

**Contribution of the Food and Agriculture Organization of the United Nations (FAO)
to the report of the Secretary-General on transfer and dissemination of environmentally sound
technologies**

The importance of technology as the ‘mainspring of economic growth’ and the need for the development, transfer and diffusion of ‘clean’ environmental sound technologies have been present in global debates on development for many years. For instance, the Agenda 21 articulated the “need for favorable access to and transfer of environmentally sound technologies, in particular to developing countries, through supportive measures that promote technology cooperation and enables the transfer of necessary technological know-how as well as building up of economic, technical, and managerial capabilities for the efficient use and further development of transferred technology.” Moreover, the urgency of creating the technology facilitation mechanism was an emerging outcome of the Rio+20 Conference.

Facilitation mechanisms on the development, transfer and diffusion of clean and environmentally sound technologies must stimulate innovation, and accelerate widespread availability and use of clean and environmentally sound technologies. For the facilitation mechanism to be relevant, it must be able to facilitate the demand for, create access to, and speed up the process of acquisition and deployment of sustainable technologies.

In order to effectively achieve sustainable development through transfer of environmentally sound technologies and capacity development, there is a need for reforms in technology-policy instruments and availability of facilitation mechanisms that will foster the capacity of developing countries to acquire, adapt and use transferred technologies.

South-South Cooperation (SSC) as a viable option for technology facilitation mechanism

Much of the technologies and capacity needed in developing countries already exist somewhere, but need to be shared, transferred and disseminated or scaled-up. As countries share and exchange development solutions (technology, skills, knowledge, experiences and technical know-how), they will be able to co-learn, co-innovate and co-develop and or improve mutually relevant, clean and sustainable technologies. In this context, innovative **south-south and triangular cooperation has crucial roles to play in the proposed facilitating mechanism** option that ensures dynamic flow of technological and capacity development solutions.

The ability to assimilate technologies, not barriers to transfer—is the primary impediment to technological development in developing countries.¹ Therefore the potential of developing, transferring, adapting and up-scaling clean and environmentally sound technologies will be limited by low capacity. **South-South and triangular cooperation can strategically fill such capacity gap** through facilitation of information flow, technology sharing, knowledge networking and expertise exchange among institutions and countries. **South-south and triangular cooperation could therefore constitute a major component of the proposed technology facilitation mechanism.**

FAO considers SSC as critical instrument for the achievement of its strategy framework and its member country priority frameworks. In what can be described as triangular south-south cooperation arrangement, **FAO plays the role of facilitating and connecting countries and institutions that have proven development solutions to exchange and share with countries in need of such solutions.** The purpose is to strengthen the capacity of nations to drive technology

¹ Juma, C. (1994). Promoting international transfer of environmentally sound technologies: the case for National Incentive Schemes. In hedge Ole Bergesen and George Parmann (eds.), Green Globe Year book of international cooperation on environment and development. Oxford University Press, 137-156.

development and transfer and meet their major development challenges. FAO ensures that host countries have ownership of the process and the technology transferred.

FAO's SSC experience in south-south and triangular cooperation dates back to 1996. It involves the facilitation of the sharing and exchange of a wide variety of southern developed technologies, knowledge and technical know-how transfer that are known to be cost-effective and relevant to local conditions. In the last 16 years, more than 1500 experts and technicians have been exchanged and fielded among fifty developing countries in Africa, Asia, Latin America and the Near east. Each expert is fielded for 2-3 years, providing technical skills, knowledge and know-how, and capacity building in southern agricultural and food security technologies. In addition, a wide variety of training, knowledge sharing and exchange forums are being facilitated by FAO technical units each year. This model has been found by development partners to be successful, and is receiving increasing demand.

The strong comparative advantage of the FAO in the context of south-south and triangular cooperation is not just as knowledge provider and its convening capability, but also as knowledge facilitator: connecting countries and institutions with advanced capacity and or technology with those that need them most, among its member countries.

The FAO south-south and triangular cooperation strategy has the following multi-pronged modalities:

- Deployment of medium/long-term expertise to support technology exchange, knowledge and experience sharing;
- Short-term exchange of technological solutions, knowledge and best practices; and *ad-hoc* sharing of short-term high-level expertise;
- Structured, systematic and or modular education and training supports, including facilitating knowledge networks;
- Facilitating the access, demonstration, sharing or in-kind support of technological solutions;
- Comprehensive SSC Programme (involving multiple modalities).

The following actions are proposed as being fundamentally important to the proposed facilitation mechanisms based on south-south and triangular cooperation:

1. Needs assessment and priority setting. The capacity gaps and technology needs in developing countries will have to be first identified and prioritized in an integrated way. For countries to properly identify technology and capacity gaps they will need to have proper awareness on what options are available within and elsewhere, and take informed decision on whether these could be adapted and disseminated. Effective institutional arrangement needs to be in place for identifying, assessing and making informed decisions on selecting clean and environmentally sound technologies. This may involve the creation of national 'clearing-house' in each country for clean and sustainable technologies.

2. Strengthening long-term local capacity. The main challenge for developing countries is not just about having access to technologies that are introduced nor availability of expertise from other countries, but the ability to sustain, maintain and further innovate with the acquired technologies. Country's readiness and capacity for assimilating technology transferred—selecting, adapting and deploying solutions, and innovating with and without providers throughout the entire technological cycle—needs to be enhanced.

3. Build on local technological capacity. New technologies introduced from other countries should not inhibit the prospects for local creativity and innovation. Rather it should enhance it. Technology

transfer should explore possibilities of building on local technologies, and using locally available support mechanisms for adaptation, replication and dissemination.

4. Create dynamics in technology transfers, exchange and sharing. The notion of technology transferring from a developed country to developing country should not exclude the potential for 'south-north' cooperation whereby relevant technologies and know-how from less industrialized nation (s) are transferred and assimilated in more developed nation. Triangular cooperation is an appropriate mechanism for facilitating such unrestricted flows of technology transfer. This is particularly important for clean and environmentally sound technologies.

5. Enhance stronger cooperation between research and development institutions. Knowledge brokerage and intermediation is a legitimate role of the UN. Through the facilitation mechanism this role could be taken to the next level by connecting knowledge providers and users. There is need for effective modalities for closer collaboration of the UN with other potential partners, such as international and regional research and development organizations, such as the CGIAR, regional organizations and research institutions, civil society organizations and the private sector. The facilitation mechanism should seek to connect technology developers with technology disseminators at national, regional and international levels. To fully leverage the power of the facilitation mechanism it is suggested that platforms for collaboration be established that allow research for development (R4D) entities to tap into knowledge pools at global, regional and national levels.

In sum, **agriculture and food production in developing countries is hampered by a variety of complex, inter-related problems relating to technology and capacity gaps that could be strengthened by effective facilitation mechanism south-south and triangular cooperation and backed by supportive policy and appropriate financing facility.** Technology facilitation mechanisms will help ensure that research and development institutions do not focus efforts at reinventing the wheel but making clean and environmentally sound technologies with accompanying know-how capacity available where they are most needed.

Additional information on FAO activities of relevance for the subject

- **Technologies and practices for small agricultural producers (TECA):** FAO has developed the interactive online platform "TECA" (<http://www.fao.org/teca>) to facilitate access to information that can benefit small producers around the world. The TECA platform aims to: (i) gather and facilitate access to practical information (technologies and practices) that can help small producers in the field; (ii) enhance the participation of rural stakeholders in the development and improvement of technologies and practices for small producers; (iii) contribute to food security and to the sustainability of farming systems managed by small producers. TECA targets practitioners from producers' associations, advisory services (extension agencies), national research and development organizations, NGOs, universities, the private sector and any group or initiative working for and with small producers. TECA shares technologies and practices from FAO and TECA partners in the following categories: (i) Agricultural mechanization; (ii) Capacity development; (iii) Climate change and disaster risk reduction; (iv) Crop production; (v) Fishery & aquaculture; (vi) Forestry; (vii) Livestock production; (viii) Natural Resources Management; (ix) Nutrition; (x) Post-harvest and marketing. The content of the TECA knowledge has been validated by FAO projects or partners with producers/farmers. It is presented in a non academic language using various media (text, photos, videos if available) and aims to specifically address information gaps at rural level, so it targets extension staff, public/NGO and private advisory services and producers and their organization.

- **Forestry** – The transfer of environmentally sound technologies (TEST) has been a concern in forestry for some time and has been highlighted in international debates such as the United Nations Forum on Forests (UNFF) and FAO Committee on Forestry (COFO) since 2000. FAO, through its Forestry Department, has and will continue to provide technical assistance to countries that will enable them to raise finance for investments in new technologies, as well as develop and deploy indigenous environmentally sound technologies and production techniques. At present, a major focus of FAO in this area is to **support countries with the deployment of improved wood energy production, conversion and utilisation technologies**. A second growing area of interest is **advocacy for the greater use of solid wood products as renewable and low-energy materials that have a smaller environmental footprint** compared to many other materials. FAO's focus in these areas was recently endorsed at the Twenty-First Session of the Committee on Forestry (FAO, 2012) and it fits within its Forestry Department's broader objective to promote the implementation of sustainable forest management. The forestry sector in many developing countries contains a mixture of well-developed, large-scale enterprises (often employing modern technologies) as well as many smaller informal and small-scale enterprises. The development of industry clusters to gain network externality benefits, share experiences and develop linkages within the sector would bring benefits to enterprises both large and small. However, experience shows that such initiatives are more likely to succeed where they are country-driven and led by the private-sector, with governments facilitating by providing a sound policy and legal framework and other public goods such as reliable data and information. FAO would be very willing to assist with such endeavour.
- **Fisheries** - FAO, through its Fisheries and Aquaculture Department, has worked in the development and dissemination of environmentally-smart fish processing ovens in small-scale fisheries. For example, in the 70s, FAO's Fisheries Department in collaboration with the Ghana's Food Research Institute of the Council of Scientific and Industrial Research (FRI), developed the Chorkor oven that was then widely disseminated in small-scale fisheries in the tropics. The important fuel efficiency, lesser environment pollution capacity (smoke in the air) and better quality products were the main strengths of this oven compared to traditional smoking overwhelmingly prevailing at that time. Further scientific developments mostly regarding the food safety aspects (namely the level of polycyclic aromatic hydrocarbons/PAH in smoked fish, a process-related food safety hazard) led to FAO efforts in addressing the weaknesses of the Chorkor oven. This was done through the design and piloting of the FAO-Thiaroye fish processing oven (FTT).