UNDP contribution to paragraph 273 of the outcome document

"We recognize the importance of strengthened national, scientific and technological capacities for sustainable development. This can help countries, especially developing countries, to develop their own innovative solutions, scientific research and new, environmentally sound technologies, with the support of the international community. To this end, we support building science and technology capacity, with both women and men as contributors and beneficiaries, including through collaboration among research institutions, universities, the private sector, governments, non-governmental organizations and scientists." (¶273 of the Rio+20 outcome document*)*

UNDP was asked to provide input to a SG report on a technology facilitation mechanism, as mentioned in this paragraph.

As such, below are some potential functions, format and working methods of a technology facilitation mechanism.

I. Functions

The technology facilitation mechanism supported by the UN should have as its major function to build the capacity of countries to transform their economies, in an inclusive and equitable manner, towards long term sustainability. This means that the capacity of countries at the national and local levels needs to be built to make informed policy and investment choices that redirect major public and private financing - and thus the economy - towards sustainable production and consumption processes in an inclusive and equitable manner.

Facilitating individual projects is no longer sufficient. Individual projects can serve as examples or to gain political traction, but individual projects alone, without all-encompassing macro-economic and social frameworks, are drops on a hot plate. To address the multiple challenges the world is facing, including the challenges related to the natural environment, a transformation of economies is needed. To achieve this, the UN needs to support countries to develop and implement integrated and holistic development plans that redirect the economic and social processes.

II. Format

Given that the major objective of the technology facilitation mechanism should be an inclusive transformation of economies, the way the UN support this mechanism should be different from before (this is focusing on projects, technology transfer, matching supply and demand, clearing houses etc.). The focus should be on building the capacity of countries to do the technology development, innovations, transfer and implementation themselves, as a mainstream mechanism pertaining to all sectors of society and economy. The paper in Annex 1 '*An Innovative Public-Private Approach for Technology Facilitation Mechanism*' describes a possible spider web structure that could facilitate such an inclusive technology transformation. As illustrated in this paper for UNU and UNDP, many, if not all UN agencies, could and should contribute to this inclusive technology transformation in a mutually supportive manner.

III. Working methods

The working methods of this global network should be different from the current working methods the UN is applying in the field of technology, with each agency pursuing individual projects often in isolation. The focus should be on building the inherent capacity of countries themselves (rather than doing technology transfer for them), building the leaders, the institutions, the enabling legislation and regulation and associated monitoring system. Emphasis should also be placed on building research and innovation capacity, including for indigenous solutions and to promote South-South and South-North cooperation. Extensive use of modern information technology should be made. The UN has not as yet developed such a transformational and integrated method of working, the SG SEFA initiative coming closest to this new working style.

IV. The potential contribution of UNDP

During the past two decades that UNDP has been working in the area of technology transfer. The focus of work has evolved from a project approach to supporting countries to transform economies towards long term sustainability. To this end, UNDP has moved from project implementation-based interventions to focusing on market transformation and creating the enabling environments for strengthening of sustainable markets and governance mechanisms. Lately UNDP has moved in the area of supporting countries to adopt integrated approaches to holistic transformations of economies. With a national level approach UNDP works to remove barriers to widespread adoption of technology and practices which include enabling energy efficiency, renewable energy and sustainable transport.

UNDP support emphasizes: the strengthening the policy and institutional frameworks needed for sustainable development; mobilizing resources and expanding financing options for all development sectors. This could include, for example, providing access to reliable services for low-income households; removing barriers to energy markets including for low-income households; scaling up innovations by combining innovative, sustainable business models with a wide range of technologies; aligning the work of the UN system at the national level behind programming that integrates the three strands of sustainable development, via the resident coordinator system; and working with a wide variety of partners –at the global and regional levels, at the national level with governments, the private sector and civil society, and at the local level with local governments, businesses, civil society, and local communities.

These initiatives are financed from numerous sources, including government budgets, official development assistance, the Global Environment Facility, foundations, non-traditional donors, micro-finance, as well as via market-based instruments like feed-in tariffs and carbon finance.

The below table summarizes key areas of work on technology transfer as identified in three separatepapers: i) '*An Innovative Public-Private Approach for Technology Facilitation Mechanism*', ii) '*Global Call to Action on Technology Transfer*', and iii) '*UNDP & Environmentally Sound Technology Transfer - Case Studies*'. Furthermore, the same approach detailed in '*Readiness for Climate Finance: A framework for understanding what it means to be ready to use climate finance*' can be applied more

broadly and not focus solely on climate friendly technologies but to all environmentally sound technologies.

TABLE 1:IDENTIFYING KEY AREAS OF WORK: UNDP's role in delivering Tools, Services and Support at the Country Level

Technology needs and Capacity Building	Key Delivery Mechanisms at the Country Level
Policy support and advisory services	• Provide Expert policy advisory and technical support teams that can assist country identify technology needs, including as necessary through the use of existing regional centres and knowledge networks. • Roll out and implementation of TNA Handbook and TNA Assess • Building capacities at the country-level to conduct TNAs • Provide requisite policy advisory and support services to implement concrete action on identified technology needs. • Identification of best practices and services for technology related planning and implementation at the country level. • Facilitation and development of policy, planning and implementation networks with a view towards innovative, flexible partnerships.
Capacity Building for Technology Development and Transfer	• Enhance training and capacity building in countries based on existing mechanisms and networks (for example by leveraging existing initiatives such as CC: TRAIN) • Build capacity for feed-in tariffs and other innovative financial mechanisms; for integrated and sustainable planning and policies, inclusive business models, MRV, institutional strengthening and technology innovation. • Provide finance options and financial and non-financial risk mitigation and management. • Local and decentralized solutions, renewable solutions and efficiency gains • Improved natural resources management, ecosystem based approaches and biodiversity conservation. • Using existing networks and establishing relevant clearing-house mechanisms that can track and match country needs with existing tools, services and support • Strengthen technical and institutional capacities within countries based on proven methodologies and approaches in order to facilitate the development, adaptation, and implementation of technology related tools, services, policies and best practices
Stakeholder collaboration and action to enhance technology development and transfer	• Provide support and assistance as needed to promote relevant for and collaborative platforms for development of public-private partnerships on technology. • Convening forums for research and development and collaboration amongst stakeholders. • Build integrated networks for technology transfer and innovations based on the best available expertise.
Developing appropriate policies, services, tools, and best practices for technology development, diffusion and transfer	• Identify appropriate mechanisms and networks that will facilitate the exchange of information on tools, policies, services, methodologies and best practices related to technology development and transfer. • Convene relevant networking opportunities for dialogue and exchange of information for sharing policies, services, tools and best practices. • Provide necessary training at country (sub-regional and regional) level to facilitate the diffusion and adaptation of tools, services and policies. • Conduct the requisite country-driven technical workshops that focused on developing and adapting technology related tools, services, policies and practices.

Furthermore UNDP has been active in providing support to the G20 inclusive green economy toolkit, i.e. the submission to the G20 Development Working Group by the AfDB, the OECD, the UN and the World Bank 'A Toolkit of Policy Options to Support Inclusive Green Growth'. This toolkit provides an existing basis on which to build.

A partial list of major existing UN programmes in the field of inclusive green economy is also available in the EMG publication on green economy.

UNDP as the convener of the RC system, working through UNDG can also assist in ensuring a coordinated and coherent delivery of technology support at the countries level, bringing the best of the whole UN system to bear in developing and implementing the technology facilitation mechanism as referred to in paragraph 273 of the Outcome Document.

V.   List of Partner Organisations

The major existing collaborative efforts include:

- The G20 work on inclusive green economy, including the [Global Green Knowledge Platform](#);
- The UNDG and the RC system;
- The work on technology done under the UNFCCC, including Climate Technology Centre and Network to be established under the UNFCCC process; and
- The EMG.

Annex I.

DRAFT - An Innovative Public-Private Approach for Technology Facilitation Mechanism (TFM)

In response to paragraph 265-276 of the Rio+20 Outcome Document, this paper outlines an innovative public-private approach to support the development, adoption, and deployment of environmentally-sound technologies.   The approach can provide options for a facilitation mechanism asrequested in paragraph 273 of the Outcome Document to help countries drive technology transfer[1], spur innovation, and attract investment. The approach also helps to strengthen capacities for countries so they have ownership of the process and can move away from a project-based, top-down system toward strategically using technology transfer as means of implementing development that is sustainable, country-driven and achieves poverty reduction.

A New Paradigm for Technology Transfer

To address climate change and other development challenges, countries can no longer only rely on traditional methods of technology transfer. In today's world, to make the most of technology transfer, it must be must be done differently. Countries must be in the driving seat and have the capacities, tools, and networks to identify and utilize technologies based on their own goals and circumstances. Thus technology becomes an engine that drives the transition toward sustainable development.

For this to occur, the TFM should contribute to setting up the right enabling environment that incentivizes technology innovation, sustainable investment, codification and dissemination of best practices, including through South-South, North-South and triangular cooperation. Technology transfer that is supported by a set of institutional, policy and financial structures can lead to long-term investment in, and promotion of, solutions that are embedded in national plans and objectives. Technology transfer should become an inherent part of the national development system instead of further dependence on outside sources for technology innovation and financing. Thus a system for technology transfer can build on a country's capacities from the bottom up, instead of the top-down.

A critical component of instilling the right enabling environment includes strengthening indigenous research and development capacity (R&D) to drive innovation. To realize their successes, countries need to create national and sub-national systems that support R&D and strengthen capacities to drive innovation and investment, including the creation of local employment and entrepreneurship. As a result, countries will be able to make dramatic advances (or leapfrogging outdated technologies altogether) and build entire industries that did not exist a decade ago.

Currently there are major inequalities among countries in accessing technologies and finance. For example, 2010 had a record $243 billion global investment in clean energy. However, only 10% of these investments occurred outside of the G20. Many developing countries have yet to attract the right technologies and finance because they are still creating the right policies, regulations, finance, and

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[1]For the purposes of this paper, the term "technology transfer" refers to the entire technology process, including the identification, assessment, research and development, adoption, deployment and dissemination of environmentally-sound technologies.

institutions to achieve their goals. This can compromise the abilities of governments (national and local), communities and households to take advantage of opportunities to transition toward sustainable development.

How Countries can Strengthen Capacities for Technology Facilitation Mechanism

The TFM should provide a worldwide network that will "stimulate technology cooperation and enhance the development and transfer of technologies and assist developing country parties… to build or strengthen their capacity to identify technology needs, facilitate the preparation and implementation of technology projects and strategies…" The TFM should manage the process of receiving and responding to requests from developing countries and work with the established mechanism to respond to those requests. The TFM will serve as an important hub that ensures that developing countries receive the support and technical assistance they need to achieve their goals.

For the TFM to be effective, its services should not only be designed to deliver specific project results, but also contribute to the creation of a national and sub-national foundation of capacities for country-driven technology development and transfer. In this way, the services do not deliver results in isolation. Rather they each support a larger national and sub-national system that that promotes innovation, drives investment and delivers technology in an integrated and sustained manner.

The services of the TFM should focus on building capacities of local and national stakeholders to build a foundation that includes:

1. **Strong local research and development.** With strong R&D capacities to develop, finance, and disseminate technology, countries can spur innovation and attract investment. Local experts and centres of excellence, such as universities, research and policy institutions, formal and informal education settings and private organizations, can provide the needed "laboratories" to develop new technologies or modify existing technologies to better meet local needs. These institutions can serve as an innovation engine that drives new thinking on technology.

2. **Partnership focus.** The TFM should tailor technology solutions to the appropriate country context. Countries must have the ability to identify and assess stakeholders to build a cooperative system that can address unique country needs. This system would build on inherent strengths and expertise of diverse individuals and groups, including untraditional actors in technology such as communities.

3. **Identification of technology needs and options.** Countries must have the capacities to select technologies to fit their long-term sustainability objectives. This means creating an enabling environment where individuals and institutions have the capacities to identify and assess both technology and finance options.

4. **Integration of technology with sustainable development plans.** Technology transfer does not occur in isolation. Technology plans, strategies, projects and financing must be tailored to the

country-context. The needs of developing countries vary widely and the technology solutions for emerging economies are very different from those of Least Developed Countries. In this way, technology must be embedded into national and sub-national policies and plans.

5. **Monitoring, Reporting and Verification (MRV).** The TFM should assist countries to put in place the systems needed to collect data on technology transfer and its impact on sustainable development. Tracking information on the research, development, identification, deployment and dissemination of environmentally-sound technologies can provide a vivid picture for the results achieved. This data can also be collected by the TFM for a more accurate global outlook on technology.

   Moreover, MRV systems would help to create a feedback loop for constant learning and improvement to ensure that results are achieved in the most efficient and effective way possible.

6. **Mobilize the private sector.** The TFM should build the capacities of countries to mobilize the private sector. Given than many technologies will be sustained by private investment, close partnerships with industry actors can ensure that technologies are developed and deployed strategically within the context of the market. In other words, partnerships with industry can help guide the creation and installation of the right incentives and frameworks to access, sequence and combine private finance.

   Mobilizing the private sector can also support local entrepreneurship. The TFM should help countries to install the institutional and regulatory frameworks to support local innovators and entrepreneurs. This will help the country to depend less on the import of technologies that are not as well tailored to a country's development needs and will make a long-term and sustainable impact.

7. **Engagement in local, national, regional and global networks, including South-South, South-North, and triangular cooperation.** Networks play a critical role in technology transfer. Technical networks can provide the right data, information, analyses and tools to help countries identify the right technologies for their needs. Financial networks can assist countries to catalyze increased public and private investment. Networks can also provide peer-to-peer advice, assistance and capacity building that strengthens individual entities within the networks, making the entire system stronger.

   Networks can also facilitate capacity building through South-South, North-South and triangular cooperation. By connecting institutions that specialize in areas related to technology transfer (e.g. energy, finance, etc.), countries have access to a specialized system of

experts. In particular, experts at the local level that have intimate knowledge of the cultural, social, and economic priorities, they are in the best place to ensure that technology is applied appropriately and efficiently.

Outline for a Possible TFM Structure

In line with the above, UNDP believes that an innovative public-private approach for technology transfer should constitute the TFM and be owned by the countries it serves. In UNDP's views, the TFM should consist of hub (level 1) of inter-connected web of institutions that represent each region (level 2). The centre and the regionally-represented network should be supported by a presence in each country (level 3) that can provide targeted services and an effective dissemination mechanism at the national level and mobilize the best national, scientific and technical expertise (level 4). As such, the TFM can leverage the experiences of all countries that are innovating, adopting and disseminating environmentally-sound technologies.

The graphic below demonstrates how a TFM can be designed to operate as an inter-connected web of national, sub-national, regional and global partners. At the middle of the graphic is one major hub in a developing country that takes on a coordination role. It is surrounded by circles of regional centres of excellence that connect directly to the TFM and to each other. The third ring represents the presence at the national-level. If requested, the UN could leverage is presence in 177 countries and territories for this purpose. The fourth ring represents research institutions at the national and sub-national levels. When taken together, the web brings together the comparative advantages of organizations at all levels to help countries address their specific needs and circumstances. The various entities share information with each other and through networks for the mobilization of policies, finance and skills to support effective technology transfer. If requested the UN can assist to develop this structure based on its experience.
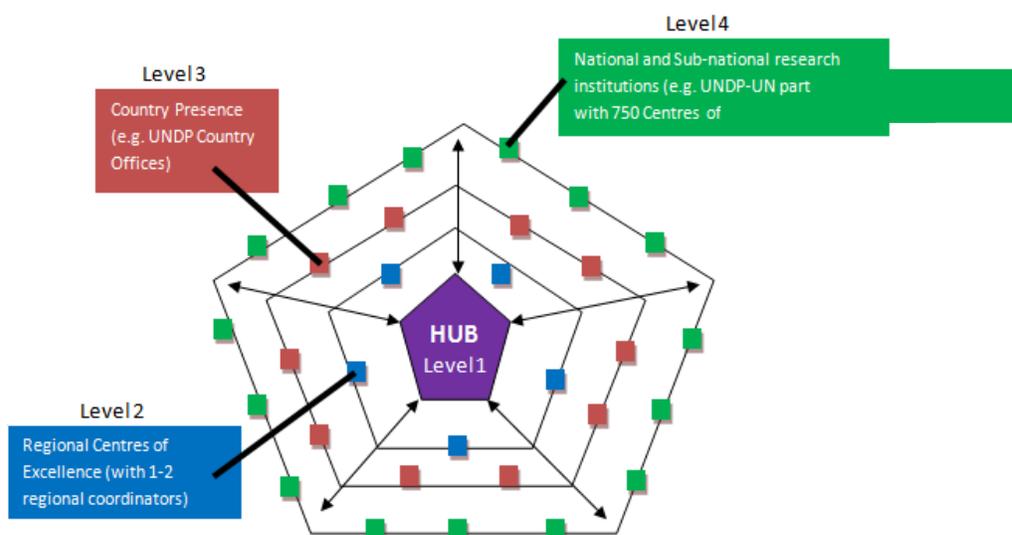
Importantly, this means that the**TFM will be at the heart of some of the world's best centres of excellence for technology transfer and innovation.** The **TFM will need to ensure its neutrality.**Given that technology transfer can create markets for new products that affect a country's imports and exports, the TFM should ensure that countries operate on a level playing field and have the support they need to achieve their goals. It is critical that the TFM operate at high levels of impartiality and transparency when it provides advice to countries.

Thefunctions of theTFM will need support to **provide services for accessing finance.**Attracting the right investments is critical for the successful adoption and dissemination of environmentally-sound technologies. The TFM will need to enhance its ability to connect countries to the right types of financing sources.

How the UN can Support the Innovative Approach to Technology

The UN has helped countries to deliver thousands of technology projects that support countries to combine and sequence different types of funding to support a transition to sustainable development. Collectively, the UN brings its vast expertise in areas such as capacity building, governance, and poverty reduction, to support technology transfer in an integrated, sustainable and cross-sectoral manner. The UN stands ready to provide support to address the gaps described above and to assist the TFM to not only fulfill the services outlined by the Outcome Document, but also create the right foundation of strong local R&D, identification of needs, integration of technology with low-emission and climate-resilient development plans, engagement with networks, mobilization of the private sector, MRV and other functions.

Specifically, the UN can:

1. **Support a neutral approach by the TFM that supports all countries to build strong indigenous R&D capacities.** As a key service provider on technology, the UN has decades of experience in providing neutral support for R&D of technologies through programmingunder the Global Environment Facility, the Multilateral Fund for the Implementation of the Montreal Protocol, and other national, bilateral and multilateral sources. UNDP has piloted technology projects around the world and codified best practices and lessons learned from these experiences can serve as important guides for countries as they undertake research, development and demonstration of new technologies.

   Moreover, the UN works to ensure that all countries have access to information from technology R&D efforts around the world. For example, UNDP created a ClimateTech Wiki in partnership with UNEP, REEP, UNEP-Riso, NL Agency in the Ministry of Environmental Affairs of the Netherlands, Joint Implementation Network, and the Energy Research Centre of the Netherlands. The ClimateTechWiki offers a platform for a wide range of stakeholders in developed and developing countries who are involved in technology transfer. ClimateTechWiki offers detailed information on a broad set of mitigation and adaptation technologies.

2. **Connect the TFM to technical, policy and finance networks at the sub-national, national, regional and global levels.** Because the UN has a global presence, it could be requested to support the creation of this inter-connected web structure. For example, UNDP is an active convener of hundreds of networks that support countries access the knowledge and information they need to achieve their development goals. UNDP's support to all levels of the layers mentioned above includes a vast organizational network of Country Offices, Regional Service Centres in Bangkok, Bratislava, Dakar, Pretoria, and Panama, and a global support team of technical advisors. This network provides advice and expertise on financial, scientific, institutional, regulatory, and policy issues. This structure helps achieve results effectively and efficiently, as it provides support countries as they identify, plan for, deploy and finance environmentally-sound technologies.

3. **The UN's decades of experience in delivering results can help ensure that countries have the capacities to succeed, including the abilities to identify needs, integrate technology with sustainable development strategies and create of MRV systems.** The UN'sexpertise from serving as an implementing entity can help to inform the functions of the TFM. The UN's lessons learned can be instilled in the TFM so it can begin effectively supporting countries to develop country-driven regulatory and financial systems can help to achieve their goals.

   For example, UNDP has assisted over 75 countries in the Technology Needs Assessment process and developed a guidebook on this topic in 2010. It also has provided services to help countries design inclusive green, development strategies that include the integration of technology transfer into national development planning. UNDP also has provided support throughout its portfolio for Monitoring and Evaluation of all environment and energy projects.

4. **Provide services for countries to access financing for technology, including from the private sector.** The international community has created numerous financing instruments aimed at supporting technology transfer. The UN provides extensive support to countries to strengthen their capacities to address the informational, behavioral, regulatory, technical and financial barriers to accessing finance. In this way, countries can better formulate, finance and catalyze finance to support the identification, adoption and dissemination of environmentally-sound technologies.

   Moreover, UNDP helps countries to create the right enabling environment that can leverage public resources to attract private investment. This can also be used to promote local entrepreneurship and new employment opportunities at the national and sub-national levels.

Immediate Next Steps

To move forward, UNDP proposes that a two-step approach is taken to design a TFM that puts countries in the driving seat to spur innovation and achieve sustainable development that is pro-poor and pro-MDGs. In this model, countries lead the process. They can rely on technical and financial networks as

they identify, develop, adopt and disseminate technology but have ownership over the network, information exchange and project cycles.

First, a $10 million **global programme** should be created that outlines how the TFM will provide country-driven support. The programme will provide an integrated approach to technology where counties have what they need to identify and prioritize technologies according to their needs and circumstances.   For example, the global programme should provide a framework for how the TFM will link technical and finance networks, serve as a hub to codify knowledge and lessons learned, and help countries to programme technology projects and identify gaps and opportunities.

Moreover, the global programme should also outline the capacity building needs of the TFM itself. By identifying gaps in knowledge, expertise and functions, the TFM works to address and resolve potential barriers.

Thereafter the TFM should support countries to create **national technology transfer projects** within this framework. Countries can use the national projects to identify and assess their technology needs and options within the framework of inclusive development strategies that promote the adoption of environmentally-sound technologies, drive investment, and build capacities of institutions, individuals and systems. Throughout the process, local skills are enhanced to ensure that technology choices response to specific local needs and the development and installation of technology emerges from a knowledgeable and skilled workforce.

A critical part of this is the ability for countries to utilize South-South, North-South and triangular collaboration through the TFM.   By learning from the experiences of other countries with similar challenges, developing countries can approach technology transfer more strategically.   They can build on this knowledge to identify and install the right, place-based incentives and frameworks to access, sequence and combine different sources of finance toward environmentally-sound technologies.

By using this approach to design and shape the innovative public-private partnership for technology transfer, the TFM can provide effective support to countries. If designed well, the TFM will no doubt play an important role in strengthening national and local infrastructures and capacities of countries to develop, adopt and deploy sustainable technologies that will drive long-term development.

UNDP Environment and Energy Group, 17 July 2012