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South Centre Paper on Sustainable Development Goals

SDGs: Technology and Finance—The Means of Implementation

The following is a statement by Executive Director of the South Centre, Martin Khor, to the Open Working Group on Sustainable Development Goals held at the United Nations in New York on 9 December 2013.



Children at a rally for the right to food in India: Developing countries need financial resources to implement the SDGs (AP).

1. Means of Implementation and Global Partnership for Development

The Means of Implementation (Mol) and Global Partnership for Development (GPD) are closely related. Both are the elements that most directly represent the cruciality of

international cooperation that is needed to support developing countries in achieving the SDGs.

The means of implementation are mainly finance and technology that are needed to boost the financial and technical resources of developing countries in implementing the three pillars of SDGs. These are to supplement domestic resources, but it is realised that the local resources are not enough especially when the SDGs imply additional areas of action.

The global partnership includes the MoI of finance and technology. But it also includes other important elements such as the supportive structures or regimes of international trade, finance and technology, that are essential to creating the external environment needed by developing countries to support their domestic policies. Global Partnership also implies that in formulating their domestic policies, developed countries would take into account the effects they have on developing countries, and that they would formulate policies that are supportive to the global effort and to developing countries' efforts in particular.

Recommendation: The means of implementation should be included in each SDG so as to emphasise the importance of implementation. It should also be a chapter or a SDG in itself. In addition, the global partnership for development should be also a chapter or a SDG in itself, and elements of it should also be in the other Goals/Targets.

2. Technology

2.1 General

Technology is recognised in Agenda 21, Rio plus 20 outcome, and in the MDG Goal 8, as an essential component in MDGs and SDGs as both a Means of Implementation and as Global Partnership.

The central role of technology transfer to developing countries as well as the development of endogenous technology in these countries were recognised in the 1992 Rio Summit. Chapter 34 of Agenda 21 defines environmentally sound technologies in a comprehensive way as not just individual technologies but total systems that include know-how, procedures, goods and services, equipment and organisational and managerial procedures. It states the principle of the need for favourable access to and transfer of environmentally sound technologies to developing countries through technology cooperation enabling transfer of technological know-how and building up of economic, technical and managerial capabilities for the efficient use and further development of transferred technology.

The Johannesburg Plan of Action and the Rio Plus 20 outcome and other international documents or processes recognise the central importance of technology development, access and transfer.

Sustainable development and its components such as health care, climate change, energy access, can only be achieved if new technologies are available and if developing countries have access at affordable prices. This is especially if the three pillars of sustainability are to be simultaneously implemented. For example, in order to take climate actions, while still meet the goals of poverty eradication, full employment and reasonably high economic

growth, there has to be a technological change or revolution in many sectors. For another example, to meet the goal of health for all, available medicines have to be affordable and new medicines also have to be discovered and made available. The challenge is greater because global environmental space whether in terms of resources or atmosphere has become much more limited, yet the needs of development are also growing.

Two other general points should be considered. First, the technology cycle includes research, development, demonstration, production at large scale (often called commercialisation) and diffusion. Each step requires its own attention. Developing countries should be enabled to take part in all aspects, though most of them are now seen as recipients at the diffusion stage.

Secondly, developing countries would like to climb the technological ladder. Technology transfer is not merely the import or purchase of machines and other hardware at commercial rates. A central aspect of technology development and transfer is the building of local capacity so that people and institutions in developing countries can design and make technologies which can be diffused into the domestic economy. As recognised in Agenda 21 (para. 34.12), a “critical mass of research and development capacity is crucial to the effective dissemination and use of environmentally sound technologies and their generation locally”.

In the process of technological development, developing countries can go through three stages: (1) initiation stage, where technology as capital goods are imported; (2) internalisation stage, where local firms learn to adapt the imported technology to local conditions and to produce the technology; (3) and generation stage, where local firms and institutions innovate through their own research and development (R & D) (UNCTAD, 2007).

Technology transfer may involve the purchase and acquisition of equipment; the know-how to use, maintain and repair it; the ability to make it through “emulation” or reverse engineering; to adapt it to local conditions; and eventually to design and manufacture original products. The process of technology transfer involves progressively climbing through all these aspects.

Several conditions have to be present for technology transfer and development to take place. The absence of such conditions can form barriers to technology transfer. Among the barriers that are normally listed are poor infrastructure, inadequate laws and regulations, shortage of skilled personnel, lack of finance, ignorance of technology issues, high cost of certain technology agreements, problems created by equipment suppliers, and intellectual property rights.

Intellectual property rights has become an important and often contested issue in the discussion on technology transfer and development. Whether IPRs constitute a barrier or an important barrier depends on several factors, such as whether or not the particular technology is patented, whether there are viable and cost-effective substitutes or alternatives, the degree of competition, the prices at which it is sold, and the degree of reasonableness of terms for licensing, etc.

In terms of proprietary rights, technologies and related products can be usefully placed under three categories: those that are not patented and are thus in the public domain; those that

are patented; and future technologies (which are likely to come under patents unless there are new mechanisms or initiatives).

2.2 Technologies in the Public Domain

Some technologies are in the public domain; they are not patented or their patents have expired. According to Agenda 21 (para. 34.9), a large body of technological knowledge lies in the public domain (are not covered by patents) and there is a need for the access of developing countries to such technologies as well as the know-how and expertise required to use them. In this case, the main barrier to technology transfer may be lack of financial resources, and international funds should be established to enable developing countries to purchase and to manufacture such technologies.

An important measure to promote sustainable development is to expand the space for technologies in the public domain, and to expand the transfer to developing countries of publicly-funded technologies. Governments in developed countries play an important role in funding R & D programmes, many of which are implemented by the private sector. In addition, governments sponsor a range of R & D that underpins private sector investments in developing environmentally sound technologies (ESTs) (IPCC, 2000, Chapter 3, page 95).

A paper for the UNFCCC surveyed government R & D funding of ESTs in the United States, Canada, United Kingdom and Korea. It found that in most countries, governments allocated their rights (patents, copyrights, trademarks, etc.) to the recipient research institutions to a significant degree. As a result, the diffusion of climate-friendly technology would “typically be along a pathway of licensing or royalty payments rather than use without restriction in the public domain” (Sathaye et al., 2005).

The Intergovernmental Panel on Climate Change (IPCC) study (2000) calls on OECD countries to influence the flow of such technology directly through their influence on the private sector or public institutes that receive funding from government for their R & D to be more active in transferring technologies to developing countries. It cites Agenda 21 (chapter 34, paragraph 34.18a) that “governments and international organisations should promote the formulation of policies and programmes for the effective transfer of environmentally sound technologies that are publicly owned or in the public domain.” Products that emerge from publicly funded R & D should be placed in the public domain. Those that are partially funded should be in the public domain to the extent to which it is publicly funded.

At the international level, there can also be public funding and joint planning of R & D programmes. Products and technologies emerging from such publicly funded programmes should be placed in the public domain.

2.3 Patented Technologies

For technologies that are patented, there should be an understanding that patents should not be an obstacle for developing countries to have access to them at affordable prices. Agenda 21 (para. 34.10) states that: “Consideration must be given to the role of patent protection and intellectual property rights along with an examination of their impact on the access to and transfer of environmentally sound technology, in particular to developing countries, as well as to further exploring efficiently the concept of assured access for developing countries to environmentally sound technology in its relation to proprietary rights with a view to

developing effective responses to the needs of developing countries in this area.” Agenda 21 (para. 34.18e) also agreed that in the case of privately owned technologies, measures would be adopted particularly for developing countries, including developed countries creating incentives to their companies to transfer technology; purchase of patents and licenses for their transfer to developing countries; prevention of the abuse of IPRs including through compulsory licensing with compensation; providing funds for technology transfer; and developing mechanisms for technology access and transfer.

While the patent system provides incentives for innovation, it can also be a barrier to the transfer of technology to developing countries at affordable prices.

In the wide arena of sustainable development, there are some well-known examples. In health, the price of medicines can be prohibitively high; there is thus an increasing understanding that patients in developing countries can benefit from generics that are often many times cheaper. In the area of food production, the patenting of seeds and genes of seeds that have the characteristic of being drought resistant or flood resistant can hinder the use of these seeds by small farmers in developing countries. Just six companies and their partners control 201 or 77% of patent applications for 261 families of patents with gene characteristics of being resistant to drought, heat, floods and cold. In the climate area, some firms in some developing countries found it very difficult to obtain the license from patent holders to locally produce substitutes to the CFCs which were to be phased out under the Montreal Protocol, due to the high cost and onerous conditions placed by the patent holder for the license.

There are various ways in which the barriers posed by IPRs can be addressed within the framework of the WTO’s TRIPS agreement. This has been dealt with by the UN MDG Gap Report for 2013, which recommends that developing countries make use of these TRIPS flexibilities such as compulsory licensing and government use, when needed, to promote access to essential medicines.

Some developing countries have previously proposed at the WTO that countries be allowed not to patent environmentally-sound technology so that its transfer and use can be facilitated. The relaxation of the TRIPS rules in the case of climate-related technologies has also been proposed by developing countries in the UNFCCC; however this met with opposition.

International measures can be taken to ensure that royalty and other conditions in voluntary licenses are fair and reasonable.

Governments can also facilitate easier access to compulsory licenses when required for specific purposes. For example the US Clean Air Act provides for CL of patented technologies needed to meet agreed standards, i.e. to comply with the emission requirements, no reasonable alternative is available, and where non-use of the patented innovation would lead to a “lessening of competition or a tendency to create a monopoly.” A district court can, with the Attorney General’s assistance, determine whether a compulsory patent license should be granted and set the reasonable terms.

A “Global Technology Pool for Climate Change” could be developed in which owners of ESTs place their IPRs in a pool, and make them available to developing country firms on payment of low compensation (in some circumstances royalty free) and on standard terms to be established. This approach has the potential to manage the patent system, regulate

practices by the IP holder and makes it administratively and financially easier for access to take place.

2.4 R and D Model and Future Technologies

For technologies to be developed for future use, the nature of the funding of research and development will exert influence on the proprietary nature of the products and technologies. In line with the goal of having as many technologies in the public domain as possible, a technology fund can be set up for research and development for new technologies. Since the funding is made available by the fund, the patents for the inventions are to be owned by the fund. Inventions can then be made available to firms in developing countries through licenses at no cost or minimal cost.

This scheme would not of course prevent privately funded innovation activities from taking place, and the two could co-exist. However, the larger the resources available for global publicly funded R and D activities, the larger will be the share of future technologies that will be in the public domain.

The UN Secretary General's report on options for a technology facilitation mechanism (A/67/348, 4 Sept. 2012) also has many useful proposals, in line with the Agenda 21 proposals for the establishment of a collaborative network of research centres, support for cooperation and assistance programmes, and building capacity for technology assessment, and collaborative arrangements.

International collaboration for R and D (including arrangements for its financing) is an important possibility that should be explored fully. Models of collaboration (such as those that existed or exist in agriculture, health, etc.) should be examined to see if the lessons learnt can be adopted and adapted for other areas such as climate change.

2.5 Technology Assessment

In order to promote the development and transfer of technologies, it is also important to assess the appropriateness of the technologies that are selected for development, transfer, and diffusion.

This is to ensure that the technologies that are so promoted are in accordance with the objectives of the UNFCCC, as well as in line with national needs and goals.

Criteria should be adopted to assess technologies that meet general acceptability as well as national conditions, needs and objectives. A mechanism can then be established on applying these criteria when selection of technologies takes place.

It is proposed that the following are among the principles/criteria to be considered:

1. Relevance to the objective of addressing the climate change problem;
2. Environmental soundness;
3. Safety to the environment and to human health;

4. Affordability, especially for developing countries;
5. Social acceptability and effects, including in relation to employment, equity, and cultural norms; and
6. Economic efficiency and cost-effectiveness.

It is clear that there could be trade-offs between and among some of the principles and criteria mentioned above. The methods for making choices in the context of trade-offs is therefore also important to consider and determine.

2.6 Recommendations

1. Technologies in the public domain should be encouraged and expanded.
2. Developing-country Governments are urged to make essential medicines and other essential products and technologies more available in their public facilities (drawing from MDG Gap Report 2013).
3. Developing countries are encouraged to make use of the TRIPS flexibilities in order to increase access to more affordable essential medicines and other products and technologies linked to sustainable development whenever conditions justify, through local production and importation (drawing from MDG Gap Report 2013).
4. Manufacturing companies in developing countries with the capacity to do so are encouraged to produce more affordable essential medicines locally, taking advantage of international efforts that facilitate such production (MDG Gap Report 2013). This should also apply to other products within the sustainable development framework.
5. New R&D initiatives that help delink the high cost of R&D from the price of the product need to be further developed and implemented (MDG Gap Report 2013).

Recommendations on New Technologies

- Governments of developing countries should accelerate efforts to increase access to and affordability of ICT, especially broadband Internet.
- Governments and research institutes of developed and developing countries are encouraged to continue supporting the efforts of the Technology Mechanism, including the Climate Technology Centre and Network, to increase the transfer of climate change–related technologies to developing countries. Developed countries are urged to scale up long-term climate finance and reach their commitments by 2020.
- The public and private sectors of developed and developing countries are urged to increase cooperation in expanding access to new technologies to enhance preparedness for and resilience to the effects of natural disasters.
- All United Nations Member States and stakeholders should re-examine and bring to the international agenda the importance and role of science, technology and

innovation and the transfer of all relevant technologies in the achievement of development goals in all areas.

- Models of R and D and their financing should be explored that can finance innovation while aiming to achieve greatest possible access for developing countries. The delinking of innovation cost from the price of the product is an important potential objective.
- A system and structure for technology assessment should be established to be an important component of technology development and transfer arrangements.

(Note: The first 4 recommendations above are taken or drawn from the UN MDG Gap Report 2013).

2.7 Technology Facilitation Mechanism for Sustainable Development

The Rio plus 20 outcome mandated the UN Secretariat to report on a possible technology facilitation mechanism. The UN Secretary General report on this (A/67/348) examines and outlines recommendations on the functions, format and working methods of such a mechanism.

It recommends setting up several global networks: of science foundations; national business incubators; policy organisations; and technology transfer and information mechanisms.

The report also gives suggestions on technology-related SDGs (with three goals of improving technology performance by a factor 4; universal access to sustainable technology; and global green innovation system for sustainable development).

The main recommendations of the SG report are that:

- A global technology facilitation mechanism is needed under the UN.
- The mechanism can draw from “lessons learnt” in the report as guidelines for deliberations on details of the mechanism.
- An inter-governmental preparatory working group should be set up to work out the institutional details of the mechanism.

Another recommendation should be that technology assessment should be an important component of the technology facilitation mechanism. This issue has also been recognised and discussed in the SG’s report.

For the OWG-SDG, it is also useful to examine this report and draw from its lessons and recommendations for the work and outcome of the OWG.

3. Some Finance Related Issues as Means of Implementation

Finance issues are part of both means of implementation and global partnership. The following is an outline of some of the finance issues for Mol.

3.1 Reaffirm the target of 0.7% of GDP for ODA of developed countries

There is a significant section on ODA in the Rio+20 outcome. This should guide the discussion on the SDG on aid.

With the new and additional actions expected of developing countries, there is an expectation of new and additional financial resources to support the developing countries in implementing the SDGs.

There is thus grave concern over the decline in ODA in absolute amounts and in relative terms (i.e. as per cent of GDP) since 2011. Reports from the OECD show that ODA has fallen by a total of 6% in real terms in 2011 and 2012, the first decline since 1997. New actions in the environment including climate change will require additional financing; but this should not displace other worthwhile causes like poverty reduction, health and education and industrialisation. As the UN SG has said, "we must reverse this trend" (of declining ODA).

There should thus be in the SDGs a reaffirmation of the need for progress rather than regression towards the ODA target of 0.7% of GNI.

3.2 Other external financing for development

ODA will not be sufficient for the ambitious SDGs. The OWG could thus examine other sources. For example, the Financial Transaction Tax scheme, to be implemented by 11 EU members, is expected to deliver some 30-35 billion Euros a year. It is designed "to ensure that the financial sector makes fair and substantial the contribution to public revenues" and to encourage it "to engage in more responsible activities". A portion of the taxes collected could be channelled to sustainable development financing.

3.3 External Debt

The UN MGD Gap Report 2013 notes that in 2012 some developing countries had to restructure their debt and additional countries are at high risk of debt distress, 9 of them in Sub Saharan Africa. The global economic slowdown, if it continues, is likely to result in a return of the debt crisis for more developing countries. Thus the debt issue, which was part of Goal 8, should also be given prominence in the SDGs.

The following are recommendations, some of them made by the MDG Gap Report , for consideration as inputs to the discussion on SDGs:

1. Assure timely debt relief for critically indebted developing countries struggling with unsustainable debt so as, inter alia, not to impede progress on the MDGs.
2. Encourage the international community to further develop and disseminate the tools and techniques for effective debt management, including by systematically taking into account the social dimension of debt sustainability.
3. Improve the timeliness and coverage of publicly available country debt data based on both creditor and debtor reporting systems so as to strengthen capacities for assessing debt sustainability and encourage greater transparency.

4. Devise principles for the path of adjustment to reduce excessive debt that strike a social and developmental balance between financing, debt restructuring and the pace of policy reform.

5. The financial requirements for a country to implement its SDGs should be an important factor to consider in debt sustainability assessments.

6. Establish an international sovereign debt restructuring and debt resolution mechanism under the auspices of the United Nations. The Working Group on this issue under UNCTAD could provide recommendations in this regard.

(The first four recommendations above are from the UN MDG Gap Report 2013 and placed here for reference.)

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