

MANAGEMENT REPORT

Promoting the adaptation and adoption of Resource Efficient and Cleaner Production (RECP) through the establishment and operation of a Cleaner Production Centre (CPC) in Ukraine



2018



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra



List of abbreviations

CPC	Cleaner Production Centre
CPC project	Project “Promoting the adaptation and adoption of Resource Efficient and Cleaner Production (RECP) through the establishment and operation of a Cleaner Production Centre (CPC) in Ukraine”
CP	Cleaner Production
ChL	Chemical Leasing
ChM	Chemical Management
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (German Corporation for International Cooperation GmbH)
IE	International Expert
EGM	Expert Group Meeting
EOI	Expression of Interest
FHNB	Fachhochschule Nordwestschweiz
IPA	In-plant Assessments
ISO	International Organization for Standardization
LLC	Limited Liability Company
NE	National Expert
NEFCO	Nordic Environment Finance Corporation
Igor Sikorsky KPI	National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”
RECP	Resource Efficient and Cleaner Production
RECPC	Resource Efficient and Cleaner Production Centre
SAEE	State Agency of Energy Efficiency and Energy Saving of Ukraine
SECO	The State Secretariat for Economic Affairs (SECO) is part of the Swiss Federal Department of Economic Affairs
SRC	Swiss Reference Centre
SC	Steering Committee
TOT	Training of Trainers
UAH	Code of Ukrainian currency (Hryvnia) according to ISO 4217
ULIE	Ukrainian League of Industrialists and Entrepreneurs
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization

Content



Introduction
Highlights in 2018



Resource Efficient and Cleaner Production Centre in
Ukraine

Activities and results

Partnership development and synergies with other
projects



RECPC sustainability
Gender mainstreaming
Conclusions, challenges and way forward



I. Introduction



The report provides an overview of activities carried out from January to December 2018 within the framework of the UNIDO project “Promoting the adaptation and adoption of Resource Efficient and Cleaner Production (RECP) through the establishment and operation of a Resource Efficient and Cleaner Production Centre (RECPC) in Ukraine”. The project has been supported by the governments of Switzerland and Austria since 2013¹.

Since the mid-1990s, the United Nations Industrial Development Organization (UNIDO) and the United Nations Environment Programme (UNEP) have collaborated to foster the global uptake of Resource Efficient and Cleaner Production (RECP). Under the joint flagship RECP Programme, sponsored primarily by the Government of Switzerland, UNIDO and UNEP have responded to countries’ growing demand for help with RECP services delivery to industries by assisting organizations – especially small and medium-sized enterprises, governments, civil society, research institutions and related stakeholders – in over 60 developing and transition economies.

In practical terms, RECP entails the continuous application of preventive environmental strategies to processes, products and services in order to increase efficiency and reduce risks to humans and the environment. RECP addresses the three sustainability dimensions individually and synergistically to contribute and achieve:

- a) increased economic performance through improved productive use of resources,
- b) environmental protection by conserving resources and minimizing industry impact on the natural environment, and
- c) social enhancement by providing jobs and protecting the wellbeing of workers and local communities.

The UNIDO project “Promoting the adaptation and adoption of Resource Efficient and Cleaner Production (RECP) through the establishment and operation of a Cleaner Production Centre in Ukraine” aims at enhancing resource productivity, competitiveness and environmental performance of industry in Ukraine. It supports the adaptation and adoption of RECP methods, practices, technologies and policies, providing national industries with the necessary tools to facilitate access to national and regional markets with environmentally sound products and improve the ability of national enterprises to successfully negotiate their position in the global market.

The RECPC through its activities contributes to sustainable development in Ukraine working with companies and policy makers and creating synergies among different stakeholders including academia.

¹ The funds from Austria finished in 2016

II. Highlights in 2018

In 2018, the RECPC underwent a significant restructuring process, experimenting management and staff changes as well as adjustments in the set-up of the regional offices. To facilitate this transformation process, the RECPC staff received intensive coaching and management support from international experts and the Fachhochschule Nordwestschweiz. This support will continue in 2019.

New Management and structure of the RECPC

Following the decision of the Steering Committee meeting held on 23 April 2018, a staff succession plan was developed and implemented. Consequently, Mr. Andrii Vorfolomeiev was appointed as new director of the Centre. In addition, the new structure of the RECPC and its regional coordination offices was developed,

Sustainability of the RECPC

In 2018, the RECPC managed to generate reasonable level of income from national and international clients. The Centre developed and submitted 12 project proposals and obtained approval of two projects: Energy Efficiency in Companies (GIZ) and PROMoting Environmental and Technical Higher Education (PROMETHE-U.S.) (U.S. Embassy). Furthermore, the Centre managed to sign 33 commercial contracts for assessments and trainings with private companies, which brought a total income of EUR 32'790. In total (income from national and international clients), the Centre generated income of EUR 67'665, resulting in a self-sustainability degree of 22%².

2018 Chemical Leasing Award and UN Global Compact Partnership for Sustainability Award

- With the support of the RECPC, 10 Ukrainian companies applied for the Global Chemical Leasing Award 2018. The Award Ceremony was held on 6 November 2018 in Vienna, Austria, and 3 companies were awarded (“Radomyshl Brewery” PJSC, Ecolab LLC, Department of General Ecology and Ecotrophology of the Bila Tserkva National Agrarian University) in the categories Gold (“Research” category), Silver and Bronze (“Case Study” category);
- The Chemical Leasing Demonstration Project of the RECPC and its partners also obtained the Partnership for Sustainability Award from the UN Global Compact Network in Ukraine in the “Planet” category.

RECP Assessments

30 RECP assessments were completed at companies in 5 regions of Ukraine (Kyiv, Vinnytsia, Zaporizhzhia, Lviv, Kharkiv) resulting in the identification of 99 options resulting in significant material, water, chemicals and energy (heat and electricity) savings as well as emissions reductions

Total economic savings identified amount to EUR 1'399'150 with the following benefits:

- Reduction of materials – 84 t/y;

² Degree of self-sustainability: (self generated income)/(national costs)

- Reduction of water – 4’009 m³/y;
- Reduction of chemicals – 400 kg/y;
- Reduction of energy (43’302 MWh), in particular, electricity – 559 MWh/y, heat – 42’743 MWh/y; and
- Reduction of emissions – 8’718 t of CO₂-eq./y.

In addition, the RECPC carried out 7 energy audits of companies from construction materials sector within the framework of the GIZ project “Energy efficiency in companies”. Total annual economic savings from identified options are EUR 367’755 which have the following benefits:

- Reduction of energy (17’939 MWh), in particular, electricity – 469 MWh/y, heat – 17’470 MWh/y; and
- Reduction of emissions – 3’705 t of CO₂-eq./y

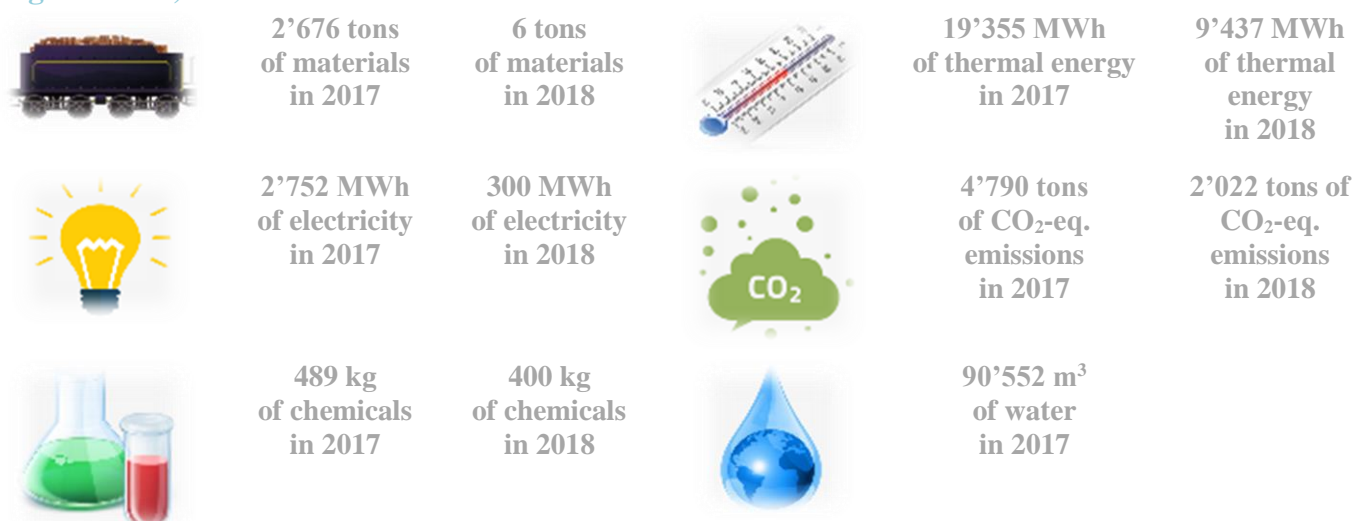
The investment required for the implementation of the options is EUR 334’624.

Monitoring the implementation of options identified in 2017-2018

In 2018, the RECPC monitored 124 options identified through 30 assessments in 2017. This monitoring shows very positive result and 66.7% of enterprises partially implemented the identified options and are willing to proceed with the implementation. As per December 2018, 29 out of the 124 options were implemented by 20 companies. 20 options are planned to be implemented in 2019-2020. A survey conducted by UNIDO in the EaP countries showed that small and medium enterprises (SMEs) consider insufficient access to finance to be the greatest obstacle to implementing RECP in their operations, followed by insufficient human resources.³

With the 29 implemented RECP measures the following benefits were achieved:

ENVIRONMENTAL BENEFITS (reducing resource consumption or non-productive output generation)⁴



³ [UNIDO and OECD (2018), Financing Resource Efficient and Cleaner Production by SMEs in the EU Eastern Partnership Countries: a Stakeholders’ Guide, EaP GREEN Publication].

⁴ As the monitoring was carried out in December 2018 the companies assessed in 2018 had a short (1-4 months) period for the implementation of options identified. This is the reason why the benefits of implemented options identified in 2017 are considerably higher than for 2018 given the short period for implementation.

ECONOMIC BENEFITS⁴



EUR 3'115'688
Investments in 2017

EUR 870'043
Economic savings in 2017

EUR 962'825
Investments in 2018

EUR 419'508
Economic savings in 2018

Capacity Building

Capacity building of the RECPC staff:

A number of trainings were conducted in order to develop professional skills of the RECPC staff:

- 6 RECPC staff members underwent on-line management trainings ;
- 13 RECPC staff members took part in the workshop “Successful communication: psychological tools”;
- 11 RECPC staff members participated in the workshop “GENDER IQ: Five gender-sensitive soft skills to successfully boost professional and interpersonal relationships”;
- 6 trainings on project proposals writing were organized and carried out for the RECPC staff;
- RECPC experts participated in trainings on RECP related topics (co-processing of waste materials in cement kilns, photovoltaics, energy efficiency electricity use in industry and electrical systems and buildings in Ukraine, energy management, water management, energy audit, and compressed air systems optimization).

Study Tour

- A Study Tour to Switzerland was organized in order to facilitate technology and knowledge transfer and show best practices.

Capacity building of experts

- RECPC provided capacity building activities and carried out 37 RECP workshops in 6 regions of Ukraine (Kyiv, Zaporizhzhia, Vinnytsia, Odesa, Lviv and Kharkiv) for 124 trainees. 102 trainees successfully completed the training courses;
- 3 webinars on RECP-related topics, in particular “Applying an integrated approach in using renewables for heat and cold production and supply in industry”, “Energy efficiency in industrial ventilation systems” and “Dust and gas purification in industry”, were organized and conducted;
- 5 trainings focusing on the “RECP model: electrical equipment use” were carried out in 5 cities in the Dnipropetrovsk region.

Awareness Raising and Promotion

- RECPC organized and carried out 30 events to promote RECP activities and participated in 36 national and international events aiming to disseminate information on RECP and acquire new customers;
- The final conference “Enhancing Industrial Resource Efficiency: Best National and International Practices 2018” in combination with the Award Ceremony inviting all regions was organized and carried out in Kyiv in December;

- 6 information materials were prepared and disseminated.

In addition, the RECPC organized 5 workshops on RECP-associated topics for school students as part of the PROMETHE-U.S. project funded by the U.S. Embassy.

Cooperation with government institutions

The RECPC strengthened cooperation with government institutions in Ukraine and participated in several working groups and meetings including:

- Regular meetings on environmental protection issues – Ministry of Ecology and Natural Resources of Ukraine;
- Discussing ways to support the production of electricity from alternative energy sources via auction – National Commission on State Regulation in the Energy Sector and Utilities;
- Discussing the draft “Strategy on Industrial policy” – Ministry of Economic Development and Trade of Ukraine;
- Discussing environmental issues (water, land resources, ecology of asphalt plants) – Public council of Vinnytsia Regional Administration on ecology;
- Supporting the State Agency of Energy Efficiency and Energy Saving of Ukraine in the development of Energy Efficiency Fund for industrial companies.

Cooperation with financial institutions

The RECPC strengthened the cooperation with financial institutions including:

- JSB “Ukrigasbank” – the RECPC became the first organization accredited by JSB “Ukrigasbank” for conducting energy audits at enterprises within the framework of their Eco-Banking strategy;
- JSC “Raiffeisen Bank Aval” – negotiations on supporting RECP technologies in Ukraine were carried out;
- European Bank for Reconstruction and Development (EBRD) – the RECPC submitted the application to be authorized as a consulting company for EBRD’s SME support programme.

Cooperation with universities

The RECPC strengthened cooperation with national universities resulting with the inclusion of RECP/Chemical Leasing courses into the respective curricula:

- Vernandskyi Tavria National University, Kyiv (RECP course);
- National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Kyiv (RECP course, lecture of international expert);
- Bila Tserkva National Agrarian University, Bila Tserkva, Kyiv region (Chemical Leasing course).

Partnerships

The Centre continues to establish and strengthen partnerships with new and existing partners. (signed 4 new bilateral partnership agreements/memorandum of understanding and 1 Multilateral Agreement of Cooperation).

The RECPC strengthened cooperation with international organizations and successfully participated in:

- “Programme to Support the Green Modernization of the Ukrainian Economy” implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH;
- UNIDO UKR IEE project “Introduction of Energy Management System Standard in Ukrainian Industry”;
- Project “Energy efficiency in companies” which is implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH;
- Project “Promotion of Environmental and Technical Higher Education” (PROMETHE-U.S.) that is financed by the U.S. Embassy in Ukraine.

III. Resource Efficient and Cleaner Production Centre in Ukraine



On 29 January 2013, the official inauguration of the project took place at NTUU “KPI” and in June 2013, the Centre obtained legal status as a NGO with the aim to deliver RECP services to industries, municipalities and the national government.

Co-founders of the Centre and three main national project partners are: the National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute” (<http://www.kpi.ua/>), the Science Park “Kyivska Polytechnika” (<http://www.spark.kpi.ua/>) and the Ukrainian League of Industrialists and Entrepreneurs (<http://www.uspp.org.ua/>). The Centre has a professional team of experts with academic background in different industrial sectors. It follows a sectoral and regional approach focusing on national priority industries, namely chemicals, agro-processing, metallurgical and metal processing. The target regions foreseen in the original project documents were Vinnytsia, Zaporizhzhia, Kyiv, Lviv, Luhansk, Kherson and the Crimea regions. Due to the political situation, it was decided to replace Luhansk with Kharkiv and the Crimea with Odesa region. The Swiss Consortium under the lead of the University of Applied Science and Arts Northwestern Switzerland (FHNW) was selected as a Swiss Reference Centre to provide technical support to the Centre in Ukraine. Additionally a CTA was appointed to provide overall guidance. On 30 September 2016, the Resource Efficient and Cleaner Production Centre obtained its legal status as a Limited liability company (LLC). During the Steering Committee meeting held on 9 February 2016 and 12 May 2016 it was decided to establish additionally to the NGO a LLC in order to allow the generation of income. The new legal status forms the baseline for a financial independent and sustainable Centre. In 2016, the RECPC started strengthening its Quality Management System (QMS) and was certified with ISO 9001:2015 on 16 January 2016 and passed successfully the QMS annual ISO 9001:2015 compliance audit in January 2018.

The RECPC plays an important role in coordinating all national RECP efforts and promoting partnership links between public and private institutions at national and regional levels. Thus, the RECPC will focus its activities to facilitate sustainable development and green industrial growth in Ukraine in all its dimensions and create economic, environmental and social benefits.



Economic benefits

Optimization of the productive use of natural resources



Environmental Benefits

Minimization of the impact on the environment and nature, by preventing the generation of waste and emissions



Social Benefits

Minimization of risks to people and communities from enterprises and other organizations

Advisory Board

The Advisory Board is a decision-making authority committed to provide strategic advice and recommendations to RECPC, securing national ownership. Its members are the representatives of Ministries, governmental institutions, researchers, academia and NGOs. The Advisory Board meeting was held on 6 February 2018. The participants emphasized the importance of the RECPC's role and its efforts in contributing to the Sustainable Development Goals and national policies. In addition, the Advisory Board members and invited participants showed their readiness to closely cooperate with the Centre in developing legislative initiatives; to assist the Centre in implementing RECP activities at national level and foster RECP at target sectoral ministries and departments; and to support the Centre's initiatives towards increasing resource and energy efficiency in industry and promoting investment projects aiming to foster renewable energies.

The list of Advisory Board members and the extract from the minutes of the Advisory Board are presented in Annex 3

Steering Committee

The Steering Committee (SC) role is ensure the efficient implementation of the UNIDO Project. The regular SC meeting took place on 23 April 2018. The aim of the SC meeting was to take a decision on recommendation to donor to further continue the project for 2 years without additional cost. The following background documents were prepared and presented to the SC members: Minutes of the previous SC meeting (2017), Management Report 2017, Updated Business Plan 2018-2020, Work Plan 2018, Business Set-up in Regions of Ukraine, Internal review of the RECPC in Ukraine and Justification for the extension of the SECO funded project.

The SC meeting was attended by SECO, Ministry and UNIDO representatives, and the NGO Founders. The SC Members emphasized the importance of the project for the Ukrainian industry and its enormous potential to increase inclusive and sustainable industrial development in Ukraine. The SC meeting was concluded as follows:

- Approval of the Management Report 2017 and Work Plan for 2018;
- Agreement of the SC members for the request of a 2 years no-cost extension and subsequent submission to SECO;
- Agreement on the presented regional set-up in Ukraine having Kyiv as the central office and 3 regional offices:
 - Kyiv (central office): covering Kyiv, Odessa, Kherson, Mykolayiv and Vinnitsa;
 - Zaporizhzhia: covering Zaporizhzhia and Dnipropetrovsk;
 - Lviv: covering Lviv and neighbouring regions (Ivano-Frankivsk, Zakarpattia, Ternopil, Lutsk, etc.);
 - Kharkiv: covering Kharkiv, Poltava, Sumy and Ukrainian part of Donetsk region, namely Kramatorsk.
- Preparation of a HR gap analysis and succession plan until end of May 2018;
- Stronger focus on donor relationship management and acquisition of projects in order to increase the self-financing degree.

The list of Steering Committee members and the extract from the minutes of the Steering Committee meeting are presented in Annex 4

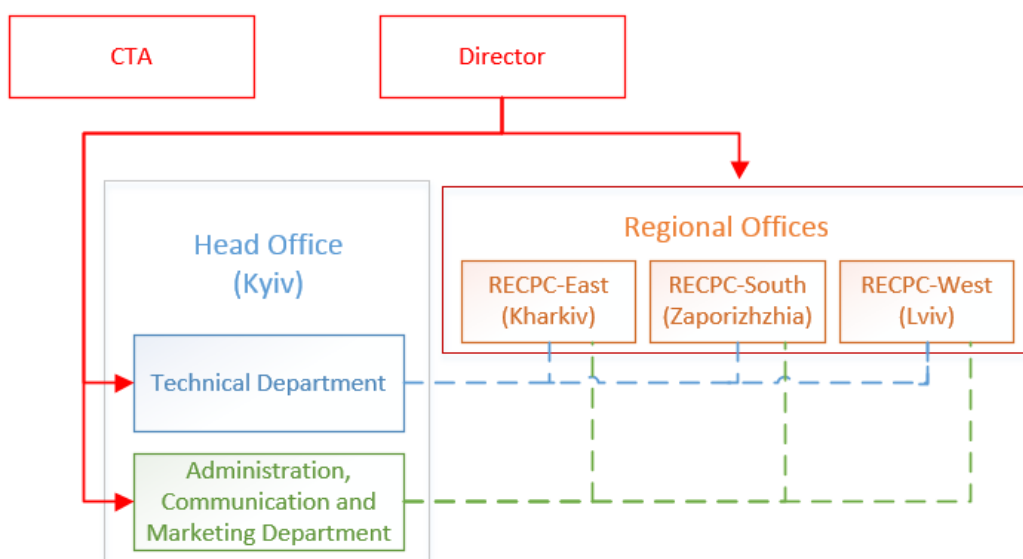
Upon submission of the respective documents a 2 years no-cost extension was granted by SECO. The succession plan for the RECPC was developed with a new structure and organogram and presented during the Meeting on 30 August 2018. The new Director of LLC was appointed by the General meeting of Founders on 30 August 2018 (*Minutes of the General meeting of Founders (LLC) is presented in Annex 5*). On 5 October 2018, the founders of NGO approved the new Director, who entered upon the duties on 8 October 2018 (*Minutes of the meeting of the Organization's Board (NGO) is presented in Annex 6*). New structure of the RECPC and regional coordination approach were developed and approved..

Organizational set-up



In 2018, the Centre's core team consisted of technical specialists, administrative personnel, coordinators for RECP activities, an event manager and a gender focal point (*see Staff list in Annex 2*). The Centre established a pool of trainees in six regions in Ukraine to support the core team.

In 2018, the RECPC's organogram was transformed in accordance to the RECPC Human Resources Development Plan. The new organogram of the RECPC and regional offices is presented below:



New organogram of the RECPC (October–December 2018)

Based on the revised Business Plan and an in-depth analysis of the regions, the following regional focus and office setup with the head office (Kyiv) and 3 regional offices were adopted:

- Head Office, based in Kyiv covering Kyiv, Chernihiv, Zhytomyr, Cherkasy, Vinnytsia, and Kirovohrad oblasts;
- East Office, based in Kharkiv covering Kharkiv, Poltava, and Sumy oblasts;
- South Office, based in Zaporizhzhia covering Zaporizhzhia, Dnipropetrovsk, Mykolayiv, Kherson, and Odesa oblasts;
- West Office, based in Lviv covering Lviv, Rivne, Volyn, Ternopil, Khmelnytskyi, Vinnytsia, Kirovohrad, Ivano-Frankivsk, Zakarpattia, and Chernivtsi oblasts.



Mapping RECPC's offices

IV. Activities and results

This section provides a summary of all activities and achievements based on the project outputs in 2018. A further listing of the project related activities during the reporting period is included in *Annex 1* and provides a further assessment of the progress against the logical framework.

Technical assistance at company level

In 2018, the RECPC conducted 30 assessments in 5 regions of Ukraine (Kyiv – 13, Vinnytsia – 2, Zaporizhzhia – 8, Lviv – 5, Kharkiv – 2). *The list of companies is provided in Annex 7.*

During 2018, a total of 99 options were identified and proposed to the companies. The options identified and respective indicators are presented in the following table:

Options and savings identified in 2018

Options identified	99
Reduction of materials consumption, t/y	84
Reduction of water consumption, m ³ /y	4'009
Reduction of chemicals, kg/y	400
Reduction of electricity consumption, MWh/y	559
Reduction of heat consumption, MWh/y	42'743
Reduction of emissions, t CO ₂ -eq./y	8'718
Total economic savings, EUR/y	1'399'150

Monitoring the implementation of options identified in 2018

From November to December 2018, the RECPC monitored the implementation of technical options developed in 2018. 55% of the companies responded to the monitoring request and reported their readiness to implement the options already in 2018 (11 companies) and in 2019 (5 companies). 45% informed that more time is needed in order to make a decision based on budget planning. From the companies that were assessed in 2018, 11 companies have already partially implemented RECP measures and achieved the following results:

ENVIRONMENTAL BENEFITS

○ Reduction of materials consumption, t/y	6
○ Reduction of chemicals, kg/y	400
○ Reduction of electricity consumption, MWh/y	300
○ Reduction of heat consumption, MWh/y	9'437
○ Reduction of emissions, t of CO ₂ -eq./y	2'022.5

ECONOMIC BENEFITS

○ Investment, EUR	962'825
○ Economic savings, EUR/y	419'508

Monitoring the implementation of options identified in 2017

In 2018, the RECPC monitored 124 options identified through 30 assessments in 2017. As per December 2018, 20 companies implemented 29 options out of 124. 20 options are planned to be implemented in 2019-2020. With the 29 implemented RECP measures, the following benefits were achieved:

ENVIRONMENTAL BENEFITS

○ Reduction of materials consumption, t/y	2'676
○ Reduction of water consumption, m ³ /y	90'552
○ Reduction of chemicals, kg/y	489
○ Reduction of electricity consumption, MWh/y	2'752
○ Reduction of heat consumption, MWh/y	19'355
○ Reduction of emissions, t of CO ₂ -eq./y	4'790

ECONOMIC BENEFITS

○ Investment, EUR	3'115'688
○ Economic savings, EUR/y	870'043

National Capacity Building



The RECPC technical experts participated successfully in training courses including: the photovoltaic master class in February 2018 in Kyiv with the participation of 3 RECPC experts; training on co-processing waste material in cement kilns in February 2018 in Kyiv with the participation of 3 RECPC experts; a 2-day training for energy efficiency electricity use in industry and electrical systems and buildings in Ukraine in June 2018 in Kyiv with the participation of 2 RECPC experts; 1 RECPC expert underwent the training course on energy management and obtained the certificate in February 2018 in Kyiv; 1 Chemical Leasing and water management expert attended the training course “Geospatial solutions for water management” and obtained the certificate in July 2018 in Hungary; 3 RECPC experts participated in a 3-day seminar “ISO 50 002:2014 Guide to energy audit” in September 2018 in Kyiv; 1 RECPC expert underwent 1-day training “Creation of an energy efficient culture at enterprise” in November 2018 in Kyiv; 3 RECPC experts participated in the Seminar “Compressed air systems optimisation (CASO)” in November 2018 in Kyiv.

The RECPC staff continued developing their skills and improving knowledge through participation in targeted trainings and workshops, namely:

- On-line trainings on management – 6 RECPC staff members underwent the training and were certified (March-August 2018);
- Workshop “Successful communication: psychological tools” – 13 RECPC staff members took part in the workshop (October 2018);
- Workshop “GENDER IQ: Five gender-sensitive soft skills to successfully boost professional and interpersonal relationships” – 11 RECPC staff members participated in the workshop (October 2018). Several trainings for the RECPC experts were organized aiming to build capacity on how to create, design, formulate and revise project proposals including:
- Training “Project proposals writing – different ways to get funding”;
- Workshop “Proposals on Chemical Leasing in agriculture”;

- Workshop “Proposal writing on e-waste and co-processing in Ukraine”;
- Workshop “GEF Industrial Parks / PIF document”;
- Workshop “Eco-industrial Parks (Project preparation and identification)”;
- Workshop “An introduction to the Global Environment Facility (GEF) (Developing and Implementing GEF-funding Projects at UNIDO)”.

In 2018, the training for new RECP experts was intensified and the training portfolio diversified. Based on marked needs the RECPC developed and conducted the following new training courses:

- 5 trainings “RECP model: electrical equipment use” in 5 cities of the Dnipropetrovsk region (January 2018);
- 3 webinars “Applying an integrated approach in using renewables for heat and cold production and supply in industry”, “Energy efficiency in industrial ventilation systems” and “Dust and gas purification in industry” were successfully organized.

More information on trainings and workshops for the RECPC staff and sector specific trainings is presented in Annex 8.

In total, selected 124 trainees (51 women/73 men) participated in 37 RECP Workshops in Kyiv, Vinnytsia, Zaporizhzhia, Lviv, Odesa and Kharkiv regions and 102 trainees (41 women/61 men) successfully completed the training courses and received the certificates. Trainings were conducted by the RECPC staff members. *The detailed information on workshops for trainees in 2018 is presented in Annex 10.*

Awareness Raising and Information Dissemination



The RECPC continued awareness raising and information dissemination activities on resource efficient and cleaner production in Ukraine with the aim to increase public and company interests towards improving productive use of resources, environmental protection and minimizing industrial impact on the natural environment. In order to raise awareness and disseminate information, the RECPC organized and carried out 30 events for representatives from industrial companies, research institutions, governmental organizations, financial institutions and universities in 2018. At the same time, the RECPC participated in 36 national and international events to disseminate information on RECP and acquire new customers. The Centre developed and published 6 promotional and information materials (*Annex 9*) that were distributed among participants of events (*Annex 8*).

The RECPC organized the Final conference “Enhancing Industrial Resource Efficiency: Best National and International Practices 2018” together with the Award Ceremony for all regions in Kyiv on 14 December 2018. 98 participants (representatives from UNIDO, donors, industrial companies, government, NGOs, financial organizations) participated in the Final Conference for which a promotional RECP video was developed (link: <https://www.youtube.com/watch?v=M87IGkhzc2U>). *More information is in Annex 11.*



Final conference and the Award Ceremony in one event, 14 December 2018, Kyiv

Study tour to Switzerland



A Study Tour to Switzerland was organized from 1 to 6 October 2018. The purpose of a study tour was to show best practices and technologies in Switzerland and entailed beside company visits complementary workshops and presentations with the focus on waste management, including valorization, co-processing and recycling. 10 participants took part in a study tour (5 RECPC experts, 3 representatives of the Ministry of Economic Development and Trade of Ukraine, 1 representative of the Ukrainian Association of Enterprises and Organizations of Cement Industry “Ukrcement” and 1 representative of “Ukrainian Railway” PJSC) and were awarded with certificates.



Mifa AG (Mibelle Group), 02 October 2018, Switzerland

The 10 participants visited the following 6 companies:

- Immark AG-E-waste (*Electronic Waste*)
- Mifa AG (Mibelle Group) (*Sustainable production*)
- Nespresso (BAREC Group) (*Aluminium coffee capsules valorization*)
- CRIDEC SA (*Special waste and production of alternative fuels for a cement company*)
- Carbotech AG (*Environmental consulting*)
- SBB in Olten (*Swiss Federal Railways*)



CRIDEC SA, 04 October 2018, Switzerland



Nespresso (BAREC Group), 03 October 2018, Switzerland

A Study Tour was organized by the University of Applied Science and Arts, Northwestern Switzerland (FHNW) based on inputs provided by the RECPC and UNIDO.

More information on a Study Tour to Switzerland is provided in Annex 12.

Chemical Leasing

In 2018, the RECPC organized and carried out information seminars and workshops, provided consulting services and support on Chemical Leasing implementation and disseminated information on the fourth Global Chemical Leasing Award 2018 in the three categories (“Case Study”, “Special Innovation” and “Research”). In addition, the RECPC supported companies and institutions to submit applications for the award.

As a result, 3 Ukrainian companies were selected to participate in the Fourth Global Chemical Leasing Award 2018 held on 6 November 2018 in Vienna, Austria. The jury reviewed 91 applications (54 “Case Studies”, 18 “Special Innovation”, 19 “Research”) from 20 countries. All 3 Ukrainian companies that participated in the Global Chemical Leasing Award 2018 received an award: “Radomyshl Brewery” PJSC (“Case Study” category), Ecolab LLC (“Case Study” category), Department of General Ecology and Ecotopology of the Bila Tserkva National Agrarian University (“Research” category).

- “Radomyshl Brewery” PJSC obtained the BRONZE award for excellence in applying Chemical Leasing to a surface treatment process,
- Ecolab LLC obtained the SILVER award for excellence in applying Chemical Leasing to a surface treatment process and
- Department of General Ecology and Ecotopology of the Bila Tserkva National Agrarian University obtained the GOLD award for excellence in developing the Chemical Leasing Curriculum.



The Fourth Global Chemical Leasing Award 2018, 06 November 2018, Vienna

The RECPC developed together with 3 Ukrainian companies a Chemical Leasing Demonstration Project and won the Partnership for Sustainability Award from the UN Global Compact Network in Ukraine in the “Planet” category.



Partnership for Sustainability Award 2018, 06 December 2018, Kyiv

The chemical leasing and water management expert of the RECPC participated in the Green Chemistry Conference (5-6 November 2018, Vienna, Austria). The Conference on Green Chemistry brought together experts in chemical science and technology, industry and policy to present the status of Green Chemistry worldwide and in the European Union.

More information on the Chemical Leasing Activity at the RECPC is in Annex 13.

Policy Advice



Supporting government agencies, business representatives and other intermediary organizations in designing and implementing policy instruments and other initiatives fosters the greater uptake of RECP by businesses and other organizations. For this purpose, the RECPC participates in the national CP policy working groups, established by the Ministry of Ecology and Natural Resources of Ukraine, Public council of Vinnytsia Regional Administration on ecology. During 2018, the RECPC strengthened cooperation with government institutions in Ukraine and participated as a member in the following working groups and meetings:

- Regular meetings on environmental protection issues – Ministry of Ecology and Natural Resources of Ukraine;
- Discussing ways to support alternative energy sources electricity producers via auction – National Commission on State Regulation in the Energy Sector and Utilities;
- Discussing draft “Strategy on Industrial policy” – Ministry of Economic Development and Trade of Ukraine;
- Discussing environmental issues (water, land and resources, ecology of asphalt plants) – Public council of Vinnytsia Regional Administration on ecology;
- Supporting the State Agency of Energy Efficiency and Energy Saving of Ukraine in the development of Energy Efficiency Fund for industrial companies.

From November 2017 to November 2018, the legislative and regulatory policy in Ukraine focused mainly on: efficient use of energy (energy materials) and its cleaner production (primarily, mastering renewables); waste management (including radioactive waste); efficient use of water, improving its quality and reforming overall water management system; and minimizing environmental impact.

75 regulatory acts on policy development were adopted in Ukraine related to energy consumption, water and land resources; air pollution and climate change; waste management; cleaner production and environmental policy tools (these include 8 Laws of Ukraine, 49 decrees and 12 orders of the Cabinet of Ministers of Ukraine and 6 orders of the Ministries).

The largest number of adopted regulatory acts (26 acts) was directly linked to energy policy developments, 17 acts out of total 26 are closely related to energy efficiency. 24 acts were related to environmental policy and environmental impact. 11 regulatory acts were adopted in water management policy, 6 – in waste management and 4 – in air and climate change.

Detailed information on monitoring the policy development in Ukraine and more specifically on activities initiated through the Expert Group Meeting in 2017 is presented in Annex 14.

Development of Financial Mechanisms

In 2018, the RECPC strengthened the cooperation with financial institutions, namely:

- **JSB “Ukrigasbank”** – the RECPC became the **first organization accredited by JSB “Ukrigasbank”** for conducting energy audits at enterprises within the framework of the Eco-Banking strategy. JSB “Ukrigasbank” aims to provide banking services to clients that implement projects related to the efficient use of resources and reduction of harmful effects on the environment;
- **JSC “Raiffeisen Bank Aval”** – a number of meetings with the representatives of **JSC “Raiffeisen Bank Aval” were held**, aiming to support RECP technologies in Ukraine;
- **European Bank for Reconstruction and Development** – the RECPC submitted the application to be authorized as a consulting company for EBRD’s SME support programme.

Cooperation with Universities



In order to strengthen the cooperation with universities, the RECPC organized and carried out several events for lecturers representing national universities in 2018 including:

1. **Seminar “Chemical Leasing: an intelligent and integrated business-model for sustainable chemicals management”** on 05 April 2018 in Kyiv which took place in the Chemistry Engineering Department, Igor Sikorsky KPI with university teachers and post-graduate students.



Seminar “Chemical Leasing: an intelligent and integrated business-model for sustainable chemicals management”, 05 April 2018, Kyiv

2. **Workshop “Life cycle analysis (LCA) as a RECP concept component”** which took place on 27 April 2018 in Kyiv, at the Governing Body Hall at the Igor Sikorsky KPI with teachers and post-graduate students. Mr. Fredy Dinkel, senior partner, Carbotech AG, Switzerland participated in the workshop as a key speaker. The workshop covered various topics such as: LCA benefits, methods and implementation examples.

Within the existing RECP study course a lecture was delivered for students of the Igor Sikorsky KPI by an UNIDO expert on 20 November 2018.

In addition, a number of negotiations on **including the RECP course into curricula** were held with the following Ukrainian universities:

- Ukrainian State University of Railway Transport (UkrSURT) in Kharkiv;
- Kharkiv State University of Food Technology and Trade;
- Vinnytsia National Agrarian University.

Achievements:

After including the RECP course in two Universities in Kyiv in 2017, the RECPC continued in 2018 with the integration of the RECP/Chemical Leasing course in curricula of Ukrainian universities. The table below provides the status:

Results on inclusion of the RECP course in the curricula of the Ukrainian universities.

University's name	Output	Comments
Vernandskyi Tavria National University, Kyiv	Integrated	2017: the University has included the RECP course in the curriculum for the students of the Electric Engineering Department
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Kyiv	Integrated	2017: the University has included the RECP course in the 2018/2019 academic year curriculum for the students of the Institute of Energy Saving and Energy Management. In 2018, first students went through the course. One of the lectures was delivered by an UNIDO expert
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Kyiv	Integrated	2017: the University has included the RECP components course in the curriculum for the students of the Faculty of Chemical Technology
Bila Tserkva National Agrarian University, Bila Tserkva, Kyiv region	Integrated	2018: the University has included the Chemical Leasing course in the curriculum for the students of the Department of General Ecology and Ecotrophology (won the Global Chemical Leasing Award 2018)
Ukrainian National Forestry University, Lviv	Negotiations on drafting a RECP course	2018: In line with the signed Agreement on Partnership, Cooperation and Activity Coordination, the RECPC and the University will cooperate towards drafting a RECP course that will subsequently be included in the curriculum
Ukrainian State University of Railway Transport (UkrSURT), Kharkiv	Negotiations	2018: In line with the signed Agreement on Partnership, the RECPC and the University will cooperate on drafting a RECP course with the purpose to integrate it to the curriculum
Kharkiv State University of Food Technology and Trade, Kharkiv	Negotiations	2018: In line with signed Agreement on Partnership and Activity Coordination, the RECPC and the University will cooperate on drafting a RECP course with the purpose to integrate it to the curriculum

Vinnitsia Agrarian Vinnitsia	National University,	Negotiations	2018: In line with signed Agreement on Partnership, Cooperation and Scientific Exchange, the RECPC and the University will cooperate on drafting a RECP course with the purpose to integrate it to the curriculum
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V. Partnership development and synergies with other projects

Partnership development



The RECPC continued to establish and strengthen partnerships with new and existing partners. The Centre signed 4 new bilateral partnership agreements/memoranda of understanding. Additionally, the RECPC signed a Multilateral Agreement of Cooperation with the Company “R&S Quantum” and Skvyra Research Station of Organic Production of the Institute of Agroecology and Natural Use of the National Academy of Agricultural Sciences of Ukraine.

List of Agreements/Memoranda is in the Annex 15.

Synergies with other projects

Project “Programme to Support the Green Modernization of the Ukrainian Economy” implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH



In 2018, the RECPC continued its participation in the project that aimed to create a good environment at local level and within companies. It also supported reform efforts to foster ecological modernization of the economy, enhance energy efficiency and reduce dependency on energy imports.

According to the signed contract with GIZ, the RECPC developed the “Guide to Industrial Resource Efficiency” and facilitated its dissemination through the Platform for Green Economy Growth with a press conference, promotional events and direct mailing. *Detailed information is presented in Annex 16.*

The RECPC is a member of the Platform for Green Economy Growth, together with the Centre of Corporate Social Responsibility, the UN Global Compact in Ukraine, the Programme to Support the Green Modernization of the Ukrainian Economy, the Institute of Green Economy, and the Ukrainian Chamber of Commerce and Industry.

UNIDO UKR IEE project “Introduction of Energy Management System Standard in Ukrainian Industry”

The RECPC strengthened collaboration with the UNIDO UKR IEE project “Introduction of Energy Management System Standard in Ukrainian Industry”. 3 RECPC experts successfully completed the seminar “Compressed air systems optimization (CASO)” organized by the UKR IEE project and the Ukrainian Chamber of Commerce and Industry. The seminar was conducted by the UNIDO international experts Mr. Eric Harding and Mr. Ian Moore, Air Technology Limited, Great Britain. Within the framework of the seminar programme, the participants visited “Obolon” PJSC, where a demonstration assessment of the operating compressed air systems was conducted and recommendations for their optimization were prepared. 3 RECPC experts were certified after the completion of the training course. In addition to capacity building, the RECPC strengthened its

cooperation with “Obolon” PJSC through the project.



Seminar on “Compressed Air Systems Optimization (CASO)”, 26-30 November 2018, Kyiv

Project “Energy efficiency in companies” implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

The project “Energy efficiency in companies” has been implemented by GIZ in Ukraine since August 2018. The contract with GIZ was signed on 5 September 2018. The Centre is acting as a consulting company in the project and conducts energy audits in accordance with ISO 50002:2014 standard and develops technically and economically optimized energy efficiency (EE) investment projects in the sector “non-metallic mineral construction materials”. In the first phase, each consulting company has to conduct 15 detailed energy audits (that complies with ISO 50002:2014 standard) in medium-size industrial production factories and provide a one-day on-site instruction for the operational staff. In the second phase and based on the first phase outcomes the same consulting company has to develop 5 bankable energy saving projects.

RECPC conducted 7 energy audits according to the signed contract. RECPC experts participated in trainings and informational events. *Detailed information is presented in Annex 17.*

Total annual economic savings from identified options are EUR 367’755 EUR which have the following benefits:

- Reduction of energy (17’939 MWh), in particular, electricity – 469 MWh/y, heat – 17’470 MWh/y; and
- Reduction of emissions – 3’705 t of CO₂-eq./y

The investment required for the implementation of the options is EUR 334’624.

Project “Promotion of Environmental and Technical Higher Education” (PROMETHE-U.S.) (the U.S. Embassy in Ukraine)

The project “PROMETHE-U.S.” (*see Annex 18*) is financed by the U.S. Embassy in Ukraine. The purpose of the project is to increase awareness of young people in Ukraine on the benefits of technical and environmental professions and their contribution to successful development of the national economy. On 30 July 2018, the RECPC signed the contract with the U.S. Embassy. During the second half of 2018, the project activities focused on organizing and conducting trainings to increase awareness on the benefits of technical and environmental professions for senior school students (9-11 grades) who plan to receive higher education in the coming years. As a result, the RECPC conducted 5 workshops with 177 school students:

- 2 workshops “PROMETHE-U.S.-Energy efficiency” in Dnipropetrovsk region (Nikopol);
- 2 workshops “PROMETHE-U.S.-Robotics” and “PROMETHE-U.S.-Green Technologies” in Kyiv region (Pereiaslav Khmelnytskyi, Sofiivska Borschahivka);
- 1 workshops “PROMETHE-U.S.-Engineering Design” in Kyiv.

An on-line platform was created on Instagram (220 subscribers) and Facebook (115 subscribers).



Training “PROMETHE-U.S.-Green Technologies”, 11 December 2018, Pereiaslav Khmelnytskyi (Kyiv region)

VI. RECPC's sustainability



The Limited Liability Company (LLC) is complementing the NGO allowing the Centre to offer and conduct technical consulting and engineering work in companies and implement RECP project for international organisations (GIZ, UNEP, OECD, GEF). The LLC and NGO together are market oriented and form the baseline for the financial sustainability.

In 2018, 25 companies signed 33 contracts with the LLC. In addition, the RECPC signed the contract with GIZ on carrying out 15 energy audits for companies of the construction materials sector and 5 energy efficiency investment projects.

Contracts signed between the LLC and companies: 2016: 6 contracts 2017: 19 contracts 2018: 33 contracts
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In total, the self-generated income in 2018 amounted to EUR 67'665.75:

Source	Income, UAH	Income, EUR*
Companies	1'039'790.15	32'790.61
<i>Other projects:</i>		-
Programme to support the green modernization of the Ukrainian economy (GIZ)	36'170.00	1'140.65
Energy efficiency in companies (GIZ)	542'700.00	17'114.47
Promotion of Environmental and Technical Higher Education (the U.S. Embassy)	527'020.80	16'620.02
Total	2'145'680.95	67'665.75

* Currency exchange - 31.71 UAH/EUR on 31 December 2018

The EU-funded project EU4Environment did not start in 2018, as previously planned. Therefore, the RECPC did not receive additional EUR 49 000 planned. It is expected that the project implementation will start in the second or third quarter of 2019

The self-finance degree of the RECPC is 22%. It is calculated by dividing income from other sources by national costs (EUR 313'613.38).

Planned self-finance degree for 2019 would be with an expected total income EUR 288'700 as follows:

Source	Estimated income, EUR	Probability of realizing income
UNIDO CPC Project (SECO)	180'000	Contracted (100 %)
<i>Other sources:</i>		
Companies	35'000	Estimated (70 %)
Energy efficiency in companies (GIZ)	34'500	Contracted (100 %)
Promotion of Environmental and Technical Higher Education (the U.S. Embassy)	4'200	Contracted (100 %)
EU4Environment (the EU)	20'000	Estimated (90 %)

Other projects	15'000	Estimated (70 %)
<i>Subtotal for other sources(self-generated income)</i>	108'700	
Total	288'700	

New project developments

In order to increase the sustainability, the RECPC developed and submitted a number of project proposals:

- 12 project proposals were prepared
- 2 projects proposals were approved for granting (out of the 12):
 - Energy efficiency in companies (Energy audits and energy efficiency project development in selected industries) (GIZ);
 - PROMoting Environmental and Technical Higher Education (PROMETHE-U.S.) (the U.S. Embassy)

The RECPC signed the contract worth USD 28'000 with the U.S. Embassy on 30 July 2018 and the contract worth UAH 1'644'000 with GIZ on 5 September 2018 which considering the exchange rate as of 31 December 2018 is 1.145 USD/EUR⁵ and 31.71 UAH/EUR⁶, the total contract amount for both for equals to EUR 76'299.

The RECPC constantly monitors and analyses project calls/tenders from different donors, prepares and submits project proposals in the area of resource efficiency, energy efficiency, water management, benchmarking, monitoring of GHG emissions, sustainable development and circular economy. In 2018, the Centre prepared and submitted proposal calls to the Swedish Institute, SIDA, GIZ, the U.S. Embassy, Government of Japan (GoJ) and the EU.

Detailed information on new projects applications is presented in Annex 19.

⁵ On 31 December 2018, European Central Banks, <https://www.ecb.europa.eu>

⁶ On 31 December 2018, National Bank of Ukraine, <https://bank.gov.ua>

VII. Gender mainstreaming



Gender mainstreaming is a strategy to promote gender equality to integrate a gender-sensitive perspective into the organization itself and into the entire development project cycle. The RECPC has made gender an integral part of its activities i.e. company assessments, capacity building, knowledge generation and dissemination.

On 18 October 2018 the RECPC organized the gender workshop “GENDER IQ: Five gender-sensitive soft skills to successfully boost professional and interpersonal relationships” for its staff members in Kyiv (6 men/5 women participated).



Workshop “GENDER IQ: Five gender-sensitive soft skills to successfully boost professional and interpersonal relationships”, 18 October 2018, Kyiv

The workshop covered a number of topics including sex and gender concepts, gender-oriented stereotypes in the professional environment and training exercises.

Ensuring that women and men have equal access to and participate in trainings is an important step in creating employment opportunities for women. The RECPC is monitoring data on gender. The below table for example shows the percentage of women in trainings per region giving a comparison of 2017 and 2018 and showing the progress:

Gender performance indicators for trainees in regions	Total number of RECP trainees in the region (2017)	Female percentage (2017)	Total number of RECP trainees in the region (2018)	Female percentage (2018)	Progress in one year
Kyiv	11	45%	19	37%	8% down
Vinnitsia	20	15%	40	60%	45% up
Zaporizhzhia	14	21%	9	56%	35% up
Lviv	15	33%	7	14%	19% down
Kharkiv	25	12%	25	28%	16% up
Odesa	11	18%	24	29%	11% up

In terms of staffing, the RECPC increased the share of women from 30% (2017) to 45% (2018).

VIII. Conclusions, challenges and way forward

Based on experiences gained in 2018 and the results achieved, the following conclusions and challenges can be summarized:

Conclusions:

- RECP packages should be offered to companies entailing different services and prices: Current services offered by the RECPC might be too technical, time-consuming and costly for some companies.
- Solution oriented consulting services should be offered with follow-up activities aiming to build relationship with the customer.
- Energy audits can serve as a door-opener for full RECP assessments: energy saving is the most interesting working area for companies due to continuous increase in energy prices. In addition, since 01 January 2019, the rates of environmental tax (including CO₂ emissions) for large energy consumers have increased by 25 times.
- Internal communication has significant importance for the RECPC's performance. The RECPC should continue to update its information management system and quality management system in accordance to the new organogram.
- Provision of sector specific trainings were very well perceived by companies/clients and should be continued.
- Areas such as higher education should be further elaborated: The project of the RECPC on promoting technical higher education has shown great interest from stakeholders (schools, universities, expert organizations, Ministry of Education, NGOs, young people).

Challenges:

- The significant number of staff left the RECPC before the initiated of the staff succession and changes in the RECPC.
- The “selling of RECP services” and acquisition of companies is still challenging.
- The self-sustainability degree reached 22% in 2018 and has to be increased in the following years.
- Accounting and cost monitoring are challenging due to two legal forms of the RECPC and different incomes.

Based on the lessons learned and challenges the main strategic directions for the RECPC in 2019 will be the following topics with respective way forward:

Topic	Way Forward
RECPC Management and Self-Sustainability	<p>The new management structure with clear tasks and responsibilities was adopted and implemented at the RECPC. Due to the changes, the RECPC will review the Quality Management System (ISO 9001:2015) according to the new organogram of the RECPC.</p> <p>The Centre staff will continue receiving intensive coaching and management support from FHNW and international experts in 2019 to improve operations and minimize staff turnover. Aligned with the new regional strategy, regional coordinators and RECP experts⁷ will be appointed in 3 regional offices (East, West and South).</p> <p>The RECPC has to fully understand and monitor the sources of income, cost structure, cost of services of the LLC and NGO. An analysis will be done and a transparent and efficient financial system will be developed.</p> <p>Current services offered by the RECPC are too technical, therefore RECPC should concentrate more on providing advisory services, rather than too detailed technical audits. The services of the RECPC should offer management solutions rather than technical ones.</p> <p>The RECPC plans to increase income from private companies and acquire new projects that would allow to cover a minimum of 65% of costs (self-sustainability) by the end of the project (according to logframe in year 2020, the self-financing degree (national costs) will be over 65%) .</p>
Knowledge and information management	<p>Knowledge and information management will be facilitated and updated on a continuous basis.</p>
Customer relationship/acquisition	<p>In addition to attracting new customers, the RECPC will continue its cooperation with existing clients. The monitoring of identified options the RECPC is undertaking provides a good opportunity to reiterate the communication, which eventually might results in new contracts. The economic and environmental benefits resulting from RECP assessments will be presented to new clients in clear, simple and convincing form.</p>
RECPC services	<p>Based on market demand, the RECPC will develop and offer new services to its customers and continue carrying out sector specific</p>

⁷ Regional Coordination Structure is available as separate document

	<p>trainings.</p> <p>Customer oriented packages (different services with different prices) will be developed and offered.</p> <p>As part of the UNIDO funded project, the RECPC will carry out min. 24 in-plant assessments in minimum 4 regions and follow up and monitor assessments of companies initiated in previous years on paid basis in the target regions of Kyiv, Zaporizhzhia, Lviv and Kharkiv.</p>
New project/service areas	<p>The project PROMETHE-U.S., which aims at promoting technical higher education, has created great interest from a number of stakeholders (schools, universities, expert organizations, Ministry of Education, NGOs, young people). The RECPC will pay more attention to RECP-related projects focusing on youth, as a means to the further dissemination of the RECP concept.</p> <p>A systematic monitoring and identification of business opportunities will be in place.</p>
Trainings/internships for students	<p>Young people (mainly students from universities participating in RECP courses) demonstrate a big interest in the RECPC activities. This provides a good opportunity to engage students as volunteers/interns in the frame of their university studies (practical trainings or internships). This will allow the RECPC to form an additional pool of experts and at the same time raise awareness on RECP and facilitate youth inclusion and employment.</p>
PR and media	<p>PR and media should be strengthened further. The RECPC should continue developing its webpage and social media making these more interesting and customer oriented (companies and donors) by sharing success stories, practical cases, day-to-day stories, achievements etc.</p>
Policy	<p>Due to elections in 2019, activities on policies and cooperation with local authorities might be challenging. However, the Government will need support for harmonizing legislation with the EU and the RECPC will engage in advisory service in this regard.</p>

ANNEXES

Annex 1. Revised logical framework for 2016 – 2018

	Logframe 2016-2018	Achieved in 2016	Achieved in 2017	Achieved in 2018
	Output Category 1: RECP service delivery			
1.1. CPC established and operating as per agreed institutional and governance provisions	<ul style="list-style-type: none"> • Regular meetings of the Project Steering Committee and Advisory Board • Adequate staffing and facilities for the CPC, female staff ratio is between 40 to 50 % • Establishment of 6 regional offices • Business plan revised • Minimum of 10 staff members (including regional coordinators) trained on the CPC management and business planning, between 40 to 50% females • Annual reports drawn up and monitored • Annual work plans and reviews drawn up and monitored • ISO 9000 Quality management system in place • Financial monitoring in place (Account audited every year) • Registration of the CPC as independent legal entity • In year 2018, the self- 	<ul style="list-style-type: none"> • 2 meetings of the Project Steering Committee and 1 meeting of the Advisory Board • Adequate staffing and facilities for the CPC • Establishment of 6 regional offices • Business plan revised • Minimum of 10 staff members (including regional coordinators) trained on the CPC management and business planning, between 40 to 50% females • Annual reports drawn up and monitored • Annual work plans and reviews drawn up and monitored • ISO 9000 Quality management system in place • Financial monitoring in place (Account audited every year) • Registration of the CPC as independent legal entity • In year 2016, the self-financing degree (national costs) 	<ul style="list-style-type: none"> • 1 meeting of the Project Steering Committee and 1 meeting of the Advisory Board • Adequate staffing and facilities for the CPC • Minimum of 10 staff members (including regional coordinators) trained on the CPC management and business planning, between 40 to 50% females • Annual reports drawn up and monitored • Annual work plans and reviews drawn up and monitored • Financial monitoring in place (Account audited every year) • In year 2017, achievement of the self-financing degree¹ of min. 32 % of the current contract amount 	<ul style="list-style-type: none"> • 1 meeting of the Project Steering Committee and 1 meeting of the Advisory Board • Adequate staffing and facilities for the CPC • Annual reports drawn up and monitored • Annual work plans and reviews drawn up and monitored • Financial monitoring in place (Account audited every year) • In year 2018, the self-financing degree¹ (national costs) achieved 22%

¹ Degree of self-sustainability: (self generated income)/(national cost)

	financing degree (national costs) will be 45 to 50 %	was about 20 %		
1.2 CPC staff and associated experts trained in basic and advanced RECP methods and applications	<ul style="list-style-type: none"> • 6 training courses for CPC professional staff and associated experts (incl. regional coordinators) • Minimum of 15 trainees with a diploma trained in RECP methodology in both regions Lviv and Kharkiv, (40 to 50 % of the trainees should be female) • 20 trainees trained on RECP methodology in the other 4 regions per year (5 experts per region and year, including re-training of experts) (40 to 50 % of the trainees should be female) • Minimum of 3 RECP experts per region trained on specific CP-related topics per year • Up-date of RECP training materials • Databases on RECP and ChL experts updated • Professional Trainers in RECP or sector specific industry sectors trained (2 per region and year) 	<ul style="list-style-type: none"> • 2 training courses (2 ToT) for CPC professional staff and associated experts (incl. regional coordinators) • 7 trainees in Lviv and 9 trainees in Kharkiv with a diploma trained in RECP methodology (16 trainees in total in both regions) • 45 trainees trained on RECP methodology in the other 4 regions • 12 staff members and RECP experts trained on specific CP-related topics • Up-date of RECP training materials (Updated version of RECP Methodology Tool kit published; Energy Efficient Technologies in municipal sector prepared and published) • Databases on RECP and ChL experts updated (new experts added) • Professional Trainers in RECP or sector specific industry sectors trained (12 experts in total trained in 2016 during Trainings of trainers) 	<ul style="list-style-type: none"> • 2 training courses for CPC professional staff and associated experts (incl. regional coordinators) • 5 trainees in Lviv and 5 trainees in Kharkiv with a diploma trained in RECP methodology • 20 trainees trained on RECP methodology in the other 4 regions (Z,O,K,V) (5 experts per region, including retraining of experts) • 3 RECP experts per region trained on specific CP-related topics (6 RECP experts in total in 2017) • Up-date of RECP training materials • Databases on RECP and ChL experts updated • Sector specific industry sector expert was trained in 2017 (2 per region) 	<ul style="list-style-type: none"> • 2 training courses for CPC professional staff and associated experts (incl. regional coordinators) • 7 trainees in Lviv and 22 trainees in Kharkiv with a diploma trained in RECP methodology • 73 trainees (Z,O,K,V) trained on RECP methodology in the other 4 regions (5 experts per region, including retraining of experts) • 3 RECP experts per region trained on specific CP-related topics (6 RECP experts in total in 2018) • Up-date of RECP training materials • Databases on RECP and ChL experts updated • Sector specific industry sector experts were trained (27 experts in total trained in 2018)
Output Category 2: RECP service application				
2.1. Awareness and understanding of	<ul style="list-style-type: none"> • Website and helpdesk maintained • Minimum of 10 awareness 	<ul style="list-style-type: none"> • Website (www.recpc.kpi.ua), YouTube channel “RECP Centre Ukraine”, 	<ul style="list-style-type: none"> • Website and helpdesk maintained • 10 awareness seminars 	<ul style="list-style-type: none"> • Website and helpdesk maintained • 10 awareness seminars

<p>RECP opportunities and benefits improved at national and regional levels among companies, authorities and other stakeholders</p>	<p>seminars <u>per year</u> on RECP organized and attended by key stakeholders and representatives from target groups (1-2 per region)</p> <ul style="list-style-type: none"> • Minimum of 6 promotional and information materials and case studies/articles on RECP developed per year • RECP branding developed • Minimum of 6 Universities have integrated RECP/ChL in their curricula (1 per region) • 1 Training course for University teachers in RECP and Didactics conducted • Minimum of 2 information seminars per year carried out with financial institutions and other industrial associations • Minimum of 5 RECP/ChL related videos for TV-programmes developed • 6 Annual RECP Award Ceremonies organized per year • Minimum of 3 events as trade fairs/roundtables/ big national or regional conferences related to RECP/ChL attended per year • Target specific training portfolio developed and minimum of 5 trainings carried out per year 	<p>Facebook maintained</p> <ul style="list-style-type: none"> • 50 awareness raising events on RECP organized by the Centre and 37 events attended by RECP representatives • 7 promotional and information materials and case studies/articles on RECP developed • RECP branding updated (new design) • 4 information seminars with financial institutions and industrial associations were organized and carried out seminars in Odesa, Kharkiv, Vinnytsia, Lviv • 6 video – spots developed • 6 Annual RECP Award Ceremonies organized • 6 Exhibitions and 8 Forums attended (14 big events in total) • Target specific training portfolio developed and 6 trainings carried out (Chernivtsi, Dnipro, Kriviy Rig, Dnipro, Kyiv, Zaporizhzhia) 	<p>on RECP organized and attended by key stakeholders and representatives from target groups (1-2 per region)</p> <ul style="list-style-type: none"> • 6 promotional and information materials and case studies/articles on RECP developed • Organize and carry out one seminar/workshop for university teachers and other respective stakeholders with the aim to discuss the integration of RECP/ChL in the curricula of min. 6 Universities • 1 Training course for University teachers in RECP and Didactics conducted • 2 information seminars carried out with financial institutions and other industrial associations • 5 RECP/ChL related videos for TV-programmes developed • 6 Annual RECP Award Ceremonies organized • 3 events as trade fairs/roundtables/ big national or regional conferences related to RECP/ChL attended • 5 trainings carried out 	<p>on RECP organized and attended by key stakeholders and representatives from target groups (1-2 per region)</p> <ul style="list-style-type: none"> • 7 promotional and information materials and case studies/articles on RECP developed • 1 information seminar carried out with financial institutions and other industrial associations • 4 RECP/ChL related videos for TV-programmes developed • 1 Annual RECP Award Ceremonies inviting all regions organized and conducted • 4 Exhibitions, 8 Forums, 8 Conferences and 16 events related to RECP/ChL attended • 8 target specific trainings carried out
<p>2.2. Demonstrated potential of RECP</p>	<ul style="list-style-type: none"> • Minimum of 30 RECP assessments per year in Ukraine 	<ul style="list-style-type: none"> • 32 assessments have been carried out 	<ul style="list-style-type: none"> • 30 RECP assessments carried out (around 5 per 	<ul style="list-style-type: none"> • 30 RECP assessments carried out (around 5 per

<p>for the reduction of waste, greenhouse gases (GHG) and other emissions (water, raw material, etc.) as well as Chemical Leasing for the sound management of chemicals and energy efficiency</p>	<p>(around 5 per region and year)</p> <ul style="list-style-type: none"> • Minimum of 3 ChL demonstration projects developed • Minimum of 70 % of participating companies implemented more than 50% of options developed • 3 sector specific RECP manuals published • 1 ChL manual published • Database on target sectors and sector-specific RECP and Chemical Leasing case studies developed 	<ul style="list-style-type: none"> • Official requests for participation in ChL demo-projects submitted for Henkel Ukraine, Akzo Nobel Holding Ukraine Ltd. and Ecolab Ltd. (Ukrainian branch) • 65% of participating companies from 2016 monitored • Database on target sectors and sector-specific RECP case studies updated 	<p>region)</p> <ul style="list-style-type: none"> • 2 ChL demonstration projects developed together with international ChL experts • Provide monitoring and verification of benefits achieved by the 30 demonstration companies (Minimum of 70 % of participating companies implemented more than 50% of options developed) • 1 sector specific RECP manual published (Dairy Production) • Update and publish 1 ChL manual • Database on target sectors and sector-specific RECP and Chemical Leasing case studies developed 	<p>region)</p> <ul style="list-style-type: none"> • 1 ChL demonstration projects developed together with international ChL experts • 55 % of participating companies implemented 17% of options developed (monitoring will ongoing in 2019) • 2 sector specific RECP manuals published (Meat industry and bakery) • Database on target sectors and sector-specific RECP/ChL case studies updated
<p>2.3. Mechanisms established for the sector-based replication and up-scaling of RECP results and opportunities in business</p>	<ul style="list-style-type: none"> • Sector-based self-assessment tools, benchmarks and guidelines for 3 sectors developed • Group-based training and assistance model for the up-scaling of RECP created 	<ul style="list-style-type: none"> • Group-based training and assistance model for the up-scaling of RECP created (support and assistance for EaP Green Programme on a gratuitous basis) 	<ul style="list-style-type: none"> • Additional sector-based guideline (1 guideline) for tunnel kiln assessment developed • Organize and carry out group-based training and assistance model for the up-scaling of RECP created (Support of RECP Clubs and RECP Forums) 	<ul style="list-style-type: none"> • Self-assessment tool, benchmark and guideline for 1 sector developed
<p>2.4. Results and benefits of RECP and ChL demonstrations documented in</p>	<ul style="list-style-type: none"> • National specific indicator framework for measuring RECP benefits at company level established and based on general RECP programme indicators 	<ul style="list-style-type: none"> • Monitoring and Verification of benefits achieved by 21 demonstration companies 	<ul style="list-style-type: none"> • Guideline on specific indicator framework for measuring RECP benefits to be prepared in 2017 in Ukrainian (based on UNIDO indicators) 	<ul style="list-style-type: none"> • National specific indicator framework for measuring RECP benefits at company level established and based on general RECP

verifiable and transparent manner	<ul style="list-style-type: none"> • Global sustainability criteria for ChL business models applied • Monitoring and Verification of benefits achieved by 30 demonstration companies per year 		publication) <ul style="list-style-type: none"> • Monitoring and Verification of benefits achieved by 30 demonstration companies 	programme indicators <ul style="list-style-type: none"> • Global sustainability criteria for ChL business models applied • Monitoring and Verification of benefits achieved by 30 demonstration companies
Output Category 3: RECP policy and strategy				
3.1. Policy assessment carried out and RECP strategy developed	<ul style="list-style-type: none"> • National working groups established and operational • Gaps identified for RECP promotion and policy • 1 Policy strategy with RECP targets and policy instruments published • 1 report, to be elaborated with other national partners, with policy recommendations to the government elaborated within the framework of the Platform for Green Economy Growth 	<ul style="list-style-type: none"> • Director of the Centre has been appointed as an official Public Council member to the Ministry of Ecology and Natural Resources of Ukraine • Draft analysis report of the legislation related to RECP prepared by Maryna Lytvynchuk (assistant of the Parliament' Member). • Preparation of the report "Analysis of challenges for service providers to sell green services" within the Green Economy Growth Platform 	<ul style="list-style-type: none"> • Activities of the working groups are ongoing • Gaps identified for RECP promotion and policy (presentation/promotion and wide discussion within Policy Expert Group Meeting) • 1 Draft Policy strategy with RECP targets and policy instruments prepared 	<ul style="list-style-type: none"> • Activities of the working groups are ongoing • National Industrial Development Strategy 2025 (MEDT) includes the chapter on resource efficiency
3.2. National action plan for RECP developed and implementation mechanisms established	<ul style="list-style-type: none"> • Implementation mechanisms for RECP policy and strategy developed • 1 National action plan published 		<ul style="list-style-type: none"> • Implementation mechanisms for RECP policy and strategy developed • 1 Draft National action plan published 	
3.3. Implementation and enforcement capacity of the	<ul style="list-style-type: none"> • RECP policy training for regional government officials conducted (one training per year) • Database of national RECP 	<ul style="list-style-type: none"> • RECP policy trainings for regional government officials conducted in Kharkiv region, Chernihiv region, Dnipropetrovsk 	<ul style="list-style-type: none"> • Expert Group Meeting with government officials in Ukraine and international experts to facilitate a policy 	<ul style="list-style-type: none"> • Report on monitoring the policy development in Ukraine and more specifically on activities

<p>government for RECP-related policy and legislation enhanced</p>	<p>experts and expertise established and open to central government and regional authorities</p>	<p>region</p>	<p>dialogue on industry and policy instruments was organized and carried out</p> <ul style="list-style-type: none"> • Database of national RECP experts and expertise established and open to central government and regional authorities 	<p>initiated through the Expert Group Meeting in 2017 was prepared</p>
<p>3.4. Technical guidelines for target sectors developed</p>	<ul style="list-style-type: none"> • Gaps identified in the system of technical guidelines • 3 Selected guidelines (BAT/BEP) developed and endorsed for target sectors (food processing, etc.) 		<ul style="list-style-type: none"> • Gaps identified in the system of technical guidelines • 2 Selected guidelines (BAT/BEP) developed and endorsed for target sectors with support of FHNW 	<ul style="list-style-type: none"> • 1 Selected guideline (BAT/BEP) developed and endorsed for target sector (meat industry)
<p>3.5. RECP opportunities utilized for the national implementation of Multilateral Environmental Agreements (MEAs): Persisting Organic Pollutants (POPs), Ozone Depleting Substances (ODS), GHG, hazardous waste, Clean Development Mechanisms (CDM)</p>	<ul style="list-style-type: none"> • Assessment of commitments and actions under RECP-relevant MEA undertaken • 2 Opportunities for MEA implementation identified • 1 Active participation in an international MEA project 	<ul style="list-style-type: none"> • 1 Opportunity for MEA implementation identified (Marrakesh Agreement) 	<ul style="list-style-type: none"> • Assessment of commitments and actions under RECP-relevant MEA undertaken • 1 Opportunity for MEA implementation identified • 1 Active participation in an international MEA project 	
<p>Output Category 4: RECP technologies and financial mechanisms</p>				

4.1. Professional capacities created and utilized to support the adaptation, development and transfer of RECP technologies	<ul style="list-style-type: none"> • 90 additional RECP national experts on RECP technologies trained 	<ul style="list-style-type: none"> • 61 additional RECP national experts trained 	<ul style="list-style-type: none"> • 30 additional RECP national experts trained 	<ul style="list-style-type: none"> • 157 additional RECP national experts trained
4.2. Awareness and understanding of RECP technology opportunities improved at national and regional levels	<ul style="list-style-type: none"> • 4 promotion and information events and training courses on RECP technologies carried out • 8 requests for assistance in the development and transfer of RECP technologies received from target industries • 4 service providers contacting the CPC and getting involved in RECP technologies transfer and application 	<ul style="list-style-type: none"> • 1 promotion and information event and training course on RECP technologies carried out • 3 requests for assistance in the development and transfer of RECP technologies received from target industries • 2 service providers contacting the CPC and getting involved in RECP technologies (2 steam traps/filters) 	<ul style="list-style-type: none"> • 2 promotion and information events and training courses on RECP technologies carried out • 3-4 requests for assistance in the development and transfer of RECP technologies received from target industries • 1 service provider contacting the CPC and getting involved in RECP technologies 	<ul style="list-style-type: none"> • 1 promotion and information event and training course on RECP technologies carried out in Kyiv • 1 request for assistance in the development and transfer of RECP technologies received from target industry in Zaporizhzhia • 1 service provider contacting the CPC and getting involved in RECP technologies
4.3. RECP technology opportunities are identified as part of RECP assessments	<ul style="list-style-type: none"> • 6 RECP technology assessments in companies per year and regional Centre (total 36 per year) • 4 technology options identified in each RECP assessment • 10 feasibility studies for RECP technology options conducted per year 	<ul style="list-style-type: none"> • 4 RECP technology assessments in companies and regional Centre • 4 technology options identified in each RECP assessment • 10 feasibility studies for RECP technology options conducted within RECP assessments 	<ul style="list-style-type: none"> • 6 RECP technology assessments in companies and regional Centre • 4 technology options identified in each RECP assessment • 10 feasibility studies for RECP technology options conducted 	<ul style="list-style-type: none"> • 7 RECP technology assessments in companies and regional Centre • 4 technology options identified in each RECP assessment • 20 feasibility studies for technology option conducted
4.4. Agreements	<ul style="list-style-type: none"> • 2 new agreements reached 	<ul style="list-style-type: none"> • 1 new agreement reached 	<ul style="list-style-type: none"> • 1 new agreements reached 	<ul style="list-style-type: none"> • 2 projects identified,

<p>and financial mechanisms to support RECP technologies developed and implemented</p>	<ul style="list-style-type: none"> • 4 projects identified, considered and financed • 8 Representatives of banks attended a specific RECP course for financial institutions 	<ul style="list-style-type: none"> • 8 Representatives of banks attended 1 specific RECP course for financial institutions 	<ul style="list-style-type: none"> • 2 projects identified, considered and financed • 8 Representatives of banks attended 1 specific RECP course for financial institutions (optional) 	<p>considered and facilitated the financing</p> <ul style="list-style-type: none"> • 1 specific RECP course for financial institutions was conducted for representatives of banks
<p>4.5. Economic and environmental benefits of RECP technology adaptation, development and transfer verified</p>	<ul style="list-style-type: none"> • 50 RECP technology options implemented in target companies • 25 RECP options implemented and evaluated/monitored in terms of water, material, energy and money savings • 80 RECP options from previous RECP assessments evaluated/monitored 	<ul style="list-style-type: none"> • 10 RECP technology options implemented in target companies • 20 RECP options implemented and evaluated/monitored in terms of water, material, energy and money savings • 37 RECP options from previous RECP assessments implemented and evaluated/monitored 	<ul style="list-style-type: none"> • 25 RECP technology options implemented in target companies • 20 RECP options implemented and evaluated/monitored in terms of water, material, energy and money savings • 27 RECP options from previous RECP assessments evaluated/monitored (ongoing) 	<ul style="list-style-type: none"> • 3 RECP technology options implemented in target companies (implementation will be ongoing in 2019) • 3 RECP options implemented and evaluated/monitored in terms of water, material, energy and money savings (implementation will be ongoing in 2019) • 29 RECP options from previous RECP assessments evaluated/monitored
<p>4.6. Stakeholder platform to support RECP technology adaptation, development and transfer has been established and is taking an active role in advocating RECP technologies at company level</p>	<ul style="list-style-type: none"> • 1 Knowledge management and database on RECP technology providers established and maintained • 3 events focusing on the development of RECP technologies and their implementation in target sectors conducted 	<ul style="list-style-type: none"> • 1 Knowledge management and database on RECP technology providers established and maintained • 1 event focusing on the development of RECP technologies and their implementation in target sectors conducted (Odesa) 	<ul style="list-style-type: none"> • 1 Knowledge management and database on RECP technology providers established and maintained • 1 event focusing on the development of RECP technologies and their implementation in target sectors conducted 	<ul style="list-style-type: none"> • 1 Knowledge management and database on RECP technology providers maintained • 1 event focusing on the development of RECP technologies and their implementation in target sectors conducted in Kyiv

Annex 2. RECPC staff list

№	Name	Degree/education, Specialization	Full/part time, freelancer	Position, Responsibilities	Region
1.	Andrii Vorfolomeiev	PhD in Technical Sciences / graduated from NTUU “Igor Sikorsky KPI”, Water Treatment Technology, Electromechanical Engineering	Full time	Director Responsible for the management of the Centre, RECP Expert	All regions
2.	Kostiantyn Tadia	PhD in Engineering Sciences / graduated from NTUU “Igor Sikorsky KPI”, Thermophysical Engineering	Full time	Head of Technical Department (Technical Director) Responsible for technical issues, RECP audits, in-plant assessment at company level, trainings, consulting, new business development in energy efficiency	All regions
3.	Ihor Shylovyh	PhD in Technical Sciences / graduated from NTUU “Igor Sikorsky KPI”, Heat Engineering	Full time	Technical Advisor Responsible for providing administrative and technical advices, assistance in sector-specific in-plant assessment at company level, trainings, consulting	All regions
4.	Valerii Pavshuk	PhD in Technical Sciences / graduated from NTUU “Igor Sikorsky KPI”, Electric Engineering	Full time	Technical Advisor Responsible for providing administrative and technical advices, assistance in sector-specific in-plant assessment at company level, trainings, consulting	All regions
5.	Olexiy Tchaykovsky	PhD in Technical Sciences / graduated from NTUU “Igor Sikorsky KPI”, Foundry technology	Full time	Regional Coordinator (Head office) Responsible for RECP trainings of trainees, RECP assessments at company level, in-plant assessments, consulting	Kyiv region
6.	Vitalii Krukovskiy	Specialist / graduated from NTUU “Igor Sikorsky KPI”, Heat Engineering	Full time	Heat Engineer, Coordinator and Trainer of the trainings on heating systems Responsible for assistance in sector-specific in-plant assessment at company level, trainings, consulting, new business development in energy efficiency	All regions

7.	Ella Dmitrochenkova	PhD in Technical Sciences / graduated from Donbass National Academy of Civil Engineering and Architecture, Heat and Gas Supply and Ventilation	Part time	RECP Expert Responsible for assistance in sector-specific in-plant assessment at company level, trainings, consulting, new business development in energy efficiency	All regions
8.	Serhii Plashykhin	PhD in Technical Sciences / graduated from NTUU “Igor Sikorsky KPI”, Technical thermophysics and industrial thermal power engineering	Part time	RECP Expert Responsible for assistance in sector-specific in-plant assessment at company level, trainings, consulting, new business development in energy efficiency	All regions
9.	Anna Ivaneta	Specialist / graduated from Kyiv National Linguistic University, Translation/interpretation and Philology of the English and French languages	Full time	Head of Administrative Department (Executive Director) Responsible for administration, reporting, communication, policy work	Kyiv region
10.	Tetiana Dehodia	Master / graduated from NTUU “Igor Sikorsky KPI”, Mechanical Engineering	Full time	Administrative Assistant Responsible for administrative support of the Centre	All regions
11.	Svitlana Chunikhina	PhD in Psychological Sciences / graduated from Institute of Social and Political Psychology of National Academy of Pedagogical Sciences of Ukraine, Political Psychology	Full time	Event manager, Gender Focal Point. Responsible for organization of events, PR and Gender mainstreaming	All regions
12.	Renata Tsitsikan	Specialist / graduated from Kyiv National Linguistic University, Interpreter/ Translator	Full time	Assistant to Event manager/Translator Responsible for organization of events, translation, interpretation	Kyiv region
13.	Anastasiia Kutuzova	Master / graduated from NTUU “Igor Sikorsky KPI”, Chemical technology	Part time	Chemical Leasing expert Responsible for ChL technology transfer	Kyiv region
14.	Valentyna Sobkovych	Master / graduated from Interregional Academy of Personnel Management Accounting, audit	Part time	Accountant Responsible for provision of accounting and audit services, maintaining Centre’s bank account	Kyiv region

15.	Serhii Leleka	PhD in Technical Sciences / graduated from NTUU “Igor Sikorsky KPI” Chemical Engineering	Part time	IT Administrator Responsible for information system of the Centre	All regions
16.	Serhii Duda	Specialist / graduated from Institute of International Affairs at Taras Shevchenko Kyiv National University	Part time	Consultant in Kyiv Responsible for day-to-day office activities, completion of general office tasks	Kyiv region
17.	Serhii Kalachov	Specialist / graduated from Zaporizhzhia National Technical University Electric Engineering	Part time	Regional Coordinator (South) Responsible for administration, searching potential clients in the target region, pre-assessment and in-plant assessment at company level, contracts support, supervising	Zaporizhzhia region
18.	Yurii Yuriev	Master / graduated from Zaporizhzhia State Engineering Academy Energy management and energy efficiency	Part time	Energy Efficiency Expert Responsible for pre-assessment and in-plant assessment at company level	Zaporizhzhia region
19.	Volodymyr Korovai	Specialist / graduated from Zaporizhzhia State Engineering Academy Energy and energy saving	Part time	Heat Engineer Responsible for pre-assessment and in-plant assessment at company level	Zaporizhzhia region
20.	Valerii Redchuk	Specialist / graduated from Vinnytsia Technical University, Radio engineering	Part time	Consultant in Vinnytsia region Responsible for searching potential clients in the target region, pre-assessment and in-plant assessment at company level	Vinnytsia region
21.	Iryna Zaiachuk	Master of Arts in Economics / graduated from Ohio University International Economics, Financing	Part time	Regional Coordinator (West) Responsible for administration, sales, partnership development, new project acquisition, searching potential clients in the target region, pre-assessment and in-plant assessment at company level, contracts support, supervising	Lviv region

22.	Vasyl Prusak	Specialist / graduated from Lviv Polytechnic Institute, System Engineering	Part time	Heat Engineer Responsible for assistance in pre-assessment at company level and new clients acquisition	Lviv region
23.	Serhii Khudobin	Specialist / graduated from Kyiv National University of Internal Affairs of Ukraine, Law	Part time	Regional Coordinator (East) Responsible for administration, sales, partnership development, new project acquisition, searching potential clients in the target region, pre-assessment and in-plant assessment at company level, contracts support, supervising	Kharkiv region
24.	Oleh Demchenko	Specialist / graduated from Kharkiv National Technical University, Machine building	Part time	Consultant in Kharkiv region Responsible for new clients acquisition, assistance in trainings and events, communication	Kharkiv region
25.	Pavlo Fomichov	Specialist / graduated from Odesa Polytechnic Institute Power supply at municipal industrial enterprises and agriculture	Part time	Consultant in Odesa Responsible for new clients acquisition, assistance in trainings and events, communication	Odesa region



**RESOURCE EFFICIENT
AND CLEANER PRODUCTION
CENTRE**

Extract from the Minutes of

Advisory Board Meeting

conducted within the framework of the project “Promoting the Adaptation and Adoption of Resource Efficient and Cleaner Production (RECP) through the Establishment and Operation of a Cleaner Production Centre (CPC) in Ukraine”

Kyiv, 06 February 2018

Chairman: Mr. Vasyl Krutov
Secretary: Ms. Uliana Naumenko
Participants: Advisory Board permanent members, additionally invited key persons (Annex 2)

DECISIONS MADE:

The RECP Centre is recommended to undertake the following:

1. Compose a letter-proposal and direct it to the Ministry of Education and Science of Ukraine. The proposal should suggest exploring and launching the process of the RECP concept incorporation into national Universities curricula;
2. Embark on negotiations on possible cooperation with the Ministry of Regional Development, Construction and Housing and Communal Services of Ukraine. The negotiations should revolve around RECP Centre’s deep involvement and providing valuable contribution to elaborating programs for territorial communities’ development with a main focus on resource efficiency and conservation;
3. Get into discussions with the State Statistics Service of Ukraine and industrial associations on possible EU approaches implementation in terms of collecting statistics on resource efficiency (within Ukraine–European Union Association Agreement implementation framework);
4. Expand activities on the RECP concept implementation and introducing it to other regions of Ukraine, except for those stipulated in UNIDO project documents;
5. Initiate a dialogue between expert, governmental and parliamentary knowledge-holders on legislative initiatives that the RECP Centre has earlier elaborated with a focus on support to wide the RECP implementation in industry, public utilities, municipalities and other service provision companies.
6. Aiming to deeply discuss the National Plan project on the RECP concept implementation in Ukraine, the RECP Centre has to arrange and hold a meeting of experts that would bring together leading national and international RECP experts, spokespersons of relevant Ministries and industrial corporations (November 2018 tentatively);
7. The next meeting should be held on the first decade of February 2019.



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Federal Department of Economic Affairs,
Education and Research EAER
State Secretariat for Economic Affairs SECO



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AGENDA
Advisory Board Meeting
**The project “Promoting the Adaptation and Adoption of Resource Efficient and Cleaner
Production (RECP) through the Establishment and Operation of
a Cleaner Production Centre (CPC) in Ukraine”**

06 February 2018

Advisory Board Chairman: Mr. Vasyl Krutov

Time	Activity	Speakers
10:30 – 11:00	Registration, welcoming coffee	
11:00 – 11:10	Opening of the meeting, appointing the secretary of the meeting, agenda adoption	Chairman
11:10 – 11:20	Welcoming speech	Representatives from - Ministries and Agencies - NTUU “Igor Sikorsky KPI” - State agency on energy efficiency and energy saving in Ukraine - Mr. Ihor Shylovyh, Director of the RECP Centre
11:20 – 11:30	Opening remarks	Chairman
11:30 – 11:45	The RECP Centre’s activity in Ukraine: 1) Results achieved in 2017; 2) Goals and prospects for 2018 - 2019	Mr. Ihor Shylovyh, Director of the RECP Centre
11:45 – 11:55	RECP and sustainable industrial development: prospects for Ukrainian enterprises and companies	Ms. Liudmyla Musina, UNIDO focal point in Ukraine
11:55 – 12:15	Fostering Resource Efficient and Cleaner Production Policy in Ukraine: results of the Expert Group Meeting (October 12, 2017)	Mr. Ihor Shylovyh, Director of the RECP Centre
12:15 – 12:20	A way forward: facilitating cooperation between state authorities and the RECP Centre; addressing state authorities and businesses’ representatives in Ukraine with proposals to search for areas to disseminate information on the RECP methodology, approaches, practices	Chairman



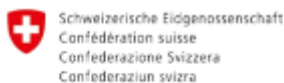
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12:20 – 13:15	Discussing the RECP Centre collaboration chances in Ukraine – needs, challenges, partnership, activities and opportunities	Advisory Board participants
13:15 – 13:30	Draft decision of the Advisory Board meeting adoption Fixing the date of the next Advisory Board meeting	Chairman
13:30 – 13:35	Summing up	Mr. Ihor Shylovykh, Director of the RECP Centre
13:35 – 14:00	Lunch	

ANNEX 2

Advisory Board participants
06 February 2018

No.	Full name	Company name	Position
Permanent Advisory Board members			
1.	Mr. Volodymyr Avramenko	Ministry of Economic Development and Trade of Ukraine	Deputy Head of the Department for Industrial Development, Chief of Department for State Property Management and Industrial Development
2.	Mr. Viacheslav Bykovets	Union of Entrepreneurs of Small, Middle-Sized and Privatized Enterprises	First Vice President, Director General
3.	Mr. Ihor Bondar	Kyiv City State Administration	Leading Engineer of the Housing and Communal Infrastructure Department
4.	Mr. Viacheslav Konfederat	Kyiv City State Administration	Leading Expert in ecosystems and water resources
5.	Mr. Viacheslav Naumets	Kyiv City State Administration	Leading Expert of the Industry and Entrepreneurship Development Department
6.	Ms. Tamara Burenko	State Agency on Energy Efficiency and Energy Saving of Ukraine	Deputy Director of the Department, Head of the Monitoring and Informatization Subdivision at Strategic Development Department



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7.	Ms. Natalia Trofymenko	Ministry of Ecology and Natural Resources of Ukraine	Deputy Director of the Department, Head of the Department for Environmental Policy and Strategic Planning
8.	Mr. Viacheslav Hridchin	Ministry of Ecology and Natural Resources of Ukraine	Leading Expert in subdivision for environmental projects implementation of the Climate Change and Ozone Layer Preservation Department
9.	Mr. Anatolii Shmurak	Ministry of Ecology and Natural Resources of Ukraine	Leading Expert of the Climate Policies and Reporting Department, Department of Climate Change and Ozone Layer Preservation
10.	Mr. Viktor Shovkaliuk	Ministry of Education and Science of Ukraine	Advisor to the Minister of Education and Science of Ukraine
11.	Ms. Dariia Chaika	Ministry of Education and Science of Ukraine	Director General of Innovation and Technology Transfer Directorate
12.	Mr. Tetiana Kvasha	Ministry of Education and Science of Ukraine	Head of Department of the Institute of Scientific and Technical Expertise and Information
13.	Ms. Olena Rohovchenko	Ministry of Education and Science of Ukraine	Leading Expert of the Professional Education Department
14.	Mr. Vasyl Krutov	Ukrainian League of Industrialists and Entrepreneurs	Advisory Board Chairman, ULIE Vice President
15.	Mr. Serhii Khudobin	Ukrainian League of Industrialists and Entrepreneurs	Director of the Department
16.	Mr. Yevhen Ogorodnik	NTUU "Igor Sikorsky KPI"	International Cooperation Department
17.	Mr. Ihor Shylovykh	Resource Efficient and Cleaner Production Centre (NGO)	Director
18.	Mr. Valerii Pavshuk	Resource Efficient and Cleaner Production Centre (NGO)	Technical Director
19.	Mr. Taras Sakalosh	Resource Efficient and Cleaner Production Centre (NGO)	Executive Director
20.	Ms. Uliana Naumenko	Resource Efficient and Cleaner Production Centre (NGO)	Advisory Board Secretary



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Advisory Board members invited			
21.	Mr. Volodymyr Hnat	Corporation “Science Park ‘Kyivska Politechnika”	Director General
22.	Mr. Kosiantyn Gura	SCS “Green Investment Development Center” founded by State Agency on Energy Efficiency and Energy Saving of Ukraine	Acting Director
23.	Mr. Oleksii Danylenko	State Boarder Guard Service of Ukraine	Department Head of the Sanitary and Epidemiological Surveillance and Outbreaks Investigation
24.	Ms. Tetiana Dvoretzka	Managing Department for Ecology and Natural Resources	Leading Expert of the Design and Control Department
25.	Mr. Anatolii Zribniak	Presidential Administration of Ukraine	Deputy Head of the Reforms Monitoring Department of the Head Department on Reforms Implementation
26.	Ms. Liudmyla Musina	UNIDO focal point in Ukraine	UNIDO focal point in Ukraine
27.	Mr. Yevhenii Inshekov	UNIDO project “Energy Management System Standards in Ukrainian Industry” (UKR IEE Project) in Ukraine	National trainings coordinator, management project group member
28.	Mr. Oleksii Pashchenko	UNIDO project “Energy Management System Standards in Ukrainian Industry” (UKR IEE Project) in Ukraine	National Coordinator of the Project

Annex 4. The extract from the Minutes of the Steering Committee meeting and the list of Steering Committee Members



**Extract from the Minutes of
Steering Committee Meeting**

**“Promoting the Adaptation and Adoption of Resource Efficient and Cleaner Production (RECP)
through the Establishment and Operation of a Cleaner Production Centre (CPC) in Ukraine”**

23 April 2018
*Kyiv, NTUU “Igor Sikorsky KPI” (Hall of Administrative Board),
14:00-18:00*

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Discussion and Conclusion

The SCM was concluded as follows:

- Approval of the management report 2017 and work plan for 2018;
- Agreement of the SC members for the request of a 2 years no-cost extension and subsequent submission to SECO;
- Agreement on the presented regional set-up in Ukraine having Kiev as the central office and 3 regional offices:
 - Kyiv (central office): covering Kyiv, Odessa, Kherson, Mykolayiv and Vinnitsa;
 - Zaporizhzhia: covering Zaporizhzhia and Dnepropetrovsk;
 - Lviv: covering Lviv and neighbouring regions (Ivano-Frankivsk, Zakarpattia, Ternopil, Lutsk, etc.);
 - Kharkiv: covering Kharkiv, Poltava, Sumy and Ukrainian part of Donetsk region, namely Kramatorsk.
- Preparation of a HR gap analysis and succession plan until end of May 2018
- Stronger focus on donor relationship management and acquisition of projects in order to increase the self-financing degree

SECO and UNIDO reiterated their positions on the importance of having an independent RECPC.

Actions to be taken

#	Comment relevance	Decisions/Comments/Statements	Responsible	Deadline
1		The management report 2017 and the work plan for 2018 have been adopted	-	-
2	UNIDO Project implementation	Agreement on the presented regional set-up in Ukraine having Kiev as the central office and 3 regional offices: <ul style="list-style-type: none"> • Kyiv (central office): covering Kyiv, Odessa, Kherson, Mykolayiv and Vinnitsa; • Zaporizhzhia: covering Zaporizhzhia and Dnepropetrovsk; • Lviv: covering Lviv and neighbouring regions (Ivano-Frankivsk, Zakarpattia, Ternopil, Lutsk, etc.); • Kharkiv: covering Kharkiv, Poltava, Sumy and Ukrainian part of Donetsk region, namely Kramatorsk. 	-	-
3		The Steering Committee took note about the updated Business Plan 2018-2020	-	-
4		Agreement of the SC members for the request of a 2 years no-cost extension was reached and has to be submitted to SECO	UNIDO	ASAP
5	RECP Centre sustainability	SECO and UNIDO reiterated their positions on the importance of having an independent RECPC	RECP Centre	Ongoing
6		Preparation of a HR gap analysis and succession plan	RECP Centre/ CTA/ FHNW	31 May 2018

7		Stronger focus on donor relationship management and acquisition of projects in order to increase the self-financing degree	RECP Centre	December 2018
8	Policy work	To enhance the cooperation with the Ministry of Economic Development and Trade of Ukraine on the Strategy of Industrial Policy	RECP Centre	December 2018
9	Partnership	To strengthen cooperation with donors and international organizations in Ukraine	RECP Centre	December 2018

Annex I: Agenda of the Steering Committee Meeting

Time	Activity	Speaker
13:30 – 14:00	Participants registration and welcome coffee	
14:00 – 14:20	Opening Remarks	Michajlo Zgurovsky Rector, NTUU “Igor Sikorsky KPI”, Chairman Philipp Ischer, Program Manager, Trade Promotion, Economic Cooperation and Development, SECO Petra Schwager Senior Industrial Development Officer, UNIDO
14:20 – 14:25	Introduction and adoption of the agenda and approval of previous SCM minutes	Michajlo Zgurovsky, Chairman
14:25 – 14:40	Project Activities in 2017	Ihor Shylovyh Director, RECP Centre
14:40 – 14:55	Updated Business Plan 2018 - 2020	Ihor Shylovyh Director, RECP Centre
14:55 – 15:10	Work Plan for 2018	Taras Sakalosh Executive Director, RECP Centre
15:10 – 15:25	Internal evaluation results and recommendations for business setup in regions of Ukraine	Branko Dunjić Chief Technical Advisor, UNIDO
15:25 – 15:40	Justification for no-cost project extension	Branko Dunjić Chief Technical Advisor, UNIDO
15:40 – 17:00	Discussion and decision on project extension	Steering Committee members
17:00 – 17:10	Closing	Michajlo Zgurovsky, Chairman
17:10 – 18:00	Cocktail Reception	

Annex II: List of Participants of the Steering Committee

Name		Organization	Position
<i>Steering Committee Members</i>			
1.	Petra Schwager	United Nations Industrial Development Organization (UNIDO)	Industrial Development Officer
2.	Philipp Ischer	State Secretariat for Economic Affairs SECO	Program Manager, Trade promotion, Economic Cooperation and Development
3.	Nicolas Guigas	Swiss Cooperation Office in Ukraine	Deputy Director of Cooperation
4.	Anna Vilde	Swiss Cooperation Office in Ukraine	National Programme Officer, Sustainable Energy Management and Urban Development
5.	Mikhajlo Zgurovsky	National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute ”	Rector
6.	Oleksandr Chernykh	Ministry of Economic Development and Trade of Ukraine	Director of Industrial Policy Department
7.	Lyudmyla Musina	UNIDO Focal Point in Ukraine	UNIDO Focal Point in Ukraine
8.	Ihor Shylovych	Resource Efficient and Cleaner Production Centre	Director, Secretariat of the Steering Committee Meeting
<i>Additional Participants</i>			
9.	Branko Dunjić	United Nations Industrial Development Organization (UNIDO)	Chief Technical Advisor (CTA), Chairman
10.	Emina Alić	United Nations Industrial Development Organization (UNIDO)	Deputy Project Coordinator for RECP
11.	César Barahona	United Nations Industrial Development Organization (UNIDO)	Technical Advisor on RECP for Latin America and the Caribbean
12.	Fredy Dinkel	Carbotech AG	President of Carbotech’s board of directors
13.	Volodymyr Hnat	Science Park “Kyivska Polytechnika”	Director General
14.	Serhii Khudobin	Ukrainian League of Industrialists and Entrepreneurs	Head of Department
15.	Taras Sakalosh	Resource Efficient and Cleaner Production Centre	Executive Director
16.	Valerii Pavshuk	Resource Efficient and Cleaner Production Centre	Technical Director
<i>Interpreter</i>			
	Mykola Honcharenko		

Annex 5. Minutes of the General meeting of Founders (LLC)

**Minutes No.2
of the General Meeting of the Founders of Limited Liability Company
“Resource Efficient and Cleaner Production Centre”**

city of Kyiv

30 August 2018

PRESENT: the Founders of Limited Liability Company “Resource Efficient and Cleaner Production Centre” (hereinafter – “RECP Centre” LLC), the Founders own 94,5% of votes. The Meeting is recognized as having legislative authority to decide.

AGENDA

- 1) Election and appointment of the Chairman of the Meeting;
- 2) Election and appointment of the Secretary of the Meeting;
- 3) Adoption of the agenda of the General Meeting;
- 4) Report on the activity of the Company represented by the Director of “RECP Centre” LLC (approval of the report);
- 5) Report of the “RECP Centre” LLC represented by the members of the Audit Commission (approval of the report);
- 6) Nomination and Election of the Director of “RECP Centre” LLC;
- 7) Election of members of the Audit Commission;
- 8) Administrative and organizational matters.

On the first agenda’s issue:

The Founder and Director, Mr. Ihor L. Shylovysh, proposed Ms. Sviltana L. Chunikhina to take the lead and appointed the Chairwoman of the General Meeting.

Voted: “For” - 17
 “Against” - 0
 “Abstained”- 0

The decision taken.

RESOLVED: to appoint Ms. Sviltana L. Chunikhina the Chairwoman of the General Meeting.

On the second agenda’s issue:

The Chairwoman of the General Meeting, Ms. Sviltana L. Chunikhina, proposed Mr. Vitalii V. Sobkovich to take the lead and appointed the Secretary of the General Meeting.

Voted: “For” - 17
 “Against” - 0
 “Abstained”- 0

The decision taken.

RESOLVED: to appoint Mr. Vitalii V. Sobkovich the Secretary of the General Meeting.

On the third agenda’s issue:

The Chairwoman of the General Meeting, Ms. Sviltana L. Chunikhina, proposed to adopt the agenda of the General Meeting of the Founders of “RECP Centre” LLC. The Founder, Mr. Taras V. Sakalosh proposed to add some issues to the agenda, namely:

- 1) Vision of “RECP Centre” LLC’s development for the future period (at least for six months)
- Voted: “For” - 16
 “Against” - 0
 “Abstained”- 1

2) Discussing a procedure of an Executive Body's (Directorate's) appointment

Voted: "For" - 4

"Against" - 9

"Abstained"- 4

The decision taken.

RESOLVED: to add to the agenda of the General Meeting issue No. 9: Vision of "RECP Centre" LLC's development for the future period (at least for six months).

On the fourth agenda's issue:

The Director of "RECP Centre", Mr. Ihor L. Shylovysh, presented the report on the activity of "RECP Centre" LLC for the period from October 2016 to September 2018. It was informed on the number of contracts concluded with "RECP Centre" LLC, the maximum and the minimum amounts of profit from concluded contracts. It was informed that implementation goals are being met.

Discussion of issues related to the presented report on the activity of "RECP Centre" LLC.

The Chairwoman of the General Meeting, Ms. Sviltana L. Chunikhina, raised the issue of approving the report on the activity of "RECP Centre" LLC presented by the Director.

Voted: "For" - 17

"Against" - 0

"Abstained"- 0

The decision taken.

RESOLVED: to approve the report on the activity of "RECP Centre" LLC presented by the Director of "RECP Centre", Mr. Ihor L. Shylovysh.

On the fifth agenda's issue:

The Founder, Chairman of the Audit Commission, Mr. Taras V. Sakalosh, presented the report of the "RECP Centre" LLC. It was informed on income, expenditure and fund balance of the activity of "RECP Centre" LLC for the period from 04 October 2016 till 30 August 2018 (see report of the Audit Commission).

Discussion of issues related to the presented report.

The Chairwoman of the General Meeting, Ms. Sviltana L. Chunikhina, raised the issue of approving the report on the activity of "RECP Centre" LLC presented by the Chairman of the Audit Commission.

Voted: "For" - 15

"Against" - 1

"Abstained"- 1

The decision taken.

RESOLVED: to approve the report on the activity of "RECP Centre" LLC presented by the Chairman of the Audit Commission.

On the sixth agenda's issue:

The Director of "RECP Centre" LLC, Mr. Ihor L. Shylovysh, informed about the withdrawal of his candidacy from the position of the Director and proposed the candidature of the Founder Mr. Andrii V. Vorfolomeiev to the position of the Director. Mr. Ihor L. Shylovysh turned the floor over to Mr. Andrii V. Vorfolomeiev. Mr. Andrii V. Vorfolomeiev informed all Founders about his vision of "RECP Centre" LLC's work in the future. The primary objective is working with enterprises, possibly creating new services.

Discussion of issues that arose during informing.

Voted: "For" - 16

"Against" - 0

"Abstained"- 1

The decision taken.

RESOLVED: to appoint Mr. Andrii V. Vorfolomeiev to the position of the Director of "RECP Centre"

LLC.

On the seventh agenda's issue:

The Chairwoman of the General Meeting, Ms. Sviltana L. Chunikhina, proposed to consider the composition of the Audit Commission of "RECP Centre" LLC, in an amount of 3 persons from the Founders. The Founder, Chairman of the Audit Commission, Mr. Taras V. Sakalosh, informed about the withdrawal of his candidacy from the Chairman of the Audit Commission and proposed to the Founder, Mr. Valerii M. Pavshuk to join the Audit Commission.

Voted: "For" - 16
"Against" - 0
"Abstained"- 1

Mr. Yevhen V. Novakivskyi proposed to remain in the Audit Commission as a member.

Voted: "For" - 13
"Against" - 0
"Abstained"- 4

Ms. Tetiana V. Dehodia proposed to remain in the Audit Commission as a member.

Voted: "For" - 14
"Against" - 0
"Abstained"- 3

The Founder, Mr. Valerii M. Pavshuk, proposed to the Founder Mr. Vitalii V. Krukovskyi to join the Audit Commission.

Voted: "For" - 6
"Against" - 1
"Abstained"- 10

The decision taken.

RESOLVED: to appoint the following composition of the Audit Commission of "RECP Centre" LLC:

- Mr. Valerii M. Pavshuk, the Chairman of the Commission
- Ms. Tetiana V. Dehodia, the Commission's member
- Mr. Yevhen V. Novakivskyi, the Commission's member

On the eighth agenda's issue:

The Chairwoman of the General Meeting, Ms. Sviltana L. Chunikhina, announced the following issues to consider and to make decision:

- Date of the next General Meeting;
- Interdependent model of "RECP Centre" LLC and non-profit organization (NGO);
- Development of the missing provisions on the Directorate (Director), the Audit Commission, the Executive Body;
- The procedure for informing the Founders regarding the General Meeting of Founders of "RECP Centre" LLC;
- Questions regarding the payment of contributions not paid before by Founders;
- In connection with the change of the Director of the Company ("RECP Centre" LLC) to arrange the amendments to the data contained in the USR.

Discussion of the above mentioned issues.

The decision taken.

RESOLVED: to request Mr. Vitalii V. Sobkovych to make draft provisions on the Directorate and the Director separately, on the Audit Commission, on the Executive Body, procedure for informing the Founders regarding the General Meeting of Founders of "RECP Centre" LLC. Deadline – 2 months for making draft documents, during 1 month the Founders should review and give proposals.

To request Mr. Vitalii V. Sobkovych to make draft Memorandum on cooperation between "RECP Centre" LLC and non-profit organization (NGO) (tentatively to develop a list of questions to gather initial

data for making draft Memorandum, deadline – 1 week). During 2 months, the Founders of “RECP Centre” LLC should review and give proposals on a developed list of questions and draft Memorandum. To request the Chairwoman of the General Meeting, Ms. Sviltana L. Chunikhina, to determine the date of the next General Meeting of Founder of “RECP Centre” LLC.

To request Mr. Artur A. Lozitskyi (the citizen of Ukraine) to organize process of state registration on the change of the Director of “RECP Centre” LLC and accordingly to empower him to arrange the amendments to the data contained in the USR, with the right to assign these actions to third parties.

On the ninth agenda’s issue:

The Chairwoman of the General Meeting, Ms. Sviltana L. Chunikhina, announced the following issues added to the agenda of the General Meeting, namely Vision of “RECP Centre” LLC’s development for the future period (at least for six months).

Discussion.

The decision taken.

RESOLVED: to request the new Director, Mr. Andrii V. Vorfolomeiev, to review the updated Business Plan for 2018-2020 together with the previous Director, Mr. Ihor L. Shylovych, to make arrangements on sharing the updated Business Plan for 2018-2020 with all Founders with the aim to receive feedbacks and proposals.

Signatures:

Secretary */signature/* V. Sobkovych

Chairwoman */signature/* S. Chunikhina

The city of Kyiv, Ukraine, thirtieth of August two thousand eighteen. I, Ms. Z. Potapchuk, the private notary of the Kyiv city notary District, certify that the signatures of **Mr. Vitalii V. Sobkovych and Ms. Svitlana L. Chunikhina** are genuine, made in my presence. **Mr. Vitalii V. Sobkovych and Ms. Svitlana L. Chunikhina** whose personal identities I the notary attest and who in my opinion have the necessary legal capacity.

Recorded in the register under No. 834,833
Payment is due to the article 31 of the Law of Ukraine
“About notariate”

Private notary

/signature/

Z.A. Potapchuk

Seal:

*Private notary of
the Kyiv city notary District
Zoia Anatoliivna Potapchuk*

The document contains 2 (two) pages, bound, numbered and sealed

Annex 6. Minutes of the meeting of the Organization's Board (NGO)

**MINUTES No. 1
of the meeting of the Organization's Board of Kyiv City Innovative
Sectoral Organization of Employers
"Resource Efficient and Cleaner Production Centre"
(KCISOE "RECPC") (NGO)**

(code of the Unified State Register of Enterprises and Organizations of Ukraine (EDRPOU))– 38792148)

the city of Kyiv

05 October 2018

Chairman of the Organization's Board:

Mr. Viktor S. Kamaiev – the Chairman of the Organization's Board of KCISOE "RECPC" (NGO)

Members of the Organization's Board:

1. Mr. Mykhailo Z. Zgurovskyi – the rector of National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" (NTUU "Igor Sikorsky KPI").
2. Mr. Volodymyr M. Hnat – the Director General of the Corporation "Science Park "Kyivska Polytehnika".
3. Mr. Serhii M. Khudobin – the Director of Corporate Security Department of All-Ukrainian public organization "Ukrainian League of Industrialists and Entrepreneurs" (ULIE).

Present: all members of the Organization's Board are present at the meeting that was carried out by asking, the members own 100% of votes. The Meeting is recognized as having legislative authority to decide.

AGENDA:

1. The change of the Director of Kyiv City Innovative Sectoral Organization of Employers "Resource Efficient and Cleaner Production Centre" (NGO).
2. Conducting the state registration on the change concerning the appointment of the new Director of Kyiv City Innovative Sectoral Organization of Employers "Resource Efficient and Cleaner Production Centre" (NGO).

On the first and second agenda's issues and on the basis of asking according to clause 3 of part 4 of article 8 of the Statute of Kyiv City Innovative Sectoral Organization of Employers "Resource Efficient and Cleaner Production Centre" (NGO), **the decision taken:**

1) On the basis of the submission of the Chairman of the Organization's Board, Mr. V.S. Kamaiev and decisions of the members of the Organization's Board to express the gratitude to Mr. Ihor Shylovykh for perfect support and development of the KCISOE "RECPC" (NGO), to transfer Mr. Ihor Shylovykh from the current position as the Director of Kyiv City Innovative Sectoral Organization of Employers "Resource Efficient and Cleaner Production Centre" (NGO) to the position as the Technical Advisor from 08 October 2018 and to appoint Mr. Andrii Vorfolomeiev to the position as the Director of Kyiv City Innovative Sectoral Organization of Employers "Resource Efficient and Cleaner Production Centre" (NGO) from 08 October 2018.

Voted: "For" – 3, "Against" – 0, "Abstained" – 0.

2) To empower Mr. Andrii Vorfolomeiev to carry out the state registration on the change concerning the appointment of the new Director, with the right to delegate his power to third parties.

Voted: "For" – 3, "Against" – 0, "Abstained" – 0.

All decisions were taken unanimously. In connection with the consideration of all issues specified in the agenda of the meeting of the members of the Organization's Board shall be declared closed.

**The Chairman of the Organization's Board
of KCISOE "RECPC" (NGO)**

/signature/

V.S. Kamaiev

The city of Kyiv, Ukraine, fifth of October two thousand eighteen. I, Ms. Z.A. Potapchuk, the private notary of the Kyiv city notary District, certify that the signature of the Chairman of the Organization's Board of Kyiv City

Innovative Sectoral Organization of Employers “Resource Efficient and Cleaner Production Centre” (NGO) Mr. Viktor S. Kamaiev is genuine, made in my presence.

Mr. Viktor S. Kamaiev whose personal identity I the notary attest and who in my opinion have the necessary legal capacity.

Recorded in the register under No. 910
Payment is due to the article 31 of the Law of Ukraine
“About notariate”

Private notary

/signature/

Z.A. Potapchuk

Seal:

*Private notary of
the Kyiv city notary District
Zoia Anatoliivna Potapchuk*

Annex 7. The list of companies

Overview of companies involved in RECP assessments in Kyiv region (2018)

Enterprise (Kyiv region)	Economic Sector/Process assessed
Hotel “Kozatskyi Stan”	Service industries
PJSC “Transsygnal”	Machine building industry
PJSC “PPR Brovary PPR”	Food Industry
Sviatoshyno orphanage school	Educational institution
Hotel “Alexandria”	Service industries
PJSC “Vyshnivskyi Foundry and Forging Plant”	Heavy industry, machine building industry
Brusyliv music school for children	Educational institution
PJSC “VIPOL”	Light industry (textile), service industries

Overview of companies involved in RECP assessments in Vinnytsia region (2018)

Enterprise (Vinnytsia region)	Economic Sector/Process assessed
PJSC “Khmilnyksilmash”	Machine building industry
PJSC “Turbiv kaolin producing plant”	Mining industry

Overview of companies involved in RECP assessments in Zaporizhzhia region (2018)

Enterprise (Zaporizhzhia region)	Economic Sector/Process assessed
PJSC “Dniprospetsstal”	Machine building industry
PJSC “Zaporizhvognetryv” (two assessments)	Building materials industry
“Zaporizhzhia bakery #1” Ltd.	Food Industry
PJSC “Ukrgrafit”	Heavy industry
“Company SEF” Ltd (SE “South Machine-Building Plant named after A. Makarov”)	Machine building industry

Overview of companies involved in RECP assessments in Lviv region (2018)

Enterprise (Lviv region)	Economic Sector/Process assessed
PJSC “GalEnergoBudProm”	Building materials industry
“HRT Textile” Subsidiary	Light industry (textile)

Overview of companies involved RECP assessments in Kharkiv region (2018)

Enterprise (Kharkiv region)	Economic Sector/Process assessed
Public Utility Company “VODA”	Service industries (water and wastewater treatment plant)
PJSC “KHEMZ-IPEC”	Machine building industry

Overview of companies involved in technical assessments in Kyiv region (2018)

Enterprise (Kyiv region)	Economic Sector/brief description of the report
Health Centre #3 in the Svyatoshyn district	Medical services/ pre-assessment
Clinical and Diagnostic Centre (CDC) in the Svyatoshyn district	Medical services/ pre-assessment
SE “Avtodorservis”	Recycling of asphalt materials/ pre-assessment
Clinical and Diagnostic Centre (CDC) in the Desnianska district	Medical services/measuring illumination intensity in the medical Centre and providing recommendations for lighting system modernization. The energy saving potential is 100 MWh of electricity per year (on paid basis)
“Medystar” Ltd	Medical services/ Measurements to determine voltage nonsymmetry (on paid basis)

Overview of companies involved in technical assessments in Lviv region (2018)

Enterprise (Lviv region)	Economic Sector/brief description of the report
“112 Ukraina” LLC	Car service/ pre-assessment
SE “Pharmatrade”	Medicine and Pharmaceutical Industry/ Inspecting technological process of sterilizer operation (on paid basis)
Grabovetska amalgamation (OTG)	Administrative-territorial unit/ Working out a sustainable energy development action plan for Grabovetska amalgamation (OTG) in Lviv region till 2030 (on paid basis)

Overview of companies involved in technical assessments in Zaporizhzhia region (2018)

Enterprise (Zaporizhzhia region)	Economic Sector/brief description of the report
PJSC “Zaporizhvogmetryv”	Building materials industry/ Thermal imaging of the tunnel kiln cooling zone for refractory bricks burning; kiln measurement with a single air fan operation (on paid basis)
PJSC “Ukrgrafit”	Heavy industry/ Comparing options to apply BATs in manufacturing carbon graphite and graphite electrodes (on paid basis)

Annex 8. Information on trainings and workshops for RECPC staff and sector specific trainings; Information on Awareness Raising, Information Dissemination and PR materials

#	Topic	Type of activities	Results + positive impact to the project achieved
Trainings and workshops for RECPC staff			
1.	Seminar “Compressed Air Systems Optimisation (CASO)” (26 – 30 November 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for 3 RECPC experts
2.	1-day training “Creation of an energy efficient culture at enterprise” (14 November 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for 1 RECPC expert
3.	Gender Trainings for UNPF Pillars (12 – 15 November 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for RECPC Gender Focal Point
4.	Workshop “Successful communication: psychological tools of understanding” (26 October 2018, Kyiv)	Organization of the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for RECPC team 13 participants (RECP Centre employees)
5.	Workshop “GENDER IQ: Five gender-sensitive soft skills to successfully boost professional and interpersonal relationships” (18 October 2018, Kyiv)	Organization of the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for RECPC team 11 participants (RECP Centre employees)
6.	Training “Transfer of Environmentally Sound Technology (TEST) methodology” (09 – 12 October 2018, Austria)	Participation in the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for 2 RECPC experts
7.	Study tour to Switzerland (01 – 06 October 2018, Switzerland)	Co-organization of the event	<ul style="list-style-type: none"> Capacity building for RECPC team 10 participants (representatives from RECPC, industries, government) Awarding participants with Certificates
8.	4th S3C Summer School on sustainable chemistry for sustainable development (24 – 28 September 2018, Germany)	Participation in the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for RECPC ChL and Water management expert
9.	Seminar “ISO 50 002:2014 Guide to energy audit” (10 – 13 September 2018 , Kyiv)	Participation in the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for 3 RECPC experts

10.	Training course “Geospatial Solutions for Water Management” (02 – 05 July 2018, Hungary)	Participation in the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for RECPC ChL and Water management expert
11.	Seminar “How to understand the donor and build successful relationships?” (30 May 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for 1 RECPC expert
12.	Workshop “An introduction to the Global Environment Facility (GEF) (Developing and Implementing GEF-funding Projects at UNIDO)’ conducted by Mr. César Barahona (Industrial Resource Efficiency, Environment Department, UNIDO) (25 April 2018, Kyiv)	Organization of the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for RECPC team 12 participants (representatives from UNIDO, Carbotech AG, RECPC)
13.	Workshop “Eco-industrial Parks (Project preparation and identification)” conducted by Mr. César Barahona (Industrial Resource Efficiency, Environment Department, UNIDO) (24 April 2018, Kyiv)	Organization of the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for RECPC team 14 participants (RECP Centre employees)
14.	WORKSHOP FOR ESCOs , (17 April 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for 3 RECPC experts
15.	On-line trainings on the management (March – August, 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for RECPC team 6 participants (RECP Centre employees) Awarding participants with Certificates
16.	Workshop “GEF Industrial Parks / PIF document” conducted by Ms. Flora Conte (Project manager, Environmental consulting, Carbotech AG) (15 March 2018, Kyiv)	Organization of the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for 2 RECPC experts
17.	Workshop “Proposal writing on e-waste and co-processing in Ukraine” conducted by Ms. Flora Conte (Project manager, Environmental consulting, Carbotech AG) (14 March 2018, Kyiv)	Organization of the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for 1 RECPC expert
18.	Training “Project proposals writing – different ways to get funding” conducted by Ms. Flora Conte (Project manager,	Organization of the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for RECPC team 10 participants (RECP Centre employees)

	Environmental consulting, Carbotech AG) (14 March 2018, Kyiv)		
19.	Workshop “Proposals on Chemical Leasing in agriculture” conducted by Ms. Flora Conte (Project manager, Environmental consulting, Carbotech AG) (13 March 2018, Kyiv)	Organization of the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for 2 RECPC experts
20.	Training course “Energy management” (20 – 23 February 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for 1 RECPC expert
Events organized by RECPC			
1.	Webinar “Dust and gas purification in industry” (04 January 2019, Kyiv)	Organization of the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for RECPC experts 31 participants (RECPC experts, representatives from industrial companies, manufacturing and supplying of dust treatment equipment for industrial enterprises)
2.	Training “Implementation of resource efficient investment projects” (22 December 2018, Kyiv)	Organization of the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for RECPC experts 10 participants (RECPC experts, representatives from financial organization)
3.	Final Conference “Enhancing industrial Resource Efficiency. Best National and International Practices 2018” (14 December 2018, Kyiv)	Organization of the event	<ul style="list-style-type: none"> Awareness raising of the RECP projects results in the regions 98 participants (RECPC experts, representatives from UNIDO, donors, industrial companies, government, NGOs, financial organizations) Awarding enterprises with the RECP Certificates 90 brochures about the Centre and 90 RECP methodology materials were distributed
4.	Webinar “Energy Efficiency in Industrial Ventilation Systems” (11 December 2018, Kharkiv)	Organization of the event	<ul style="list-style-type: none"> Capacity building and soft skills enhancing for RECPC experts 24 participants (RECPC experts, representatives from industrial companies, universities)
5.	Scientific and Technical Council of the Ukrainian Cement Manufacturers Association “Ukrcement” (06 December 2018, Kyiv)	Co-organization of the event	<ul style="list-style-type: none"> Awareness raising of the RECP projects 21 participants (RECPC experts, representatives from national and international industrial companies, universities) Negotiated on further cooperation (agreed to sign MoU)
6.	IInd Ecology Forum “Society FOR the cleaner production” (04 – 05 December 2018, town Ladyzhyn, Vinnytsia region)	Co-organization of the event	<ul style="list-style-type: none"> Awareness raising of the RECPC activity in Vinnytsia region 50 participants (RECPC experts, representatives from public organizations, industrial companies, academics and local authorities)

7.	Workshop “Improving production processes in industry through resource efficient and energy saving technologies implementation. RECP Centre expertise and best practices” (04 December 2018, Odesa)	Organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECPC activity in the region • 11 participants (RECPC experts, representatives from industrial companies, universities) • 10 brochures about the Centre and 10 RECP methodology materials were distributed
8.	Panel discussion “The introduction of EU environmental directives - a matter of national security of Ukraine” (Session 4. Dust and gas purification and air aspiration at industrial enterprises of the fuel and energy complex; mining and smelting complex; cement industry and production of building materials; chemical and petrochemical industry) in the framework of International Exhibition of equipment and technologies for municipal and industrial emissions treatment, dust and gas purification “Waste Air & Gas Management 2018” (27 November 2018, Kyiv)	Co-organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECP projects • About 400 industry experts from 18 countries (RECPC expert, among the participants there were 28 companies, which supply equipment, technologies for environmental monitoring systems, instruments for analysis, accounting of emissions, odor control and air quality; chemical, electromechanical, catalytic and biological purification of emissions, filter materials and solutions for gas cleaning, air aspiration and dust removal at municipal and industrial enterprises from the Republic of Belarus, Belgium, Great Britain, Germany, Italy, China, Lithuania, Poland, Ukraine, Czech Republic, Sweden)
9.	Workshop “Improving production processes in food processing industry through resource efficient and cleaner technologies implementation. Expertise and best practices of the RECP Centre in resource efficient and cleaner production” (16 November, 2018, Kharkiv)	Organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECPC activity in the region • 29 participants (RECPC experts, representatives from industrial companies, universities, NGOs, local authorities) • 27 brochures about the Centre and 27 RECP methodology materials were distributed
10.	Workshop “Promoting industrial energy efficiency in Ukraine” in the framework of the IX th International Forum on energy for sustainable development (15 November 2018, Kyiv)	Co-organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECP projects • Participation of RECPC experts, representatives from national and international organizations, NGOs, local authorities, industrial companies
11.	Information seminar “Resource Efficient Investment Projects in Industry” (09 November 2018, Kyiv)	Organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECP projects results • 9 participants (RECPC experts, representatives from industrial companies, financial organizations)
12.	Information workshop “Methods to help improving production processes (technologies and equipment): best practices”	Organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECP projects results • 37 participants (RECPC experts, representatives from industrial companies (developers, manufacturers and vendors of equipment),

	(06 November 2018, Kyiv)		universities, local authorities) <ul style="list-style-type: none"> • 35 brochures about the Centre and 35 RECP methodology materials were distributed
13.	Webinar “Applying an integrated approach in using renewables for heat and cold production and supply in industry” (13 September 2018, Kyiv)	Organization of the event	<ul style="list-style-type: none"> • Capacity building and soft skills enhancing for RECPC experts • 20 participants (RECPC experts, representatives from industrial companies (industrial engineers and power engineers, equipment users, producers and suppliers), universities)
14.	2-days training on “Electricity Use in Industry, Electrical Systems and Buildings” conducted by Mr. Holger Papst Bachmann (Electrical Engineer, FH; Engineer of Energy Management, Lenum AG, Switzerland) (18 – 19 June 2018, Kyiv)	Organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECPC activity • 39 participants (RECPC experts, representatives from universities) • Awarding participants with certificates • 35 brochures about the Centre and 35 RECP methodology materials were distributed
15.	Green Hub “Resource Efficiency in companies: how to measure it?” (14 May 2018, Kyiv)	Co-organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECPC activity • 10 participants (RECPC experts, ecologists and representatives of companies)
16.	Press-conference for the participants of the Platform for Green Economy Growth. Presentation of the Guide “Resource Efficiency Fundamentals for Enterprises” (10 May 2018, Kyiv)	Organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECPC activity • 12 participants (RECPC experts, representatives from NGOs, industrial companies, media) • 9 brochures about the Centre and 9 RECP methodology materials were distributed
17.	Workshop for Teachers “Life Cycle Analysis (LCA) as a Component of a Resource Efficient and Clean Production (RECP) Methodology” conducted by Mr. Fredy Dinkel (Senior Partner, Environmental Consulting Department, Chairman of the Board, Carbotech AG) (27 April 2018, Kyiv)	Organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECP • 20 participants (RECPC experts, representatives from universities) • 18 brochures about the Centre and 18 RECP methodology materials were distributed
18.	IV Forum of Energy Efficient Partnership ‘18 ESCO: Success and Prospects. New Mechanisms of Sustainable Funding of Energy Efficiency of Local Communities (27 April 2018, Kyiv)	Co-organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECPC activity • More than 800 participants (RECPC experts, representatives from local authorities, government officials, parliamentarians and representatives of international and regional organizations, business and the public) • 100 brochures about the Centre and 100 RECP methodology materials were distributed

19.	Steering Committee Meeting of the UNIDO Project “Promoting the Adaptation and Adoption of Resource Efficient and Cleaner Production (RECP) through the Establishment and Operation of a Cleaner Production Centre (CPC) in Ukraine” (23 April 2018, Kyiv)	Organization of the event	<ul style="list-style-type: none"> • 16 participants (representatives from UNIDO, Stakeholders, RECPC representatives) • Received recommendations on project development for the ongoing year • Agreed management report 2017, work plan for 2018, agreed the presented regional set-up in Ukraine, agreed 2-years no-cost project extension
20.	Workshop “Chemical Leasing: Innovative and Integrated Business Model for Sustainable Use of Chemicals” (17 April 2018, Kyiv)	Organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECPC activity • 32 participants (RECPC experts, representatives from industrial companies, universities) • 30 brochures about the Centre and 30 RECP methodology materials were distributed
21.	Information seminar “Implementing Resource Efficient Technologies in the Industry in the Odesa region” (13 April 2018, Odesa)	Organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECPC activity • 47 participants (RECPC experts, representatives from industrial companies, NGOs, local authorities, universities, financial organizations) • 43 brochures about the Centre and 43 RECP methodology materials were distributed
22.	Seminar “Chemical Leasing: Innovative and Integrated Business Model for Sustainable Use of Chemicals” (05 April 2018, Kyiv)	Organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECPC activity • 61 participants (RECPC experts, representatives from universities (teachers, postgraduates and students)) • 60 brochures about the Centre and 60 RECP methodology materials were distributed
23.	Seminar “Resource and Energy Efficiency for Increasing Business Competitiveness on the Canadian Market” (02 March 2018, Kyiv)	Co-organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECPC activity • 43 participants (RECPC experts, representatives from CUTIS Project, industries) • 37 brochures about the Centre and 37 RECP methodology materials were distributed
24.	Training “Co-Processing Waste Material in Cement Kilns” delivered by Mr. Dirk Hengevoss (Research associate in sustainable resource management, School of Life Sciences FHNW, Institute for Ecopreneurship) (21 February 2018, Kyiv)	Organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECPC activity • 20 participants (RECPC experts, representatives from cement industry (national and international), environmental ministries, local authorities, NGOs, cement association) • 17 brochures about the Centre and 17 RECP methodology materials were distributed
25.	Training on Photovoltaics delivered by Dr. Stephen Wittkopf (Architect and Professor with	Organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECPC activity • 123 participants (RECPC experts, representatives from

	the Lucerne University of Applied Sciences and Arts in Switzerland (HSLU) (20 February 2018, Kyiv)		universities) <ul style="list-style-type: none"> • 70 brochures about the Centre and 70 RECP methodology materials were distributed
26.	Kick-off seminar on Chemical Leasing and RECP for Agro Sector (16 February 2018, Kyiv)	Organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECPC activity • 11 participants (RECPC experts, representatives from industries, universities) • 7 brochures about the Centre and 7 RECP methodology materials were distributed
27.	Information seminar “RECP Centre, Employment and Cooperation Perspectives” (15 February 2018, Kharkiv)	Organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECPC activity • 32 participants (RECPC experts, representatives from industries, municipalities, NGOs) • 30 brochures about the Centre and 30 RECP methodology materials were distributed
28.	Advisory Board Meeting of the UNIDO Project “Promoting the Adaptation and Adoption of Resource Efficient and Cleaner Production (RECP) in Ukraine” (06 February 2018, Kyiv)	Organization of the event	<ul style="list-style-type: none"> • 31 participants (RECPC experts, representatives from central and local executive authorities, NGOs) • Received comments and recommendations for cooperation enhancement on RECP implementation in Ukraine
29.	Information seminar “UNIDO Project on Resource Efficient and Cleaner Production Implementation in the National Industry” (23 January 2018, town Korosten (Zhytomyr region))	Organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECPC activity • 26 participants (RECPC experts representatives from industries, municipalities, NGOs) • 24 brochures about the Centre and 24 RECP methodology materials were distributed
30.	5 Trainings “On the RECP model with Elements of Electrical Equipment Use” (22 – 26 January 2018, Dnipro region)	Organization of the event	<ul style="list-style-type: none"> • Awareness raising of the RECPC activity in the Dnipro region • overall 82 participants (RECPC expert, representatives from communal and industrial enterprises, budgetary institutions, condominiums, audit and consulting companies (Pokrov – 15 participants, Chervonohryhorivka – 18 participants, Verkhnodniprovsk – 17 participants, Pershotravensk – 15 participants, Mezhova – 16 participants) • 80 brochures about the Centre and 80 RECP methodology materials were distributed

RECPC participated in the events

1.	Workshop on Eco-Industrial Parks Assessment Tool and Global Eco-Industrial Parks	Participation in the event	<ul style="list-style-type: none"> • Participation in the discussion of Eco-Industrial Parks Assessment Tool and Global Eco-Industrial Parks Programme (GEIPP) in Developing
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	Programme (GEIPP) in Developing and Transition Countries (12 December 2018, Austria)		and Transition Countries <ul style="list-style-type: none"> • 9 participants (RECPC expert, representatives from UNIDO)
2.	Award Ceremony “Partnership for Sustainability Award 2018” (R&S Quantum Company) (06 December 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • More than 50 participants (RECPC expert, representatives from national and international companies and organizations, centers, associations)
3.	All-Ukrainian Business Women’s Forum (29 November 2018, Lviv)	Participation in the event	<ul style="list-style-type: none"> • 100 participants (RECPC expert, representatives from Ukrainian and foreign women’s organizations, business associations, women entrepreneurs, representatives from local authorities, NGOs)
4.	International Exhibition of equipment and technologies for municipal and industrial emissions treatment, dust and gas purification “Waste Air & Gas Management 2018” (27 – 28 November 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • About 400 industry experts from 18 countries (RECPC expert, among the participants there were 28 companies, which supply equipment, technologies for environmental monitoring systems, instruments for analysis, accounting of emissions, odor control and air quality; chemical, electromechanical, catalytic and biological purification of emissions, filter materials and solutions for gas cleaning, air aspiration and dust removal at municipal and industrial enterprises from the Republic of Belarus, Belgium, Great Britain, Germany, Italy, China, Lithuania, Poland, Ukraine, Czech Republic, Sweden) • Clients searching
5.	Round table “Ecology of Human – Family – Countries” (22 November 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • 20 participants (RECPC expert, representatives from NGOs, universities)
6.	Conference “Green Economy Days 2018: Facilitating Green Economy Markets” (16 – 17 November 2018, Lviv)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • Participation of RECPC expert, representatives from solid biomass and energy crops producers, biomass-based heat and power producers, waste management companies (including biogas producers), investors, international financial institutions, local authorities, esp. responsible for energy and waste management, field experts, consultants and related project managers • Clients searching
7.	IXth International Forum on energy for sustainable development (12 – 15 November 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • Participation of RECPC experts, representatives from national and international organizations, NGOs, local authorities, industrial companies

			<ul style="list-style-type: none"> • Clients searching
8.	Round table “Energy diplomacy: what does it mean for Ukraine?” (07 November 2018, Odesa)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • Participation of representatives, experts from Bulgaria, the Consul of Greece, representatives of the Consulate of China, representatives of the Consulate of Austria, scientists of Odesa National Polytechnic University, representatives of the municipality of Odesa) • Clients searching
9.	VIth International Exhibition “INDUSTRIAL ECOLOGY ‘2018” (06 – 08 November 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • More than 14 000 participants (RECPC experts, representatives from government officials, heads of regional and district state administrations, heads of local authorities, management and engineering staff, specialists in environmental safety of metallurgical and engineering, mining, energy, chemical and industrial enterprises, petrochemical, food, pharmaceutical, agribusiness, environmental inspections, design, construction organizations, research organizations, there were 342 participating companies) • Partners searching
10.	Green Chemistry Conference 2018 and Global Chemical Leasing Award Ceremony (05 – 06 November 2018, Vienna, Austria)	Participation in the event	<ul style="list-style-type: none"> • More than 150 participants from governments, institutions and enterprises as well as leading Chemical Leasing experts • Awarding participants with Certificates (Among finalists of the Global Chemical Leasing Award Ceremony there were 3 Ukrainian companies: CJSC “Radomyshl Brewery” was awarded with BRONZE and Ecolab LLC was awarded with SILVER in the “Case Study” category for excellence in applying Chemical Leasing to a surface treatment process. Department of General Ecology and Ecotrophology of the Bila Tserkva National Agrarian University received the GOLD award in the “Research” category for excellence in developing the Chemical Leasing Curriculum
11.	Ist Industrial Parks Forum in Ukraine (24 October 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • RECPC experts, representatives from government officials, local authorities, NGOs, industrial companies • Clients searching
12.	IIIrd International Investment Forum for Integration and Cooperation «InCo Forum 2018» (12 October 2018, Zaporizhzhia)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • Participation of RECPC expert, diplomats, representatives of state authorities, territorial communities, business owners, Ukrainian and



			foreign investors, top managers, experts, representatives of international technical assistance projects, business associations
13.	The first Ukrainian GEF National Dialogue (03 – 04 October 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> • Clients searching • Promoting the RECP Centre activities in Ukraine • 43 participants (RECPC experts, representatives from government ministries and agencies, non-governmental/civil society organizations, communities, academic and research institutions and the private sector, as well as partners and donors) • Partners searching
14.	Forum “Business case study. Owners for Owners” (26 September 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • Participation of RECPC experts, business representatives, Ukrainian SMEs and entrepreneurs • Partners searching
15.	Investment Business Forum “Volyn-Invest 2018” (21 September 2018, Lutsk)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • 400 participants (RECPC expert, representatives from local authority, chambers of commerce and industry, business, educational and academic institutions, financial organizations, experts on international programs and projects) • Partners searching
16.	Conference “Energy Efficiency at Enterprises: Opportunities and Solutions” (14 September 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • Participation of RECPC experts, industrial companies, local authorities, NGOs, financial organizations, experts on international programs and projects
17.	Presentation of a new interactive instrument concept (web platform) for both service providers and customers in energy efficiency (16 August 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> • RECPC expert, representatives of companies from various sectors of the economy, energy efficient service providers, as well as profile associations and chambers of commerce and industry
18.	Business conference “Green projects at the enterprises in the Kharkiv region: benefits, specificity and investment options” (19 July 2018, Kharkiv)	Participation in the event with a presentation	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • More than 100 participants (RECPC expert, representatives of small and medium business) • Clients searching
19.	I st International Water Forum “Borysfen-2018” (06 – 07 July 2018, Dnipro region)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • RECPC expert, people’s deputies of Ukraine and deputies of the Dnipropetrovsk regional council, representatives of central and regional authorities and local self-government, research institutions, international

			investment organizations, national and international experts in the field of plumbing and sewerage
20.	Workshop “Working out an Energy Efficiency Action Plan till 2020 within the framework of strategic task “Increasing resource efficiency in industry” (06 July 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> • Clients searching • Promoting the RECP Centre activities in Ukraine • RECPC experts, representative of government agencies, national and international experts • Discussion on the main directions of the strategy, identification of concrete actions on its implementation
21.	Local Initiatives for Sustainable Ukraine - Final Conference “Communities Moving Forward” (05 – 06 July 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • RECPC experts, representatives of LINK partner municipalities (Ivano-Frankivsk, Cherkasy, Lubny, Poltava and Berdychiv, Fastiv and Nizhyn), civil society organisations, academia and expert community from all over Ukraine • Clients searching
22.	GREEN HUB Environmental Impact Assessment: Best Practices (22 June 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • 15 participants (RECPC expert, ecologists and managers on corporate social responsibility of companies) • Discussion the Law of Ukraine “On Environmental Impact Assessment”
23.	Conference “New Industrialization: Production capabilities of national regions” (21 June 2018, Kyiv)	Participation in the event with a presentation	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • 1000 participants (RECPC expert, central and local authorities, business support organizations, national producers for the industrial development of the regions)
24.	Conference “Organic Plant Production: Best Practices for the past 10 Years” (21 June 2018, Poltava)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • More than 40 participants (RECPC expert, organic producers of agricultural production and other farmers interested in organic production, suppliers of organic production services, producers of plant protection products and equipment for organic production) • Clients searching
25.	Forum “Industrial Day” (07 June 2018, Vinnytsia)	Participation in the event with a presentation	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • Participation of RECPC experts, industrial companies, local authorities, NGOs, financial organizations, experts on international programs and projects • Discussion on the industrial strategy and its implementation
26.	Conference “New Waste Management Policy -	Participation in the	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine



	the basis for circular economy” (05 – 06 June 2018, Kyiv)	event	<ul style="list-style-type: none"> • Participation of RECPC expert, representatives of the Government of Ukraine, deputies of the Verkhovna Rada of Ukraine, representatives of the public, business, international organizations and expert
27.	II nd International Exhibition “Eco Forum – 2018” (30 May – 01 June 2018, Zaporizhzhia)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • Participation of RECPC expert, representatives of association of Ukrainian cities, state executive bodies and local self-government, scientists and specialists of academic and sectoral research and design institutes, higher education institutions, managers of enterprises of different forms of ownership, international enterprises and organizations, financial institutions, NGOs) • Clients searching
28.	Presenting the concept of energy efficiency networks as a tool to improve energy efficiency at industrial enterprises (13 April 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • Participation of RECPC experts, representatives of state institutions, NGOs, associations and expert on environmental issues
29.	Regional Conference - Exhibition for energy-efficient/environmentally friendly producers and service providers “Economics. Ecology. Efficiency. Cooperation for the Sustainable Development of the Region” (27 March 2018, Dnipro)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • Participation of RECPC expert, representatives from financial organizations, territorial communities, city and district councils, design organizations, construction companies, industrial enterprises, architects, designers • 100 brochures about the Centre and 100 RECP methodology materials were distributed
30.	Round-table discussion on the topic “Ukraine’s participation in the joint discussion of cooperation strategy elements between Europe and Asia” (23 March 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • Participation of RECPC experts, representatives from the Ministries, the State Department for the Coordination of European and Euro-Atlantic Integration, transport enterprises and institutions, the reform support team, EU-funded projects, international financial institutions , business and other professional associations, scholars, researchers and other experts • Discussion on the strategy of the country, compliance with international standards, regional cooperation, EU expectations and interests
31.	Discussion dedicated to the 10 th anniversary of Heinrich Böll Fund activity in Ukraine. Discussion “Prospects for ‘green’ development in Ukraine”	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • Participation of RECPC experts, representatives from international organizations, NGOs, researchers


	(20 March 2018, Kyiv)		<ul style="list-style-type: none"> • Discussion on the tendencies of green democracy in Ukraine during the last decade and the potential of green values to overcome the challenges of Ukraine's development
32.	Information Day on European Program Opportunities for ERASMUS Cross-Border Exchange for Young Entrepreneurs (COSME) (16 March 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • Participation of RECPC experts, business representatives • Clients searching
33.	II nd International Congress "Organic Ukraine 2018" "Organic market development in Ukraine – from production to sale" (15 – 16 March 2018, Odesa)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • 300 participants (RECPC experts, farmers from all over Ukraine, as well as scientists, experts, national and international organizations) • Partners searching
34.	Presentation of 7 publications within edition series "Environmental Knowledge Library" (01 March 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • Participation of RECPC experts, senior representatives of the Ministry of Ecology and Natural Resources, Ministry of Education and Science, mass media, public organizations
35.	III rd Round table "Choosing grain elevator equipment with maximum efficiency and cost-cutting" (15 March 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • Participation of RECPC experts, specialists of grain-preserving enterprises, enterprises for the production of technological equipment for elevators • Clients searching
36.	Discussion "Sustainable Development Goals - proper choice of Ukrainian companies" (23 January 2018, Kyiv)	Participation in the event	<ul style="list-style-type: none"> • Promoting the RECP Centre activities in Ukraine • Participation of RECPC experts, representatives of business, international and national institutions, educational institutions, public organizations and youth • Discussion on implementation of the Sustainable Development Goals by Ukrainian business

Annex 9. List of PR materials in 2018

Cover page	Title, language	Summary
	<p>Poster “Cooling system optimization” (Ukrainian and English)</p>	<p>The Poster was developed to attract attention of companies with cooling systems to the services that the Centre provides</p>
	<p>Poster “Chemical Leasing” (Ukrainian)</p>	<p>The Poster was developed to promote the information on Chemical Leasing among enterprises, industrial stakeholders, teachers and students of Universities in Ukraine</p>

	<p>Leaflet “Enhancing your business through resource efficiency” (Ukrainian and English)</p>	<p>The Leaflet was developed to promote the information on the RECP Centre activities. It contains the information on the service provided by the RECP Centre</p>
	<p>Brochure “Implementation of resource efficient investment projects” (Ukrainian)</p>	<p>The Brochure contains the information on conducting energy audit of buildings, investment projects for energy efficiency, affiliate program of cooperation with JSB “UKRGAZBANK”, Program “Financing energy audit”, Program “Financing investment measures involving energy audit”, Lending terms, Case studies</p>

 <p>ЦЕНТР РЕСУРСОЕФЕКТИВНОГО ТА ЧИСТОГО ВИРОБНИЦТВА</p> <p>РЕСУРСОЕФЕКТИВНЕ ТА ЧИСТЕ ВИРОБНИЦТВО У М'ЯСНІЙ ПРОМИСЛОВОСТІ</p> <p>липень, 2018</p>		<p>Manual “RECP in the meat industry” (Ukrainian)</p>	<p>The Manual contains the information about the analysis of the current situation in the meat industry of Ukraine, paying particular attention to direct and indirect environmental impacts. Based on comparison with best available technologies (BATs) and reference data, this manual highlights the most critical points in terms of resource conservation potential and offers a list of possible measures that can facilitate its implementation, simultaneously reducing the impact on the environment</p>
 <p>ЦЕНТР РЕСУРСОЕФЕКТИВНОГО ТА ЧИСТОГО ВИРОБНИЦТВА</p> <p>РЕСУРСОЕФЕКТИВНЕ ТА ЧИСТЕ ВИРОБНИЦТВО У ХЛІБНІЙ ПРОМИСЛОВОСТІ</p> <p>липень, 2018</p>		<p>Manual “RECP in the bakery” (Ukrainian)</p>	<p>The Manual contains the information about effective use of resources in the bakery, the optimal use of raw materials and materials at the industrial enterprises, direct and indirect impact on the environment from their main and auxiliary production processes; definition of approaches which will help to avoid or minimize the negative consequences for the economic and environmentally sound operations of enterprises by creating conditions for efficient use of resources and cleaner production</p>

		<p>Guide on “Basic Principles of Resource Efficiency for Companies” (Ukrainian)</p>	<p>The Guide contains the information on increasing resource efficiency of production and it is meant for distribution among representatives of enterprises and industrial stakeholders. The Guide outlines a general approach that can be used in all areas of production. It provides an overview of the development trends of the world economy, new challenges for enterprises, the resource efficiency concept of the enterprise, discloses steps to improve it and illustrates examples of resource efficient options at domestic enterprises.</p> <p>(The Guide is developed in a frame of GIZ project)</p>
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Annex 10. Information on workshops for trainees conducted by RECPC in 2018

Regions	Kyiv	Vinnytsia	Zaporizhzhia	Odesa	Lviv	Kharkiv
Coordinator/ representative of the region	Olexiy Tchaykovsky	Valerii Redchyk	Serhii Kalachov	Pavlo Fomichov	Iryna Zaiachuk	Serhii Khudobin
A short description of the training course	Pre-assessments results, material and energy flows, water consumption. Brainstorming and identification of technical solutions. Results of in-depth assessment of companies and preliminary conclusions					
Number of trainings	18 WS conducted	3 WS conducted	3 WS conducted	6 WS conducted	3 WS conducted	4 WS conducted
Trainers	Olexiy Tchaykovsky, Svitlana Chunikhina	Valerii Pavshuk	Valerii Pavshuk, Ihor Shylovych, Kostiantyn Tadia, Oleksii Pylypenko	Ella Dmytrochenkova, Yevhen Fomichov, Ihor Shylovych, Kostiantyn Tadia	Ihor Shylovych, Olexiy Tchaykovsky, Vitalii Krukovskyi, Svitlana Chunikhina, Kostiantyn Tadia	Olexiy Tchaykovsky, Ella Dmytrochenkova, Ihor Shylovych
Materials developed and available for use	Guide on methodology of RECP implementation (electronic form) was disseminated among the trainees; a questionnaire on pre-assessment results was developed; examples of presentations and reports were disseminated among trainees	Guide on methodology of RECP implementation (electronic form) was disseminated among the trainees; a questionnaire on pre-assessment results was developed; examples of presentations and reports were disseminated among trainees	Guide on methodology of RECP implementation (electronic form) was disseminated among the trainees; a questionnaire on pre-assessment results was developed; examples of presentations and reports were disseminated among trainees	Guide on methodology of RECP implementation (electronic form) was disseminated among the trainees; a questionnaire on pre-assessment results was developed; examples of presentations and reports were disseminated among trainees	Guide on methodology of RECP implementation (electronic form) was disseminated among the trainees; a questionnaire on pre-assessment results was developed; examples of presentations and reports were disseminated among trainees	Guide on methodology of RECP implementation (electronic form) was disseminated among the trainees; a questionnaire on pre-assessment results was developed; examples of presentations and reports were disseminated among trainees
# of CP trainees participated WS	19 trainees 7 female/12 male	40 trainees 24 female/16 male	9 trainees 5 female/4 male	24 trainees 7 female/17 male	7 trainees 1 female/6 male	25 trainees 7 female/18 male
# of trainees received Certificates on training completion	6 trainees 1 female/5 male	40 trainees 24 female/16 male	4 trainees 2 female/2 male	23 trainees 7 female/16 male	9 trainees 1 female/6 male	22 trainees 6 female/16 male

Technical report

CONFERENCE “ENHANCING INDUSTRIAL RESOURCE EFFICIENCY. BEST NATIONAL AND INTERNATIONAL PRACTICES 2018”

For the third consecutive year, the Resource Efficient and Cleaner Production Centre organizes its annual conference within UNIDO project framework on 14 December 2018. This year the conference “ENHANCING INDUSTRIAL RESOURCE EFFICIENCY. BEST NATIONAL AND INTERNATIONAL PRACTICES 2018” has brought together representatives from all six target regions. **98 participants** (representatives from UNIDO, donors, industrial companies, government, NGOs, financial organizations) took part in the Final Conference. Based on the Final Conference it was developed RECP related video (link: <https://www.youtube.com/watch?v=M87IGkhzc2U>).

The conference topics were mainly focused on demonstrating modern approaches to resource efficiency and energy saving in national industry and worldwide, based on best practices accumulated in the Centre’s portfolio. Apart, financial, investment and technological tools to enhance industrial resource efficiency were in focus of the Conference.



In his welcome address, Mr. Branko Dunjic, UNIDO Chief Technical Advisor, noted “Resource efficiency is extremely important for Ukraine and Europe as it provides new jobs and contributes to people’s well-being all over the world”.

Mr. Nicolas Guigas, Deputy Director of the Swiss Cooperation Office in Ukraine, also delivered a welcome speech in the opening session. Mr. Guigas emphasized on the key role of resource efficiency in transition process taking place in economies when outdated energy intensive productions are getting replaced with modern economy models and all resources are consumed in far more efficient ways”.

Mr. Oleksandr Chernykh, Director of the Industrial Policy Department at the Ministry of Economic Development and Trade of Ukraine, recalled to the audience that industry generates 90% of waste. “This is the root cause why National Industrial Development Strategy 2025 is moving to opt for resource efficiency making it a top priority objective.” Mr. Chernykh thanked both UNIDO and RECP Centre for the cooperation and expertise in the matter and concluded “Our common challenge and great responsibility today is promoting resource efficiency in production processes”.



Ms. Tamara Burenko, Deputy Head for the Department of Strategy Development at the State Agency on Energy Efficiency and Energy Saving of Ukraine, added “For the last 18 months Ukraine has shown positive dynamics in industrial companies getting more aware about various energy efficient projects and benefits gained. And the RECP is the team of trained experts whose efforts and contribution in awareness raising can’t be overestimated”.

Mr. Ricardo Kühlheim, Project Director – Advisory services for energy efficiency in companies (GIZ) maintained the common thread in all speeches. Like others, he also pointed out that the RECP Centre’s expertise and BAPs proved that Ukraine has already accumulated a great deal of knowledge, useful information and experience which should be promoted and disseminated widely.



Mr. Andrii Vorfolomeiev, the RECP Director, provided some statistics on the Centre's activities in the reporting year, which is coming to its end. Awareness raising seminars, 22 in total, were all focused on information and expertise dissemination about the RECP concept implementation in national industries. As for sector-specific events, 9 trainings and webinars were delivered to trainees and engineering staff of the companies and enterprises, the topics deeply correlated with efficient electricity use in industry, integrated approach to using renewables in industrial heat and cold supply systems, enhancing energy efficiency in industrial ventilation systems, methods to improve industrial processes efficiency, chemical leasing, co-processing for cement plants. During 2018, the Centre trained 97 RECP experts; two national Universities (NTUU "Igor Sikorsky KPI" and V.I.Vernadsky Taurida National University) managed to integrate the RECP course into their curricula.

The reporting year appeared to be quite fruitful, the Centre cooperated with 27 enterprises. The monitoring results give proofs that enterprises have already implemented the elaborated technical options or activities aiming to reduce resource consumption are still ongoing. Thus, all implemented options can result in electricity consumption reduction by 34'000 MWh, emissions – by 6,800 t of CO₂ equivalent, and the saving potential can be overall EUR 1 million. Within GIZ project framework "Energy efficiency in companies", additional 11 companies went through energy audits. In total, the RECP Centre conducted 150 technical assessments at companies and enterprises in 2013-2018.

Sharing impressions and following the implementation of technical options traditionally has become the integral part of the Conference. Among the majority of companies assessed in 2018, the following ones showed up and delivered well-designed presentations. These were "Zaporizhzhia bakery #1" Ltd., SE "Avtodorservis", PJSC "Wimm-Bill-Dann Ukraine", PJSC "Turbiv kaolin producing plant", PJSC "Vyshneve foundry and forging plant".

The 2018 Global Chemical Leasing Award winners also joined the busy conference agenda and discussions. The Award in ChL was founded by UNIDO back in 2004. This year, 2018, Ukraine submitted 10 applications that were designed in close partnership with the RECP Centre. It is an outstanding honor for us that this year, 2018, Ukrainian companies were awarded 3 medals (Gold, Silver and Bronze in different nominations). The PJSC "Radomyshl Brewery" was awarded Bronze and Ecolab LLC was awarded Silver in category "Case Studies", subcategory "Surface treatment". The Department of General Ecology and Ecotrophology of the Bila Tserkva National Agrarian University was awarded Gold in the category "Research" for efforts in successful Chemical Leasing integration into University syllabus.

The Conference was organized by the Resource Efficient and Clean Production Centre (NGO) within the framework of the United Nations Industrial Development Organization Project (UNIDO) "Promoting the Adaptation and Adoption of Resource Efficient and Cleaner Production (RECP)" sponsored by the Governments of Swiss Confederation and the Republic of Austria. The Project is intended to promote more efficient and rational resources use in industry, increase the competitiveness of national enterprises and reduce the negative footprint on the environment. The key Project task lies in the most efficient support to adapt and apply resource efficient and cleaner production methods, practices, technologies and concepts, thus providing the Ukrainian industry with necessary tools to boost the promotion of environmentally friendly products and goods on national and regional markets.

The Resource Efficient and Cleaner Production Centre has already made its own good 10-year history in implementing the RECP concept and elaborating technical solutions and options to reduce energy, materials and resource consumption in industries. Over 140 companies with various ownership in national

metallurgy, food processing and others industries, have become the Clients of the Centre. The cumulative savings due to rational resources consumption derived from implemented technical options exceed EUR 175 million.





**RESOURCE EFFICIENT
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CENTRE**

CONFERENCE

**ENHANCING INDUSTRIAL RESOURCE EFFICIENCY.
BEST NATIONAL AND INTERNATIONAL PRACTICES 2018**

14 December 2018

Premier Hotel Lybid, Galitskyi Hall (1, Peremohy Square, Kyiv)

Moderator – Oleksii Tchaikovskiy

09:30– 10:00	Registration and welcome coffee	
10:00 – 10:25	Opening remarks Welcoming address	Andrii Vorfolomeiev, <i>Director, RECP Centre</i> Branko Dunjić, <i>Chief Technical Advisor, UNIDO</i> Nicolas Guigas, <i>Deputy Director of Cooperation, Swiss Cooperation Office Ukraine, Embassy of Switzerland in Ukraine</i> Oleksandr Chernykh, <i>Director of the Industrial Policy Department of the Ministry of Economic Development and Trade of Ukraine</i>
10:25 – 10:40	Resource Efficiency as the Pillar of the National Industrial Development Strategy	Oleksandr Chernykh, <i>Director of the Industrial Policy Department of the Ministry of Economic Development and Trade of Ukraine</i>
10:40 – 10:55	Global UNIDO/UNEP Resource Efficiency and Cleaner Production Program/Chemical Leasing Basics	Branko Dunić, <i>Chief Technical Advisor, UNIDO</i>
10:55 – 11:10	RECP Service Provision in Ukraine	Andrii Vorfolomeiev, <i>Director, RECP Centre</i>
11:10 – 12:00	RECP Best Practices in 2017-2018 (project PPTs)	Oleksii Tchaikovskiy, <i>RECP Coordinator in Kyiv region</i> Representatives of companies and experts
12:00 – 12:15	Mechanisms to support energy efficiency in manufacturing	Tamara Burenko, <i>Deputy Head for the Department of Strategy Development, Subdivision for Monitoring and Informatization of the State Agency on Energy Efficiency and Energy Saving of Ukraine</i>



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State Secretariat for Economic Affairs SECO



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**RESOURCE EFFICIENT
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12:15 – 12:45	Coffee break	
12:45 – 13:00	Advisory services for energy efficiency in companies	Ricardo Külheim, <i>Project Director – Advisory services for energy efficiency in companies (GIZ)</i>
13:00 – 13:15	GIZ Project ‘Energy Efficiency in Companies’. Implementation Experience and Lessons Learned	Vitalii Krukovskiy, <i>GIZ project coordinator in RECP Centre</i>
13:15 – 13:20	Chemical Leasing in Ukraine. Implementation outcomes: Chemical Leasing in the food industry	Oleksandr Hunko, <i>Brewer, “Radomyshl” PJSC</i>
13:20 – 13:30	Chemical Leasing concept as a component of the training course	Tatiana Grabovska, <i>Associate Professor of the Ecology and Ecotrophology Department of Bila Tserkva National Agrarian University</i> Serhii Yashchenko, <i>Associate Professor of the Ecology and Ecotrophology Department of Bila Tserkva National Agrarian University</i>
13:30 – 13:40	Resource Efficient Investment Projects in Ukraine	Volodymyr Hobrei, <i>Head of the Department for Environmental Reengineering and Resource Saving Projects Implementation at JSB ‘UkrGasBank’</i>
13:40 – 13:50	Promoting Environmental and Technical Higher Education in Ukraine. PROMETHE-U.S. Project Experience	Kateryna Romanova, <i>PROMETHE-U.S. project manager</i>
13:50 – 14:00	Award Ceremony within UNIDO Project Participants for the Best RECP Practices	Andrii Vorfolomeiev, <i>Director, RECP Centre</i> Branko Dunić, <i>Chief Technical Advisor, UNIDO</i>
14:00 – 14:10	Closing remarks	
14:10 – 15:00	Buffet table and informal communication	



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Annex 2. List of participants



**LIST OF PARTICIPANTS
CONFERENCE**

**ENHANCING INDUSTRIAL RESOURCE EFFICIENCY.
BEST NATIONAL AND INTERNATIONAL PRACTICES 2018
14 December 2018**

Premier Hotel Lybid, Galitskyi Hall (1, Peremohy Square, Kyiv)

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Annex 12. Information about Study tour to Switzerland



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SHORT REPORT ON STUDY TOUR IN SWITZERLAND

1. Participants of a Study tour to Switzerland:

#	Name	Organization
1.	Mr. Kostiantyn Tadia	RECP Centre
2.	Mrs. Ella Dmytrochenkova	RECP Centre
3.	Mrs. Anna Ivaneta	RECP Centre
4.	Mrs. Tetiana Dehodia	RECP Centre
5.	Mr. Vitalii Krukovskyi	RECP Centre
6.	Mrs. Liudmyla Kripka	Ukrainian Association of Enterprises and Organizations of Cement Industry “Ukrcement”
7.	Mr. Oleksandr Chernykh	Ministry of Economic Development and Trade of Ukraine
8.	Mrs. Olena Minitska	Ministry of Economic Development and Trade of Ukraine
9.	Mrs. Iryna Martynenko	Ministry of Economic Development and Trade of Ukraine
10.	Mrs. Anastasiia Suprun	PJSC “Ukrainian Railway”

2. Place visited: Basel, Muttenz, Zurich, Romont, Moudon, Lausanne, Eclépens, Otlen (Switzerland)

3. Dates of a Study tour to Switzerland: October 01 – October 06, 2018 (including travelling days)

4. Purpose of a Study tour to Switzerland:

- To visit some key enterprises and infrastructures in Switzerland with complementary workshops and presentations with the aim to get an insight of the Swiss industry, stand of technology and RECP-related efforts; to familiarize with the main technological processes of different manufacturing industries at Swiss enterprises; definition of key ideas, concepts and technologies that could be applied to Ukrainian industrial enterprises in order to reduce the cost of production, more rational use of energy and material resources and reduce the negative impact on the environment. The focus of the week was waste management, including valorisation, co-processing and recycling.
- To prepare presentation and a short report of a Study tour including pictures and main findings with the aim to present back to the Ukrainian colleagues after a Study tour.

5. Results:



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The participants of a Study tour had workshops on Co-processing Waste Materials in Cement Production:

- Experience with Co-processing of Alternative Fuels and Raw Materials in Cement Production (Prof. Dieter Mutz, RECP & Co-processing expert, former head of GIZ Environmental Program in India);
- Environmental Potential of Co-processing of Waste in cement kilns for Ukraine (Anton Kleshchov, PhD, RECP expert in Ukraine);
- Financial aspects of co-processing (Dirk Hengevoss, RECP & Co-processing expert, International trainer on co-processing).

The main purpose is to improve waste management in cement production. Switzerland has environmentally friendly enterprises and protect the environment. The culture of sorting, recycling and utilizing wastes has been raised on the first place and the issue of controlling emissions and disposal is addressed directly by the industries themselves.

The participants have visited the number of enterprises (Immark AG-E-waste, Mifa AG (Mibelle Group), Nespresso (BAREC Group), CRIDEC, SBB). Short information about the company, which the participants have visited:

Immark AG recycles waste electronics according to the principles of the recycling economy. It works out viable solutions in the separating technics branch and generate valuable raw materials. The company takes different kind of wastes such as scrap iron, non-iron metal, glass, plastics with the aim to process waste material into quality raw materials.

Mifa AG (Mibelle Group) develops face and body care products; produces washing and laundry agents in liquid and powder form, including progressive generations of active ingredients; focuses on the development and production of margarines and other spreads, liquid fats and oils, cooking fats and butter products, all of the very highest quality; researches innovative active ingredients on a natural basis for the cosmetics industry. This company creates new formulae or designing packaging for its productions. Under the charter for sustainable washing and cleaning, this company undertakes to manufacture all products in a safe and environmentally friendly manner. Mifa AG also takes environmental concerns into account in the packaging of its products. Where possible, recyclable bottles are used, material saved and recycled material utilized: many products are available in refill pouches.

The BAREC Group in collaboration with Nespresso company (presented by Mr. Maxime Grether, Environmental sustainability, Nestlé & sba) recycles coffee capsules and ensures their professional industrial recycling. Nespresso Company collects small aluminum packages produced for coffee capsules, it separates used coffee grounds from aluminum and reuses them. Pure aluminum is reused for new capsules, other aluminum is used for other production, for example Nespresso in collaboration with Caran D'Ache produces ballpoint pens where aluminum is used. It was presented the life cycle of capsules Nespresso from aluminum.



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It was noted that aluminum recycling brings energy savings of 95% compared to primary aluminum production. Around 50% of used capsules are collected and recycled in Switzerland by Nespresso. Before the aluminum can be separated from the coffee grounds, the capsules are dried in a hot air drying unit, using hot air generated from the Ecobroye biogas plant.

The coffee grounds account for more than 10% of the biomass and generate nearly 60% of the energy produced. The energy created at the biogas plant with the coffee grounds from a capsules is equal to the energy needed to produce a new recycled aluminum capsule. The energy produced by the biogas plant saves 1750 tons of CO₂ equivalent per year. So, containing aluminum and coffee grounds, used Nespresso capsules are not only recyclable, they also have very high energy potential. The process – the aluminum from the capsules is separated from the coffee grounds. The coffee grounds are mixed with organic matter. This mixture is used to produce biogas, which generates electricity and heat. Coffee grounds have an energy potential that is 3 to 5 times higher than wood. Finally, digestate is used as a natural fertilizer for agriculture. The aluminum itself is melted down to recast in a new form for a new beginning.

CRIDEC (presented by Mr. Olivier Richod, Head of security) is responsible for receiving, identifying, sorting and packaging special waste (industrial wastewater, special municipal wastes, painting and oil wastes from industries). The employees carrying out this work have all the facilities necessary for the reception and sorting of special waste, such as a waste disposal installation for liquids or storage tanks. This sector processes about 10,000 tons of waste annually, such as: acids / bases, wastewater, solvents, used oils, miscellaneous chemical products, cell/battery, neon tubes, medicines, waste machining emulsions. CRIDEC is engaged in liquid chemical waste treatment and creation of an Alternative Fuel (AF) from special waste for the cement company HOLCIM. Two companies are near, which reduces the cost of logistics. HOLCIM company mixes this supplied AF with other types of fuel. Fuel is monitored in the laboratory, accompanied by documentation of quality assurance at the cement plant. Brief technology: liquid waste is transported to the processing plant that undergoes separation, water is removed for purification, and the waste (silt) is filtered, strained and mixed with sawdust - this is the AF that is supplied to the cement plant. CRIDEC's mission is to propose the safest, most innovative solutions and best adapted to the realities of the management of special waste, taking into account the current technological, economic and legal requirements, to raise public and political awareness about the ecological, economic and social issues associated with special waste. Based on the fundamental principle that every holder or producer of special waste has the responsibility of treating and eliminating its waste by valuing it in an environmentally friendly way, CRIDEC'S mission is to be the partner for the recycling of so-called hazardous waste for the environment. Swiss Federal Railways (SBB) (presented by Mr. Matthias Rücker, Energy Efficiency Expert) is the backbone of the Swiss public transport system, and day-to-day rail operations are the basis of what SBB does. SBB has been



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transporting people and freight for more than 100 years. By doing so, SBB is making an important contribution to the quality of life and competitiveness in Switzerland. It will therefore continue to fulfil its responsibility towards public transport and Switzerland in future. SBB is made up of the four divisions Passenger, Freight (SBB Cargo) Infrastructure and Real Estate. In addition to these are the Control and Service functions, which include Corporate Finance and Personnel. SBB is the backbone of sustainable mobility in Switzerland. Every day, it safely transports 1.26 million passengers and 210 000 tons of freight on time and in an environmentally friendly manner. Sustainability strategy – travelling by rail reduces environmental impact, saves resources, energy and space, and produces comparatively low CO₂ emissions. The traction power infrastructure includes 6 hydroelectric power stations, 7 frequency converters, 4 communal power stations, 2 interconnections with DB (Germany Railways), 1 interconnection with ÖBB (Austrian Railways), 73 substations, 1,800 km of transmission lines. SBB has energy strategy by 2050 that is to phase out nuclear power and expand renewable energy. It means that by 2020, the household electricity and by 2025 also SBB's rail power will be 100% renewable. Until then, the SBB will be completely eliminated from nuclear energy; on energy saving – SBB is implementing the largest energy saving programme in Switzerland, by 2025 it will save 600 GWh annually; on climate protection – by 2025, SBB will halve its CO₂ emissions. Energy strategy summary is to save energy, to upgrade hydropower plants, to divest holdings in nuclear power stations, to procure renewable energy, to optimize power network. SBB works continuously to reduce the environmental footprint by increasing energy efficiency, reducing CO₂-eq. emissions, noise pollution, and protecting nature. So, the presentation was focused on energy efficiency at SBB.

Also, the participants had the meeting with the Project manager, Environmental consulting of Carbotech AG, Ms. Flora Conte. It was discussed possibilities of the future projects and the ways of its realizations.

As a conclusion, at the University of Applied Sciences and the Arts of Northwest Switzerland (FHNW) the Ukrainian delegation presented the results of a Study tour to Switzerland and the idea of introducing advanced world practices in Ukraine. There was the training where all participants were divided into three groups. Every group expressed its ideas on the impressed moments in Switzerland and then explained how it could be implemented in Ukraine. All participants have received certificates on the participation in a Study tour.

The participants obtained a lot of information on different ways concerning waste management, including valorization, co-processing, recycling and protection of the environment in Switzerland. They got familiar with the technology of recycling different kind of wastes. Used coffee ground valorization was also a new experience for the participants of a Study tour. A Study tour became a good chance to dive into foreign expertise in RECP, waste management, co-processing and recycling for RECP technical experts, representatives from PJSC “Ukrainian Railway”, Ukrainian Association of Enterprises and Organizations of Cement Industry “Ukrcement” and Ministry of Economic Development and Trade of Ukraine.

6. Date of report: 12 October 2018



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Annex 13. Information on the Chemical Leasing Activity at the RECPC

Report on Chemical Leasing in Ukraine

Introduction

Chemical Leasing is a service-orientated circular economy business model that can effectively address the different sustainability dimensions of chemical use. It aims to simultaneously create financial, environmental and human well-being. Chemical Leasing is also considered part of Green Chemistry and the basis of the model is the idea that economic success no longer depends on the volume of chemicals sold, but on the service that is linked with the chemicals. Chemical consumption becomes a cost rather than a revenue factor. The business partners and the environment shall benefit from the co-creation of jointly developed resource-efficient and innovative solutions and fair profit-sharing as well as reducing the risks of chemicals and protecting human health.

Since 2004, UNIDO is promoting the Chemical Leasing concept with the direct support of the Austrian, German and Swiss Governments. The first demonstration projects started in 2005 and were successfully implemented in close cooperation with the National Cleaner Production Centres in Egypt, Mexico and the Russian Federation, followed by Sri Lanka, Serbia and Colombia in 2008 and Brazil, Croatia, Nicaragua and Uganda in 2011/2012.

The Global Chemical Leasing Programme is fully in line with UNIDO's mandate to promote inclusive and sustainable industrialization at the global level and contributes to the achievement of Sustainable Development Goal 9 and all the other goals adopted by the 2030 Agenda for Sustainable Development. It is UNIDO's response to the "unsustainable management of chemicals in industries and lack of cooperation among chemicals producers and users".

Based on successful piloting and the experiences of more than 10 years of work on promoting Chemical Leasing globally within UNIDO's Global Chemical Leasing Programme, the project "Making the business case for sustainable chemistry: Chemical Leasing 4.0" was developed and approved on 12 June 2017.

The goal of the project is to achieve Chemical Leasing up-scaling, mainstreaming and higher levels of application of circular economy, resource-efficient and performance-based business models across industries at the global level. The new enhanced Chemical Leasing 4.0 approach comprises an overarching core module as well as optional components for advancing resource-efficiency based on value-co-creation and zero-waste/non-tox principles.

Promotion activities at the RECP Centre

The RECP Centre organized two promotion activities to disseminate information about the Chemical Leasing concept and Global Chemical Leasing Award.

Information seminar "Chemical Leasing: an intelligent and integrated business-model for sustainable chemicals management" took place on 05 April 2018 in one of the most appropriate lecture halls belonging to the Department of Chemical Technology, NTUU "Igor Sikorsky KPI". University teachers, post-graduate students and others (60 people in total) willing to get familiarized with ChL and its basic ideas and tasks made up the audience.

Workshop on Chemical Leasing took place on 17 April 2018 in the walls of NTUU "Igor Sikorsky KPI". Representatives of industrial companies, organizations and research institutions from different Ukrainian cities (32 people in total) came to participate in it.

The main goal of the workshop was to demonstrate the benefits of sustainable use of chemicals for business development and the importance of supporting this approach in Ukraine.

The workshop was logically divided into three sessions:

1. Chemical Leasing: an intelligent and integrated business-model for sustainable chemicals management. Background, concept and successful cases.
2. Global Chemical Leasing Award 2018. How to apply.
3. Interactive Session / Group Work: Prospects for implementing of Chemical Leasing business model in Ukraine. Preparation of the application for the Global Chemical Leasing Award 2018.

During the workshop, participants were able to get familiarized with the Chemical Leasing concept; examples of successful ChL cases around the world and discuss factors, requirements and opportunities for the successful ChL implementation in Ukraine in order to promote the competitiveness of domestic enterprises on the market. Participants also learnt about the terms of participation and submission of applications for Global Chemical Leasing Award.

DEMONSTRATION PROJECT

Implementation of Chemical Leasing Business Model in Agriculture

1. Project Focus

Implementation of the Chemical Leasing concept in agriculture by using organic-mineral fertilizer “OPTI ROST” for growing of buckwheat and soya beans.

Advanced technology of growing included usage of innovative organic-mineral fertilizer “OPTI ROST” that can reduce the total amount of traditional inorganic chemical fertilizers used in agriculture while increasing the yield.

2. Partners

Supplier of chemicals. Niphrite Trading Ltd produces organic and microbiological fertilizers and provides the official distributor with them. It also develops innovative technologies to improve the efficiency of the fertilizers.

Provider of monitoring technologies. AgriOT provides smart solutions for remote monitoring of the agricultural crops growth.

Official distributor of the service. R&S Quantum provides chemical users with organic fertilizers produced by Niphrite Trading Ltd and monitoring services using modern information technologies developed by AgriOT to confirm the effectiveness of the fertilizers.

User of chemicals. Skvyra research station of organic production of the Institute of Agroecology and Natural Resources of the National Academy of Agrarian Sciences of Ukraine uses agrochemicals to grow buckwheat and soya beans. The station has broad experience in research and approbation of fertilizers to develop environmentally friendly technologies for cultivating high-yield varieties of agricultural crops.

Provider of scientific support. Bila Tserkva National Agrarian University conducts different kinds of analysis to document the performance of the organic fertilizer used in the project.

Project coordinator. Resource Efficient and Cleaner Production Centre (RECPC) is responsible for the project management, technical support and monitoring.

3. Contracts

Chemical Leasing contract was signed between the official distributor R&S Quantum, user of chemicals Skvyra research station of organic production and project coordinator RECP Centre in July 2018. The contract defined rights and obligations of the involved parties.

In addition, there was a signed Contract between the company-producer Niphrite Trading Ltd and its official distributor R&S Quantum to provide organic fertilizers and related services within the framework of the project. Another contract was signed between project coordinator RECP Centre and Bila Tserkva

National Agrarian University to provide scientific support for the project.

4. Unit of payment

Before Chemical Leasing:	UAH per t of fertilizer
After Chemical Leasing:	UAH per t of yield

5. Base line

Land was divided into three parts – two “ChL” and one “traditional” (25 m² each). Base line is the “traditional” part – farmer cultivated buckwheat and soya beans as he used to. At two “ChL” parts innovative fertilizer of different concentration (1% and 3% respectively) was applied according to the ChL concept.

Global Chemical Leasing Award 2018

The Global Chemical Leasing Award was created and organized by UNIDO and partners in 2010, 2012 and 2014 to acknowledge best practices in Chemical Leasing implementation, science and promotion activities, and to enhance the visibility of Chemical Leasing worldwide.

In 2018, organizations, companies, research institutions and individuals were invited to apply for the Award in three different categories: “Innovation”, “Case Study” and “Research”.

10 applications from Ukraine were successfully developed and submitted in close cooperation with the Resource Efficient and Cleaner Production Centre (listed in Table 1).

Table 1 – Short information about applications

#	Company Name	Unit of payment/process of application	Category
1	Niphrite Trading Ltd – Supplier of chemicals (fertilizers)	UAH per t of yield / Application of Chemical Leasing in agriculture	Special Innovation
2	Skvyra research station of organic production of the Institute of Agroecology and Natural Resources of the National Academy of Agrarian Sciences of Ukraine – User of chemicals (fertilizers)	UAH per t of yield / Application of Chemical Leasing in agriculture	Special Innovation
3	ECOLAB LLC – Supplier of cleaning agents for CIP processes and lubricants for conveyor belts	UAH per hl of produced beverages. Application of Chemical Leasing to a surface treatment process	Case study
4	PJSC “Radomyshl Brewery” – User of cleaning agents for CIP processes and lubricants for conveyor belts	UAH per hl of produced beverages. Application of chemical Leasing to a surface treatment process	Case study
5	R&S QUANTUM	Business concept paper – Chemical Leasing in agriculture	Research
6	Bila Tserkva National Agrarian University, Faculty of Ecology, Department of General Ecology and Ecotrophology	Chemical Leasing Curriculum (training module as part of the “Technoecology” discipline)	Research
7	National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Faculty of Chemical Technology, Department of Inorganic Substances, Water Purification and General Chemical Technology	UAH per m ³ of purified water / Application of Chemical Leasing for water treatment	Research

#	Company Name	Unit of payment/process of application	Category
8	National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Faculty of Chemical Technology, Department of Physical Chemistry	UAH per m ² of coated area. Application of Chemical Leasing to steel protection (corrosion inhibitors) in various industries	Research
9	National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Faculty of Chemical Technology, Department of Physical Chemistry	UAH/t of obtained product or UAH/m ² of coated surface. Application of Chemical Leasing to surfactants application in various industries	Research
10	SHEI Ukrainian State University of Chemical Technology, Faculty of Technology of Inorganic Substances, Department of Inorganic Substances and Ecology	UAH per m ³ of purified water / Application of chemical leasing for water treatment	Research

The fourth Global Chemical Leasing Award Ceremony took place in Vienna, Austria, on 06 November 2018 as a part of the Green Chemistry Conference 2018 within the Trio Presidency of the Council of the European Union (EU) programme “Smart and Sustainable Europe”, held during Austria’s EU Presidency.

Highly recognized and experienced international jury selected three applications from Ukraine and thus finalists were invited to the Official Global Chemical Leasing Award Ceremony. PJSC “Radomyshl Brewery” was awarded with BRONZE and Ecolab LLC was awarded with SILVER in the “Case Study” category for excellence in applying Chemical Leasing to a surface treatment process. Department of General Ecology and Ecotrophology of the Bila Tserkva National Agrarian University received the GOLD award in the “Research” category for excellence in developing the Chemical Leasing Curriculum.

CASE STUDY

Surface treatment in Ukrainian beverage industry

Background information

The beverage industry consumes large amounts of water and chemicals that are used in cleaning processes and for the conveyor belts lubrication. **Clean-In-Place processes** are intended for cleaning of the interior surface of vessels, pipes and equipment using different chemicals, mainly, caustic and acid detergents. **Foam cleaning of filling machines exterior surface** is used to maintain the hygiene of the filling machines with the help of foam cleaners. **Conveyor belt lubrication** requires liquid lubricants to reduce noise and friction of the conveyor belt and prevent bottles from falling.

Introduction

PJSC “Radomyshl Brewery” belongs to First Private Brewery company (Persha Privatna Brovarnia – PPB), which is a leading Ukrainian independent brewery invested by Oasis CIS (International Beer and Soft Drinks Company) in partnership with EBRD and Oettinger Brewery. PPB is one of the four leaders of the Ukrainian beer market. The products of the “First Private Brewery” are presented in all regions of Ukraine, and are exported to almost ten countries of the world, including Kazakhstan, Belarus, Poland, the Czech Republic and the United Kingdom. PJSC “Radomyshl Brewery” decided to implement the Chemical Leasing business model in cooperation with its main supplier, Ecolab LLC, which is the global leader in water, hygiene and energy technologies and services. The common goal was to improve the performance of chemicals and efficiency of processes while reducing costs.

Key changes and results

Chemical Leasing was successfully introduced to the Clean-in-Place processes, foam cleaning of surfaces and lubrication of conveyor belts. After audits were conducted and all relevant data collected, processes involving chemicals were improved and automatized by the supplier. Installation of new equipment, optimization of the processes and adjustment of process parameters resulted in a significant reduction of chemicals consumption and more efficient use of resources. Chemical Leasing business model enabled the brewery to reduce costs significantly and to achieve environmental, economic and social benefits at the same time.

Unit of payment applied

Before Chemical Leasing:	UAH/kg, \$/kg, €/kg of chemicals purchased
After Chemical Leasing:	€/hectolitre of produced beverages

Results achieved

Before Chemical Leasing	After Chemical Leasing
<ul style="list-style-type: none"> • High consumption of chemicals (65 t per year) • Bottling into glass containers 1.50 UAH/hL • Bottling into PET containers 1.60 UAH/hL • Constant lubrication of conveyor belts resulted in high consumption of lubricants • Manual foam cleaning of filling machines resulted in high consumption of chemicals and water and low efficiency of cleaning. It also required more time to clean filling machines. <p>Complete cycle of foam cleaning – 60 min Short cycle of foam cleaning – 30 min</p>	<p><i>Environmental benefits:</i></p> <ul style="list-style-type: none"> • Reduced consumption of chemicals (42 t per year): consumption of chemicals for CIP processes reduced by 30 %; consumption of chemicals in bottling area reduced by 50 % (foam cleaning and conveyor lubrication) • Reduced water consumption at foam cleaning • Reduced consumption of chemicals in the waste water treatment plant due to the less polluted waste water • Improved storage and handling of chemicals <p><i>Economic benefits:</i></p> <ul style="list-style-type: none"> • Bottling into glass containers 0.69 UAH/hL • Bottling into PET containers 0.12 UAH/hL • Reduction of costs for chemicals for CIP processes by 30 % • Reduction of costs for chemicals in the bottling area by 50 % • Lubrication of conveyor belts as necessary (timers of lubricant supply are installed) • Automated foam cleaning of filling machines reduced consumption of chemicals and water, improved cleaning efficiency and reduced the amount of time needed for cleaning by 30 % <p>Complete cycle of foam cleaning – 40 min Short cycle of foam cleaning – 20 min</p>

	<p><i>Social benefits:</i></p> <ul style="list-style-type: none"> • Reduced human exposure to chemicals and increased work safety due to automation of foam cleaning process and improved handling and storage of chemicals contributed to compliance with health and safety regulations • Trainings for workers of PJSC “Radomyshl Brewery” provided by Ecolab LLC (more than 30 workers trained) • Constant technical support from the supplier of chemicals
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RESEARCH

Developing the Chemical Leasing Curriculum

Training module as part of the “Technoecology” discipline

Background information

Development of organic agricultural production is now one of the most promising agricultural sectors in the world. It combines traditions, innovations and science to improve the state of the environment, increase biodiversity and perform ecologization of natural cycles.

Studying of the “Chemical Leasing in the agrarian sector” module allows future experts on ecology to get familiar with innovative approaches to sustainable chemicals management, as well as become aware of existing alternative agricultural practices (in particular, organic farming).

Introduction

Department of General Ecology and Ecotrophology of the Bila Tserkva National Agrarian University (BNAU) was founded in 2006. The main research area of the department is “State of the Ukrainian agrosphere natural ecosystems under the anthropogenic influence and development of methodological principles of their sustainable use”. The research is carried out in the context of the scientific area “Integrated management of natural resources of the agrosphere”.

Novelty

University teachers of the Department of General Ecology and Ecotrophology introduced a training module as a part of the “Technoecology” discipline concerning the sound use of chemicals in the natural environment and the use of the Chemical Leasing business model in agriculture as a tool for sustainable use of chemicals. Lectures and practical exercises have been developed for consideration, investigation and deep analysis of this model implementation in the agrarian sector of production for environment preservation.

Future specialists of the Bila Tserkva National Agrarian University study organic production considering the Chemical Leasing concept as an instrument for environmental preservation. New curriculum helps to make more students aware of sustainable chemical management tools and the Chemical Leasing concept, and therefore disseminate the idea of this innovative business model.

Potential impact

As a result of studying the mentioned course, around 50 full-time students and up to 40 part-time students in a year can become familiarize with the Chemical Leasing business concept. Interested students are able to conduct research on this topic and publish their scientific papers. Approval of the results can take place at conferences held at the Bila Tserkva National Agrarian University, as well as in other higher education

institutions.

Annex 14. Information on monitoring the policy development in Ukraine and more specifically on activities initiated through the Expert Group Meeting in 2017

EXTRACT FROM

The report on monitoring the policy development of resource efficient and cleaner production for the period November 2017 – November 2018

The Expert Group Meeting (EGM) “Resource Efficient and Cleaner Production Policy: Fostering Green Industries in Ukraine” within UNIDO support and UNIDO Project framework “Promoting the Adaptation and Adoption of Resource Efficient and Cleaner Production (RECP) through the Establishment and Operation of a Cleaner Production Centre (CPC) in Ukraine” was held on 12 October 2017 in Kyiv, Ukraine. The Resource Efficient and Cleaner Production Centre acted as the EGM organizer and coordinator.

The EGM overall objective presupposed common understanding of Resource Efficient and Cleaner Production and policy development in the Ukrainian context. The EGM aimed to discuss and agree on requirements for the implementation of Resource Efficient and Cleaner Production in Ukraine to facilitate a regulatory framework in order to support green industrial development.

Within one-year period November 2017 - November 2018, the legislative and regulatory policy in Ukraine span mainly around efficient use of *energy* (energy materials) and its cleaner production (primarily, mastering renewables); waste management (including radioactive waste); efficient use of water, improving its quality and reforming overall water management system; minimizing environmental impact. Fewer activities were identified towards other types of resources: air and land, despite the fact the National Parliament adopted the Law of Ukraine about organic production while the Government approved the Low-carbon Development Strategy of Ukraine by 2050. Still, efficient use of the above-mentioned natural resources is reflected in other regulatory acts in relation to other policies.

The Energy Efficiency Fund (EEF) was established in the cognominal area. It received donor financing from the EU amounting to EUR 50 million in March 2018 and UAH 1’500 million from the National State Budget. EEF actually accelerated and pushed forward the development of regulations on its activities, certification of energy-consuming products, eco-design activities, personal professional certification in energy efficiency certification field, etc.

The process of European legislation transposition in the field of water management is coming to its logical end. Thus, a number of amendments were made to the Water Code of Ukraine:

- implementing integrated water management based on basin principle;
- national hydrographical zoning units and main river basins were identified;
- a tool for water management tool was established and that is the River Basin Management Plan;
- water management structure in accordance with the EU Water Framework Directive standards was identified.

During 2018, Ukraine adopted all regulations and practical implementation of measures to monitor and develop river basin management plans is being ongoing at present.

The Ukrainian Government developed a comprehensive waste management policy and started working steadfastly on its implementation. The Ministry of Ecology and Natural Resources of Ukraine developed a draft National Waste Management Plan up to 2025 that will ensure practical implementation of the National Waste Management Strategy adopted in November 2017. This strategy is focused on reducing overall buried waste and increasing its reuse capacities.

Over the last two years, Ukraine managed to significantly boost national environmental policy. In particular, two EU standards for Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) were implemented, an access to environmental information was ensured.

Summary key notes

In the reporting period November 2017 - November 2018, 75 regulatory acts on policy development were adopted in Ukraine towards consuming energy, water and land resources; air pollution and climate change; waste management; cleaner production and environmental policy tools, including 8 Laws of Ukraine, 49 decrees and 12 orders of the Cabinet of Ministers of Ukraine, 6 orders of the Ministries.

The largest number of adopted regulatory acts (26 acts) was directly linked to energy policy development, 17 acts out of total 26 are closely related to energy efficiency. Fewer acts (24) were related to environmental policy and environmental impact. Only 11 regulatory acts were adopted in water management policy, 6 – in waste management, 4 – in air and climate change. The national policy towards the quality of land resources was left behind the Governmental attention whatsoever.

Summary table

Regulatory acts and implementation areas	Amount in the period Nov. 2017 -Nov. 2018	Including:			
		Laws of Ukraine	Decrees of the Cabinet of Ministers of Ukraine	Orders of the Cabinet of Ministers of Ukraine	Orders of the Ministries
<i>Power engineering</i>	4		1	3	
Energy efficiency	17		13	1	3
Energy conservation	3		2	1	
Renewable energy sources	2	1			1
<i>Water</i>	11	2	8		1
<i>Waste management</i>	6	1	3	2	
<i>Air pollution and climate change</i>	4		1	3	
<i>Land resources</i>	4	2	2		
<i>Environmental policy tools</i>	24	2	19	2	1
TOTAL	75	8	49	12	6

The above summary table presents an overall contribution of the Ukrainian Government to activities focused on energy efficiency, and that is establishing an Energy Efficiency Fund and a regulatory framework for its use in public utilities. Apart, the Ukrainian Government managed to launch an effective water management system and establish the State Water Resources Development Fund. Waste management issues were also in the national strategy top list as well as systematic implementation of environmental policy tools.

Having analyzed the regulatory acts adopted in the reporting period, we become aware there is a certain gap between environmental and industrial policies of the Government in terms of promoting sustainable development and resource efficiency. Unfortunately, resource efficiency policy has not been in the focus of the Ukrainian Government in recent years; however, it has been still identified as one of the five strategic objectives of the Draft Industrial Development Strategy by 2025. We do expect that the Strategy Action Plan will contain specific measures and mechanisms to ensure effective use of all material resources, and not only energy, but with the full life cycle of materials in the focus.

As far as the cleaner production concept implementation is concerned, a certain synergy can be reached through concerted efforts to implement the regulatory acts adopted in 2018:

- the long-awaited draft National Waste Management Plan up to 2025,
- the Strategy for Low Carbon Development by 2050 (gradual transition to environmentally safe production based on green technologies and energy efficiency increase),

- the Law of Ukraine “Basic Principles and Requirements for Organic Production, Circulation and Organic Products Marking” in the Agro industry,
- Adopting standards in the field of industrial waste management.

The National Report “*Ukraine: Sustainable Development Goals*” undertakes to reduce the resource intensity in the national economy by 2030 to 60% from the 2015 level. This motivates elaborating more effective tools to help stimulate business to resource efficiency.

Annex 15. List of Agreements/Memoranda signed

Partner	Cooperation in 2018
1. Company “R&S Quantum” 2. Skvyra Research Station of Organic Production of the Institute of Agroecology and Natural Use of the National Academy of Agricultural Sciences of Ukraine	Multilateral Memorandum of Cooperation 01 July 2018
“Discolight” Ltd.	Agreement on partnership, cooperation and activities coordination 22 May 2018
“Ladyzhyn Public Council” (NGO)	Memorandum of Cooperation 19 April 2018
Company “R&S Quantum”	Agreement of cooperation 12 March 2018
The Ukrainian scientific –educational Consortium	Agreement on partnership, cooperation and scientific exchange 2018

Annex 16. Information about the Project “Programme to Support the Green Modernization of the Ukrainian Economy” (GIZ)

PROJECT DESCRIPTION

1. Description of the situation in the region

Today, most Ukrainian enterprises face the problem of limited access to new technologies, modern methods of increasing the efficiency of their own production by reducing the use of resources per unit of the manufactured product. Employees of the enterprises need to improve their professional skills with the help of international experience in reducing resource intensity.

This problem becomes more significant with the deepening of the integration processes of the Ukrainian economy into the world economy, because a large number of companies are facing the requirements and standards of the European market. Therefore, most enterprises must upgrade their production processes, improve product quality and reduce their production costs through increased resource efficiency, which is especially relevant in the context of the Free Trade Agreement between Ukraine and the EU (DCFTA from January 01, 2016).

Modern methods and tools of increasing resource efficiency allow to reduce the resource intensity of production processes by applying low-cost measures. In particular, the potential of resource efficiency of more than 80 enterprises of Ukraine, which were surveyed by the RECP Centre for over 4 years, was estimated at 6 million euros. At all the enterprises that participated in the surveys the concept of resource efficient and cleaner production was introduced, so that the enterprise personnel can now increase the efficiency of production processes on their own. This experience on implementation of resource efficient and cleaner production concept needs to be distributed among more enterprises in Ukraine, and therefore the manual on the basis of resource efficiency of enterprises can become a necessary tool for raising the awareness of technical and managerial personnel of domestic enterprises with modern practices and experience in increasing of resource efficiency in Ukraine and in the world.

2. Project purpose and objectives.

Purpose:

Awareness raising and promotion of best practices and guidelines for increasing resource efficient and cleaner production among Ukrainian industrial enterprises.

Objectives:

- Development of methodological materials on improving resource efficiency of domestic enterprises together with the participants of the Platform for Green Economy Growth;
- Press-conference organization, participation in promotional events to disseminate information on the publication and activities of the Platform for Green Economy Growth;
- Rising of awareness about the possibilities of implementing resource efficiency among the representatives of industrial enterprises;
- Increasing the level of awareness about modern methods and best practices of resource efficiency improving among domestic enterprises;
- Advancement of the green economy concept and its advantages among Ukrainian businesses.

3. Project partners

- Centre for CSR Development
- Public Association “Global Compact Network in Ukraine”
- Institute of Green Economics
- Ukrainian Chamber of Commerce and Industry

4. Description of activity in 2018

Description of strategy:

Timeframe	Activity	Result
12.01.2018	Designing of the document layout and printing	Final version of the Guide “Basic principles of Resource efficiency of enterprises” printed and published
19.01.2018	Press-conference conducting to announce the Guide and to inform on Platform for Green Economy Growth activities	The community and business informed on development of the new product of the Platform for Green Economy Growth
01.02.2018	Mailing dispatch of the Guide among enterprises of Ukraine	The Guide “Basic principles of Resource efficiency of enterprises” disseminated among companies in Ukraine

5. Expected Results

Quantitative results:

- 500 copies of the Guide “Basic principles of Resource efficiency of enterprises” are printed and published;
- Distribution of the Guide by postal services among Ukrainian enterprises (addressed sending the Guide to the companies’ management by postal services);
- Information dissemination with mass media services about the Guide.

Qualitative results:

- The Guide “Basic principles of Resource efficiency of enterprises” corresponds to the main principles for the Platform for Green Economy Growth members on the information dissemination and awareness raising activities;
- Results of the feedback comments by the main Stakeholders (at least 5 comments/feedbacks) were taken into account and included in the Guide;
- Awareness raising on the Platform for Green Economy Growth activities.

6. Monitoring and evaluation of results

Quantitative indicators	Qualitative indicators
At least 5 feedbacks received from the main Stakeholders	Results of the feedback comments by the main Stakeholders included into the text
1 press-conference on the Guide announcement	Information dissemination among community and business on the Platform for Green Economy Growth activities
500 copies of the Guide “Basic principles of Resource efficiency of enterprises”	The receipt notification and feedback received from the companies, who are interested in additional information

7. Viability and continued funding

This publication will help to spread information among Ukrainian enterprises and interested citizens on the prospects of changing the outdated technological processes on the basis of successful world practices, a detailed instruction on the possible measurement of production costs, the identification of the problem areas and their elimination.

In the future, the number of best practices and industries covered by the document may be expanded, analytical information can be updated and used to search for customers among enterprises or to search for grants for resource efficiency and cleaner production trainings for engineers and other stakeholders.

An additional opportunity could be the preparation of separate manuals that are related to the resource efficiency of enterprises with pointing out specific industries. Such manuals will become a basis for comparative analysis carried out by managers of enterprises and the formation of goals to increase resource efficiency. These publications will be prepared at the expense of enterprises or with partial financing by enterprises.

PROJECT DESCRIPTION

1. Background

Energy is decisive for success – regardless of the industry. On average, energy costs account for up to 10% of all production costs. In energy-intensive industries, the percentage can even get up to 40%. The growing need for increased efficiency in the use of resources due to long-term depletion of fossil fuels, rising energy costs and increasingly stricter environmental regulations make energy-efficient solutions essential for businesses. On a broader scale, energy is a key strategic factor for economies around the globe and low energy intensity a major competitive advantage. The energy intensity of Ukraine’s economy, measured as energy consumption in relation to gross domestic product, is however, one of the highest in Europe. Following this rationale, the Ministry of Economic Development and Trade has targeted resource efficiency, and specifically energy efficiency, as one of the main pillars of its New Industrial Policy Strategy and Action Plan. The German Federal Ministry for Economic Cooperation and Development (BMZ) supports the Ministry of Economic Development and Trade of Ukraine (MEDT) in improving Energy Efficiency in Ukraine. It has commissioned the Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) to carry out the project Advisory Services for Energy Efficiency in Companies. MEDT and GIZ therefore intend to provide technical support for Ukrainian companies in the implementation of pilot projects, specifically by supporting the identification of EE potentials, the elaboration of energy audits according to international standards as well as by providing technical support to the development and implementation of economically viable (bankable) EE investment measures.

A country- and sector-wide dissemination campaign of lessons learnt from these pilot measures will help boosting EE in industries and developing necessary capacities on a broader basis.

Industrial sectors are following:

- A. Food and Beverage: here Bakery industry, lot 1.
- B. Food and Beverage: here Dairy industry, lot 2.
- C. Machinery, lot 3.
- D. Non-metallic minerals Construction Material, lot 4.

2. Introduction

GIZ is seeking to contract for each single industrial sector – each lot - one consultant to conduct energy audits and on-site instruction on Energy Efficiency for operational staff. In the first phase, each consultant conducts 15 detailed energy audits (that comply with ISO: 50002:2014 standard) in medium-size industrial production factories and provides a one-day on-site instruction for the operational staff in the same. In the second phase, basing on the first phase outcomes the same consultant develops 5 bankable energy saving projects. These activities are accompanied in a frame-set of trainings, workshop and presentations that are compulsory for the contractor.

3. Overall concept for the implementation of pilot measures

Pilot measures shall be developed in two subsequent phases:

Phase one: Energy audits

(15 factories invited for this first phase from each of the above listed sectors)

The result of this phase will be concise and instructive energy audit report (produced by the local contractor and reviewed by an evaluation team from GIZ) on each of the participating factories. The local contractor shall present this report to factory owners, managers and staff on site. Those will also receive

training (One-day training on site) and expert advice from the local contractor on how to plan, implement, and monitor ad hoc no-cost and low-cost activities proposed in the energy audit report.

Out of five audits, one is accompanied by an international consultant to support the local contractor in terms of content and methodology. Constructive, best solution oriented cooperation between national and international consultant is presumed.

Phase two: Development of bankable energy efficiency projects

(5 factories invited for this second phase from each sector)

This phase shall result in concrete project plans for the implementation of technically and economically feasible investment projects proposed in the energy audit for each of the participating factories. Outputs shall include technical and financial project plans including bankable project documentation (financial indicators – pay-back, IRR, NPV etc.) compiled by local contractors following typical requirements of relevant financing institutes. Factory owners, managers and staff shall be training by national contractors (alongside the job) on how to develop, implement and monitor such projects by the local contractors.

4. Participating pilot factories

MEDT and GIZ will invite up to 15 factories in each of the following four industrial sectors to participate with one or more of their factories in these pilot activities:

- Bakery industry, lot 1.
- Dairy industry, lot 2.
- Mechanical industry, lot 3.
- Non-metallic minerals construction materials, lot 4.

The selection of above listed sectors resulted from previous sector studies assessing sector-specific EE potentials, economic dynamics and variety in company/factory size and structure. The participation of small and medium-sized enterprises is particularly encouraged.

5. Tentative Schedule

August 2018:	Start of phase 1
Nov/Dec 2018:	Public presentation of results and review of lessons learnt from phase 1
January 2019:	Start of phase 2
April/May 2019:	Public presentation of results and review of lessons learnt from phase 2

The RECPC have already prepared 7 reports on conducted detailed energy audits according to the signed contract. 3 reports are in progress and the visit to 1 company is planned on February – March 2019. The RECPC is waiting for the following 4 companies that will be announced later by the representatives of GIZ. Also the RECPC experts participated in the Seminar, Conference and Workshop on the GIZ project implementation (below the table with information on the events). This is a good chance for the RECPC experts to learn more about the ISO 50 002:2014 standard and have a practise on this standard implementation in companies. In the future, the RECPC could use these knowledge and practise to implement the ISO 50 002:2014 standard in companies on paid basis.

Events on the GIZ project implementation

Event	Date and place of the event
Seminar “ISO 50 002:2014 Guide to energy audit”	10 – 13 September 2018, Kyiv
Conference “Energy Efficiency at Enterprises: Opportunities and Solutions”	14 September 2018, Kyiv
Workshop “Energy Efficiency in Companies”	26 November 2018, Kyiv

In total, 44 options were identified and proposed to companies
 Total economic savings from identified options – 367'755 EUR/y
 Reduction of emissions – 3'705 t of CO₂-eq./y
 Electrical energy savings – 469 MWh/y
 Heat energy savings – 17'470 MWh/y
 Total investment – 334'624 EUR/y

List of companies:

#	Company's name	Status
1.	PJSC "Kharkiv tile factory"	Report is in progress
2.	LLC "Kerameya" (Ceramic building materials)	Report is in progress
3.	Branch of PJSC "Slobozhanska building ceramics" in Oзера village	Report is in progress
4.	The company "Oberbeton" (Producer of precast custom concrete)	Report is completed
5.	LLC "Kombinat Budindustria" (Building construction materials plant)	Report is completed
6.	LLC "Novomoskovsk Plant of Reinforced Concrete and Electrotechnical Products"	Report is completed
7.	LLC "Sambir eco-brick" (Producer of bricks, tiles and other building products)	Report is completed
8.	Branch of PJSC "Slobozhanska building ceramics" in Plavynysche village	Report is completed
9.	Private entrepreneur Herus Volodymyr Adamovych (Producer of paving slab)	Report is completed
10.	SE "Avtodorservis" (Recycling of asphalt materials)	Report is completed
11.	PJSC "Mykolaivcement" (Cement production plant)	Report is in progress

PROJECT DESCRIPTION

1. Idea of the project

The idea of the project was triggered by the growing demand for highly qualified technical and environmental specialists that national companies and organizations face today strongly.

Therefore, it is necessary to address young people who are choosing their future career and give them a prospect on how environmental and technical studies could help them to find interesting and demanded jobs - and how they could contribute to the successful development of Ukraine. The aim of “PROMETHE-U.S.” is to promote ETHE within pre-university teenagers and by this motivate them to increasingly develop technical studies and careers. It contributes in filling the gap of technical personnel at private and public levels. The sufficient amount of such specialists will help Ukraine fill up the gap between the demand for technical experts and people who preferred vocational training.

The project was elaborated by Resource Efficient and Cleaner Production Centre (RECPC) experts. The Centre has been successfully dealing with resource efficiency and cleaner production (RECP) since 2013. RECPC provides support to national companies and institutions in increasing resource efficiency and improving the environmental footprint due to efforts made in technology transfer, energy audits etc. It should be added that the majority of the RECPC staff has been delivering environmental and technical subjects for the students at national Universities as well as sharing related knowledge with Ukrainian companies.

The project is financed by the U.S. Embassy in Ukraine.

2. Fundamental target:

Promoting energy and environmental efficiency in Ukraine by encouraging youth (school students) to be strongly attracted by environmental and technical education.

3. The key tasks:

- help the target audience get familiar with advantages and prospects of technical education;
- raise interest between school students towards modern technical inventions and research studies in the issues of environmental protection and natural resources preservation;
- give fundamental reasons in favour of technical education for the future generation of Ukraine;
- justifying the key tool of technical education in successful development of Ukraine.

The target audience of the project – senior school students (9-11 grades) who plan to receive higher education and in 5 to 8 years (the period necessary for training specialists) may become the locomotives of economic development and environmental protection.

For a wide cover of target audience, the following activities are proposed:

- Selecting 20 interested schools and other local stakeholders such as educational and employment officers in 3 locations in regions with high share of inner displaced people (such as Kharkiv, Dnipro, Poltava, Kyiv, Zaporizhzhia, Cherkasy). (Sep-Oct' 18)
- With the support of local stakeholders, develop and disseminate promotional materials that enable 2000 school students to be informed on project activities and benefits from environmental and technical higher education (ETHE). (Sep-Oct' 18)
- Conducting 10 master-classes (3 hours) in energy and environmental performance of enterprise for at least 200 school students to familiarize them with resource and environmental issues and

benefits of ETHE. The students will be actively involved in the activities, e.g. by participating in experiments. A camera team will follow the activities. (Nov-Dec'18)

- Developing the thematic web-page at www.recpc.org and animate social network page to reach at least 3000 school students (Sep'18-Jan'19); ongoing supporting the pages and content generating.
- Preparing and promote video material based on master-classes to familiarize at least 1000 school students with benefits of ETHE (Jan'19)
- Surveying the project participants on choice they made (Jul'19)

Workshop topics within the project timeframe October 2018 till February 2019:

- computer engineering (programming (IT specialists));
- nanotechnology (manipulation technologies and use of components);
- environmental safety (rational natural resources use, emissions, human safety);
- “green” technologies;
- energy efficiency (energy saving and renewable energy sources);
- robot technique: developments and perspectives;
- machine-building and metal working;
- engineering ecology;
- engineer-designer (construction);
- aerospace engineering, astrology.

4. Strategic Objectives

The strategic objective of the project is, on the medium term, to contribute to improving energy and environmental performance in Ukraine through human capacity development, by promoting environmental and technical education among young people:

- raising awareness on the benefits of environmental and technical education among school student and their family members;
- increasing the share of students who choose technical and environmental for their higher education;
- creating an online platform gathering together school students, University students and RECPC experts to provide information exchange and share in related area, i.e. environmental care, energy efficiency at national companies. Such a platform will for sure attract more and more interested people (youth) for cooperation thus widening the network of people who care about the environment and are eager to help Ukraine in gaining its economic prosperity.

Annex 19. Information on new projects applications in 2018

#	Project name / idea	Funding institutions	Budget	Current status / next steps
1.	Establishing partnerships between organizations of the Baltic Sea Region and countries from the EU EaP for cooperation in the field of resource efficiency and sustainable development	Swedish Institute		Cancelled
2.	Demo Environment	Swedish International Development Cooperation Agency (Sida)		Screening the partner from industry with relevant case. Project is over
3.	Eco-Industrial Parks (EIP) in Ukraine	The GEF with co-funding by the Industrial park	Total Budget 2'000'000 USD. Between 10% and 30% could be allocated to the RECPC	Country Template prepared for State Secretariat for Economic Affairs (SECO), Switzerland. EIP project concept prepared with SECO template and sent through UNIDO HQ to SECO with support of the Chief Technical Advisor. PIF-document was under preparation. Deadline missed
4.	Resource Efficient and Cleaner Production Clubs (RECP Clubs) for Clim@	Green for Growth Fund (GGF)	30'000 EUR	Submitted, Declined
5.	Assistance to Ukrainian Authorities in implementation of the national waste management strategy	European Commission Delegation to Ukraine		CV submitted for consortium with SWS Consulting Engineering
6.	Trainings on Circular Economy	Erasmus		RECP Centre profile in EU's database was updated. Working on project idea and partners search. Cancelled by Austrian National Agency
7.	Energy efficiency at companies (Energy audits and energy efficiency project development in selected industries)	Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH	50'000 EUR	Contracted. *RECP Centre is contracted for 15 energy audits and 5 proposals development
8.	Public-Private Partnership with Heidelberg Cement on Co-Processing	GIZ and co-funding by Heidelberg Cement		Negotiations with Heidelberg Cement were not conclusive
9.	Co-processing project for Enlighten Your Research	EYR@EaP		Submitted, 1st round passed. Declined at 2nd round
10.	Co-processing project on feasibility study and legal	REPIC co-financed with Cement	Total 200'000	Common preparation on project, communication

	support for IvanoFrankivsk cement plant	association or IvanoFrankivsk	CHF, ca 20% RECPC	with partners on project conditions. First project proposal draft for REPIC written
11.	PROMoting Environmental and Technical Higher Education (PROMETHE-U.S.)	The U.S. Embassy	24'000 USD	Contracted
12.	Resource efficient restoration and modernization of industry in Donetsk and Luhansk regions for people well-being	Government of Japan (GoJ)	1'000'000 USD	Concept idea submitted to UNIDO. Declined