GEF-6 REQUEST FOR PROJECT ENDORSEMENT/APPROVAL

PROJECT TYPE: MEDIUM-SIZED PROJECT
TYPE OF TRUST FUND: GEF TRUST FUND

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PART I: PROJECT INFORMATION

Project Title: The Global Cleantech Innovation Programme for SMEs			
Country(ies):	Ukraine	GEF Project ID:[1]	9811
GEF Agency(ies):	UNIDO	GEF Agency Project ID:	160246
Other Executing Partner(s):	Ministry of Ecology and Natural Resources, Ministry of Economic Development and Trade, State Finance Institution for Innovations	Submission Date:	08/14/2018
GEF Focal Area (s):	Climate Change	Project Duration (Months)	36
Integrated Approach Pilot	IAP-Cities ☐ IAP-Commodities ☐ IAP-Food Security ☐	Corporate Program: SGP ☐	
Name of Parent Program	[if applicable]	Agency Fee ($)	142,773

A. FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES[2]

Focal Area Objectives/Programs	Focal Area Outcomes	Trust Fund	(in $) GEF Project Financing	(in $) Co-financing
CCM-1 Program 1	Outcome A. Accelerated adoption of innovative technologies and management practices for GHG emission reduction and carbon sequestration; Outcome B. Policy, planning and regulatory frameworks foster accelerated low GHG development and emissions mitigation.	GEFTF	1,502,875	12,200,000
Total project costs			**1,502,875**	**12,200,000**

B. PROJECT DESCRIPTION SUMMARY

Project Objective: Create low-carbon economic growth by promoting clean technology innovations and entrepreneurship through a cleantech innovation platform and accelerator programme

Project Components/ Programs	Financing Type[3]	Project Outcomes	Project Outputs	Trust Fund	(in $) GEF Project Financing	(in $) Confirmed Co-financing
1. National cleantech platform to promote clean technology innovations for global environmental benefits and green jobs in Ukraine	TA	1.1 National level platform/coordinating mechanism established to promote clean technology innovations and entrepreneurship	1.1.1 GCIP Ukraine platform established, 3 annual cleantech Accelerator conducted across selected SME clusters 1.1.2 GCIP Community and network maintained	GEFTF	650,000	9,800,000
		1.2 Clean technology entrepreneurs	1.2.1 Post-Accelerator support provided for			

[1] Project ID number remains the same as the assigned PIF number.
[2] When completing Table A, refer to the excerpts on GEF 6 Results Frameworks for GETF, LDCF and SCCF and CBIT programming directions.
[3] Financing type can be either investment or technical assistance.

		identified, coached and promoted during and beyond the GCIP Accelerator	start-ups and SMEs to access to finance and market entry.			
2. Building national capacity to support and promote clean energy technology innovations	TA	2.1 National institutional capacity built to support and organize the GCIP Accelerator during and beyond the project duration	2.1.1 Capacity building of national institutions and industrial associations to host, support and sustain the GCIP, and 15 mentors and 10 judges identified and trained 2.1.2 Impact monitoring, advocacy and promotion	GEFTF	500,000	1,400,000
3. Policy and regulatory framework strengthened for a national cleantech innovation and entrepreneurship ecosystem	TA	3.1 Policy and Institutional framework strengthened to promote and support clean technology innovations in startups and SMEs.	3.1.1. Policy analysis report on the best practice policies, regulations and incentives required for the promotion of clean technology innovations developed 3.1.2 Policy recommendations on how to enhance the clean technology innovation and entrepreneurship ecosystems developed and roadmap in place 3.1.3 National institutional capacity strengthened for sustainability	GEFTF	145,795	450,000
4. Monitoring & Evaluation	TA	4.1 Adequate monitoring of all project indicators together with regular evaluations to ensure successful project implementation	4.1.1 Terminal project evaluation conducted 4.1.2 Documentation of lessons learnt and best practices from pilot experience and dissemination	GEFTF	75,000	150,000
Subtotal					1,370,795	11,800,000
Project Management Cost (PMC)[4]				GEFTF	132,080	400,000
Total project costs					**1,502,875**	**12,200,000**

[4] For GEF Project Financing up to $2 million, PMC could be up to10% of the subtotal; above $2 million, PMC could be up to 5% of the subtotal. PMC should be charged proportionately to focal areas based on focal area project financing amount in Table D below.

C. CONFIRMED SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE

Please include evidence for co-financing for the project with this form.

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount ($)
GEF Agency	UNIDO	Grants	50,000
GEF Agency	UNIDO	In-kind	50,000
Recipient Government	State Finance Institution for Innovations (Ministry of Economic Development and Trade of Ukraine)	In-Kind	100,000
Recipient Government	State Finance Institution for Innovations (Ministry of Economic Development and Trade of Ukraine)	Cash	1,800,000
Recipient Government	Institute of Renewable Energy of National Ukrainian Academy of Science	In-kind	150,000
Recipient Government	Scientific park of the National University of Life and Environmental Sciences of Ukraine (NUBIP)	In-Kind	40,000
Private Sector	UKRGASBANK	Loan	6,000,000[5]
Private Sector	Raiffeisen Bank Avel	Loan	4,000,000[5]
Private Sector	Greencubator	In-kind	10,000
Total Co-financing			**12,200,000**

D. TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES), FOCAL AREA AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country Name/Global	Focal Area	Programming of Funds	(in $)		
					GEF Project Financing (a)	Agency Fee a) (b)[2]	Total (c)=a+b
UNIDO	GEFTF	Ukraine	Climate Change		1,502,875	142,773	1,645,648
Total Grant Resources					**1,502,875**	**142,773**	**1,645,648**

a) Refer to the Fee Policy for GEF Partner Agencies

[5] UkrGasBank and Raiffeisen Bank Avel will make available USD 545,000,000 over the next years for start-ups and innovation projects, based on the loan amount innovations from previous GCIP projects could attract, GCIP participants could realistically access at least USD 10,000,000 over the project duration for clean technology innovations.

E. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS[67]

Provide the expected project targets as appropriate.

Corporate Results	Replenishment Targets	Project Targets
1. Maintain globally significant biodiversity and the ecosystem goods and services that it provides to society	Improved management of landscapes and seascapes covering 300 million hectares	*hectares*
2. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)	120 million hectares under sustainable land management	*hectares*
3. Promotion of collective management of transboundary water systems and implementation of the full range of policy, legal, and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services	Water-food-ecosystems security and conjunctive management of surface and groundwater in at least 10 freshwater basins;	*Number of freshwater basins*
	20% of globally over-exploited fisheries (by volume) moved to more sustainable levels	*Percent of fisheries, by volume*
4. Support to transformational shifts towards a low-emission and resilient development path	750 million tons of CO_{2e} mitigated (include both direct and indirect)	1,364,000. tCO2 eq *direct,* 2,728,000. tCO2 eq *tCO2e indirect, and total 4,092,000 tCO2e direct in 10 years metric tons*
5. Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern	Disposal of 80,000 tons of POPs (PCB, obsolete pesticides)	*metric tons*
	Reduction of 1000 tons of Mercury	*metric tons*
	Phase-out of 303.44 tons of ODP (HCFC)	*ODP tons*
6. Enhance capacity of countries to implement MEAs (multilateral environmental agreements) and mainstream into national and sub-national policy, planning financial and legal frameworks	Development and sectoral planning frameworks integrate measurable targets drawn from the MEAs in at least 10 countries	*Number of Countries:*
	Functional environmental information systems are established to support decision-making in at least 10 countries	*Number of Countries:*

F. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? NO

(If non-grant instruments are used, provide an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF/CBIT Trust Fund) in Annex D.

[6] Update the applicable indicators provided at PIF stage. Progress in programming against these targets for the projects per the *Corporate Results Framework* in the *GEF-6 Programming Directions*, will be aggregated and reported during mid-term and at the conclusion of the replenishment period.

[7] As per GEF communication in July 2018, Table E is replaced with GEF Core Indications, please see Annex K

PART II: PROJECT JUSTIFICATION

A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN WITH THE ORIGINAL PIF[8]

During the project design phase, the number of outputs under Project Component 1 and 2 has been reduced and output titles rephrased to increase synergies and enhance articulation of activities around the main outputs, such as maintaining GCIP community and network, establishment of pool of mentors and judges, conducted accelerators, as well as to ensure more straightforward description of outputs and activities provided in A.1.3. Under project component 3 and 4, number of outputs has increased with main focus on sustainability of the project and GCIP platform beyond the project duration. The newly added output 3.1.3 refers to the national institutional capacity to be strengthened during the project and output 4.1.2. is about ensuring the continuous improvement of the project through the systematic knowledge management and dissemination of the lessons learnt and experience. Separate outputs will ease the process to track the progress and resource allocation on this crucial area.

At the PIF stage, it was assumed that 200 entrepreneurs would participate in the GCIP Accelerator and thus 200,000 t CO2e emissions would be saved. To have more realistic assumptions, data from the GCIP Pakistan study[9] (2016) was used as a reference, which concluded that the total direct emission reductions of the 7 GCIP supported projects was estimated at 196.95 tCO2e per year. Based on these figures, it can me estimated that, on average, a single innovation would have the potential to save 28.13 tCO2e per year. As a result, the GCIP Ukraine targets to directly mitigate 2,394,576 tCO2e over the period of 10 years, which includes the projection of 60% annual growth of the units sold by SMEs. Calculation methodology is described in more detail in section A1.5. A detailed estimation of GEB of the project, based on the actual estimation from the entrepreneurs supported in Ukraine will be conducted during the project.

A.1. *Project Description.*

In 2011, the United Nations Industrial Development Organization (UNIDO) in partnership with the Global Environment Facility (GEF) piloted the first Clean Technology Competition for green entrepreneurs and SMEs in South Africa with innovative ideas and concepts in the areas of green buildings, energy efficiency, and renewable energy. Building on this success, UNIDO and the GEF developed the Global Cleantech Innovation Programme (GCIP) which uniquely fosters a policy and regulatory ecosystem approach that supports cleantech innovations in SMEs and start-ups by the provision of catered tools and methodologies that enhance their productivity and competitiveness. In the inception, GCIP adapted and customized all the necessary materials and tools from a proven accelerator model originally created in Silicon Valley to GCIP countries transferring the ownership of the materials to national institutions in order to guarantee sustainability.

By the end of 2017, eight countries – namely Armenia, India, Malaysia, Morocco, Pakistan, South Africa, Thailand and Turkey – have participated in the GCIP and over 865 start-ups companies over a period of 4 years were supported. GCIP builds on human ingenuity and dynamism in start-ups and SMEs involved in the development of climate technologies innovations aimed at the introduction of new green technologies and services that underpin a systematic shift towards low-carbon and climate resilient development. In addition, the GCIP approach has proven to be an articulating mechanism of all the players involved in the policy and regulatory and financing spaces that ensure the sustainability of the technology push and market pull mechanisms for domestic climate technology innovations development.

[8] For questions A.1 –A.7 in Part II, if there are no changes since PIF , no need to respond, please enter "NA" after the respective question.

[9] https://issuu.com/unidopakistan/docs/report_on_carbon_emissions_of_gcip

Data collected in 2017 from 14 randomly selected GCIP accelerated start-ups showed that they have created 329 new green jobs, have generated annual revenues exceeding US$ 23 million, and have achieved 624 kilotons of CO_2 emissions savings. In fact, these enterprises are on a high-growth trajectory and by 2020, are projected to have created 1,219 new cleantech jobs, have generated revenues of about US$ 263 million and have prevented 4.8 million tons of CO_2 emissions. This small sample showcases how GCIP has demonstrated to be a highly successful and cost-effective approach with vast potential for leveraging investment and creating green jobs. Despite these very encouraging results, it has been noted that, after SMEs and start-ups have been accelerated, there is still a great need to further support in market entry, commercialization platforms and linkages to financing.

In this regard, the GCIP project in Ukraine will take advantage of the lessons learned and achievements of GCIP in other countries and foresees the incorporation of new key post-competition services to GCIP alumni in terms of targeted technical assistance towards commercialization and linking to financial service providers. This new GCIP strategy is expected to enhance the sustainability of cleantech innovation and entrepreneurship in the country and will lead to a long lasting transformative change in the domestic innovation ecosystem. Furthermore, this project will be also promoting a closer connectivity among domestic amongst players in the cleantech ecosystem as well as an improved coordination among GCIP countries thereby creating global synergies, market opportunities, joint ventures and co-innovation. Accordingly, this project seeks to support the strengthening of the clean technology innovation and entrepreneurship ecosystem in Ukraine while catalyzing investments and international partnerships to support the country climate resilient and low-carbon development.

The GCIP will build upon significant opportunities to enhance the level of innovation of SMEs in the area of cleantech by addressing the available potentials in the market. It will take advantage of synergies with the current priorities of Ukraine innovation eco-systems, leverage the governmental SME support initiatives and articulate with national stakeholders and institutions, such as Resources Efficiency Cleaner Production (RECP), the Chamber of Commerce and Industry of Ukraine, the National Innovation Council and others. Furthermore, the Project will be closely cooperating with civil society organizations which share the green economy values and focus their activities on support to start-ups. Specifically, one of such organizations in Ukraine is Greencubator, founded in 2009, (http://greencubator.info). Starting its operations in 2006, with helping business media to understand the opportunity behind the green business models, Greencubator is active in shaping favorable environment for entrepreneurship, low-carbon innovations and green economy development in Ukraine and Eastern Europe. The goals of Greencubator are to serve energy and climate innovators, to advance green entrepreneurship, to unlock energy freedom, to empower communities.

In partnership with the local stakeholders, the GCIP project will be strengthening local competences for addressing key cross sectorial interventions in the fields of energy efficiency, renewable energy, resource efficiency, internet-of-things and cross-sectoral innovations in the key priority productive sectors of the national innovation strategy as presented in Figure 1 below.

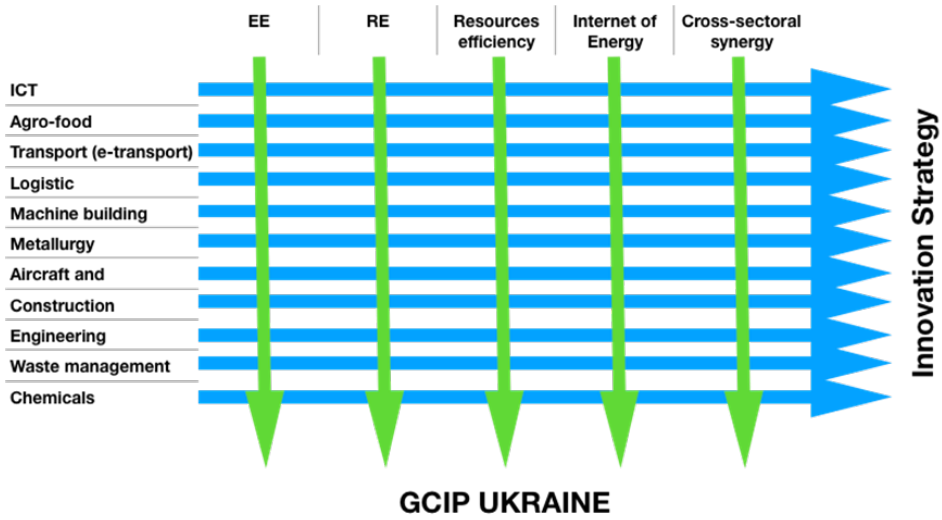

FIGURE 1: Key GCIP interventions in priority sectors

As wells as ensuring an equitable coverage of all the regions of Ukraine as depicted below.

Regions of Ukraine	Industry sectors
KYIV, CENTRAL AND NORTH	IT, aircraft building, instrument making, agro-food
WEST	Transport engineering, IT, agro-food
EAST	General mechanical engineering, metallurgy, agro-food
SOUTH	Logistics, transport industry, agro-food industry

FIGURE 2: Industry sectors per region of Ukraine

A.1.1) The global environmental and/or adaptation problems, root causes and barriers that need to be addressed:

Ukraine is a large, diverse country with high agricultural potential, it belongs to the resource-rich countries of the Eurasian region, with an established industrial base. Climate-driven changes such as higher temperatures – causing potential shifts in agricultural zones and leading to marked water deficiencies – can compromise the country's food security and economic growth, however. Ranked fifth in the world for energy intensity, Ukraine is one of Europe's largest energy consumers due to its inefficient energy infrastructure, historically low energy prices and high industrial and agricultural energy sector demands. Climate-related efforts have focused on emissions reduction, and these efforts to improve energy efficiency and management of renewable energy sources.

Ukraine enjoys a favorable geographical position, has a highly educated population and potentially can serve as a transit corridor for energy and trade flows between the East and the West. Ukraine is among the leading countries of the world in terms of proven reserves of iron, manganese and titanium- zirconium ores, coal, graphite, china clay and sulphur.

During the past three years, Ukraine has experienced acute political, security, and economic challenges that has led to a 9.9% decrease of the GDP and a 13.4% decline in industrial production. At the backdrop of severe resource limitations and imminent external threat, the conversion of Ukraine's economic development model and structural transformation are becoming a matter of survival.

Ukraine remains both, an industrial and agrarian country, predominantly producing different kinds of raw materials. As regards the types of industry, the main prevailing sectors in accordance with the United Nations International Standard Industrial Classification are

- Heavy engineering
- Ferrous and non-ferrous metallurgy
- Shipbuilding
- Automotive industry
- Aerospace industry
- Manufacturing and supply for power plants
- Oil, gas and chemical industry

b)

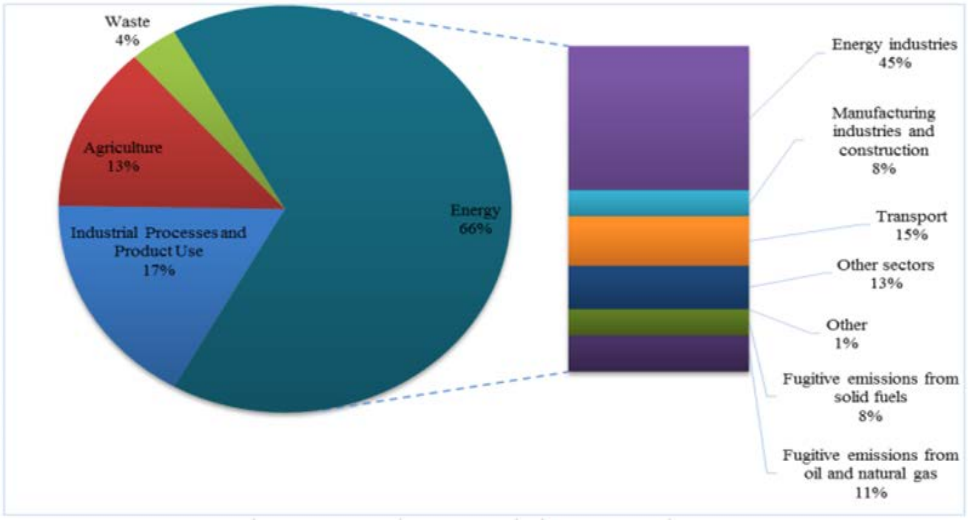

FIGURE 3: UKRAINE GHG EMISSIONS PER SECTOR (2015)

The signing in 2014 of the Ukraine-EU Association Agreement and the adoption of the 2014-2017 action plan for its implementation (in particular, the *Economic and Sectoral Cooperation* section), as well as the approval of plans for implementing EU directives and regulations related to energy, environment and technical guidelines are all geared towards Ukraine's transition to the European green development model.

According to the national GHG inventory of Ukraine, the largest GHG emissions take place in the Energy sector. In 2015, the share of this sector accounted for around 66%[10]. About 81% of emissions in this sector account for emissions in the fuel combustion category, which include the categories of Energy Industries, Manufacturing Industries and Construction, Transport, Other Sectors, and Other, as well as 19 % - emissions in the category of Fugitive Emissions from fuels.

In the period of 2008-2015, the share of GHG emissions from the major export-oriented industries (metallurgy, chemical, mechanical engineering) declined due to the fall of production which in turn impact supply sectors - electric power generation, mining (ore and coal mining). According to the State Statistic Service of Ukraine the annual industry production indices has been constantly decreasing since 2012. In 2015 industrial production index is 87.0 % comparing with 2014. The significant reduction in industrial output and the GDP resulted in a reduction in CO_2 emissions, which led to a relative increase in carbon productivity

Compared to 1990, in 2016 the carbon productivity of Ukrainian GDP increased almost 1.8 times: from 0.29 USD of GDP/kg CO_2 to 0.51 USD of GDP/kg CO_2. In 2016-2017 both industrial output and CO_2 emissions started growing and the carbon productivity of GDP/kg fell. This development indicates on the existence structural cleantech challenges of the industry.

Ukraine has ratified the Paris Agreement in September 2016 and is committed to reduce its greenhouse gas emissions by 2030 to 60% under the

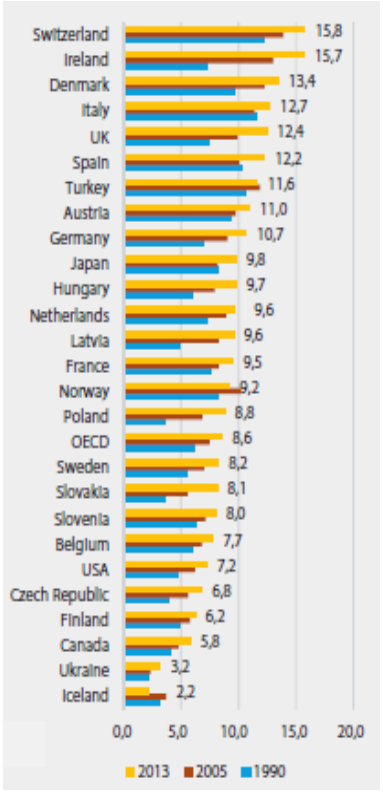

FIGURE 4: ENERGY PRODUCTIVITY, USD/KGOE (GDP IN 2010 PRICES, AT PPP, NUMERICAL VALUES IN THE GRAPHS REFER TO 2013)

[10] without the LULUCF sector

"active investment scenario" and 45% under the "pessimistic scenario" compared to 1990.

Green Growth opportunities in Ukraine

As mentioned before, in terms of carbon productivity and clean technologies, Ukraine has significant potential for improvement. Some of the intervention areas would include:

- further improving energy productivity by reducing energy intensity and,
- introducing renewable energy sources into the existing energy supply mix,
- increasing the material efficiency.

Key indicators related to green growth.

Ukraine is one of the least energy-efficient countries in Europe—analysis by the U.S. Energy Information Administration found Ukraine's economy to be two or three times as energy intensive as many neighboring countries, including Poland, Slovakia, and the Czech Republic. While Ukraine's energy sector accounts for about 12.6 percent of its GDP, the country's energy intensity is staggering. This creates a massive headwind that drags down national welfare, crowds out economic growth and job creation, and leaves the country vulnerable to political pressure from energy suppliers

a) Energy Productivity

The energy supply structure, energy consumption intensity and their dynamics are key indicators of sustainability of the economic development. In Ukraine, the energy productivity of GDP per total final energy consumed (in 2010 prices) in 2016 was 75% higher than in 1990, having grown from 10.9 to 22.0 UAH/kgoe

According to the World Bank, the Ukrainian economy is significantly based on low value-added exports and largely inefficient in terms of per capita GDP, the country belongs to the lower-middle-income group (USD 8,190 at PPP in 2016). A high degree of fixed assets depreciation (83.5% in 2014) and outdated technologies, especially in the mining and metallurgical sector, result in excess consumption of primary resources, materials and energy and to a high energy intensity of Ukrainian economy (as of 2015 was 0.32 kg of oil equivalent per 1 US$) - 1.5 times higher than the EU average.

The largest energy consumers in Ukraine are the transport sector, households and the iron and steel industry. The greatest contribution to the growth in energy productivity of Ukraine's GDP was made by households and transport due to rising energy tariffs for the population and growing fuel prices for transport. The industrial sector increased its energy productivity by only 5.3%.

Despite the high rate of decline in energy consumption (by 32% in 2016 compared to 2011), in terms of energy productivity level Ukraine is second to last among OECD countries – see 4. This situation is explained by a lower GDP growth rate and a significant technological gap with developed countries in most economic sectors, particularly in energy-intensive

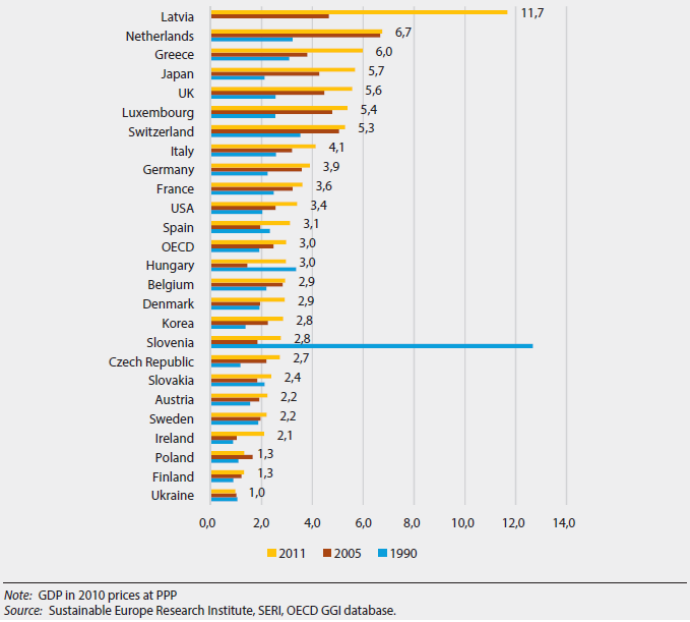

Figure 5: Material (non-energy) productivity of GDP in OECD countries and in Ukraine, 1990-2011, USD/kg (numerical values in the graph refer to 2011)

industries.[11]

b) Non-energy material Productivity

Domestic consumption of materials contains extracted materials (energy resources, ores and non-metallic minerals) and produced biomass (agriculture, fishery and forestry products, and harvested timber). In 2013, the material productivity of Ukraine's GDP was 3.1 UAH/kg against 3.17 UAH/kg in 1990 (GDP in 2010 prices), having increased in 13 years by 2% only. The uneven dynamics of this indicator points to the absence of a well-directed policy to stimulate the preservation of material resources in the country.

In 2011, the material productivity indicator calculated on the basis of GDP in US Dollars at PPP in constant 2010 prices was at 0.97 USD/kg – at least three times less than the OECD average and worse than in any of the countries Ukraine is compared with here (see Figure 5).

Material productivity improvement policies encompass two areas: more efficient utilization of material resources including extracted primary resources, and reduction, reuse and recycling of waste. A detailed evaluation of resource efficiency of enterprises in various sectors is not available yet for the country, however, resource efficiency has been recommended to be included in the list of top priorities of the government.

Challenges for Ukraine's transition to low carbon growth

The main obstacles for a transition to low carbon growth in Ukraine are the lack of diversification of the economy, heavy reliance on expensive fossil-fuel usage, outdated and inefficient production capacities and unsustainably high subsidies in energy pricing. This implies a need for the government to increase competition, introduce market-based prices and to improve energy efficiency across all sectors.

Ukraine does have a potential for advancing green economic activities, primarily in the fields of renewable energy, energy performance and organic farming. For instance, in 2010-2014, the average annual growth in the bioenergy sector amounted to 42% while, according to the national renewable energy action plan up to 2020, the share of renewable energy in the gross final energy consumption is expected to reach 11% (8,590 toe).

Renewable energy sources (RES) are likely to be the fastest growing source of power in Ukraine over the coming years, as the country will need to comply with EU directives and new projects are receiving fairly generous subsidies. Ukraine has undertaken to ensure that, by 2020, the share of RES in overall energy consumption will be 11 percent. RES accounted already for around 6.4 percent of the total electricity generation by January 2017. This is more than half of the 11 percent target stated in the *National Renewable Energy Action Plan* adopted in 2014.

The need for energy efficiency improvements across the Ukrainian economy is enormous. In 2016, the Ukrainian government spent roughly seventy times more on subsidies for public utilities than on energy efficiency. Over the next fifteen years, Ukraine is projected to undertake modernization programs for buildings owned by national or local governments that will cost approximately US$ 65 billion, but only a tiny fraction of that amount was budgeted in 2017. This means that, in the absence of new investment funds, the government will continue to spend more on wasted energy than on efficiency improvements.

In line with the *National Energy Efficiency Action Plan* for the period up to 2020, in 2020 final energy consumption should be 9% lower than the 2005-2009 annual average. The greatest savings in energy consumption are expected in the housing (50% of the total volume) and industrial (25%) sectors. To that end, a massive thermo-modernization programme for residential buildings is currently underway and industrial enterprises are now more actively engaging in resource efficiency and cleaner production projects and introducing energy management systems (ISO 50001).

Alternative to the current carbon intensive growth in Ukraine is the adoption of an innovative low carbon growth strategy and mainstreaming of clean technology innovation and entrepreneurship across all economic sectors. In the long-term, this will support broad-based economic development while systematically promoting climate resilience and

[11] *Source:* Green Growth Indicators, http://stats.oecd.org

low-carbon development. According to the World Bank report "Building competitive industries"[12], SMEs and start-ups from developing countries and economies in transition have a potential clean technology market of US$ 1.6 trillion to capitalize on in the next ten years. This is a promising shift to grow the countries' clean tech sector economically and socially. In fact, promoting clean technology innovation and entrepreneurship support a transformational shift from viewing climate change as a development handicap to a situation where climate change presents opportunities for local cleantech innovations to be developed and scaled up thereby creating new and green jobs, new industries and broad-based economic prosperity.

The Ukrainian Innovation Eco System and its Challenges

According to the World Economic Forum's Global Competitiveness Report, Ukraine is considered to be at the efficiency-driven development stage, where innovation and sophistication factors have a still limited role in determining the value of the overall competitiveness index in comparison with more advanced economies. Yet, in the ranking of the GCI in 2017/2018, Ukraine holds the position of being 81st out of 137 countries, with the high inflation, corruption and political instability being among the most problematic factors for doing business in the country. On the other hand, an efficient policy framework and government bureaucracy and capacity to innovate are hampered by structural deficits to provide a suitable environment for innovation.[13]

Enterprise innovation in Ukraine is weak, both in large and small companies. Ukraine's innovation survey, which follows EU Community Innovation Survey methodology, found that the percentage of Ukraine industrial enterprises conducting innovative activity in 2015 was 17.3 %[14] compared to an EU average of 48.9 %[15].

Ukraine's industrial structure hampers its innovation performance. Ukraine's main industries—agriculture, metals, and heavy manufacturing—are ones that are not R&D intensive (in Ukraine or in most other countries). Ukraine's main industrial sectors are heavy engineering; ferrous and nonferrous metallurgy; shipbuilding; automotive; aerospace; manufacturing and supply of power plants; and oil, gas, and chemicals industry. Ukraine's top five exported products in 2014 were maize; crude sunflower seed and safflower oil and fractions; spelt, common wheat, and meslin; semi-finished metals; and non-agglomerated iron ores and concentrates.[16]

High-technology exports, by contrast, are relatively weak. In 2015, high-technology exports were 7.3 % of manufactured exports, which is low compared to the average of the EU (16 %) and the world (18 %)[17].

A bright spot is the growth of the IT outsourcing industry, which provides software development services for international clients.

Nevertheless, Ukraine has a great potential to develop an innovation-based economy driven by its immense talents and entrepreneurial skills. It has many features that other transition economies envy: a well-educated and talented workforce; a long tradition of science and technology (S&T) research; significant natural resources and agricultural production capacity; a successful information technology (IT) industry; increasing access to markets in Europe; and a large and successful knowledge diaspora that can provide knowledge and access. This, of course, requires a clear government commitment at the highest levels to supporting innovation and innovation reforms and a clear vision to transition the Ukrainian economy to a knowledge-based, innovation-driven economy.

Ukraine has a sound system of education and a high level of public educational background: over 79% of adult Ukrainians have a college or university degree. There are nearly 900 colleges and universities in Ukraine, the most prominent of them are located in Kiev, L'viv and Kharkov. The number of persons with a university degree in the age

[12] https://www.openknowledge.worldbank.org/handle/10986/20684
[13] http://reports.weforum.org/global-competitiveness-index-2017-2018/countryeconomy-profiles/#economy=UKR
[14] Statistic Service of Ukraine
[15] http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Share_of_innovative_enterprises_by_main_type_of_innovation,_2010%E2%80%9312_(%C2%B9)_(%25_of_all_enterprises)_YB15.png
[16] wits.worldbank.org
[17] Global Innovation Index 2016. "Ukraine."

group 20 - 29 per 1,000 population increased over the past ten years from 41.2 in 2004 to 49.1 in 2010, although the share of natural and technical sciences graduates in the total number of graduates has declined.

Moreover, Ukraine has retained significant scientific resources inherited from the former planned economy of the Soviet Union, although many of them are poorly integrated into the modern market conditions. In general, Ukraine today has about 800 academic and applied research institutions and according to WIPO data (World Intellectual Property Organization), the country demonstrates relatively high patent activity. At the level of technology fields, Ukraine's relative specialization is strong in medical technology (1,871, almost 10% of its output), and measurement (1,260 applications or almost 7% of its output). Remarkable are further the specialization grades in materials/metallurgy (1,499 applications), machine tools (867 and with almost 5% a higher share than in any other Black Sea country) and other special machines (1305)

An important, also politically symbolic step was the association of Ukraine to HORIZON 2020 on 20 March 2015. Ukraine had a relatively good participation in FP7 (with funding amounting to €30.9m) with a sufficient success rate (~ 20%). Participation in HORIZON 2020 did not improve yet in quantitative terms and the success rate fell to ~13%, which corresponds to EU average. The highest success rates are in EURATOM; the lowest in 'industrial leadership' which confirms the weak technological orientation of Ukraine's industry. Ukraine also has 25 intergovernmental S&T agreements with EU Member States and countries associated to Horizon 2020 (2014). NASU has 110 bilateral agreements with the most projects jointly implemented with Poland, France, Hungary, Slovak Republic and the Czech Republic. The most important co-publication partners of Ukrainian researchers are residing in Germany, Russia and the USA, followed with some distance by Poland, France, UK, Italy, Spain and Japan.

Research institutions and universities do not effectively support innovation in Ukrainian companies. Both are structured to service the old, pre-independence economy and are in need of major reform to adapt to the new private sector realities. And there is little demand from business for such institutions to support innovation.

The overall environment for entrepreneurship in Ukraine has many challenges; however, some entrepreneurs are succeeding in building globally successful ventures. Ukraine has improved processes for business formation, but licensing, permits, taxes, and corruption continue to be major problems. Ukraine's industrial structure with large non-competitive state-owned entities, and high barriers to entry and exit, reduces opportunities for entrepreneurs. Poor insolvency laws and weak IP increase the risks for entrepreneurship.[18]

Ukraine has a small but promising group of innovative entrepreneurial companies that are focused on international markets. These high-growth potential firms have found ways to reach international markets, acquire venture capital (VC) financing and business advice, and find manufacturing partners. They have been aided by an informal mentoring network as well as the Ukrainian diaspora.

Challenges of the SME sector in Ukraine

SMEs largely dominate Ukraine's economy. According to the State Statistical Service of Ukraine, as of 2014, the country had approximately over 1.7 million SMEs, which is over 99.9% of all operating legal entities. Small and micro-enterprises accounted for almost 99%. SMEs account for almost 60% of employment and about 52% of the total sales revenue of the economy. Although SMEs' individual environmental footprint may be low, their aggregate impact in many respects exceeds that of large businesses. The key sectors where SMEs have a particularly significant environment impact include food processing industry, livestock farming and construction.

While constituting a majority of businesses, SMEs lack, to a large extent, the awareness of their environmental impacts as well as the understanding that higher environmental performance (including resource and energy efficiency) can be a competitive advantage. Most importantly, they have limited capacity to interpret and respond to relevant policy incentives. Many EU and other OECD countries have addressed this challenge by implementing information-based tools and regulatory and financial incentives to encourage SMEs to improve their environmental performance, to comply with and go beyond regulatory requirements.

[18] The World Bank (2017): Innovation and Entrepreneurship Ecosystem Diagnostic Ukraine

The Government of Ukraine has been undertaking certain activities to support the SME sector in accordance with the 2012 "Law of Ukraine on State Support for Small and Medium Entrepreneurship", with a particular emphasis on reducing the administrative burden on small businesses and increasing their competitiveness. However, improving the environmental performance of SMEs, including the awareness and capacity of business owners towards using clean technologies, has so far not been part of these efforts. In addition, the sector is facing barriers such as the poor regulatory environment, including tax administration, property rights, permits, certification and inspections, limited access to finance and low levels of overall competition pose obstacles to private sector development, undercutting the country's growth prospects.

To address these challenges, the MEDT has developed in 2015 a draft SME Development Strategy, which was approved by the Government in June 2017. The draft Strategy recognizes the lack of a central SME institution to promote and co-ordinate SME policy measures and the weak private business support infrastructure as major challenges in supporting SMEs in Ukraine; furthermore, it aims to increase the contribution of SMEs to the national GDP to 60.5% by 2020, from 59% in 2015 and to reach the Top-30 of the DB global ranking by 2020. Its key directions include creating an SME Development Agency (SMEDA), improving the regulatory framework by reducing the regulatory burden and making administrative services more accessible and fast, and enhancing SME competitiveness.

Green SME development is one of the potential components of a future SME development programme. The Strategy emphasizes energy efficiency, which is considered to be one of the top priorities of Ukrainian SMEs[19], but also presents SME greening as a mechanism for increasing competitiveness and creating jobs. Other envisaged policy measures include awareness campaigns, green certification schemes, resource efficiency programmes and eco-industrial networks.

A.1.2) The baseline scenario or any associated baseline projects:

Baseline Scenario

As referred in the earlier section, the government of Ukraine is fully committed to set-up a conducive environment for innovation and SME growth, nevertheless legal system in in innovation is not harmonized and specialized support instruments and innovation infrastructure is not very effective[20].

The technological innovation priorities of Ukraine as stipulated by law are in the fields of energy and energy-efficiency, transportation in general, but also peculiar fields (rocket and space; aircraft industries; ship-building; armament and military technologies), new materials with emphasis on nano-materials, agro-industry, bio-medicine (medical services and treatment devices, pharmaceutics), cleaner production and environmental protection, and ICT & robotics. The understanding of innovation in Ukraine is very technology biased with limited awareness on a broader understanding of the concept of innovation (e.g. service innovation; business-model innovation; public sector innovation; social innovation).

Despite the rich scientific basis of Ukraine, the technological readiness level of the country remains average in international comparisons, especially in terms of foreign direct investments and technology transfer, technological absorption at firm-level and the availability of latest technologies (WEF Global Competitiveness Reports 2012-2016[21]).

Currently, there are no clean technology schemes available to identify the most promising entrepreneurs, promote innovations, provide adequate support and "de-risk" SMEs and new businesses in Ukraine.

The overall environment for entrepreneurship in Ukraine has many challenges; however, some entrepreneurs are succeeding in building globally successful ventures. Ukraine has improved processes for business formation, but licensing, permits, taxes, and corruption continue to be major problems. Ukraine's industrial structure with large non-competitive state-owned enterprises (SOEs), and high barriers to entry and exit, reduces opportunities for entrepreneurs. Poor insolvency laws and weak IP increase the risks for entrepreneurship.

[19] Result of a survey conducted among 400 SMEs within German-government funded project "Promoting better environmental performance of SMEs in Ukraine" in Poltava region in 2015

[20] https://www.unece.org/fileadmin/DAM/ceci/documents/2016/CECI/Presentations/Igor_Yegorov-Innovation-Ukraine.pdf

[21] http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2012-13.pdf

Ukraine has a small but promising group of innovative entrepreneurial companies that are focused on international markets. These high-growth potential firms have found ways to reach international markets, acquire venture capital (VC) financing and business advice, and find manufacturing partners. They have been aided by an informal mentoring network as well as the Ukrainian diaspora. These firms are strongly encouraged by their financiers and mentors to incorporate their companies overseas, where rule of law is stronger, managerial experience is available, and they can be closer to their leading markets (typically the United States and Western Europe).

Over 200 innovation programmes that are officially entitled to state financing were launched during the period 1998-2010. However, more than half have not received financing due to a lack of corresponding procedures during the parliamentary approval phase, together with the rigidities of state budgeting. The financing approved by the Parliament is therefore often not allocated for disbursement.[22]

The innovation strategy in Ukraine is founded on the Law of Ukraine «On Priority Directions of Innovation Activities in Ukraine». Due to the Law strategic directions up to 2021 are:

- Development of new technologies for energy transportation, introduction of energy efficient and resource saving technologies, and the development of new energy sources.
- Development of new technologies of high-tech of the transportation system, space rocket sector, aircraft and sea vessel construction, military equipment and ammunition production.
- Development of new technologies for production of materials, their processing and composition, and the creation of the sector of nanomaterials and nanotechnologies.
- Technological renovation and the development of the agro-industrial complex.
- Introduction of new technologies and equipment for high quality medical care and treatment, and pharmaceutical production.
- Proliferation of technologies for environment-safe production and protection of the environment.
- Development of modern information and communication technologies, and robotics.

MEDT in cooperation with International Trade Centre (the joint agency of the World Trade Organization and the United Nations) developed Export Strategy of Ukraine (the Strategy). In the Strategy, a set of criteria were used to preselect sectors: drivers of innovation and high-value-addition, potential for SME development and high demand in world market. Preselected sectors against their relevance towards the selected criteria are Chemicals, Educational services, Energy & solid biofuels, Pharmaceutical products, Titanium products, Aerospace, Construction services, Creative services, Medical services, Wood products, Tourism, Food industry, Light industry, Machinery, Transport & logistics, Information & Communication Technology.

Current structure of the innovation eco-system in Ukraine and its main stakeholders

A number of stakeholders in the innovation Eco system in Ukraine can play a significant role in ensuring the success of the GCIP in Ukraine. A partnership and close articulation with them will be of paramount importance in ensuring the alignment of the GCIP activities with the national priorities and the leverage of synergies thereby increasing the efficiency of the project. The key Stakeholders are;

The ***Verkhovna Rada of Ukraine,*** which creates a legislative base in the field of innovation activity, approves priority areas as a separate national program or as part of the Program of activities of the Cabinet of Ministers of Ukraine, installs committees for economic, scientific and technical, social development, and environmental protection, and determines within the limits of the state budget of Ukraine the amount of appropriations for the financial support of innovation activity.

The ***Cabinet of Ministers*** exercises public administration and ensures implementation of state policy in the field of innovation activity; prepares and submits to the Verkhovna Rada of Ukraine proposals on the priority areas of innovation activities; carries out measures on implementation of priority areas of innovation activities; promotes the creation of an effective infrastructure in the field of innovation activities; approves the provision on the procedure for state registration of innovation projects and the maintenance of the State Register of Innovative Projects.

[22] UNECE – Innovation Performance Review of Ukraine (2013)

The ***"Innovation Council"*** launched by the Cabinet of Minister in March 2018, aimed to become an effective tool of cooperation among the Government, entrepreneurs and the scientific community, as well as a platform for the development of important decisions in this area.

The Council has defined the medium-term priority directions of innovation activity of the national level for 2017-2021 that were approved by the Decree of the Cabinet of Ministers of Ukraine dated December 28, 2016, No. 1056, as well as the medium-term priority directions of the innovation activity of the sectoral level on 2017-2021 years were defined by the Decree of the Cabinet of Ministers of Ukraine (October 18, 2017).

Thus, the following areas of innovation activity are within the priority focus:

- Mastering of new technologies for energy transportation, introduction of energy-efficient, resource-saving technologies, and development of alternative energy sources.
- Mastering of new technologies for the high-tech development of the transport system (including alternative modes of transport, e.g. e-vehicles), rocket and space industry, air- and shipbuilding, armaments and military equipment.
- Mastering of new materials production technologies, their processing and connection, the creation of the nanomaterial industry and nanotechnology.
- Technological renewal and development of the agro-industrial complex.
- Introduction of new technologies and equipment for high-quality medical care, treatment, pharmaceuticals.
- Wide use of cleaner production and environmental technologies.
- Development of modern information, communication technologies, robotics.

The ***Ministry of Economic Development and Trade (MEDT)*** **and the** ***Ministry of Education and Science (MES)*** under the formal control of the Cabinet of Ministers of Ukraine, the Verkhovna Rada of Ukraine and the Administration of the President of Ukraine are responsible for coordinating the science, technology and innovation policy in Ukraine. MEDT has a specialized department responsible for investment, innovation and public-private partnership established as a result of the administrative reform.

MEDT is currently setting up an *"**Office for Innovation Support**"* which should be rolled-out in the second half of 2018. It is supposed to provide a "one-stop-shop" support to innovative businesses and entrepreneurs (e.g. setting up companies, marketing, promotion, but also financing support through local financing institutions, etc.) on a regional level, acting through the regional offices of line ministries.

The ***State Finance Institution for Innovations (SFII)*** is directly responsible for the implementation of innovation policy through the provision of financial instruments, full administrative support, co-investment and project management (https://www.sfii.gov.ua/home/). It provides financial support to economic entities of various forms of ownership within the framework of state innovation policy, conducts a competition of innovative and investment projects and programs, attracts funds for their financing and controls the effective implementation of them.

In accordance with the Order of the State Agency for Investments and Innovations of October 23, 2008 №88 "On Approval of the Procedure for the Formation and Use of State Innovation Finance and Credit Institution Funds" unless the Law on the State Budget of Ukraine does not provide another provision, funds received by the Institution from the State Budget of Ukraine are used to provide financial support to innovative actors for implementation of their innovative projects through:

- interest-free lending in full (on the basis of inflation indexation) of priority innovative projects;
- partial (up to 50 percent) interest-free lending (on the basis of inflation indexation) of innovation projects, provided that the rest of the necessary funds are raised to the project's funding by the project implementer and / or other innovation actors;
- compensation in full or in part of the interest paid by the subjects of innovation to banks and other financial institutions on loans granted for the implementation of innovative projects.

Later in 2018, the ***"National Innovation and Start-up Fund"*** is supposed to start operating in Ukraine. It will be managed by SFII and its budget makes up about UAH 50 million; according to estimates by the Cabinet of Ministers, this funding is supposed to cover about 80 most promising projects to be identified through a competition.

The ***Ministry of Ecology and Natural Sciences (MENR)*** is engaged in the formation and implementation of the state policy in the field of environmental protection, environmental and, within its competence, biological, genetic and radiation safety, waste management, pesticides and agrochemicals, rational use, reproduction and protection of natural resources, provides regulatory legal regulation the mentioned spheres and carries out technical inspections.

The ***State Agency on Energy Efficiency and Energy Saving (SAEE)*** implements the state policy in the field of efficient use of fuel and energy resources, energy saving, renewable energy sources and alternative fuels, ensures an increase in the share of renewable energy sources and alternative fuels in the energy balance of Ukraine, conducts state expertise on energy conservation and energy audit. In the field of commercialization of the results of scientific activities in developed countries, interest is shown by various structures and networks.

The **National Academy of Sciences of Ukraine (NASU)** is the key research and development systems of institutes of (nearly 200) and so-called sectoral research institutes. NASU is an independent entity but coordinates its activities with the Ministry of Education and Science (MES).

The institutes of the National Academy of Sciences often served as the basis for establishment of the most successful technological parks in Ukraine. To this end, it should be noted that the National Academy of Sciences of Ukraine has considerable impact on the policy-making process in science policy.

Sectorial research institutes and Universities that implement important research projects and have the objective to preserve their potential via adequate financing and modernization, as well as to ensure adequate innovation activity by improving cooperation with the private sector. The most relevant are:

The National Technical University "Igor Sikorsky Kyiv Polytechnic Institute" (with the Scientific Park "Kyiv Polytechnic", and the Innovative Sikorsky Challenge ecosystem), Taras Shevchenko National University of Kyiv (with the Science Park Kyiv National Taras Shevchenko University and a Start-up Business Incubator KNU), the National University of Life and Environmental Sciences of Ukraine (with the Scientific Park “Sustainable Use of Nature and Quality of Life”, and a Start-up Business Incubator), Mykolaiv National Agrarian University (with the Science Park “Agroperspectiva”), O.M. Beketov National University of Urban Economy in Kharkiv (with the Science Park «Naukograd-Kharkiv), V. N. Karazin Kharkiv National University (including an Innovation Center), and Lviv Polytechnic National University (with a Startup School - Startup Depot).

The ***Chamber of Commerce and Industry of Ukraine (CCI)*** provides practical assistance to entrepreneurs in conducting trade and economic operations on the domestic and foreign markets, and contribute to the development of exports of Ukrainian goods and services. The Chamber of Commerce and Industry of Ukraine is authorized to issue certificates on the origin of goods and the ATA carnets, to certify the circumstances of force majeure, as well as trade and port customs that have been introduced in Ukraine. At the Chamber there are sectoral committees of entrepreneurs who carry out an independent examination of normative legal acts regulating business and foreign economic activities, as well as expert examination on issues concerning the rights and interests of entrepreneurs, prepare proposals on behalf of the members of the Chamber for the authorities to improve them.

One of the results of the Chamber of Commerce and Industry of Ukraine is Ukraine's investment portal[23], which will promote the attraction of foreign investment in start-up projects and SME development.

The ***“Better Regulation Delivery Office” (BRDO)*** has been established in 2015 with the mission to promote the establishment of effective regulation and improvement of economic freedoms in Ukraine (with priority for small / medium businesses). They systematically review the existing regulatory field in the area of SME development, introduction of best regulatory practices for creating comfortable business environment and development of mechanisms for reform. BRDO’s experts have recently conducted a thorough study of energy efficiency and retail electricity market regulation. On its basis, a concept for the development of the market for e-vehicles including electric charging stations was developed[24].

[23] https://invest.ucci.org.ua/en

[24] https://cdn.regulation.gov.ua/5a/d7/a2/d7/regulation.gov.ua_Concept%20of%20State%20Policy%20Support%20for%20EV%20Chargers%20Infrastructure%202018-02-19.pdf

Baseline policies:

Thorough analyses were made about existing policies and laws of the Ukraine that are related to entrepreneurship, SMEs and innovation. It is also to be said that an excellent regulatory framework is available; nevertheless no explicit reference is made to the promotion of cleantech innovation. The project will be leveraging on the existing regulations A brief list with some elaboration is provided below:

- Law of Ukraine 'On Investment Activity' (18.09.1991 №1560-XII). This Law defines the general legal, economic and social conditions of investment activity in Ukraine. It is aimed at ensuring equal protection of the rights, interests and property of the subjects of investment activity, regardless of ownership, as well as effective investment of the national economy of Ukraine, development of international economic cooperation and integration. This Law defines the concept of investment activity, its objects, subjects, their rights and responsibilities. Defines the concept of "investment project", outlines the mechanism for its functioning and financing. Determines the conditions for foreign investors on the territory of Ukraine where a national regime for investment and other economic activities is established, as well as provisions on taxation of foreign investments and the acquisition of the status of enterprise with foreign investments by the enterprise;
- Law of Ukraine 'On Innovation Activity' (04.07.2002, №40-IV)
- Determines the legal, economic and organizational foundations of state regulation of innovation activity in Ukraine, establishes the forms of stimulation by the state of innovation processes and aims at supporting the development of the Ukrainian economy in an innovative way.
- Law of Ukraine 'On Scientific and Scientific Technical Activities' 11.10.2017, № 848-19
- This Law defines the legal, organizational and financial principles of the functioning and development of the scientific and technical sphere, creates conditions for scientific and technical activities, creates conditions for ensuring the needs of society and the State in technological development.
- For the development of science, technology and innovation activities, this Law provides the mechanism for creation of National Science Centres, the mechanism for funding certain scientific and technical programs, projects and giving the grants (full or partial interest-free lending of innovation and investment projects of production-oriented scientific institutions, full or partial compensation Percentage paid by industrial-oriented scientific institutions to commercial banks and other financial and credit institutions for lending innovative investment projects production-oriented (industry) research institutions).
- Law of Ukraine 'On Entrepreneurship' 7.01.1991, № 698-XII
- This Law defines the general legal, economic and social principles of entrepreneurial activity (business) of citizens and legal entities in Ukraine, establishes guarantees of freedom of entrepreneurship and state support for them.
- Creation of the national innovation support system of scientific developments on the basis of SFII.
- The Ministry of Economic Development and Trade of Ukraine initiated the creation of the national innovation support system of scientific developments on the basis of the State Financing Innovation Institution (SFII). In pursuance of this decision, SFII has recently announced the competition to select start-ups "Launching new mechanisms of state incentives for the creation and use of inventions (utility models), industrial designs".
- In 2018, the State Budget of Ukraine for the first time provided funds for the Innovation Support Fund in the amount of UAH 50 million (nearly US $ 2 million).

Baseline projects

There are already a number of projects addressing Sustainable Development that are implemented by the government, in cooperation with international organizations, including UNIDO.

The Ukraine-2020 Sustainable Development Strategy adopted in January 2015 sets forward ambitious goals in respect of economic reforms designed, among other things, to ensure sustainable economic development without depleting the environment, while the Action Plan for the implementation of the Ukraine-2020 Strategy proposes integrated solutions for reforming environmental management and monitoring systems. They include:

- gradual harmonization of Ukrainian legislation with EU directives as required by the Association Agreement (Chapter 6 on Environment);
- introduction of environmental impact assessment procedures with regard to plans and programmes as required by Directives 2011/92/EC and 2001/42/EC;
- introduction of the five-stage waste management hierarchy as required by Directive 2008/98/EC on waste and preparation of action plans in the area of waste management;
- increase in the share of utilization of municipal solid waste and maximizing reuse and recycling of such waste;
- introduction of the “polluter pays” principle and extended producer responsibility, in particular for packaging;
- reform of the system of pricing and tariff-setting for energy and fuels, revision of mechanisms ensuring the balance of energy, phasing out of cross-subsidies;
- creation of a government support mechanism to promote energy efficiency measures in residential buildings and state-financed organizations.

In addition, the Action Plan of the Cabinet of Ministers for 2016 aimed at supporting the implementation of the Ukraine-2020 Sustainable Development Strategy; the Implementation Plan of the EU Association Agreement contains a comprehensive package of tasks geared towards the green transformation of Ukraine’s economy.

These include energy performance improvements, energy market reforms, revision of subsidies for the population, improvement of housing and utility services, development of the renewable energy sector, carrying out of the thermo-modernization programme for the population, creation of favorable conditions for small and medium-sized businesses, modernization of the industrial complex and the system of support for agricultural producers. Reforms of environmental and taxation policies and the government procurement system should be aligned accordingly.

Efforts to provide financial support for innovation programs are also underway. There are number of national organizations with the function to facilitate innovation and seed money for start-up creation. The key players include the Risk Mitigation Fund, UKRGASBANK, TA Ventures. Other sources of project funding will include JSC "Ukreximbank" (Joint program of European Investment Bank and State Export-Import Bank of Ukraine on lending for small and medium-sized enterprises and institutions with average capitalization. Loans may be given to energy efficiency, environmental protection projects and other priority projects on the development of local private sector, mitigating and adapting to climate change, etc. (http://www.eximb.com/ukr/sme/loans/eib/), JSC "Oschadbank" (the Lending Joint Program with the European Investment Bank). A financial agreement has been concluded between Oschadbank and the EIB, the main purpose of which is to finance domestic small and medium enterprises, mid-cap companies and other priority projects (https://www.oschadbank.ua/ua/business/finansuvannya-biznesu/), Raiffeisen Bank Aval (has a number of innovative products for individuals and legal entities with their own operating businesses, in particular: financing of current activities, investment loans, partnership programs for farmers, guarantees of the Bank (https://msb.aval.ua/bank/loanss/investmentloans/).

UNIDO also has been playing and important role in strengthening the national competences in dissemination of cleaner technologies practices in the industry and in particular among small businesses, through a number of technical assistance programs. Some of them are:

- The *Ukrainian Resource Efficient and Cleaner Production (RECP) Centre*, established with the support of the UNIDO and with financial support from Austria and Switzerland. The RECP Centre conducts resource efficiency audits, provides related consulting services and training and promotes concessional finance. The Centre worked with almost 100 Ukrainian companies in sectors such as wood production, metallurgy and

machine building, food production, etc. Cleaner production in the chemical industry is one of its current priorities.

- The Project "Improving energy efficiency and promoting renewable energy in the agro-food and other small and medium enterprises (SMEs) in Ukraine" being implemented by UNIDO with financial support of the Global Environmental Facility (GEF) has provided assistance to the National Economic Universities of Kyiv, Odessa, Kharkov as well as the representatives of small and medium businesses to master and use COMFAR III Expert software tool for business planning and attracting investment, start-ups development, and supported the implementation of 15 environment-friendly demonstration projects.

Also a number of international cooperation programs are being implemented in Ukraine in the area of innovation, entrepreneurship and SME development, some of them are described below:

- **Horizon 2020:** it is the EU's biggest ever research and innovation framework programme, with a budget of €77 billion over seven years (2014-2020). The vast majority of this funding will be allocated on the basis of competitive calls which are open to applications from researchers, businesses and other interested organisations located in any of the EU Member States or countries associated to Horizon 2020, including the EU Neighborhood countries. In 2018, total, 505 Ukrainian organisations participated in the preparation of 915 project proposals in the field of scientific and innovation in response to the European Commission's call for proposals. The 83 organisations that were selected for the first wave of funding through Horizon 2020 are expected to receive around €17.6 million;

- **Strengthening small and medium enterprises business membership organizations:** The Project is implemented by UNDP in cooperation with the Ministry of Economic Development and Trade of Ukraine and with the financial support of the State Secretariat for Economic Affairs of Switzerland (SECO). Objective is to accelerate the development of the SME sector in Ukraine by strengthening the capacities of the BMOs, thus enabling more effective operation and the sustainability of these organizations in the medium to long term, better services to their members (SMEs) and reinforcement of public-private dialogue.

- **Innovation Support Project[25] :** implemented by World Bank and funded by the Swedish Innovation Driven Economic Recovery and Growth Promotion in Ukraine Trust Fund. Through this project, World Bank provided technical support to the MEDT and the Reform Delivery Office in the context of designing and setting up such an innovation agency (currently labeled as the Innovation Development Office) based on a request from the Prime Minister's Office;

- **Export Strategy for Ukraine:** the International Trade Centre (ITC) will develop the Export Strategy for the Ukraine with the financial support from GIZ as well as Ukrainian Ministry of Economic Development and Trade (MEDT). It follows the successful design and launch in 2017 of Ukraine's National Strategic Trade Development Roadmap, which provides the framework and main directions for Ukraine's foreign trade relations. Export generates over 50% of Ukrainian GDP and remains the driving force of economic growth of Ukraine. Seven priority sectors were selected during the national consultations for the development of Strategic Trade Development Roadmap of Ukraine. These are sectors in which value added is increasing and will help to further strengthen reforms and innovation. The Export Strategy project will help support export-oriented micro, small and medium-sized enterprises and other trade operators in the following priority sectors: information and communication technology; food and beverages; machinery; creative services, and; civil aircraft repair and maintenance. The Strategy will also help strengthen the export competitiveness of Ukrainian companies by boosting knowledge and skills in areas such as trade facilitation and logistics, innovation, and quality management.

GCIP Ukraine project will build on lessons learned from similar initiatives that have been successfully implemented by UNIDO with financial support of GEF in South Africa, Malaysia, Armenia, Morocco, Pakistan, and Thailand. This project will particularly address some of the key findings from the Thematic Evaluation of GCIP. The project will also link up and exploit synergies with other ongoing projects in Ukraine mentioned earlier, that promote SME and

[25] http://documents.worldbank.org/curated/en/126971509628933853/pdf/2-11-2017-14-55-6-UkraineInnovationandEntrepreneurshipEcosystemDiagnostic.pdf (accessed 24.07.2018)

innovation development, as well as economic growth with the focus on climate change mitigation. The GCIP approach and methodologies will build on the existing policies, established platforms and local experience, and will go a step further by focusing on innovative SMEs through and eco-system approach that will involve identifying start-ups, and nurturing, mentoring and incentivizing technological innovation to promote clean energy technologies and systems in selected SME clusters.

A.1.3) The proposed alternative scenario, GEF focal areas strategies with a brief description of expected outcomes and components of the project:

The proposed alternative scenario would be the implementation of the GEF UNIDO Cleantech Programme for SMEs in Ukraine. The project is part of the UNIDO/GEF global initiative that seeks to promote innovative environment friendly clean energy technologies in small businesses and SMEs. The project is in line with the National Policies of the Ukraine and GEF focal area priorities. Clean energy technologies developed and promoted as a result of the GCIP Accelerator programme will lead to reductions in overall national GHG emissions, and will contribute to Ukraine's sustainable green growth thereby addressing a global issue of climate change and national issues of energy security, employments creations, SME development and competitiveness.

Through its activities and continual articulation of the national government, the private sector and other relevant stakeholders, the GCIP project will contribute, to the mitigation of the above mentioned barriers in a holistic manner and the promotion of the development and deployment of clean energy technology innovations. It will also create a platform capable of linking Ukrainian entrepreneurs with investors, business, and commercial partners, with a view to promote commercialization and market adoption of innovations by strengthening the national innovation ecosystem, and by influencing investment and market trends for clean technology products and services**.**

The Role of the GCIP as a driver for SME support in the field of clean technologies innovations

The GCIP will build upon significant opportunities to enhance the level of innovation of SMEs in the area of cleantech by addressing the available potentials in the market. It will enhance and make use of governmental support initiatives within the current setting of the innovation eco-system and cooperate with national stakeholders and institutions in particularly the innovation promotion initiatives being promoted by the State Finance Institution for Innovations Agency of Ministry of Economic Development and Trade of Ukraine.

By promoting innovative green energy technologies for industrial applications in the energy intensive manufacturing SMEs, the project will contribute to the national goal by scaling up EE and RE technologies in the energy intensive manufacturing SMEs in the country

Key barriers to be addressed by the GCIP Project

The *key barriers* and challenges to the introduction and adoption of innovative clean energy technologies in Ukraine, as well as the development and growth of start-ups and SMEs are listed as follows:

1. Lack of technology innovation platforms specifically tailored for and targeted to clean energy technologies and SMEs;
2. Low contribution and dynamism of SMEs in clean technologies innovation and relevant market transformation and economic growth, along with high entry barriers for new enterprises;
3. Financial barriers, including limited government incentives to support industrial enterprises in the uptake of clean energy technologies, subsidies that hinder existent incentives, weak creditor rights for SMEs and limited awareness and coordination of existing schemes, requirements and procedures (i.e. poor SME financial literacy);
4. Limited technology transfer/ translational research between educational institutions and businesses;
5. Inconsistent vocational and managerial training to support growth by start-ups and entrepreneurs actively involved in cleantech innovations;
6. Lack of coordination amongst sectoral players on market intelligence research;
7. Insufficient dissemination of success stories and case studies of SME-led technology innovation, leading to persistent low attention to change and to high-risk/capability-gap perception;
8. Insufficient impact monitoring and evaluation of existent policies supporting entrepreneurship

In particular, it is expected that the GCIP project will address the major objectives of greening of the economy by contributing to:

- aligning and streamlining current policy incentives and instruments for creation of less resource-intensive sectors of the economy, new markets and new jobs;
- articulating national actors and promoting synergies in the promotion of cleantech innovation
- introduction of new energy efficient technologies and revitalization of innovation activities;
- higher labor productivity and business competitiveness through the efficient use of energy and resources and waste minimization.

To attain these goals, the project will support in the formulation of normative documents on economic incentives needed for entrepreneurs and SMEs willing to adopt and implement energy efficiency and renewable energy as well as resource efficiency technologies

Based on the earlier elaborated strategies and interventions, the project will result in global environmental benefits including reduction in carbon emissions and fossil fuel consumption. Furthermore, the nurturing of the nascent cleantech industry will lead to increased industrial competitiveness, job creation and cleantech market creation and expansion.

In addition, SMEs and start-ups nurtured through the GCIP Ukraine will be able to compete on the global market and connect to international potential investors, customers, and partners through the global GEF- UNIDO GCIP network. As at 2018, the global network consists of eight countries, including Malaysia, India, Armenia, South Africa, Turkey, Pakistan, Thailand and Morocco, and apart from Ukraine, Nigeria is expected to join in 2018/2019. The GCIP network has become a global flagship initiative of GEF-UNIDO in promoting cleantech innovation as a business model, thereby directly engaging the private sector to address environmental challenges. GCIP has been supporting and nurturing clean technology entrepreneurs around the world, and through the promotion of clean technology startups and SMEs, New innovative partnerships are underway to expand the GCIP Global Network to 20 -25 countries by 2021`.

Finally, the project is expected to leverage the comparative advantage of Ukraine to foster growth as promoter of clean tech established best practices in the region. Ukraine can play an important role in promoting innovation for clean technology and policy coordination for SMEs at the regional level. Neighboring countries therefore stand to gain from a regional approach that would foster an environment for entrepreneurship in clean technology, as it covers cross-cutting themes of innovation, as well as social and environmental sustainability through stimulating entrepreneurship, supporting job creation and promoting environmentally sound technology development.

Project Approach

The project will primarily aim to promote an innovation ecosystem in Ukraine by:

(i) identifying and nurturing cleantech innovators and entrepreneurs;
(ii) building capacity within national institutions and partner organizations for the sustainable implementation of the cleantech ecosystem and accelerator approach; and
(iii) supporting and working with national and sub-regional policy makers to strengthen the supportive policy framework for SMEs and entrepreneurs through south-south collaboration.
(iv) Accordingly, the project will, with a relatively minimal GEF grant, catalyze investment to support and accelerate start-up entrepreneurs toward the commercialization and development of their innovative concepts.[26]

To achieve this, the project will adopt an inter-disciplinary and multi-stakeholder "ecosystems approach" involving start-ups and SMEs, national ministries and institutions, academia and research centers, industrial associations, financing institutions, foundations, venture capitalists and utilities, etc. within Ukraine and abroad.

[26] According to the Global Cleantech Innovation Index 2012 Report, innovations, specifically innovation entrepreneurs, are identified as, "companies introducing incremental innovations; those transferring technological applications from one industry or geography to another; and those presenting business model innovations."

The project will closely coordinate with other similar national and international efforts as well as with other GCIP partner countries, to maximize synergies, knowledge and information exchange, as well as to facilitate market access and expand financing options. Particular focus will be given to promoting active interaction among the GCIP partner countries and strengthening the GCIP community at the global level, which is expected to result in the emergence of a strong and organic network among ecosystem players including entrepreneurs and investors. The project will also seek to collaborate with the UNFCCC Climate Technology Centers Network (CTCN) and the Private Financing and Advisory Network (PFAN), which are UNIDO hosted initiatives with expertise in supporting the technology innovation value chain.

The direct involvement of international experts and agencies will also be integral to ensuring exchange and transfer of international experiences and best practices in strengthening innovation and entrepreneurship ecosystems. GCIP has been in successful partnership with many international experts to date such as the Cleantech Open, a programme of the Los Angeles Cleantech Incubator, the Cleantech Group, the World Wild Life Fund for Nature, to leverage on their respective areas of expertise. In line with the overall approach of the GCIP in strengthening the ecosystem, UNIDO is continuing discussions with many other key partners working in the cleantech innovation space, to ensure that emerging economies are represented and contributing to the global innovation and entrepreneurship ecosystem, and will continue to leverage UNIDO's network of partners at national, regional, and international levels to further enhance GCIP's contribution and relevance in leading the catalytic growth of a cleantech industry through robust innovation and entrepreneurship ecosystems. Such partners currently in discussion include Carbon Trust, World Bank Climate Innovation Centers, EIT Climate-KIC, New Energy Coalition, UNFCCC Technology Executive Committee, among others.

The project will also be closely connected to the network of GCIP in other countries, as well as to the upcoming global coordination platform of the GCIP which is envisioned to be in place by 2019. The GCIP in Ukraine will build on the lessons learned from GCIP partner countries, and formal and informal networking and knowledge sharing will be facilitated to ensure that expertise and insights accumulated in other GCIP partner countries are also transferred to GCIP in Ukraine.

In the course of the Project preparation and the consultations with the top management of the MEDT and SFII, the parties agreed upon the partnership and cooperation on the creation in Ukraine of the ecosystem of innovative Start-ups, including the allocation of co-financing from the State budget.

Project Description

The project, in addition to creating an enabling policy environment and institutional capacity, will also assist Ukraine in the establishment of a supportive innovation ecosystem through the organization of annual Accelerator cycles; these will initially focus on industry-intensive regions before expanding to include other states/regions. The project will also link the innovation ecosystem of Ukraine to the global network of ecosystems in other GCIP partner countries, and also to a network of renowned innovation incubators and accelerator networks in Ukraine.

The project has three substantive components that are described together with outcomes and outputs in more detail below.

Component 1 – National cleantech platform to promote clean technology innovations for global environmental benefits and green jobs in Ukraine

In the formulation of this component, UNIDO experience gained under the successful GCIP projects implemented by UNIDO in other countries with the financial support from GEF has been fully leveraged. In Ukraine, the component 1 will be implemented in close cooperation with the SFII as a key partner jointly with the National Academy of Sciences of Ukraine (NASU), the Chamber of Commerce and Industry of Ukraine (CCI) and other sectorial research institutes, scientific parks and universities.

Outcome 1.1 - National level platform/coordinating mechanism established to promote clean energy technology innovations and entrepreneurship

The project will establish a national GCIP platform to raise awareness and promote and support clean energy technology innovations in start-ups and SMEs.

Output 1.1.1 - GCIP Ukraine platform established, 3 annual cleantech Accelerators conducted across selected SME clusters

In Ukraine, it is proposed to set-up a National Cleantech Platform at the SFII that would be supported by the respective ministries (MNER, MDET, etc.) and will be articulating closely with other government agencies, academia and private sector. In the long run, National Cleantech Platform in Ukraine will be integrated into SFII structure and serve as its mechanism in identifying and promoting cleantech innovations in the country.

In Year 1 of the project, the Project Management Unit (PMU) with the support from SFII will play a coordinating and execution role in the establishment of the national accelerator. Through an extensive and in-depth partner scoping, interest and capacity of national agencies and individual experts will be assessed in consultation with the MENR, MEDT and SFII, to operationalize the National Clean tech platform. During this time, expertise and lessons learned from other GCIP partner countries will be transferred to the GCIP Ukraine project. The SFII with the support of the PMU will act as the key coordinator and articulator in the initial stakeholder consultations that will determine the specifics of the GCIP Ukraine such as Accelerator categories. This will be done in close coordination and in parallel with the national ecosystem building efforts (output 3.1.1).

The specific methodologies and guidelines for participating in and conducting of the Accelerator will be adapted to the Ukrainian context based on the established GCIP methodology (developed by UNIDO and execution partners implementing GCIP Accelerators in other partner countries), in close cooperation with national counterparts. This will include a schedule, eligibility requirements, selection and identification criteria for the participants, competition rules and handbooks for applicants, mentors and judges. The level of innovation sought by the competition will be specified during the development of the selection criteria and guidelines as mentioned above. The national definition of start-ups and SMEs, as well as the definition for innovation companies will be incorporated into the selection criteria. These will define the scope and impact of the programme and will thus need to be clearly in line with national needs and priorities. The National Cleantech Platform of Ukraine will act as a key knowledge hub for all discussions surrounding this programme and ensure that the discussions are fully reflected in the execution of the national Accelerator cycle.

During Year 1, the project will conduct the first Accelerator, which will initially operate at the national level, with activities focused on, but not limited to, the areas with the highest concentration of cleantech start-ups. Typically, the first cycle will begin with clean energy technology categories such as Energy Efficiency, Renewable Energy, Waste to Energy, and Resource Efficiency with additional categories introduced in subsequent years based on national needs and advantages. The possibility of introducing Impact Categories, in lieu of Technology Categories, is being discussed in other GCIP partner countries, and based on consultation with stakeholders in Ukraine, the exact design of the categories will be determined in Year 1 of the project. To facilitate demand-driven solutions, Challenge Categories will also be designed in collaboration with partners (public and private) with willingness to invest in the identified solutions. The categories will be defined during Year 1 of the project, as part of output 1.1.1. “Challenge categories” will be also introduced to the Accelerator to promote demand-driven innovations with high commercialization potential, and the specifics of the challenges will be defined in consultation with partners with the intention to invest in the identified solutions.

The national annual Accelerator will be conducted in accordance with the global GCIP cycle (typically launched in March and concluding at the end of November each year) in total three times (once within years 1, 2 and 3). This will allow synergies among GCIP partner countries, and also ease of operation and coordination across countries.

It is expected that each competition will have around 50 to 100 entrants. Of these entrants, the panel of judges will select around 20 to 30 semi-finalists to receive support through the Accelerator as described hereunder. In the end, 10-15 finalists will be determined by the judges. The final winners of the competition will be selected by an independent panel of judges based on merit.

The scheme below shows the process of the GCIP Accelerator.

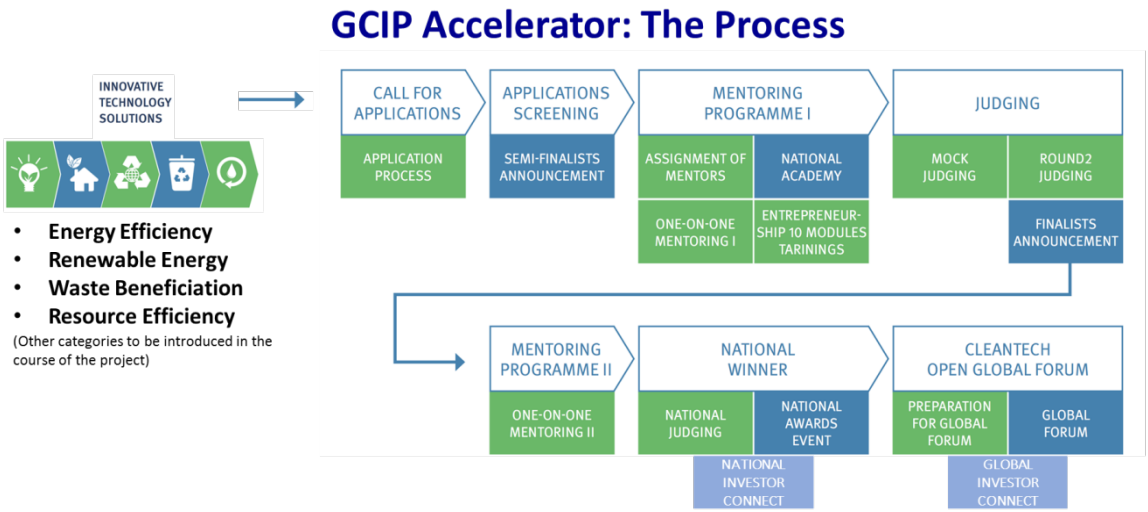

FIGURE 6: GCIP accelerator process

Output 1.1.2 - GCIP community and network maintained

Experience accumulated in other GCIP partner countries has shown the value of peer networking among start-ups within and outside of the country, across sectors and technologies. To facilitate continued networking among entrepreneurs during and after the annual Accelerator cycle, the best method of maintaining a GCIP network will be discussed during Year 1 of the project. A web platform will be developed, which will be an interactive online community for GCIP to be used from the beginning of the GCIP Accelerator cycle (call of applications and receipt of applications), during the Accelerator cycle (webinars, submission of assignments etc.), as well as after the Accelerator cycle for alumni companies and potentially investors (impact tracking post-Accelerator, investor matching etc.). The web platform will be a modern, user friendly, online system that empowers the National Cleantech Platform with local ownership of data and GCIP alumni with a sound networking tool. This web platform may be developed at the global level, with contribution from GCIP Ukraine and in collaboration with other GCIP partner countries, to also establish and maintain a global GCIP community. It is expected that hosting and ownership of the web platform will be responsibility of UNIDO and PMU in the initial years, with the intention to transfer ownership to a national executing entity (SFII) for sustainability purposes in Year 3 of the project. The web platform will be designed and built to facilitate interaction among GCIP stakeholders within Ukraine, as well as to facilitate connectivity with the global GCIP partner countries network. To this end, components of the web platform will be nationally owned, and the PMU and SFII will be requested to provide information and content for the web platform. In addition, an “offline” network manager is to be established coordinating the networking and communication activities among Ukraine (eventually the function of the PMU). Further details will be developed as part of output 3.1.3 of the project. The concept note for the international GCIP web platform is attached as reference.

The pool of experts that can act as mentors and judges for the GCIP Accelerator will also be a valuable asset for GCIP as well as for building a robust national cleantech innovation ecosystem in Ukraine. Therefore, GCIP will maintain a community of mentors and judges that can positively influence the cleantech innovation initiatives of Ukraine beyond the GCIP. GCIP will also seek to establish a robust network with national financial institutions and funds to raise awareness and sensitize various stakeholders on the opportunities and risks associated with cleantech products and market trends.

In addition to networking among stakeholders of the cleantech innovation ecosystem within Ukraine, the National Cleantech Platform will support and facilitate networking and community building at the global level in collaboration with UNIDO HQ and PMUs of other GCIP partner countries. This will include participating at international fora and events such as the UN annual Climate Conference, the Vienna Energy Forum, and GCIP Global Forum. In the past years, selected teams also attended the Cleantech Open Global Forum, organized in Silicon Valley to meet with the

national winners of the other GCIP national competitions and compete for the global prize. This will strengthen the relevance of the innovations and solutions identified by GCIP to the international climate and environmental challenges, and also will be beneficial in giving exposure of GCIP supported enterprises to investment opportunities across borders.

Networking among national PMUs as well as government agencies and counterparts has also proven to be a value added of GCIP as a global initiative. UNIDO has received requests from government counterparts to formalize the knowledge sharing among GCIP partner countries, and UNIDO is currently making efforts to respond to this request by establishing a formal coordination platform at the global level. This will allow a continuing dialogue among government counterparts on the best practices and lessons learned surrounding cleantech innovation and entrepreneurship and will contribute to south-south cooperation and learning.

In order to maintain the momentum of GCIP successes at the global level, the National Cleantech Platform in Ukraine will coordinate closely with UNIDO HQ and other GCIP platforms in connecting GCIP alumni enterprises and counterparts through systematic and continuous efforts.

This output will be conducted in close coordination with the GCIP global knowledge management platform to be developed by UNIDO and expected to be in place by 2019. UNIDO has been acting as the knowledge hub for GCIP, and UNIDO is currently making efforts to strengthen the knowledge management and exchange function by formalizing the process at the global level.

Outcome 1.2 Clean technology entrepreneurs identified, coached and promoted during and beyond the GCIP Accelerator

Output 1.2.1 Post-Accelerator support for start-ups and SMEs for access to finance and market entry

It is preliminary planned to ***select up to ten startups annually*** that are expected to be granted prize money primarily from the GEF grant.

Negotiations with relevant partners to provide seed funding to the project have been carried out with the State Finance Institution for Innovations (SFII, http://difku.gov.ua/en/pro-difku). Today, the key organizations to facilitate seed money for startup creation will be Risk Mitigation Fund, Ukrgasbank and TA Ventures. Key parties like venture capital funds and business angel networks[27] will be involved from the start.

In order to increase the scope and the impact of the project, financial support for specific prizes will be considered from parties including (but not restricted to) PJSC Ukrgasbank, Risk Reduction Foundation (http://rr-f.ch/en), and a number of venture capital providers which are already active in Ukraine, including:

- **Dekarta Capital** is a private equity and venture capital firm founded in December 2008 and specializing in early stage and growth equity investments in private companies. Today, Dekarta Capital manages the assets of a private fund equal to $100 million. The fund seeks to invest in all sectors with a focus on financial services, Internet, retail, distribution, media and technology.
- **TA Ventures** is a venture fund that invests in innovative projects in USA, Europe and Ukraine. They focus on investing in seed stage and on other stages of deals of tech companies.
- **AVentures Capital** is a venture capital firm. Via its in-house corporate fund, AVentures has since 2000 successfully co-founded and financed more than ten companies with total revenues exceeding US$1B. The firm's investment experience ranges across a variety of sectors, including retail, information technology, telecom, high tech, clean tech, real estate and others.
- **UANGEL** (http://uangel.com.ua) is a Ukrainian business "angels" network, providing platform for entrepreneurs to meet investors and for investors to locally and internationally syndicate. It's a closed group of high-net-worth individuals or entities interested in financing startups on their early stage of development. Attracts capital for the successful advancement and development of startups. Sets up relationships between entrepreneurs and potential investors.
- **Ukrainian Venture Capital and Private Equity Association (UVCA)** (http://uvca.eu/ua/about) - Works on promoting Ukraine's investment opportunities and expanding new investment opportunities and tools. Involves and supports investors and disseminates their successful practices and experiences. Assists in changing the legislation on improving business and investment climate in Ukraine.
- **Ukrainian Association of Business Incubators and Innovation Centers** (http://www.novekolo.info/en/about-ubica)
  Facilitates the practical implementation of entrepreneurship development programs by creating and supporting business incubators, techno parks, business support centers and other innovative types of businesses. Has experience in conducting training sessions and seminars for representatives of small and medium businesses. The Association has developed and implemented a model of network cooperation of the Association members and monitoring the activities of business incubators and business support centers.

In order to continue assisting start-ups and SMEs post-Accelerator, advanced investment and commercialization support will be provided to selected enterprises. This support will be open to all enterprises that completed the Accelerator and may also be applicable to non-GCIP alumni enterprises in exceptional cases if high-impact potential can be showcased. It is expected to be a cost-effective way to directly support and monitor growth of GCIP alumni enterprises. It will have the added advantage of removing the overemphasis on the competition aspect of the Accelerator, and allow all semi-finalists to focus on the added value and benefits of the entire GCIP process, especially in terms of trainings, networks, financial facilitation, etc. It is expected that through the post-Accelerator services, the enterprises will be supported to

[27] Angel networks are made up of angel investors, defined as individuals that provide capital to start-up businesses, that pool research and investment capital in order to achieve a broader scope.

the commercialization stage. Continued engagement of financiers including investors at national, regional and global levels will be a key aspect for this outcome.

The Project is also expected to establish cooperation with the EU Neighborhood Investment Facility (NIS), a mechanism aimed at mobilizing additional funding to finance capital-intensive infrastructure projects in EU partner countries which are covered by the European Neighborhood Policy (ENP) in sectors such as transport, energy, environment and social development. The NIF also supports the private sector, mainly through investment grants and risk-capital operations targeting small and medium-sized enterprises (https://www.euneighbours.eu/en).

- *Support for technology and product development for selected start-ups and SMEs*

For selected GCIP alumni enterprises, technology and product development support will be provided. Special focus in technology and product development support would be given to the innovations in energy efficiency, renewable energy, resource efficiency, internet of energy and cross-sectoral synergy in the priority sectors indicated in the Ukrainian National Innovation Strategy, namely ICT, agro-food, transport, logistics, machine building, metallurgy, aircraft, construction, waste management and chemicals. Technology and product development would be varied depending on the interest and needs of the region and GCIP in this regard would be organized in 4 geographical locations: Center, West, East and South regions of Ukraine. Through consultations with project stakeholders, the specific areas of technology and industry were identified for each of the region (Central, East, West and South).

A demand-driven approach shall be established to support businesses and start-ups in cleantech areas with highest market demand; it may also include collaboration with research institutions and universities within Ukraine and abroad. Partnerships will be explored with national agencies responsible for standardization and appraisal of product quality. In addition, GCIP will provide support in overcoming product related market entry barriers including protection of intellectual property (IP), product life cycle assessments etc. Findings from this output will also be closely coordinated with output 3.1.2 to strengthen the policy environment.

Leading universities in Ukraine are operating scientific parks such as the Scientific Park “Kyiv Polytechnic at the National Technical University "Igor Sikorsky Kyiv Polytechnic Institute" in Kyiv, the Scientific Park and Start-up Business incubator at Kyiv University of Taras Shevchenko, or similar institutions established at universities in Kharkov, L’viv or Mykolaiv, which could be sources of new clean energy technologies, emerging entrepreneurs and additional team members.

- *Support for investment facilitation and market entry for selected start-ups and SMEs*

In many emerging economies, high-impact and market potential cleantech innovations fail due to lack of access to financial resources. Therefore, GCIP will seek to establish a robust network with national financial institutions and funds to raise awareness and sensitize various stakeholders on the opportunities and risks associated with cleantech products and market trends. As part of the annual Accelerator, and also taking advantage of various investment and promotion opportunities in and outside of Ukraine, direct support for GCIP alumni enterprises will be provided to connect with potential investors, financiers, and tech scouts of large corporations. This could include half-day investors connect events co-organized regularly with partner corporations and government agencies to highlight opportunities for investment, loans, grants, technology adoption and partnerships.

GCIP will also explore targeted investment/financing vehicles at national and global levels and connect and select GCIP teams as appropriate. Furthermore, support will be provided for cross border expansion of selected teams, in collaboration with other GCIP countries.

Some pilot initiatives currently conducted under GCIP include the collaboration with the Private Financing Advisory Network (PFAN), and the Korea Financing Technology Corporation (KOTEC). Additional partnerships and synergies in Ukraine will be explored during the project implementation with such organizations, such as Greencubator, Bleyzer Foundation – an international, North Capital Holding Group, as well as other international potential partners.

In 2018, PFAN issued a call for applications specific to GCIP supported enterprises. PFAN is a UNIDO hosted initiative that brings institutional financing for scaling up of clean technologies at large scale for positive environmental impact. While PFAN traditionally facilitates investment in mature technologies, this pilot initiative will be a test case to assess the investment dimensions associated with investing in technology innovations. Based on the results and lessons

learned from the pilot exercise in linking GCIP and PFAN, a more systematic and institutional mechanisms to facilitate financing for scaling will be explored and established.

Also, in 2018, collaboration is ongoing with KOTEC to connect GCIP alumni enterprises with cleantech SMEs of Korea. The aim is to create joint venture opportunities across borders, to facilitate market expansion and product co-development. Such initiatives with national government agencies focusing on technology-based start-up and SME development will be also further explored.

As of March 2015, *Horizon 2020* is the first EU programme in which Ukraine has chosen to participate following the beginning of provisional application of the EU-Ukraine Association Agreement. This association to Horizon 2020 highlights that both the EU and Ukraine consider research and innovation crucial for economic growth and the creation of jobs. The agreement opens a wide range of new opportunities to Ukrainian research institutions, universities and businesses across the whole research and innovation value chain, from fundamental research up to close-to-market activities. For instance, Ukraine is able to host European Research Council (ERC) grants, apply for financial support to innovative SMEs, benefit from support for scientific excellence and other research policies and participate in the governance structures of the programme.

Component 2 – Building national capacity to support and promote clean energy technology innovations

The project component 2 will be implemented in collaboration with the State Finance Institution for Innovations (SFII) as key project partner in cooperation and the State Agency on Energy Efficiency and Energy Saving (SAEE). SFII capacities for managing, standardizing the GCIP processes and activities will be enhanced to ensure the sustainability of the established National Cleantech Platform though the continuous articulation and involvement of National Stakeholders.

Outcome 2.1 National institutional capacities built to support and organize the GCIP Accelerator during and beyond the project duration

To ensure long-term sustainability of the National Cleantech Platform and accelerator in Ukraine and the support to cleantech innovation ecosystem in the country, partners and stakeholders, including staff of SFII would be trained on best practices for management of the platform. Capacity building initiatives, among others, would include training of trainers on entrepreneurship, start-ups, knowledge management and exchange of information on best practices and a coordination mechanism including a specific focus on women entrepreneurs and participants.

Output 2.1.1 Capacity building of national institutions and industrial associations to host, support and sustain the GCIP, and 15 mentors and 10 judges identified and trained

The accelerator programme will follow the standard procedures of the GCIP network. It is a central aspect of the project and the mentoring that characterizes it aims to maximize every semi-finalist's chances of winning the competition, raising investment capital and of achieving sustainable commercial success. The mentoring programme consists of both mentoring methodology and training development. Each semi-finalist team will be matched with one "generalist mentor" and multiple "specialist mentors" based on mutual areas of interest and proper matching of team needs and mentor strengths. This 1-to-1 approach has proven to be a key comparative advantage of the GCIP methodology, and GCIP alumni companies have evaluated this as one of the most valuable features of the GCIP.

Generalist Mentors - A generalist mentor is the general coach, guide and advisor for the team, typically with extensive cleantech innovation or start-up experience. Often, generalist mentors are serial entrepreneurs and active investors who can become trusted advisors to and investors in the company once the competition has concluded. Mentors will be invited from universities having business development programs, national banks, investment companies, etc. Mentors are unable to join or invest in a mentee company during the competition cycle.

Specialist Mentors - A specialist mentor is an expert in a key functional discipline such as finance, marketing, engineering or law. They act as on-call subject-matter experts and may be from both large corporations and start-ups.

In Year 1 of the project, it will be important to assess Ukraine's pool of experts and practitioners that can serve as mentors and judges, and to gage the level of training and capacity building needed by the mentors and judges to provide optimal support for the semi-finalists during the Accelerator cycle.

To ensure the maximum impact of the Accelerator, the mentors and judges will receive training on the specific requirements of the programme, as well the opportunities it presents. In the initial years there may be reliance on international expertise in strengthening the capacity of mentors and judges in Ukraine. Through repeated execution of the Accelerator, knowledge transfer will occur to ensure capacity strengthening of the national mentors, and also to ensure that international expertise is fully contextualized as per the specifics of the Ukrainian context. This will not only be to the benefit of the entrepreneurs taking part in the programme but will also have a long-lasting impact on the capacity of the mentors and judges to strengthen the cleantech innovation ecosystem of Ukraine. Specific focus will be placed on successful women entrepreneurs and their participation in the programme.

The Project is expected to cooperate with the Union of Ukrainian Entrepreneurs (the largest union of Ukrainian entrepreneurs established to form a conducive business environment and popularizing innovations among representatives of small, medium and large enterprises in Ukraine (http://sup.org.ua). Cooperation will also be established with the Ukrainian League of Industrialists and Entrepreneurs (http://uspp.ua).

Possibility of engaging local students in business schools and MBA programmes to support the mentors as part of the mentoring team will also be explored. This will allow opportunities for business students to be exposed to the cleantech sector, and gain experience with business models that are specific to the cleantech industry, which is expected to contribute to the strengthening of the national cleantech ecosystem in the longer term.

The Project Management Unit will be responsible for documenting and localizing the training programmes for mentors and judges.

Based on experience in other GCIP partner countries, it is expected that a pool of at least 10 judges and 15 mentors will be trained and engaged in the annual Accelerator cycle.

Knowledge exchange and transfer among mentor/judge community of other GCIP partner countries will be encouraged and facilitated through the GCIP PMU in Ukraine, and UNIDO HQ.

Output 2.1.2 - Impact monitoring, advocacy and promotion

Dedicated resources will be assigned to track and monitor the business growth and environmental impact of the GCIP alumni enterprises, and to create content for promotion and advocacy purposes (news articles, social media posts, brochure and leaflets, videos etc.) that are tailored to diverse types of audiences (investors, national government agencies, donors, students). This will benefit both the GCIP alumni enterprises by providing increased credibility and visibility, and also the GCIP per se, by developing the tracking tools required to capture and communicate its impacts. The impact monitoring and capturing efforts in Ukraine will also be closely coordinated with efforts at the global level, to consolidate the impact of GCIP as a global initiative.

In particular, the methodology for calculation of global environmental benefits (GEB) such as GHG reduction potential of innovations will be refined, in order to track the expected environmental impact of the GCIP enterprises. All semi-finalists will receive training (as part of the Accelerator) to provide GEB estimation of their innovations. The methodology will be standardized across all GCIP partner countries to ensure uniformity and accuracy of the calculations.

The project will also undertake continuous outreach activities to raise the profile of GCIP as a leading initiative within the cleantech innovation and entrepreneurship ecosystem of Ukraine, as well as the profile of GCIP alumni enterprises, to ensure that they receive a high level of recognition and support once the programme has come to an end. Activities will include adapting the accelerator methodology and process to Ukrainian conditions, develop key performance indicators, monitor the process and yearly implementation of the accelerator programme and report back annual results to the Project Steering Committee (including high-level recommendations for policy makers); a communication strategy including briefing sessions, press releases, social media updates and advertising will be developed; the mix of these activities will vary in line with the local conditions.

The Accelerator consists of official launches, investor conferences (Investor Connect), the 3-day training programme known as the National Academy, Business Clinics, Mock Judging and specific activities, namely trainings, facilitating access to capital and showcasing best practices to academia and young entrepreneurs.

The leading universities in Ukraine will be a source of new clean technologies, emerging entrepreneurs and additional team members. The partnership will focus on supporting education on entrepreneurship in these universities (with a focus on clean technologies), developing case studies and co-hosting events. The aim is to have the universities encouraging and facilitating their students and graduates to enter the GCIP Accelerator. Primarily, the Project will cooperate with the universities of Kyiv, Kharkov, L'viv, Mykolaiv, which have already established their own business incubators and technology parks. At the same time, the students from other universities will be provided the opportunity to participate in the Cleantech accelerator programme.

A *National Innovation Conference* will be organized by the National Cleantech Platform to present the actual status of development of innovation in the country; it will report on the progress made against defined KPIs and provide the opportunity for the government to present its policy priorities to a larger audience.

Outreach activities will be supported by the local entrepreneurs, celebrities and/or earlier participants involved in similar programs or competitions. Outreach partners will include service providers (e.g. patent attorneys, accountants etc.), university departments and societies, including engineering, entrepreneurship and energy clubs, and organizations that are in frequent contact with entrepreneurs across numerous clean technology sectors (e.g. chambers of commerce, trade groups, entrepreneurship groups, inventors clubs, etc.).

Communications efforts tailored for investors (e.g. venture capital funds, angel investor networks, impact investors, etc.) will also be made to promote the profitability and impact potential of the cleantech businesses, thereby influencing the investment landscape for the cleantech sector.

The outreach efforts will be a means to increase awareness of the catalytic role of clean technologies as a business model in addressing climate change and environmental issues. As part of the extensive advocacy and post-competition follow-up, the winner and runners-up of each annual competition cycle, as well as other finalists, will be awarded during the annual National Innovation Conference and further on encouraged participating at regional and global events, to showcase their concepts and access the regional and international markets and investors. The regional winner from each year will be given the opportunity to attend global events and conferences to showcase their innovations.

The project will also undertake continuous outreach activities to raise the profile of the programme, as well as its alumni, to ensure that they receive a high level of recognition and support once the programme has come to an end. Activities will include briefing sessions, press releases, social media activity and advertising; the mix of these activities will vary in line with the local conditions.

Component 3 – Policy and regulatory framework strengthened for a national cleantech innovation and entrepreneurship ecosystem

GCIP Ukraine though its main Partner SFII, will seek a close cooperation and communication with the National Innovation Council (NIC), Ministry of Economic Development and Trade (MEDT) and Ministry of Education and Science (MES) in order to ensure continuous alignment of the GCIP interventions to national priorities and promotion of the claentech innovation principles at higher political level of the country.

Outcome 3.1 Policy and Institutional framework strengthened to promote and support clean technology innovations in startups and SMEs.

Policy component of GCIP is an integral part of its "ecosystems approach", and also of strategic relevance in ensuring that the outputs and outcomes of the project are contributing to the national priorities. This component will aim to inform the policy makers of how the innovation and entrepreneurship ecosystem can be supported by the government, and also identify the role of GCIP in supporting the government.

Output 3.1.1 Policy analysis report on the best practice policies, regulations and incentives required for the promotion of clean technology innovations developed

A "Policy analysis report" will be provided to define and detail the status and prospects of the development of key economic sectors attractive for Cleantech. The government may use the report to develop and implement a low carbon development strategy of Ukraine and facilitate the implementation of the low carbon development strategy of Ukraine, promote the development of expert potential and best practice dissemination, raising investment into energy efficiency

and renewable energy. Undoubtedly, the project goal is creation of the potential for low carbon growth, support to programmes of investments into energy- and resource-efficient technologies.

The project will assist in reviewing the existing policies and regulations relating to the promotion of clean energy technologies, innovation and entrepreneurship in order to identify those that need to be developed and/or improved, especially from the perspective of encouraging and supporting increased engagement and participation of SMEs. However, the Project will assist the government in updating of the concept introducing "Cleaner production" within Ukraine, first draft of which was developed in 2005. Additionally, the Project will support the government in development of policy instruments on innovation technology usage for the purpose of the adjustment to climate change.

The related policies and regulations can be those promoting the clean energy technologies of the competition categories, as well as those governing the protection of intellectual property rights, agreements on sponsorships, roles, responsibilities, and rights of different stakeholders involved in the GCIP Accelerator (competition organizer and entrants, sponsors, mentors, judges, etc.). These enhanced policies will help support the entrepreneurs that progress through the Accelerator Programme, as well as their sustainable commercial success beyond the project period.

Also, stakeholder mapping will be conducted in Year 1 to identify key institutions and persons driving/implementing to assess willingness and capacity to become direct project counterparts. Assessment of expertise, capacity, interest and priorities of key stakeholder institutions and persons to partner with GCIP Ukraine will be crucial in identifying project execution partners, and strategic partners.

Through continued stakeholder meetings, successes of GCIP alumni enterprises will be communicated to allow evidence-based dialogue on the innovation and entrepreneurship ecosystem as well as the investment landscape in the cleantech sector. The discussions from the stakeholder meetings will also become valuable inputs for the policy recommendations (output 3.1.2).

Output 3.1.2 Policy recommendations on how to enhance the clean technology innovation and entrepreneurship ecosystems developed and roadmap in place

Based on the assessment report (output 3.1.1), a roadmap to strengthen the national framework for clean technologies will be developed, specifying the key directions for an optimal government-led support scheme and mode of engagement of GCIP Ukraine – including directions of the policy framework, financial channels and improvement of investment climate defined together with existing innovation/entrepreneurship related initiatives.

The project will also assess the existing policies and regulations relating to the development and deployment of clean technologies in order to identify those that still need to be further developed and/or improved, especially from the perspective of encouraging and supporting increased engagement and participation of start-ups and SMEs. Once in place, the network of GCIP alumni enterprises will also become a valuable source of data, by conducting surveys on policy and regulatory obstacles encountered during commercialization efforts, including intellectual property rights and patents, agreements on sponsorships, company registration, etc. By assessing the actual hurdles of innovators, the project will focus its recommendations on those policies that affect the majority of innovators and entrepreneurs.

Experience in GCIP partner countries have shown that the policy related dialogue is best initiated when successes of GCIP alumni enterprises are visible. Therefore, for maximum impact and engagement, this output will be fully active in Year 2 or Year 3 of the project when policy makers have become aware of the GCIP as a successful approach to promoting the cleantech industry sector. The optimal modality to engage stakeholders and the type of policy recommendation to be developed, as well as the appropriate channels of communication and dissemination will need to be developed during implementation, and PMU will monitor the progress made continuously.

In 2017, the Global Cleantech Innovation Index- GCIP Country Profiles assessed the innovation landscape of GCIP partner countries by surveying the inputs to innovation and assessing the outputs to innovation. The GCII-GCIP report will serve as a valuable tool to support advocacy work for policies that support the development of innovation ecosystems for sustainable technologies.

Output 3.1.3 National institutional capacity strengthened for sustainability

To ensure the long-term sustainability of the innovation and entrepreneurship ecosystem in Ukraine, that includes the GCIP approach, the project will be implemented with consideration for a sustainability and exit strategy in all activities. This would entail continuous engagement of national executing partner and other stakeholders in all key activities of the GCIP. From Year 1 of the project onwards, the PMU will initiate discussion on which national entity will be best placed to absorb the GCIP including the Accelerator after the GEF funded phase.

The national executing partner will be trained on best practices for organization and implementation of the GCIP Accelerator. Capacity building initiatives, among others, will include on-the-job training from international consultants and local specialists, knowledge management, benchmarking of technologies, and coordination mechanisms. Knowledge exchange and transfer among other similar initiatives within Ukraine, as well as sharing of experiences from other GCIP partner countries will be facilitated with the GCIP Ukraine PMU, so that all project activities can be designed and planned with a sustainability perspective.

Component 4: Monitoring & Evaluation (M&E)

The monitoring of project progress is essential for the adequate and timely delivery of results. This project component covers project monitoring and oversight by UNIDO in close coordination with MENR, MEDT and other relevant government agencies. Initial activities under this component include the organization of an inception workshop, the definition of progress and impact indicators and the design of a detailed monitoring plan and methodology. Particular attention will be paid to gender aspects and gender mainstreaming throughout project implementation.

Outcome 4.1 Adequate monitoring of all project indicators together with regular evaluations to ensure successful project implementation

The project will involve continuous monitoring. However, monitoring expenses will be covered with co-financing budget. The final evaluations will be carried out by independent M&E experts. Any other interim evaluations will be conducted internally as per project requirements. An annual report and periodical newsletter on best practices, information on country level projects and key indicators of progress made under the project will be prepared and distributed to key stakeholders and agencies.

Output 4.1.1 Terminal project evaluation conducted

An independent final evaluation will be conducted three months prior to the terminal review meeting. The final evaluation will look at the impact and sustainability of results, including the contribution to the capacity development and the achievement of global environmental benefits. The final evaluation will also provide recommendations for the follow-up activities.

Output 4.1.2 Documentation of lessons learnt and best practices from pilot experience and dissemination

Methodologies and tools developed during the project implementation will be documented; the collated information will be used for better planning and decision making. After completion of each Accelerator cycle, the project performance monitoring will be conducted to study the technical, financial, environmental and socio-economic aspects of the clean innovative technology. Seminars will be organized and the project experiences will be disseminated to various interested stake holders in order to increase the replication potential of the project. Various tools, such as leaflets, website, etc., will be used for effective dissemination.

Methodologies/tools will be developed to use the collected information for better planning and decision making. Case studies will be prepared and presented to increase more investments in similar projects using the trained capacity that is created.

A.1.4) Incremental cost reasoning and expected contributions from the baseline, the GEFTF, LDCF/SCCF and co-financing.

As explained in baseline section, while the current business environment for cleantech SMEs and start-ups in Ukraine has started to develop, long-term and effective impact is being hindered by the limited connection between the support

available and the one required for a conducive environment for cleantech innovation and entrepreneurship. As such, the focus of the project is to support Ukrainian innovators and entrepreneurs to commercialize their products and services to transform the nascent cleantech market into a dynamic and vibrant one which will have a long-lasting positive effect in the national economy and the global environment. In order to achieve this goal, GEF funding is being requested to remove the present barriers that are currently hindering the local cleantech market for SMEs and start-ups. The total estimated investment is approximately USD 14 million (USD 1.5 million from GEF and around USD 12.2 million from co-financing). The GEF funding will be used to stimulate clean technology innovation in SMEs and facilitate the deployment of these innovative technologies. The GEF grant provided is approximately 25% of the total incremental cost of around USD 6 million needed for the clean innovative technology development.

The focus of the project on the promotion of commercially viable clean energy technology innovations in Ukraine will have lasting positive effects on the global environment, as well as the development of a dynamic and vibrant local market for clean technologies. As a result, the promotion of clean energy technology innovations will allow a balance to be struck between growing economic activity and its global environmental impact.

Without GEF's support, it is very likely that promising clean technology innovations will remain off the market as innovators and entrepreneurs lack the business and technical skills as well as financial means to fully develop and commercialize their products. Consequently, many opportunities to: (i) reduce GHG emissions; (ii) strengthen partnerships with the private and financial sector interested in clean technologies; and (iii) establish commercial ventures by cleantech entrepreneurs and innovators will not be materialized. The competition-based ecosystem approach of the project to identify the most favorable entrepreneurs across the country. In addition, it ran an accelerator programme that supported, promoted and "de-risked" the participating SMEs and start-ups and connected them to potential investors, customers, and partners. The success achieved so far under the GCIP provides a running setup and sound knowledge base; pool of innovators, lessons learnt and established partnerships as valuable inputs to be capitalized. As today's innovations will shape the economy, its competitiveness and the job market, more needs to be done to foster the expansion of SMEs and start-ups into environmentally responsible products, practices and services. As such, the new project will have a strong focus in providing post-competition services to maximize the support given to the GCIP alumni having a bigger impact in a very cost-effective way.

Regarding co-financing, the project will receive in-kind and cash support from different public institutions highlighting the high level of ownership and interest from national stakeholders. Public institutions that will provide co-financing include the Scientific Park of the National University of Life and Environmental Sciences of Ukraine (NULES), Institute of Renewable Energy under National Ukrainian Academy of Science, State Finance Institution for Innovations under Minister of Economic Development and Trade of Ukraine, UkrGasBank and Raiffeisen bank Aval. Scientific Park of NULES of Ukraine will provide in-kind contribution through conducting scientific and technical evaluation of the innovative ideas and startups in the amount of USD 40,000. SFII will support GCIP attracting finances in the amount of USD 1,8 million and providing in-kind contribution up to USD 100,000. Institute of Renewable Energy of National Ukrainian Academy of Science is ready to provide necessary facilities, equipment and office rooms for the project in the amount of 50,000 USD per year and 150,000 USD over whole duration of the project. While, UkrGasBank and Raiffeisen Bank Aval is going to co-finance cleantech innovations for SMEs in Ukraine in the amount of at least USD 6 mill. And USD 4 mill, respectively.

Even though, the GEF contribution will act as a trigger for the practical realization of innovative clean technology innovation and entrepreneurship in Ukraine, additional co-financing is essential to successfully reach the project objectives. GCIP will reach out to other potential partners including private enterprises and corporations, national and international financial institutions, venture capital and angel investors, etc.

A.1.5) Global environmental benefits (GEFTF), and adaptation benefits (LDCF/SCCF);

The long-term life cycle of the clean technology innovations introduced in the market and the strengthened and enlarged low-carbon culture advocated will be reflected in GHG emissions reductions. The reduction achieved through the implementation of this project will be measured and quantified on the basis of the innovations marketed and their uptake. Given the nature of the project, the low-carbon products that will be introduced in the market and the high potential for replication of the project's activities, GHG reductions can be achieved beyond the project life and scope.

Estimation of Global Environmental Benefits:

The reduction potential has been calculated based on the GHG emission reduction target submitted in the Intended Nationally-Determined Contribution (INDC) of Ukraine to a New Global Climate Agreementprojection, . The INDC projects by 2030, that the GHG emissions will not exceed 60% of 1990 GHG emissions level. Given the cross-sectoral impact of the innovative clean technologies, the project can contribute to the savings estimated under the top-down approachas in the case of other GCIP projects (Morocco, Pakistan, etc).

Thus, assuming the same data for 2028 as for 2030, GHG emissions in 2028 would be 545.6 mill. tCO2[28] eq., it is estimated that with 0.25% and 0.5% as the lower and upper bound the emissions in the range of 1,364,000. tCO2 eq to approximately 2,728,000. tCO2 eq will be reduced over a 10 year period.

The proposed GEF contribution of US$ 1,502,875 would result into a unit abatement cost (UAC) of US$ 1.1 per ton of CO2 and US$ 0.55 per ton of CO2 respectively.

A preliminary study conducted in 2017 collected data from 14 GCIP alumni companies based on data availability. The impact of these 14 companies showed 624 ktons of CO2e reduced, USD 23 mil of revenue generated, and 329 new cleantech jobs created. The growth and expansion potential of these 10 alumni companies by year 2020 are projected to be 4.8 Mt of CO2e reduced USD 263 mil of revenue generated and 1,219 new cleantech jobs created. While the accuracy of the preliminary data and calculation methods leave room for error, these projections show the exponential potential of the GCIP taking into account that there are over 580 companies that have graduated from the GCIP. Upon completion of the impact assessment exercise, a more accurate compilation of the impact achieved and impact projections will be available. Between 2014 and 2017, GCIP has supported over 850 enterprises.

A1.6) Innovativeness, sustainability and potential for scaling up.

Innovativeness

The GCIP is unique in its approach of fostering the expansion of SMEs and startups into cleantech products and markets. The GCIP supports entrepreneurs across the whole innovation value chain to develop demand-driven and investment-ready climate solutions that will have a real impact in the global markets. Keeping in view the high priority accorded to the innovative products and services, technology development and transfer, and capacity building of as critical components of the overall industrial strategy to address competitiveness of Ukrainian industry, the GCIP will primarily aim at promoting an innovation ecosystem approach to encourage the development and commercialization of innovative clean energy technology products in start-ups and SMEs in the country. In comparison with other incubator programmes, GCIP does not only promote innovation but also uses an innovative ecosystem approach that is cross-sectoral and multi-tiered to strengthen the national innovation and entrepreneurial sector by building capacity in national institutions, creating strong linkages between the most relevant ecosystem players and by raising awareness among them. Beyond this, the organization of the GCIP Accelerator will hand-hold startup entrepreneurs through the development process of the concepts and enterprises to ensure that their innovative concepts are sustainable and will have a real impact on the Ukrainian market.

Sustainability

To ensure that this intensive mentoring approach is sustained beyond the project implementation period, the project will conduct capacity building activities for the national counterpart institutions, and mentors and judges in the country. The project will adopt an inter-disciplinary approach; working with, Co-creation Hub and the platform for start-ups, the

28 http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/6th_national_communication%5B1%5D.pdf

project will involve SMEs, state ministries and institutions, academia and research centers, industrial associations and other relevant organizations and initiatives. The project will also closely coordinate with other similar international efforts as it is critical to share and document best practices and knowledge that can help in enhancing productivity in SMEs and at the same time, mitigating climate change. Please refer to output 3.1.3 that is dedicated to building of national institutional capacities for sustainability.

After completion of the GEF-funded phase, GCIP will be transferred to the national partner, the State Finance Institution for Innovations (SFII) (https://www.sfii.gov.ua), which will maintain it on the account of the allocations from the state budget, venture investments and investment funds. The use of GCIP methodology and approach, as well as the branding and logo will be transferred to the SFII, based on mutual agreement between UNIDO and SFII regarding GCIP related standards and quality assurance conditions that will be further discussed and expanded on. As a reference the results of the GCIP project in South Africa will be used as a best practice example for sustainability. GCIP has been transferred to the national counterpart the Technology Innovation Agency (TIA), and is conducted with full national ownership from 2018. This is a best practice example of sustainability. This learning and results would be taking into account while implementation of the GCIP in Ukraine.

Scaling up

Based on the previous experience of UNIDO's activities in Ukraine, in particular the announced and successfully completed tender competitions for the implementation of pilot projects under GEF-4 Programme, the Project will immediately start operating for the entire territory of Ukraine including rural areas.

In addition, the global nature of the GCIP will offer ample opportunity for the Ukrainian Programme to continuously expand, especially with the potential support of global sponsors, investors, etc. beyond the project implementation period. The Project is expected to establish efficient cooperation with the following programmes:

- **Ecosummit** (https://ecosummit.net) - Works on accelerating the introduction of smart green startups, involving investors and corporations for their development and distribution. They are working on automate sustainability in energy, mobility and cities.
- **InnoEnergy** (http://www.innoenergy.com/about-innoenergy/) - Works in three areas: training (delivery of training and workshops), innovative projects (development of projects and their support), support for entrepreneurs and new companies. Builds connections across Europe, bringing together inventors and industry, graduates and employers, researchers and entrepreneurs, businesses and markets.)
- **Startup Amsterdam** (https://www.iamsterdam.com/en) - Works on the development of new innovative projects, in particular on start-ups. Provides all-round support to start-ups, establishes contacts with potential investors for start-ups, entrepreneurs and new companies. Share their skills with other start-up cities, arranging skill-sharing conferences and programs.
- **Rockstart Smart Energy Accelerator** (https://www.rockstart.com/accelerator/smart-energy/) - Assists in creating, testing and expanding businesses, finding of the best product / market to expand internationally and ensuring their bankability. Helps to understand product design, market access and business models, by directly contacting relevant suppliers and other stakeholders in the energy sector. Supports the development of efficient and zero-consumption buildings with the use of sustainable energy and environment-friendly technologies.
- **Climate Launchpad** (https://www.rockstart.com/accelerator/smart-energy/) - One of the largest platforms in the world for green business idea contests. Works to stimulate world-wide potential for climate change through the introduction of innovations and new technologies. Provides support for startups with clean technologies, conducts training and workshops for startup entrepreneurs and has partners in more than 45 countries in the world.

This will provide the opportunity for the new project to enhance the traditional GCIP approach according to identified limitations by including post-competition services like investment facilitation and commercialization services as well as by expanding to categories with higher environmental impacts including sustainable cities, smart agriculture and food systems, low-carbon energy systems, etc.

The post-competition services aim at complementing the training provided during the acceleration process to maximize the ability of each supported alumni to reach the commercialization stage.

Furthermore, the institutional organizational structure that will be created by the project within SFII and experience gained by MNRE, MEDT and other institutions during the implementation of the proposed project will be shared with other countries in the region, in order to replicate the programme in these countries.

The recommendations and learnings from previous GCIP experience would be included, such as the terminal evaluation of the GCIP Armenia project[29] (2017) that documented lessons learnt and summarized recommendations for next steps. National Cleantech Platform/PMU should ensure the engagement of the national counterparts, namely SFII, national academy of science, and other institutions in their capacity building so that they can accompany the Cleantech startups beyond the national competition and generate results that serve as showcase for scaling up.

A.2. Child Project?

N/A

A.3. Stakeholders. Identify key stakeholders and elaborate on how the key stakeholders' engagement is incorporated in the preparation and implementation of the project. Do they include civil society organizations (yes ☒ /no☐)? and indigenous peoples (yes ☐ /no☒)? [30]

UNIDO is the implementing agency of the Project and is accountable for the GEF grant and other funding resources to be provided by the Government and private sector.

The project will build on existing Government initiatives and cooperate with major partners including Ministry of Economic Development and Trade, State Financial Institution for Innovations, Ministry of Ecology and Natural Resources, State Agency on Energy Efficiency and Energy Saving etc.

To ensure an efficient coordination and articulation, efforts will be made to involve the key stakeholders at three tiers (MACRO, MESO and MESO) in the execution of the project; however, new stakeholders and their roles may be added during project implementation.

TABLE 1: Project Implementation tiers- Key Stakeholders

Level	Partners	Role
MACRO LEVEL **Policy Making**	• National Innovation Council (NIC) • Ministry of Economic Development and Trade (MEDT) • Ministry of Education and Science (MES) • The State Finance Institution for Innovations (SFII)	• To contribute to the alignment of the GCIP interventions to national priorities and ensure an efficient and conducive regulatory environment • To support in the communication strategy

[29] https://www.unido.org/sites/default/files/2017-04/GFARM-120344_TE_report-2016_0.pdf

[30] *As per the GEF-6 Corporate Results Framework in the GEF Programming Directions and GEF-6 Gender Core Indicators in the Gender Equality Action Plan, provide information on these specific indicators on stakeholders (including civil society organization and indigenous peoples) and gender.*

MESO LEVEL **Institutional Capacity Building**	• The State Finance Institution for Innovations (SFII) • The State Agency on Energy Efficiency and Energy Saving (SAEE)	• To manage, standardise and adequate the GCPI process to ensure its sustainability by formulating policy making actions and stakeholders articulation. • To design the communication strategy
MICRO LEVEL **Local and target impact** **SMEs and Starts ups acceleration** **Industrial Clusters**	• The State Finance Institution for Innovations (SFII) • The National Academy of Sciences of Ukraine (NASU) • The Chamber of Commerce and Industry of Ukraine (CCI) • Sectorial research institutes, scientific parks, Universities, CSOs (Women Entrepreneurs Union, Greencubator, etc.)	• To support the communication strategy and identification of clean technology innovators

TABLE 2: Key stakeholders of the project

	Stakeholder	Envisaged role in the project
	Ministry of Economic Development and Trade (MEDT)	The Ministry will provide expertise in the development of up-to-date regulations and innovation ecosystems, attracting investment, creating the enabling environment for investment promotion, dissemination of best practices of the Project.
	State Financial Institutions for Innovations (SFII)	The State Finance Institution for Innovations (SFII) is directly responsible for the implementation of the national innovation policy through the provision of financial instruments. It is the major executing partner of the Project and provides co-investment for the Project activities. The project management structure will be also include a Project Steering Committee (PSC) which will be chaired by SFII and will provide overal strategic guidance and supervision of project implementation.
	Ministry of Ecology and Natural Resources (MENR)	The Ministry will provide support to component 'Strengthening policy and regulatory framework for the creation of a nurturing local innovation ecosystem', in particular, in the updating of the concept introducing Cleaner Production in Ukraine and scaling-up of the best practices in environment-friendly technologies.
	State Agency on Energy Efficiency and Energy Saving (SAEE)	The Agency will provide support to component 'Strengthening policy and regulatory framework for the creation of a nurturing local innovation ecosystem', in particular in the development of the concept of low-carbon economy of Ukraine, dissemination of best practices of the Project.
	The **National Academy of Sciences of Ukraine (NASU**	y research and development systems of institutes of (nearly 200) and so-called sectoral research institutes. NASU is an independent entity but coordinates its activities with the Ministry of Education and Science (MES). The institutes of the National Academy of Sciences often served as the basis for establishment of the most successful technological parks in Ukraine. To this end, it should be noted that the National Academy of Sciences of Ukraine has considerable impact on the policy-making process in science policy. Sectorial research institutes and Universities that implement important research projects and have the objective to preserve their potential via adequate financing and modernization, as well as to ensure adequate innovation activity by improving cooperation with the private sector.
Main Counterparts and Stakeholders	Universities and/or Academic institutions	The source of new clean technologies, emerging entrepreneurs, knowledge network, applied research collaboration and additional team members.
	SMEs/ Startups	SMEs and Startups will be the most important stakeholders and will be the main beneficiaries from the project's activities
	CSOs/NGOs	Partnerships with Industrial associations and clusters will be pursued and mechanism will be develop to leverage their outreach potential for organize sustainable awareness campaign and GCIP promotion.

	Stakeholder	Envisaged role in the project
		In addition, gender dimension would be promoted through partnerships with women entrepreneurs associations like the Ukrainian Woman in Business (http://www.ukrainianwomeninbusiness.com/) to raise the interest from women entrepreneurs by targeting explicitly their involvement in the project process. It is expected that GCIP alumni under the leadership of SFII will actively collaborate with the participants of the other cycles through the post-competition services offered such as, serving as mentors and GCIP ambassadors. Currently, there is a huge pool of national innovators available from the first GCIP project. Network for Global Innovation (NGIN) is a global membership organization that includes incubators, technology parks, research institutes, universities and corporations driven by a common mission to slow climate change and build economic wealth at the same time. It serves as a matchmaker between customer and company, between investor and opportunity.
	Private Sector/Investors	Targeted partnerships with national and European the private sector expected to enhance the potential for mobilizing financial resources required to support the development of the innovative technology into a product and for market entry through the investors connect events that would be organized during implementation .

Other key Stakeholders are:

1. The **Verkhovna Rada** of Ukraine, which creates a legislative base in the field of innovation activity, approves priority areas as a separate national program or as part of the Program of activities of the Cabinet of Ministers of Ukraine, installs committees for economic, scientific and technical, social development, and environmental protection, and determines within the limits of the state budget of Ukraine the amount of appropriations for the financial support of innovation activity.
2. The **Cabinet of Ministers** exercises public administration and ensures implementation of state policy in the field of innovation activity; prepares and submits to the Verkhovna Rada of Ukraine proposals on the priority areas of innovation activities; carries out measures on implementation of priority areas of innovation activities; promotes the creation of an effective infrastructure in the field of innovation activities; approves the provision on the procedure for state registration of innovation projects and the maintenance of the State Register of Innovative Projects.
3. The "**Innovation Council**" launched by the Cabinet of Minister in March 2018, aimed to become an effective tool of cooperation among the Government, entrepreneurs and the scientific community, as well as a platform for the development of important decisions in this area.
4. The **Ministry of Economic Development and Trade (MEDT)** and **the Ministry of Education and Science (MES)** (under the formal control of the Cabinet of Ministers of Ukraine, the Verkhovna Rada of Ukraine and the Administration of the President of Ukraine) are responsible for coordinating the science, technology and innovation policy in Ukraine. MEDT has a specialized department responsible for investment, innovation and public-private partnership established as a result of the administrative reform. MEDT is currently setting up an "Office for Innovation Support" which should be rolled-out in the second half of 2018. It is supposed to provide a "one-stop-shop" support to innovative businesses and entrepreneurs (e.g. setting up companies,

marketing, promotion, but also financing support through local financing institutions, etc.) on a regional level, acting through the regional offices of line ministries.

5. The **State Finance Institution for Innovations (SFII**) is directly responsible for the implementation of innovation policy through the provision of financial instruments, full administrative support, co-investment and project management (https://www.sfii.gov.ua/home/). It provides financial support to economic entities of various forms of ownership within the framework of state innovation policy, conducts a competition of innovative and investment projects and programs, attracts funds for their financing and controls the effective implementation of them.

6. The **Ministry of Ecology and Natural Sciences (MENR)** is engaged in the formation and implementation of the state policy in the field of environmental protection, environmental and, within its competence, biological, genetic and radiation safety, waste management, pesticides and agrochemicals, rational use, reproduction and protection of natural resources, provides regulatory legal regulation the mentioned spheres and carries out technical inspections.

7. **The State Agency on Energy Efficiency and Energy Saving (SAEE)** implements the state policy in the field of efficient use of fuel and energy resources, energy saving, renewable energy sources and alternative fuels, ensures an increase in the share of renewable energy sources and alternative fuels in the energy balance of Ukraine, conducts state expertise on energy conservation and energy audit. In the field of commercialization of the results of scientific activities in developed countries, interest is shown by various structures and networks.

8. The National Technical University "Igor Sikorsky Kyiv Polytechnic Institute" (with the Scientific Park "Kyiv Polytechnic", and the Innovative Sikorsky Challenge ecosystem), Taras Shevchenko National University of Kyiv (with the Science Park Kyiv National Taras Shevchenko University and a Start-up Business Incubator KNU), the National University of Life and Environmental Sciences of Ukraine (with the Scientific Park “Sustainable Use of Nature and Quality of Life”, and a Start-up Business Incubator), Mykolaiv National Agrarian University (with the Science Park “Agroperspectiva”), O.M. Beketov National University of Urban Economy in Kharkiv (with the Science Park «Naukograd-Kharkiv), V. N. Karazin Kharkiv National University (including an Innovation Center), and Lviv Polytechnic National University (with a Startup School - Startup Depot).

9. **The Chamber of Commerce and Industry of Ukraine** (CCI) provides practical assistance to entrepreneurs in conducting trade and economic operations on the domestic and foreign markets, and contribute to the development of exports of Ukrainian goods and services. One of the results of the Chamber of Commerce and Industry of Ukraine is Ukraine's investment portal, which will promote the attraction of foreign investment in start-up projects and SME development.

10. The **“Better Regulation Delivery Office” (BRDO)** has been established in 2015 with the mission to promote the establishment of effective regulation and improvement of economic freedoms in Ukraine (with priority for small / medium businesses). They systematically review the existing regulatory field in the area of SME development, introduction of best regulatory practices for creating comfortable business environment and development of mechanisms for reform. BRDO’s experts have recently conducted a thorough study of energy efficiency and retail electricity market regulation. On its basis, a concept for the development of the market for e-vehicles including electric charging stations was developed.

11. Network for Global Innovation (NGIN, www.ngin.org) is a global membership organization based in Los Angeles, USA that includes incubators, technology parks, research institutes, universities and corporations driven by a common mission to slow climate change and build economic wealth at the same time. It serves as a matchmaker between customer and company, between investor and opportunity.

12. **Greencubator,** founded in 2009, (http://greencubator.info/about/?lang=en). Greencubator is active in shaping favorable environment for entrepreneurship, low-carbon innovations and green economy development in Ukraine and Eastern Europe. The goals of Greencubator are to serve energy and climate innovators; to advance green entrepreneurship; to unlock energy freedom; and to empower communities to focus their activities on support to start-ups.

13. **The Alternative Energy Club** - a civil society institutions which aims at articulating the market players of renewable energy and energy efficiency segment in Ukraine and everyone who is interested in this topic (https://club.aew.com.ua).

A.4. Gender Equality and Women's Empowerment.

Elaborate on how gender equality and women's empowerment issues are mainstreamed into the project implementation and monitoring, taking into account the differences, needs, roles and priorities of women and men. In addition, 1) did the project conduct a gender analysis during project preparation (yes ☒ /no☐)?; 2) did the project incorporate a gender responsive project results framework, including sex-disaggregated indicators (yes ☒ /no☐)?; and 3) what is the share of women and men direct beneficiaries (women 40%, men 60%)? [31]

Gender Mainstreaming at UNIDO

UNIDO recognizes that gender equality and the empowerment of women have a significant positive impact on sustained economic growth and inclusive industrial development, which are key drivers of poverty alleviation and social progress. Commitment of UNIDO towards gender equality and women's empowerment is demonstrated in its policy on Gender Equality and the Empowerment of Women (2015), which provides overall guidelines for establishing a gender mainstreaming strategy that:

- Ensures that a gender perspective is reflected in its programmes, policies and organizational practices;
- Advances the overall goal of gender equality and the empowerment of women, particularly the economic empowerment of women;
- Benefits from the diversity of experiences and expertise within the United Nations system to advance the internationally agreed development goals related to gender equality and the empowerment of women;
- Accelerates the Organization's efforts to achieve the goal of gender balance, in particular at decision-making levels.

At the operational level, UNIDO has developed an energy-gender guide to support gender mainstreaming of its sustainable energy programmes and initiatives at all stages of the project cycle. In addition to introduction of basic concepts and strategic approaches, it also includes tools that can be used at relevant points of the project cycle to guide the thought processes and activities. These tools include:

- Gender categorization tool, which assesses how much direct impact the project will have on gender dimensions;
- Gender mainstreaming check list, which summarizes key considerations which must be considered during project development;
- Gender analysis tool which provides specific questions that can guide the project developer in considering gender dimensions of a project, before full gender analysis is conducted by an expert;
- Gender mainstreaming the project cycle tool, which lists key activities to be considered at each step of the project cycle;
- Gender indicator framework that encourages results-based management by indicating potential gender dimensions and quantitative indicators for specific energy interventions.

To ensure that all projects consider gender dimensions from inception, UNIDO has also integrated a robust gender review as part of the project appraisal process both at technical and organizational level.

Gender dimensions of the proposed project

[31] Same as footnote 8 above.

This intervention in Ukraine is expected to have limited direct influence over gender equality and/or women's empowerment in the country and therefore could be classified as a project with "limited gender dimensions"[32] according to the UNIDO Project Gender Categorization Tool. Nevertheless, UNIDO recognizes that all energy interventions are expected to have an impact on people and are, therefore, not gender-neutral[33]. In fact, due to diverging needs and rights regarding energy consumption and production, women and men are expected to be affected differently by the project (in terms of their rights, needs, roles, opportunities, etc.). Therefore, regardless of the project's gender category, the project aims to demonstrate good practices in mainstreaming gender aspects into cleantech innovation projects, wherever possible, and avoid negative impacts on women or men due to their gender, ethnicity, social status or age.

An in-depth gender assessment will be conducted during project implementation to measure social, economic, and environmental impacts of the project and nearby communities. During the formulation of the project document, a preliminary gender analysis of the country context has been conducted, based on which potential gender dimensions of the project outcomes and outputs, as well as potential entry points for gender equality and women's empowerment (GEEW) were developed and incorporated into the project logical framework. Key gender dimensions of the project outcomes and outputs as well as potential gender-relevant indicators are provided in the logical framework in Annex A. These proposed gender dimensions will be used as a guide during the implementation of the project as well as during M&E.

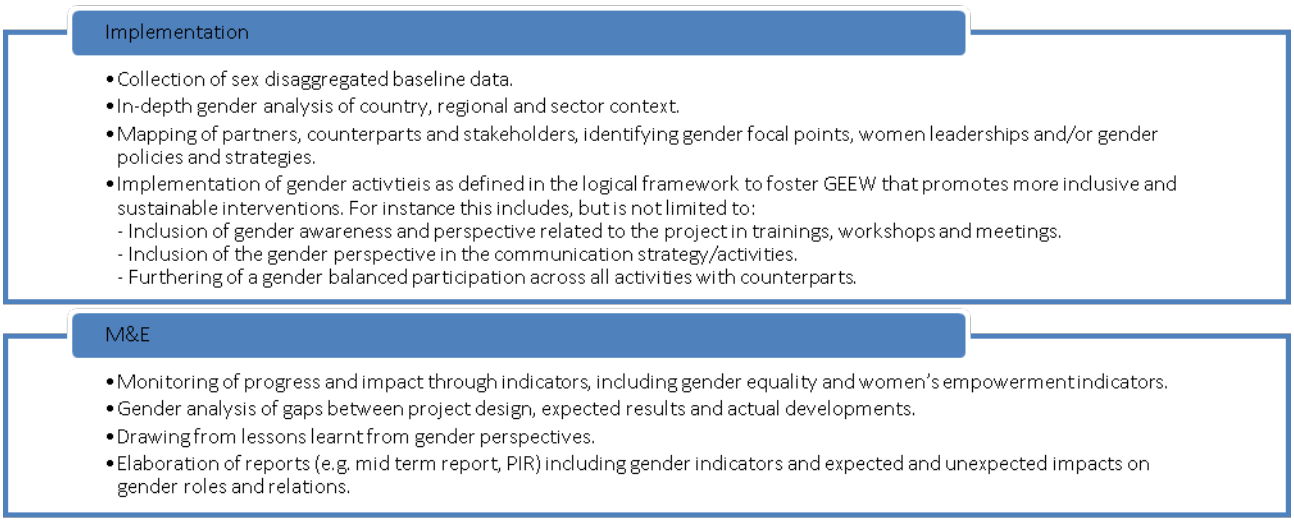

FIGURE 7: Gender mainstreaming of the project cycle

Project gender mainstreaming strategy

Guiding principle of the project will be to ensure that both women and men are provided equal opportunities to access, participate in, and benefit from the project, without compromising the technical quality of the project results.

In practical terms:

- Gender-sensitive recruitment will be practiced at all levels where ever possible, especially in selection of project staff. Gender neutral TORs will be used to mainstream gender in the activities of consultants and experts. In cases where the project does not have direct influence, gender-sensitive recruitment will be encouraged. Furthermore, whenever possible the existing staff will be trained and their awareness will be raised regarding gender issues.

[32] This would require the project to ensure at least 40% of the project outputs have clearly identified activities promoting gender equality and/or the empowerment of women, including gender-responsive indicators and a corresponding budget OR at least one indicator in each project output refers to gender in some way. Please see also "Gender Categorization Tool"

[33] ENERGIA "Turning Information into Empowerment: Strengthening Gender and Energy Networking in Africa. Leusden, 2008; Joy Clancy "Later Developers: Gender Mainstreaming in the Energy Sector", 2009

- All decision-making processes will consider gender dimensions. At project management level, the identified CSO/NGO will be a member of the Project Steering Committee (PSC) to ensure that gender dimensions are represented. Also, at the level of project activity implementation, effort will be made to consult with stakeholders focusing on gender equality and women's empowerment issues. This is especially relevant in policy review and formulation.
- To the extent possible, efforts will be made to promote participation of women in training activities, both at managerial and technical levels, as participants and trainers. This can include advertising of the events to women's technical associations, encouraging companies to send women employees, selection of the trainers, etc.
- When data-collection or assessments are conducted as part of project implementation, gender dimensions will be considered. This can include sex-disaggregated data collection, performing gender analysis as part of Environmental and Social Management Plan (ESMP), etc.
- Efforts will be taken to consider at least 40% women participation in all activities of the project.

A.5 Risk.

The main risks, their rating and mitigation strategy for the project are listed below:

TABLE 3: Project risks and mitigation strategy

Risk	Rating	Mitigation
INSTITUTIONAL RISK (Lack of capable and relevant institutional partners for project execution and sustainability)	Low	During the first 6 months of project implementation and based on the capacity assessment of the PPG phase, UNIDO will directly involve the key relevant institutions and partners of the project to establish working relations and collaboration. UNIDO will also ensure that such key institutions and partners will be closely engaged in the project implementation process. Furthermore, the project will draw from expertise and long-standing experience from methodologies and tools of the GCIP partners network. Additionally, efforts will be made to embed in the capacity building activities principles and instruments from quality management system based on ISO 9001:2015. To ensure that the three tiers cooperation for cleantech innovation is embedded in the Ukrainian Institutional Management Culture The project will work with Ukrainian institutions that have some or substantial experience in setting-up and operating technology competitions or competitive grant funding programs.

Risk	Rating	Mitigation
MARKET RISK (Lack of interest by the public and industrial associations in participating in the Cleantech competition and Accelerator programme as entrepreneurs and mentors, resulting in limited participation, or entries with low quality, especially in the first years)	Medium	Proper communication programmes will be prepared and implemented with adequate resources allocated to ensure effective and widespread communication of the Cleantech programme; tailored workshops will be carried out to support this. Effective support will be provided to innovative SMEs/entrants. User-friendly entry forms will be prepared. Mentors will be identified through stringent selection criteria and an assessment of their ownership of the competition shall be determined at an early stage. Partnerships with the GCPI network and with Innovation programs in EU will be firmly pursued.
FINANCING RISKS (Incentive and financial support system are insufficient)	Low	According to the IMF, in 2017 the country recorded a 2% GDP growth and a 12% annual inflation rate. Estimates for 2018 forecast a 3.2% growth and 10% inflation. On the other hand, public debt increased to 86.2% of GDP in 2017, from 81, 2% in 2016. Considering challenging economic situation and potential financial risks in the country, project would seek to explore international investments and funds, such as North Capital Holding Group, Bleyzer Foundation and others. In addition, an active articulation with global and EU financial partners of the Global GCIP network will be pursued as well with new partnerships with European institutions and synergies with EU ongoing programs such as HORIZON 2020. Additionally, the project will also promote the access of the GCIP Accelerator semi-finalists and finalists to government funded support programs and initiatives for SME development and technology modernization and innovation
CLIMATE CHANGE RISKS	None	There is no climate change risk foreseen for the achievement of the project's objectives; this will be further assessed in the ESS analysis and an ESMP

Risk	Rating	Mitigation
SOCIAL AND GENDER RISK There could be a risk of resistance against the involvement of women or activities that promote gender equality and empowerment of women or there could be a lack of interest in, the project activities from stakeholders, especially with regard to the active promotion of gender equality. Low participation rates of suitable female candidates due to lack of interest, inadequate project activity or missing qualified female population within engineering sector.	Low	To mitigate this risk the project will pursue thorough and gender responsive communication showing the benefits of gender equality for both women and men, and ensure stakeholder involvement at all levels, with special regard to involving women and men, as well as CSOs and NGOs, and gender experts. This shall mitigate social and gender related risks, promote gender equality, create a culture of mutual acceptance and understanding, and maximize the potential contribution of the project to improving gender equality in the energy field. To attract qualified female candidates to the project, adequate and gender responsive communication strategy will be carried out by reaching out to women's groups and creating partnerships with women associations, like the Ukrainian Women in Business. This will enable to promote the GCIP activities with flexible tailored actions among women entrepreneurs and innovators.

A.6. Institutional Arrangement and Coordination.

UNIDO is the only GEF Implementing Agency involved in this project and thus no specific arrangement with other GEF Agencies is required or envisaged. As the GEF Implementing Agency, UNIDO holds the ultimate responsibility for the timely implementation of the project, the delivery of the planned outputs and the achievement of the expected outcomes. Execution of the project on the ground will be the responsibility of the Project Management Unit (PMU).

As a GEF implementing agency, UNIDO will maintain the oversight on the project implementation, manage the overall project budget and supervise the project execution. In addition, as agreed with national counterparts, UNIDO will provide execution support for the procurement of goods and services, as well as recruitment of technical experts.

At the National Level, the envisaged project coordination strategy foresees an intervention at three levels, both, top-down and from bottom-up to support the Verkhovna Rada of Ukraine in providing the framework conditions for introducing cleantech innovations in the country, and to leverage innovative ideas at the level of entrepreneurs and SME businesses within the GCIP support and acceleration scheme.

1) *Top-down:* Policy-level intervention will be coordinated by UNIDO and among national stakeholders (Verkhovna Rada, Innovation Council, relevant ministries and representatives from Academia, Chambers etc.) within the Project Steering Committee (PSC), providing strategic guidance to the national innovation eco-system and addressing high-level priorities and strategies towards cleantech innovation.

2) *Project Coordination* and institutional support towards MEDT and SFII: UNIDO and its main stakeholders at governmental level, MEDT and SFII, will act as implementing partners and will set up a Project Management Unit (PMU), which will manage and review current strategies, suggest recommendations to PSC for policy-level improvements, and increase the capacity of SFII as a national fund and implementing agency on behalf of the Government of Ukraine.

3) *Bottom-level project support:* capacity will be built to support innovative SMEs and entrepreneurs in accelerating their business ideas and clean technologies and mentor and promote them during and beyond the Cleantech programme. The GCIP programme activities will be organized and implemented within four project components each resulting in major outputs. MEDT empowered SFII to implement the program of support for start-ups in Ukraine, and it is therefore envisaged that SFII will take the lead in sustaining and expanding the Cleantech Competition and Accelerator programme after the completion of the present project.

Project Steering Committee (PSC)

The PSC will be established under the Chairmanship of SFII consisting of all relevant stakeholders (key stakeholders including MENR, MEDT, SFII, SAEE, Associations, Academic Institutions, SMEs, private sector representatives and UNIDO) for providing strategic guidance and review of project progress. The PSC will be established. Representatives from institutions involved in the different project components will be members of the PSC. It will also facilitate co-ordination among project shareholders and maintain transparency in ensuring the ownership and to support the sustainability of the project. PSC will be responsible for linkage to the recently established “Innovation Development Office” and Innovation Council (at the Cabinet of Ministers)

- Providing strategic guidance in line with the country’s needs and priorities;
- Promoting partnership among stakeholders;
- Reviewing project progress reports;
- Approving the work plan based on this project document;
- Initiating remedial action to remove impediments in the progress of project activities that were not envisaged earlier.
- Monitoring the efficiently and synergetic articulation of the interventions among the three component and three tiers intervention levels

The PMU will act as the Secretariat of the PSC; the PSC will provide strategic guidance according to national imperatives and market needs. In addition to the PSC, a technical advisory group (TAG) will be established to host national and international experts and stakeholders to advise on the cleantech innovation priorities and criteria,

sectoral and technology focus of the GCIP Accelerator and act as a key networking platform on the national level. The TAG will be also addressing key policy-making support and high-level decisions required from the PSC.

Project Management Unit (PMU)

As the GEF Implementing Agency, UNIDO holds the ultimate responsibility for the timely implementation of the project, the delivery of the planned outputs and monitoring of the achievements o the expected outcomes. The project manager, in close coordination with the National Programme Coordinators, will initiate the procurement and recruitment actions and manage the working of the project. Execution of the project on the ground will be responsibility of the PMU. The PMU, under the supervision of the UNIDO project manager with the technical input from the Network for Global Innovation (NGIN, USA) and in close consultation with SFII, MNER, MEDT, NASU and other national partners, will be responsible for the daily management of the project execution. The PMU will consist of the National Project Coordinator (NPC, ISA contract) and a Project Assistant (PA, ISA contract). It is expected that one expert will be dedicated to communication and integration with national and foreign Start-up-platforms and attracting investments, in order to prioritize post-Accelerator support on a daily and continuing basis under component 2 of the project, especially output 2.1.3., a second expert will deal with Start-up business planning and a third expert with supporting the coordination and articulation with policy makers. All experts will also be part of the PMU.

The PMU will be funded in part by the GEF budget as well as in-kind funding and co-financing from the project counterparts. During the implementation period of the project, UNIDO will provide the PMU with the necessary management and monitoring support. UNIDO will closely coordinate project activities with relevant ongoing initiatives to ensure maximum synergies in the area of climate change mitigation in the country. It is also stated here that full or partial title and ownership of equipment purchased under the project may be transferred to the national counterparts and/or project beneficiaries during the project implementation as deemed appropriate by the UNIDO Project Manager in consultation with the project stakeholders.

The PMU will be hosted in one of the offices of the National Academy of Sciences, and responsible for the day-to-day management, monitoring and evaluation of project activities as per an agreed annual project work plan. The PMU will work closely with the State Financial Institution for Innovations and other beneficiaries

The PMU will coordinate all project activities being carried out by project national experts and partners. In the initial stages, UNIDO is expected to take the lead in delivering execution services, however to ensure sustainability, execution responsibilities will be gradually transferred to the national execution partner.

A schematic representation of the project implementation arrangement is shown in the table 8 below.

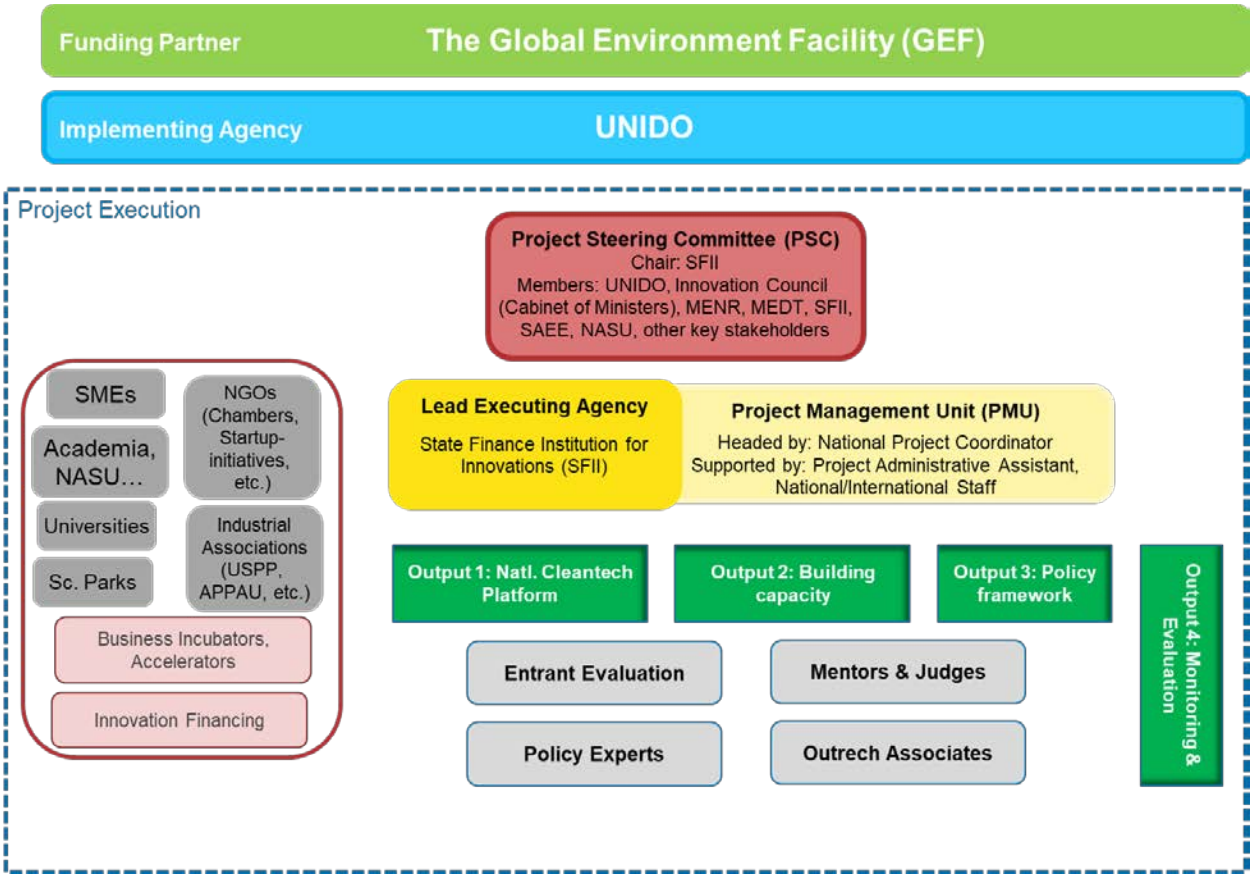

FIGURE 8: Project implementation arrangements

Coordination

The GCIP Ukraine will benefit of a global as well as domestic cross –sectorial and multi stakeholders coordination and synergies. SFII will act as a main executing partner and will provide assistance with coordination of all the execution activities, as well as discussions and cooperation with government entities on all tiers.

Based on the UNIDO experience in conducting GCIP since 2011, and it will be facilitating knowledge management among the GCIP partner countries to enable south-south cooperation and information sharing and exchange. Building on lessons learned, UNIDO will continue to ensure the facilitation of knowledge management and sharing among GCIP countries and the GCIP Ukraine. In addition, the project will benefit of the UNIDO is currently efforts to establish a formal coordination platform for GCIP at the global level to strengthen the knowledge management and thought leadership function.

Close coordination with the other countries of the Global Cleantech Innovation Programme will be regarded as a priority. Since GCIP has become a global brand, it is necessary to guarantee a certain level of quality and uniformity to maintain the reputation of the programme, even if each project is adapted to the local circumstances and needs. As such, PMU of GCIP partner countries will regularly meet to exchange knowledge and explore potential synergies. Learning opportunities will be sought through shared training programmes for the PMUs as well as their active participation in national and international events. It is expected that from these systematic exchanges, good practices and new features introduced in one programme can be transferred to others enhancing the project on a regular basis.

The project will procure technical assistance services from NGIN in organizing accelerators, providing the training, coaching and mentoring and other project related activities. NGIN is a global membership organization that includes incubators, technology parks, research institutes, universities and corporations driven by a common mission to slow climate change and build economic wealth at the same time. It serves as a matchmaker between customer and company, between investor and opportunity.

The project will seek to strengthen the collaboration with the Private Financing Advisory Network (PFAN) – a multilateral public private partnership – that identifies and nurtures promising, innovative clean and renewable energy projects by bridging the gap between investors, clean energy entrepreneurs and project developers. As such, GCIP will offer PFAN a pipeline of mature start-ups that are ready for investment. Moreover, coordination with ongoing in-country initiatives (accelerators and incubators) will also be undertaken by the project to maximize impact and avoid any overlap of activities. Considering the new impact categories, the proposed project will work closely with relevant ecosystem players to spread awareness on GCIP, its objective and potential cooperation areas.

In addition, coordination with on-going in-country initiatives will also be undertaken by the project to maximize impact and avoid overlap of activities. Considering the chosen competition categories, the proposed project will work closely with relevant on-going projects to spread awareness of the competition and involve project counterparts/beneficiaries where relevant.

The importance of mitigating climate change has been recognized by Ukraine, as demonstrated by its signing of the UN Framework Convention on Climate Change.

Cash Synergies will be sought with other recently implemented UNIDO-GEF projects in the area of energy efficiency and renewable energy such as:

- GEF-4 Project on "Improving energy efficiency and promoting renewable energy in the agro-food and other small and medium enterprises (SMEs) in Ukraine" in partnership with the Institute of Renewable Energy at the National Academy of Sciences of Ukraine, the State Agency on Energy Efficiency and Energy Savings of Ukraine (SAEE), National Agency of Ukraine for Efficient Use of Energy Resources and Ministry of Agrarian Policy and Food of Ukraine
- GEF-5 Project on "Promoting the adaptation and adoption of Resource Efficient and Cleaner Production through the establishment and operation of a Cleaner Production Centre (CPC) in Ukraine" in partnership with the Ministry of Economic Development and Trade of Ukraine
- FINTECC in Ukraine. The EBRD's Finance and Technology Transfer Centre for Climate Change (FINTECC) programme is part of a global movement for climate technology transfer to developing countries and countries in transition. FINTECC provides expert assistance in the strategy drafting via information, market research and innovation support. The Programme is funded by the EBRD and the Global Environmental Facility (GEF).
  The Programme provides grants mostly to those technologies which are not widespread in Ukraine yet. The Project supports the organizations pioneering in technology applications to demonstrate they are feasible to the grassroots public. The experts of the Programme organize technical audits to find the areas for potential investment including identification of technological options and preliminary financial analysis.
  In the scope of FINTECC, Climate Innovation Vouchers Program has been established jointly with EU Neighborhood Facility. The Programme has a budget of EUR 1,000,000 to assist the developers and implementers of climate projects in Ukraine. Climate Innovation Vouchers will enable 50 Ukrainian companies that develop climate innovative technologies to accelerate the entry of their innovations to the marketplace. The Programme funding provides climate innovators with the access to the best experts and developers so that they help to make the innovative products better and more competitive.

Additional Information not well elaborated at PIF Stage:

A.7 *Benefits.*

The project is expected to result in more cleantech based start-ups and SMEs being identified and supported, thus acting as a catalyst for SME development and clean technology investment in Ukraine. The creation of a dedicated national platform for promoting clean energy technology innovation in SMEs will result in an enhancement of human capital, thereby leading to job creation and poverty reduction. Furthermore, new job opportunities will also emerge as the viable clean technologies commence local production and scale up innovations. The local development and production of these

new technologies will very likely result in lower costs, thus further benefiting both the technology developer and the technology end-user. Finally, the increased use of clean technology innovations supported by the project will result in a reduction in GHG emissions.

The GCIP will highlight the need for stronger support at the national level for clean technology innovations and SMEs' contributions. In particular, this programme will provide added value by better bridging the gap between clean technology innovators and investors, thereby paving the way for the creation of new businesses. The project will try to forge synergies between clean technology innovators and the international private sector that can invest in the subsequent commercialization of the technologies. It will also provide SMEs with attractive incentives to invest in innovation in clean technology in a relatively risk-free environment, with benefits for the economy as a whole. At the same time, the growing number of participants encourages cross-country networking and creates opportunities for South-South cooperation to further enrich the innovation ecosystem in participating countries.

In a recent GCIP study[34], 14 GCIP alumni companies have selected to measure the potential impact of GCIP program based on the provided data. The study showed that as a result, these companies showed 624 ktons of CO2e reduced, USD 23 mil of revenue generated, and 329 new cleantech jobs created. Based on these data and considering that every accelerator cycle in Ukraine will provide around 15 alumni companies, there would be around 1000 new cleantech jobs created, about USD 60 mill of revenue generated and 1,500 ktons of CO2e avoided by end of this project.

A.8 *Knowledge Management.*

Knowledge management and exchange at the global level is a key strength of the GCIP's design as a global flagship programme. UNIDO has been facilitating information and knowledge exchange among GCIP PMUs and GCIP supported entrepreneurs across borders since 2011, and this dimension has proven to be of benefit to all stakeholders.

Building on the lessons learned and requests received, UNIDO is currently designing a global platform that will allow knowledge management and coordination in a more systematic manner. This platform will strengthen This knowledge management component will also be facilitate South-South and North-South collaboration in policies, structures and frameworks promoting innovations in sustainable energy, water and waste management, through captured by the interaction between the respective Project Steering Committees and PMUs and national counterparts in each of the GCIP partner countries.

Lessons learned, and insights gained from conducting GCIP Ukraine will be documented and shared among national stakeholders, as well as with international partners.

Based on the evaluations from previous GCIP in other countries, a global platform where programme information, challenges, lesson learned, and success stories could be shared has been recommended. As such, this project takes into consideration the lessons learnt from other GCIP projects and the feedback from stakeholders to enhance the overall knowledge management of the programme. In this regard, a GCIP web platform will be created to serve as a basis for better national and international cleantech network collaboration. It is envisaged that the online platform will be an important tool for the NPC to collect data about the participants, judges and mentors, to foster continuous exchanges in the GCIP community and to archive all project deliverables. Besides, it will facilitate the registration of participants, the training delivery and the matchmaking between alumni, investors, judges, mentors, etc.

The State Finance Institution for Innovations (SFII) (https://www.sfii.gov.ua) will maintain National Cleantech Platform on the account of the allocations from the state budget, venture investments and investment funds. The use of GCIP methodology and approach, as well as the branding and logo will be transferred to the SFII, based on mutual agreement between UNIDO and SFII regarding GCIP related standards and quality assurance conditions that will be further discussed and expanded on.

All knowledge management material will be gender mainstreamed. For instance, gender responsive training and advocacy material will not perpetuate gender stereotypes through presenting women only in their traditional roles.

[34] https://www.unido.org/sites/default/files/files/2017-12/GCIP-Brochure.pdf (accessed 25.7.2018)

B. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

B.1 *Consistency with National Priorities.*

The project objectives are in line with and complement the national priorities of Ukraine, as well as those of UNIDO in that the project will contribute to capacity building and will invest in the creation of comprehensive energy policy frameworks and an extensive network of clean energy entrepreneurs.

The Project corresponds to the goal and objectives of the Sustainable Development Strategy "Ukraine – 2020" (approved by the Decree of the President of Ukraine of 12 January 2015) that envisages the implementation of structural reforms, economic growth by environment-friendly methods, launching of state-of-the-art innovations.

Specifically, the Roadmap for the Strategy Implementation includes the planned measures on entrepreneurship development, introduction of the world's best practices to promote investment and innovative development.

The Project implementation will also contribute to improving the Ukraine's government capacity in the performance of the following provisions of the Cabinet of Ministers' Activity Programme (approved by the Verkhovna Rada of Ukraine on 14 April 2016 No. 1099-VIII):

- industry and innovation infrastructure development,
- introducing the mechanisms of commercializing the research findings and technology transfer towards the development of national research centers,
- development of high-tech productions,
- ensuring efficient protection of the intellectual property rights,
- development of public-private partnership projects
- and
- The Mid-term Priority Action Plan of the Government until 2020 (approved by the Ordinance of the Cabinet of Ministers of Ukraine of 3 April 2017, No. 275-r):
- forming the enabling environment for the development and large-scale introduction of the innovations in all economic sectors,
- improvement of the legislative and regulatory framework regulating the innovations, intellectual property and electronic economy,
- improvement of the state policy in these domains and launching the programs focused on promoting and support to the innovative development.

C. DESCRIBE THE BUDGETED M &E PLAN:

Project monitoring and evaluation (M&E) will be conducted in accordance with established UNIDO and GEF procedures. The M&E activities are defined by Project component 4 and the concrete activities for M&E are specified and budgeted in the M&E plan. Monitoring of the project will be based on indicators (for project component 1, 2 and 3) defined in the strategic results framework given in Annex A (which details the means of verification) and the annual work plans. Monitoring and Evaluation will make use of the GEF Tracking Tool, which will be submitted to the GEF Secretariat two times during the duration of the project: at CEO Approval and at closure.

UNIDO as the Implementing Agency will involve the GEF Operational Focal Point and project stakeholders at all stages of project monitoring and evaluation activities in order to ensure the use of the evaluation results for further planning and implementation. According to the Monitoring and Evaluation policy of the GEF and UNIDO, follow-up studies like Country Portfolio Evaluations and Thematic Evaluations can be initiated and conducted. All project partners and contractors are obliged to (i) Make available the studies, reports and other documentation related to the project; and (ii) Facilitate interviews with the staff involved in the project activities.

The overall objective of the M&E process is to ensure successful and quality implementation of the project by: i) Tracking and reviewing the execution of project activities; ii) Taking early corrective action if performance deviates significantly from the original plans; and iii) Adjusting and updating project strategy and implementation plan to reflect possible changes on the ground results achieved and the corrective actions taken.

a) Monitoring

A detailed monitoring plan for tracking and reporting on project time-bound milestones and accomplishments will be prepared by UNIDO in collaboration with the established PSC and project partners at the beginning of project implementation and will then be updated periodically. Monitoring activities will be carried out on the basis of the periodic reports developed by the PSC with the frequency aligning to the quarterly reports.

By making reference to the impact and performance indicators defined in the Project Results Framework, the monitoring plan will track, report and review the project activities and accomplishments in relation to:

i. Implementation;
ii. Conduct of various capacity building trainings and their usefulness;
iii. Level of awareness and technical capacity of relevant institutions in the ethanol-based cooking technology;
iv. Implementation of incentive scheme, its operation and impacts on project implementation;
v. Achievement of project targets;
vi. CO_2 emission reduction resulting from the implementation; and
vii. Effectiveness and usefulness of the dissemination activities such as trainings, seminars, site visits, performance reports, project website, leaflets, etc.

The National Project Coordinator will be responsible for continuous monitoring of project activities implementation, performance and will track progress towards milestones. The UNIDO project manager will be responsible for tracking overall project milestones and progress towards the attainment of the set project outputs and will be also responsible for reporting to the GEF.

b) Reporting

The PMU will present a report to UNIDO every six months with detailed information on the progress of the project as per the annual implementation plan and activities that have been carried out during the period of each report. An annual report shall be submitted by the PMU at the end of each project cycle year with a summary of activities carried out over the year and will be the basis of Project Implementation Reviews (PIRs). The annual report will also cover the benefits gained and impacts made on the implementation of the project. In addition, the report will include the evidence to demonstrate the progress made in the achievement of the indicators highlighted in the Project Results Framework.

c) Evaluation

The project will be monitored from the beginning and a terminal evaluation will be carried out at the end of the GEF project and follow up corrective actions will be taken. This evaluation will focus on various activities of the project such as development of innovative product, investors connect, GCIP platform and network etc. carried out during the implementation period. The final evaluation will also provide recommendations for follow-up activities.

US$75,000 from the GEF and co-financing equivalent to US$150,000 have been foreseen for the M&E activities. From the GEF grant, US$40,000 has been reserved for the final independent evaluation.

M&E Activity Categories	Feeds Into	Time Frame	GEF Budget (USD)	Co-financing (in-kind, USD)	Responsible Parties
Measurement GEF Tracking Tool specific indicators Periodic progress reports and monitoring of project impact indicators (as per Log Frame)	Project management; Semi-annual progress report; Annual GEF PIR	Semi-annually	35,000	110,000	• Project execution partner/PMU submit inputs for consolidation and approval by project steering committee (PSC); • PSC submits final inputs/reports to UNIDO PM
Independent terminal evaluation	Terminal Evaluation Review (TER) conducted by UNIDO ODG/EIO	Project completion (at least one month prior to the end of the project and no later than six months after project completion)	40,000	40,000	Independent evaluator for submission to UNIDO PM

TABLE 4: MONITORING AND EVALUATION PLAN

Legal context

The following legal context will apply to the project: "The Government of the Republic of Ukraine agrees to apply to the present project, mutatis mutandis, the provisions of the Basic Agreement concerning assistance, concluded between the United Nations Development Programme and the Government of Ukraine on 18 June 1993."[35]

[35] United Nations – Treaty Series, [1993] Vol. 1845, I -31452, Basic Agreement concerning assistance by the United Nations Development Programme to the Government of Ukraine.

PART III: CERTIFICATION BY GEF PARTNER AGENCY(IES)

A. GEF Agency(ies) certification

This request has been prepared in accordance with GEF policies[35] and procedures and meets the GEF criteria for CEO endorsement under GEF-6.

Agency Coordinator, Agency Name	Signature	Date (MM/dd/yyyy)	Project Contact Person	Telephone	Email Address
Philippe R. Scholtès, Managing Director, Programme Development and Technical Cooperation, UNIDO-GEF Focal Point		08/09/2018	Mr. Carlos Chanduvi-Suarez, Senior Coordinator, Department of Energy, UNIDO	+43 1 26026 3640	C.Chanduvi-Suarez@unido.org

[35] GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, SCCF and CBIT

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ANNEX A: PROJECT RESULTS LOGICAL FRAMEWORK

Results	Indicators	Baseline	Targets	Means of Verification	Assumptions and Risks
Objective					
Promotion of clean energy technology innovations and entrepreneurship in Ukraine through the development of a cleantech innovation platform and Accelerator programme	Number of SMEs and startups to pursue innovations in clean energy technologies;	No clean energy technology innovations support system;	National Cleantech Platform established, with at least 18 SMEs and startups with promising innovative clean energy technologies products/ services/ business ideas identified and mentored;	Project progress reports; mid-term review and final project evaluation report.	Technology innovation and energy productivity remains top priority of the Government of Ukraine;
	Number of successful Cleantech (CT) programmes organized after project completion;		3 CT programmes organized	Final independent project evaluation report; GEF Tracking Tools;	SMEs and Startups are committed to the Cleantech approach;
	Additional investment into clean energy technology innovations due to increased interest in the CT programme;	Limited investments in innovative clean energy technology, especially by SMEs;	Approximately US$6 million invested in clean energy technology innovations ;	Database and records maintained during and after project completion.	Government of Ukraine remains committed to the Cleantech approach.
	Number of SMEs and startups as members of the national platform (sex-disaggregated data will be collected);	Minimal attendance from the SME sector;	At least 200 SMEs as members of the cleantech national platform (at least 40% women-led SMEs);		
	Tons of GHG emissions directly or indirectly avoided.	Data on emission reductions related to clean energy technology innovations in SMEs not available.	Indirect emission reductions in the range of 2,432,123 tCO2e to 6,323,626.71 avoided over 10 years;		

Results	Indicators	Baseline	Targets	Means of Verification	Assumptions and Risks
Component 1: National platform to promote clean technology innovations for global environmental benefits and green jobs in Ukraine					
Outcome 1.1: National level platform/coordinating mechanism established to promote clean energy technology innovations and entrepreneurship.	National Cleantech Platform/coordinating mechanism for SMEs and Start ups established; Number of new clean energy technologies or innovative businesses created/accredited.	No dedicated platform for clean energy technology and SMEs; Baseline value not available.	Establishment of National Cleantech Platform/ coordinating mechanism such as online tools and office to support for SMEs and Startups; At least 4 new clean technologies or innovative businesses per Cleantech competition during and after project implementation period.	Project progress and evaluation reports; Survey of competition participants and other stakeholders.	Continuous support and participation by government, R&D institutions, startups and SMEs; Sufficient commitment and participation by the experts, mentors.
Output 1.1.1: GCIP Ukraine platform established, 3 annual cleantech Accelerator conducted across selected SME clusters	GCIP platform established Number of methodologies and guidelines for the competition developed; Number of competition entries, number of semi-finalists and finalists etc.;	No methodologies and guidelines for the competition developed; Baseline is assumed to be zero;	Specific methodologies and guidelines (gender-responsive) for participation in and execution of the competition and Accelerator programme developed; At least 20 entrants per category competition in Year 1 (target of 40% women participants) and at least 30 entrants per category competition in Year 2 onwards (target of 40% women participants/ mentors/judges);	Project progress and evaluation reports;	Continuous support from the Government and national partner institutions; Commitment from project partners and committed participation of SMEs and entrepreneurs.
Output 1.1.2: GCIP community and network maintained.	Number of GCIP community identified and maintained	Baseline is assumed to be zero.	At least 6 GCIP communities identified.		

Results	Indicators	Baseline	Targets	Means of Verification	Assumptions and Risks
Outcome 1.2: Clean technology entrepreneurs identified, coached and promoted during and beyond the GCIP Accelerator	National Cleantech Platform/coordinating mechanism for SMEs and Startups established; Number of new clean energy technologies or innovative businesses created/accredited.	No dedicated platform for clean energy technology and SMEs; Baseline value not available.	Establishment of National Cleantech Platform/ coordinating mechanism such as online tools and office to support for SMEs and Startups; At least 4 new clean technologies or innovative businesses per Cleantech competition during and after project implementation period.	Project progress and evaluation reports; Survey of competition participants and other stakeholders.	Continuous support and participation by government, R&D institutions, startups and SMEs; Sufficient commitment and participation by the experts, mentors.
Output 1.2.1: Post-Accelerator support provided for start-ups and SMEs to access to finance and market entry.	Number of SMEs and Startups trained on product development and market entry; Number of investors/ funding mechanism identified;	No dedicated similar support programmes reported – baseline is assumed to be zero;	At least 60 SMEs and Startups receive training on product development and market entry (with at least 40% being women); At least 6 investors identified;	Project progress and evaluation reports;	Continuous support from the Government and national partner institutions; Commitment from project partners and committed participation of SMEs and entrepreneurs.
Component 2: Building national capacity for the support and promotion of clean technology innovations					
Outcome 2.1: National institutional capacity built to support and organize the Cleantech competition and accelerator during and beyond project duration	Number of new clean energy technologies or innovative businesses created/accredited.	Baseline value not available.	Development and implementation of an accelerator programme with generalist and specalised mentors and judges identified and trained	Project progress and evaluation reports;	Continuous support from the Government and national partner institutions.
Output 2.1.1: Capacity building of national institutions and industrial associations to host, support and sustain the GCIP, and 15 mentors and 10 judges identified and trained **Output 2.1.2:** Impact monitoring, advocacy and Promotion.	Number of SMEs and Startups trained on product development and market entry; Number of mentors/judges trained Annual Innovation Conference held, GCIP platform established	No dedicated similar training reported – baseline is assumed to be zero; No training program for mentors/judges reported; No states/regions and SME clusters identified yet.	At least 15-20 SMEs and/or startups trained per cycle; At least 15 mentors and 10 judges trained; At least 1 publication published annually and 1 GCIP platform established;	Project progress and evaluation reports;	Continuous support from the Government and national partner institutions;
Component 3: Policy and regulatory framework strengthened for a national cleantech innovation and entrepreneurship ecosystem					

Results	Indicators	Baseline	Targets	Means of Verification	Assumptions and Risks
Outcome 3.1: Policy and Institutional framework strengthened to promote and support clean technology innovations in startups and SMEs.	Extent to which existing policies and regulations are amended or effectively implemented.	A score between 0 and 4, will be given to assess these policies (0 is poor and 4 is optimal).	A score of 2 or 3.	Project progress reports; Terminal evaluation report.	Continuous support from the Government and national partner institutions;
Output 3.1.1: Policy analysis report on best practice policies, regulations and incentives required for the promotion of clean technology innovations developed	Policies, regulations and programmes amended or developed to create more supportive environment for clean energy technology innovations in/by SMEs	Current policy and institutional frameworks not focused on clean energy technology innovations.	Assessment of existing relevant policies and economic sectors requiring support for promotion of Clean tech; Policy assessment report including stakeholder mapping for Cleantech in Ukraine developed.	Project progress reports; Terminal evaluation report.	Continuous support from the Government and national partner institutions;
Output 3.1.2: Policy recommendations on how to enhance the clean technology innovation and entrepreneurship ecosystems developed and roadmap in place	.	No dedicated roadmap available.	Roadmap available to highlight necessary improvements of policy framework on cleantech innovations; monitor its implementation progress by PMU;		
Output 3.1.3: National institutional capacity strengthened for sustainability	Number of subnational cleantech stakeholder meetings held;	No dedicated similar capacity programme reported – baseline is assumed to be zero;	50 staff from partner and national institutions receive training on competition organization (with at least 40% being women); At least 3 stakeholder meetings held (at least 30% women participants) in 3 years		

Results	Indicators	Baseline	Targets	Means of Verification	Assumptions and Risks
Component 4: Monitoring and Evaluation (M&E)					
Outcome 4.1: Adequate monitoring of all project indicators together with regular evaluations to ensure successful project implementation	Progress reports and project implementation report(PIR)	No monitoring system in place to track all project indicators	4 quarterly progress reports and 1 annual PIR	Progress reports and PIR	Continuous support and participation by industry and other relevant stakeholders.
Output 4.1.1: Terminal project evaluation conducted	Achievement of project targets and improvement in gender mainstreaming	No evaluation system in place to monitor and track project achievements	Independent terminal evaluation to capture the impact and sustainability of the programme	Terminal evaluation report	Continuous support from GEF, Government, stakeholders and international experts
Output 4.1.2: Documentation of lessons learnt and best practices from pilot experience and dissemination	Terminal evaluation report, leaflets/brochures and case study	No documentation system in place to share the lesson learn and best practices from the programme	1 Terminal evaluation report, at least 2 leaflets/brochures and case study each	Terminal evaluation report, leaflets/brochures and case study	Continuous support from GEF, Government, stakeholders and international experts

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

GEF SECRETARIAT comments at PIF stage relevant for CEO Endorsement Request stage:

none.

GEF STAP Comments received:

none.

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS[37]

A. Provide detailed funding amount of the PPG activities financing status in the table below:

PPG Grant Approved at PIF: US$ 50,000			
Project Preparation Activities Implemented	***GETF/LDCF/SCCF/CBIT Amount ($)***		
	Budgeted Amount	***Amount Spent To date***	***Amount Committed***
Development of CEO Approval document – engagement of specialized contractor	32,000	32,000	0
Supporting activities (consultation and validation workshops; dissemination materials; detailed negotiation with governmental and private sector stakeholders; recruitment of national expert etc.)	18,000	4,000	14,000
Total	**50,000**	**36,000**	**14,000**

[37] If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue to undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities. Agencies should also report closing of PPG to Trustee in its Quarterly Report.

ANNEX D: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used**)**

Provide a calendar of expected reflows to the GEF/LDCF/SCCF/CBIT Trust Funds or to your Agency (and/or revolving fund that will be set up)

N/A

ANNEX F -. PROJECT WORKPLAN

Activity	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 1.1.1 GCIP Ukraine platform established, 3 annual cleantech Accelerator conducted across selected SME clusters												
a. Preparation of cooperation framework for establishment of a national GCIP platform												
b. Preparation/adaptation of specific methodologies and guidelines for the competition and Accelerator programme's execution in Year 1												
c. Conduct the national GCIP Accelerator in Year 1, Years 2 and 3 with extended focus on similar or other clean technologies												
d. Preparation of cooperation agreement with universities in the field of cleantech entrepreneurship												
e. Invite students from universities to participate in accelerator programmes												
f. Preparation/adaptation of standard methodologies and guidelines for the execution of												

Activity	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
challenge awards												
Output 1.1.2 GCIP community and network maintained												
a. Awareness creation about GCIP through online tools and publications.												
Output 1.2.1 Post-Accelerator support provided for start-ups and SMEs to access to finance and market entry.												
a. Collaboration with research institutions with regards to R&D of the identified innovation/product.												
b. Support provided by research institutions to selected GCIP teams on technology verification, product development and commercialization												
c. Establish a robust network with financial institutions, donor agencies/NGOs.												
d. Matchmaking services between financial institutions and GCIP selected teams.												
Output 2.1.1 Capacity building of national institutions and industrial associations to host, support, and sustain the Cleantech programme, and mentors (15) and judges (10) identified and trained												

Activity	Year 1												Year 2												Year 3											
	Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4		
a. Assessment of capacity of identified mentors and judges.																																				
b. Train the judges and mentors based on the assessment.																																				
c. Knowledge exchange and transfer among mentor/judge community of other GCIP partner countries to be established																																				
d. Cooperate with national institutions and associations to host and promote innovation acceleration programmes																																				
Output 2.1.2 Impact monitoring, advocacy and promotion																																				
a. Preparation and dissemination of results through the annual Innovation Conference																																				
b. Participation of winners and finalists in international GCIP events																																				
Output 3.1.1: Policy analysis report on the best practice policies, regulations and incentives required for the promotion of clean technology innovations developed																																				
a. Assessment of existing																																				

Activity	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
relevant policies and economic sectors requiring support for promotion of Clean tech.												
b. Preparation of policy assessment report including stakeholder mapping for Cleantech in Ukraine.												
Output 3.1.2: Policy recommendations on how to enhance the clean technology innovation and entrepreneurship ecosystem developed												
a. Development of a roadmap to strengthen natl. framework for clean tech and instruments for implementation and monitor its implementation progress by PMU												
Output 3.1.3: National institutional capacity strengthened for sustainability												
a. Organization of periodic regional and national stakeholder meetings and capacity building of stakeholders												
b. The national executing partner will be trained on best practices for organization and implementation of the GCIP												

Activity	Year 1											Year 2											Year 3										
	Q1			Q2			Q3			Q4		Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4		
Accelerator.																																		
Output 4.1.1: Terminal project evaluation conducted																																		
a. Preparation of TORs and recruitment of evaluation consultant																																		
b. Conduct terminal evaluation and prepare terminal evaluation report																																		
Output 4.1.2. Documentation of lessons learnt and best practices from pilot experience and dissemination																																		
a. Day-to-day coordination, monitoring and documenting of all project activities																																		