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# **Industrial Policy for Prosperity: Reasoning and Approach**



UNITED NATIONS  
INDUSTRIAL DEVELOPMENT ORGANIZATION



DEVELOPMENT POLICY, STATISTICS AND RESEARCH BRANCH

WORKING PAPER 02/2011

**Industrial Policy for Prosperity:  
*Reasoning and Approach***

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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

Vienna, 2011

## **Acknowledgements**

We are extremely grateful to Niki Rodousakis for editing, Vivianna Prochazka for helpful comments and to Iguaraya Saavedra for formatting this document.

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## **Introduction**

### ***Growth and Productive Activities***

The need for rapid economic growth has been at the centre of the development discourse ever since its inception. It is commonly agreed that economic expansion requires capital and labour accumulation, technological innovation as well as ensuing productivity growth. However, views differ widely when it comes to the role and composition of the economic and social dimensions to achieve and sustain economic growth.

A view which has been quite in vogue in the development literature and its practice in recent years is the emphasis on the social dimensions of growth and development. Improving education and health are no doubt critical for enhancing human capacity, economic activity and growth in the long run and a strong case can be made for focusing on these issues. However, experience shows that investing in social activities alone is not enough to propel growth to the rates required for effective poverty reduction and development. Countries that have had high rates of growth over long periods have achieved these by increasing their productive capacities, primarily by expanding higher value added activities. This seems to have been forgotten in the current development discourse and hence it is necessary to turn our attention back to the ‘*production side*’ of development (UNCTAD, 2006; Wade, 2009; Chang, 2010). Development is as much about creating productive capacity as it is about having educated and healthy citizens and an environment in which they can unfold their full potential by expanding individual and societal choices.

The differences in emphasis among academics and practitioners on the social and economic dimensions of development diminish when turning to the discussion that countries’ economic structures make a difference for achieving economic growth and development (Prebisch, 1949; Kaldor, 1967; Chenery, 1960; Syrquin, 1988, 2007a, 2007b; Ocampo & Vos, 2008; UNIDO, 2009a). There is widespread consensus that it is the type of goods a country produces which determines whether they are growth-generating or not. In order to achieve sustained growth, many developing countries have yet to initiate a process of structural change involving product diversification and upgrading.

### ***Structural change***

Structural change refers to long-term persistent changes in the composition of an aggregate (Syrquin, 2007a). In the context of economic growth and development, this entails the



continuous improvement of existing activities and the generation of new ones, moving from one sector to another and absorbing surplus labour, increasing the contribution of individual workers and promoting the integration of production sectors within the domestic economy, i. e., strengthening domestic linkages (Ocampo & Vos, 2008). Investment, technological change and innovation are key determinants of structural change. Old products and industries are replaced by new or better ones based on novel technologies, fresh marketing approaches or original organizational structures through a Schumpeterian process of ‘*creative destruction*’. Technologies from established producers abroad are learnt and adapted to domestic conditions by local entrepreneurs.

### ***Industrial policy***

Industrial policy (IP) has witnessed a recent revitalization in the international discussion as developed country governments attempt to revive the global economy and spur economic growth through financial support for the industrial sector and domestic demand stimulus packages. As ever, industrial policies continue to play a central role in inducing industrial transformation, diversification and upgrading towards more resilient and competitive, as well as environmentally friendly and socially inclusive, industries. The main objective of industrial policy is to anticipate structural change, facilitating it by removing obstacles and correcting for market failures (Syrquin, 2007b). Anticipating where to diversify and what to upgrade requires concerted private-public action through government policies going hand in hand with private initiatives, as major transformations in the economic structure of a country have rarely occurred by either market or government forces alone.

Thus, creating new innovative activities and upgrading existing product lines rests on two fundamental insights, namely, that the process within which industrial policies emerge matters and that the emphasis should be on supporting and enabling multiple actors rather than merely focusing on sectors *per se*. Modern thinking on industrial policy is characterized by its process orientation and by placing the interaction between actors at the centre of this process. The focus is on *how* the interface between public and private actors takes place, under what conditions and in which roles. Modern industrial policy approaches require the establishment of an environment of mutual learning, dialogue and understanding, as well as the enhancement of key actors’ capacities.

### ***Poverty reduction***

Structural change is both a cause and consequence of long-term growth (UNIDO, 2009a). It leads to steady economic growth as new dynamic activities are generated and output increases. It follows growth because these very activities open further opportunities for investment and innovation that generate modern sectors or advance existing ones. Structural change and growth can also have an important transformative effect on the level and composition of employment and income.

Jobs are the main mechanism for spreading the benefits of structural change and growth to society at large (UNRISD, 2010). Well-paid jobs provide the income individuals and families need to improve their material well-being as well as their educational and health status. Yet not all patterns of structural change and growth are conducive to productive and adequately remunerated employment, as some labour moving out from traditional activities could be absorbed by low-value services and the informal sector where the scope for sustained growth in productivity and income is limited. Governments could maximize the employment and income potential of structural change and economic growth by ensuring that resources are allocated to the most dynamic sectors.

Industrial policy aimed at achieving structural change and economic growth can therefore become the most effective mechanism for lifting the remaining 1.2 billion people out of poverty and marginalization and achieving the Millennium Development Goals (MDGs).

## **1. Structural Change: Key Issues**

### ***The Great Transformation: From Agriculture to Manufacturing***

Many developing countries are characterized by an acute concentration of production in agriculture and mining-based commodities which often face limited price and demand elasticity, experience high market volatility and involve little value addition. **Inter-sectoral** structural change describes the diversification away from existing crops in agriculture or extractive mining into the manufacturing industry (and eventually into services), e.g., from planting and harvesting sugar cane or tea to manufacturing textiles and garments, or electronics and other electrical equipment.

Agriculture sets off industry by a transfer of surplus labour due to the low productivity in agriculture (push) and the need for relatively cheap, unskilled labour in manufacturing (pull).

Agriculture (as well as mining) also fuels industry by generating foreign exchange earnings through exports of agricultural commodities; these revenues are needed to finance growing imports of raw materials, energy and intermediate and capital goods required for the expansion of industrial activities.

This **inter-sectoral** process of resource reallocation results in systemic changes in the composition of domestic final demand in the long run. The share of the total labour workforce engaged in agriculture declines in favour of industry and services, where there is a continuous rise in the level of skills, productivity and wages, hence increasing the purchasing power of consumers. Domestic demand also changes because with rising incomes, the proportion of money spent on traditional agricultural products such as staple foods declines, while the proportion spent on manufactured products grows. Investments to profit from emerging industrial opportunities follow suit.

The benefits of inter-sectoral structural change do not flow in a single direction. Over time, agriculture could benefit from increased access to cheaper industrial consumer goods as well as from the growing availability of industrial products such as machinery, fertilizers, improved farming technologies, construction, transportation, better and cheaper seeds and other inputs produced domestically. The result would be an overall rise in agricultural productivity and output growth, thus also increasing incomes and savings in rural areas. Not only would this enlarged market provide additional stimulus for continuing industrial growth, but agriculture inputs for the different manufacturing industries could also be produced more efficiently, with a higher quality and at lower costs than before. Often, the successful transformation of industry leads to agricultural modernization.

### ***Manufacturing Industry's Role: Stylized Facts***

The shift of capital and human resources towards manufacturing provides at least four major benefits: productivity growth, development of more and deeper linkages, economies of scale and new export opportunities. All benefits are closely linked with each other and are mutually reinforcing.

The manufacturing sector exhibits a very large potential for **productivity** growth. This is, among others, attributed to the high rate of technological change that characterizes production processes. There is, in fact, a strong correlation between the growth of manufacturing output and the growth of productivity in the manufacturing sector. Labour productivity increases

through the adoption, development, mastering and learning of new—often imported—technologies, which usually demand innovative efforts by developing countries and their firms (Ocampo & Vos, 2008).

Manufacturing also helps develop significant *“forward”* and *“backward” linkages* (Hirschman, 1958). Backward linkages arise as industry expands and demands inputs from other sectors. The establishment of a steel mill, for example, requires supplies of iron ore. If local production of iron ore is available, the output can be sold to the steel mill (instead of being exported as before). In this example, iron ore is a backward linkage of the steel mill. Conversely, when an industry sells, distributes and transports its products to other firms and sectors in the economy, it creates forward linkages. The existence of iron and the establishment of a steel industry may facilitate the development of new, downstream economic activities in the country, such as fabricated metal industries or distribution services. Within manufacturing, linkages are more dynamic and stronger than in other sectors, as a considerable share of industrial output is in fact used as inputs for other industries. Also, the increased sophistication in consumer goods industries creates forward linkages outside manufacturing, as sophistication gives rise to the development of an array of consumer services, such as financing, marketing and retail distribution. The more diversified the economic structure, the more forward and backward linkages exist, thus enhancing a country’s internal economic integration and resilience.

Gearing the economy towards manufacturing involves the production of significant amounts of standardized products and, accordingly, provides the opportunity to profit from **economies of scale** (Szirmai, 2005). Economies of scale exist when the long-run unit cost of production falls as output increases. Specialization, division of labour, bulk buying, transport economies and larger capacity machines enable the reduction of long-run unit costs in manufacturing. Economies of scale are more difficult to achieve in smallholder agriculture because of the size and geographical dispersion of the production units.

More diverse economies may also be better able to take advantage of **export opportunities** in global markets and to participate in global value chains (GVC), since industrial diversification leads to export diversification (UNIDO, 2009a). This extends to trade in services as well, particularly business services. A broader productive base results in lower dependency on natural resources in the export portfolio, which in turn leads to reduced vulnerability. New manufacturing export activities significantly reduce the susceptibility to external price shocks, as commodity prices are considerably more volatile than manufacturing goods prices. Hence,

export earnings fluctuations and exchange rate volatility are reduced, providing long-term economic stability.

### ***Structural Change within Manufacturing***

Changes also occur within the manufacturing industry (**intra-sectoral**). Two types of intra-sectoral structural change are common: inter-industry and intra-industry. **Inter-industry** structural change involves diversification by reallocating resources and investments from low productivity, labour intensive industries towards more capital-, skill- and technology intensive activities. Shifts take place from industries such as textiles, apparel, footwear and furniture to activities such as the production of advanced machinery, automobiles, aircrafts and aerospace products, industrial chemicals and electric/electronic products.

Emerging manufacturing products are a source of accelerated growth for industry. Their production processes require deeper, more dynamic and stronger forward and backward linkages among firms processing raw materials and semi-industrial inputs and involve a variety of ancillary services, thus fostering the emergence of domestic and international value chains and industrial extension services. Value chains are increasingly assuming an international character as new opportunities for the division of labour and tasks emerge in a globalized economy. Countries that move to this level of industrialization set themselves apart from others and are able to develop a set of distinctive technological, managerial and innovation capabilities and generate spillover effects that translate into very rapid rates of economic growth.

**Intra-industry** structural change entails expanding, upgrading and deepening output within the same industry and improving the industry's domestic and international position. Examples include moving from mass market garments to fashion apparel or from simple and low-value fibres to the production of high-tech fibres for specialized applications. It also involves better coordination with input suppliers and improving the quality of existing products. Manufacturing industry moves into more sophisticated product lines in terms of increased unit values. This usually involves the introduction of new superior technology and machinery, better inputs and raw materials, new or reorganized production processes and improved design and more sophisticated distribution channels.

## **2. Constraints to Structural Change**

Interest in structural change derives from its relevance for crafting development policy in general and industrial policy in particular. If structural change is crucial to achieving economic

growth and prosperity, it is essential to understand what drives and constrains the shifts of resources, and what strategies are needed.

### **Box 1      Mauritius: Getting structural change right**

Mauritius, a small island with a population of only 1.2 million, is one of the fast-growing sub-Saharan economies. The local economy has been based on three distinct industries, starting with sugar processing, evolving into higher value industrialization through the textile industry and finally developing a booming up-market tourism sector. This progression reflects a development path from a resource-based economy to manufacturing and, finally, to services, which is an ideal trajectory for the economic success of developing countries (Peerally & Cantwell, 2009).

Until the 1970s, Mauritius, as a single-crop economy, was completely dependent on sugar and its export sector was thus anything but diversified. Moreover, a tiny domestic market limited the scope for exploiting domestic economies of scale. Mauritius's endowments were not particularly favourable for growth.

Mauritius successfully entered global manufactures markets by focusing on textile and garment production. The government used the proceeds of the 1972-75 sky rocketing sugar prices to make funds available for a diversification strategy towards manufacturing. The share of the Manufacturing Value Added (MVA) in GDP increased markedly from 14.2 percent in 1981 to 20.7 percent in 2001. MVA per capita showed gains from USD 225 in 1981 to USD 842 in 2001. Moreover, the average growth rate of MVA from 1991 to 2001 was about 5.9 percent per annum and the employment in industry rose from 24.5 percent to 42.5 percent, confirming the growth potential of the manufacturing sector (UNIDO, 2004).

Mauritius succeeded due to a combination of circumstances. A key strategy at the beginning of its industrialization was the use of Export Processing Zones (EPZs) established in the early 1970s. The authorities were determined to institutionalize a manufacturing base in order to diversify away from a mono-crop agricultural sector. Mauritius is an example of how EPZs can offer a feasible growth path by attracting crucial foreign direct investment (FDI). EPZs provided protection for existing domestic import-substituting industries without allowing them to become a handicap to new export firms, since the latter were able to import duty-free. This considerably facilitated the politics of trade liberalization. However, as the economy was small, EPZs quickly became politically significant, prompting society to progressively buy into the policies to sustain manufactured exports.

The rapid growth of manufactured exports that followed was boosted by Mauritius's privileged access to markets in Europe and the recognition by Hong Kong-based garment manufacturers that they would need to relocate production due to increasing labour costs at home. A number of 'behind the border' policies, such as good transport, energy and communications infrastructure and a continuously improving system of technology support consisting of a range of institutions involved in metrology standards, testing and quality, productivity improvement, training and SME support and technological diffusion, weighed heavily in the choice to invest in Mauritius. A stable political system, which has been in place since independence, and a strong commitment to industrialization and structural change by deliberately using industrial policies across various administrations, effective governance institutions and less corruption than the developing country average, further contributed to make the difference and resulted in the Mauritian miracle of successful industrialization and diversification (UNIDO, 2004).

There is general agreement that diversification and upgrading of productive structures need to be driven by private entrepreneurs and market forces. The skills for identifying and developing business opportunities, for managing and organizing financial, material and human resources and for innovating and generating new technologies are found in the business people and industrialists who increasingly emerge during the process of economic development.

Competition between firms and the institutions, procedures, systems and infrastructures that arise to ensure that the goods and services produced by those firms are sold and bought guarantees, in principle, that all participants are rewarded and that adequate prices and incentives are generated. This does not mean exclusivity in the sense that other actors cannot undertake productive activities, but rather that the private sector is the main actor and that structural change takes place by and large under market conditions.

In order to foster structural change, the private sector must be provided with all the necessary information available and be able to anticipate the direction of change; constantly adapt and shift the allocation of resources in response to continuously changing signals; remove the barriers to the mobility of resources that inevitably emerge in rapidly changing contexts; coordinate the changes in demand, production and primary inputs to prevent bottlenecks from arising, and assess the short and long-term effects of the measures taken. Achieving all this is a tall order challenge, one that markets are not always up to, as processes of change are not automatic and are fraught with market failures, particularly in developing countries, often resulting in markets giving ‘*wrong*’ price signals, distorting the allocation of resources and constraining diversification options (Syrquin, 1988, 2007b).

### ***When Markets Fail***

Market failures are pervasive in developing countries and discourage or may even inhibit entrepreneurs from investing and innovating in non-traditional activities that foster structural change. Generally, there are two root causes why markets fail to allocate scarce resources effectively, namely because they are either incomplete and/ or because information is imperfect (UNIDO, 2006). These two root causes manifest themselves in different ways, among others, in missing property rights, high or dispersed information and transaction costs, coordination problems and various externalities.

Information asymmetries arise when one party has more or better information than others about the cost structure of an economy and about its competitive position in the world, that are crucial for introducing new product lines and identifying dynamic comparative advantages. For example, producers in developing countries may not be aware of the most appropriate technologies available, or may not have access to the information required to link to global value chains (UNIDO, 2006). Moreover, there is a great social benefit to discovering that cut flowers, fibres or computer software can be produced at competitive costs, as this knowledge can direct the investments of entrepreneurs. But it is perhaps too costly for a single entrepreneur

to acquire such information, given he or she can only capture a small part of the benefit this knowledge generates, while other entrepreneurs can emulate him or her without having to incur information gathering costs. Hence, the government has a role in improving information and knowledge flows.

Often entrepreneurs do not realize that their individual success depends on the actions of other market players and that by working together, their overall performance is improved. These coordination failures tend to occur, for instance, when large-scale investment projects require simultaneous investments into various complementary production processes or when infrastructure services have to be available for an investment project to become competitive. One such example is a rural processing plant that will only be profitable if a transportation network is in place. The government could intervene by offering appropriate incentives in order to achieve a higher level of coordination of investments.

Since no one can be excluded from access to a public good and since the use of a public good by any given individual does not prevent its use by someone else, there is no incentive for any private individual to pay for it. This free-rider problem could result in public goods not being provided at all. However, as they are socially desirable, it is up to the government to intervene and either produce the public goods itself or subsidize private firms to provide them.

Externalities are the benefits and costs of many economic activities that accrue to people not directly involved in those activities, can either be positive or negative and are usually excluded from the private calculation. Externalities result in the production of too many or too few goods and services than is economically feasible. In case external (social) benefits exceed private ones, the production of desirable goods will be insufficient and the government would have to find ways of rewarding the production of such goods. In case external (social) costs exceed private ones, the result will be an overproduction of less desirable goods. For example, the negative external costs associated with the environmental consequences of production, such as environmental degradation, depletion of resources, air and water pollution and human-induced climate change are not taken into account by individual producers. The result is an oversupply of harmful or undesirable goods that requires government intervention to internalize costs and charge polluters, regulate entry and equalize social and private benefits.



### *Climate Change: The Most Significant Negative Externality Ever*

Industrialization has been a source of goods that have improved humankind's standard of living. However, industrial growth has also been associated with increasing emissions, thereby generating a number of unintended '*negative externalities*' relating to environmental quality. The climate is a public good and it is changing with severe disruptive effects on living organisms' activity due to the accumulation of greenhouse gases (GHG) in the atmosphere.<sup>1</sup> The effect of industrial development on climate change is an externality, because those who create GHG emissions—power plants, manufacturing industries or consumers through their demand for industrial goods—do not have to pay for the costs of their individual '*contribution*' to climate change. Like oceans, rivers and clean air, the climate is a public good for which no property rights can be assigned (UNIDO, 2006). In contrast to some other externalities, climate change is global in its causes and consequences, its impact is felt everywhere, it is persistent and develops in the long run. Climate change is also difficult to quantify and may be irreversible. It can be considered a market failure on the greatest scale the world has ever seen (Stern, 2006).

Climate change will increasingly require industrialization patterns which place a lesser burden on the earth's ecosystems than the previous ones. Industrial development must encompass low-carbon intensity, limited environmental impact and increased resource efficiency, in short, it must be environmentally sustainable. Structural change thus needs to take place in such a way that former GHG-intensive production methods are replaced by more climate-friendly ones, where energy is generated by renewables and low-carbon equipment and appliances are introduced, thereby giving rise to new economic opportunities and untapped markets.

The shift towards a low-carbon economy cannot be left to market forces and will require governments to introduce appropriate incentives, disincentives and regulations that impose or prohibit certain forms of production, as neutrality towards all products and processes can no longer be maintained (Naudé & Alcorta, 2010).

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<sup>1</sup>In descending order of importance: water vapour, CO<sub>2</sub>, methane, nitrous oxide, ozone, CFCs.

## **Box 2 Industrial energy efficiency: A key to ‘green industry’**

Since the industrial revolution and the introduction of steam power, industrialization has been a source of goods for improving humankind’s standard of living. The wider availability of products both in range and volume requires an increasing use of energy. Over the last 200 years, energy consumption per capita has increased more than nine-fold compared to the amount of energy used before the industrial revolution and it is unlikely that overall energy consumption will decrease in the foreseeable future. During the early stages of world industrialization energy seemed to be plentiful and there were no evident limits to its use. With the passage of time it has become clear that the fossil fuels being used for industrial development may not be as abundant as previously assumed and, more importantly, that their use was generating some seriously negative environmental impact.

UNIDO sees Industrial Energy Efficiency (IEE) as one of the most promising routes for sustainable industrial development worldwide and, in particular, in developing countries. Industry is growing very rapidly in large developing countries and will soon spread to least developed countries, yet it continues to remain one of the most energy intensive sectors today as its contribution to world GDP is lower than its global share of energy consumption. Since it is estimated that a 30-35 percent efficiency potential exists in today’s industrial processes, a generalized adoption of best available technologies and related business and engineering practices could eventually contribute up to two-fifths of the industry effort required to combat climate change while helping to reduce other pollutants; should help release energy that can be redirected to meet social energy needs, which are particularly acute in developing countries, and should help corporations everywhere to improve their bottom line, as important financial savings can be made.

Despite the evident advantages of IEE, markets do not always work as well as expected, nor have individual and corporate behaviour been as rational as predicted by standard textbooks, creating a number of obstacles or barriers to achieving potential efficiency levels. All too often, potential industrial users are not aware or informed about the advantages and opportunities arising from investments in efficient technologies, or when they are, cannot easily obtain the funding required to purchase the new equipment or introduce the necessary plant modifications. Decision-makers do not always benefit directly from their choices and it is not easy to estimate all the costs, benefits, risks and duration of industrial energy efficiency investment projects. Subsidizing the price of energy does not increase the attractiveness of investing in energy efficient technologies, either. In least developed countries barriers may even get higher because of the institutional, economic and technical conditions such countries usually face. What matters in situations of irregular energy supply for industrial use is not so much efficiency, but availability. Small and medium-sized enterprises are disproportionately affected by obstacles to access loans for efficiency improvements.

Dealing with industrial energy efficiency barriers requires public policy processes and measures. Processes will need to be designed to include a sectorally coordinated energy strategy, formal and informal mechanisms, targets, benchmarks and standards and a grounded policy design on the specific context being faced. Process implementation involves choosing the right policy mix, a special focus on small and medium-sized enterprises, a continuous assessment of the effectiveness of the policies and anticipating possible rebound effects that may arise from substantive reductions in energy use. Process management will require the establishment of necessary local, regional and national bodies and authorities and exploring possibilities of international, including South-South, cooperation. Policy measures include official support for developing new, more efficient industrial technologies, providing information about and disseminating best available technologies, introducing fiscal incentives for industrial energy efficiency innovation and diffusion, evaluating and streamlining domestic and international energy prices, establishing financial mechanisms specifically aimed at industrial energy efficiency and the reaching of voluntary agreements.

International collective action will need to complement IEE domestic efforts through the introduction of global measurable energy performance targets and standards, facilitating international information exchange and supporting international cooperative efforts in research and development, supporting technology transfer from developed to developing countries, promoting international financing of IEE projects and programmes and establishing an international monitoring and coordination function (UNIDO, 2011a).

### **3. UNIDO's Position: A Strategic Approach to Industrial Policy (SIP)**

UNIDO's emerging standpoint on industrial policy features several key dimensions and components, which set it apart from former conventional interpretations of industrial policy.

First, it focuses on strategic and sustainable choices. Like any firm or individual, countries must make key decisions on what path to follow, what resources to build on and where to invest. These decisions need to take into account that industry's potentially negative environmental impacts will have adverse effects on doing business in the future. Second, it focuses on tailor-made solutions based on local capabilities and potentials. The content of the approach is flexible in nature and varies from location to location, because it strongly depends on countries' specific economic structures, the identified needs and available public and private capacities. Third, the approach places a premium on the notions of process orientation and facilitation by putting actors at the centre stage of industrial development.

#### ***Old and New Thinking on Industrial Policy***

Views on industrial policy usually relate to authors' understanding of the role of the state. In the '*minimalist*' state role perspective, industrial policy is aimed at creating a favourable environment for business and for adapting production to changing domestic or international demand (Aiginger, 2007). This is normally linked to '*functional*' or '*horizontal*' mechanisms of industrial policy where general support to business is provided, but neutrality exists towards all individual sectors. In '*maximalist*' approaches, the aim of industrial policy is to actively shift resources to selected sectors and activities in order to achieve specific objectives, such as improved productivity, competitiveness and technological capabilities and to accelerate industrial restructuring (Chang, 1994; Krugman & Obstfeld, 1991; Johnson, 1984). '*Selective*' or '*vertical*' interventions are used to alter the composition of production towards specific or new sectors and activities.

A new way of conceiving and conducting industrial policy has recently emerged in the literature (Rodrik, 2007; Chang, 2010; Lin, 2009; Lin & Monga, 2010). It moves away from the '*dichotomic*' view of the role of the state to a process-oriented, multi-stakeholder-driven, flexible and open-ended approach. New industrial policy is viewed as a '*discovery process*' where entrepreneurs, governments and other relevant stakeholders get together to learn from each other about costs and opportunities and to engage in strategic coordination to select best options for industrial diversification (Rodrik, 2007). Close and sustained consultation on existing views takes place among private and public sectors in order to make strategic decisions.

Stakeholder-ownership and -steering are crucial in decision making, as it facilitates both the implementation process and increases the chances of success. UNIDO's Strategic Management of Industrial Development (1991a) already anticipated this approach in the early 1990s by defining industrial policy in terms of "public and private sectors jointly identifying and lifting the constraints that impede the transformation of industry".

### ***Towards a Strategic Approach***

The existence of market failures justifies public intervention. There are different types of tools to address market failures, ranging from taxes, subsidies and specific regulatory measures to setting rules and standards and providing public goods. Industrial policies could change the incentive system for firms to internalize environmental costs and introduce instruments such as carbon taxes to set a price for CO<sub>2</sub> emissions. Or they could provide the necessary information and remove obstacles so firms could more efficiently use the resources the country has a relative abundance of and exploit its existing comparative advantage.

Standard economic market failure and comparative advantage approaches, however, do not take into account that patterns of structural change can also be, and often are, created (Chang, 2009; Lall, 1992; Lauridsen, 2010). Industrial diversification and upgrading in developing countries is essentially about building technological capabilities which arise from conscious and purposeful decisions by entrepreneurs and firms to invest, master, adapt and improve existing technologies or to create new ones (Lall, 1992). Acquiring the necessary technological capabilities required to introduce significant changes in industrial structure entails learning a range of technical, managerial and organizational skills at firm and industry level, and involves a considerable amount of effort and time. It is far from being an automatic process and choices have to be made throughout. These choices are sometimes based on firms anticipating shifts in the dynamic comparative advantage; that is, long-term changes in international prices, in the costs of factors and in technology, and how these will affect existing industrial structures (Lin, 2009). Decisions can also be the result of challenging the existing and dynamic comparative advantage and placing strategic bets through trial and error (Chang, 2010).

While drawing on standard economic views, UNIDO's approach to industrial policy is strategic. Strategy generally refers to the fundamental long-term positioning of a country within its context, which in an increasingly globalized context is the world economy. UNIDO's Strategic Industrial Policy (SIP) Approach is defined as government interventions aimed at steering economic activity, particularly the intra- and inter-sectoral structure of production, towards

areas that are expected to offer better prospects for economic growth than would be the case in the absence of such interventions.

SIP is based on a thorough understanding of global trends and local factors, on the availability of domestic capabilities and on countries' potential to acquire the necessary skills. SIP involves developing a vision and clear objectives of where a specific country wants to position its industry in the short-, medium- and long-term, which industries will become the '*drivers*' of this positioning and how the vision will be achieved, including where individual industries will locate themselves internationally.

SIPs have therefore to align various aims and related sets of measures. The key objectives in this regard include expanding existing manufacturing capacities, engaging in new industries, creating new linkages, improving productivity and participating in more dynamic world market segments (Lauridsen, 2010; Pack & Saggi, 2006). Although it is not easy to draw exact boundaries between these dimensions in reality, we can broadly distinguish three complementary and interlinked industrial strategies and relate them to the different types of structural change:

- ***Industrial diversification*** strategies aim at shifting into new industries (inter-industry structural change), thus referring to the nurturing of hitherto non-existent manufacturing activities.
- ***Industrial expansion and upgrading*** strategies focus on existing manufacturing activities and comprise capacity expansion, product upgrading, process upgrading and functional upgrading (intra-industry structural change).
- ***Industrial deepening*** strategies aim at creating more backward- and forward linkages and complementarities within one industry (intra-industry structural change).

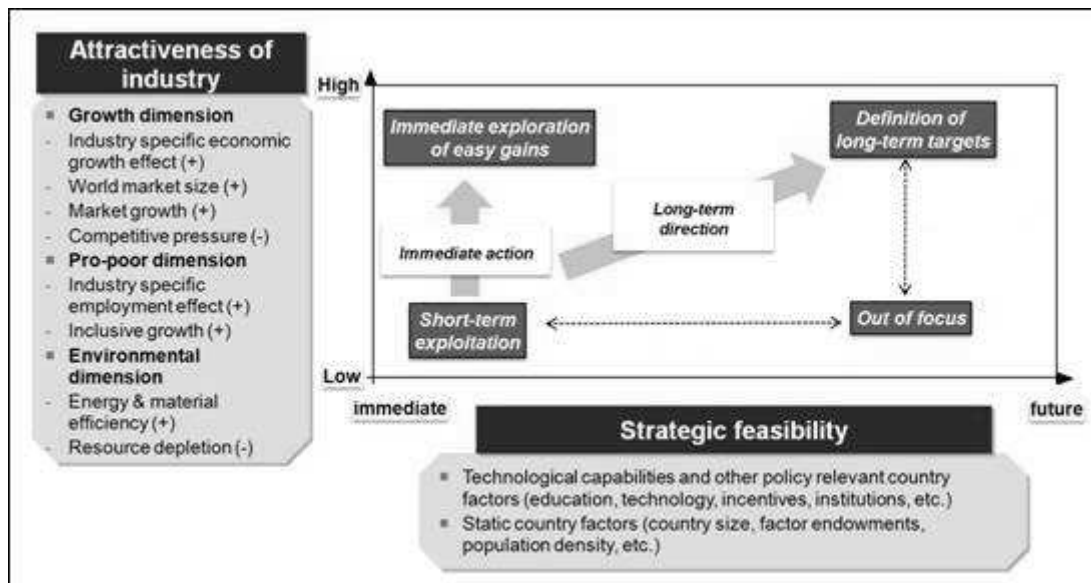
When designing SIPs, governments have to decide which existing manufacturing industries they want to strengthen, which new industries they want to stimulate and in which industries they want to improve the internal integration of existing manufacturing operations.

On the one hand, this decision should be based on an in-depth understanding of the relative attractiveness of individual manufacturing sectors for the respective country at its current and future stages of development. On the other hand, it must be acknowledged that the relative potentials different industries offer a given country depend on the industries' requirements in

terms of technological capabilities and endowment structures. While some activities in certain industries are feasible at an early stage of development and only require limited technological capabilities, other activities rely on advanced capabilities and might thus only be feasible in the long run.

Figure 1 summarizes the idea that the *attractiveness of industries* can be evaluated in several dimensions. The growth dimension of attractiveness looks at the economic growth potentials certain sectors offer to countries at a given development stage as well their capacities to pull other sectors. Global market factors such as market size, market growth and the intensity of competition also influence this dimension. For example, the fact that China today dominates the world market in several products certainly reduces the attractiveness of these activities for other developing countries. However, industrial policies should always balance economic with social and environmental goals and thus need to include a full sustainability impact assessment (Altenburg et al, 2008).

**Figure 1 Framework for the comparative assessment of the relative attractiveness and strategic feasibility of manufacturing activities**



In order to ensure a poverty reduction focus, the employment effect of individual sectors as well as growth inclusiveness aspects have to be factored in. In this respect it is important to highlight the finding that resource-based industrialization usually goes hand in hand with a more unequal growth path than labour-intensive manufacturing (UNIDO, 2009).

As regards the environmental dimension is concerned, the ecological impact of individual industries has to be considered because environmental concerns and climate change, in particular, will increasingly affect the industrialization path of developing countries in the near future. One effective way of taking the environmental implications of structural change into account is to compare the relevant sectors' energy efficiency, material efficiency as well as resource depletion effects (UNIDO, 2011a).

Industrial strategies will always face *trade-offs between economic, social and environmental targets*. Although a detailed comparative analysis of industries' attractiveness in the three dimensions can certainly inform policy decisions, the ultimate necessity to exercise judgement and involve stakeholders will never disappear.

Apart from the attractiveness assessment, Figure 1 also illustrates the idea that industrial strategies have to take the *strategic feasibility* of manufacturing activities into consideration. While some activities are immediately viable because they are in line with the country's current endowments, capabilities, etc., other activities will only be feasible in the future, e.g., because they require a substantial improvement of the technological capabilities. While Lin & Monga (2010) do not consider potentials in industries that do not correspond to a country's current comparative advantage in their identification framework, this approach provides additional insights into activities that might require challenging the current comparative advantage in order to build the necessary technological capabilities for activities that will be viable in the medium to long run (Lin & Chang, 2009).

UNIDO has extensive experience and expertise in evidence-based research and statistics and is in the position to assist countries in developing such a strategic orientation. It has a unique database of internationally comparable industrial statistics, which allows in-depth analysis and understanding of key industrialization issues. The organization also has a long history of providing strategic industrial policy advice to developing countries and is the only UN agency directly mandated to assume this role.<sup>2</sup>

### ***SIP's Principles and Perspective***

Industrial policy theory and practice has evolved extensively over the years and has learnt from past mistakes. Modern perspectives of industrial policy seek to be efficient in terms of minimizing the costs involved in policymaking, and effective in terms of rapidly achieving

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<sup>2</sup> UNIDO is also mandated to compile and process internationally comparable industrial statistics worldwide.

targeted results. UNIDO also believes that only local stakeholders who own and drive the industrial policymaking process can enhance information flows and create mutual understanding and learning among all actors involved, which will eventually result in self-reinforcing diversification and industrial upgrading. External agents are mere facilitators of these required interactions.

### ***Principles***

Building on past experience in UNIDO's and other organizations' programmes as well as on the industrial policy literature, a number of principles can be derived which inform and govern strategic industrial policymaking processes.

### ***No 'one-size-fits-all'***

Structural change takes place under widely varying situations, and respective spatial, national and regional circumstances are of relevance. Hence, previous one-size-fits-all policy solutions are no longer applicable; instead, context-specific interventions are necessary. This calls both for a solid evidence-based framework that builds on existing industrialization experiences as well as for a thorough understanding of the specific conditions in a particular country, including a clear grasp of what works and what does not under the given circumstances. Trial and error are a crucial part of this new policy approach, and encourages research into new emerging economic activities, the identification of underlying cost structures and policymaking experimentation and diversity.

### ***Supporting and challenging***

In the new framework, the government plays a special role to adequately assist the private sector in exploring the cost-discovery process and identifying new products. The government's task in this approach is double-edged; not only should the government support entrepreneurs in their search for new upgrading and diversification opportunities, it must also enforce discipline and terminate assistance if the envisioned changes are not achieved. The economic feasibility of new projects has all too often depended on continuous state subsidies and, as a result, '*infant industries never matured*'. Successful industrial policies are not only about picking winners, they are also about letting losers go. Entrepreneurs should be aware that government support is time limited (sunset clauses) and performance-based. Those who do not perform and merely seek rents will not be supported. This factor of the approach also demands a capable government bureaucracy or reform team to supervise and evaluate such endeavours.



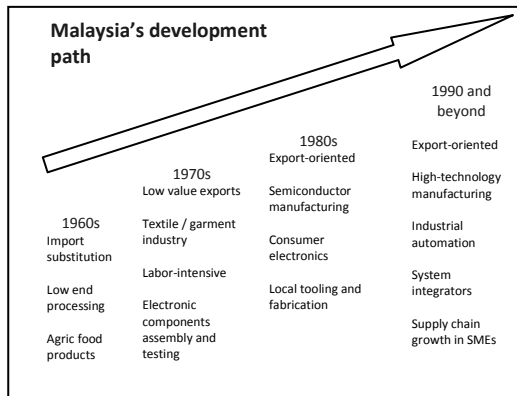
### ***Ensuring impact***

The limited availability of public and private resources in developing countries demands that SIP interventions achieve lasting effects. Hence, SIP interventions must ensure that:

- Government intervention targets specific constraints (Rodrik, 2007; Altenburg, 2011) since resources and capabilities are limited and lacking. Prioritizing means identifying and focusing on the key '*binding constraint*', market failure or other factors, such as infrastructure, productivity and investment and savings, which hold back structural change. Positive effects should be quickly visible, so-called '*quick wins*', easily assessable and manageable by the government.
- The various managerial and technological capabilities required to design and implement policy processes and measures and to ensure that policy interventions are successful and generate a self-reinforcing dynamic are available. This also necessitates the establishment of effective and efficient private and public institutions and organizations as well as interfacing mechanisms. Robust capacity development measures at multiple levels to enhance specific capabilities must be part and parcel of policy interventions.
- The economic feasibility of a sector or activity is scrutinized. Starting from the current base of capabilities, it is essential to establish feasible rates of improvement, the expected evolution of demand and to estimate the cost-benefit-ratio of government support for alternative options before deciding to '*create*' new comparative advantages. Portfolio analysis and risk assessment should also be carried out.
- Decisions are evidence-based, supported by a fair amount of research and experts' recommendations and consider a range of views and options. Once interventions have taken place, they should be subject to continuous review and feedback loops, including independent third-party evaluation.

### Box 3 Malaysia: Applying industrial policies successfully

Diversification in Malaysia has been driven by a strong political commitment. The government's determination to experiment and craft entire "reform packages" instead of introducing single sequential policies has been of critical importance. Targeted policies have fostered the transformation of a natural resource dependent economy into a diversified economic structure based on processed natural resources, high value manufacturing industries such as consumer electronics, industrial automation and heavy industries and services.



Prior to 1970, policies were aimed at reducing dependence on rubber and tin, given high commodity price volatility and the anticipation of declining prices following the development of synthetic rubber. By the mid-1960s, rubber's share of total output had fallen to 15 percent, from 38 percent in 1950. Large-scale private oil palm plantations were established instead. Policies included price support mechanisms, subsidies of agricultural inputs, provision of extension services and R&D. Although some import substitution industrialization was promoted, tariffs were moderate as the focus was on agriculture and rural development.

The creation of the Malaysian Industry Development Authority (MIDA) and the Investment Incentives Act preceded the launching of the New Economic Policy (NEP) in 1970, aimed at transforming the economic structure and improving income distribution in 20 years. SMEs and FDI in export-oriented firms were promoted. Low skill, labour intensive light manufacturing activities, such as textiles and garments and assembly of electronic components developed in export processing zones. Intervention was via licensing, quotas and regulated prices. Faced with an economic slowdown in the early 1980s, the government turned to public sector investment in heavy industries (cement, iron, paper, petrochemicals and automotive) to fuel growth and create stronger linkages in industry (UNIDO, 1991b).

In 1991, a National Development Policy (NDP) replaced NEP. The focus remained the achievement of growth with equity and attaining a balanced sectoral and regional development that relied strongly on the private sector. Amidst increasing trade liberalization, the government introduced a structural tax reform to increase Malaysia's international competitiveness. It also launched the Multimedia Super Corridor (MSC) in 1996 to develop a knowledge-based economy. This stage has seen a consolidation of manufactured exports and an evolution towards high technology electronics manufacturing, facilitated by the existence of a highly skilled English speaking population. By the year 2000, Malaysia's manufacturing exports accounted for 80 percent of total exports.

Two principles have underlined Malaysia's government policy approach. First, in each development phase, policymaking was based on mobilizing government agencies' and private investors' support for diversification "experiments" (Yusof & Bhattasali, 2008). Second, policymaking was conducted through "very detailed consideration of options that preceded implementation, the involvement of large segments of the public and business sectors in the specific design of policies and the bundling of related policy measures into packages that overcame legislative and coordination problems" (Yusof & Bhattasali, 2008: 21). These packages are a central aspect of Malaysia's growth experience over the last 30 years and emphasize the need to view development policies as a "reform cluster" framework.

UNIDO was very active in assisting the Malaysian Government in this endeavour. The organization assisted MIDA in developing the Industrial Master Plan 1986-1995 as part of its technical cooperation and policy advice function. UNIDO contributed by developing specific objectives, strategies and policy programmes for major manufacturing sectors. Assistance was also provided in preparing a set of special study reports on linkages, industrial institutional infrastructure and industrial incentive policies and development strategy. All these measures provided the basis for blueprints and agendas for action to be incorporated in the policies, strategies and programmes of the Fifth Malaysia Plan 1986-90 (UNIDO, 1985).

### ***Perspective: “Multi-Stakeholder Processes”***

Industrial policymaking is essentially a social learning process which encompasses the collective actions of many stakeholders in the public and private spheres with different short-term interests. This ‘*multi-stakeholder process*’ (MSP) is essentially about establishing and reinforcing connections and collaboration between actors who did not previously relate to each other or who did so ineffectively or antagonistically—despite having a common objective in the long term (Acquye-Baddoo et al., 2010). Collective views and actions emerge from dialogue, reflection on each other’s views, understanding of different positions and perspectives, problem solving and conflict resolution, building mutual trust and, eventually, reaching consensus on policies that are technically sound and implementable.

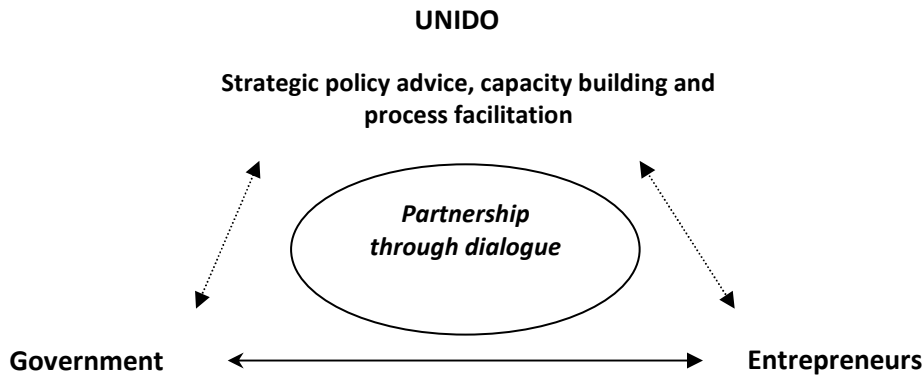
If social learning is to translate into successful industrialization, stakeholders have to get involved in the early stages of policymaking. Ultimately, they also assume responsibilities and commitments to the planning and management of implementation, performance and outcomes. This requires knowledge of industrial development processes, governance in a specific context as well as a substantive understanding of the abilities of all stakeholders involved to embark on initiatives. Achieving such understanding demands deep ‘*embeddedness*’ in local culture and learning practices over a longer period of time and an institutionalization thereof through, e.g., multi-actor platforms and government units.

UNIDO’s role in this process is threefold: policy adviser, capacity developer and overall process-facilitator, as depicted in Figure 2. As a **policy adviser**, the organization both proposes and ‘*distils out from the dialogue*’ suggestions and recommendations related to industrial policy content and process based on its vast experience and research output. It is a broker of information and knowledge to make sense of the context as comprehensively as possible. SIP sees policy advice as part of a wider consultation process to assist member states in judging and evaluating certain outcomes and in making informed decisions.

As a **capacity developer**, UNIDO assists in equipping and enhancing actors’ capabilities at the individual and organizational level, providing them with the necessary skills and knowledge transfer through training, seminars and workshops and through the development of organizational management structures and processes. Capacity development is an integral part of the SIP approach and aims at improving the ability of people, organizations and society as a whole to successfully manage their affairs (OECD, 2006). A key feature of capacity development is its adherence to the endogenous strength, needs, aspirations and expectations

arising from specific contexts (IDS, 2008). Hence, SIP is also about empowering partners to manage industrial development processes by themselves.

**Figure 2 The Industrial Policy Partnership**



UNIDO’s Development Policy, Statistics and Research (DPR) Branch is entrusted with providing strategic industrial policy advice, facilitation and capacity building services to member states. However, an additional range of services is offered by the organization’s specialized technical cooperation units that can complement the development of a well-grounded strategic industrial policy by providing additional technical dimensions and tested practices, and generating deeper insights into specific subjects.

***Industrial Policymaking Stages***

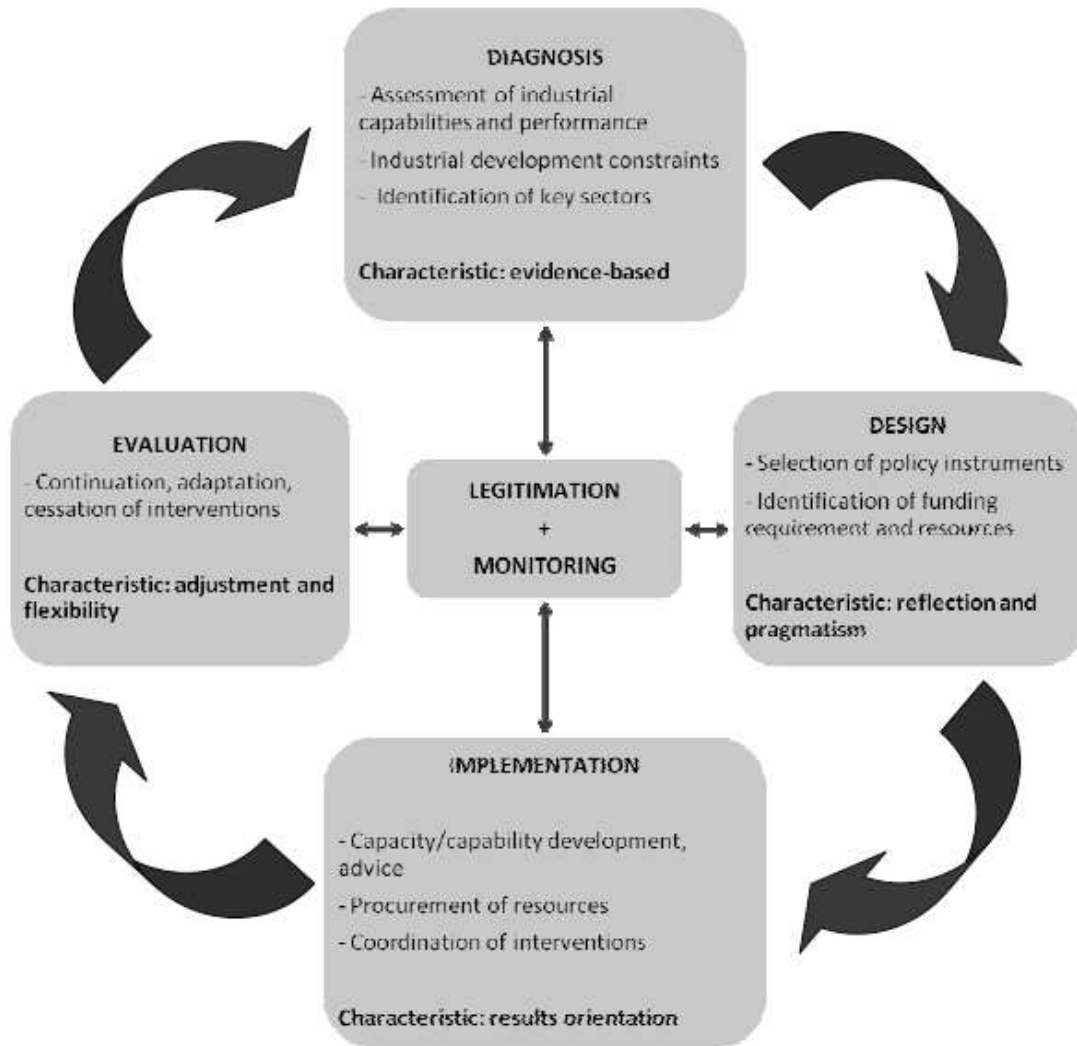
The SIP policymaking process runs through several stages similar to common project management cycles. These include four sequential stages: diagnosis, design, implementation and evaluation, and two cross-cutting stages: legitimation and monitoring. The main characteristics of the SIP policymaking process are an emphasis on evidence-based strategic and sustainable industrial policies, the interactive nature of the participation by stakeholders, the continuous experimentation with policy regimes and the flexibility to adjust and learn lessons (see Figure 3).

***Diagnosis***

This stage aims at generating “*information and knowledge*” for preparing the vision and strategy and identifying the “*governance mechanisms*” that must be established to operationalize the industrialization strategy. The main output of this stage includes an analysis

of key sectors, value chains and clusters as well as policy recommendations for the manufacturing industry as a whole.

**Figure 3 The Strategic Industrial Policy (SIP) Process**



The diagnosis stage provides an analysis and assessment of long-term industrial development performance and prospects. The analysis encompasses the examination of emerging international economic and technological trends, the identification of binding constraints to industrial growth and structural change and the reasons for them, and proposes realistic options for their removal. It also involves the documentation of cost structures and the development of aggregate investment plans to tackle coordination failures. This requires collecting, compiling and reviewing available local and international data, convoking relevant experts and stakeholders, assessing different industrialization options and selecting the best possible

alternatives. Possibly underinvested industries, with an existing or dynamic comparative advantage, as well as existing and potentially new industrial activities are identified and their competitiveness assessed. All this is rooted in a solid empirical framework and in diagnostic tools drawing on UNIDO's research experience and data. New diagnostic tools comprise structural change analysis (UNIDO), competitiveness studies (UNIDO) and export sophistication indices (Hausmann, Hwang & Rodrik, 2006 or alternatively see Lall, Weiss and Zhang, 2006). A new area for gathering information and knowledge lies in the assessment of policymaking processes and capabilities, which looks into how policies are made and by which key stakeholders, and compares successful countries' experiences. A reliable picture for engaging in policymaking processes should emerge.

Complementing these strategic tools, foresight methodologies can be used and applied to create an industrial development vision and to identify possible routes to achieve it. UNIDO's value chain analysis tool, which aims at identifying linkages and crucial bottlenecks and at generating an overall map of a given industry, is well suited for this stage. Investor surveys which seek to identify service expectations from local institutions, investigate the impact of policy on investors' operations, understand investors' interactions with other local and international enterprises, and determine investment growth levels is yet another service the organization can provide.

SIP's diagnosis stage also focuses on identifying forms of governance and coordination that ensure proper management of the industrial development process. Activities related to instituting an "*industrial governance mechanism*" include, among others, establishing a small industrial observatory and intelligence gathering unit or secretariat linking the overall management structure to the Ministry of Industry or planning commission, strengthening data collection agencies and building teams that can interpret and update relevant trends and prepare diagnostics on the basis of available tools and methodologies (benchmarking, baseline studies and surveys). Coordination mechanisms include government, businesses, academia and private sector platforms in the form of a National Forum on Industrial Development. In addition, setting up regular consultation mechanisms with business associations and other stakeholders (see Box 4), the creation of inter-ministerial and inter-institutional committees and establishing contacts with international organizations, investors and financial institutions complements the industrial governance structure. Complementary UNIDO technical cooperation services include sector specific programmes for establishing and developing networks, building management structures

and strengthening business membership organizations (BMO) as well as designing public-private partnerships.

**Box 4      Mongolia: Strategic directions for industrial policy**

Mongolia possesses major reserves of 80 different minerals including copper, gold, coking coal, iron ore, fluorspar, molybdenum and crude oil. Unsurprisingly, the Mongolian economy has relied on its mining sector and the high prices of minerals in international markets for economic growth. However, the time has come for Mongolia to use revenues from mineral reserves to grow even faster by inducing a rapid structural transformation of the economy and to significantly improve the living standards of its people and weather the shocks associated with the volatile minerals markets. To do so, the development of a competitive and high value-added manufacturing sector is crucial. This goal can only be attained through concerted government effort in form of strategic industrial policies designed to affect the allocation of resources in favour of industry (principally manufacturing). The challenge is thus to identify those manufactured products that are initially feasible to support, in the sense that they use local raw materials, can be produced economically and can compete in international markets.

Two sectors, namely the natural fibres and the red meat processing industry offer great potential for upgrading and strategic export promotion. For instance, only 15 percent of Mongolia's cashmere exports are finished products, the remaining 85 percent are usually only scoured or de-haired. Upgrading this industry to be able to process cashmere at higher stages in the value chain through increased spinning capacity and by manufacturing its own yarn rather than importing it represents a possible path for development. The meat processing industry mainly produces for the domestic market and currently does not conform to the international standards of production and food safety requirements of importing countries. Moving from being "*production-focussed*" to become "*consumer-focussed*" as well as developing a strategic orientation towards international niche markets for meat not only by complying to various standards along the value chain, but also by identifying demands could be one way to diversify the Mongolian economic base and spur economic development.

UNIDO was asked to assist and advise the Mongolian Government in developing a strategic orientation towards industrial development. A key mechanism was to pool various stakeholders ranging from the private sector, including individual entrepreneurs, associations and interest groups, to NGOs and academia, officials of international organizations and public policymakers in inclusive workshops and national fora to identify 'binding constraints' and craft possible interventions for industrial development, thereby ensuring acceptance and wide-ranging legitimization (UNIDO, 2011b).

***Design***

The design stage focuses primarily on the design of an industrial strategy as well as the preparation of a consistent and detailed set of inter-and intra-sectoral industrial policy objectives, recommendations, measures and government actions required to implement this industrial development strategy. It involves the appraisal of available information on human skills and capabilities, investment needs, financial and fiscal policy space, infrastructure requirements, technological capabilities, administrative and other resource requirements. In addition, institutions, incentives, mechanisms, programmes and projects necessary to implement the strategy are defined, followed by an assessment of administrative, spatial and temporal coordination challenges. The main output is an industrial strategy jointly developed by public and private sector stakeholders as well as detailed private-public collaborative policy document(s), recommendations and a shared action plan.

UNIDO services at this stage focus on exploring in more detail the choices made. From an **“information and knowledge”** perspective, the services entail a more in-depth analysis of trends and a more disaggregate use of diagnostic tools. These provide detailed information on what policies and policy mix may be more effective in a given industry and/or at the national level; on the preparation of pre-feasibility and feasibility studies; on rates of return for individual projects; on costs and benefits comparisons and the inter-temporal impact of the allocation of resources to different projects; on resources needs and availability; on environmental and employment impact; on the preparation of a regulatory framework and identification of concrete policy instruments as well as on the roles, functions and tasks of individual government agencies and private agents. Another crucial element may involve public sector restructuring and private sector upgrading options in order to effectively implement and manage industrial policies and gather information on what needs to be done as a preparation for setting up respective governance structures.

Collaborative work can be undertaken with other technical cooperation branches at UNIDO to identify constraints and elaborate policies to deal with quality, standards and market compliance barriers to trade; food safety and other types of certification hurdles to commerce; protection of consumer rights and international trade traceability requirements or to carry out financial evaluation of projects using established software tools such as COMFAR.

From a **“governance and coordination”** perspective UNIDO can consult on how to establish project prioritization and programme design groups, restructure and upgrade task forces and cross-ministerial/regional/sectoral stakeholder coordination and consultation mechanisms as well as how to establish relevant policy instruments and regulations bodies. UNIDO can also help to design public dissemination and advocacy campaigns aimed at drawing attention and obtaining the commitment to industrial policy from key actors and society at large (Jones, 2011).



### **Box 5 Ecuador: Capacity-building for policymaking**

UNIDO launched its first competitiveness programme in Ecuador in 2003. Following an awareness raising seminar, a first training course on UNIDO's industry and trade competitiveness analysis was organized. A total of 15 technicians from the Ministry of Trade and Industry (MICIP), the Central Bank of Ecuador and the National Competitiveness Council (CNC) participated. Analytical work prepared during the training was used as input for the 'Industrial Competitiveness Report of Ecuador 2004', published by MICIP and the Central Bank, with UNIDO providing financial and technical support.

High demand translated into a second training course in March 2004, exclusively for MICIP staff. Aware of the usefulness of the information and analysis the technicians were able to produce, the Vice-Minister of Industry accepted UNIDO's proposal to set up a specialized technical unit in MICIP. The Competitiveness Intelligence Unit was composed of four young local economists financed by UNIDO and supervised by an international consultant. The Unit produced several publications, including the second 'Industrial Competitiveness Report of Ecuador', 'Costs and Transactions of Doing Business' and 'Value Chain Studies for Lemon-Lime, Cocoa and Pineapple'. It also provided ad hoc analysis for the authorities and Chambers of Commerce. Within only one year, the Unit was formalized within the structure of the Ministry through a decree in 2006, thus gaining recognition by both the public and the private sector. Its website ([www.micip.gov.ec/utepi](http://www.micip.gov.ec/utepi)) presents its services, publications and data to a broader audience.

In 2007, the Unit slowly moved into the policy arena when it was invited to participate in and provide thorough analysis and data to high-level working groups. In 2008, the Unit was assigned the task of elaborating Ecuador's Industrial Policy with assistance from international consultants. The Unit continues its involvement in the refinement of the policy and the elaboration of specific programmes. Anticipating the phasing out of UNIDO's Integrated Programme in Ecuador in 2008, MICIP guaranteed the sustainability of the Unit through its conversion into the Department of Statistics and Industrial Studies within the Sub-Secretariat of Competitiveness. Unit members have now been transferred onto the Ministry's payroll and UNIDO continues to hold an advisory technical role.

### ***Implementation***

At the implementation stage, the necessary knowledge, human, financial, infrastructure, technological, administrative, regulatory and related resources are procured and implemented to realize the strategy. Institutions, organizations, incentives, selection mechanisms, sectoral projects and programmes that will put the strategy into effect are developed and administrative coordination of all action takes place. Obstacles that emerge during the execution of the strategy are removed. The main outcomes at this stage are the results of industrial development programmes measured in terms of output, structural change, employment effects and environmental impact.

The services offered by UNIDO address issues related to the progress of the strategy and determine the extent to which the aims and objectives are being met. They also include adjustments to the strategy arising from changing conditions and trends. "***Information and knowledge***" is collected to update trends and diagnostic tools, to assess sectoral project and programme implementation and the extent of completion, and to identify emerging deviations and their causes.

Through proper “**governance and coordination**”, it is assured that established institutions function well and fulfil their designated tasks. UNIDO assists in the introduction of government mechanisms, structures and rules aimed at managing and coordinating complex multi-layered, multi-sectoral, multi-agent and inter-temporal implementation processes. As the managerial and process adjustment dimensions of implementing industrial development policies and processes are perhaps among the least studied areas, implementation practice could, in addition to the management literature, be based on the analysis of managerial experiences of successful industrial development cases, mostly in Asian countries. Specialized project management teams supervise the implementation, take all necessary steps to ensure smooth implementation and make the necessary adjustments. A multi-stakeholder consultation mechanism ensures that regular meetings take place to monitor and assess progress and the impact the interventions have had on different groups of actors. The interface informs the programme management team of successes or failures and suggests adjustment measures. Furthermore, UNIDO provides recommendations on setting up regulatory or support agencies and financial institutions for the implementation of industrial projects and programmes.

Different parts of UNIDO can provide additional services. Among others:

- The establishment or strengthening of investment promotion offices to attract foreign investors and stimulate local entrepreneurship;
- The introduction of the subcontracting exchange and partnership (SPX) programme that helps to develop the capacities of local small and medium-sized enterprises to meet buyer needs and to identify profitable business/investment opportunities;
- The development and dissemination of Cleaner Production Centres to assist enterprises in accelerating the adoption of cleaner technologies and in becoming more energy efficient so emissions of greenhouse gases and other air pollutants can be reduced.

### ***Evaluation***

The last sequential stage of UNIDO’s SIP assesses the progress of the industrial development process and the factors contributing to the success or failure of particular interventions. Policies and interventions to be continued, cancelled or modified are identified and evaluated. The main objective is the identification and implementation of changes to policy content and the measurement of achieved impact. Evaluation services focus on assessing the design, implementation, outcomes and impact of strategic industrial policies. They aim at evaluating whether the policy process has been effective and efficient, and if not, what reasons other than operative ones, account for such performance. They review and assess whether the objectives

have been met in a sustainable manner, whether the relevant dimensions were indeed addressed and the intended impact on industrial development was achieved. The focus is on the lessons to be learnt from the experience. Content and process data needs to be collected and an industrial policy evaluation group established. A National Review Forum on Industrial Development could be one mechanism through which success and sustainability is assessed. Internal and external assessment teams contribute to the evaluation of industrial projects and programmes. Policy evaluation and research offices can also be established. UNIDO's evaluation unit could be a potential partner to assess the outcomes and impacts of the industrial policymaking process.

### ***Cross-Cutting Phases***

To guarantee that the industrial policymaking process is effective in achieving the desired results, UNIDO aims to ensure that stakeholders own the process. This should result in an improvement of policy instruments and facilitate and speed up the implementation of the proposed pathway. This is in full compliance with international recommendations on aid effectiveness such as the Paris Declaration and the Accra Agenda for Action. It is equally important for errors—which inevitably arise in processes involving multiple and diverse actors—to be corrected as soon as they are detected or at least that the same mistakes are not repeated the next time a similar process is implemented.

### ***Legitimation***

Legitimation is about ensuring widespread acceptance of the industrial policymaking process and avoiding rent-seeking (Robinson, 2009). If stakeholders do not feel like they have ownership through their active involvement and do not see progress as a result of their contributions and inputs, the process may not lead to the desired outcomes and could result in a subsequent withdrawal of participants. The key objective throughout the policymaking process is the establishment of an open, collaborative, transparent and legitimate decision-making process that is trusted. Moreover, legitimizing the policy process is consistent with modern governance principles and current industrial policy and public-private partnership thinking. In terms of inputs, legitimizing the policymaking process involves:

- Inclusive representation, equal access to relevant information and openness in setting the agenda;
- Integrative decision-making based on deliberation, debate and full engagement by participants;
- Proper checks and balances to avoid capture by specific interests;
- Outputs and outcomes in line with what was agreed and the objectives pursued;

- Instances of accountability and disseminating the information about decision-making and implementation performance.

UNIDO emphasizes the establishment of government structures that are quintessentially public-private partnerships, yet independent of specific private interests.

### ***Monitoring***

Achieving results becomes easier when there is continuous monitoring. Following up and surveillance of the dynamics of the policy processes and the introduction of adjustments are key elements not only to document good practices and lessons learnt, but also to determine effectiveness and to monitor increased capabilities. Monitoring takes time, is ideally conducted over the entire process and necessitates in-depth involvement of a dedicated group of stakeholders. SIP's main objective in terms of monitoring is an improved policymaking process which responds quickly to a changing environment and conditions.

Several mechanisms can be established to ensure proper legitimation and monitoring. During each of the sequential stages perception surveys, regular open-space meetings, qualitative interviews and satisfaction surveys can be used to assess stakeholder involvement and contributions as well as the degree of 'ownership' of the industrial development endeavour. These serve as qualitative tools for monitoring progress and to detect unintended occurrences of political or managerial nature. A quantitative tool based on quarterly data and indicators, a so-called industrial "early-warning-system", may also help in the assessment of progress in structural change and competitiveness, and alert decision-makers when developments are off track.

## Annex 1 Strategic Industrial Policy Services provided by UNIDO's Development Policy, Statistics and Research (DPR) Branch

<i>Strategic Industrial Policy Services (SIPS)</i>				
STAGES	SERVICE AREA	ADVICE & FACILITATION		CAPACITY DEVELOPMENT
		Information & Knowledge	Industrial Governance Mechanism	
<b>Diagnosis</b>	<i>Industrial Development Analysis</i>	<ul style="list-style-type: none"> <li>Industrial statistics</li> <li>Studies on:                             <ol style="list-style-type: none"> <li>Industrial trends, competitiveness, sectors and value chain selection and development, export potential, cluster identification and of binding constraints</li> <li>Policy-making benchmarking</li> </ol> </li> <li>Resource requirements</li> <li>Institutional capacity availability</li> <li>On-site advice</li> </ul>	<ul style="list-style-type: none"> <li>Establish statistics systems</li> <li>National and local fora on Industrial Development</li> <li>Public communication and dissemination</li> <li>Multi-stakeholder consultation and negotiation mechanisms</li> <li>Industrial observatory and intelligence gathering secretariat</li> </ul>	<u>Seminars, workshops, training</u> <ul style="list-style-type: none"> <li>Data collection, editing and updating</li> <li>Statistical methodologies and survey</li> <li>Benchmarking, baseline studies</li> <li>Competitiveness and structural change analysis</li> <li>Policy making process</li> </ul>
<b>Design</b>	<i>Industrial Strategy &amp; Policy</i>	<ul style="list-style-type: none"> <li>Industrial Strategy and Vision</li> <li>Public sector reform</li> <li>Private sector upgrading</li> <li>Policy instruments development</li> <li>Policy coordination and coherence</li> <li>Project and programme formulation and feasibility studies</li> <li>Sectoral resource requirements and capacity availability</li> <li>International study tours for sharing experiences</li> </ul>	<ul style="list-style-type: none"> <li>Cross-ministerial/ regional/sectoral/stakeholder coordination and consultation mechanism</li> <li>Public campaigns and advocacy</li> <li>Restructuring and upgrading task forces</li> <li>Resource deployment mechanisms</li> <li>Policy instrument development and project feasibility teams</li> </ul>	<u>Seminars, workshops, training</u> <ul style="list-style-type: none"> <li>Organizational restructuring and development, change management</li> <li>Institutional and regulatory architecture</li> <li>Policy instrument development</li> <li>Policy impact analysis</li> <li>Industrial project management cycle</li> </ul>
<b>Implementation</b>	<i>Industrial Projects and Programmes</i>	<ul style="list-style-type: none"> <li>Sectoral projects and programmes</li> <li>Sectoral regulation and support measures</li> <li>Sectoral project and programme control and progress review</li> <li>Procedures and problem solving approaches</li> </ul>	<ul style="list-style-type: none"> <li>Programme /project management instances</li> <li>Regulation agencies (e.g. standards)</li> <li>Institutional development (e.g. banks, funds, specialized agencies)</li> <li>Cross-ministerial/ regional/sectoral/stakeholder coordination and consultation mechanism</li> <li>Public education and mobilization</li> </ul>	<u>Seminars, workshops, training</u> <ul style="list-style-type: none"> <li>Results-based industrial management and administration</li> <li>Industrial service delivery</li> <li>Regulation setting</li> <li>Stakeholder involvement approaches</li> </ul>
<b>Evaluation</b>	<i>Industrial Development Impact Assessment</i>	<ul style="list-style-type: none"> <li>Peer review</li> <li>Assessment of:                             <ol style="list-style-type: none"> <li>Sustainability</li> <li>Goals, outcomes, effectiveness, efficiency</li> </ol> </li> <li>Early warning systems</li> </ul>	<ul style="list-style-type: none"> <li>National Review Forum on Industrial Development</li> <li>Internal /external assessment teams/instances</li> <li>Feedback and auditing mechanisms</li> </ul>	<u>Seminars, workshops, training</u> <ul style="list-style-type: none"> <li>Tools and procedures</li> <li>Impact assessment</li> <li>Project and programme learning</li> </ul>

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