



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

SCALING UP UNIDO'S TECHNICAL ASSISTANCE, WHILE RAISING OPERATIONAL EFFICIENCY



This paper provides additional information to the Programmes and Budget document 2020-2021, and describes some of the flagship programmes UNIDO intends to develop and implement over the next biennium.





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FOREWORD



The United Nations Industrial Development Organization (UNIDO) supports Member States not just in the general field of industrialization, but in industrial development that reduces its environmental footprint and allows for the creation of decent jobs and income for all. We call this inclusive and sustainable industrial development.

By placing the entire Sustainable Development Goals (SDGs) agenda as the overall global development objective of our work, and aligning it along the following four priorities: creating shared prosperity; advancing economic competitiveness; safeguarding the environment; and strengthening knowledge and institutions, we look beyond the achievement of SDG 9, which focuses on industry, innovation and infrastructure.

UNIDO's medium-term programme framework (MTPF) 2018-2021 continues to provide strategic guidance for the Organization, helping increase the impact of our services.

The MTPF integrates all levels of our organizational performance and development results – from the management of our internal operations to the progress towards the SDGs.

Our current corporate priorities include upscaling the impact of UNIDO's activities; reducing operating costs; and developing innovative partnerships. Better results, lower cost, new partners are the guiding principles of our work today. This approach has inspired a range of improvements, large and small, across the Organization.

Responding to the growing demand for support to achieve inclusive and sustainable industrial development, UNIDO has stepped up its technical cooperation (TC) delivery, providing advice on industrial policies, enhancing local productive capacities, advancing economic competitiveness, and promoting the diffusion of environmentally sound technologies. We partner with the public and private sector to mobilize resources and implement industrialization plans.

We are increasingly implementing larger programmes and projects with a view to increasing our impact and cost efficiency.

Technical cooperation lies at the core of our service delivery, both in terms of resource allocation and in terms of value created for Member States, and is strongly backed by donors.

Our technical cooperation programme has, among other matters, streamlined procedures; introduced the extensive use of online processes; the expansion, wherever warranted, of the New Business Model marking a delegation of execution tasks to project-funded entities; and optimized technical cooperation resources through specialization along the technical cooperation cycle. These reforms are driven by the result-based principles that underscore the MTPF 2018-2021 and the integrated results and performance framework.

One significant contribution to our corporate priorities and the SDGs is the move from projects to broader thematic programmes in the design of our technical cooperation and in our interaction with donors.

UNIDO is currently running a portfolio of about 700 projects of an average value of about USD 2 million. The cost of these projects is met almost entirely by voluntary contributions, currently negotiated on a project-by-project basis. This means, in effect, some 700 funding agreements negotiated with our donors: the fragmentation results in high transaction costs for both parties, and inhibits the cross-fertilization of experience from one project to another.

Broader thematic programmes augment technical services with policy advice, facilitate the exchange of best practices across countries and shape evidence-based normative guidance for wider impact.

They build on the longstanding trust between UNIDO and donors around specific services and support the Organization's efforts to raise impact while reducing costs.

This publication outlines thematic programmes aligned to the structure of the current MTPF and the Programmes and Budget document. The programmes target specific SDGs highlighted in graphic form under their title, using the conversion matrix underpinning the SDG map posted on the Open Data Platform¹. Target countries and budgets are indicative only. The compilation is by no means exhaustive but conveys a comprehensive overview of initiatives planned for the biennium 2020-2021 and beyond.



LI Yong

Director General

1. <https://open.unido.org/>



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CREATING SHARED PROSPERITY

1.1 AGRIBUSINESS AND RURAL DEVELOPMENT



Contribution to the 2030 Agenda

OBJECTIVE: To support the development of a robust agro-industrial sector in developing countries for sustainable and inclusive economic growth.

UNIDO's APPROACH: By deploying its TC services and focusing on upgrading the capacities of smallholder producers, small-scale processors, allied industries and public institutions, UNIDO aims to meet the agro-industrial objectives of developing countries, create jobs, and drive economic growth.

The approach has several key output areas, including:

Developing agribusiness clusters as an effective method of linking smallholder producers to large-scale markets and of grouping them into sets of interrelated enterprises and institutions often linked to larger enterprises. Agriculture growth corridors connect agricultural production areas through shared infrastructure. Within growth corridors, clusters can take various forms, such as agro-poles; staple crop processing zones; integrated agro-industrial parks; rural industrial clusters and rural transformation centres. Agro-industrial clusters are supported by networks of collection centres, linking smallholder producers to large-scale agricultural markets.

Reducing post-harvest loss, increasing food safety, and accessing global markets. Support at the enterprise level is vital for addressing post-harvest losses and reducing agricultural inefficiencies. Waste reduction through technology improvements, process optimization and the utilization of by-products helps increase efficiency, and facilitate environmental sustainability. Implementing good hygiene practices, introducing food safety systems based on risk analysis compliance with the sanitary and phyto-sanitary agreements, as well as prevention and traceability are important for accessing regional and global value chains. Such practices are also critical to help food companies in developing countries expand access to global markets.

Support for small and medium-sized enterprise (SME) development, which helps alleviate poverty and create jobs. UNIDO promotes business development services helping SMEs address relevant business challenges in the agribusiness sector. Such services are housed under one roof, often serving SME clusters in locations accessible to rural peoples. These services improve business

performance and support SMEs in meeting best global practices in their sector.

Establishing and supporting incubation centres. Nurturing early stage enterprises with high growth potential in business incubators can stimulate innovation and new firm entry, creating skilled jobs and income. Incubators provide entrepreneurs with an enabling environment in the start-up stage, and help reduce costs associated with launching an enterprise. They also increase the confidence of the entrepreneurs and link them to specific resources and networks that allow them to scale up their enterprise. Demonstrating that new business models can operate profitably can have a catalytic effect by lending credibility to start-up enterprises. This is particularly important when attempting to reach youths who have recently completed their education.

Building the capacity of public institutions, which helps meet agro-industrial development objectives for inclusive and sustainable growth. Capacity-building is tailored for specific challenges, such as for public and private actors to manage processes and infrastructure related to cluster development and management. Capacity-building also addresses entrepreneurship development support, processing practices, good manufacturing practices, and food safety.

Through targeted deployment of UNIDO's expertise in policy analysis and advice; its convening and partnership role, its normative function, as well as standards and quality-related activities, each of the outputs can be scaled up to reach a far larger group of beneficiaries.

Sustainable agribusiness development also requires a multi-stakeholder response which calls on governments, businesses and industry, international organizations and civil society to join forces with the aim of delivering sustainable agribusiness solutions. Through its convening function, UNIDO brings together development actors from the public and private spheres to address such challenges as food safety promotion and improved overall business environment for inclusive and sustainable agro-industrial development.

UNIDO also deploys assets such as its partnerships with other development agencies, including the Food and Agriculture Organization of the United Nations, to help broaden the level of development impact. By working in partnership with host governments and development finance institutions, including inter alia the World Bank Group, the African Development Bank and the European Investment Bank, UNIDO leverages its technical assistance interventions to create a much larger development impact.

Such partnerships are especially critical to the agribusiness development objectives in many African states, where infrastructure requirements need large-scale public and private investments that cannot be addressed through TC alone. In such instances, technical assistance interventions serve to produce bankable development plans for investment promotion.

The development and dissemination of best practices, norms and standards, based on field experience and technical assistance, present the best opportunity to facilitate positive change in the actions of host governments, and reach millions of beneficiaries. The promotion of robust and internationally-recognized national quality systems is crucial for ensuring confidence and the integrity of the national food control systems, adapted to the principles of the international trade regime, specifically the WTO agreements. Best practice literature also highlights the benefits of establishing agricultural growth corridors, as well as agribusiness clusters and related agribusiness development infrastructure.

BUDGET ESTIMATE: USD 26 million for 2020-2021.

1.2 WOMEN AND YOUTH IN PRODUCTIVE ACTIVITIES



Contribution to the 2030 Agenda

OBJECTIVE: To develop skills and increase employability and income for young people and women.

UNIDO's APPROACH: Deploying TC services to promote skills development; produce evidence for policy development; build strategic partnerships financing institutions; and organize various global forums and lead expert group meetings with the objective of upscaling inputs for a wider and deeper development impact.

The skills development approach has two components, one focusing on vocational training and one on entrepreneurship skills.

Vocational training. The type of skills required in a given economic context changes with economic development and structural transformation, creating a demand for new sets of skills. To meet the demand for such skills, vocational training institutions are required. Without proper participation of the business sector, vocational training institutions however have difficulty keeping up with changes in the marketplace, leading to a growing gap between what vocational training systems offer and what industry demands. This can slow economic growth and limit otherwise available and important opportunities for employment, particularly for the youth.

Working in partnership with both the public and the private sector with the objective of making vocational training more market-driven, UNIDO supports the establishment and upgrading of local industrial training academies to help meet the labour market's increasing demand for skilled employees. TC in this area also includes developing curriculum, providing training of trainers, setting up apprenticeship programmes with local companies, preparing sustainability plans and sharing experiences amongst similar vocational training centres.

Improving the skills of the workforce improves opportunities for businesses on the one hand, and reduces unemployment and poverty on the other hand. Through partnerships between public, private and development actors well-functioning vocational training centres can be established. UNIDO's skills development activities thus take a bottom-up approach to develop successful pilot vocational training schools that can be scaled up at the national and even regional levels, thereby

incrementally changing the institutional setting and increasing impact.

Entrepreneurships skills training. Identifying and implementing business opportunities is a skill that can be acquired. By providing entrepreneurship skills training to young people in school through specifically-developed curricula, this skill can be transferred at an early age. Such training may include developing skills to analyze markets and value chains to identify sectors and value chains; assist potential entrepreneurs to set up their businesses; and be able to financially appraise a business idea. Further training can develop skills to identify adequate forms of financing a potential business venture.

For an entrepreneur who has started or upgraded a micro- small or medium-sized enterprise (MSME), the provision of support services related to counseling, investment promotion, technology upgrading, and business linkages, can help further develop MSMEs and create more jobs.

Scaling up skills development impact. Policy advice based on experiences and evidence from widely differing contexts can and should be effectively scaled up. As such, skill development requires close collaboration between public and private-sector actors at all levels, from the local to the regional, the national and the international levels. Key to achieving results in terms of growth, productivity and employment is effective coordination and cooperation between public and private actors.

An objective multilateral organization with rich evidence-based experience in the field such as UNIDO is particularly well positioned to play a convening role and in organizing global forums and lead expert group meetings to disseminate experience.

Evidence-based best practices drawn from TC activities and convening activities with partners will be systematically consolidated to provide normative guidance on a global scale. There is a significant opportunity to contribute to the global discussion and formulation of skills development policy by producing an evidence-based framework of recommendations and guidelines using the experience of UNIDO's skills development work.

BUDGET ESTIMATE: USD 25 million for 2020-2021.

1.3 HUMAN SECURITY AND POST-CRISIS REHABILITATION



Contribution to the 2030 Agenda

OBJECTIVE: To increase human security, restore livelihoods and build resilience of vulnerable individuals in the context of conflicts, economic crises, natural disasters and migration through skill upgrading and the development of job-generating local productive activities.

UNIDO's APPROACH: The Organization's interventions focus on mitigating human security risks, threats and vulnerabilities by securing, restoring and developing livelihoods and productive capacities for affected populations, which are known to be suspended during and after humanitarian operations. It also integrates energy, health and environmental security concerns that affect people's productive capacities into its activities. Such interventions lay the basis for stable societies and sustainable growth.

UNIDO's TC efforts in the field of human security and post-crisis rehabilitation are multi-faceted. The Organization aims to strengthen productive infrastructures in the agricultural, manufacturing and service industries by transferring skills, knowledge and technologies to youth, women and other vulnerable groups. This allows them to find jobs, start their own business, secure income and sustain themselves and their families.

UNIDO also supports MSMEs, modernizes production techniques in an environmentally sustainable manner and upgrades value chains. To build resilience, UNIDO generates new and inclusive partnerships and enhances existing ones across the public-private divide by engaging the private sector as a promising and effective engine of development.

Contribution to the development and implementation of norms and standards. In recent years, UNIDO has become increasingly engaged in global forums to demonstrate how inclusive and sustainable industrial development can alleviate human security concerns and contribute to post-crisis rehabilitation².

2. On migration and forced displacement, UNIDO has been consistently reporting to platforms such as the Global Migration Group and contributed to the processes leading up to the Global Compact on Refugees (GCR) and the Global Compact for Safe, Orderly and Regular Migration (GCM). UNIDO is also a member of the United Nations Network on Migration, which will support the implementation, follow-up and review of the GCM and which replaces the Global Migration Group.

Policy analysis and advice. As part of projects in the field of human security and post-crisis rehabilitation, UNIDO, in cooperation with renowned academic institutions, carried out research activities to assess the impact of the Organization's interventions in the field and to contribute to the global academic dialogue on development, human security and crisis situations.

UNIDO also partnered with an academic institution to implement a human security awareness-raising programme on the global scale. The programme promotes awareness and the application of human security to enable a more effective engagement of international companies with the interrelated planes of sustainable development, security and justice. As part of the programme, policy makers are engaged in constructive dialogues to set out specific policy and practice recommendations that promote the adoption of multi-stakeholder partnerships based on the human security approach.

In addition, UNIDO is planning a global forum to discuss and review the role of industrial development in addressing human insecurity in different parts of the world. This will be done in partnership with various stakeholders, including the industry and the private sector, investment institutions, academic and research institutions, international organizations and development partners, as well as governmental and non-governmental actors. The outcome of such a global forum will effectively contribute to the development of global norms and standards on these issues from the perspective of industrial development.

BUDGET ESTIMATE: USD 15 million for 2020-2021.

2.1 INVESTMENT, TECHNOLOGY, TRADE CAPACITY AND SME DEVELOPMENT



Contribution to the 2030 Agenda

STRENGTHENING THE CAPACITY OF INVESTMENT PROMOTION INSTITUTIONS

OBJECTIVE: To assist developing countries in strengthening the capacity and capabilities of investment promotion institutions (IPIs), especially investment promotion agencies (IPAs), based on data-driven and empirically robust interventions. Enhancing inter-institutional coordination on investment promotion matters at the national, regional and global level, to spearhead investment policy frameworks conducive to sustainable development and providing coordinated and coherent service packages to foreign direct investors.

UNIDO's APPROACH: UNIDO pursues a comprehensive programmatic up-scaling approach through the implementation of the meso-level component of its newly-launched programme titled "Supporting business-friendly and inclusive national and regional policies, and strengthening productive capabilities and value chains" for the Africa-Caribbean-Pacific region (ACP).

The programme is based on the following.

- Networking and best-practice exchange. UNIDO's experience in technical assistance in investment promotion has shown that many IPIs face similar challenges to leverage foreign and domestic investments for the creation of jobs, including in the medium to high-tech industrial segments of the private sector. By working through networks of IPIs and across national jurisdictions, cross-fertilization from one country intervention to another becomes possible and effects can be scaled up.
- Thinking regional and global. Given the strong competition for FDI flows and the fact that the expectations for a positive impact on host economies are high, particularly regarding the attainment of the SDGs, many of the challenges to investment promotion should be tackled not just at the country-level, but also taking into consideration a regional and even

global perspective. This becomes evident for relatively small and fragmented markets in the ACP region. To this end, large scale programmes such as the United Nations Global Compact for engaging multinational corporations as sources of “quality” FDI, the External Investment Plan of the European Union and other initiatives fostering regional integration (e.g. the African Continental Free Trade Area) offer new pathways when implementing UNIDO programmes of a certain magnitude and geographical outreach. This specific UNIDO programme intends to mainstream investment promotion into such initiatives and to complement existing tools and approaches, but without losing sight of concretely fostering business transactions between investors and investees.

- Convening and normative function. UNIDO’s TC approach in investment promotion combines sector-specific industrial expertise with an approach that underpins the creation of partnerships with private-sector businesses and host country governments. UNIDO’s Programme for Country Partnership and the Third Industrial Development Decade for Africa are two prominent platforms that effectively bundle technical expertise, normative functions and client orientation. In addition, they offer a way forward in moving from project-level impact towards normative functions. They also draw from genuine methodologies that underpinned UNIDO’s successful investment promotion work for more than three decades, such as the Computer Model for Feasibility Analysis and Reporting (COMFAR), the Investment and Technology Promotion Office (ITPO) Network and the Subcontracting and Partnership Exchange Network.

The interventions of UNIDO’s investment promotion programme facilitate the process of identifying, and mobilizing capital, knowledge and technological resources for a more targeted investment development impact. Technical assistance interventions include capacity-building initiatives to IPIs that aim to support organizational restructuring, improve the monitoring of FDI activity, and undertake a more effective investment targeting approach and promote evidence-based policy advocacy. UNIDO’s normative approach is inextricably linked to ensuring strong and sustainable IPI capacity-building, based on the direct provision of technical training, wide-ranging support to localized implementation and continuous technical and advisory support throughout its interventions. UNIDO’s approach in investment promotion involves the following key elements:

- Enabling IPIs to carry out practical investment appraisals, helping stakeholders promote themselves to facilitate access to finance, including attracting FDI. UNIDO empowers IPIs to identify, develop and promote specific investment opportunities thereby augmenting respective portfolios. This empowerment is based on UNIDO’s mainstream investment opportunity and project profiling methodology, as well as on COMFAR investment appraisal and feasibility assessment tools.
- Enabling IPIs to enhance their research, monitoring and policy advocacy capacities. The standard tools and methodologies for investment monitoring developed by UNIDO underpin this block of IPI capacity-building. UNIDO assists institutional partners in leveraging investor survey data to create business intelligence that supports policy reform initiatives at the national and regional level to stimulate intra-regional trade and investment (foreign and domestic). Empirical evidence is crucial to assess and measure the qualitative impact of FDI in the host economy, inter alia through the creation of decent and value-adding jobs, the enhancement of the skill base of the labour-force, the boosting of competitiveness of domestic firms and facilitating their access to markets, and determining whether foreign

enterprises operate in a socially and environmentally responsible manner.

- Strengthening the provision by IPAs of clustering and networking support within value chains by strengthening investment after-care functions and business linkages support. In particular, FDI aftercare capacity-building support emphasizes facilitating within-country foreign buyer-supplier linkages as a means to facilitate the transfer of technology, knowledge and know-how.

UNIDO interventions are implemented in line with state-of-the-art, international best-practice investment promotion approaches developed through constant exchanges with other international implementing agencies such as the World Bank and the ITC. Interventions draw on the basic premise conferred by the various guiding principles for investment policymaking in developing countries, primarily the notion that investment promotion and facilitation are crucial means for inclusive growth and sustainable development at the national and regional levels³. Programme interventions reflect UNIDO's ongoing work undertaken in the context and support of the Third Industrial Development Decade for Africa which also interests the ACP region. Key partnerships with other global investment promotion organizations, such as the World Association of Investment Promotion Agencies (WAIPA) will be harnessed to disseminate and upscale methodological approaches.

BUDGET ESTIMATE: USD 9 million for 2019-2023. Funded by the European Union and implemented holistically in conjunction with the World Bank (macro, policy-level) and the ITC (firm level), UNIDO's meso-level programme intervention combines vertical interventions in initially eight countries with a regional and global upscaling approach⁴.

3. *Guiding Principles for ACP Countries' investment policy-making. Jointly developed by the ACP Group and the UNCTAD Secretariat, May 2017.*

4. *Donors are invited to contribute to this programme according to their geographical focus on outward investment and technology promotion. Becoming part of this programme would imply harnessing the benefits of an ongoing programme with significant upscaling effects and regional leverage through the ACP Secretariat and regional economic communities in the context of the post-Cotonou period and/or the investment dimensions of the Economic Partnership Agreements (EPAs) of the European Union.*

UPGRADING INDUSTRIAL INVESTMENT PROMOTION CAPACITIES

OBJECTIVE: To improve the business climate and investment conditions and increase competitiveness in developing countries through industrial investment promotion capacity upgrading.

UNIDO's APPROACH: The Organization supports its Member States by providing TC services in the field of industrial investment promotion and facilitation. This unique feature of UNIDO, under the overall umbrella of investment promotion within the UN system, offers a unique, identifiable, and comprehensive service package to all development partners and stakeholders that fall within the global industrial investment value chain.

Investment promotion services are offered through UNIDO's "Centre of Excellence for Bankable Project Development" as well as a comprehensive platform for industrial investment matchmaking and advisory services.

Such service package assists nations in upgrading their industrial investment promotion capacities. Concurrently, industrial investment promotion will be up-scaled in the context of an established partnership framework, in particular with investment institutions and development financial institutions. These types of partnerships enable up-scaled investments that lead to a higher impact on the implementation of the SDGs.

This service package includes the following components: investment feasibility appraisal tools, investment infrastructure (institutional) capacity-building, assistance in improving investment climate, sector-specific global normative role, investment advisory services, and the Network of ITPOs.

The "Centre of Excellence for Bankable Project Development" and the comprehensive platform for industrial investment matchmaking and advisory services were developed based on the theory of change. Through data collection and verification the right investment projects can be identified and generated.

For SMEs and other stakeholders in developing countries to take advantage of investment opportunities, they must have the necessary capacity. UNIDO helps both public and private investors scale up their investments and thereby increase their impact. These activities have positioned UNIDO in the global value chain of development and contribute towards the achievement of the Sustainable Development Goals.

UNIDO's services and activities are implemented through the ITPO network by:

- Facilitating the respective host Government in sector-specific technology and investment promotion;
- Organizing offline business and investment matchmaking;
- Contributing to achieving SDGs through enhanced industrial sectors; and impact investment;
- Providing tailor-made investment and technology promotion through the ITPO Delegate

Programme.

The ITPO coordination team at headquarters delivers these services and activities by:

- Coordinating all investment activities in the field in all substantial areas;
- Coordinating business development advisory support;
- Supporting the ITPOs with bankable project development services through an enterprise advisory facility;
- Facilitating the field with administrative support from Headquarters.
- Providing sector-specific advisory services, including the organization of the “Global Industrial Investment Forum (GIIF)” with roadshows in 2-3 prominent investment fairs annually (Hannover, CIFIT, etc.
- Monitoring global industrial investment trends.
- Analyzing sector-specific industrial investments (showcases).
- Issuing “Perspectives on Industrial Investment” (investors interviews).

Infrastructure development services include:

- Building capacity for IPAs on both national and institutional levels.
- Improving the investment climate.
- Building institutional capacity.
- Collecting and managing data.
- Promoting investment online.
- Providing online investment matchmaking.
- Running an Investment Learning Centre.

UNIDO also offers enterprise advisory services such as:

- Capacity-building for investment promotion (at the enterprise level). Pre-investment appraisal for cooperation with the World Bank, Asian Infrastructure Investment Bank, etc.
- COMFAR (development, promotion, training, and application).
- Enterprise diagnostics (development, promotion, training, application).
- Codifying investment cases.

BUDGET ESTIMATE: USD 15 million for 2020-2021.

ENABLING A SMOOTH TRANSITION BY DEVELOPING COUNTRIES TO INDUSTRY 4.0

OBJECTIVE: To advance the economic competitiveness of developing countries based on their diverse needs, and to ensure that they benefit from the rapid technological progress related to the new industrial revolution, or Industry 4.0, at all levels of economic development. This applies to all disadvantaged population groups as well as SMEs.

UNIDO'S APPROACH: In the last few years, the Organization has widely promoted the opportunities and challenges of Industry 4.0. In parallel, UNIDO's TC projects have raised awareness of the importance of having integrated and holistic approaches to designing policies and programmes to foster the uptake of affordable Industry 4.0 technologies; ensuring compliance with new industry standards and market requirements; building business and innovation ecosystems for Industry 4.0 technological adoption, absorption and innovation; pursuing partnerships for knowledge and technology transfer, networking, impact investment and industrial cooperation around Industry 4.0; and provision of technical and vocational education and training to meet the demand for new skills stemming from new industrial revolution.

Early pilot projects and activities are being used by UNIDO to provide lessons learned to adapt to specific development contexts when conducting brownfield and greenfield activities.

UNIDO aims to ensure that developing countries take advantage of breakthroughs in digital technologies, such as artificial intelligence, robotics, 3D printing, and the Internet of Things. This can be combined with convergent technologies (nanotechnology, biotechnology, information and communication technology and social sciences and humanities-Nano-Bio-Info-Cogno-Technologies).

A growing convergence of scientific disciplines, technologies and economic sectors creates opportunities to realize economic, social and environmental gains but it also creates threats of a rising technology gap. Despite raising technology transfer rates, the diffusion of new technologies in developing countries has been decreasing. The marginalization of some countries and population groups and rendering of traditional policymaking cycles, processes and institutions inadequate are also potential threats.

Strengthening developing countries' capacity to absorb new technologies has become a complex undertaking in the context of exponential technological progress. Addressing this challenge requires a broad understanding of the key dynamics driving the processes of technology innovation and diffusion, and requires new strategies, policies and programmes to ensure inclusive and sustainable industrial development and the implementation of the 2030 Agenda and the SDGs.

UNIDO interventions with respect to Industry 4.0 target the following thematic areas:

- **Education.** The provision of technical and vocational education and training is the key to a country's industrial competitiveness but many such institutions, especially in low-income countries, are unable to adapt their training to the needs of the fourth industrial revolution. This is why UNIDO focuses on bringing together all relevant stakeholders, including the private sector, decision-makers, development agencies and training providers, to

create innovative training materials and methods to meet the changing demand. In this context, small-scale learning units help test new curricula using operational and practical experiences gained during past UNIDO projects. UNIDO also relies on the networks of other collaborating stakeholders, and facilitates knowledge exchange on Industry 4.0 between different countries and sectors.

- SME and MSME development and support. SMEs and MSMEs have much to gain from Industry 4.0, however, difficulties related to the cost of certain technologies, as well as to increased competition are foreseeable. SMEs may benefit from new tools such as digital free trade platforms that enable them to transform into “micro-multinationals”.
- Sector-specific Industry 4.0 uptake. UNIDO works with partners and Member States to ensure that they develop sector- and country-specific programmes, understanding that what may work in one setting may not automatically work elsewhere. Therefore, the programmes aimed to harness new technologies and Industry 4.0 must take into account the different needs and requirements, as well as the extent to which new technologies could be applied in different sectors.
- Smart city platform. Introducing industrial technologies in an urban context can improve the life of the city dwellers by establishing innovation hubs and other modern, clean industrial production sites in urban areas. UNIDO’s services in this field concentrate on smart technologies for low-cost housing, and also on innovation hubs and smart industrial parks that are established in urban or peri-urban areas.

UNIDO’s Industry 4.0 programme offers an integrated and holistic portfolio of services that aim to:

- Raise awareness on Industry 4.0 opportunities and challenges for pursuing inclusive and sustainable industrial development in different developing country groups (from low- to medium, as well as land-locked, etc.) and regions (Africa, Asia and Pacific, Europe, LAC, Middle East) through global and regional forums; exchange of experts; and exposure to best practices through study tours.
- Foster international cooperation on the use of harmonized new standards and business protocols for interoperability in the context of the fourth industrial revolution and for reducing the possibility of conflicting national and regional standards.
- Mainstream business environment reforms including on legal, policy and regulatory frameworks for digital economy uptake by using digital technologies.
- Ensure industrial safety and security through regulations, standards and adoption of Industry 4.0 technologies.
- Provide evidence-based support to governments in the development of industry 4.0 roadmaps and innovation-friendly policies, business environment and regulations.
- Address product, process, functional and value chain innovation by using new digital technologies and new materials and business models, such as the design of new products; new brands, new processes for enhancing competitiveness; and a move to new functions and new value chains.
- Provide capacity-building activities to independently undertake Industry 4.0 readiness

analysis for the preparation of road maps and to monitor the uptake of new technology at the industry level.

- Conduct Industry 4.0 preparedness analysis at the macro-, meso- and micro-level; develop and apply indicators and measurement tools for an assessment of Industry 4.0 readiness focusing on industrial sectors such as textile and garments; automotive industry; electronics and electronic components.
- Assess SME preparedness for Industry 4.0 uptake using UNIDO methodology.
- Set up entrepreneurship and start-up programmes in new digital technologies, especially for disadvantaged population groups.
- Design technical and vocational education and training schemes to meet the demand for new skills stemming from the new industrial revolution.
- Develop science and technology parks and areas of innovation.
- Strengthen systems of innovation on the national, regional and sectoral levels for Industry 4.0.
- Leverage multi-stakeholder resources and international networks from international organizations and institutions, DFIs, the private sector, academia, and civil society to strengthen local capacities to absorb new technologies.
- Promote global e-commerce adoption, innovation, investment and development. Facilitate the development of e-commerce skills through the organization of workshops that promote novel training and skill development tools prepared by UNIDO and its partners.
- Advocate the importance of quality infrastructure and international standards in e-commerce by assisting institutions in creating and/or adjusting relevant national standards and policies, as well as by developing the technical e-commerce capacities of stakeholders.
- Promote Industry 4.0 in smart and sustainable city initiatives.
- Support the establishment of demonstration and innovation centres for the uptake of Industry 4.0 technologies and start-up programmes.
- Broker multi-stakeholder partnerships to advance technical and vocational education and training that meet the demand for new skills stemming from Industry 4.0.

Additional UNIDO activities and tools include:

- A biennial frontier technologies forum, which features site visits and helps assess the impact of frontier technologies on inclusive and sustainable industrial development. Such events gather the experts in the field, academia, new technology providers and innovative businesses to harness the potential of frontier technologies.
- A strategic framework for the uptake of Industry 4.0 at the industry level.
- A framework for Industry 4.0 preparedness analysis at the macro-, meso- and micro- SME levels.
- Guidelines for industry 4.0 road-mapping.

- A capacity-building package to independently undertake Industry 4.0 readiness analysis for road-mapping and to monitor the implementation.
- The enterprise modernization and innovation programme which supports the uptake of Industry 4.0 technologies.
- Tools for assessing the readiness of SMEs for Industry 4.0.
- Training packages for SMEs on Industry 4.0.
- Guiding tools and shop floor assistance on moving from lean management and kaizen to digital kaizen⁵.
- A guidebook and training tool for SMEs on ISO 56001 on Innovation Management System Standard.
- A training tool on e-commerce to familiarize SMEs on the potential of e-commerce development.

BUDGET ESTIMATE: USD 4.5-5.6 million for the technical cooperation portfolio at the industry and SME level per country (for up to three industries) over the 5 year term of the programme; USD 4.5 million for pilot demonstration centres per country; and USD 560,000 – 790,000 for the biennial frontier technologies.

5. *The Japanese word “kaizen” literally translates into “change for better.” In English, the word kaizen is typically used to describe a process to continuous improvement.*

ENTERPRISE MODERNIZATION AND INNOVATION PROGRAMME

OBJECTIVE: To help developing countries improve the business and legal framework conducive to the growth and development of their enterprise sector, compete and grow sustainably in a challenging global environment, thus creating additional value, income and jobs.

UNIDO's APPROACH: The Organization applies the Enterprise Modernization and Innovation Programme (EMIP), which follows a three level approach—policy, institutional and enterprise.

On the policy level, EMIP includes reviewing and drafting road maps, strategies, and policies that help remove legislative and legal barriers facing enterprises, and streamline and support business environment reforms.

On the institutional level, EMIP helps improve business development support systems such as the type and quality of services offered to enterprises (e.g. operational and strategic business development services, access to new technology, information, finance, and advocacy support); and supports the national structures responsible for enterprise development, upgrading and modernization. It also builds the skills and capacities of the national consultancy sector institutions and individuals through training, coaching and their direct involvement in the implementation of upgrading activities. It strengthens linkages between businesses, institutions and academia to better meet the needs of industry in terms of research and development, product and process innovation and technology transfer and ensuring a balanced approach to business development service supply and demand to safeguard the sustainability and development of the services market.

On the enterprise level, EMIP focuses on modernizing enterprises on a pilot basis. This includes an in-depth diagnosis of the enterprise's functions and capacities and developing an upgrading and modernization plan with proposed innovations and investment directed at increasing competitiveness and compliance with market requirements.

Aiming to enhance market access of modernized pilot enterprises, EMIP facilitates the development of joint marketing and the implementation of a joint branding strategy by creating a unique brand and respective identity for locally produced manufactured goods and the promotion of the branded products at local and international fairs and business platforms, thereby linking the manufacturers with potential buyers and exporters.

This level is complemented by an exit stage that serves as a strategy to sustain the operations and functions created by the project after its closure. The programme includes a number of tools that are designed to produce accurate and detailed information ensuring a high-quality and purposeful impact on the enterprise sector:

- Online enterprise diagnosis and monitoring platform covering different KPIs, an upgrading plan to support the performance and development of the enterprise sector.
- Business, institutional and regulatory environment assessment tools for the identification of crucial stakeholders, mapping of different donors and initiatives of relevance, and diving into a detailed industrial sector situation analysis. Equally, the assessment of the institutional capacity is measured to determine the needed intervention needed at this level. At the

regulatory level, the tools provide the means to review and determine the most influential and streamlined reform to enhance the conditions for the enterprise sector.

- Quality and evaluation tools ensure that all the proposed activities within the programme are consistent with national needs, priorities and policies, as well as with UNIDO's role, mandate and strategies.

Additional activities and tools include:

- Capacity-building tools of national institutions and their staff, and industry support institutions and their staff.
- Tools for business development service upgrading.
- Enterprises diagnoses and upgrading plans.
- Enterprise cluster/gathering mapping and development plans.
- Value chain/sectoral diagnosis and upgrading.
- Training, coaching and mentoring the enterprise sector on best practices in innovation and product development.

BUDGET ESTIMATE: USD 2.8 million per country.

PROMOTING THE DEVELOPMENT OF SCIENCE, INDUSTRY AND TECHNOLOGY PARKS AND AREAS OF INNOVATION

OBJECTIVE: Assisting developing countries in leveraging the potential of technology parks and areas of innovation with the aim of promoting technological learning, innovation and the development of new technologies as a path to inclusive and sustainable industrialization.

UNIDO's APPROACH: Firmly believing that techno parks and knowledge cities help foster prosperity and competitiveness, environmental and social sustainability, UNIDO has developed a programme and a set of tools that:

- Raise awareness, build and nurture capacity and encourage confidence in innovation.
- Develop competitiveness in entrepreneurship and innovation.
- Help a country to become a knowledge-based society with integrated inclusive and sustainable industrial development policies and actions, rooted in innovation processes.
- Contribute to the creation of new jobs, and hence diversify the industrial and economic base.

To avoid pitfalls and have access to best practices in setting up and managing technology park and areas of innovation, and related services such as support to entrepreneurship, start-ups, research and development management education, technology transfer, and others, UNIDO provides advice and assistance. This helps move a techno park project forward in a timely, effective and productive manner, benefitting from the best practices of the leading technology parks as well as experiences of experts and organizations with a proven track record in providing services in planning, designing, establishing, managing and promoting techno parks.

UNIDO has nine capacity-building programmes in the key strategic areas for the techno parks and areas of innovation development. They focus on such areas as innovation, knowledge and technology transfer, entrepreneurship, skills-building and partnerships. They include:

- Innovation programmes for SMEs, start-ups and related services, and bring together effectively research centres and SMEs.
- Programmes to support technology transfer, industrial research and development, and collaboration between academia and business.
- Programmes for the development and diffusion of innovative products, processes, methodologies and services, including new green technologies and processes.
- Entrepreneurship and business development programmes (spin-off and start-up incubators).
- Techno park's human resources selection and training programme.
- A programme on high-tech business park design, set-up, management and branding capability-building.

- An investment and technology promotion programme.
- The establishment of a centre of excellence for advanced training in the targeted technology.
- Programmes on partnerships and international collaborations and networking.

BUDGET ESTIMATE: USD 6.7 million for the above nine capacity-building programmes per country for the duration of three years.

STRENGTHENING THE PHARMACEUTICAL MANUFACTURING INDUSTRY IN AFRICA

OBJECTIVE: To support the development of the pharmaceutical industry in Africa, helping it reach international quality standards and remain competitive. This will improve access to medicines and contribute to continent's economic development and the implementation of the SDGs.

UNIDO's APPROACH: Developing Africa's pharmaceutical industry is a priority under the Third Industrial Development Decade for Africa (IDDA-III) which was declared by the United Nations General Assembly. UNIDO was tasked with leading the implementation of the decade, in collaboration with a range of partners, including the AUC and NEPAD.

African countries have identified the development of the pharmaceutical industry as a priority. In 2007, the Pharmaceuticals Manufacturing Plan for Africa (PMPA) was developed and endorsed by Heads of State and Government of the African Union. UNIDO was invited to develop a Business Plan for an accelerated implementation of the PMPA, which was endorsed in July 2012.

Strengthening the local pharmaceutical industry remains a complex undertaking. UNIDO has developed tools and insights that provide policy advice to governments, regional economic communities (RECs) and continental representative bodies on the ways of addressing the multifaceted, multi-stakeholder requirements. The core industrial development components are closely aligned with the development of a regulatory context, which largely falls under the purview of health-focused agencies such as the WHO and the African Medicines Regulatory Harmonization initiative, an on-going collaboration between various organizations and led by NEPAD.

UNIDO has adopted a holistic approach that recognizes the current context for pharmaceuticals manufacturing in Africa and establishes a realistic technical pathway for manufacturers to upgrade their operations. It also supports governments in implementing a conducive environment for businesses to make the requisite investments, and to provide technical support to manufacturers, thus helping them develop and implement plans for upgrading.

UNIDO also works on the demand side, collaborating with multilateral donor funds that procure priority essential medicines to ensure that there is a "market pull" to justify investments. Such a "market pull" is also generated through approaches that provide market data and inform businesses and investors of the opportunities that can be realized in different parts of the continent. A further aspect is ensuring that there is sufficient demand so that manufacturers can run their plants efficiently, for which UNIDO has developed a training course for manufacturers. Whilst regulatory barriers may be addressed at the level of regional economic communities, UNIDO also looks at addressing the non-tariff trade barriers that exist within the RECs.

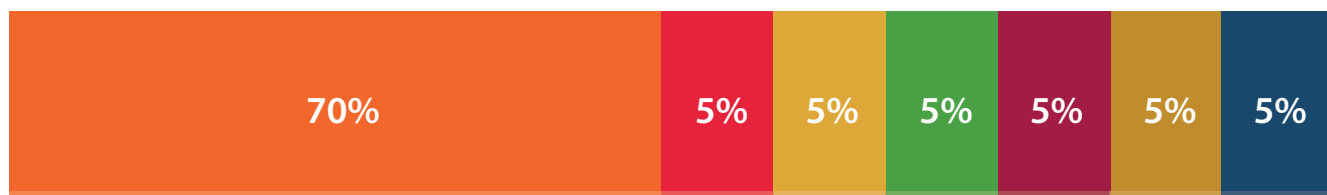
UNIDO recognizes that the level of development of Africa's pharmaceutical industry varies from country to country and requires a tailor-made approach. In this respect UNIDO offers its Member States the following services:

- Assistance in developing strategies for strengthening the industry on national and regional level.

- A step-by-step approach to developing an industry which is feasible and intrinsically mitigates risk to public health during its implementation.
- Basic training to convey the requirements of good manufacturing practices.
- Support for RECs in adopting a common pathway to international standards; and helping individual countries follow roadmaps and adhere to outlined requirements.
- Support to governments to align policy and implement time-limited incentives during transition.
- Support to companies to develop upgrading plans.
- Support in skills development through on-the-job training and through sponsoring residential courses.
- Assistance to companies in developing their business propositions to become attractive partners for foreign investors.
- Support for leading companies in developing viable businesses that profitably supply the major international donor funds and thus provide evidence of the “market pull” to justify investment.
- Through a combination of multiple approaches, including those listed above, UNIDO enhances and assists in quantifying market demand, as well as enhanced regulatory oversight to enable companies to access affordable investment to upgrade facilities.
- Creation of platforms to enable companies to access technology.
- Promotion of South-South and North-South technology transfer.

BUDGET ESTIMATE: USD 8 million for 2020-2021.

2.2 COMPETITIVE TRADE CAPACITIES AND CORPORATE RESPONSIBILITY



Contribution to the 2030 Agenda

COMPETING WITH QUALITY AND STANDARDS IN VALUE CHAINS

OBJECTIVE: To assist developing countries in developing a Quality Infrastructure System (QIS)⁶ and in complying with international standards, technical regulations and market requirements to access global markets, as well as to strengthen the confidence of local buyers in the quality of domestically produced goods, and to help governments devise sound policy recommendations to improve standards compliance capacity within their country taking into account the perspectives of the private and public sectors.

UNIDO's APPROACH: Instead of implementing single-country projects, UNIDO is now scaling up its services in a more comprehensive programmatic approach through the introduction of the Quality and Standards programme. It is based on replicating good practices; adopting a global perspective; and providing a convening and normative function.

Past implementation of country projects has shown that despite each country having its specific context and needs, many challenges are similar. Lessons learned can be used across the range of projects, thus increasing the value-added of each single project and allowing cross-fertilization from one country project to the other.

Given the strong level of globalization of international trade and value chains, many challenges cannot be tackled effectively only at the country level. A programmatic approach allows working with a critical mass of stakeholders to move towards global policy recommendations, tools and solutions, thus dealing with development challenges in a holistic and coherent manner.

UNIDO's technical expertise, normative function and global outreach, combined with its capacity to respond to urgent needs are often seen as a key advantage over other providers of technical assistance. Having a programmatic approach instead of stand-alone projects contributes to more coherent, comprehensive and multidisciplinary strategic cooperation with other development

⁶ A QIS provides a tangible understanding of a country's capacity to comply with standards, technical regulations and market requirements, determining its ability to access markets. It consists of a regulatory framework and quality policy which focus on developing quality infrastructure institutions, including metrology, standardization and accreditation, as well as the conformity assessment services such as testing, inspection and certification.

agencies and helps focus on global trends in development cooperation, as well as cross-cutting technical trade-related issues.

UNIDO's Quality and Standards programme takes into account key recommendations from the Swiss Secretariat for Economic Affairs (SECO)-funded 2010 NQS thematic evaluation of UNIDO programmes, and the 2015 Norwegian Agency for Development Cooperation (NORAD) review of UNIDO's 2005-2013 trade capacity-building programme, as well as other lessons learned from past experiences.

An active and participatory governance structure that provides a voice to different stakeholders is conducive to the development of a QIS. The UNIDO programme facilitates policy dialogue (both public-public and public-private), and the establishment and/or formulation of a Quality Policy aimed at providing strategic guidance and alignment in the normative and institutional frameworks.

The private sector has a key role to play on both demand and supply side of Standards, Metrology, Accreditation, Testing and Quality: a strong private sector involvement supports QIS development. The implementation of the Sustainable Development Goals requires strong partnerships between industry, governments, civil society and other key stakeholders. UNIDO's Quality and Standards programme foresees close cooperation with key counterparts and players and helps bring to the table innovative methods and strengthened mechanisms for leveraging funding, creating employment, and advancing technology, innovation and research.

The programme targets outcomes in support of the 2030 Agenda and aims to enhance trade and competitiveness through promoting a favourable quality infrastructure framework for quality and standards compliance and fostering greater international competitiveness of SMEs.

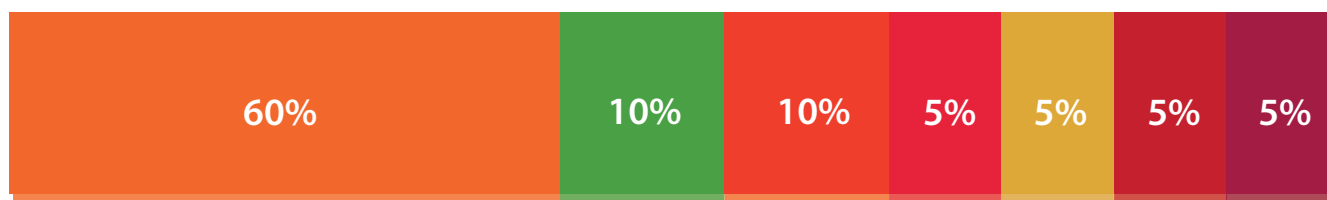
The programme also underlines UNIDO's mission to promote and accelerate inclusive and sustainable industrial development and assist Member States in strengthening competitiveness in global markets.

This is done through capacity-building in quality and standards compliance in accordance with international standards, regulations and private-sector requirements, and by helping producers and processors in developing countries integrate into local, regional and global value chains, and connect with retailers and manufacturers through cluster and network development approaches.

UNIDO's approach to build a country's trade capacity is based on enabling three requirements for participation in international trade: a competitive production sector; conformity to the requirements of international markets; and connectivity to these markets. In this respect, UNIDO cooperates with other agencies, such as the International Trade Centre (ITC), UNCTAD, WTO, and with various DFIs.

BUDGET ESTIMATE: the programme currently covers 8 countries (Colombia, Ghana, Indonesia, Kyrgyzstan, Peru, South Africa, Ukraine and Viet Nam) and has a budget of CHF 17.4 million (around USD 17.2). A similar programme can be developed for a different group of countries according to the priorities of a specific donor or group of donors.

2.3 ENTREPRENEURSHIP DEVELOPMENT



Contribution to the 2030 Agenda

LINKING PRODUCTIVE ACTIVITIES TO THE TOURISM INDUSTRY

OBJECTIVE: To advance economic competitiveness, strengthen regional industrial and economic cooperation and foster inclusive and sustainable industrial development in selected Belt and Road Initiative countries, through local value chain upgrading and the integration of productive activities with the tourism industry.

UNIDO's APPROACH: UNIDO uses the value chain approach to leverage benefits from linking productive activities to the tourism industry. By promoting linkages between tourism, local cultures, traditions, skills, talent pool, and value chain development and upgrading, competitiveness can be enhanced, innovation can be boosted and new jobs created.

This approach has great potential in boosting investment and innovation, job creation, the inclusion of disadvantaged population groups, and digital modernization with a positive impact on the inclusive and sustainable industrial and economic development of local communities.

Fostering linkages of productive activities to the tourism industry implies a shift from a sectorial orientation towards sectorial integration and a territorial approach. Underlying this approach is the ability of local actors to valorize the delivery a whole set of territorial goods and services in a complementary way and based on local assets, history and culture. This helps economies grow in scale and scope, cut costs, and increase both the productivity and competitiveness of local products, and the attractiveness of the location a destination for tourism.

Due to the trends in digitalization, local productive activities, tourism, related support systems, and business regulations have to be modernized and upgraded. Industry 4.0 technologies, such as artificial intelligence, the Internet of Things, big data analysis and cloud computing, create new opportunities, including for tourism value chains, helping them become more efficient, safer and greener, optimize journey times, and minimize costs for travelers.

UNIDO assists local and national governments in strengthening and capitalizing on linkages and synergies between economic sectors, and in developing a cohesive approach to enable economic integration and convergence among these sectors driven by the advance digital and other

technologies and new business models.

In this respect, UNIDO offers an integrated package of services that aim to:

- Foster economic integration through market intelligence and market positioning studies, including identification of industry sub-sectors; mapping local value chains and their contribution to the inclusive and sustainable industrial and economic development of the tourism industry; and identification of the most promising local supply chains to be upgraded and to supply the tourism industry.
- Mobilize the combined efforts of MSMEs, local producers' associations, government ministries, hotels, tour operators and other members of the tourism industry, to boost the visibility of typical local products, both within the country and in international markets.
- Improve the branding, quality and competitiveness of local producers and in turn facilitate market access and enhance a country's or region's tourist offering.
- Upgrade and modernize local suppliers of goods and services to the tourism industry; improve the quality and range of their produce; and enhance their capacity to supply high value-added products and services to the tourism sector that meet quality and safety requirements recognized by the international tourism industry.
- Transfer know-how and strengthen local experts' skills, and build business networks between manufacturers and service providers with tourism industry operators.
- Foster joint actions and inter-firm linkages using the cluster building approach to promote inclusive and sustainable economic development through economic integration (such as tourist trail development, trade fair participation, product degustation and competitions, and shared promotional material).
- Strengthen institutional support by establishing public-private partnership platforms (collaborative governance models).
- Ensure quality and standards compliance (such as ISO 22000; and meeting the requirements of food safety and eco labels in tourism).

Additional activities and tools include:

- Value chain mapping.
- Industrial upgrading and modernization by deploying Industry 4.0 technologies for food processing and storage, creative and cultural industries, and tourism.
- Building the capacity of stakeholders through provision of tailor-made training on various issues, workshops, study tours, and participation in trade fairs; including local sourcing; food safety; branding; product shaping and packaging; marketing and investment promotion; eco management and eco labelling; and sustainable tourism management practices.
- Establishing shared demonstration, training and promotional centres to address common constraints, experienced by local producers, or to promote local products and services. More specifically, providing training on expanding the existing offer to attract new segments of tourists and developing programmes together with neighboring countries.
- Building integrated MSMEs clusters following the integrated cluster approach methodology, through the combination and the synergistic linkages between economic sectors, such as the agro-business, other manufacturing activities including the cultural and creative industry,

and tourism. Strengthening MSME competitiveness and access to the tourism market.

- Using a national contest approach to identify and valorize typical products.
- Developing origin consortiums.

BUDGET ESTIMATE: Around USD 2.8 million per country over the 3 years term of the programme.

ENHANCING THE BUSINESS ENVIRONMENT FOR SMEs, CLUSTERS AND ENTREPRENEURSHIP DEVELOPMENT

OBJECTIVE: Creating and maintaining a business climate that stimulates SMEs, cluster and entrepreneurship (including social entrepreneurship) development.

UNIDO's APPROACH: Through a combination of advisory and capacity-building services, the Organization strengthens the national capacities to design and implement business environment reforms geared towards facilitating the process of starting a business, reducing transaction costs and risks, as well as addressing the informal economy and social exclusion, providing business infrastructure and support services, attracting impact investment, and stimulating SMEs to grow, innovate, learn and compete.

UNIDO works with local partners, such as governments, businesses (for profit and non-profit) and their membership organizations and associations, as well as civil society, academia and financial institutions, helping design and implement business environment reforms to improve the business climate in which enterprises operate. The programme tools aim at:

- Ensuring a thorough diagnosis of business environment conditions, as well as barriers and other obstacles hindering the creation of new SMEs and their clusters, helping with networking and entering new markets.
- Improving legal, policy and regulatory frameworks.
- Improving the regulatory framework for business registration and company formation.
- Creating an enabling environment for entrepreneurship, including social entrepreneurship and inclusive business.
- Designing context specific cluster development programmes including SME- and cluster-specific business environment reforms; supporting export and origin consortia and meeting requirements of quality labels such as geographical indicators, food quality labels; organic certifications and others; based on UNIDO methodology.
- Supporting the uptake of digital platforms for SME cooperation, marketing and access to markets (e-commerce).
- Improving human skills to meet new market and technology requirements.
- Supporting innovation and technological learning of SMEs and their clusters through regional innovation system building.
- Providing start-ups and entrepreneurship training programmes.
- Mainstreaming gender in business environment reform.

UNIDO uses the following flagship programmes and tools:

- Business registration and single point of registration.
- Capacity-building of governments and other stakeholders on analysis, design, implementation and monitoring of business environment reforms, as well as setting up of partnership dialogue mechanisms.

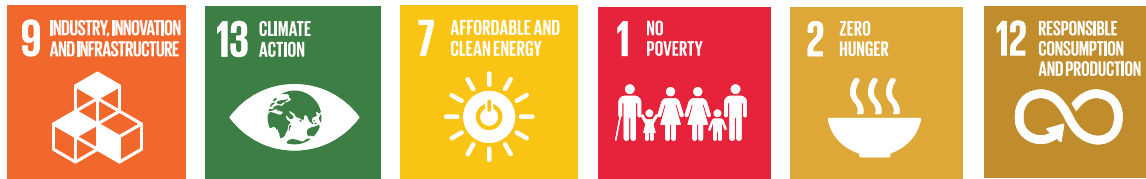
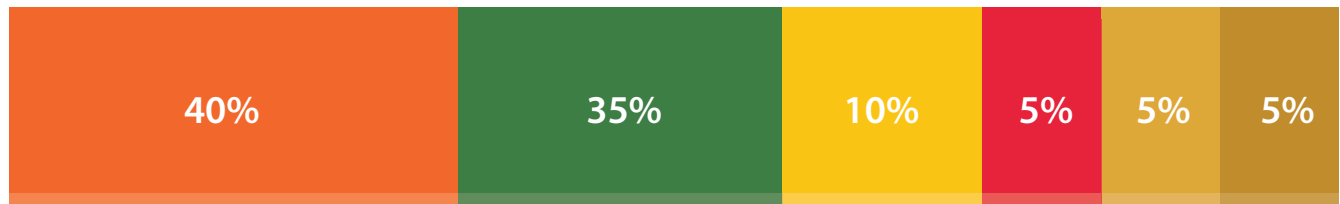
- A cluster development programme.
- An export and origin consortiums programme.
- An SME academy.
- Map and diagnostics of social entrepreneurship and design programmes to improve the overall business environment and associated investment climate for social entrepreneurship and incorporate international best practices into its support activities; advisory support for the promotion of strategies and policies for social business development.
- Awareness-raising and knowledge-sharing platforms for exchanging best practices focusing on international best practices and experiences on building an effective business environment in different country contexts and supporting the building of partnerships among stakeholders.

BUDGET ESTIMATE: USD 7.5 million for the above seven interventions per country for the duration of three years.



3 SAFEGUARDING THE ENVIRONMENT

3.1. RESOURCE-EFFICIENT AND LOW-CARBON INDUSTRIAL PRODUCTION



Contribution to the 2030 Agenda

CIRCULAR ECONOMY

OBJECTIVE: To reduce poverty in developing economies through the introduction of a systemic circular economic development model which enshrines economic, environmental and social dimensions, simultaneously.

UNIDO's APPROACH: The Organization's circular economy programme¹ is based on the understanding that a transition to a circular economy in developing countries requires a systemic perspective with attention given to the broader framework conditions, including regulatory, and the build-up of intelligence, knowledge and awareness of the specific characteristics of circularity in a given country and value chain.

The main objectives of the programme:

- Increased uptake by developing countries of a circular economy approach to their national development through increased understanding that this offers a triple benefit of economic growth, employment growth and environmental protection.
- Enhancing understanding amongst key stakeholders in developing countries on how to undertake the practical introduction and implementation of circular economy approaches.
- Improved circularity amongst low tier suppliers of multi-national companies and large scale, national and/or regional domestic companies in developing countries to reduce the overall negative environmental footprint.
- Improved circularity through the enhancement of existing industrial or entrepreneurial pillars for circular economy in countries, and through the facilitation of related new activities in the areas of circular design, resource efficient cleaner production, and extension of useful life through new business models, recycling and conversion to secondary raw materials.

⁷ Member States tasked UNIDO to launch consultative exchanges on the circular economy (General Conference Resolution GC.17/ Res.4 from December 2017).

- Improving broad, efficient uptake of circular economy elements by enterprises and countries, with appropriately differentiated priority areas and speed of progress, by facilitating multilateral exchanges on policies, approaches, technologies and timelines, and enabling increased North-South and South-South know-how transfer.

The key activities of the programme include:

- Country selection, based on readiness confirmed by research and analysis, most appropriate partner country(ies) in regions, subject to available resources.
- Value chain identification, in collaboration with value chain leading global or domestic businesses and rigorous research and analysis in product groups such as food and feed, agricultural, food and feed waste, plastics, automotive, construction and cement, garments and textiles, electrical and electronic products and their waste, paper, metals, minerals, etc.
- Circular opportunities mapping, as the result of baseline data collected in the selected sector, including but not limited to areas such as circular economy friendly product designs and resource efficient production; product life extension, including through design in collaboration with the global value chain leader and large scale domestic national and/or regional producers; remanufacturing, refurbishment and re-use of products and components; recycling; utilization of renewable energy sources; product as service; sharing models; and shift in consumption patterns.
- Prioritization of circular opportunities, through the systematic screening of opportunities.
- Identification of the barriers to the capitalization of opportunities, where the impact of the identified barriers are assessed in discussion with all key stakeholders.
- Detailed pilot project design and implementation on the ground to remove the identified barriers at the macro-, meso- and micro-levels and to capitalize on opportunities in a systemic manner.
- Monitoring of the performance of pilot circular economy projects at country levels and globally against clear indicators with pre-established baselines and targets to have clear and irrefutable independently verifiable evidence of impact; collection of additional information from other implementing agencies and from governments to put together a body of knowledge for analysis, learning and optimization; dissemination of knowledge gained at the global level through technical consultations or similar instruments, expert group meetings and conferences; and gathering lessons learned as guidelines and norms at the global level, as relevant.
- Promotion to replicate the success of pilot projects, in collaboration with Member States and development partners.

BUDGET ESTIMATE: Around USD 4.5-5.6 million for a value-chain project per country over the five-year term of the programme⁸.

8. *The cost of a pilot project at the country level depends on the actual circumstances and the transition readiness on the ground, including circular economy implementation in one value chain or in one sector of circular economy (design/production/lifetime/recycling/secondary raw materials) and the country budget's contribution to global knowledge management and learning. In addition, funding for global activities to maximize the industrial development potential of circular economy is being sought from different donors.*

GLOBAL IMPACT PROGRAMME FOR DECARBONIZING INDUSTRY IN DEVELOPING COUNTRIES AND ECONOMIES IN TRANSITION

OBJECTIVES: Assist developing countries in decarbonizing their industrial sector, raising awareness and understanding of opportunities that exist in this respect, developing policy and regulatory frameworks for uptake of low-carbon technologies and practices in industry, and technical capacities and competencies for designing, financing, and implementing projects.

UNIDO's APPROACH: Working with industries and governments, UNIDO helps deliver transformative, nationally adapted, cost-effective and long-term service packages to help supply-constrained developing and emerging economies meet their energy demand and loosen the link between economic growth and their climate change impact.

Key to UNIDO's approach is the diagnostic tool, the industrial energy efficiency accelerator, through which UNIDO provides analytical support at regional, national and sub-national levels to evaluate the efficacy of various best practices as well as innovative policy options. The accelerator also analyses the tools and instruments best suited for promoting successful policies under local circumstances and conditions.

UNIDO's interventions aim to deliver comprehensive energy and carbon performance improvement support to governments, industries and local market actors. UNIDO provides targeted technical assistance in the areas of policy and regulation, capacity-building, technology demonstration, investment mobilization and awareness-raising.

UNIDO offers integrated and comprehensive service packages which equip developing countries with the required skills to improve energy efficiency and transition to renewable energies.

The input and participation of local stakeholders are at the forefront of both the technical expertise and conceptual guidance that UNIDO provides to help governments introduce and disseminate the energy management systems, system optimization, and integration of renewable energy applications in industry programmes.

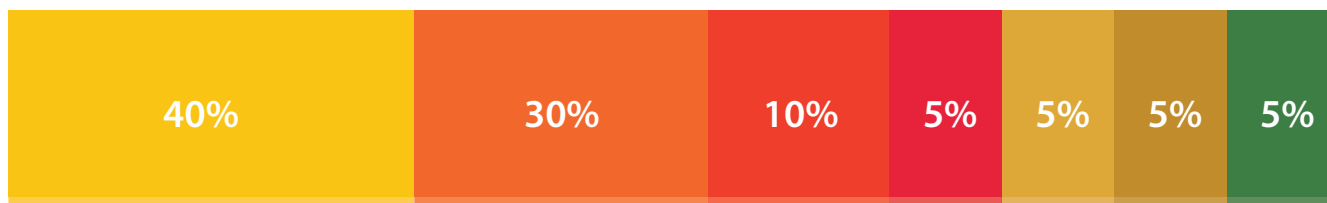
UNIDO works closely with governments to build their institutional capacity to run energy management systems, provide training materials, build national awareness campaigns, train national experts, support domestically-based equipment suppliers and establish peer-to-peer networks. This facilitates the introduction of ISO energy standards and builds capacity for energy systems optimization. UNIDO's programmes have been implemented in 18 countries. Energy management systems projects have cumulatively saved USD 400 million of energy costs for enterprises supported by UNIDO and reduced CO₂ emissions by 15 million tons.

The programme on integration of renewable energy applications in industry aims to address the pressing need for industries to transition from fossil fuel based to renewable energy systems. UNIDO has taken the lead in this area, piloting schemes in the applications of solar, biomass and biogas.

UNIDO will pursue increased and accelerated deployment of renewable energy technologies for industrial applications through strengthening the renewable energy supply chain and supporting the diversification of renewable energy applications for industrial uses. In particular, industrial heat has a lot of potential for the conservation of energy, since it makes up two-thirds of industrial energy demand and almost one-fifth of the global energy consumption.

BUDGET ESTIMATE: USD 20 million for 2020-2021.

3.2 CLEAN ENERGY ACCESS FOR PRODUCTIVE USE



Contribution to the 2030 Agenda

LEAPFROGGING ENERGY SYSTEMS BY DEVELOPING LOW-CARBON SMART INFRASTRUCTURE

OBJECTIVE: The development of renewable energy powered mini-grid and cleaner infrastructure systems for industry and transport in rural, remote areas, especially in small island developing states (SIDS) and least developed countries (LDCs), to trigger social change and provide communities with a path towards a more prosperous future.

UNIDO's APPROACH: The Organization supports its Member States by providing an integrated set of services and tackling various barriers, including in the area of strengthening the policy and regulatory environment for the uptake of low-carbon based technologies and practices through institutional capacity-building and the development of policy programmes, legislation and normative instruments, tailored to the needs of a wide range of market players, including industries, governments, financial institutions and the private sector.

UNIDO demonstrates and helps scale up e-mobility, renewable energy applications, and mini-grid solutions; raises awareness and information dissemination through the creation of targeted knowledge products for policy makers, industries, communities, and end users. It facilitates and moderates regional dialogues, multi-stakeholder partnerships and supports exchanges between Member States and the regional organizations. It also leverages proven methods and existing global and in-country experience, knowledge and networks to spread out the initiative worldwide.

UNIDO provides targeted technical assistance to its Member States in transitioning to a more affordable, secure and sustainable energy system through the acceleration of private investment and the removal of structural barriers to market development.

The Organization works hand-in-hand with governments, the private sector and civil society. The necessary policy, regulatory and financial support is put in place to create the environment for investment opportunities, and deliver benefits to the energy impoverished.

UNIDO has a solid track record in supporting the development of mini-grid projects across 12 countries in Asia and Africa. Its expertise and networks with international partners and government

counterparts are strong assets to provide services in this field. UNIDO's service packages focus on de-risking the investment environment for low-carbon based mini-grid solutions.

These include providing technical assistance with the formulation of standardized tendering instruments; strengthening and streamlining administrative procedures for the deployment of mini-grid solutions such as licensing and permitting requirements; and for designing tax reduction or exemption schemes to support energy-focused equity investors.

Small hydropower is a valuable source of renewable energy for mini-grids. It is a source that is able to provide consistent baseload electricity coverage due to perpetual river flows.

In partnerships with the International Network on Small Hydro Power (INSHP) and the International Center on Small Hydro Power (ICSHP) in China, UNIDO works to promote South-South cooperation to effectively disseminate small hydropower technologies in developing countries.

Since its establishment in 1994, ICSHP has trained over 800 engineers and technicians and developed small hydro power initiatives in Asia, Africa and Latin America. ICSHP has also been central to the construction of dozens of small and micro hydropower demonstration plants worldwide. There are currently five small hydro power demonstration bases in China and three sub-centres in Colombia, India, and Nigeria.

ICSHP has been a key partner of UNIDO for many years. It is a hub of small hydro power in the world and has access to knowledge and technology expertise of Member States. ICSHP has the ability to assist as an implementing partner of UNIDO in various projects including the World Small Hydropower Development Reports, technical guidelines for small hydro power development, feasibility study conduction and project demonstrations.

UNIDO continues to deliver TC to cities around the world: supporting the piloting of smart grid technologies; maximizing resource efficiency and cleaner production through the application of urban-industrial symbiosis; improving urban air quality through policies and partnerships; supporting the sustainable development of eco-industrial parks; increasing waste diversion and recovery as well as developing waste-to-energy plants.

Likewise, UNIDO continues to build on its existing experience with e-mobility, piloting renewable energy powered electric vehicles integration and manufacturing as well as accelerating the adoption and manufacturing of low-carbon energy efficient mobility. UNIDO's service packages in this field include de-risking the investment for electric vehicles and electric vehicle supply equipment; providing technical assistance in removing barriers and creating a favorable enabling environment for electric mobility through supporting the development of policies, regulations, fiscal measures and other incentive schemes.

UNIDO's approach to promoting the uptake of low-carbon energy efficient mobility lies in ensuring that the transition to electric mobility favours the integration of renewable energy sources and the de-carbonization of the power grid.

Regional partnerships, cooperation and integration between countries, private sector and civil

society are also effective tools in addressing some of the existing demand and supply barriers to sustainable energy and low-carbon technologies market development.

To accelerate the uptake of integrated and inclusive sustainable energy development in developing countries, UNIDO launched the Global Network of Regional Sustainable Energy Centres (GN-SEC).

Under a common quality and methodological framework, UNIDO assists regional organizations in the establishment of sustainable energy centres and their technical programmes, and acts as facilitator and moderator of the political and technical design dialogues between Member States and regional organizations.

Through cross-border approaches and methodologies, the centres complement and accelerate national efforts in the areas of policy and regulation, capacity development, knowledge and data management, awareness-raising, as well as the promotion of investment, innovation and entrepreneurship.

The geographical coverages potentially include all developing countries and economies in transition. For regional partnerships, cooperation and integration, a growing emphasis will be placed on SIDS and land locked LDCs, etc.

The programme positions UNIDO as a leading agency on the topic of sustainable cities by building a resilient infrastructure and strengthens cooperation with the EU under the umbrella of regional cooperation.

BUDGET ESTIMATE: USD 40 million for 2020-2021.

CLIMATE AND CLEAN ENERGY TECHNOLOGY INNOVATION AND FACILITATION

OBJECTIVE: Provide targeted technical assistance and support to clean technology innovation SMEs to help transform their innovations into fast growing, scalable and investible enterprises.

UNIDO's APPROACH: The Organization helps Member States establish effective climate technology innovation ecosystems that support SMEs in fostering innovations as well as new employment and economic opportunities. Such ecosystems support the transformation of climate technology innovations into global businesses by providing the SMEs with requisite network of expertise, finance and organizational resources.

UNIDO assists in the development of new models of investment and new partnerships between climate technology-based SMEs and governments, experts, investors, industries, and beneficiaries.

This is done by mentoring businesses, helping them build capacity and by facilitating access to financing. The services offered are tailored to specific markets and open avenues for SMEs to grow and scale up their operations. At the same time, UNIDO works with partners to establish and strengthen markets. The market intelligence gathered, together with regional or global best practices and norms, inform the demand and market pull. This, in turn, creates demand for technology facilitation, innovation, commercialization, entrepreneurship and upscaling.

UNIDO supports and hosts several initiatives in the field. They include the following entities.

In the last four years, the Global Cleantech Innovation Programme (GCIP) accelerated over 900 climate technology innovation SMEs across eight countries, transforming early-stage innovations into fast-growing and investible businesses. By supporting climate technology innovations in developing countries, GCIP facilitates the emergence of endogenous technology innovations that accelerate access to modern energy services and climate technologies and services, as well as create green jobs and industries.

The programme also helps countries develop policy and regulatory innovations that create the market pull for climate technologies, and builds the capacities of national institutions to support clean technology innovation, commercialization and upscaling.

The Climate Technology Centre and Network (CTCN) promotes the accelerated deployment of environmentally sound technologies for low carbon and climate resilient development at the request of developing countries. CTCN also provides technology solutions, capacity-building and advice on policy, legal and regulatory frameworks tailored to the needs of individual countries.

Another important initiative is the Private Finance Advisory Network (PFAN). Hosted by UNIDO, it has an established track record in identifying and nurturing projects in low carbon, climate resilient development, in order to subsequently introduce them to prospective investors. PFAN has supported over 110 projects to reach financial close, thereby leveraging in excess of USD 1.4 billion in investment.

UNIDO's interventions through GCIP, the CTCN and PFAN are premised on the recognition of the role of the private sector in accelerating the energy transition and the attainment of low-carbon

and climate resilient economies. The energy transition and climate action creates opportunities for industrial transformation to create green jobs, protect the environment, create shared prosperity, build national capacities and promote gender equality.

With a focus on climate and clean energy technology-based SMEs, the set of services that are provided under this programme include:

- Innovation, entrepreneurship and business acceleration: identifying early stage climate and clean energy technology and business model innovations and accelerate these through coaching, mentoring, and training so that they become fast-growing, scalable and investible enterprises;
- Legal and regulatory frameworks: assisting national governments in implementing legal and regulatory policies that create business incentives or obligations that address both the supply and demand side of climate technology markets;
- Access to financing: developing investment-grade climate technology based projects and helping enterprises to access early-stage financing, as well as risk capital instruments and opportunities; and
- Building institutional capacity: strengthening the capacities of national institutions to be able to promote climate technology innovation, commercialization, and entrepreneurship and upscaling.
- Market development: assisting in the development of standards, norms and other instruments that facilitate overall growth of climate technology markets.

These services help establish effective climate technology innovation ecosystems where innovations are accelerated and systematically supported so that they can be transformed into fast-growing, scalable and investible enterprises.

The geographical coverage includes all developing countries and economies in transition. The GCIP's current emphasis on emerging economies is being expanded to low- and middle-income countries and SIDS. PFAN services are widespread, with a focus on Western, Eastern and Southern Africa, South and Southeast Asia, Central America, and SIDs. CTCN covers all developing countries and economies in transition.

BUDGET ESTIMATE: USD 50 million for 2020-2025.

GLOBAL CLEAN COOKING PARTNERSHIP FOR MARKET, TECHNOLOGY, FINANCIAL AND SOCIAL INNOVATION

OBJECTIVE: Help developing countries move away from inefficient wood-based fuel, which is a serious cause for rapid deforestation, and primitive cook stoves that generate black carbon emissions leading to unhealthy exposure to household air pollution.

UNIDO's APPROACH: The global programme for clean fuels and cooking technologies introduces clean fuel technologies by using a market-enabling framework that raises the demand, productivity and competitiveness of local SMEs. It develops the manufacturing capacity of bio-ethanol micro-distilleries and encourages them to switch to affordable renewable energy sources for clean cooking.

UNIDO's activities in the field of clean fuels and cooking technologies were designed with a vision of cross-sectoral collaboration and partnerships, which is central to the strategy of achieving long-term human, environmental and social impact.

UNIDO's core TC capacity is further complemented by strong financial and social partnerships that improve access to finance, health and education.

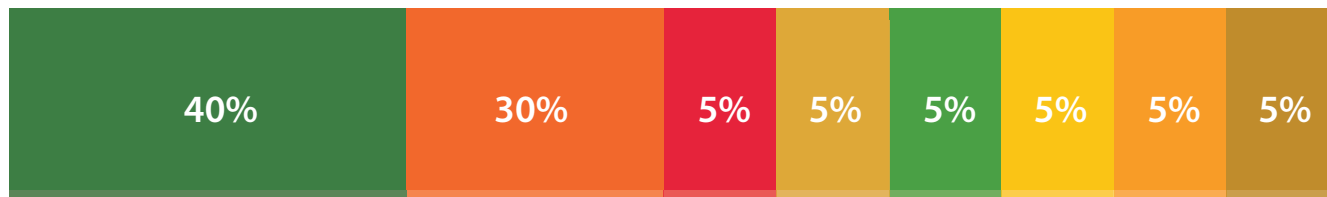
Together with local and international partners, UNIDO helps introduce innovative results-based financing schemes that support household savings from clean cooking, and create a favorable policy and regulatory environment for improving the access of SMEs to financing for clean fuel supplies.

Some 500,000 households in the Tanzanian capital, Dar es Salaam, where UNIDO is piloting the programme, will benefit from switching to clean cooking.

In the course of the next five years, the programme is expected to reach up to 10 million households, furthering industrial development and creating thousands of jobs, including in Afghanistan, Bangladesh, China, DRC, Ethiopia, Ghana, India, Indonesia, Kenya, People Republic of Korea, Madagascar, Mozambique, Myanmar, Nigeria, Pakistan, Philippines, Sudan, Tanzania, Uganda, and Viet Nam.

BUDGET ESTIMATE: USD 40 million.

3.3 IMPLEMENTATION OF MULTILATERAL ENVIRONMENTAL AGREEMENTS



Contribution to the 2030 Agenda

MONTREAL PROTOCOL

OBJECTIVE: To assist countries in meeting the phase-out targets of the Montreal Protocol on Substances that Deplete the Ozone Layer, and support countries in ratifying the Kigali Amendment to the Montreal Protocol.

UNIDO's APPROACH: Working with countries and relevant national stakeholders to define country strategies for a staged phase-out of ozone depleting substances (ODS) to meet national reduction targets in 2020, 2025 and 2030. In parallel, also ensure that replacements of ODS have minimized climate impact, given that a number of ODS alternatives are strong greenhouse gases. UNIDO develops and implements hydrochlorofluorocarbon (HCFC) phase-out management plans, which are country strategies to map ODS consumption patterns and outline activities required to achieve ODS reductions as per Montreal Protocol commitments.

Activities typically consist of:

- Conversions in industries producing insulation foams as well as industries producing refrigeration or air conditioning equipment. The conversion activities modify and optimize manufacturing processes to facilitate introduction of non-ODS alternatives with no negative impact on the climate. The programme typically converts 50 industries annually.
- Support to SMEs involved in either assembly of refrigerating appliances or servicing refrigeration- or air conditioning equipment. The support typically consists of capacity-building and training, and also includes the tools required to introduce good practices. The programme typically supports 2,000 SME's annually.
- Project monitoring and verification for the above activities.

UNIDO also implements institutional strengthening projects that offer support to government entities, typically within environment ministries, to help meet all Montreal Protocol obligations, such as annual reporting of consumption, setting and maintaining licensing systems, facilitating the import of equipment, and coordinating stakeholders.

When certain technical barriers exist, the Multilateral Fund for the Montreal Protocol (MLF) allows for a limited number of technology demonstration projects. The current scheme focuses

on demonstrating the incremental cost for phasing out hydrofluorocarbons (HFCs); as planned through the Kigali Amendment. Future funding windows will likely focus on integration of energy efficiency within the phase-out of HFCs. Enabling activities are currently implemented to assist countries in developing necessary policies and other requirements to ratify the Kigali Amendment.

BUDGET ESTIMATE: USD 30 million annually mainly from the MLF.

IMPLEMENTING THE MINAMATA CONVENTION ON MERCURY

OBJECTIVE: To assist developing countries and economies in transition in implementing their obligations under the Minamata Convention to:

- Build the capacity of governments in the management of mercury use and release in their respective countries, in particular through enabling activities.
- Minimize the environmental impact and fully benefit from the rural development potential of artisanal and small-scale gold mining (ASGM).
- Reduce and, where possible, eliminate the use of mercury in industrial sectors, both in production processes, such as use of mercury as a catalyst, as well as in products, through improving production efficiency.
- Help ensure environmentally sound management (ESM) of mercury containing waste, in accordance with the guidelines developed by the Basel and Minamata Conventions.

UNIDO's APPROACH: Working with governments and industry, UNIDO supports the strengthening of policies and instruments to catalyze the conversion of industrial facilities to use mercury-free alternatives. UNIDO also helps industries optimize production processes to reduce mercury emissions and develop mechanisms for the safe management of mercury-containing products and wastes.

Where feasible, programmes carry out interventions within a circular economy context.

When addressing the needs of ASGM, where mercury is used for gold extraction and processing, UNIDO carries out initial assessments in developing countries that help to identify priority areas in mercury use and emissions. Through National Action Plans for the artisanal and small-scale gold mining sector, UNIDO helps to develop tactics and strategies, raise awareness of mercury's harmful impact and recommend policies to improve health of people in ASGM communities.

UNIDO uses a value chain approach and supports the formalization of the sector through the establishment of legal and sustainable enterprises, operations and channels, based on traceability. The potential impact of the ASGM sector for development is wide, touching issues related to poverty eradication, food availability (reduced through mercury content of irrigation water), clean water, decent work, life on land and below water, health, gender, and youth, thereby contributing to several SDGs.

BUDGET ESTIMATE: USD 4 million per country (based on a holistic approach on artisanal gold supply chain and due to synergies between the individual components).

UNIDO's programme on industrial conversions to mercury-free processes focuses primarily on the vinyl chloride monomer production and chlor-alkali production sectors. UNIDO helps governments to enact policies and instruments to drive the conversion of facilities using mercury-based processes to mercury-free alternatives.

Since these interventions tend to improve efficiency, they have a positive payback period.

Consequently, UNIDO's interventions include measures aimed at: assisting industry in obtaining funding from IFIs, capacity-building on available technologies, plant decommissioning, and the promotion of best available technology and best environmental practice (BAT/BEP) measures in existing facilities.

BUDGET ESTIMATE: USD 5 to 10 million.

Reducing mercury emissions is another area of UNIDO expertise. It focuses mainly on metal smelting industries and cement production and takes a multi-pollutant approach to reducing air emissions including mercury, POPs and CO₂.

UNIDO's work in the field of emissions reduction involves policy assessments and strengthening, input and process optimization, BAT/BEP interventions and energy efficiency improvements. UNIDO is able to draw on expertise from three of its divisions in the departments of energy and environment to implement this programme.

BUDGET ESTIMATE: USD 5 to 10 million.

UNIDO's activities in the field of environmentally-sound management of mercury follows the Organization's overall approach to hazardous waste management, which is part of a wider green industry initiative. The focus is on safeguarding the environment while helping industry develop in an innovative and more resourceful way.

UNIDO's mercury-added products programme looks at the entire lifecycle from design and manufacturing to disposal, and introduces appropriate policies and alternatives for the production and management of systems for handling, treatment and disposal.

BUDGET ESTIMATE: USD 2 to 5 million.

STOCKHOLM CONVENTION

OBJECTIVE: To help countries in the implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs), develop new industries without POPs releases and to establish recycling and waste management industries in a manner that minimizes the generation and release of POPs in industry.

UNIDO's APPROACH: Working with industry, UNIDO helps optimize production processes to avoid POPs emissions; set up new facilities and production lines utilizing POPs alternatives; and construct and operate facilities for the safe management of POPs-containing material.

The programme is organized within the overall circular economy paradigm and mainly focuses on recycling Industries as well as decontaminating materials for further use and reclamation.

UNIDO proactively promotes the introduction of best available techniques and best environmental practices in different industrial source categories as the most important measure to the continued minimization of unintentional POPs (uPOPs) releases, such as dioxins.

UNIDO has developed a diverse portfolio aimed at reducing and, where feasible, eliminating uPOPs releases from respective priority source categories such as: fossil fuel-fired utility and industrial boilers, waste incineration, secondary metallurgical as well as textile and leather industries. UPOPs emissions are further reduced by developing recycling industries to avoid disposal through open burning. These projects promote the adoption of BAT/BEP in facilities of varying complexity and sizes, in a manner that protects human health and reduces adverse environmental impacts.

The UNIDO approach emphasizes the engagement and involvement of private-sector entities, achieved through participatory funding systems. It also focuses on the provision of appropriate training to plant personnel on the concepts of BAT and BEP to reduce uPOPs and other emissions. Through the application of appropriately selected technologies and best environmental practices, UNIDO's interventions simultaneously increase energy efficiency and reduce uPOPs releases. This helps countries to address climate change mitigation measures, while meeting their obligations under the Stockholm Convention.

UNIDO's programme on Polychlorinated Biphenyl (PCB) management and disposal. Projects aim to create fundamental capacities within industries, governments, institutions and other entities under taking electricity distribution and transformation for complying with the PCB-related obligations under the Stockholm Convention. The projects enhance regulatory and legislative infrastructures and strengthen institutions at the national level to manage PCB-containing equipment and wastes in an environmentally-sound manner, ensuring where possible that materials are decontaminated for further use in line with the circular economy.

Building capacities in local laboratories for PCB sampling and analysis, and transferring technological know-how for local PCB treatment and decontamination assures compliance with PCB-related legislation. Environmentally-sound PCB management practices are established among stakeholders, reducing PCB releases and risks to human and environmental health. Raising targeted public awareness and dissemination of information is a major component of all PCB projects. Many of the POPs chemicals are actively used as they are, or as ingredients in

manufactured products. UNIDO is therefore shifting the focus of its activities towards supporting industries introduce alternatives to POPs chemicals in industrial processes, as well as fostering the production of POPs-free manufactured goods.

Different approaches and alternatives exist to support manufacturing without POPs chemicals. Examples include: the conversion of dichlorodiphenyltrichloroethane (DDT) production to non-DDT alternatives; the introduction of alternatives to polybrominated diphenyl ether (PBDE) as flame retardants in auto part manufacturing; and the phasing-out of hexabromocyclododecane (HBCD) flame retardants in the manufacturing of insulation foam boards.

The approach deployed to address this group of POPs is three-pronged:

- Manufacturing of chemicals products that replace POPs chemicals;
- Introducing chemicals alternative to POPs chemicals in products;
- Introducing non-chemical solutions instead of POPs or the so-called green chemistry alternatives.

Safe recycling. Articles containing POPs are still used in daily life around the world. Many of them, such as cars, electric and electronic equipment, upholstered furniture, mattresses, carpeting, special textiles, rubber and coatings, are eventually recycled, posing a challenge to public health and the environment. Other products that may not originally contain POPs can also release these pollutants due to poor practices such as during the open burning of the plastic coatings of electrical cables to recover scrap copper.

In full realization of the circular economy, UNIDO supports recycling industries by introducing environmentally-sound management systems that ensure their operations protect human health and the environment while meeting the best applicable recycling standards, national regulations and international treaties.

Through its project portfolio, UNIDO is helping countries in Africa, Asia, and Latin America improve the collection, treatment and recycling of POPs-containing waste. This contributes to improving the national environmentally-sound management of waste, including the potential for POPs recycling. It also supports the circular economy and enhances resource efficiency while avoiding POPs releases from poor recycling practices or from the use of specific thermal recycling processes. The UNIDO approach on recycling POPs-containing wastes includes the promotion of the preventive 4-R paradigm (replace, reduce, reuse, recycle); the segregation of POPs-containing materials from waste streams; and the application of operations in line with the waste management hierarchy (including treatment, if feasible, before disposal). It also focuses on the promotion of environmentally sound technologies, processes, services and business models with the involvement of the industry and the private sector.

BUDGET ESTIMATE: USD 15 million annually. Resource mobilization is expected mainly from the chemicals and waste focal area of the Global Environment Facility projects supporting the programme.

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September 2019



- 1 NO POVERTY
- 2 ZERO HUNGER
- 3 GOOD HEALTH AND WELL-BEING
- 4 QUALITY EDUCATION
- 5 GENDER EQUALITY
- 6 CLEAN WATER AND SANITATION
- 7 AFFORDABLE AND CLEAN ENERGY
- 8 DECENT WORK AND ECONOMIC GROWTH
- 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
- 10 REDUCED INEQUALITIES
- 11 SUSTAINABLE CITIES AND COMMUNITIES
- 12 RESPONSIBLE CONSUMPTION AND PRODUCTION
- 13 CLIMATE ACTION
- 14 LIFE BELOW WATER
- 15 LIFE ON LAND
- 16 PEACE, JUSTICE AND STRONG INSTITUTIONS
- 17 PARTNERSHIPS FOR THE GOALS