

ENERGY, ENVIRONMENT AND SUSTAINABLE DEVELOPMENT PROGRAMME IN IMT-GT

A Concept Paper

1) Introduction

The IMT-GT Roadmap for development 2007 – 2011 endorsed by the IMT-GT Leaders during the 2nd Summit in 2006 includes projects on Energy and Environment to be pursued during this five-year period. These projects are:

- i) Develop a framework for strengthening cooperation in management & protection of natural resources in IMT-GT to ensure sustainability of development in the region (indicated as Project No. 4.2.1);
- ii) Promote & support use of environmentally friendly technologies & approaches in agriculture, industry & tourism in IMT-GT (indicated as Project No. 4.2.2);
- iii) Cooperate in the control and improve surveillance, public awareness & response to pandemics due to possible trans-boundary animal diseases & natural disasters to complement measures taken by ASEAN (indicated as Project No. 4.2.3);
- iv) Early warning system on natural disasters (indicated as Project No. 4.2.4).

The 3rd IMT-GT Summit in on 19 November 2007, in Singapore, further stressed on the need for IMT-GT to cooperate on Energy and Environment. One of the Joint Statement Highlights (among others) mentioned the following:

“Committed and resolved to strengthen and accelerate cooperation in Energy, Environment, Infrastructure, Transportation, and Logistic Connectivity, Tourism, Human Resource development, as well as cooperation in Security and In Social and Cultural Areas”.

2) Background

The concept of “Sustainable Development” was introduced in a report in 1987 produced by the World Commission on Environment and Development (WCED), entitled, “*Our Common Future*”. It is defined as “*development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*” It means development which takes care of three important elements: to foster economic growth, to improve the people’s quality of life, and to ensure zero or least impact to the environment.

“Sustainable Energy Development” is one important component of sustainable development. Energy is essential to the economic growth and socio-economic development of all nations – it is a basic necessity for the betterment of quality of life. It is a commodity needed by every individual, family and society to live and maintain a certain level of quality of life. It is also an important ingredient for the development of all sectors, including: industry, commerce, transportation, agriculture, infrastructure development, and tourism.

Incidentally, energy development and utilisation is the biggest contributor of environmental impacts. At global level, about two-thirds of the causes of global warming are known to have been identified as a result of energy development and utilisation. At regional and local level, use of energy (and electricity) creates many kinds of environmental and health problems including acid rain, particulates and emissions such as sulphur oxides, nitrogen oxides, and carbon monoxides which are detrimental to health.

Efficient energy utilisation will help energy producing countries the ability to supply energy in the longer term, and helps sustain the security of supply in terms of ensuring adequate and uninterrupted supply of energy in future.

Energy and Environment are therefore important elements to be factored in any sustainable development initiative. They have also become the flagships of many international, regional and economic cooperation programmes.

Being cross-sectoral in nature, initiatives towards sustainable use of energy and care for the environment would be more effective if they are integrated into any existing cooperation programmes rather than having its own isolated programmes.

As IMT-GT cooperation programme is aimed at improving the quality of living through economic development and economy-related activities, it is deemed necessary therefore for Energy and Environment to be included in existing programmes. After 15 years pursuing on economic activities through cooperation in trade and investment, transportation and infrastructure, agriculture and agro-industry, tourism and human resource development, it is timely now for sustainable energy and environment protection to be integrated in the existing programmes under the six working groups, namely:

- i) WG on Agriculture, Agro-Based Industry & Environment;
- ii) WG on Human Resource Development;
- iii) WG on Trade & Investment;
- iv) WG on Infrastructure & Transportation;
- v) WG on Tourism; and
- vi) WG on Halal Products & Services.

Although "Environment" is included in the WG on Agriculture, Agro-Based Industry and Environment, the scope of "Environment" here has not been clearly defined, and therefore was more understood as environment related to the agricultural and agro-based sector only.

3) Energy Cooperation at International and Regional Level

A full cooperation programme in energy would be very broad covering areas such as the following:

- i) Energy policy and planning;
- ii) Energy supply security and stockpiling;
- iii) Energy data and analysis;
- iv) Energy efficiency and conservation;
- v) Renewable energy;
- vi) Electricity production and transmission;
- vii) Oil and gas;
- viii) Coal production, transportation and clean coal technology;
- ix) Environment and global warming.

At the international and regional level, many of these cooperation programmes are being spearheaded by organisations such as World Energy Council (WEC, based in UK), International Energy Agency (IEA, based in Paris for OECD countries), Asia Pacific Energy Research Centre (APEREC, based in Tokyo for the APEC economies) and ASEAN Centre for Energy (ACE, based in Jakarta for the ASEAN member economies).

At national level, Indonesia, Malaysia and Thailand are actively participating in all these programmes with WEC, IEA, APEREC and ACE.

4) Energy Cooperation at ASEAN Level

The ASEAN Energy Cooperation Agreement (initially signed by the ASEAN Foreign Ministers in 1986, by the five pioneer ASEAN countries, followed by other new members in subsequent years), is in itself an extensive cooperation mechanism, involving the following bodies and mechanisms:

- ❑ Ministries of Energy (for SOM and MM);
- ❑ ASEAN Council on Petroleum (ASCOPE, consisting of presidents and heads of the ASEAN state-owned oil and companies, such as Pertamina of Indonesia, Petronas of Malaysia, PTT of Thailand, PNOOC of Philippines, and others);
- ❑ Heads of ASEAN Power Utilities/Authorities (HAPUA, consisting of presidents and heads of the ASEAN electricity companies, such as PLN of Indonesia, TNB of Malaysia, EGAT of Thailand, Singapore Power of Singapore, and others);
- ❑ ASEAN Forum on Coal (AFOC, consisting of ASEAN coal producers, exporters and importers);
- ❑ Energy Efficiency and Conservation Sub-Sector Network (EEC-SSN);
- ❑ Renewable Energy Sub-Sector Network (RE-SSN);
- ❑ Regional Energy Policy and Planning Sub-Sector Network (REPP-SSN);
- ❑ Energy and Environment Sub-Sector Network (E&E-SSN)
- ❑ ASEAN Energy Business Forum (AEBF).

Sub-Sector Networks basically operates like IMT-GT Working Groups – planning, promoting and executing cooperation programmes on their particular area, and spearheaded by officials from the energy or energy-related ministries. They organise meetings from time to time, and communicate mostly through net-working. EEC-SSN is led by Thailand; RE-SSN is led by Malaysia; REPP-SSN is led by Indonesia, and E&E-SSN is led by Philippines.

Cooperation programmes spearheaded by ASCOPE, HAPUA and AFOC are more well-structured as (with sufficient funds) they have their own secretariats located in the head-office of the lead companies. Under ASCOPE, there are other sub-groups covering areas such as Petroleum Security, Refineries, Liquid Petroleum Gas (LPG). Under HAPUA, subgroups cover areas such as Generation, Transmission, Distribution, Hydropower, Coal, Electricity Database, Human Resource and Training.

Two flagships projects under close scrutiny of the ASEAN Ministers on Energy Meeting (AMEM) are the Trans-ASEAN Gas Pipeline (TAGP) and the Trans-ASEAN Power Grid (TAPG).

Summarily, the ASEAN Energy Cooperation is an extensive programme involving many institutions, huge manpower and expertise, and numerous meetings. In establishing an energy cooperation programme for IMT-GT, it may be counter-productive if these institutions and manpower need to be engaged again at IMT-GT level.

5) Environment and Natural Resource Management Cooperation at ASEAN Level

The ten priority areas jointly pursued by the ASEAN member countries are as specified in the Yangon Resolution on Sustainable Development signed by the ASEAN Ministers on Environment in December 2003. These programmes are common environmental issues in nature addressed at the ASEAN regional level.

These areas include:

- i) Land and forest fires and trans-boundary haze pollution;
- ii) Coastal and marine environment;
- iii) Sustainable forest management;
- iv) Sustainable management of natural parks and protected areas;
- v) Freshwater resources;
- vi) Public awareness and environmental education;
- vii) Promotion of environmentally-sound technologies and cleaner production;
- viii) Urban environmental management and governance;
- ix) Sustainable development monitoring and reporting; and
- x) Database harmonisation.

Each of these programmes need to be studied in more detail on their planning, mode of implementation and implementation status, in particular as to what extent these international programmes are carried out at regional or sub-regional level.

6) Energy and Environment Cooperation in IMT- GT

The energy and environment cooperation in IMT-GT should not duplicate or overlap those already taking place at the ASEAN level among the Federal Governments of the ASEAN member countries. Energy and environment programmes at the IMT-GT level should focus on the characteristics and interests of IMT-GT, but at the same time supplementing and strengthening further the cooperation at the national and regional level.

The main characteristic of IMT-GT cooperation are:

- i) the programmes and activities mainly involve programmes towards developing economic activities with the aim of improving the income level and livelihood of the population within the sub-region;
- ii) the cooperation pursued are more at State and Provincial level – between the States and Provinces.

Energy cooperation in IMT-GT that most fits into these two characteristics, but without having to involve the ASEAN bodies and mechanisms as a whole are:

- i) Energy Efficiency and Conservation;
- ii) Renewable Energy; and
- iii) Environment (and Natural Resource Management).

These three areas are key elements of “Sustainable Development” that have become a major concern of all countries; industrialised and developing. More so, these three programmes are usually carried out focusing on more at the Federal level that little of them are stressed at state and provincial level. IMT-GT actually provides a platform whereby these three programmes can be implemented at the state and provincial level.

7) Energy Cooperation in IMT-GT

The following programmes and measures can be initiated in the whole spectrum of IMT-GT institutions and processes:

7.1 Energy Efficiency and Conservation (EE&C) in Buildings (Implementor: All Working Groups)

This programme drives at rational and efficient use of energy – meaning energy use without waste, in the following applications and technologies:

- ❑ Ventilation and air-conditioning;
- ❑ Elevators and escalators (for office or large buildings);
- ❑ Equipments and appliances
- ❑ Lightings.

The measures to be undertaken can be categorised as follows:

- ❑ No-cost measures (purely by change of habits, better discipline and good house-keeping techniques);
- ❑ Low and medium cost measures (e.g. by changing normal incandescent bulbs to energy-efficient bulbs, use of sensors for lightings and air-conditioning, and automatic door-closers for air-conditioned rooms);
- ❑ High cost measures (e.g. use of notebooks or LCD monitors for all office computers; use of energy-efficient air-conditioning systems; use of energy efficient refrigerators; and use of energy-efficient motors for elevators, escalators and air-conditioning systems; making physical renovations to the buildings to improve their thermal behaviour);

Thailand has been one of the most successful countries (next to Singapore) in ASEAN in implementing energy efficiency and conservation at its national level, since it enacted the Energy Efficiency and Conservation Law in 1993. Driven conscientiously by the Department of Alternative Energy Development and Efficiency (DEDE) under the Ministry of Energy, Thailand has managed to make Energy Efficiency and Conservation and Renewable Energy promotion as a high agenda of the country. Thailand’s experience in this case is very relevant to be shared with other IMT-GT members.

The programme can be pursued in the following category of buildings:

a) In Office Buildings

- ❑ Federal and State/Provincial Government Ministries, Agencies, Departments office buildings;
- ❑ Office buildings operated by companies owned by Federal & State/Provincial Governments;
- ❑ Office buildings operated by companies owned by the Joint Business Councils, and other private sector companies involved in IMT-GT;

- Office buildings operated by companies owned by Federal & State/Provincial Governments;

b) In Institutional Buildings

- Universities, colleges and schools;
- Hospitals;
- Community centres;
- Etc.

(Implementation of EE&C in government office buildings, government-owned buildings and buildings owned by government-linked companies are an important symbol of “leadership through example” where the government (and its officials) would have to show their efforts and initiatives first and foremost before encouraging others to do so).

c) In Domestic Buildings

In homes of the public and private sector staff, personnel and any community and individuals involved in IMT-GT. This is more a change of mindset and good housekeeping techniques, towards use of energy, and even other natural resources, such as:

- switching off or reducing lights in offices or rooms that are not in use;
- switching off air-conditioning systems in meeting rooms when not in use;
- not leaving doors open for meeting rooms that are air-conditioned.

7.2 Energy Efficiency and Conservation in Industries

(Implementor: Working Group on Agriculture & Agro-based Industries, and Working Group on Trade & Investment especially for SMEs in IMT-GT)

This relate to efficient use of energy, and avoiding energy wastage in industrial processes, such as:

- Use of high thermal efficiency boilers for thermal processes;
- Avoiding of heat and steam leakages in heat systems by ensuring good insulation or intact joints;
- Recycle and use of heat exhausts that come out from engines or heat systems;
- Use of high-efficient motors for all equipments that use electric motors;
- Load-scheduling to avoid high peak load pattern on daily basis;
- Use of environmentally benign fuel (e.g. natural gas, where possible) as fuel for any heating or combustion processes.

7.3) Renewable Energy

- Use of agricultural wastes for heat and/or electricity generation (where possible using the cogeneration technology which provides very thermal efficiency);
(Implementor: Working Group on Agriculture & Agro-based Industries, and Working Group on Trade & Investment especially for SMEs in IMT-GT):
- Installation or development of solar photovoltaic systems, mini-hydro plants, wind-turbines, in remote areas without electricity supply for own use or for supply to nearby consumers;

(Implementor: Working Group on Transport & Infrastructure, as this involves infrastructure and technologies for power generation and use):

- Developing wastes-to-energy plants, utilising municipal solid wastes in main cities and towns of IMT-GT for power generation using proven and environmentally-friendly technologies such as cogeneration or plasma. (This wastes-to-energy programme is also considered as an environment programme, as it relates to sustainable wastes management since municipal solid wastes – MSW – will create a major land, environmental and health problem if the wastes are not disposed off sustainably);
(Implementor: Working Group on Transport & Infrastructure, as this involves infrastructure and technologies for power generation and use):

Environment and Sustainable Development Programme:

8.1) Environment and Natural Resource Management

Environment and Natural Resource Management cooperation programme in IMT-GT has already been agreed in IMT-GT Roadmap for Development 2007-2011, and listed in the Action Plan Matrix 4.2 (page 28 ~ 29). These programmes are to be driven and implemented under the Working Group on Agriculture and Agro-based Industries:

- i) Develop a framework for strengthening cooperation in the management and protection of natural resources in the IMT-GT subregion to ensure sustainability of development in the region;
- ii) Promote and support the use of environmentally friendly technologies and approaches in agriculture, industry and tourism in the IMT-GT subregion;
- iii) Cooperate in the control and improve surveillance, public awareness and response to pandemics due to possible trans-boundary animal diseases and natural disasters to complement measures being taken by ASEAN;
- iv) Early warning system on natural disasters.

These four programmes already included in the Action Plan Roadmap Matrix are far from being comprehensive. Programme i) above attempts to enhance the programme further to include other areas related to Environment and Natural Resource Management.

Programmes i) above would be more practical and achievable by pursuing the programmes already agreed and implemented at ASEAN level as mentioned above and, but now strengthened at the states and provinces of IMT-GT. As the cooperation areas at the ASEAN level are very wide, cooperation programmes at IMT-GT level should just select programmes that are more manageable by them and also within their authorities and jurisdictions. After trimming down the selection, the various modus operandi and mechanisms of cooperation, as well as status of their implementations would need to be studied and adjusted, and implemented at states and provincial levels. A brainstorming session either among the Working Groups or among relevant experts (or both) need be held to come up with a full programme on Environment and Natural Resources Management. A strong commitment and support from the National Secretariats is necessary for the programmes to succeed.

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