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UNIDO activities related to energy and the environment

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Report by the Director General

The present document reports on the implementation of General Conference resolution GC.15/Res.4 and provides information on latest developments. It supplements the information contained in progress reports presented to the Industrial Development Board in the *Annual Report of UNIDO 2015* (IDB.44/2) and the *Annual Report of UNIDO 2016* (IDB.45/2).

I. The emerging development agenda

1. During the current biennium two landmark global agreements were adopted, the 2030 Agenda for Sustainable Development and the Paris Agreement under the United Nations Framework Convention on Climate Change. UNIDO's services related to safeguarding the environment, provided mainly by the Departments of Energy and of Environment, are contributing to the objectives of these two agreements by focusing primarily on increasing the efficiency with which depletable resources are used by industry. A more efficient use of resources reduces economic costs while leading to less waste and thus lower pollution. Concurrently, lower resource needs also lower the environmental impact of resource extraction and processing.

2. The term resources can be seen broadly, either as inputs into a manufacturing process, such as fuel, minerals, materials or water, or as common goods such as soil, water and air availability and quality. In both cases, the principle of minimizing their use and introducing systemic innovations to preserve them remains a priority. Resources are more efficiently used by increasingly consuming renewable energy instead of fossil fuels, by increasing energy efficiency and material efficiency of manufacturing processes and of products, and by reducing the transformation of valuable input materials into polluting waste. By using resources efficiently and innovatively, industries from small to large improve their productivity and competitiveness, find new markets and create new business models.

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3. Sustainable cities will be supported by low-carbon industries to decouple economic growth from resource use, while creating green jobs for youth employment. Eco-industrial parks (EIPs) that enable a circular economy are part of sustainable cities.

II. Services at a glance

4. Two UNIDO departments cover most activities on safeguarding the environment. Not only are the Departments of Energy and of Environment cross-cutting by nature, they frequently establish preconditions for industrial activity per se, through outcomes as different as (a) energy services becoming available or sufficient with the introduction of electrical mini-grids; (b) the introduction of new technologies where existing ones become unavailable due to their ban by international environmental regimes such as the Montreal Protocol for the substances that deplete the ozone layer; or (c) provision of support to industrial and communal stakeholders to agree on, and implement fresh water management, allowing continued production by water-dependent industries in times of climate change. In other cases, funds addressing environmental issues, such as persistent organic pollutants, help to establish new and innovative industries in, for example, remanufacturing and recycling of electrical and electronic waste.

5. Although the funding of these services is currently almost exclusively through voluntary contributions, it can be considered secure in light of the interest of multiple donors to support activities related to energy and the environment. Important bilateral donors focusing on energy issues are in particular the Government of Australia, Austria, Japan, and Switzerland. Additional funding is provided by Norway, Republic of Korea, Spain, Sweden, and the United States of America. However, a considerable part of the activities are funded by the Global Environment Facility (GEF). The projects on chemical conventions receive substantial funding from the GEF and from the Multilateral Fund for the Implementation of the Montreal Protocol. Switzerland is a large bilateral donor for the advancement of manufacturing resource efficiency and cleaner production, followed by the European Commission and the Organisation for Economic Co-operation and Development (OECD) in closely related fields. Additional bilateral donors mainly supporting safe chemicals, resource efficiency and water issues include Austria, China, France, India, Israel, Japan, Norway, Slovakia, Slovenia and Spain.

6. Through the type and quality of assistance offered, the two departments have established themselves as leading global players in a number of thematic areas. For the Department of Energy, these are the establishment of mini grids and energy efficiency optimization in medium sized enterprises. It is also a nodal point for information exchange on technology and finance, in particular for medium-sized interventions targeting energy efficiency and renewable energy. The department is uniquely positioned both to transform market conditions to support and to incentivize the optimized energy performance of industry and investments in energy efficiency measures, as well as to initiate innovative partnerships and initiatives with city governments. Various regions have turned to UNIDO, requesting assistance for a regional approach to mitigate barriers to renewable energy and energy efficiency investment, markets and industries.

7. The Department of Environment leads in supporting industries to comply with environmental regimes and use of sustainable technologies, whether under the Montreal Protocol or in the Minamata Convention on Mercury. The contribution to resource efficiency and cleaner production makes the department globally the leading actor in this area. In respect to Circular Economy, since the beginning of 2016, many of the department's new projects and programmes are oriented to provide additional benefits towards saving resources, often in addition to their main purpose. The Department of Environment is also facilitating efforts across multiple UNIDO departments to help countries take appropriate steps to move their industries and economies towards more circular practices. The combination of UNIDO's mandate

of inclusive and sustainable industrial development, with its expertise not only in environment but also in energy, agro-industries, trade capacity, and policy advice, helped to make it a strong and recognized player in aspects of the circular economy in developing countries and those with economies in transition.

8. UNIDO's services for safeguarding the environment ensure that gender dimensions are systematically mainstreamed, making the concerns and experiences of women and men an integral dimension of the needs assessment, design, implementation, monitoring, and evaluation of projects and programmes. Furthermore, targeted projects focus on empowering women in sustainable manufacturing and addressing the adverse effects of climate change. Both flagship programmes and a substantial share of stand-alone projects have devised specific gender mainstreaming strategies.

9. Without attempting to be exhaustive, this report provides a number of examples that demonstrate how UNIDO's environment portfolio is contributing to inclusive and sustainable industrial development. Through UNIDO's role in global fora, networks and partnerships, successful approaches demonstrated in some countries can increasingly be upscaled and replicated in other countries, additional synergies can be achieved and impact increased.

III. Technical assistance to industry

10. A Low Carbon Low Emission Clean Energy Technology Transfer (LCET) Programme was initiated together with the Government of Japan to rapidly deploy and disseminate innovative low carbon technologies, products, services, and systems, such as small hydro and hydro-solar power generation systems. A pilot demonstration of advanced battery energy storage is being planned in Morocco.

11. Under the programme run jointly by UNIDO and the United Nations Environment Programme (UNEP) on Resource Efficient and Cleaner Production (RECP) and the SwitchMed and EaP Green regional projects, 582 company-level assessments were carried out since the beginning of 2016. Methods were also developed to spread RECP practices cost effectively to small and medium-sized enterprises. Since mid-2016, more than 100,000 beneficiaries received company-level RECP solutions worth \$20 million through projects that were either self-financed or financed by third parties. The assessments were undertaken by the UNIDO-led Global Network for RECP (RECP*net*), which has 65 members globally. An increasing focus on EIPs allows a scale-up of the RECP approach and the use of synergistic effects. Currently, UNIDO has established pilot EIPs in China, India, Morocco, South Africa, and eight countries in Latin America.

12. Another global initiative co-hosted by UNIDO and UNEP, is the Climate Technology Centre and Network of the United Nations Framework Convention on Climate Change. Further to requests received from developing countries, it provides technical assistance on climate adaptation and mitigation technologies.

13. In 17 countries, UNIDO's activities to manage polychlorinated biphenyls not only eliminate this persistent organic pollutant (POP), but provide decontamination technology and, in some cases, help to establish related enterprise services. UNIDO's support, typically provided in conjunction with overhauling and upgrading the electricity grid, is lowering the barriers for such upgrades considerably.

14. UNIDO underpins its technical assistance with financing facilitation to foster investment, particularly from the private sector. The most prominent example of this is the hosting and managing of the Private Financing Advisory Network Programme (PFAN), which generates a pipeline of investment-ready projects and matches them with private financing.

15. To help countries meet market demand at the national level, UNIDO is supporting the creation of high-quality consultancy services for specific industrial

energy efficiency best-available technologies, in particular for energy management systems in line with the ISO 50001 standard.

16. The implementation of the Montreal Protocol completely eliminates a number of substances used as resource for manufacturing. UNIDO is responsible for converting the entire eligible production of small air conditioners in China. Such monosplit air conditioners are a ubiquitous product, with annual global sales of more than 100 million units, about 70 per cent of which are made in China. In China alone, the currently used technologies have the same climate impact as 121 million tons of carbon dioxide emission annually for this sector. The UNIDO intervention provides manufacturers with technologies reducing the climate impact by 99 per cent, and supports their market introduction.

17. A regional project encompassing 13 countries in Latin America that promotes the environmentally sound management of POPs in e-waste started in 2017. The project aims to strengthen existing e-waste recycling industries and to make them more sustainable and circular. Similar projects are being prepared for the Economic Community of West African States and Southern African Development Community subregions.

18. Recently, UNIDO began implementation of an electric vehicle project in China, aiming to transform the automotive market through standards setting, the development of infrastructures and a pilot fleet of 1,000 electric vehicles.

19. Market access is meant to support mercury-free technologies for the artisanal and small-scale gold mining sector, providing a livelihood for more than 60 million people globally. UNIDO introduces mercury-free mining technologies, formalizes the sector, demonstrates sustainable business models, and develops requirements towards certification. This is possible, inter alia, by partnering with the Swiss gold refiner Argor. UNIDO is strongly engaged in the replacement of mercury as catalyst in large-scale chemical production, the single highest source of mercury release.

20. Innovative solutions implemented by UNIDO include mainstreaming chemical leasing in industries with the support of Austria, Germany and Switzerland, as well as promoting geothermal power generation in African countries along the Great Rift Valley with the support of Japan.

IV. Policy and regulatory support

21. UNIDO continues to inform the international discussion on how to simultaneously achieve environmental objectives and industrial development. Examples that by nature extend beyond the reporting timeframe include the decade-long involvement in the support of mercury-free gold mining, which contributed substantially to the Minamata Convention on Mercury that came into force on 16 August 2017. The Paris Agreement on climate change benefited substantially from the work of the Energy Management Working Group (EMWG) of the Clean Energy Ministerial, which was led by UNIDO. The 2016 Kigali Amendment to the Montreal Protocol also benefited from specific technical advice, well beyond that provided by other implementing agencies.

22. In the chemical conventions (Montreal Protocol, Stockholm and Minamata conventions), UNIDO currently provides policy, regulatory and government support in 81 countries. In 16 of these countries, a strategy for compliance with the Montreal Protocol has been developed with the government, including the regulatory framework and all enterprise and training related activities.

23. UNIDO is member of the Partnership for Action on Green Economy (PAGE), a collaborative group of five United Nations agencies. The Organization participates in a number of activities in PAGE partner countries to facilitate the green economy.

24. EIPs are an important means of increasing resource efficiency, and of upscaling related efforts. UNIDO partners with the German development aid provider GIZ and

the Work Bank Group to define guidelines for EIP. This will help to unlock further technical assistance and financial support for their establishment.

V. Global fora and networks

25. In its convening role, UNIDO offers policymakers, experts and industry partners a forum to advance the 2030 Agenda and collaboratively address development challenges. One of its flagship events, the fifth Vienna Energy Forum, took place in May 2017, bringing together over 1,650 participants from 128 countries. The outcomes of the deliberations will contribute to the high-level political forum on Sustainable Development.

26. In June 2016, the fourth Green Industry Conference “Green Industry for Sustainable Cities” was held in Ulsan, Republic of Korea, with 400 participants from 25 countries. UNIDO also convened representatives of 50 developing countries in June 2017 to discuss the phase-down of recently added new, climate relevant substances under the Montreal Protocol.

27. Engaging in the circular economy debate, UNIDO organized a forum for Latin American countries in Uruguay and a workshop on the circular economy in the automotive industry in Slovakia. In addition, UNIDO advised regarding the circular economy in consultations in both the G20 process and the GEF replenishment process. The Organization also participated in related missions of the European Commission to Colombia and South Africa.

28. In June 2017, UNIDO was appointed as operating agent of the EMWG that aims to accelerate the global adoption of energy management systems in the industrial and commercial buildings sectors through government-to-government collaborations.

29. During the past months, the Global Network of Regional Sustainable Energy Centres was further consolidated and expanded, with chapters now operational in the Caribbean, Central American Integration System, East Africa, Pacific, and Southern African Development Community regions, with a separate chapter dedicated to small island developing states.

VI. Outlook

30. Support by the energy and environment services of UNIDO helps industries to maximize their productivity while simultaneously minimizing their resource use, both on the level of the individual enterprises and nationally, leading to increased profitability and resilience. New technologies and business models for industry reduce the resource needs of countries. They are replaced by renewable resources, by extending the useful life of products and by using products themselves as resources when they reach the end of their life. Other projects directly reduce pollution and thus the waste of resources. Further interventions focus on ensuring that the energy services required to power productive activities are available and affordable. Many industries and governments have become engaged in the more efficient use of resources. Regional groups have commenced coordinating their strategic objectives and regulatory approaches. While this is most advanced in the areas of energy and some pollutants, coordination regarding material resources is increasing, in recognition of its environmental benefits and high economic potential.

31. While opportunities for mutual benefits are increasing, governments and industry are at the same time exposed to higher complexities. Resource efficiency, while related to environment, is increasingly driven by markets, whether through scarcity and access restrictions, or trading partners’ demand that resource efficiency is being adhered to. These drivers are strongly present today and will increase further. While climate change and environmental conventions are well governed, efforts to move towards more material efficiency and a circular economy are not. Here UNIDO can provide balanced support for countries, to define the appropriate level of

ambition, plan the way forward and help access the necessary means for moving towards a circular economy. Beyond technical cooperation this might also ask for more and better channels for exchange between governments for information collection and analysis, sharing of good practice, advice on possible consequences of ongoing developments, and exchange on needed technical specifications. Since change is invariably happening, such channels of exchange will facilitate adaption and transition, dependent on the countries capacity, ambition and level of development.

32. UNIDO's services to safeguard the environment will continue to support developing countries and those with economies in transition to achieve inclusive and sustainable industrialization, to reduce the environmental impact while increasing the resource efficiency and productivity of their industries. Particular focus will be on the opportunities to contribute to multiple development goals, which is made possible due to their highly interconnected nature. In energy and environment, substantial progress has been made towards closer cooperation with international development finance institutions, moving proven approaches more rapidly from demonstration to large scale impact. This trend will continue, with a foreseeable focus in renewable energy, artisanal gold mining, resource efficiency, and the circular economy. Leadership in these areas increases the opportunities for UNIDO to assemble funds from multiple donors and establish strong partnerships across topics and to create more synergistic programmes with a higher impact and better prospects for upscaling. Efforts will intensify to develop projects interesting for new donors, in particular also the Green Climate Fund (GCF). The need of industry to adapt to climate change and increase its resilience will be transformed into GCF related proposals. In participating countries, the programme for country partnership offers the possibilities to present and discuss the applicability of measures for resource efficiency and the circular economy during the formulation of the country's industrial development approach.

VII. Action required by the Conference

33. The Conference may wish to take note of the information provided in the present document.
