



Promoting environmentally sound technologies

At the Earth Summit in Rio de Janeiro, Brazil, in 1992, governments agreed on Agenda 21, an action plan to promote sustainable development. Central to Agenda 21 is the promotion of environmentally sound technologies (ESTs). As defined in Agenda 21, ESTs protect the environment, are less polluting, use fewer resources in a more sustainable manner, recycle more of their waste and products, and handle residual waste in a more efficient manner than the technologies for which they were substitutes.

In 2004, the Bali Strategic Plan for Technology Support and Capacity-building (for more information, visit <http://www.unep.org/GC/GC23/documents/GC23-6-add-1.pdf>) reinforced the need for the provision of technology support and capacity building to developing countries as well as to countries with economies in transition. In 2012, the UN Conference on Sustainable Development, or Rio+20, in its outcome document "The Future We Want" again emphasized the importance of technology transfer to developing countries.

The United Nations is in the process of defining a post-2015 development agenda. This agenda will be launched at a summit in September 2015, the target date for achieving the Millennium Development Goals. There are discussions on "rethinking technology," covering topics such as a technology facilitation mechanism and technology assessment. Technology transfer remains an important topic in the international arena as it is seen as playing a critical role in the global response to the challenges to sustainable development. It is important to remember that achieving this goal will not just be a matter of bringing new tools to a new location but will also involve a suitable policy environment, unobstructed markets, adequate financing, and capacity building.

The International Environmental Technology Centre's role in the transfer of ESTs

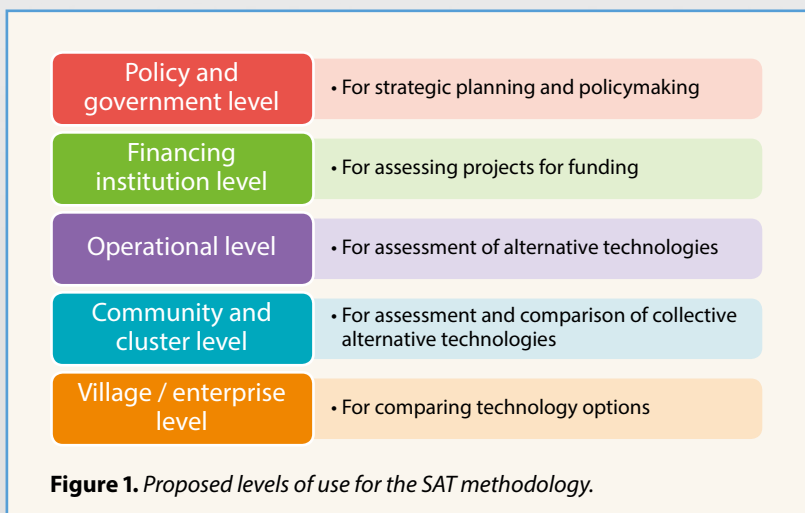
Inaugurated in 1992, UNEP's International Environmental Technology Centre's (IETC's) mandate is the transfer of ESTs to developing countries and countries with economies in transition. The IETC has had a comprehensive leading role in promoting the development, transfer, uptake, and use of ESTs. This covers data gathering and information management in relation to ESTs, as well as the development of decision support tools to assess life cycle performance and the environmental benefits of ESTs. It also facilitates technology transfer and supports capacity building initiatives to assist in the development, demonstration, and dissemination of ESTs.

Over time, the IETC has worked on urban development, including disaster management and water and sanitation. In recent years, it has focused on holistic waste management (solid waste, liquid waste, and gaseous emissions) by supporting national and city waste management strategies. The IETC has built the capacity at national and local levels to identify and implement ESTs for various waste streams. A series of sustainable technologies was developed for different waste streams and they were demonstrated in pilot projects. Subregional workshops were organized to share and exchange experience in the projects.

Sustainability assessment of technology methodology

In its endeavors to assist countries in assessing and choosing ESTs that match their needs, the IETC has developed a methodology, the Sustainability Assessment of Technologies (SAT), as well as a number of reports on waste management technologies, so-called compendia of technologies. These are intended to provide information on technology options as well as to assist policymakers and technology decision makers in the identification of appropriate technologies with respect to local economic, environmental, social, and technical characteristics. The SAT methodology lays down generic criteria and indicators. Customization of the generic set of criteria and indicators can be carried out for sector-specific applications. This methodology is applicable to any sector including municipal services (waste management, water and sanitation, air quality management, etc.) and commercial sector (energy, transportation, manufacturing, etc.).

The SAT methodology is being used by a



varied group of stakeholders in different situations and at different levels of decision making (Figure 1). At the policy/government level, SAT can be applied for strategic decision making. These strategic decisions are often made by planners, civic body officials, and mayors/elected representatives. Once decisions at the strategic level are taken, SAT can be applied at the financing institution level. Target users could also include developmental as well as commercial

financing institutions that often play a key role in funding projects and programs that make use of technologies. The methodology can also be applied at the operational level, primarily by technical/engineering staff, designers, and consultants, to assess alternate technology systems.

The methodology follows the typical plan-do-check-act cycle of continuous improvement (Figure 2) as recommended by systems like the Quality/Environmental Management Systems (ISO 9000:14000). The SAT manual, compendium of technologies, and other materials are available online at the UNEP IETC webpage: <http://www.unep.org/ietc/InformationResources/Publications/tabid/56265/Default.aspx>.

Conclusion

The IETC's experience shows that its approach to technology transfer is holistic, including capacity building, knowledge and organizational development, and creating an enabling environment for the uptake of technologies. To be successful, transfer of technology requires more than just the moving of equipment from point A to point B. Other requirements include enhanced knowledge, management skills, and technical and maintenance capabilities of those receiving the technology. Integrating human skills, organizational development, and information networks is also essential for effective technology transfer. Thus technology transfer must be a broad, complex process if it is to contribute to sustainable, equitable development.

With the experience of working with government and the private sector in many different countries, the IETC is a good partner for the private sector to facilitate knowledge

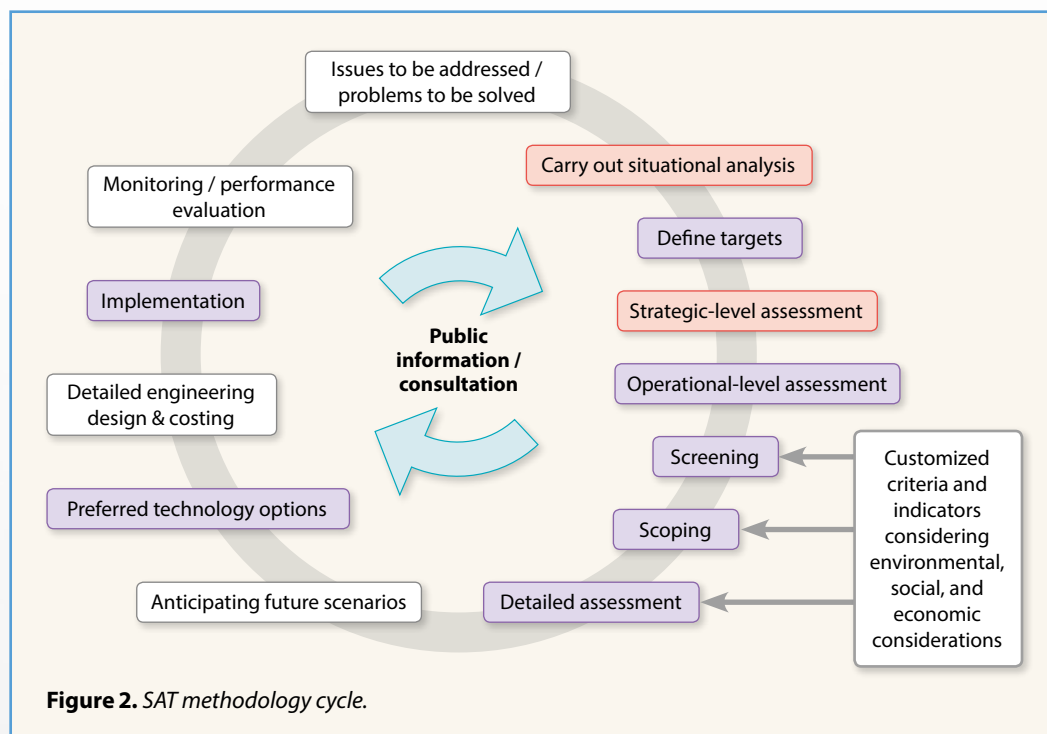


Figure 2. SAT methodology cycle.

exchange and business partnerships and can provide a platform for cooperation among Asian countries. The waste sector has huge potential for the adoption of ESTs to promote sustainable development as ESTs reduce waste and improve production efficiency. ESTs can also convert waste into a resource to boost economic activities and living standards. To achieve these, policymakers, scientists and engineers, the private sector and investors, and citizens' representatives may form a team to assess the current and future needs for ESTs for local and international markets and then to draw up a roadmap to produce and implement ESTs. 🌱



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