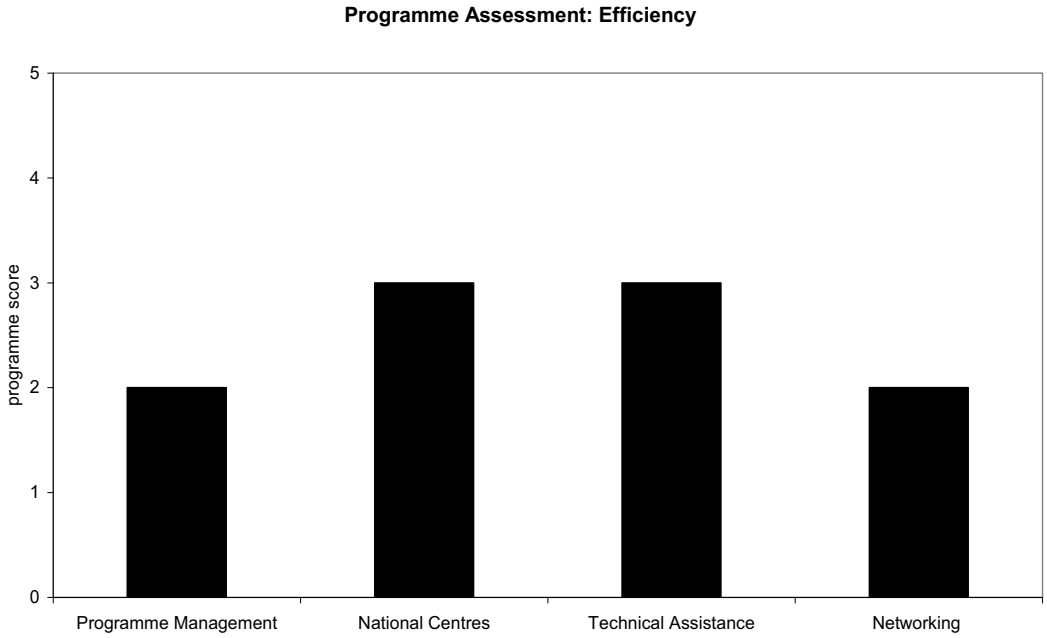
   + Effective collaboration between NCPCs in the same region has been achieved on project basis (e.g. GERIAP) and through (sub-) regional networking (e.g. LatinNet); and

   - NCPCs that no longer receive institutional funding through the UNIDO – UNEP CP Programme are no longer aware of activities and developments in the Programme and operate independently and may no longer contribute significantly to the aims and objectives at the programme level.

6.2.3 Efficiency

Efficiency is concerned with the allocation of available resources in order to achieve optimal benefit from the UNIDO-UNEP CP Programme. The key variable is efficient service delivery to the NCPCs (in regard to programme management, technical assistance inputs and networking) and through services of the NCPC (i.e. its training, information, assessment, policy and technology services) to target beneficiaries in the host country (including businesses, private sector, government and academia).

Figure 6.3: Programme-level assessment on efficiency
Programme Scores: 1 = unsatisfactory, 2 = low, 3 = satisfactory, 4 = good and 5 = excellent



The result of the programme assessment on efficiency is displayed in Figure 6.3. This shows a mixed result on average about satisfactory. The programme scores for each programme element are justified on the following grounds:

1. *Programme management:* this refers to the central, agency led management strategy for the UNIDO projects that constitute the core of the UNIDO-UNEP CP Programme. Its efficiency was rated low, for the following reasons:

    - High administrative burden and micro-management for financial control and reporting has not left enough time and resources for strategic management of the Programme;

    - A number of systemic constraints inherent in modalities available for UNIDO to fund and implement technical cooperation initiatives (including agency led execution and centralised programme management from headquarters); and

    \+ Some evidence of attempts for adaptive management with proposals for new service areas, through diversification and/or specialisation. These have been donor-initiated but with endorsement of some NCPCs.

2. *National Centres*: this pertains to efficiency of creating a CP service-delivery entity within an existing host organisation. The efficiency of national centres was rated moderately satisfactory, on the following grounds:

    \+ Some evidence that NCPCs are starting to standardise service delivery and thereby improve the quality and efficiency of their existing services;

+ After an initial period of adjustment, most NCPCs succeeded to achieve mutually beneficial working relations with their host institutions, and benefit from the availability of specialist skills and resources of their host institution (e.g. laboratory facilities, legal and administrative functions, marketing and communications, ICT, etc);

- Host institution commitments for in kind provisions to the NCPC have however not materialised in several countries, and as a result resources from the Programme have been diverted to compensate for the lack of inputs from the host institution;

- Also in a few countries the host institution has continued or started delivery of competing CP and/or CP-related services (and/or services very closely related to CP, e.g. training and advisory service on Environmental Management Systems, Waste Minimisation, Energy Efficiency, etc);

- A degree of duplication was uncovered in several of the visited NCPCs due to a lack of consistency in concepts, methods, styles etc. within and between the areas of service delivery. In some instances this inconsistency has been created by the need to apply international standard approaches in multi-country projects instead of existing national concepts and methods (e.g. GERIAP Project on industrial energy efficiency in Asia Pacific countries); and

- Some NCPCs rely heavily on outsourcing to external consultants for CP assessments, delivery of CP training and preparation of CP information materials. These are faced with the challenge to maintain *core* CP competencies in the NCPC or would otherwise become a project management unit with limited capabilities for effective quality management.

3. *Technical Assistance:* the provision of international expert inputs has been largely organised through, and/or on behalf of, a small group of International Reference Centres (IRCs), currently only from Austria and Switzerland. The efficiency of this arrangement has been ranked as moderately satisfactory, for the following reasons:

   + Those NCPCs that have received substantive and regular technical assistance from any or several of the International Reference Centres have generally benefited from assistance provided for their initial establishment and building technical and methodological capacities in particular for undertaking CP assessments;

   - The lack of influence of NCPCs on the choice of CP consultants has been a concern for NCPC directors since the Programme establishment. Moreover the absence of diversity among the key IRCs and lack of competition with other CP service providers compromises effective quality control over the IRCs, and hence the programme's efficiency; and

   - Reportedly high administrative burden for contracting and providing technical assistance inputs.

4. *Networking:* the networking and cooperation between the NCPCs/NCPPs in different countries is currently being organised and facilitated by the Programme's

management unit of UNIDO with some contributions from UNEP. The networking efficiency has been ranked low, for the following reasons:

+ Publications are consistently considered useful, but not widely known nor generally used;

+ Positive experience from regional cooperation among NCPCs and other CP service providers through regional projects (in particular GERIAP in Asia) and regional networking initiatives (in particular LatinNet);

- Meetings have been irregular (including the '*annual'* meeting of Directors), and follow up on meeting outputs has been slow or not forthcoming at all (for example on regional cooperation project proposals and NCPC criteria);

- The dominant country-based funding model has not catered for development of programmatic networking activities; and

- Networking has been perceived as centrally driven, without sufficient consultation on networking needs of NCPCs and ways to meet these;

6.2.4 Sustainability

The last of the primary evaluation criteria is sustainability. It deals with the probability or likelihood that that the benefits achieved from the programme will continue into the future, with a particular focus on the availability of CP services, the environmental and productivity benefits in industry, and the catalyst role for sustainable industrial development.

The assessment on sustainability of the programme is primarily justified by expected or at least likely trends in seven determinants that constitute an enabling environment for CP uptake in the host countries. These seven are:

1. Willingness of target industries, governments and/or other organisations (including current and potentially other donors) to pay for the provision of CP services;

2. Continued availability of the know-how and skills to deliver high quality and effective CP services;

3. Consensus about the relevance and benefits of CP (*'critical mass');*

4. Presence of framework conditions conducive to CP (e.g. legislative framework, policy, tax, financial incentives, etc.);

5. *Technology push* (availability of new CP technologies and practices customised to local industry needs and capabilities);

6. *Market push* for CP (through prices for water, energy, waste, materials, etc.); and

7. *Market pull* for CP (exerted through the supply chains that the target industries are part of or would aspire to become part of).

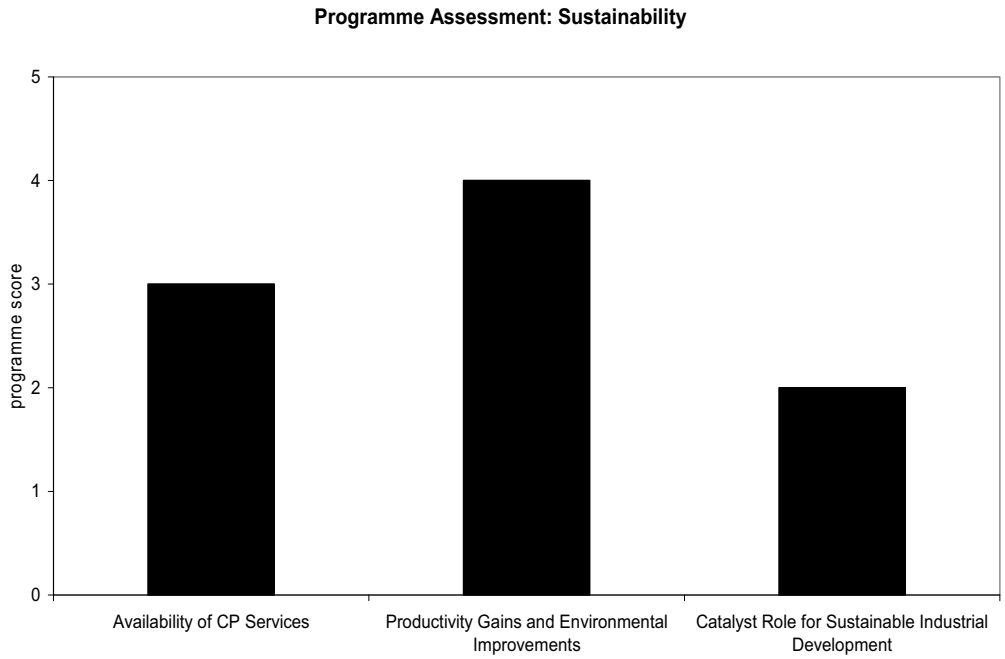
Table 6.1 provides an indication of the expected trend in each of these key determinants. This shows that three key determinants will continue, namely framework conditions, market push and market pull. However, only in a few countries substantive change has so far been achieved, so that these determinants will continue at a low level in most countries. Two determinants have not yet been achieved respectively the willingness to pay and technology push for CP. The other two determinants are likely to gradually decline over time if the UNIDO-UNEP CP Programme were to be discontinued, respectively know-how/skills and critical mass.

The overall outlook for sustainability of the programme achievements remains however relatively good, as the benefits that have already been realised are unlikely to be discontinued, even though expansion of these benefits to other potential beneficiaries may not materialise. This is displayed in Figure 6.4, which shows that across the benefit categories the sustainability is between *'good'* and *'low'*.

Table 6.1: Trends in enabling environment for CP uptake in absence of the UNIDO-UNEP CP Programme

Determinants	**Likely Development in Absence of UNIDO-UNEP CP Programme**	**Justification**
1. Willingness to Pay	Not Yet Achieved	➢ Willingness to pay for CP services has not yet been achieved except for larger, internationally-oriented companies in some countries, and this situation is likely to continue
2. Know-how/Skills	Declining	➢ Know-how and skills of experts trained in CP will initially remain, but in absence of continuing capacity building and learning opportunities, their quality and effectiveness are likely to decline over time
3. Critical Mass	Declining	➢ While some critical mass for CP may have been achieved in several countries, it is expected that this will decline over time in absence of CP advocacy
4. Framework Conditions	Continuing	➢ The CP-fostering changes in government policy and other incentives will continue. This has however only been achieved in a few countries
5. Technology Push	Not Yet Achieved	➢ Availability of CP technologies and products has not been increased by the Programme
6. Market Push	Continuing	➢ Improvements in resource pricing will continue. This has however only been achieved in a few countries
7. Market Pull	Continuing	➢ Market pull for CP will remain limited to larger companies with international orientation (e.g. in ownership or markets)

Figure 6.4: Programme-level assessment on sustainability
Programme Scores: 1 = unsatisfactory, 2 = low, 3 = satisfactory, 4 = good and 5 = excellent



In particular, the programme assessment found:

1. *Availability of CP Services*: the sustainability is rated as satisfactory, because:

   - Former consultants and trainees from the Programme will continue to deploy their CP know-how and skills in their service delivery, but likely to be integrated in other services (e.g. general environmental or management consultancy); and

   - NCPC as service delivery organisation could disappear, or by financial considerations be driven into non-CP service delivery areas.

2. *Productivity Gains and Environmental Benefits*: the sustainability of these benefits is rated as good, because:

   + Businesses and other organisations that have implemented CP, will continue with implementation as they are achieving real time environmental and/or productivity benefits; and

   - In the absence of a continued drive for CP, the productivity gains and environmental improvements are unlikely to expand further.

3. *Catalyst Role for Sustainable Industrial Development*: the sustainability for this benefit category is rated low, because:

   + Catalytic effect could continue at least in the short term as information and other materials produced by NCPC remain available for CP advocacy; and

- Public interest functions of the NCPC are however likely to disappear first (information dissemination, training and policy advice).

6.3 Capacity Development and Ownership

The *secondary* criteria assess the success of the CP Programme as a development assistance intervention, in particular capacity development and ownership. There is also some parallel between the secondary and primary evaluation criteria. Capacity development is mostly related to effectiveness, whereas ownership is principally influenced by relevance and sustainability. Capacity development and ownership both relate fundamentally to quality of project implementation and are assessed here separately to highlight their importance for sustained programme success (see also section 1.3).

6.3.1 Capacity Development

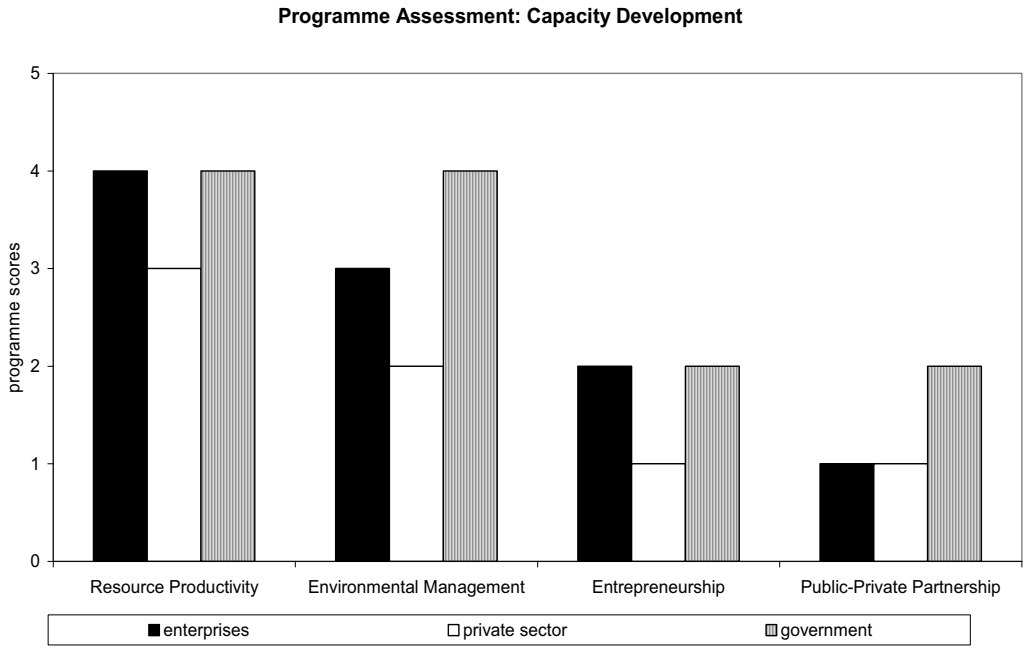
Capacity development refers to contributions made by the Programme to the development of essential CP and CP-related capacities in the host country. In this evaluation, four target capacities were distinguished, respectively: resource productivity; environmental management; entrepreneurship; and public-private partnerships (see also paragraph 4.5.5). A further distinction was made between three primary target groups for capacity development, respectively: enterprises; the private sector (as represented by its industry and business associations); and government (in host country).

The programme assessment in regard to capacity development is presented in Figure 6.5. Considerable capacity development has been achieved covering mainly in the areas of resource productivity and environmental management for most of the target beneficiaries, leading to an overall positive rating on capacity development. The overall performance on capacity development can be rated as satisfactory. The differences among the target beneficiaries and target capacities are as followed justified.

- Among the target beneficiaries identified for this programme evaluation, capacity building has been highest for government, followed by enterprises and subsequently private sector (the associations of employers, professionals etc). This is based on:

    - *Government:* capacity development has been good in those countries where the NCPC/NCPP succeeded in setting up an effective liaison with government, which in some cases was helped by the fact that the NCPC was being hosted by a public sector entity. Capacity development

Figure 6.5: Programme-level assessment on capacity development
Programme Scores: 1 = unsatisfactory, 2 = low, 3 = satisfactory, 4 = good and 5 = excellent



has been most profound at central environmental agencies, so that further capacity development at local and regional levels and with national agencies with economic, planning and technology mandates still needs to take place;

- *Enterprises*: capacity building has been good albeit limited to those enterprises that participated in activities of the NCPC, in particular CP training and/or in-plant demonstrations; and

- *Private Sector*: some capacity building in private sector entities (like industry associations, chambers, etc.) did occur in particular in countries where NCPC is hosted by a private sector entity.

- Among the target capacities, capacity building was highest for resource productivity, closely followed by environmental management. It was almost identical for entrepreneurship and public – private partnerships, but capacity development on each of these was markedly lower than on environmental management and resource productivity. The detailed assessment result for each target capacity is as follows:

  - *Resource Productivity:* capacity building is evident from the fact that the NCPCs have been able to clearly articulate and deliver the message of environmental improvement through productive investments, and as a result many of the CP options implemented and/or considered for implementation displayed potential for considerable cost savings resulting from reduced use of natural resources (energy, water, materials);

  - *Environmental Management*: the NCPCs have enabled companies to improve their environmental performance, and facilitated the introduction of

environmental management functions, even though CP implementation has typically not achieved compliance with environmental laws and standards. Moreover, they have provided assistance to strengthen environmental policy and its enforcement;

- *Entrepreneurship*: capacity development in entrepreneurship has been dependent on the NCPC establishing the link between CP on one hand and productivity and quality management on the other hand. This aspect has not been favoured by the predominant engineering approach taken to CP auditing and implementation. Capacity development in entrepreneurship has therefore been limited to those countries where the NCPC is hosted by an organisation with a traditional focus on productivity and/or entrepreneurship; and

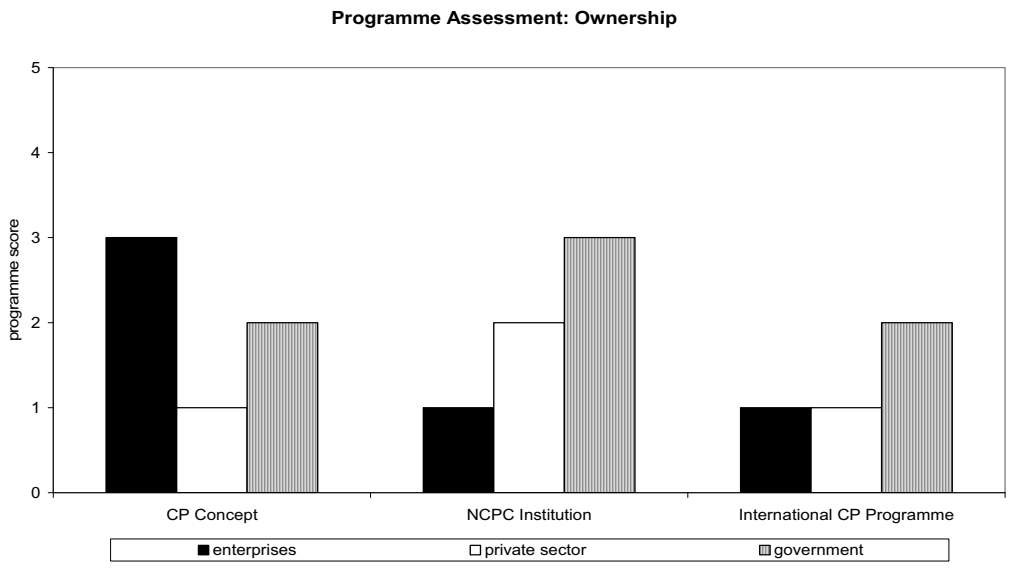
- *Public-Private Partnerships*: some capacity building occurred but only indirectly as NCPCs did not explicitly focus on potential of CP to bridge traditional divides between public and private sector on industrial environmental management and resource use. Typically the NCPC is rather rooted in either the public or private sector, with limited potential for achieving a public-private partnership.

6.3.2 Ownership

The second of the secondary evaluation criteria covers ownership. It addresses the commitments and contributions by local stakeholders to advance the UNIDO-UNEP CP Programme. Ownership is assessed in regard to the CP concept (as a business improvement concept or practice), of the NCPC (as a local CP service delivery institution) and of the global programme. Contributions are considered from enterprises (individual businesses and other organisations), the private sector and government.

Figure 6.6 presents the programme level result of the assessment on ownership. Even though this Figure displays a divergent picture among the Programme elements and between the stakeholders, the overall level of ownership was generally rated low.

Figure 6.6: Programme-level assessment on ownership
Programme Scores: 1 = unsatisfactory, 2 = low, 3 = satisfactory, 4 = good and 5 = excellent



The level of ownership of the CP concept and the NCPC institution is about equal, but with government having the highest level of ownership for the NCPC institution and enterprises the highest level of ownership of the CP concept. This reflects the fact that government is most committed to maintain a national CP centre, while other stakeholders view such Centre as a means for service delivery and not an end in its own right. Enterprises, in particular those that have been assisted by the NCPC, are most committed to CP as a business improvement tool and this has brought them direct productivity gains and/or environmental benefits.

Apart from a weak commitment from national governments in host countries, there is no ownership of the CP Programme. This is hardly surprising since the emphasis of Programme implementation was on implementation at the country level and on establishing NCPCs. Institutions other than the NCPCs did not benefit to a significant extent from the Programme. An exception from this might be the efforts of UNEP to promote its International Cleaner Production Declaration.

6.4 Summary Assessment

The previous sections presented the detailed programme evaluation individually for each primary and secondary evaluation criteria. To wrap up the evaluation the contributing scores within each evaluation criteria have been averaged, to arrive at a single rating on each of the six evaluation criteria. The result thereof is shown in Figure 6.7. The variation in the averaged programme level assessment scores for the six evaluation criteria is relatively limited. Sustainability and relevance have the highest scores (respectively 3.0 and 2.9), followed by effectiveness, efficiency and capacity building (respectively 2.5, 2.5 and 2.4), and then followed by ownership (score of 1.3).

Figure 6.7: Averaged programme-level assessment for all evaluation criteria
Programme Scores: 1 = unsatisfactory, 2 = low, 3 = satisfactory, 4 = good and 5 = excellent

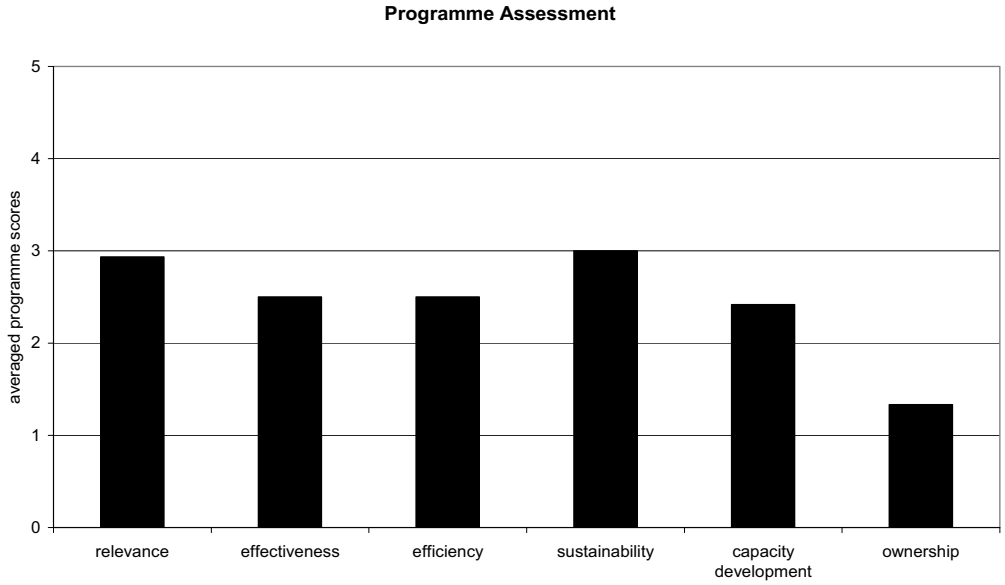


Figure 6.7 shows that the programme assessments are in the range of being satisfactory. Given the ambitions, complexity and scope of the UNIDO-UNEP CP Programme this should be regarded as a good assessment result. It should also be kept in mind that the evaluation framework was based on the programme documentation which defines the programme in an over-ambitious way (as discussed in Chapters 2 and 5). As a result the evaluation framework was also formulated broadly and thereby included elements that were in the programme documentation but that had not been actively pursued by the NCPCs/NCPPs and/or Programme management. This suppressed the evaluation scores, for example by including entrepreneurship and public private partnerships as target capacities, the score for capacity building decreased. Likewise consideration of networking for all primary evaluation criteria, which has with a few exceptions not been specifically funded, also decreased the assessment on all primary criteria.

Sustainability and relevance are thus, in principle, good and there are external factors that are boosting the relevance of CP. The lower scores for effectiveness and efficiency show that there is considerable potential for streamlining programme delivery and administration and target it more profoundly towards national priorities and capabilities in the different host countries. Doing so, has the potential to improve the Programme's performance with regard to the secondary evaluation criteria (capacity development and ownership) and further bolster relevance and sustainability.

This programme assessment is underpinned by the following key findings.

1. ***CP is of continued and rising relevance.***
   CP is generally considered relevant by government, private sector and other stakeholders in host countries for the UNIDO-UNEP CP Programme. Several current global trends cause the relevance of CP to rise, but the presence and significance of these trends varies greatly between the host countries. These include: worsening industrial pollution situation and high industrial resource use (including energy, water etc.); entering into force of MEAs; globalisation and trade liberalisation (including free trade agreements); and pressure from international buyers and investors.

2. ***The UNIDO UNEP CP programme has produced valuable outputs and outcomes in all 18 countries visited for an independent evaluation.***
   Its principal achievement has been in putting CP on the agenda of government and business, building capacity for CP, development of information materials, implementation of good housekeeping and low/intermediate technology options in selected companies and policy change in some countries. The evaluation confirmed that in all countries in which CP activities were started some CP activity is still ongoing. In several countries the success of the NCPC was seriously compromised by difficulties encountered in securing the commitments and meeting the expectations of the host institutions. In some of these countries this issue was effectively addressed through a re-formulation of the national implementation strategy for the NCPC. The NCPCs that are no longer institutionally funded through the UNIDO-UNEP CP Programme do not maintain close relations with the Programme and some no longer have CP as their core service area.

3. ***The potential of the CP Programme has not been fully exploited.***
   The country visits demonstrated that each NCPC is unique in its institutional setting, activities and achievements, with considerable differences from the *'idealised'* NCPC as being portrayed by the Programme and advocated by its management. The

Programme has not yet demonstrated flexibility to adapt its support to the specific needs and activities of the different countries and enable different types of NCPCs to fulfil niche roles that are most appropriate and effective in their specific national contexts.

The funding of the UNIDO-UNEP CP Programme has been mainly on a country-by-country basis. There has been an assumption that the Programme would create networking and professional development/learning opportunities, but no mechanism was created to fund such programmatic activities. This absence of programme-based funding has further contributed to a scattered approach to networking and learning, with limited opportunities for capturing and advancing best practices and for strengthening and managing the network.

4. ***The design and strategy for the CP Programme have major shortcomings.***
There is no over-arching programme document. The Programme's overall objectives are therefore not always explicit and causing stakeholders' expectations of the Programme to vary. A logical means-end relationship between the overall objectives, the impacts, outcomes and outputs, and activities of the Programme has not been established, which has led to a rather standardised approach for the introduction of CP on a project-by-project basis and to a lack of demand-based models for national implementation of the Programme that customise to the unique national institutional set up and capability portfolios of each of the Centres.

Some of the Programme objectives (including implicit ones ([32])) have been far too ambitious in light of available resources and project timelines, in particular: market creation for CP services, decoupling of economic growth from worsening environmental pollution and international market access for developing countries' manufactured goods. While demand for CP services is on the rise in those countries where substantive policy change has taken place, overall the Programme has yet to contribute significantly to the emergence of markets for CP services in the NCPC host countries. The contribution of the Programme to the decoupling of industrial development from environmental pollution is also not measurable at sector, regional or national levels. There is also no evidence of a contribution of the CP programme to improved international market access of developing countries' manufactured goods.

A number of strategy documents have been produced for the Programme over time that expand the Programme to cover a broader set of topics, under the headings of CP Plus, Sustainable Consumption and Production and/or Corporate Social Responsibility. There is uncertainty, as these strategy documents appear to be used for programme management and promotion, but have not been incorporated into national project documents. Integration of new topics into NCPC service delivery at the national level has therefore not yet materialised. The expansion of the Programme's scope at the global level has caused the Programme to drift from its initial mission to achieve widespread uptake of CP in the host country. There is a preference from many national stakeholders, often very strongly, albeit not necessarily shared by the respective NCPC, to maintain a strict focus on CP (which by definition includes energy efficiency, (hazardous) waste minimisation and chemicals management), due to the urgency of the environmental health situation in

[32] Implicit objectives are those found in documents of individual NCPCs (project documents) or in older documents that are no longer valid (e.g. programme document for the set up of the first five NCPCs) or in documents developed by individual NCPCs that received support from the programme.

and around factories. In many countries there are also other institutions that might be better positioned to advocate the emerging topics of CSR, SCP and CP+.

5. ***Weak monitoring and reporting limits adaptive and effective programme management.***
   Reporting of Programme achievements is generally insufficient to monitor outcomes and impacts against Programme objectives, which hinders adaptive management and continuous improvements in service delivery, at national and programme levels. The set of programme indicators used for annual reporting is aggregated from national reports. These national reports contain outputs from training and in-plant demonstrations, estimates of impacts of CP implementation on basis of assessment reports, and financial independence data for the NCPC. Standardisation of data collection from different NCPCs/NCPPs remains weak, while also no data are collected for NCPCs that do no longer receive institutional funding through UNIDO. Absence of indicators for capacity building, including policy change, market development, awareness creation and technological capability, is of further concern. Moreover post-implementation measurement of benefits achieved from in plant demonstrations/CP assessments to produce *'success stories'* is not routinely taking place.

6. ***The 'win-win' premise of CP is true only under specific circumstances.***
   The *'win-win'* premise on which the UNIDO-UNEP CP Programme is largely based is not universally achievable in the host countries for the Programme due to lack of an enabling framework (including environmental policy/enforcement and resource pricing). The continued use of the *'win-win'* premise has created expectations among national stakeholders (in particular in the private sector) that cannot be met and in turn weakened their buy-in into the Programme.

7. ***The CP Programme was not very successful in EST Transfer.***
   Some CP technology investments have been facilitated through the Programme, often by utilising available green credit lines (for international technology acquisitions) and/or deployment of local engineering design and fabrication capacities (for upgrading of local technologies). Overall however the Programme has made little headway in transferring ESTs, neither through the regular activities of the NCPCs nor through specific CP technology transfer initiatives. As this recognised CP potential therefore remains largely untapped, there is an urgent need to review best practices in technology transfer, adaptation and replication, and redesign Programme activities accordingly.

8. ***Creation of NCPCs/NCPCs is an appropriate way for capacity building in CP but attention for their institutionalisation has been limited.***
   The UNIDO-UNEP CP Programme has defined NCPCs by their portfolio of standardised CP services. The institutional dimension of the NCPCs (e.g. the NCPC's role vis-à-vis other types of institutions, the NCPC's role in the national innovation system) has therefore not been sufficiently considered in many cases. At the programme level this is evident from the absence of explicit institutional objectives for the NCPCs and also from the lack of a clear strategy for ongoing engagement with NCPCs that no longer receive institutional funding from the UNIDO-UNEP CP Programme. At the national level this is evident from unresolved legal status and/or compromised independence of many NCPCs, and limited accountability and transparency of the NCPCs to local stakeholders representing the public and private

sectors. The fact that no specific analysis was performed of the national context (economic, environmental and institutional) has contributed to this shortcoming.

9. ***The potential for cooperation with other initiatives has not been exploited.***
The evaluation found only limited evidence of ongoing collaborations within the UN agencies and with other UN Agencies, with donors other than the '*current'* UNIDO-UNEP CP Programme donors, and with other initiatives in the field of industry, environment and sustainability. Given the multitude of such initiatives, there is an unexploited potential to leverage expertise and resources at the programme and national levels. The evaluation found that relevant areas of collaboration are: (i) between UNIDO, UNEP and other UN agencies (e.g. UNDP, ILO, FAO); (ii) with current programme donors (in particular Austria, Switzerland, Italy, Norway) and other donors with similar CP initiatives outside, or in competition with, the UNIDO-UNEP CP Programme (e.g. GTZ, DANIDA, SIDA, USAID, EU); (iii) with private sector initiatives (e.g. WBCSD, APO); and (iv) with professional initiatives (in particular the Regional Roundtables for Sustainable Consumption and Production).

High expectations exist for networking among NCPCs and possibly with similar CP centres and projects currently outside the UNIDO-UNEP CP Programme. The absence of specific objectives, outputs and outcomes for networking, made the assessment of the Programme's networking achievements difficult. Some networking is achieved through collaborative projects and regional networking initiatives, and outside of the UNIDO-UNEP CP programme through the system of regional roundtables for sustainable consumption and production. There is hardly any interaction between the Programme management and the NCPCs once the direct funding relation through UNIDO has ceased, leading to distancing of these NCPCs from the Programme. Networking needs and opportunities of the NCPCs and the UNIDO-UNEP capabilities to meet those have not yet been sufficiently assessed. The same is true for the intended role of a network vis-à-vis other networking initiatives at the global (e.g. regional SCP roundtables, WBSCD) or regional (e.g. LatinNet, GTZ networks) levels.

10. ***The valuable contribution of the programme to national capacity building is not sufficiently communicated.***
UNIDO, UNEP and Donors have a tendency to present all NCPCs equally as '*their'* institutions ([33]), regardless of their national ownership and governance structures, substantially different activity portfolios and funding models. The currently presented view that NCPCs can be directed by UN agencies and Donors to promote UN and Donor goals needs to be replaced by the notion that NCPCs, in particular those that are no longer institutionally funded through the UNIDO-UNEP CP Programme, are partners of the UN in promoting CP and sustainable industrial development in their home countries.

11. ***There is a trade-off between financial independence and sustained impact.***
The evaluation showed that the sustainability of the Programme's achievements in building CP capacity, implementing CP in companies and CP-promoting policies is

[33] Operationalising UNIDO Corporate Strategy, p. 66 "*the Organization will continue to develop the technical cooperation services offered through its worldwide network of National Cleaner Production Centres (NCPCs) and National Cleaner Production Programmes (NCPPs).";* or page 83: "*The cleaner and sustainable production (CP) strategy of UNIDO aims at utilizing the National Cleaner Production Centres (NCPCs) to implement the following two specific sets of interventions*:….."

generally high. It is however noted that the priority assigned to financial sustainability of the NCPC as a national institution (largely through income from services) can become counterproductive to achieving sustained effects and impacts as measured by programme objectives. An example can be found in NCPCs that focus their service delivery to larger businesses (including subsidiaries of trans-national corporations) that can pay for services (but may not be target groups for the donor agencies or illustrative examples for local CP potential) and, in turn, terminate service areas that are of public interest (e.g. promote compliance through voluntary agreements) and may limit training in order to avoid enabling competitors to enter the market.

Part III:

Conclusions &

Recommendations

7
Conclusions and Recommendations

7.1 Main Conclusions

This chapter presents the conclusions and recommendations from this programme evaluation of the UNIDO-UNEP CP Programme. In its assessment of the Programme, the evaluation team found that relevance and sustainability of the Programme are good, with scope for improvement particularly for effectiveness and efficiency, which could result in better targeted, customised and streamlined interventions at the national level, which in turn could further bolster relevance and sustainability, as well capacity development and ownership. The conclusions build upon the summary assessment (presented in section 6.4) and integrate the results from portfolio analysis (presented in Chapter 5) and programme level assessment (presented in sections 6.2 (primary evaluation criteria) and 6.3 (secondary evaluation criteria)).

The conclusions and recommendations are organised in twelve clusters. Each cluster provides a set of interrelated opportunities for improving aspects of the design, operation and management of the UNIDO-UNEP CP Programme. These clusters are:

1. *Relevance*: potential of CP to contribute to national socio-economic and environmental priorities in the host countries;

2. *Impact:* results of the UNIDO-UNEP CP Programme in particular the uptake of CP concepts, practices, technologies and policies in the host countries;

3. *Design & Strategy*: means-ends relationship between objectives, impacts, outcomes and outputs, and objectives of the UNIDO-UNEP CP Programme;

4. *Focus (or contents)*: CP and related concepts that are being promoted through the UNIDO-UNEP CP Programme;

5. *Networking*: cooperation, information exchange and collective learning among and between the NCPCs/NCPPs;

6. *Funding Model*: types of funding available to the UNIDO-UNEP CP Programme and the mechanisms for its allocation and distribution to activities of the NCPCs/NCPPs;

7. *Centre Model:* institutionalisation and positioning of NCPCs/NCPPs into nationally-directed and/or locally–owned service providers;

8. *NCPC Services:* types of services delivered with support from the UNIDO-UNEP CP Programme through the NCPCs/NCPPs;

9. *Management & Monitoring*: arrangements in place for the daily operation of the CP Programme, and monitoring of its achievements against expected outputs, outcomes, impacts and objectives;

10. *Administration:* provisions made to manage contracts and disburse programme funding according to internationally acceptable accounting standards;

11. *Governance & Ownership*: accountability and transparency in decision making at programme and national levels; and

12. *Excellence*: ambition of the CP Programme to play a leading role in international efforts to foster the uptake of CP, deliver best practice CP services and establish NCPCs/NCPPs as centres of excellence.

The main recommendations of these clusters provide an integrated framework for developing and managing the UNIDO-UNEP CP Programme for growth, impact and maturity of the NCPCs/NCPPs. The twelve clusters with their main conclusion, supporting evidence and overarching recommendation are provided in Table 7.1. These are explained in detail and complemented with supportive conclusions and recommendations in Section 7.2. Next, Section 7.3 contains some final remarks on this programme evaluation.

Table 7.1: Overview of main conclusions and overarching recommendations

Cluster	Main Conclusion	Key Evidence	Reference	Overarching Recommendation
1. Relevance	CP is relevant and its relevance is on the rise due to worsening industrial pollution, resource scarcity, entering into force of MEAs, trade liberalisation and globalisation, buyer pressure and greater government and community awareness.	• Businesses and other organisations have been able to benefit from implementation of CP. • Several countries have introduced CP policies and strategies.	• Country reports and analysis of results in Paragraph 4.4.	The CP Programme should be continued to assist developing and transition economies to develop capacity to apply CP practices, technologies, methodologies and policies in support of their national socio-economic and environmental priorities.
2. Impact	The Programme was successful in establishing CP initiatives in each host country and all were reported to be active. For the visited countries it could be confirmed that the NCPC had produced valuable outputs and outcomes in particular with regard to awareness raising, training, implementation of low and intermediate technology CP options and, in some countries, policy change	• Feed back received from all NCPCs/NCPPs for the self evaluation • Demonstrable results from service delivery by NCPC in all visited countries.	• Self evaluation results, covered in country profiles and analysed in Chapter 3. • Country reports and analysis of results in Paragraph 4.4.	The NCPCs/NCPPs should capitalise on their achievements and target their service delivery better to increase impact of their services on the uptake of CP practices, technologies and policies, in particular during the phase of support through UNIDO-UNEP and donors.
3. Design & Strategy	There is no programme document covering the overall objectives, the strategy and intervention logic and the different expected contributions from UNIDO, UNEP and local stakeholders. Existing strategy documents are not useful for Programme management.	• Absence of programme document, and discrepancy between revised programme strategies and national projects that control programme implementation.	• Review of programme documents (Chapter 2). • Diversity of national implementation strategies is not being captured at programme level (Chapter 5).	The Programme should be guided by a succinct programme document, with a clear strategy, a justification of the intervention logic and the specific roles and contributions from UNIDO, UNEP and local and international stakeholders.

Cluster	Main Conclusion	Key Evidence	Reference	Overarching Recommendation
4. Focus (Contents)	The expansion of the scope of the CP concept that has gradually occurred in the Programme over time catalysed by interests of the donors and the UN agencies, is not widely understood by all programme stakeholders and lacks widespread endorsement by the NCPCs/NCPPs and their national stakeholders.	• Absence of framework that explains new elements and connects these to the core CP concept. • Limited awareness and interest from NCPCs/NCPPs in new topics. • Feed back from interviews with government, private sector and other stakeholders in visited countries.	• Review of programme documents (Chapter 2). • Self evaluation survey (section 3.5). • Country reports and their comparative analysis (Chapter 4). • Portfolio analysis (Paragraph 5.3.2)	The Programme should re-establish its primary focus on CP and articulate a dual strategy for its further development to enable *specialisation* (in policy and/or technology) and *diversification* (socially driven and/or environmentally driven) of NCPCs/NCPPs as they and their national stakeholders see fit in their respective national contexts.
5. Networking	The Programme has not formulated a distinct strategy with tangible objectives, outcomes and outputs for networking among NCPCs and the resource needs for its facilitation and technical support through the UNIDO-UNEP Programme management have not been identified.	• Absence of a networking strategy and dedicated funding for networking. • High expectations for networking encountered in visited countries, but not being met due to low networking intensity.	• Programme review (Chapter 2) • Country reports and comparative analysis of national evaluation results on relevance, effectiveness and efficiency of networking (in Section 4.4)	The Programme should formulate a clear networking strategy with tangible and realistic outcomes, outputs and activities, which could be realised by supporting a membership based network that would be open to qualifying institutions, including NCPCs established by the UNIDO-UNEP CP Programme as well as eligible other CP service providers
6. Funding Model	The predominant model for funding of the Programme as a collection of country projects has hindered effective networking and constrained the Programme in developing and delivering specialist services on a multi-country basis.	• Absence of dedicated funding for networking and other programmatic multi-country projects. • Positive experience with multi-country projects, e.g. GERIAP and on CP and MEAs.	• Programme review (Chapter 2). • Independent country evaluations for participating countries (e.g. India and Vietnam).	The Programme should adopt a dual funding model at Programme and national levels: (1) country-based block funding to support NCPCs in their establishment phase; and (2) programme funding for (i) competitive grants to multiple eligible NCPCs and possibly qualifying other CP service providers for project based specialisation and/or diversification; and (ii) networking initiatives.

Cluster	Main Conclusion	Key Evidence	Reference	Overarching Recommendation
7. Centre Model	The capacity building model through NCPCs/NCPCs is relevant, even though the Programme defines NCPCs by their service categories without providing clear institutional perspective(s) for the NCPC, both during and beyond their phase of institutional funding through the UNIDO-UNEP CP Programme.	• Neither documents at Programme level nor project documents do address institutional aspects of NCPC establishment.	• Programme review (Chapter 2).	The Programme should articulate institutional objectives and scenarios for a NCPC so that institutionalisation of the NCPC can be monitored and provisions be created to accommodate both the public interest and private benefit functions of the NCPC services over time.
8. NCPC Services	The Programme has outlived its initial design of services which was based on a standard package of NCPC services to be delivered through one single national centre, as countries that have built CP capacity in different institutions require more tailor made NCPC services.	• New service areas have been added to the Programme (see also under focus). • Other CP and CP-related service providers exist, and there is an expectation that these will be serviced by the NCPC/NCPP.	• Programme review (Chapter 2), analysis of self evaluation results (Chapter 3) and independent evaluations (Chapter 4).	The Programme should support the NCPCs/NCPPs to undertake periodic assessments of the national status of CP, to define and review their strategic niche with service portfolios that are most appropriate and effective in their respective national contexts.
9. Management & Monitoring	Reporting on Programme achievements is generally insufficient to assess outcomes and impacts against Programme objectives which prevents adaptive management and continuous improvement of the Programme's performance.	• Irregular progress reports at programme level and annual reports only for funded NCPCs/NCPPs. • Low evaluation scores on effectiveness and efficiency of programme management in visited countries.	• Programme review (Chapter 2) and analysis of results at the national level in visited countries and comparative analysis thereof in Section 4.4	The Programme should adopt a results--based management model at Programme and national levels and develop a comprehensive system to monitor performance in capacity building, institutional development and results and impacts from CP service delivery. It should also monitor that agreed project structures, governance arrangements and contributions from host countries and institutions are being achieved.
10. Administration	The UNIDO CP Unit and NCPCs/NCPPs have ultimately been able to meet administrative requirements, including financial administration and contracts' management and disbursement of funds, but repeatedly not in a timely manner.	• Low evaluation scores on effectiveness and efficiency of programme administration in visited countries.	• Reports of the independent evaluations for 18 countries and summary of national evaluation results in section 4.5)	The Programme management should streamline programme administration and shift to the extent feasible financial responsibility and accountability to the NCPCs/NCPPs and/or national stakeholders.

Cluster	Main Conclusion	Key Evidence	Reference	Overarching Recommendation
11. Governance & Ownership	The Programme has not established a transparent and accountable governance structure for gathering feed back from stakeholders, beneficiaries and NCPCs into its strategic planning and ensuring adequate oversight over implementation of the Programme. The governance of NCPCs is of varying effectiveness, accountability and transparency.	• Absence of governing board at Programme level and at centre level in many countries (in particular for NCPCs no longer institutionally funded through the Programme). • Existing national boards tend to be top heavy and decision making procedures are not always clear. • No provisions for ongoing engagement with NCPCs no longer institutionally funded through the Programme.	• Programme review (Chapter 2). • Self evaluation information on board membership (contained in country profiles). • Independent evaluations for 18 visited countries (analysed in Chapter 4, in particular Section 4.3).	The Programme and the NCPCs should adopt transparent and accountable governance structures at Programme and national levels, preferably with small boards with participation of private sector, government and civil society, that assume accountability for the success of the Programme and the NCPCs.
12. Excellence	Despite its ambition for excellence, thematic leadership in the Programme management is weak, as well as its incentives and opportunities for realising continuous improvements in development, adaptation and replication of CP services and initiatives.	• Programme management is not resourced to undertake effective peer review and/or quality control on services of NCPCs/NCPPs and of the Programme's international consultants. • Programme relies for its thematic inputs on a narrow base of international consultants with highly comparable competencies	• Programme review (Chapter 2) and independent evaluations (Chapter 4).	The Programme should establish a culture of experimentation and continuous improvement in CP service delivery. Sufficient programme funding should be made available for that purpose.

7.2 Detailed Conclusions and Recommendations

This section expands on the main conclusions and recommendations as summarised in Table 7.1. Each cluster is addressed consecutively.

7.2.1 Relevance

Relevance is already one of the key strengths of the UNIDO-UNEP CP Programme as the potential of CP to improve productivity and environmental performance is valuable in light of environmental, economic, trade and technology policies, as well as important for businesses to remain and/or become competitive. This is an important justification for continuation of the Programme. The independent evaluations in the 18 visited countries revealed that in several countries the NCPC serves primarily the manufacturing sector, even though other sectors (e.g. rural development, agro- and forestry industries, fisheries, tourism, services and/or mining) are far more important in the country's economy and for achieving its socio-economic development objectives. Likewise, it was found that CP continues to be approached as an environment and resource productivity strategy, thereby ignoring the opportunity to use CP as a practical tool to foster entrepreneurship, enterprise development and public-private sector cooperation. In moving the Programme forward, it is therefore recommended that an effort is made to make CP more relevant for the specific development and environmental context of the respective host country, by exploiting policy synergies, customising CP concepts and methods, and targeting of CP service delivery to national priority sectors. The detailed conclusions and recommendations are provided in Table 7.2.

Table 7.2: Detailed conclusions and recommendations on relevance

Cluster	1. Relevance
Conclusion	**Recommendation**
CP is relevant and its relevance is on the rise due to worsening industrial pollution, resource scarcity, entering into force of MEAs, trade liberalisation and globalisation, buyer pressure and greater government and community awareness.	**The CP Programme should be continued to assist developing and transition economies to develop capacity to apply CP practices, technologies, methodologies and policies in support of their national socio-economic and environmental priorities.**
Contributing Conclusions	**Supportive Recommendations**
1.1 CP has been implemented as an environmental and resource productivity strategy, with limited focus on its potential to contribute to enterprise development, regional development and strengthening of public-private partnerships. 1.2 Apart from initiatives in some countries to foster CP implementation in service organisations (particularly hotels and government offices), the Programme has had a relatively narrow focus on the manufacturing sector and opportunities to customise CP for application in other sectors like agriculture, fisheries, mining, construction, etc., have not been systematically pursued despite the importance of these sectors in the national economies of many of the host countries. 1.3 Prioritisation of industry sectors and business sizes as target groups is opportunistic, both at national and programme levels, and poorly justified by perceived potential for CP implementation and its estimated environmental and productivity benefits. 1.4 Many NCPCs have focused service delivery on medium to larger businesses, typically with international ownership and/or customers, as these supposedly have a greater capacity to pay for NCPC services.	1.1 The Programme should place greater emphasis on the synergistic potential of CP to strengthen the private sector, as a driver for socio-economic development, including in rural areas. 1.2 The Programme should adopt a more inclusive approach to CP implementation in host countries and support NCPCs/NCPCs more effectively in developing CP concepts, methods and policies that are customised to the needs and opportunities of those sectors that are considered most important for the national economy and/or environmental improvement. This could be enhanced through cooperation with other agencies (e.g. FAO). 1.3 The Programme should formulate explicit criteria and/or auditable protocols for prioritising among potential target groups for service delivery by the NCPC/NCPP to maximise potential benefits for national development goals and environmental priorities, particularly during the phase that the NCPC/NCPP is institutionally funded through the Programme.

7.2.2 Impact

A principal impact at Programme level is that the NCPCs/NCPPs that were established over the duration of the Programme all reported to remain active in some form in CP promotion and/or implementation ([34]). At the national level, the independent evaluations of the NCPCs in the 18 visited countries confirmed impact had been achieved predominantly through implementation of low and intermediate technology CP options, training and awareness creation. An effort is urgently needed to identify opportunities to improve the impact of the Programme, and incorporate these in a logical programme

[34] All expect one of the NCPCs/NCPPs provided some information to the evaluation team. In case of Ethiopia, the evaluation team had to rely on reports from the UNIDO CP Unit in regard to ongoing activity.

document (see also recommendations in paragraph 7.2.3). At programme level, this might be achievable by putting more emphasis on capturing and disseminating international best practices for market-led CP promotion and implementation (also conducive to excellence as covered in paragraph 7.2.12), and providing guidance on integrated approaches for creating demand and supply for CP services. Improving networking and information sharing is an important mechanism for this (as addressed separately in paragraph 7.2.5). At the national level, impact can be improved by better targeting of activities, in coordination with other CP and related initiatives in the host country and through deploying international best practices in planning and delivery of CP services. Table 7.3 provides a comprehensive summary of the detailed conclusions and recommendations in regard to impact.

Table 7.3: Detailed conclusions and recommendations on impact

Cluster	2. Impact
Conclusion	**Recommendation**
The Programme was successful in establishing CP initiatives in each host country and all were reported to be active. For the visited countries it could be confirmed that the NCPC had produced valuable outputs and outcomes in particular with regard to awareness raising, training, implementation of low and intermediate technology CP options and, in some countries, policy change.	**The NCPCs/NCPPs should capitalise on their achievements and target their service delivery better to increase impact of their services on the uptake of CP practices, technologies and policies, in particular during the phase of support through UNIDO-UNEP and donors.**
Contributing Conclusions	**Supportive Recommendations**
2.1 The Programme has not yet succeeded to identify best practices of CP service delivery from within and outside the UNIDO-UNEP CP programme and disseminate these effectively among NCPCs. 2.2 In several countries the NCPC is only one of the actors involved in promoting the uptake of CP. 2.3 Even though demand for CP services is on the rise in those countries where substantial policy change has been achieved, overall the programme has not achieved to contribute to the development of national markets for CP services that could sustain the operation of the NCPC. 2.4 Planning and management of service delivery at the national level is often un-targeted which compromises its effectiveness and overall impact. 2.5 With limited resources the NCPCs face a trade off between supporting a greater number of businesses with implementation of basic low/intermediate CP options or assisting a smaller number of enterprises with identification and implementation of high technology CP options.	2.1 The Programme should adopt as one of its explicit immediate objectives to capture, develop and disseminate best practices in market-lead CP promotion and implementation. This would align the programme better with the '*global forum'* mandate of the UN agencies involved. 2.2 The NCPCs should monitor other developments promoting CP in their country and customise their service delivery to ensure these complement and reinforce other activities. 2.3 The Programme objectives (and national centre strategies) should reflect a comprehensive approach to *demand* creation for CP services, through policy change, environmental compliance, investment promotion and public awareness, and *supply* creation for CP services, through capacity building and training. 2.4 The NCPCs should make a strategic choice in their resource allocation to the demands for basic CP practices and for specialised CP technology services. The Programme and NCPCs/NCPPs should proactively strengthen collaboration with other national institutions on meeting both demands.

7.2.3 Design & Strategy

The documents' review (in Chapter 2) revealed that the Programme is being implemented by default as a set of similar and partially connected national projects, instead of being driven by a clearly developed and articulated programme document. The self evaluation and independent evaluations (Chapters 3 and 4) confirmed that the absence of an overarching programme strategy has dispersed the programme's resources instead of focused these around key objectives and a logical sequence of output, outcomes and impacts. It is therefore strongly recommended that a Programme Document be developed for the UNIDO-UNEP CP Programme as a matter of absolute urgency. Such programme document should describe and justify the intervention logic, provide specific objectives and outputs, outcomes and impacts at programme level, distinguish these from the objectives and outputs, outcomes and impacts of CP implementation at the national level, and provide a logical means-end relationship between these two levels. Indicators should also be developed and interactions with other local and international initiatives should also be dully considered. Table 7.4 provides a comprehensive overview of the detailed conclusions and recommendations with regard to strategy.

Table 7.4: Detailed conclusions and recommendations on strategy

Cluster	3. Strategy
Conclusion	**Recommendation**
There is no programme document covering the overall objectives, the strategy and intervention logic and the different expected contributions from UNIDO, UNEP and local stakeholders. Existing strategy documents are not useful for Programme management.	**The Programme should be guided by a succinct programme document, with a clear strategy, a justification of the intervention logic and the specific roles and contributions from UNIDO, UNEP and local and international stakeholders.**
Contributing Conclusions	**Supportive Recommendations**
3.1 The Programme's overall intent to decouple economic growth from environmental degradation is widely supported. 3.2 The Programme has been overburdened by promoting possible positive spin offs from CP into Programme-level objectives (e.g. gender equality, poverty reduction). 3.3 Some of the expected outcomes (like the one to decouple economic growth from resource consumption and environmental degradation) are over-ambitious, given the relatively small size and catalytic nature of the Programme. 3.4 For most of the interventions, effectiveness depends to a large extent on the development of other international and local initiatives. 3.5 The Programme's focus is on volume of service delivery without sufficient consideration for quality or impact of such service delivery (e.g. increased implementation of CP by businesses and other organisations or policy change). 3.6 Frequently, outputs are being used as substitutes for outcomes (e.g. projected savings from a CP assessment instead of actual post implementation benefits). 3.7 Not all of the expected outcomes of the programme have been made explicit (e.g. CP market creation), and some of the explicit outcomes are not clearly linked to the activities and outputs by a means-end relationship.	3.1 The Programme should adopt clear, focused and specific development objectives and expected outcomes related to decoupling economic growth from environmental degradation through the greater uptake of CP practices and technologies. 3.2 The Programme should make a clearer distinction between *contribution* and *attribution* with regard to its intended development objectives and impacts, outcomes and outputs. Furthermore, some of the possible spin offs from CP could be turned into '*conditions for implementation*' rather than objectives (for example, implementation to be neutral or positive with regard to gender equality, community health, poverty reduction, etc.) 3.3 The design of the Programme strategy should be improved so as to establish a logical means-end relationship between development objectives, impacts, outcomes, outputs and activities, including the proper definition of indicators for: capacity building; CP implementation; policy change and creation of an enabling environment; market development; and technology transfer, adaptation and replication (including investment).

7.2.4 Focus

Focus (or alternatively contents) refers to the set of main topics and concepts for which the UNIDO-UNEP CP Programme is establishing capacity in the host countries. It was concluded that the CP concept has been extended gradually over time to cover a broader set of CP and CP-related topics, a process which was initiated by donors (in particular for EST transfer and financing, and CSR) and the UN agencies (CP Plus, chemical leasing, SCP). These extensions have been '*added on'* instead of *'integrated into'* the existing

Programme. Their interrelatedness and connection to core CP concepts has not been properly established, leading to a degree of misunderstanding and ambiguity about the evolving focus of the Programme. The portfolio analysis provided a suggestion to clarify the focus of the Programme by distinguishing between *diversified* CP services and *specialised* CP services (see section 5.3.3). There is also concern that the programme additions will dilute or disperse the CP capacities built so far, whilst the task of achieving widespread implementation of CP remains to be accomplished. It is therefore recommended that the primary focus on CP is re-established, and that a framework be provided to explain the interrelatedness of new elements and their connections with the core CP concepts and practices. Doing so will also assist in defining service packages the Programme can offer to NCPCs/NCPPs and potentially to similar CP Centres currently not yet part of the Programme

Table 7.5: Detailed conclusions and recommendations on focus

Cluster	4. Focus (Contents)
Conclusion	**Recommendation**
The expansion of the scope of the CP concept that has gradually occurred in the Programme over time catalysed by interests of the donors and the UN agencies, is not widely understood by all programme stakeholders and lacks widespread endorsement by the NCPCs/NCPPs and their national stakeholders.	**The Programme should re-establish its primary focus on CP and articulate a dual strategy for its further development to enable *specialisation* (in policy and/or technology) and *diversification* (socially driven and/or environmentally driven) of NCPCs/NCPPs as they and their national stakeholders see fit in their respective national contexts.**
Contributing Conclusions	**Supportive Recommendations**
4.1 Even though progress has been made in putting CP on the agenda, a continued focus on CP will be needed to avoid deterioration of CP capabilities built and achieve wider-spread uptake of CP practices and technologies. 4.2 New elements have been added to the Programme by the Programme Management, and all of these are presented equally as new components without clear terminology or an integrative framework to explain their inter-relatedness and synergies with the core CP concepts. 4.3 Some of the new elements introduced in the Programme are '*specialisations*' that improve the rigour and depth of service delivery related to uptake of CP, with policy-intensive services and/or technology-intensive capacities and services. 4.4 Other new elements introduced in the Programme are '*diversifications*' that broaden the scope of service delivery, towards inclusion of social aspects (leading to an expansion into Corporate Social Responsibility) and/or inclusion of other environmental aspects (leading to an expansion into Sustainable Consumption and Production).	4.1 The Programme should maintain a clear focus on CP to ensure that CP capacities built so far are being maintained, strengthened and utilised for achieving wider-spread uptake of CP, including higher-technology opportunities. 4.2 The Programme should provide an integrative framework that logically connects its focal areas. 4.3 It is strongly suggested to use *specialisation* and *diversification* as the basis for formulation of the integrative framework. 4.4 The Programme should then articulate a dual strategy for its further development to enable both specialisation and diversification of NCPCs, depending on their national contexts.

4.5 The absence of a clear distinction between *specialisation* and *diversification* has further compromised the programme's effectiveness. 4.6 The size and diversity of the national economy and the severity of industrial pollution determine to a large extent whether and how the NCPC can *specialise* further in CP service delivery. Possible areas of specialisation are technology assessment and transfer, technical standard setting, research and innovation, investment advice, policy change, curriculum development etc. Alternatively such specialisation could be catered for at the regional level. 4.7 Several NCPCs have opportunistically embraced the opportunity for *diversification,* but support for this from national stakeholders is limited to those countries where industrial pollution is not yet an overarching national priority and/or where the current size of the NCPC (and contribution from the programme) is relatively large compared to the total size of the national economy.	

(see also under networking, in paragraph 7.2.5). It could also support clarification of the roles and contributions of UN agencies and donors involved, while also enabling cooperation with other agencies and stakeholders not yet involved. Table 7.5 contains the detailed conclusions and recommendations in full.

7.2.5 Networking

With the expansion of the geographic coverage of the UNIDO-UNEP CP Programme to some 35 countries, the Programme has a legitimate claim to have created one of the largest developing countries' based networks of CP practitioners. The networking expectations from NCPCs/NCPPs and their national public and private sector stakeholders with regard to networking are high, albeit in most cases non-specific. Programme management has been considering strengthening of the network for some time, but the current networking intensity remains still low resulting in expectations remaining unmet. The positive exceptions are project based networking in multi-country projects (e.g. GERIAP) and regional networking initiatives (in particular LatinNet). No overarching networking strategy has been defined for the Programme, and no dedicated funds are available on an ongoing basis. The challenge therefore remains to turn the set of national centres created by the Programme into a developing countries' lead network of service providers with different capability- and service-profiles and ownership and funding structures, but united by a shared commitment to foster the uptake of CP concepts, practices, technologies and policies, beyond their private commercial interest to sell CP-related goods and services. The primary aim of the network should be to capture from, and advance within, the network best practice methods, policies and technologies for implementation of CP. Table 7.6 provides a comprehensive set of detailed conclusions and recommendations for networking.

It is recommended that a networking strategy be developed and implemented in consultation with (representatives of) currently funded and previously funded NCPCs and possibly some CP centres not established through the Programme. The strategy should define activities, outputs and outcomes, and roles and responsibilities for network support and facilitation and network members, as networking will only be effective with an ongoing effort from all participants to stay up-to-date and useful for members. To ensure sustainability, the network will have to be driven by the CP centres themselves, with the UNIDO-UNEP CP Programme playing a facilitating role in its establishment. A key consideration will be to establish criteria for accessing the different networking services. The current default criterion of being established through the UNIDO-UNEP CP Programme is becoming gradually outdated and excludes a-priori the valuable activities and outcomes of other CP service providers not established through the Programme. As argued in Section 5.5 it is suggested that the network be established as a membership-based association of CP service providers with statutes and eligibility criteria, rights and obligations for different categories of membership. Doing so will be transparent and put the burden of proof to NCPCs/NCPPs and others wishing to become member of the network. The different categories of membership can then also be used to deliver different packages of diversified and specialised CP services (as discussed under focus in paragraph 7.2.4) and manage eligibility for competitive grant funding from programmatic resources for topical multi-country projects (see also paragraph 7.2.6 regarding funding model).

Table 7.6: Detailed conclusions and recommendations on networking

Cluster	5. Networking
Conclusion	**Recommendation**
The Programme has not formulated a distinct strategy with tangible objectives, outcomes and outputs for networking among NCPCs and the resource needs for its facilitation and technical support through the UNIDO-UNEP Programme management have not been identified.	**The Programme should formulate a clear networking strategy with tangible and realistic outcomes, outputs and activities, which could be realised by supporting a membership based network that would be open to qualifying institutions, including NCPCs established by the UNIDO-UNEP CP Programme as well as eligible other CP service providers.**
Contributing Conclusions	**Supportive Recommendations**
5.1 There are high expectations among the NCPCs and their national stakeholders for accessing CP technology information and sharing of best practice methods, tools and policies for, and related to, CP through the UNIDO-UNEP CP programme. 5.2 Apart from regional networking initiatives and multi-country projects, the networking intensity in the current Programme is too low to be effective or efficient, and networking expectations are therefore generally not met. 5.3 Even though in several countries the NCPC is not the only institution advocating CP or associated concepts and practices, publicly and/or privately funded, the Programme does not achieve effective engagement or collaboration with such other institutions, neither at the national nor at the Programme levels.	5.1 The Programme management should in consultation with the NCPCs/NCPPs define a dual support strategy based on (1) management and administration of project funding for those NCPCs/NCPPs that receive institutional (or block) funding through the Programme; and (ii) provision of expertise and networking opportunities to all NCPCs/NCPPs and other similar CP service providers. 5.2 The networking component should aim to capture from, and advance within, the network best practices in promotion and implementation of concepts, technologies and policies for, or related to, CP, for example through task forces, conferences, study tours, joint thematic projects and exchange of personnel and information between network members. 5.3 Such a strategy could be based on supporting the creation of a membership-based association of CP institutions (not only formerly or currently funded NCPCs/NCPPs), with clear statutes with eligibility criteria and obligations for membership, but also clear benefits and services for members. 5.4 In case network management is being established as one of the Programme's core functions, careful consideration has to be given that appropriate resources are devoted to that end, preferably on a programmatic and at least medium term basis.

7.2.6 Funding Model

The funding model applies to the way the Programme as well as the NCPCs/NCPPs are funded. Currently the Programme is almost exclusively funded on a country-by-country project basis, creating very limited opportunity for multi-country initiatives, including networking and specific projects. Funding to the NCPCs is provided as a block grant (against eligible expenditure), and in principle only for an establishment period (even though in practice this has been extended once or twice for several NCPCs). Catalysed by donor-interests, the Programme management has been very much focused on achieving financial independence of the NCPCs by charging fees for NCPC services. Even though on several occasions NCPCs have been able to benefit from participation in multi-country specific projects, this has been done at the periphery of the Programme. As further

explained in section 5.5, it is recommended that the funding model be changed to a combination of country-based funding and thematic funding, to make programme funding available for multi country projects on specific topics and for networking. It is strongly recommended to issue the country based funding as block grants (as in the current situation), while introducing competitive grants to eligible NCPCs/NCPC and possibly other qualifying CP service providers to undertake programmatic activities on merit basis. This would provide a transitional funding option for NCPCs to ease their transition from a fully funded establishment stage to a financially independent operational stage. A comprehensive listing of the detailed conclusions and recommendations is provided in Table 7.7.

Table 7.7: Detailed conclusions and recommendations on funding model

Cluster	6. Funding Model
Conclusion	**Recommendation**
The predominant model for funding of the Programme as a collection of country projects has hindered effective networking and constrained the Programme in developing and delivering specialist services on a multi-country basis.	**The Programme should adopt a dual funding model at Programme and national levels: (1) country-based block funding to support NCPCs in their establishment phase; and (2) programme funding for (i) competitive grants to multiple eligible NCPCs and possibly qualifying other CP service providers for project based specialisation and/or diversification; and (ii) networking initiatives.**
Contributing Conclusions	**Supportive Recommendations**
6.1 The efficiency and effectiveness of Programme management have been compromised by its country-by-country funding and administration model. 6.2 The Programme has benefited from multi-country results-based projects on specific CP or CP-related topics that were provided to some NCPCs, but funded and managed outside of the main UNIDO-UNEP CP Programme (e.g. GERIAP and D4S projects of UNEP). 6.3 The Programme provides only funding for the establishment stage of NCPCs and has not defined how to continue funding – part of – the activities of eligible NCPCs after their establishment stage. The time and budget for the establishment stage varied hugely between countries, not related to the size or complexity of their manufacturing sector or pre-existing CP capacities. Several NCPCs were not able to go through the establishment stage in the allocated three year time, and continued establishment operations for an additional 1-2 years without additional funding. 6.4 The financial independence objective for NCPCs during their establishment stage has distracted some NCPCs from their intended public interest role as they are only able to remain active in information	6.1 The Programme should provide a broader set of funding options to the NCPCs/NCPPs to encourage their development and phase their gradual transition from fully-funded during establishment stage to largely or completely financially independent on the longer run. 6.2 The Programme could do so by splitting its financial commitments in block funding (secured and only available to NCPCs/NCPPs during establishment stage) and competitive grants (after establishment stage to eligible NCPCs/NCPPs and other CP service providers, on a results and merit-basis). The competitive grant funding could then be utilised to undertake specific activities, including for specialisation and/or diversification of the NCPC/NCPP and/or deliver Tier 2 and 3 services (see also Paragraph 7.2.8). 6.3 The Programme management should define specific packages of services it can provide to NCPCs in the network and should seek to standardise these with programmatic funding to improve their effectiveness and efficiency. Clustering in at least four service packages (in addition to networking, monitoring and administration) would appear appropriate, i.e. institutional development support, core CP capacity building, specialist CP technology support

dissemination, advocacy, policy advice and training with ongoing financial support from donors and/or their national governments. 6.5 Opportunities for standardisation of service delivery to the NCPCs and peer review and quality control among and by the NCPCs have not been sufficiently realised due to country-by-country approach. This, in turn is linked to the fact that donors tied funding to certain countries according to their geographic priorities.	and training and policy support in CP-related fields. This could be in addition to specific projects on specialised and/or diversified CP topics.

7.2.7 Centre Model

The Programme's concept for capacity building is to create national centres or programmes, the NCPCs/NCPPs. This programme concept remains valid as the wider-spread uptake of CP methods, technologies and policies is unlikely without permanent advocacy at the national level, including the provision of a platform for developing and sharing nationally-appropriate leading practices. The Programme's focus on establishing and supporting national centres is therefore supported by the findings of this independent programme evaluation.

The prevailing model for a NCPC/NCPP is to establish within an existing host institution with a mandate on business, technology and/or environment an independent centre to deliver the standard package of CP services (see also under NCPC services in paragraph 7.2.6). The NCPC would ideally have an independent status within its host institutions, with separate business plans, financial and contract administration and identity, to avoid leaking of programme resources into the host institution (i.e. the NCPC then operates in financial island mode ('*ring-fenced')* within the administration of the host institution). In some cases outside the UNIDO-UNEP CP Programme, a different approach was followed to create a new and legally independent organisation in cooperation with a consortium of local institutions. The assumption is that the host institution (or the consortium of several institutions) will provide in-kind and cash contributions to the operation of the NCPC/NCPP and at the end of the establishment stage assume responsibility for continuing the operation of the NCPC/NCPP. However the roles and responsibilities of the host institution(s), national government and other public and private sector stakeholders in continuing the operation of the NCPC/NCPP are not defined, and as a result uncertainty remains about the institutional set up and operational model for the NCPC. A variety of post support models therefore exists, including private company, activity centre in public research institute or university, which all have different capabilities to deliver both the private interest (typically CP assessment and technology assessment and transfer services) and public interest (typically information dissemination, training, advocacy etc.) roles of a NCPC.

The host institution arrangement has generally worked well during the funded project stages, with no evidence to favour any particular kind of host institution. In several countries however the host institution and/or national government took on commitments for in-kind and/or cash support to the NCPC that could reasonably be expected to be beyond their means, and hence did not materialise, leading to under-resourced NCPCs and to considerable efforts to redefine activities and services. More emphasis should

therefore be placed on the ex-ante development of institutional scenarios, including risk management with regard to host institution arrangements in the project preparation stage.

There is insufficient evidence that host institutions are indeed able to continue operation of the NCPC. In some countries, the national government has taken over as provider of institutional funding, in other countries the NCPC has been contracted to deliver services for other donor funded projects, whilst in other countries the NCPC has turned into a private company delivering commercial services. Whilst it might not be necessary or even desirable to reject any of the post support phase models, it is desirable to plan and monitor this process of institutionalisation of the NCPC/NCPP right from the start. To this end the Programme should work on specific institutional tasks and milestones during the support period, so that progress towards institutionalisation can be monitored during the support phase (as per the supportive recommendations below in Table 7.8). The institutional development should be controlled by the governing board, so the recommendations on centre model are closely inter-related to those on governance and ownership (as covered in paragraph 7.11)

Table 7.8: Detailed conclusions and recommendations on centre model

Cluster	7. Centre Model
Conclusion	**Recommendation**
The capacity building model through NCPCs/NCPCs is relevant, even though the Programme defines NCPCs by their service categories without providing clear institutional perspective(s) for the NCPC, both during and beyond their phase of institutional funding through the UNIDO-UNEP CP Programme.	**The Programme should articulate institutional objectives and scenarios for a NCPC so that institutionalisation of the NCPC can be monitored and provisions be created to accommodate both the public interest and private benefit functions of the NCPC services over time.**
Contributing Conclusions	**Supportive Recommendations**
7.1 NCPCs/NCPPs have generally benefited from being hosted by an existing institution, but several have experienced serious or even un-surmountable difficulties in obtaining the agreed in-kind and cash contributions from their host institutions which has compromised their success. 7.2 There is no evidence that either the model of a host institution or independent operation of the NCPC/NCPP is more effective and/or sustainable. 7.3 There is no evidence to favour the establishment of a NCPC/NCPP in any particular type of institution (e.g. private sector association, university or research institute), as long as staff benefits are to some degree linked to centre performance. 7.4 The Programme does not articulate alternative institutional arrangements and operational models that consider different economic and institutional contexts in host countries and cater for ongoing delivery of the public interest functions of the NCPC/NCPP. 7.5 Even though NCPCs/NCPPs typically operate with a high degree of independence,	7.1 The Programme should pay more attention to analysing the national institutional context, performing risk assessment and developing institutional scenarios and risk management strategies before agreeing on a host institution and its commitments for support to the NCPC/NCPP. 7.2 The Programme should provide alternative post-support institutional, legal and operational models for operation of NCPCs, and support the governing boards of NCPCs with developing a specific model for post support operation of the NCPC commensurate with national circumstances. 7.3 The Programme should pro-actively develop new modalities, other than NCPCs, to promote CP (for example CP champions that can access knowledge and services from within the network).

they often remain legally part of their host institutions, which has in several cases created tensions with their host institutions when entering into project agreements with third parties. 7.6 The Programme has had an almost exclusive focus on the establishment of NCPCs. In some countries the establishment of an NCPC was found to be not the most effective way to promote CP.	

7.2.8 NCPC Services

The nature of the UNIDO-UNEP CP Programme has been largely defined by its standardised package of CP services. These were initially information dissemination and awareness creation; training; CP assessments and in-plant demonstrations; and policy advice, while transfer of ESTs was later added. These CP services originated from the CP demonstration projects that preceded the establishment of the UNIDO-UNEP CP Programme (as discussed in Chapter 1). Arguably the Programme was certainly at its inception designed to create a permanent national entity with the capacity to deliver the services needed for CP demonstration projects. This initial design turned out to be successful in the early establishment and capacity building stage for the NCPCs/NCPPs, as the first milestone for the NCPCs/NCPPs has been to demonstrate that CP is practical and beneficial in the national context.

However upon having demonstrated the beneficial nature of CP, the CP services from the NCPC/NCPC should increasingly accommodate national circumstances. It would in general still make sense to continue the availability of the five standard types of CP services, but it may not be necessary that the NCPC/NCPP is delivering all of them itself. Some can possibly be delivered by other service providers. The presence of other providers of CP and/or CP-related services could create a demand for development and facilitation services to the NCPC/NCPP. The NCPC/NCPP should thus be encouraged to define its own service delivery mode to accommodate national CP needs and pre-existing and/or emerging national capabilities in CP and/or CP-related areas. As per the analysis presented in Section 5.3.3, this would result in a balance of services between tier 1 (assessment and training), tier 2 (policy and technology development) and tier 3 (networking). The standard services are in principle applicable to both '*core*' as well as '*specialised*' and '*diversified*' CP topics (see also the discussion on programme focus in paragraph 7.2.4). The NCPC/NCPP should therefore also be encouraged and supported in defining its own focus, on the basis of its own assessment of the national system of policies, incentives, initiatives and experiences in CP and CP-related fields. As per the discussion on focus of the Programme (in paragraph 5.3.2, and in paragraph 7.2.4) this would result in a balance between core and diversified and/or specialised CP capabilities and activities.

To support the positioning process Programme management could develop a standard method for analysing the national *'CP system'* so as to identify key actors in CP and related areas, assess their capacities and needs, assess the existing market and enabling environment for CP, and then customise the NCPC/NCPC service model to assume an

appropriate niche role in this national system ([35]). This should also confirm whether creating or maintaining an NCPC as a separate institution is warranted, or CP capacity could be more effectively and efficiently delivered through a different institutional mechanism.

The complete overview of detailed conclusions and recommendations with regard to NCPC services is provided in Table 7.9.

Table 7.9: Detailed conclusions and recommendations on NCPC services

Cluster	8. NCPC Services
Conclusion	**Recommendation**
The Programme has outlived its initial design of services which was based on a standard package of NCPC services to be delivered through one single national centre, as countries that have built CP capacity in different institutions require more tailor made NCPC services.	**The Programme should support the NCPCs/NCPPs to undertake periodic assessments of the national status of CP, to define and review their strategic niche with service portfolios that are most appropriate and effective in their respective national contexts.**
Contributing Conclusions	**Supportive Recommendations**
8.1 The Programme's approach to deliver a standard package of CP services through each NCPC/NCPP has been predominantly successful in the establishment and capacity building stage of all NCPCs/NCPPs. 8.2 To continue with the standard CP services does not reflect the very different national contexts. Important aspects that need to be taken into account are for example: other providers of CP and/or related services; size of country; national socio-economic and environmental priorities; structure of the economy; size, diversity, technological capability and environmental motivation of the manufacturing and other sectors, existing business and innovation support networks; etc. 8.3 The persistent use of standard service categories and increasingly prescribing the methods to be used has discouraged NCPCs/NCPPs from further development and customisation of CP concepts and methods to national circumstances (including for example the technical capabilities and environmental and business motivations of the private sector).	8.1 The Programme should adopt a more flexible approach to types of, and delivery modes for, CP services from the NCPCs/NCPPs to cater to the specific needs, opportunities and existing CP capabilities of the different countries. 8.2 The NCPCs/NCPPs should on a regular basis assess the current status of CP in their home countries as a basis to establish, refine and/or adjust their own strategic positioning and service portfolios. 8.3 This strategic positioning should include focus (the balance between core and diversified and/or specialised capabilities and activities) and service mode (the balance between different service tiers). 8.4 The Programme should provide analytical and methodological support to NCPCs/NCPPs for them to develop CP concepts, methodologies, practices, technologies and policies that are adapted specifically to the national circumstances (see also under Excellence in paragraph 7.2.12).

[35] The national CP system assessments could be performed by senior staff and/or directors of NCPCs in other countries, so as to further enable collaboration and benefit from the skills available in the network.

7.2.9 Management and Monitoring

Management and Monitoring refers to the day-to-day operation of the UNIDO-UNEP CP Programme and the monitoring and reporting of its performance against objectives and outputs, outcomes and impacts. The common observation from the independent country evaluations was that the Programme has at least historically been managed on the basis of outputs, i.e. the number of training seminars, training days, CP assessments, etc. This is partly a result of the poorly developed logical means-end relationships between activities, outputs, outcomes and impacts and objectives, in particular, but not exclusively, at Programme level (as discussed in the concluding section on strategy (paragraph 7.2.3). A mind shift is needed among management of the Programme and the NCPCs/NCPPs that outcomes and impacts matter, or in other words, success from the uptake of CP concepts, know-how, practices, technologies and policies is ultimately the best contributor to sustainability of the Programme and the individual NCPCs/NCPPs. The Programme should therefore adopt an outcomes-based management model and establish a comprehensive set of indicators to measure and/or estimate outcomes and possibly impacts, from service delivery through the NCPC, as well as with regards to its own institutional development and establishment of an enabling environment conducive to CP in the country.

Sufficient resources should be reserved for programme management, based on a monitoring system that allows regular performance checks on the progress towards programme objectives and outcomes. This should also ensure that agreed project structures and governance arrangements are adhered to and if necessary swift action taken to remedy or adapt local deviations. Likewise agreed contributions from host institutions and governments should also at least be tracked for early detection of operational problems encountered, and as necessary, corrective interventions made.

It is also recommended that the Programme management adopts a matrix structure with country and thematic responsibilities, which would be commensurate with the recommended changes under focus (paragraph 7.2.4), funding model (paragraph 7.2.6) and centre model (paragraph 7.2.7). Moreover, enhancements with regard to governance and excellence (as covered in paragraphs 7.2.11 and 7.2.12) have ramifications for management and reporting.

The listing of detailed conclusions and recommendations in Table 7.10 is therefore limited to those only relevant for management and monitoring.

Table 7.10 Detailed conclusions and recommendations on Management and Monitoring

Cluster	9. Management & Monitoring
Conclusion	**Recommendation**
Reporting on Programme achievements is generally insufficient to assess outcomes and impacts against Programme objectives which prevents adaptive management and continuous improvement of the Programme's performance.	**The Programme should adopt a results--based management model at Programme and national levels and develop a comprehensive system to monitor performance in capacity building, institutional development and results and impacts from CP service delivery. It should also monitor that agreed project structures, governance arrangements and contributions from host countries and institutions are being achieved.**
Contributing Conclusions	**Supportive Recommendations**
9.1 Monitoring of outcomes and impacts of service delivery by the NCPCs/NCPPs is under-developed, which has hindered adaptive management and continuous improvements in their service delivery, and throughout the Programme. 9.2 Effectiveness and specialisation of programme management has been compromised by a management model based on geographic distribution of back-stopping responsibilities for the NCPCs. 9.3 In several countries project structure, governance arrangements and/or host country and institution contributions deviate substantially from those agreed by means of the project agreement.	9.1 The Programme should provide to the NCPCs/NCPPs a common indicator framework for determining outcomes and impacts at least for all five core CP services, and assist them to set up the necessary information systems. 9.2 The Programme should provide specific resources for pilot outcome and impact monitoring schemes to establish best practice methods and indicators, and demonstrate the usefulness of the information generated for improving NCPC service delivery. 9.3 The indicator system should also cover institutional development of the NCPC/NCPP and developments in the enabling environment for CP in the host country. 9.4 The Programme management should consider a matrix management structure for the NCPC network, through a system of national contacts for each NCPC (both funded and no longer funded) combined with allocation of thematic responsibilities. 9.5 The Programme management should give greater priority to ensuring that projects are implemented as agreed, or otherwise amendments are endorsed in a timely manner by Governing Board and the host and donor governments.

7.2.10 Administration

Administration is used here as the umbrella term for contract management and administration of budgets and expenditures. The experience at both national and programme levels is that the administration is cumbersome and slow, and it is not uncommon that NCPC/NCPP directors have to advance centre expenditures from personal accounts as they are unable to obtain goods and services from their suppliers if expenditure is directly paid by, or on behalf of, UNIDO with a significant delay (e.g. venues for training, travel expenses, publication costs, etc.). Likewise the administrative system provides severe limitations on the recruitment for external consultants at national and international level and their market based remuneration.

The roots of the administrative problems appear to be two-fold. Firstly there is great misunderstanding about the administrative requirements in the early stages of establishment of the NCPC/NCPP, largely because administrative requirements have not

been properly clarified during project preparations (and host institutions and counterparts are therefore not familiar with UNIDO procedures). Most NCPCs/NCPPs manage to get through this settling in process, albeit with significant delay and frustration and with patience from UNIDO programme management and country representatives. Secondly, on an ongoing basis the administrative burden is high, and a serious effort should be made by the UN agencies involved to determine whether alternative administrative arrangements based on performance and/or against pre-determined milestones might be possible. The UNIDO country offices and/or representatives were generally well engaged with the NCPC/NCPP in the visited countries and played constructive roles in easing the administrative burden. For one country however a follow up independent financial audit has been recommended as this Programme evaluation was not tasked nor resourced to investigate whether or not complaints were well-founded or not (Mozambique). The comprehensive set of detailed conclusions and recommendations is provided in Table 7.11.

Table 7.2.11: Detailed conclusions and recommendations on administration

Cluster	10. Administration
Conclusion	**Recommendation**
The UNIDO CP Unit and NCPCs/NCPPs have ultimately been able to meet administrative requirements, including financial administration and contracts' management and disbursement of funds, but repeatedly not in a timely manner.	**The Programme management should streamline programme administration and shift to the extent feasible financial responsibility and accountability to the NCPCs/NCPPs and/or national stakeholders.**
Contributing Conclusions	**Supportive Recommendations**
10.1 Most of the staff resources for CP at UNIDO were used for project implementation including micro-administration of the set-up of NCPCs/NCPPs and other projects. 10.2 The UNIDO CP Unit faces several systemic constraints, including exclusive application of agency execution, head-quarter centred mode of UNIDO technical cooperation and limits on recruitment and remuneration of consultants. 10.3 The country visits revealed that while in most cases where UNIDO had a local presence, it was effectively engaged with the NCPC/NCPP and instrumental in easing the administrative burden for the NCPC/NCPP. 10.4 The independent country reviews found grounds to recommend that a comprehensive financial audit be undertaken for Mozambique to confirm that adequate financial control was exercised through the UNIDO system.	10.1 The Programme management should develop practical ways to make programme administration less time consuming and increase results-based accountability (e.g. checklists, budget and expenditure worksheets, quick reference guide etc). 10.2 The Programme management should consider for each of the visited countries individually which steps need to be taken to improve administration of the NCPC (as per the findings in the respective country reports).

7.2.11 Governance and Ownership

Governance should ensure accountability and transparency in the highest level decision making on programme strategy and oversight for its implementation. Greater accountability and transparency is in turn likely to foster ownership of activities and results by beneficiaries, and thereby contributes to the sustainability of the NCPC as an institution and of the CP concept and services. The current governance arrangements for the UNIDO-UNEP CP Programme are unclear both at the Programme level as well as for several countries at the national level. At the national level, Programme management has promoted the establishment of boards for the NCPCs. But these had few decision making powers and were structured as reference or steering committees for providing input and feed back on the implementation of the UNIDO project that funded and implemented the establishment of the NCPC. This is fundamentally different from a board accountable for the establishment and long term success of a nationally owned centre. At the Programme level no governance mechanism has been established for input from NCPCs and their national public and private sector stakeholders into the programme strategy and priorities for its implementation, even though consultations have taken place on an irregular and ad hoc basis through for example the Directors' meetings. It is therefore strongly recommended that an accountable and transparent governance structure be established. This can foster ownership of the Programme and national centres, and will reflect that NCPCs are partners for the UN agencies and donors for the long run and that they cannot be used as vehicles for the introduction of new services considered relevant by UN agencies and/or donors. A comprehensive listing of the detailed conclusions and recommendations in regard to governance and ownership is provided in Table 7.12.

At Programme level a governing board could be established comprised of elected or appointed private and public sector representatives from host countries (for example one-third of the membership of the board), representatives of the NCPCs/NCPPs (both currently funded as well as no longer institutionally funded NCPCs, for example one-third of the membership of the board) and representatives of the UN agencies and donor governments (for example one third of the membership of the board), with an independent chair. The Programme Management unit could then have an ex-officio, non-voting role in this Programme Governing board. A similar board structure could be replicated at the national level, for example with one-third membership from private sector, one third membership from public sector, and one third membership from academia and/or other NGOs, with an independent chair. The NCPC and possibly the local representations of the donor governments and UNIDO could then assume ex-officio, non voting roles in these national boards, to avoid a conflict of interest with their administrative and executive responsibilities. The Boards should meet regularly to ensure effective engagement, for example on a 2-3 months schedule at national level and a 4-6 months schedule at programme level.

The governing boards should consider establishing advisory boards, to seek non-binding advice and feed back from a broader cross section of stakeholders. The advisory boards can then also be used as a mechanism to achieve greater institutional buy-in to the Programme, NCPC and CP concept, from the organisations that employ the members of

the advisory board. At national level, the advisory boards could meet regularly (e.g. 1-2 times annually), whereas the international advisory board may not have to meet in person (or alternatively could be invited to attend Directors' meetings and then have an advisory board meeting piggy-backed to the Directors' meeting).

The governing boards should be supported by efficient management structures. Several NCPCs have made good progress in setting up internal management structures with delegated responsibilities, whilst others still largely depend on the micro-management by the Director. At Programme level, the management structure requires extra attention to ensure that day-to-day roles of UNIDO and UNEP (and possibly other agencies) are properly defined. It may therefore be instrumental to adopt a matrix management structure with national project managers (for institutional funding to selected NCPCs during their establishment stage) and capability leaders (for multi-country targeted initiatives that are funded on a competitive basis from programmatic funding) (see discussion in Section 5.5 and detailed conclusions with regard to funding model (paragraph 7.2.6) and programme management (paragraph 7.2.9).

Table 7.12: Detailed conclusions and recommendations on governance and ownership

Cluster	11. Governance & Ownership
Conclusion	**Recommendation**
The Programme has not established a transparent and accountable governance structure for gathering feed back from stakeholders, beneficiaries and NCPCs into its strategic planning and ensuring adequate oversight over implementation of the Programme. The governance of NCPCs is of varying effectiveness, accountability and transparency.	**The Programme and the NCPCs should adopt transparent and accountable governance structures at Programme and national levels, preferably with small boards with participation of private sector, government and civil society, that assume accountability for the success of the Programme and the NCPCs.**
Contributing Conclusions	**Supportive Recommendations**
11.1 Programme Management (through UNIDO) typically had a strong influence on the strategies of the NCPCs in their establishment stages. The influence has become very limited for some NCPCs, especially after direct financial support through the Programme has ceased. 11.2 Most NCPCs achieve some engagement of government and the private sector in their planning and ongoing governance, but in many countries the boards or steering committees are top heavy, not accountable and in-effective in providing overall guidance for the development of the NCPC. 11.3 No mechanism has been established for NCPCs, and their national stakeholders in government and private sector, to influence Programme Strategy and arrangements and priorities for its implementation. 11.4 UNIDO, UNEP and donors have cooperated in the programme mainly on an ad-hoc basis. No coordinating	11.1 Programme Management and donors should adopt a participatory implementation model for the NCPC Programme to ensure effective contributions from relevant public and private sector stakeholders in planning and oversight, and foster local ownership of the NCPCs and the Programme. 11.2 Programme management should define a strategy how to continue support '*mature' NCPCs*, once they do not receive further funding through UNIDO. 11.3 NCPCs should adopt accountable and transparent governance structures and decision making procedures, preferably with small boards of representatives of private, public and civil sectors, which assume accountability for the success of the NCPC, and are possibly supported by broader based advisory committees. 11.4 The Programme should adopt accountable and transparent governance structures and decision making procedures, preferably headed by a board comprised of

mechanism was in place and no programme management tools have been applied to ensure that the inputs of all stakeholders contribute to the programme objectives.	representatives of NCPCs and public and private sectors in host countries and of relevant international agencies and donors, with ex-officio membership of Programme Management. 11.5 A joint Programme Management mechanism should be established under the leadership of UNIDO and UNEP, with input from Donors and other relevant agencies.

7.2.12 Excellence

The Programme has an inherent ambition for excellence and desire for the NCPCs/NCPPs to become centres of excellence. The Programme is consistently being marketed as *'holistic'* and '*integrated'*, as distinctive features to other CP or CP-related initiatives. This evaluation however found that there are no specific mechanisms in place to drive and deliver excellence in CP service delivery. Even standard professional practices were not adhered to for a number of products and services from several of the visited NCPCs/NCPPs. The diversity of international consultants and reference centres that provide inputs to the Programme is limited, and the Programme management is not resourced for effective quality control over services provided by consultants and/or NCPCs/NCPPs. Overall it does appear that the Programme is at risk of becoming complacent.

It is therefore urgently required for the Programme to establish a culture of experimentation and continuous improvement in CP service delivery. There are different options for doing so, including strengthening of the professional and intellectual CP leadership in the Programme management, providing training and coaching support in non-technical professional disciplines, benchmarking, diversification of consultant inputs, peer review and awards. Table 7.13 provides a complete listing of the detailed conclusions and recommendations in regard to excellence. It should also be noted that several other clusters of recommendations could contribute to achieving excellence, including: accountability and transparency in governance at Programme and national levels (see paragraph 7.2.11), effective networking and opening up of network to CP service providers not established through the Programme (see paragraph 7.2.5) and introducing a competitive grant component in the funding model (see paragraph 7.2.6).

Table 7.13: Detailed conclusions and recommendations on excellence

Cluster	12. Excellence
Conclusion	**Recommendation**
Despite its ambition for excellence, thematic leadership in the Programme management is weak, as well as its incentives and opportunities for realising continuous improvements in development, adaptation and replication of CP services and initiatives.	**The Programme should establish a culture of experimentation and continuous improvement in CP service delivery. Sufficient programme funding should be made available for that purpose.**
Contributing Conclusions	**Supportive Recommendations**
12.1 The Programme management has not been sufficiently resourced to provide thematic and professional leadership, and for	12.1 The Programme management should be adequately resourced to provide intellectual and professional CP leadership

Cluster	12. Excellence
effective quality review of CP service delivery by NCPCs/NCPPs and international consultants. 12.2 National stakeholders are generally satisfied with the quality of services delivered through the NCPC/NCPP. 12.3 In the visited countries there is limited evidence of ongoing development and customisation of CP concepts and methods to national circumstances. 12.4 In several of the visited countries it was found that the NCPC did not have adequate professional capacities and systems in place for standardised, effective and efficient delivery of customised services in all its service areas. 12.5 The effectiveness and efficiency of service delivery is compromised by insufficient standardisation and absence of targeting and branding of CP services in several of the visited countries. 12.6 A degree of duplication exists as NCPCs are under different projects – forced to – using different concepts and methods for the same type of service. 12.7 NCPCs that have established a quality (and possibly environmental) management system have benefited from this to improve their professional service delivery. 12.8 Several NCPCs rely heavily on services from external consultants for delivery of their core services including CP assessments. This may compromise the ability of the NCPC to advocate CP and effectively perform quality control on their national consultants. 12.9 In the visited countries the NCPCs have generally been satisfied with the technical assistance they received for developing core CP capacities, but it should be noted that the amount and quality of technical assistance provided has varied hugely between NCPCs in different countries. 12.10 Most visited NCPCs with an international reference centre appreciate the benefits of such longer lasting relationship in particular in the early stages of NCPC establishment to support core CP capacity development, in particular CP assessment and technical skills. 12.11 The selection of international consultants/International Reference Centres current active in the Programme have highly comparable expertise and technical skills, and this limits exposure of	to effectively engage with directors, boards and host institutions of NCPCs/NCPPs and guide these in achieving excellence in all aspects of their service delivery. 12.2 The programme should consider offering training and coaching support to further professionalise NCPCs/NCPPs and ensure best practices in communication, marketing, CP auditing, professional and vocational training, advocacy and stakeholder engagement are being employed by the NCPCs/NCPPs in their service delivery. 12.3 The Programme management should assist the NCPCs/NCPPs in benchmarking their approaches to communication, marketing, professional and vocational training, CP auditing, advocacy and stakeholder engagement against (international) best practices (both within and outside the CP arena). 12.4 The NCPCs/NCPPs should develop and implement a knowledge- and skills-management strategy to ensure they retain and possibly further develop their in-house core CP competencies. 12.5 NCPCs/NCPPs should in their establishment stage be coupled with an IRC and support from their IRC should be kept focused on development of core CP competencies and overall coaching of NCPC development. However the IRC should NOT have a dual role in also administering the project and its funds. 12.6 A mechanism should be established for greater national input in selection of consultants in particular for diversified and/or specialised service areas, setting their ToRs and managing their performance. 12.7 The Programme management should give priority to further diversify its field of international consultants/reference centres as a way to encourage experimentation and excellence among the NCPCs/NCPPs. 12.8 The Programme Management (or preferably the Programme's governing board) should consider introducing peer review and reward systems to showcase excellence within the network of NCPCs/NCPPs (for example an annual award scheme with different categories).

Cluster	12. Excellence
NCPCs/NCPPs to different ways of doing CP as a basis for their own expertise development. 12.12 There is a degree of dissatisfaction in regard to specialist consultancies on CP technologies, partially as a result of perceived inflexibility to select consultants and/or mismatches in expectations.	

7.3 Final Remark

This independent evaluation was undertaken "*to provide conclusive evidence with regard to the current status, the potential and the needs of the NCPCs and related initiatives. It will do this by carrying out an independent programme evaluation of the CP programme, leading to concrete recommendations with regard to the future strategy of the programme*" (immediate objective) ([36]).

The current *status* has been described in Chapters 2 (programme review), 3 (self evaluation) and 4 (independent evaluation), and analysed and evaluated in Chapters 5 and 6 respectively. The current status is best summarised as '*youth*' stage. NCPCs/NCPPs have been established and are reportedly undertaking CP and CP-related activities. There is a richness of experience and expertise, and reasonable progress has been made in putting CP on the agenda, delivering professional training and implementation in particular of low to medium technology options. There are pockets of excellent work, but also of poorer quality work, but the Programme would in principle have the potential to effectively capture and disseminate best practices among and within the emerging network.

The *potential* of the Programme is great as the relevance of CP is on the rise, due to various factors, that each have different dynamics in the various host countries for the Programme, which should create greater awareness and demand from public and private sectors that the Programme can cater to. A significant performance gap [58] remains between industry in developing countries and global best practices, so also from a technical perspective the potential should be rated high.

The biggest challenge remains for the Programme to stand up to the challenges posed by the changing interests and demands from governments and private sector. For this, the Programme urgently *needs* a consistent Strategy that is impact-focused, delivers and values excellence and takes due account of the specific situation of host countries. The Strategy should drive the institutionalisation, positioning and profiling of NCPCs/NCPPs into nationally appropriate niches with customised service and capacity profiles. It should effectively promote the sharing of leading practices within a competence based network of CP support institutions, including qualifying NCPCs/NCPPs and other CP service providers not established through the UNIDO-UNEP CP Programme. The funding, management and governance models should then also be brought in line with the demands of a maturing Programme, including more programme- and less project-by-project funding and a truly joint programme management by UNIDO and UNEP. NCPCs

[36] ToR Independent Evaluation and Strategic Re-orientation of the UNIDO Cleaner Production Programme and related Initiatives, UNIDO Project Document 8 March 2007.

will demonstrate performance against the Programme's outcomes and impacts to continue their association with the Programme. This vision of a strengthened and re-energised Programme has been further expanded in the twelve sets of recommendations provided before in this chapter.

In rounding up this evaluation the reader should also be reminded of the inherent limitations of the evaluation methodology. Responses to the self-evaluation could not be verified in detail, and a respondents' bias can therefore not be excluded. The country selection for the independent evaluations was not randomised so that results from the 18 country visits cannot be generalised as being applicable to all NCPCs/NCPPs. The country visits were brief and even though the set of interviews with key stakeholders enabled the evaluators to construct a picture of NCPC performance, it was not possible to review all outputs of the respective NCPC comprehensively. Moreover, the distribution of the country visits to the team members was also not randomised, and in combination with the different profiles of the evaluators, there may have been an evaluator's bias in the independent country evaluations. Despite these limitations, the evaluation methodology was in tune with international practices for *constructive* evaluations. A relative advantage of such type of evaluations is the opportunity to gather inputs from a broad cross section of stakeholders, including some intimately involved in the programme and some outside participants and observers, into strengths and weaknesses of the programme and opportunities for improvement. A drawback is that some interviewees may not have had full information on all details of the Programme.

The information collected for this programme evaluation displayed huge diversity and richness, and unfortunately only part of that could be brought to the fore in this main evaluation report. It is worthwhile familiarising with the additional information that has been compiled for the all NCPCs/NCPPs (as in the country profiles complementary to this evaluation report) and in particular for the visited countries (in the independent country evaluation reports that can be accessed upon request to UNIDO).

The evaluation study has achieved its output by providing an evidence basis on the status, potential and needs of the NCPCs/NCPPs, and generating practical recommendations and suggestions for improving the Programme. It is hoped that the planned outcome will now also be forth-coming, namely: *"UNIDO management, UNEP management, donors and other stakeholders will use the conclusions and recommendations of the evaluation to elaborate an evidence-based, comprehensive strategy for future assistance to and cooperation with Cleaner Production Centres and Programmes and related initiatives and institutions"* ([37]). It is understood that the scope of recommendations is broad and that evaluation and implementation of recommendations should therefore be undertaken step-by-step.

[37] ToR Independent Evaluation and Strategic Re-orientation of the UNIDO Cleaner Production Programme and related Initiatives, UNIDO Project Document 8 March 2007 (see Annex 2).

Annex 1: Bibliography

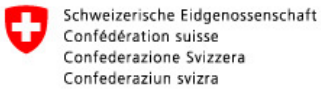
1. Hirshhorn, J. and K. Oldenburg, *Prosperity without Pollution: the prevention strategy for industry and consumers*. 1991, New York, USA: Van Nostrand Reinhold. 386.
2. OTA, *Serious Reduction of Hazardous Waste: for pollution prevention and industrial efficiency*. 1986, Office of Technology Assessment: Washington DC, USA.
3. USEPA, *Waste Minimisation Opportunity Assessment Manual*. 1988, United States Environmental Protection Agency: Cincinnatti (OH), USA. p. 26.
4. Sarokin, D., D. Muir, et al., *Cutting Chemical Waste: what 29 organic chemical plants are doing to reduce hazardous waste*. 1985, New York, USA: Inform. 534.
5. Freeman, H., T. Harten, et al., *Industrial Pollution Prevention: a critical review.* Journal of the Air and Waste Management Association, 1992. **42**(5): p. 618-656.
6. USEPA, *Facility Pollution Prevention Guide.* 1992, United States Environmental Protection Agency: Washington DC, USA. p. 140.
7. Dieleman, H., R. Van Berkel, et al., *Choosing for Prevention is Winning*, in *PREPARE Manual and Experiences*, M. Crul, H. Brezet, and S. de Hoo, Editors. 1991, Ministry of Economic Affairs (for EuroEnviron): The Hague, The Netherlands. p. 112.
8. Backman, M., D. Huisingh, et al., *Preventive Environmental Protection Strategy: first results of an experiment in Landskrona Sweden*, in *PREPARE: Manual and Experiences*, M. Crul, Editor. 1991, Ministry of Economic Affairs (for EuroEnviron): The Hague, The Netherlands. p. 39.
9. UNEP, *Government Strategies and Policies for Cleaner Production*. 1994, United Nations Environment Programme: Paris, France. p. 32.
10. van Berkel, R., *Cleaner Production and Eco-Efficiency*, in *The International Handbook of Environmental Technology Management*, D. Marinova, D. Annandale, and J. Phillimore, Editors. 2007, Edward Elgar Publications: Cheltenham, UK. p. 67-93.
11. WBCSD, *Measuring Eco-Efficiency: a guide to reporting company performance*. 2000, World Business Council for Sustainable Development: Geneva, Switzerland. p. 36.
12. WBCSD, *Eco-Efficiency: creating more value with less impact*. 2000, World Business Council for Sustainable Development: Geneva, Switzerland. p. 32.
13. Johannson, L., ed. *Greening on the Go: a pocket guide to green productivity*. 2005, Asian Productivity Organisation: Tokyo, Japan. 278.
14. Envirowise, *Waste Minimisation for Managers*, in *Good Practice Guides (GG367)*. 2002, Envirowise: Oxford, UK. p. 24.
15. UN, ed. *Agenda 21*. 1992, United Nations: New York, USA.
16. WSSD, *The Johannesburg Declaration on Sustainable Development and Plan of Implementation*. 2002, United Nations World Summit on Sustainable Development: Johannesburg, South Africa.
17. UNEP, *Sustainable Consumption & Production: how development agencies make a difference*. 2006, United Nations Environment Programme - Division of Technology, Industry and Economics: Paris, France.
18. UNEP and UNIDO, *Audit and Reduction Manual for Industrial Emissions and Wastes,*. 1992, United Nations Environment Programme and United Nations Industrial Development Organisation: Paris (France)/Vienna (Austria).

19. van Berkel, R., J. Kryger, et al., *Preliminary Experiences with the Introduction of Cleaner Production in China and India.* UNEP Industry and Environment Review, 1994. **17**(4): p. 46-50.
20. van Berkel, R., S. Chandak, et al., *From Waste to Profits: The Indian Experience (towards financial and environmental dividends from waste minimisation in small scale industries in India)*. 1995, United Nations Industrial Development Organisation: Vienna, Austria. p. 100.
21. Luken, R., R. Stevenson, et al., eds. *Special Issue on Institutional Capacity for Cleaner Production in Developing and Transition Economies*. Journal of Cleaner Production Vol. 12 (no 3). 2003.
22. Kisch, T., E. Ryden, et al., *Evaluation of the UNIDO UNEP National Cleaner Production Centres Programme*. 1996, International Institute for Industrial Environmental Economics: Lund, Sweden. p. 60.
23. Luken, R. and J. Navratil, *A Programmatic Review of the UNIDO-UNEP National Cleaner Production Centres.* Journal of Cleaner Production, 2003. **12**: p. 195-205.
24. UNEP and UNIDO, *Changing Production Patters: learning from the experiences of the National Cleaner Production Centres*. 2002, United Nations Environment Programme and United Nations Industrial Development Organisation: Paris (France)/Vienna (Austria).
25. Grütter, J., *Impact Assessment of Sustainable Enterprise Development Centres*. 2005, Swiss State Secretariat for Economic Affairs: Bern, Switzerland. p. 36.
26. PASS, *Mid Term Review of National Cleaner Production Centre Project: final report*. 2006, PASS Research and Consultancy for Royal Norwegian Embassy and United Nations Industrial Development Organisation: Colombo, Sri Lanka. p. 62.
27. UNIDO, *Progress report: UNIDO-UNEP NCPC Programme (Project US/Int/92/044)*. 1997, United Nations Industrial Development Organisation: Vienna, Austria.
28. UNIDO/UNEP, *Letter of Agreement: UNIDO-UNEP National Cleaner Production Centres Programme*. 1994, United Nations Industrial Development Organisation/United Nations Environmental Programme: Vienna (Austria)/Paris (France).
29. UNIDO, *Project Document: UNIDO-UNEP NCPC Programme (Project US/Int/92/044)*. 1994, United Nations Industrial Development Organisation: Vienna, Austria.
30. UNIDO, *National Cleaner Production Centres Programme*. 2007, United Nations Industrial Development Organisation: Vienna (Austria).
31. UNIDO, *UNIDO's Holistic and Sectoral Cleaner Production Strategy: Productivity Increase and Competitive Market Access with Cleaner Production and Environmentally Sound Technology Transfer 2003-2006*. 2003, United Nations Industrial Development Organisation: Vienna (Austria). p. 21.
32. UNIDO, *UNIDO PTC/PEM Cleaner Production Programme: Business Plan 2003-2005*. 2003, United Nations Industrial Develpment Organisation: Vienna (Austria). p. 43.
33. Skinner, J., *Establishing international networks - UNEP IE/PAC experience*. 1993, United Nations Environment Programme: Paris, France.
34. UNEP, *Capacity Building in Cleaner Production Centres: a training resource package*. 1998, United Nations Environment Programme/Division of Industry, Technology and Economics: Paris, France.

35. Baark, E. and J. Strahl, *The Response of International Organisations to the Environmental Challenge: The Case of UNIDO.* Development and Change, 1995. **26**.
36. UNEP, *Profiting from Cleaner Production: Resource Kit for Training and Checklists for Action*. 2003, United Nations Environment Programme: Paris, France.
37. UNEP, *NCPC Survey: summary results*. 2005, United Nations Environment Programme: Paris (France).
38. UNEP, *Design for Sustainability: A Practical Approach for Developing Economies*. 2006: Paris, France.
39. UNEP, *Energising Cleaner Production: a guide for trainers*. 2007, United Nations Environment Programme: Paris, France. p. 74.
40. UNIDO, *UNIDO Cleaner Production Toolkit*. 2005, United Nations Industrial Development Organisation: Vienna, Austria.
41. UNIDO, *Training Kit on Cleaner Production Policy*. 2002, United Nations Industrial Development Organisation: Vienna, Austria. p. CD Rom.
42. UNIDO, *Chemical Leasing: business models*. 2006, United Nations Industrial Development Organisation: Vienna, Austria.
43. UNEP, *Energy Efficiency Guide for Industry in Asia* 2006, United Nations Environment Programme: Bangkok, Thailand.
44. UNEP, *Sustainable Consumption and Production (SCP):Making the Connection*. 2006, United Nations Environment Programme: Paris, France.
45. UNEP, *Environmental Agreements and Cleaner Production: questions and answers*. 2006, United Nations Environment Programme: Paris, France. p. 28.
46. UNEP, *Environmental Technology Assessment*. 2000, United Nations Environmental Programme. p. 100.
47. UNEP, *Advancing Sustainable Consumption in Asia: a guidance manual* 2005, United Nations Environment Programme: Paris, France. p. 74.
48. UNEP. *UNEP/IAPSO Product Criteria Database for Sustainable Public Procurement*. 2006 [cited; Available from: http://www.uneptie.org/pc/sustain/policies/green_find.asp.
49. Brezet, H. and C. van Hemel, *Ecodesign: a promising approach to sustainable production and consumption*. 1997, Paris, France: United Nations Environment Programme.
50. UNEP/Wuppertal Institute, *Assistant: measure and improve your business performance month by month*, in *The Efficient Entrepreneur Calendar*. 2000, United Nations Environment Programme/Wuppertal Institute Paris, France/Wuppertal, Germany. p. 80.
51. UNEP/CSCP, *Policy Instruments for Resource Efficiency: towards sustainable consumption and production* 2007, United Nations Environment Programme: Wuppertal, Germany. p. 124.
52. Grütter, J., M. Kellermann, et al., *Evaluation Report NCPC South Africa*. 2004, United Nations Industrial Development Organisation: Pretoria/Vienna (South Africa/Austria). p. 60.
53. Klarer, J., T.M. Chi, et al., *Report of the Independent Joint In-Depth Evaluation Mission: Vietnam National Cleaner Production Centre*. 2003, United Nations Industrial Development Organisation: Vienna, Austria. p. 76.
54. CNCPC, *Introduction to Enterprise Cleaner Production Audit Manual*. 1995, China National Cleaner Production Centre: Beijing, P.R. of China.
55. OECD, *Managing National Innovation Systems*. 1999, Organisation for Economic Co-operation and Development: Paris, France.

56. OECD, *Governance of Innovation Systems: Volume 1 Synthesis Report*. 2005, Organisation for Economic Co-operation and Development: Paris, France. p. 120.
57. Foxon, T. and R. Kemp, *Innovation Impacts of Environmental Policy*, in *The International Handbook of Environmental Technology Management*, D. Marinova, D. Annandale, and J. Phillimore, Editors. 2007, Edward Elgar Publications: Cheltenham, UK. p. 119-139.
58. Luken, R. and F. van Rompaey, *Environment and Industry in Developing Countries: assessing the adoption of environmentally sound technology*. 2007, Cheltenham, UK: Edward Elgar Publishing. 345.
59. USEPA, *An Organisational Guide to Pollution Prevention*. 2001, United States Environmental Protection Agency: Cincinnati (OH), USA.
60. Chandak, S., R. Wadhwa, et al., *From Waste to Profits: guidelines for waste minimisation*. 1994, National Productivity Council: New Delhi, India. p. 50.
61. de Hoo, S., H. Brezet, et al., *Manual for the Prevention of Waste and Emissions*, in *PREPARE Manual and Experiences*, M. Crul, Editor. 1991, Ministry of Economic Affairs (for EuroEnviron): The Hague, The Netherlands. p. 84.
62. UNEP/UNIDO, *Audit and Reduction Manual for Industrial Emissions and Wastes*, in *Technical Report Series No 7*. 1992, UNEP Industry & Environment Office/UNIDO: Paris, France.
63. van Berkel, R. and M. Lafleur, *Application of an Industrial Ecology Toolbox for the Introduction of Industrial Ecology in Enterprises.* Journal of Cleaner Production, 1997. **5**(1-2): p. 27-38.
64. van Berkel, R., E. Willems, et al., *Development of an Industrial Ecology Toolbox for the Introduction of Industrial Ecology in Enterprises.* Journal of Cleaner Production, 1997. **5**(1-2): p. 11-26.
65. Stone, L., *Limitations of cleaner production programmes as organisational change agents. II. Leadership, support, communication, involvement and programme design.* Journal of Cleaner Production, 2005. **14**(1): p. 15-30.
66. Stone, L., *Limitations of cleaner production programmes as organisational change agents I. Achieving commitment and on-going improvement.* Journal of Cleaner Production, 2005. **14**(1): p. 1-14.
67. Johannson, L., ed. *Handbook on Green Productivity*. 2005, Asian Productivity Organisation: Tokyo, Japan. 340.
68. WorldBank, *Greening Industry: new roles for communities, markets and governments*. 1999, New York, USA: Oxford University Press.
69. Mertz, B., O. Davidson, et al., eds. *Methodological and Technological Issues in Technology Transfer*. 2000, Cambridge University Press for Intergovernmental Panel on Climate Change: Cambridge, UK.
70. Trindade, S., T. Siddiqi, et al., *Managing Technological Change in Support of the Climate Change Convention: a framework for decision making*, in *Methodological and Technological Issues in Technology Transfer*, B. Mertz, et al., Editors. 2000, Cambridge University Press for Intergovernmental Panel on Climate Change: Cambridge, UK. p. 49-66.
71. Halls, S., *Technology Transfer and Uptake of Environmentally Sound Technologies*, in *The International Handbook of Environmental Technology Management*, D. Marinova, D. Annandale, and J. Phillimore, Editors. 2007, Edward Elgar Publications: Cheltenham, UK. p. 174-191.
72. van Berkel, R., *Scoping Paper on Methodology and Policy Issues in Development and Adoption of Environmentally Sound Technologies*. 2007, United Nations Economic and Social Commission for Asia and Pacific: Bangkok, Thailand. p. 38.

Annex 2: Terms of Reference



Terms of Reference

Independent Evaluation and Strategic Re-orientation of the UNIDO Cleaner Production Programme and related Initiatives

8 March 2007

Starting date:	March 2007
Duration:	7 months
Project site:	UNIDO HQ, 40 countries with Cleaner Production Centres, 17 field visits
Executing agency/ cooperating agency:	UNIDO (executing)/ UNEP (cooperating) Implementation by OSL/EVA and ECB/CPU

Brief description:

In the proposal made by the Director General to the Industrial Development Board in its 32nd session with regard to the UNIDO Medium Term Programme Framework, it is envisaged to "take cleaner production and energy efficiency activities to a new level. With respect to its National Cleaner Production Centres (NCPCs), UNIDO will strengthen the existing network, introducing quality and performance criteria and opening it to other, bilaterally funded, cleaner production centers that meet its criteria. It will strongly promote it as a global delivery platform of excellence for the implementation of sustainable industrial development activities." To set a basis for the new strategy, the technical departments of UNIDO (PTC/ECB) and UNEP in cooperation with the major donors (Switzerland, Austria) of the Cleaner Production Programme have decided to carry out an independent thematic evaluation of the ongoing Cleaner Production centres and related initiatives.

The present document provides the terms of reference for this evaluation and includes the immediate steps to follow up on evaluation findings and recommendations. The former part will be implemented by OSL/EVA, the latter by ECB/CPU.

A. CONTEXT

The UNIDO Corporate Strategy ([38]) considers the existing international network of National Cleaner Production Centres (NCPCs) and Programmes (NCPPs) an effective vehicle for the promotion and implementation of UNIDO's programmes, especially in the field of cleaner production and related issues, benefiting from the presence of reliable and trained focal points in the countries.

Since its inception in 1994, 35 NCPCs and NCPPs have been established within the UNIDO/UNEP Cleaner Production Programme. More recently, one Regional Cleaner Production Programme for Latin America and the Caribbean, with 14 countries participating was created. The "bilateral" Cleaner Production Centres established by bilateral donors (in particular the Swiss State Secretariat for Economic Affairs (SECO), and the German GTZ) have maintained close relations to the UNIDO/UNEP CP Programme. The CPCs, depending on the level and duration of UNIDO support, the support they receive from national and international institutions, the demand for cleaner production in their countries and the success they have had in positioning themselves as a leading agency for environmental matters related to industry, show different levels of institutional capacity and have different needs for future support.

CPCs, after the initial period of UNIDO (or bilateral) assistance, develop into national (private and/or public) institutions with their own local ownership structure. As a result, the level of information in UNIDO with regard to the needs for future assistance, potential for cooperation with other institutions, financial and institutional sustainability, strengths and weaknesses in the different service areas (plant level assessments, policy, training, etc.) varies and is in many cases limited.

The planned evaluation will assess the needs, capacities and potential of NCPCs in order to provide feedback regarding the effectiveness, efficiency, relevance and sustainability of the assistance provided so far. This will provide the stakeholders of the programme with a sound basis for the design of the future cooperation strategy as envisaged in the Medium Term Planning Framework 2009-2011.

B. REASONS FOR UNIDO ASSISTANCE

UNIDO is the lead agency of the UNIDO/UNEP Cleaner Production Programme and responsible for the setting up of and support to the National Cleaner Production Centres. Existing working relations between UNIDO and stakeholders involved in NCPCs will facilitate access to information. The overall coordination role of UNIDO within the international CP activities makes UNIDO the ideal coordinator of this evaluation.

C. THE PROJECT

C.1. Objective of the project

A more effective Cleaner Production Programme of UNIDO and partner agencies, based on a strengthened network of cleaner production centres and programmes.

[38] "*Operationalizing UNIDO's Corporate Strategy – Services and priorities for the medium term, 2004-2007*"

To achieve this objective, the project will aim at providing conclusive evidence with regard to the current status, the potential and the needs of the NCPC and related initiatives. It will do this by carrying out an independent programme evaluation of the CP programme, leading to concrete recommendations with regard to the future strategy of the programme.

Particular emphasis of the evaluation will be given to a number of criteria[39] to assess the capacities and the potential of individual centres to form part of a strengthened and effective global network of CP institutions.

The closure component of the evaluation will be the UNIDO / UNEP Cleaner Production Annual Meeting. The meeting will bring together representatives from the National Cleaner Productions Centres and Programmes, technical institutions and consultants, international organizations, donors and other stakeholders involved in the Cleaner Production projects and programmes.

During the Annual Meeting, the results of the evaluation of the UNIDO / UNEP CP Programme will be discussed and the lessons learned from this experience will be further analyzed. Based on the outcome of the discussion and the innovative ideas presented during the Annual Meeting, the work plan and strategy of the UNIDO / UNEP CP Programme for the upcoming years will be finalized and approved.

C.2. The UNIDO approach

Institutional arrangements:

UNIDO Evaluation Group (OSL/EVA) *will be responsible for overall project management and backstopping and for the implementation of outputs 1 to 5, which form the independent evaluation. The evaluation team will work under the supervision of OSL/EVA and consist of three international experts in the field of cleaner production including a Team Leader. National experts in the countries to be covered by a field visit will support the evaluation team in their work. The independent evaluation will be carried out in accordance with UNIDO evaluation policy.*

UNIDO Cleaner Production Unit (PTC/ECB/CPU) *will be responsible for the follow up on findings and recommendations, i.e. output 6. For that purpose the annual NCPC meeting 2007 forms part of the overall project, since the discussion of future strategy will take place in the course of this meeting.*

The evaluation team will be guided by a steering committee composed of one representative from each of the institutions participating in the evaluation: UNIDO OSL/EVA (chair) and PTC/ECB, UNEP, Switzerland, Austria, GTZ.

It will meet three times over the project period:

1. to decide on the assessment criteria applied in the evaluation,
2. to select the countries for in-depth assessment based on the portfolio analysis,
3. to discuss findings and preliminary conclusions, recommendations and lessons learned based on the draft report.

[39] see Annex III for a list of example criteria

One of the international consultants will act as Team Leader coordinating the report writing with the other two international consultants. The content of the evaluation report will come under full responsibility of the evaluation team, with evaluators acting in their personal capacity as evaluation experts. Comments, suggestions and recommendations from project stakeholders, including the members of the steering committee, will be taken into due consideration by the evaluation team.

Coverage:

- All NCPCs and NCPPs under the UNIDO/UNEP programme (35).
- Regional cooperation initiatives among NCPCs (1, Latin America).
- All bilateral CPCs supported by SECO (Colombia, Peru, Bolivia, Jordan).
- Other donors' CP Centres/programmes (e.g. GTZ), to be decided by the steering committee based on relevance of such centres/programmes for the UNIDO/UNEP network.

Evaluation Methodology:

To carry out a forward looking strategic assessment of performance, capacities and future potential of CPCs, the evaluation exercise will encompass the following steps:

1. Document review: elaborate a set of criteria for the assessment (such as: financial sustainability, institutional sustainability, human resource capacity, client structure, service capacity, etc.) of CPCs. This will be based on a thorough review of existing documentation on activities, performance and capacities of CPCs.

2. Obtain information on the established criteria for all CPCs covered by the evaluation. This will be done through a self-evaluation exercise to be carried out by each CPC together with its counterpart (host) organization(s) and main stakeholders. Information gaps will be closed through telephone interviews.

3. Carry out a portfolio analysis of existing CPCs with regard to:

    - Needs for future assistance
    - Potential for cooperation with other institutions
    - Financial and institutional sustainability
    - Strengths, Weaknesses, Opportunities and Threats (SWOT) in the different service areas (plant level assessments, policy, training, etc.)
    - Other criteria to be established during the evaluation process.

    At the end of this step, different types of CPCs will be described.

4. Select a representative sample of CPCs for in-depth performance assessment through field missions. A number of working hypotheses will be elaborated by the evaluation team and the steering committee. These hypotheses will resemble future strategy options for UNIDO, UNEP, donors and other stakeholders and will be tested through the field missions to selected

CPCs. The requirements of stakeholders for the evaluation of particular NCPCs will be taken into consideration. NCPCs in Central America and South Africa will be included in the field visit programme given the overdue evaluation of these NCPCs.

5. Assess the performance and capacities of selected Cleaner Production Centres. Selected CPCs should be representative for the different types of CPCs established under step 3.

6. Synthesis of results from step 1 (document review), 2 (self evaluation), 3 (portfolio analysis) and 5 (in-depth performance assessment) into an evaluation report including conclusions, recommendations and lessons learned. This step will include an analysis, at the programme level, of the relevance, the effectiveness and the efficiency of the NCPC programme.

7. Management response: collect responses to the recommendations, including envisaged steps towards their implementation, from the management of the main stakeholders of the evaluation (UNIDO, UNEP, donors).

8. Presentation and discussion of the evaluation results at the Annual NCPC Meeting in September 2007

C.3. RBM code and thematic area code

RBM code: B.2.3
Thematic Area Code: EAE

C.4. Expected outcomes

UNIDO management, UNEP management, donors and other stakeholders will use the conclusions and recommendations of the evaluation to elaborate an evidence-based, comprehensive strategy for future assistance to and cooperation with Cleaner Production Centres and Programmes and related initiatives and institutions.

The new strategy will provide the basis for a strengthened global network for the promotion of cleaner production.

C.5. Outputs and activities

Outputs and activities under OSL/EVA responsibility:

Output 1: Assessment Criteria	
Activities	**Responsibility**
1.1 Collect coherent set of information for each of the centres and programmes covered by the evaluation	UNIDO CP Unit
1.2 Review of documentation on centres and programmes	Evaluation Team
1.3 Set of assessment criteria established	Evaluation Team
1.4 Meeting of Steering Committee to approve criteria	Steering Committee
Output 2: Self Evaluation	

Activities	Responsibility
2.1 Design format for self evaluation based on assessment criteria	Evaluation Team
2.2 Send self evaluation format to all Centres and Programmes covered by the evaluation	Evaluation Team
2.3 Provide assistance and follow up to Centres and programmes in conducting the self evaluation	Evaluation Team
Output 3: Portfolio Analysis	
Activities	**Responsibility**
3.1 Analyse information collected under output 1 and output 2 and write a first input report as a basis for portfolio analysis	Evaluation Team
3.2 Describe the existing portfolio of CP centres and programmes by identifying different types or categories of centres/programmes	Evaluation Team
3.3 based on the portfolio analysis, select centres/programmes for in-depth performance assessment	Evaluation Team / Steering Committee
Output 4: In-depth performance assessment	
Activities	**Responsibility**
4.1 Field visits including interviews of beneficiaries and stakeholders	Evaluation Team
4.2 Write brief evaluation reports for each centre/programme visited	Evaluation Team
4.3 Write summary report for the in-depth assessment	Evaluation Team
Output 5: Conclusions, Recommendations and Lessons Learned	
Activities	**Responsibility**
5.1 Based on in-depth assessments, document review and portfolio analysis write evaluation report and draw conclusions, recommendations and lessons learned	Evaluation Team / Steering Committee
5.2 Management response to recommendations	OSL/EVA

Outputs and activities under ECB/CPU responsibility:

Output 6: New strategy for the Cleaner Production Programme based on a strengthened network of NCPCs and related initiatives	
Activities	**Responsibility**
6.1 Meeting of all stakeholders to discuss evaluation conclusions, recommendations and lessons learned (Annual NCPC meeting)	ECB/CPU
6.2 Draft strategy paper / circulation / feedback	ECB/CPU UNEP
6.3 Final strategy paper	ECB/CPU Unit/ UNEP

C.6. Timeline of the activities

Before the output-related activities shown below can start, experts have to be identified and recruited, the members of the steering committee have to confirm their participation and the funds need to be transferred to UNIDO for execution. It is estimated that these activities require at least a one-month lead-time.

Time schedule for output-related activities:

Output	Activity	Months						
		1	2	3	4	5	6	7
Assessment Criteria	1.1							
	1.2							
	1.3							
	1.4							
			Steering Committee					
Self Evaluation	2.1							
	2.2							
	2.3							
Portfolio Analysis	3.1							
	3.2							
	3.3							
				Steering Committee				
In-depth assessment	4.1							
	4.2							
	4.3							
								Steering Committee
Conclusions, Recommendations, Lessons Learned	5.1 5.2							
New CP strategy	6.1, 6.2, 6.3							(Annual Meeting NCPCs)

C.7. Risks

The principal risk of the project is that a lack of relevant information could limit the credibility and usefulness of the evaluation's conclusions for the envisaged strategy building. However, previous evaluations have shown that many NCPCs do have a relatively good information base.

D. MONITORING, REPORTING AND EVALUATION

Monitoring of progress in implementing the project will be carried out by OSL/EVA on a continuous basis. The steering committee of the project will receive status reports prior to each of the three meetings planned over the implementation period of the project. The reports will provide information on progress towards the objective and the expected outcomes of the project. They will also summarize the activities carried out. No evaluation is foreseen.

Annex 1: Logical framework

	Intervention logic	Objectively verifiable indicators	Sources of verification	Assumptions
Development goal/impact	*A more effective Cleaner Production Programme of UNIDO and partner agencies, based on a strengthened network of cleaner production centres and programmes.*	• Increased visibility of NCPCs and NCPPs • Increased use of centres for implementation of multilateral and bilateral programmes in the area of sustainable development	Thematic evaluation to be carried out in 2011	
Outcome(s)/immediate objective(s)/	UNIDO management, UNEP management, donors and other stakeholders will use the conclusions and recommendations of the evaluation to elaborate an evidence-based, comprehensive strategy for future assistance to and cooperation with Cleaner Production Centres and Programmes and related initiatives and institutions.	Incorporation of evaluation's recommendations and lessons learned in future CP strategy	CP strategy of UNIDO, UNEP, SECO, other partners	CP will remain an important area of cooperation for UNIDO and other partners involved
Outputs	1. Set of criteria for the assessment of Cleaner Production Centres and programmes established 2. CPCs and CP programmes have carried out a self evaluation process and are aware of their needs, potentials, strengths & weaknesses, expectations from cooperation 3. Portfolio analysis of CPCs and CP programmes 4. In-depth performance assessment of selected CPCs and programmes 5. Conclusions, recommendations an lessons learned 6.New strategy for the Cleaner Production Programme based on a strengthened network of NCPCs and related initiatives	1. Relevant set of criteria available 2. Self assessment of performance, needs and potential available for all CPCs covered by the evaluation 3. Different types of centres/programmes identified 4. Coherent set of assessment reports available for all visited centres and programmes 5. Relevant conclusions and recommendations, based on evidence found during evaluation, available, Set of lessons of wider applicability for UNIDO and stakeholders available 6. Draft strategy paper which incorporates recommendations and lessons learned from the evaluation		
Main Activities	• Document review • Facilitate self evaluation processes of centres and programmes covered by evaluation • Prepare a first input report as a basis for portfolio review • Country visits to selected centres and programmes including interviews of beneficiaries and stakeholders • Prepare draft evaluation report and collect feedback from stakeholders (management response) • Prepare final evaluation report • Meeting of all stakeholders to discuss evaluation conclusions, recommendations and lessons learned (Annual NCPC meeting) • Draft strategy paper / circulation / feedback			

Printed in Austria
V.08-58169—November 2008—100

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Telephone: (+43-1) 26026-0, Fax: (+43-1) 2692669
E-mail: unido@unido.org, Internet: http://www.unido.org