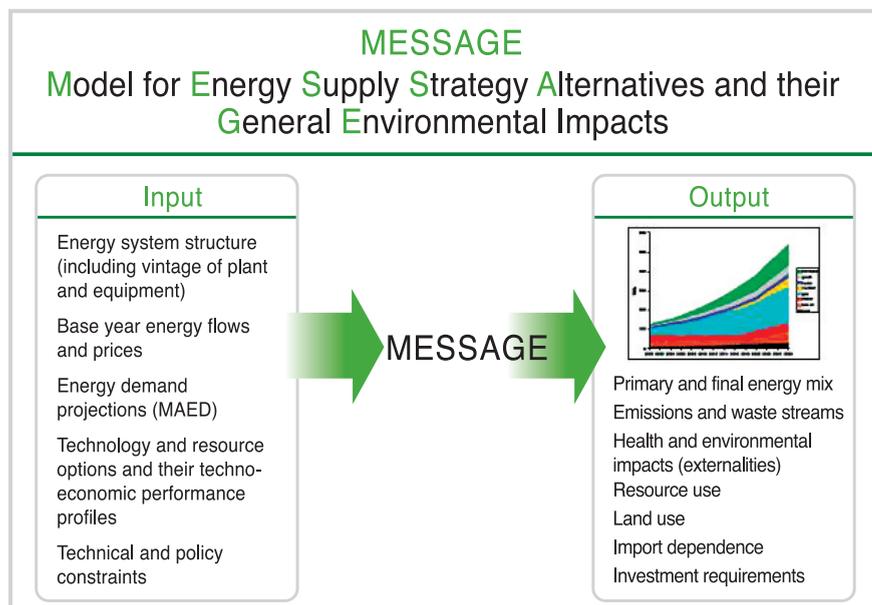


Enhanced Energy Analysis and Planning Capabilities

Energy is an indispensable input for economic growth and social development, underpinning basic needs and services and a critical factor in production in virtually all sectors of the economy. Unfortunately the production and utilization of energy have a wide range of environment impacts which have concomitant costs at the local, regional and global levels. The provision of adequate energy services at affordable costs, in a secure and environmentally benign manner and, in conformity with a country's social and economic developmental needs, necessitates that significant consideration be given to energy technologies that are compatible with sustainable development.

The fast economic and population growth in the RCA Member States has caused drastic increases in energy demand. A major issue for many Member States is to undertake energy planning while considering associated factors such as developmental needs, supply security, costs, and environmental impacts so that these can be included in any decision-making processes. As a consequence, they formulated a series of regional projects to build capacity on energy issues, with a focus on electrical energy; address environmental concerns; and, provide information for decision making, as needed. All aspects were undertaken under the common objective of strengthening sustainable development.

These projects have been implemented and have achieved their primary goals. As a result, and within the scope of the project, the participating RCA Member States are better able to elaborate sustainable energy strategies; conduct national studies to set up sustainable energy development taking account of the role of nuclear power and other energy options; and, provide recommendations for appropriate actions consistent with national objectives for sustainable development. Important elements in the training were the development of energy scenarios under possible climate change control regimes for the post Kyoto period and the use of IAEA's analytical tool MESSAGE (Model for Energy Supply Strategy Alternatives and their General Environmental Impacts) for formulation and evaluation of sustainable energy strategies to address climate change issues.



MESSAGE combines technologies and fuels to construct so-called “energy chains”, making it possible to map energy flows from supply (resource extraction) to demand (energy services). The model can help design long term strategies by analyzing optimal energy mixes, investment needs and other costs for new infrastructure, energy supply security, energy resource utilization, rate of introduction of new technologies (technology learning), environmental constraints, etc. It can also help evaluate the impact of environmental regulations, in particular the carbon tax implications, on energy system development.

National teams conducted national studies using MESSAGE and developed long-term scenarios and during the final period of the project they organized national seminars to disseminate the information they had gained. These national studies have directly

supported or influenced the decision-making process for national or local long-term electricity planning in the RCA Member States and have provided policymakers with technically sound information to support meaningful participation in international dialogue and negotiations related to green house gas (GHG) abatement efforts (see the box on the climate change and energy issue).

Some of the notable examples of the project outcomes include: the long-term strategy paper for development of nuclear power in India; and, the study on an energy security initiative in Pakistan. The latter made the official goal for a nuclear power development set by Prime Minister of Pakistan.

At the regional level these RCA projects have fostered regional cooperation and facilitated integrated analysis of regional energy, economic and environmental issues.

As an important step, those Member States already using nuclear power as an energy option; China, India, Korea and Pakistan, are seriously considering adopting energy policies that have an increased dependency on nuclear power in their energy supply scheme. Indonesia and Vietnam have proposed the inclusion of the introduction of nuclear power in their prevailing energy plans,



while other Member States - Bangladesh, Malaysia, the Philippines and Thailand - are taking into account the potential introduction of nuclear power as an energy option. These moves emphasize the growing importance of the outcomes of these RCA energy projects in supporting national decision making in the participating Member States surrounding the introduction/expansion of nuclear power in the region.

Climate Change and the Energy Issue

As the largest emitter of carbon dioxide, the increasing use of fossil fuel will have a stake in the climate change with consequent impacts on land and agriculture, water resources, coastal zones, forest and biodiversity, etc. Increasing use of low-carbon/carbon-free energy resources and technologies, like renewable energy sources and nuclear power, is required to meet the increasing energy needs, while reducing the level of greenhouse gas emissions. Making decisions on energy technologies has important and direct implications on plans to mitigate climate change.



Regional Co-operative Agreement

For Research, Development and Training
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