26. UNITED NATIONS ENVIRONMENTAL PROGRAMME (UNEP)

26.1 Energy Policies and Actions

The Energy Branch of the Division of Technology, Industry and Economics (DTIE) of the UNEP works actively to support the objectives of sustainable development under the energy sector. UNEP Energy activities help partners incorporate environmental factors into their energy-related decisions. Below shows some of its current activities:

- UNEP is contributing to a joint effort with the International Energy Agency to improve the developing country coverage in the World Energy Outlook [452] undertaken in 2004. This was done by a quantitative analysis of the energy, environmental, and social policies and measures being undertaken or planned in major developing countries that act to influence future energy demand and supply.

- The "capacity development for the clean development mechanism" project is building capacities in several developing countries to provide them with the skills and resources needed to analyse the technical and financial merits of projects and negotiate possible finance agreements.

- While there is growing global interest in the role of hydrogen as a clean energy carrier, UNEP is helping developing countries better understand the technical and economic issues involved to a hydrogen-based energy system and their associated policy implications. A non-technical review of the issues and challenges in moving to a hydrogen-based energy system has been released on the occasion of the ninth special session of the Governing Council / Global Ministerial Environment Forum of the UNEP.

- A greater degree of consensus is needed as regards the manner in which the hydropower potential in many developing countries may be realised without unacceptable environmental and social consequences. To this end, UNEP is contributing to the debate on hydropower that the Organisation for Economic Co-operation and Development (OECD)'s Trade Directorate is facilitating.

- UNEP is contributing to the analytical work on energy sector policy reform, energy regulation, and energy access under the UN Commission on Sustainable Development. UNEP is contributing to a better understanding of why some efforts to expand energy supplies in developing countries have been successful in reaching poorer populations while others have failed, and the environmental consequences of different approaches.

[452] The annual World Energy Outlook is the leading source for medium to long-term energy market projections and analysis and has achieved widespread international recognition. It is the flagship publication of the International Energy Agency. Details can be referred to http://www.worldenergyoutlook.org/

- While UNEP is a member of UN Energy, it is contributing to the interagency preparations for the next meeting of the Commission on Sustainable Development. UNEP is also active in other areas of the UN Energy programme of work.[453] [454]

Energy Efficiency Activities

There are also energy efficiency activities held by UNEP which generally focus on the needs of developing countries and countries with economies in transition. The activities involve various facets of technology research, development, transfer and commercialisation. Below shows some of the current activities:

(i) Energy Management and Performance Related Energy-Savings Scheme (EMPRESS) – supports energy efficiency efforts in Eastern and Central Europe. The project helps to establish specialised energy service companies (ESCOs) that provide monitoring and Targeting (M&T) energy services to industrial and commercial clients.
(ii) Promoting Industrial Energy Efficiency through a Cleaner Production Framework (CP-EE Project) – the project aims to reduce the emission of greenhouse gases by identifying and carrying out Energy Efficiency (EE) improvements as an integral part of Cleaner Production (CP) assessments in industrial enterprises in China, Vietnam, India, Hungary, The Czech Republic, Slovakia. Details can be referred to section 26.5.
(iii) Greenhouse Gas Emission Reduction from Industry in Asia and the Pacific (GERIAP) – the project aims to assist Asian businesses to address climate change by becoming more energy efficient, and thereby reducing greenhouse gas emissions and costs. The focus is on the steel, pulp & paper, cement, and chemicals sectors as they are major emitters of greenhouse gases.[455]

Renewable Energy Activities

As a participant of the *Renewable Energy Policy Network for the 21st Century* (REN21), UNEP is committed to foster the rapid expansion of renewable energies in developing and industrialised economies. The Energy Branch partners with a broad spectrum of stakeholders in this effort, including industry associations, governments and NGOs, financial institutions and the private sector. Below shows some of the current activities:

(i) Indian Solar Loan Programme – this is a four-year effort to help accelerate the market for financing solar home systems in southern India. Details can be referred to section 26.5.
(ii) Solar and Wind Energy Resources Assessment (SWERA) – it involves the development of information and analytical tools to help development countries more fully understand their available renewable energy resources. This will in turn help governments to develop progressive energy policies and programmes that can increase investment in renewable energy infrastructure.

[453] The work programme for the UN Energy can be referenced to http://esa.un.org/un-energy/Workprogramme.htm
[454] http://www.uneptie.org/energy/act/pol/index.htm
[455] http://www.uneptie.org/energy/act/ef/index.htm

(iii) Renewable Energy Technology Screen (RETScreen) – it is a pre-feasibility analysis software for renewable energy projects. UNEP is contributing to increase the awareness and enhance the usefulness of RETScreen internationally, including a greenhouse gas emissions (GHG) mitigation modeland an international training course on RETScreen.[456]

[456] http://www.uneptie.org/energy/act/re/index.htm

26.2 Environmental Evaluation/SEA in UNEP

During the 1990s, UNEP developed a training resource manual incorporating a module on SEA in response to continued requests to UNEP for assistance, information and training in SEA, particularly from developing countries.

In 2004, UNEP has also published "Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach" which is intended as a resource document for those involved in SEA practice, training and professional development. This document emphasises concepts, procedures and tools in current use or those that are potentially relevant for several purposes: integrated impact assessment; implementing EIA and SEA as tiered systems; and adopting a differentiated approach to SEA of development policies, plans and programmes that recognises how they differ.[457]

While SEA is increasingly used, there is also renewed interest amongst the major international financing institutions and aid agencies in using SEA to assist them deal with the demands of the "poverty" agenda.

In order to achieve the Millennium Development Goals (MDGs), there is a need of an integrated, cross-sectoral and comprehensive approach, referred as "integrated assessment", to ensure that sustainability aspects are incorporated into policy design and decision-making. This encourages the evolution of EIA/SEA to the application of integrated assessment of environmental, economic, and social effects at the level of planning, programming and policy-making.

Two main types of integration can be identified. First, there is 'vertical' integration with emphasis on the integration of EIA with other tools within the development process, for example upstream SEA, project-level EIA, then application of environmental management systems to operational facilities. Second, is 'horizontal' integration of different impact types within a specific assessment, whether SEA or EIA.[458]

For example, UNEP has prepared a manual on integrated assessment of trade-related policies [459] to help policy-makers and practitioners examine the economic, environmental and social effects of trade policy and trade liberalisation.

Another approach promoted by UNEP is Integrated Coastal Area and River Basin Management. Each demonstration projects aimed to undertake a series of steps which have much in common with the principles of SEA as well as good planning.[460] [461]

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457 Extracted from the "Strategic Environmental Assessment: A sourcebook and reference guide to international experience", Barry Dalal-Clayton and Barry Sadler, 2004, http://www.iied.org/Gov/spa/documents/SEAbook/Chapter4_Oct04.pdf, pages 130-133

458 Referenced to the "Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach", by Husseln Abaza, DTIE-ETB, UNEP, 2004, http://www.unep.ch/etb/publications/EnvImpAss/textONUBr.pdf, pages 4, 12, 133

459 The Manual can be obtained at http://www.unep.ch/etb/publications/etbBriefs/UNEPAssess.pdf

460 Extracted from the "Strategic Environmental Assessment: A sourcebook and reference guide to international experience", Barry Dalal-Clayton and Barry Sadler, 2004, http://www.iied.org/Gov/spa/documents/SEAbook/Chapter4_Oct04.pdf, pages 130-133

UNEP has also introduced an ambitious project to develop and test a framework for integrated assessment and planning for sustainable development in partnership with a number of developing and transitional countries. It aims to strengthen and improve existing plans and planning processes through a series of pilot or demonstration projects. These will incorporate an integrated assessment of critical issues and linkages of poverty, trade, environment and sustainable development in selected sectors or regions.[462]

As mentioned, SEA is increasingly used in the UNEP activities. There is also renewed interest amongst the major international financing institutions and aid agencies in using SEA to assist them deal with the demands of the "poverty" agenda. Besides, the UNEP published "Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach" in 2004 which encourages the evolution of EIA/SEA to the application of "integrated assessment" of environmental, economic, and social effects at the level of planning, programming and policy-making. For example, UNEP has prepared manuals on integrated assessment of trade-related policies and integrated coastal area and river basin management.

A four-part framework an integrated assessment is described as follows.

Step 1: Identifying the purpose – establishing appropriate parameters for integrated assessment.

Step 2: Designing an integrated assessment – key issues to be decided at the beginning of the process: timing of assessment, stakeholder and public participation and appropriate methodology and indicators.

Step 3: Use of methods and techniques – selecting those that support the particular priorities of the user.

Step 4: Integrated policy response – ranging from the macroeconomic, such as changes in fiscal and monetary policies, to the microeconomic, including environmental and social policy.

Steps in Integrated Coastal Area and River Basin Management are also described as follows.

Step 1: Assessment and data/information management
- Development of an environmental and socio-economic profile.
- Establishment of a computer-based database for environmental and socio-economic conditions.
- Use of remote sensing techniques and GIS system.
- Definition of management scope.

Step 2: Identification of conflicts and opportunities
- Development of environment-development scenarios.
- Environmental carrying capacity analysis.

Step 3: Plan and strategy development
- Identification of management goals and objectives.
- Analysis of alternative management strategy.

[461] A guideline for the approach of Integrated Coastal Area and River Basin Management can be obtained at http://www.ucc-water.org/Freshco/Docs/ICARM-Guidelines.pdf

[462] Extracted from the "Strategic Environmental Assessment: A sourcebook and reference guide to international experience", Barry Dalal-Clayton and Barry Sadler, 2004, http://www.iied.org/Gov/spa/documents/SEAbook/Chapter4_Oct04.pdf, pages 130-133

- Establishment of a strategic action plan (SAP).

Step 4: Implementation of plan and strategy

- Regulation, control and legislation.
- Application of economic instruments.
- Development of programmes for public awareness.
- Capacity building and education.
- Environmental impact assessment.
- Strategic environmental assessment – for the developed SAP.
- Economic evaluation of costs and benefits.

Step 5: Monitoring and evaluation[463]

Renewable Energy generated by wind[464]

Power Plant[465]

[463] Extracted from the "Strategic Environmental Assessment: A sourcebook and reference guide to international experience", Barry Dalal-Clayton and Barry Sadler, 2004, http://www.iied.org/Gov/spa/documents/SEAbook/Chapter4_Oct04.pdf, pages 130-133

[464] Source: http://www.uneptie.org/energy/act/re/index.htm

[465] Source: http://www.uneptie.org/energy/act/ef/index.htm

26.3 Environmental Evaluation/SEA on Energy Policies and Actions in UNEP

SEA is increasingly used in the UNEP activities including the energy sector. There is also renewed interest amongst the major international financing institutions and aid agencies in using SEA to assist them to deal with the demands of the "poverty" agenda. Besides, the UNEP published "Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach" in 2004 which encourages the evolution of EIA/SEA to the application of "integrated assessment" of environmental, economic, and social effects at the level of planning, programming and policy-making.

Details of the requirements should refer to section 26.2.

A summary table for the energy policies and actions and SEA status in the UNEP is presented in **Exhibit UNEP-1:**

Exhibit UNEP-1 Summary of Energy Policies and Actions and SEA status in UNEP	
(a) Energy Policies and Actions	
Energy Policies and Actions	• Energy Management and Performance Related Energy-Savings Scheme (EMPRESS) • Promoting Industrial Energy Efficiency through a Cleaner Production Framework (CP-EE Project) • Greenhouse Gas Emission Reduction from Industry in Asia and the Pacific (GERIAP) • Indian Solar Loan Programme • Solar and Wind Energy Resources Assessment (SWERA) • Renewable Energy Technology Screen (RETScreen)
Guidance/Legislations in Energy	N/A
(b) Environmental Evaluations / SEA Status in Energy Policies and Actions	
Type of Assessment	SEA
Requirement Mechanisms	Administrative
Legislation for Environmental Evaluation / SEA	N/A
Applications	Policies, Plans and Programmes

26.4 Analysis and Conclusions

The Energy Branch of the Division of Technology, Industry and Economics (DTIE) of the UNEP works actively to support the objectives of sustainable development under the energy sector. The World Energy Outlook is one of the Energy activities that help partners incorporate environmental factors into their energy-related decisions. UNEP also organises energy efficiency activities that focus on the needs of developing countries and countries with economies in transition. UNEP is also committed to foster the rapid expansion of renewable energies in developing and industrialized economies.

For the case of Hong Kong, its energy policy objectives are based on the secure supply of energy, and the minimisation of environmental impact in the production and use of energy. There were actions to promote energy conservation and efficiency, renewable energies and to tackle the global problem of climate change in Hong Kong.

Regarding the Environmental Evaluation/SEA in UNEP, SEA is increasingly used in its activities. There is also renewed interest amongst the major international financing institutions and aid agencies in using SEA to assist them deal with the demands of the "poverty" agenda. Besides, the UNEP published "Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach" in 2004 which encourages the evolution of EIA/SEA to the application of "integrated assessment" of environmental, economic, and social effects at the level of planning, programming and policy-making.

At present, there are both statutory and non-statutory systems in Hong Kong for PPP projects. While the statutory requirements govern primarily large scale development projects (i.e. over 20 ha of area or population over 100,000), the administrative counterpart has been applied to land use planning, transportation and sectoral PPP. It may be a logical next step to consider:

- Combining the administrative requirements into the statutory system; and
- Providing further specific SEA requirements under the category of energy.

26.5 Examples of Energy Policies /Actions or their Environmental Evaluation/SEA

Example UNEP-1	**Indian Solar Loan Programme**[466]
Description of the Programme	A four-year $7.6 million effort was launched in April 2003 to help accelerate the market for financing solar home systems in southern India. The project is a partnership between UNEP Energy Branch, UNEP Risoe Centre (URC), two of India's major banking groups – Canara Bank and Syndicate Bank, and their sponsored Grameen banks. The loans are accesible to customers of established solar rural electrification companies. The effort targets the electrification of twenty thousand homes and small businesses. This impact will increase as rural finance institutions build confidence and begin to increase retail and commercial lending to the solar energy sector. In the long-term, this will help bring modern and reliable electricity services to Indian households and enterprises in an environmentally sustainable manner.
Phases of the Programme	The project is organised into four phases, including a setup phase, an initial operating phase, an expansion phase, and an outreach phase. ● Phase I (Setup) finalised and formalised the structure of the loan programmes, including the Solar Home Systems (SHS) financing terms that the banks will offer to customers, the structure of the interest rate buy-down to be provided through UNEP, the process used to qualify vendors, and the awareness raising activities that will support lending activities in each bank. ● Phase II (Operating) is initiating the credit facilities across Canara and Syndicate banks, and initiating the related awareness raising activities needed to build a customer base for these loan programmes. ● Phase III (Expansion) will extend the credit facilities to the rural regional banks supported by Syndicate and Canara and will work with local organisations and Self-Help Groups to develop focused activities that channel SHS financing to poorer customers or small rural enterprises. ● Phase IV (Outreach) will focus on sharing lessons learned, disseminating the approach and outputs from the project.
Programme Status (Jun07)	● The banks have financed 19,533 Solar Home Systems and the subsidy has been fully phased out. ● Although Syndicate and Canara were the first major lenders to the sector, their market entry caused other banks to take notice and by 2004 a number began to compete in this new credit market. ● The programme was the first at UNEP to show that the barriers to bank engagement in clean energy can indeed have more to do with soft market development barriers and perceptions than underlying economics. ● Based on the positive results of this programme a number of new initiatives have since been launched elsewhere in India and in various other countries, including Tunisia, Morocco, China and soon Indonesia.

[466] http://www.uneptie.org/energy/act/fin/india/index.htm

Example UNEP-2	**Promoting Industrial Energy Efficiency through a Cleaner Production / Environmental Management System Framework**[467]
Description of the Project	The overall objective of this project remains to reduce the emission of greenhouse gases by identifying and implementing energy efficiency (EE) improvements as an integral part of Cleaner Production (CP) assessments in industrial enterprises. The project operates in the six countries, namely China, Vietnam, India, Hungary, the Czech Republic and Slovakia. The project helped participating National Cleaner Production Centres (NCPC) integrate energy efficiency concepts into CP approaches and include energy efficiency activities as a comprehensive part of their core programmes. National NCPC offices are very well positioned to promote energy efficiency in industrial settings. The experience gained from this project is now being shared with other NCPCs operating within the larger UNEP/United Nations Industrial Development Organization (UNIDO) network of cleaner production centres. As part of this joint effort, UNEP is responsible for providing strategic environmental expertise in training and information to NCPCs. The reduction of carbon dioxide emissions was done by improving energy management practices and identifying investments in small and medium enterprises.
Outcome from the Project	● An estimated reduction of 225,000 tons of CO_2 based on the experience of the six NCPCs participating in the project ● A number of Energy Audits conducted by each of the six participating Centres (a total of 87 audits) ● UNEP/UNIDO CP-EE Manual (Cleaner Production-Energy Efficiency Manual) that are specifically integrated with the CP and (Environmental Management System (EMS) materials already being used by NCPC ● Trained personnel in the six NCPCs capable of conducting an energy audit, either as stand alone activity or as part of CP-EMS audit.

[467] http://www.uneptie.org/energy/projects/cp-ee/cpee_project.htm