ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC

BALI DECLARATION ON ASIA-PACIFIC PERSPECTIVES ON ENERGY AND SUSTAINABLE DEVELOPMENT

SUSTAINABLE ENERGY DEVELOPMENT ACTION PROGRAMME, STRATEGIES AND IMPLEMENTATION MODALITIES FOR THE ASIAN AND PACIFIC REGION, 2001-2005

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PART FIVE

FOREWORD

The role of energy has been widely recognized as central to achieving the goals of sustainable development. Unfortunately, as many as two billion people or almost one third of the world's population have no access to modern energy services. Ironically a majority of this two billion people live in the Asia-Pacific region. There are a host of factors that need to be addressed to ensure adequate and affordable energy supply for economic and social development. The challenge for the region is to ensure that energy policies are supportive of sustainable development and how could this be accomplished. Energy development that takes into account economic, social and environmental dimensions is normally termed as *sustainable energy development*.

Against this background, in November 2000, energy policy makers, business community and NGOs of the Asia-Pacific region gathered in Bali Indonesia to discuss and prepare regional perspectives on energy and sustainable development as a contribution to the ninth session of the Commission on Sustainable Development. The important outcome of the High-level Regional Meeting on Energy for Sustainable Development was the adoption of the Bali Declaration on Asia-Pacific Perspectives on Energy and Sustainable Development as well as the Sustainable Energy Development Action Programme, Strategies and Implementation Modalities for the Asian and Pacific Region, 2001-2005. It is hoped that these two initiatives will guide and inspire all stakeholders to take a bold step towards a sustainable energy future.

The Bali Declaration was submitted to the Commission on Sustainable Development at its ninth session held in April 2001 by the Government of Indonesia, as host government of the High-level Regional Meeting on Energy for Sustainable Development. The Bali Declaration is an indication of strong commitments of the members and associate members of the ESCAP region towards attaining sustainable energy development.

The Commission at its 57th session, held in April 2001, also endorsed the findings and outcome of the High-level Regional Meeting on Energy for Sustainable Development and adopted a resolution to implement the Sustainable Energy Development Action Programme, Strategies and Implementation Modalities for the Asian and Pacific Region, 2001-2005. It is my sincere hope that with the assistance and support of the concerned international organizations and entities, countries of the region will be able to enhance concerted efforts to achieve the goal of sustainable energy development. The Action Programme has a mission to enhance the capacity of concerned stakeholders in developing sustainable energy development strategies under which energy services can be expanded and improved with a minimum compromise on environmental quality.

This publication contains the Bali Declaration and the Action Programme as well as the findings and outcome emanating from the NGO Symposium and the Business Forum, which were concurrently held during the High-level Meeting in November 2000. It succinctly captures the outcome of the regional initiatives taken by ESCAP to develop regional perspectives that are shared and owned by members and associate member countries of ESCAP. I hope that this publication will serve as a good reference as well as a symbol for all of us who are committed to work towards a sustainable energy future.

I would like to take this opportunity to thank the Government of Indonesia for generously hosting the High-level Regional Meeting on Energy for Sustainable Development and for providing invaluable support in organizing the meeting. The Department of Economic and Social Affairs (United Nations Headquarters) contributed financially as well as provided substantive support in organizing this Meeting. Supplementary financial support was also provided by the Government of Australia (AusAID). The United Nations Development Programme and the United Nations Environment Programme generously provided financial support to organize the NGO Symposium. The Government of Japan also contributed towards the NGO Symposium as well as has financed the wide publicity of the outcome of the Meeting through this publication. We acknowledge with appreciation the above contribution and support extended for the Meeting.

Kim Hak-Su
Executive Secretary

PART ONE

BALI DECLARATION ON ASIA-PACIFIC PERSPECTIVES ON ENERGY AND SUSTAINABLE DEVELOPMENT

Adopted in Bali, Indonesia
On 24 November 2000

BALI DECLARATION ON ASIA-PACIFIC PERSPECTIVES ON ENERGY AND SUSTAINABLE DEVELOPMENT

We, the Ministers and the heads of delegations of members and associate members of the Economic and Social Commission for Asia and the Pacific, convening at the High-level Regional Meeting on Energy for Sustainable Development, in Bali, Indonesia, on 23 and 24 November 2000,

Noting Economic and Social Council resolution 1999/60 of 30 July 1999 on preparations for the ninth session of the Commission on Sustainable Development, on energy issues, in which the Council called upon governments to actively participate in and contribute to the preparatory process, and that the Ad Hoc Open-ended Intergovernmental Group of Experts on Energy and Sustainable Development, held in New York in March 2000, recognized the need for the active exchange of information on energy and sustainable development leading to the ninth session of the Commission;

Noting further that the Economic and Social Commission for Asia and the Pacific, at its fifty-sixth session, held in June 2000, attached great importance to the ninth session of the Commission on Sustainable Development, which would review and assess the issues in the implementation of energy for sustainable development in the context of Agenda 21, and recommended that the ESCAP region should provide valuable input to the discussion at the ninth session of the Commission;

Recalling the regional action programme adopted by the Ministers attending the Ministerial Conference on Environment and Development in Asia and the Pacific, 2000, held in Kitakyushu, Japan, on 4 and 5 September 2000, which contains a programme area on sustainable energy development;

Noting finally that the Preparatory Meeting of Senior Officials on Sustainable Energy Development held in Bali, Indonesia on 21 and 22 November 2000 outlined specific activities to attain a sustainable energy development path;

Make the following declaration for submission to the Commission on Sustainable Development at its ninth session outlining the regional perspectives comprising the concerns, needs and priorities specific to the Asian and Pacific situation:

1. Energy is a crucial input to economic and social development. Sustainable energy development will also contribute to poverty alleviation. The Asian and Pacific region, particularly the developing countries, will require more energy supplies and services to meet the basic needs and to improve the quality of life of its people. However, high energy consumption patterns and high energy demand growth, together with the high levels of energy demanded by developed countries, would cause a deterioration of the environment if the current pattern of unsustainable production, inefficient distribution and use of energy continued worldwide. It is important to take cognizance of the need to minimize the environmental impacts of these current patterns.

2. The energy demand and supply situation in the Asian and Pacific region varies widely across the region. The vast majority of the people live in rural areas without access to commercial energy and depend heavily on traditional sources of energy. The region also has the largest number of mega-cities, where air pollution poses increasing health hazards and, at the same time, the poor do not have access to adequate modern energy services. In small island countries, air pollution and natural hazards are the main causes of the health risks. To enhance more equitable supply and servicing of energy to these people, it is extremely important to bring commercial energy supplies to the urban poor and rural areas.

3. Many countries, while trying to increase energy supplies, have made considerable efforts to minimize the environmental impacts, but more effort is needed to promote energy development and consumption in a sustainable manner. Many key issues need to be resolved and constraints will have to be removed, taking into consideration the needs and priorities specific to the Asian and Pacific region, in particular those of developing countries.

4. We consider capacity-building and transfer of technology to be the most important cross-cutting issues that should be taken into account in addressing all key issues identified.

5. We therefore seek to undertake to enhance the capacity of concerned stakeholders in developing sustainable energy development strategies by which energy services can be expanded and improved with a minimum impact on environmental quality. We propose to take appropriate steps to strengthen the policies, planning and management of the strategic energy sector, including its integration with economic, social and environmental policies. We shall promote effective partnership of all stakeholders through, inter alia, the strengthening of public awareness and the creation of an enabling environment for investment.

6. In realizing our commitments, we identify the following priority areas that need attention at the national, regional and international level.

A. Accessibility of energy

(1) The vast majority of the poor are unable to pay for their essential energy needs. They depend heavily on traditional sources of energy such as biomass and use of inefficient methods. The energy needs of the poor in the urban and rural areas will have to be met through a mix of commercial and traditional energy resources depending on needs, local conditions and resource availability.

(2) We resolve to take accelerated action and initiatives to widen the access of energy services to our disadvantaged groups of population. We urge all agencies, communities and other stakeholders to participate actively in the implementation of programmes.

B. Renewable energy

Although there is enormous potential for modern renewable energy technology development in the Asian and Pacific region, its contribution to the overall energy supply remains low. It is recognized that renewable energy sources, particularly through the increased use of modern technologies, could play a key role in enhancing energy supplies, particularly in the rural areas of the Asian and Pacific region. To that effect, we will strive to initiate policies and strategies to focus on and facilitate the optimal commercial exploitation of renewable energy resources. For the promotion and diffusion of renewable energy technologies, we will also encourage in-country technology development, local manufacturing and transfer, as well as the facilitation of technology transfer between countries. We recognize the need for enhanced efforts to create an enabling environment for greater private sector participation and a strong public-private partnership.

C. Rural energy

(1) Most of the rural areas in the region lack adequate supplies of commercial energy for household, community and productive use in agriculture and industries. A majority of the rural population uses fuels such as fuel wood, crop residue and animal dung. In all the developing countries of the Asian and Pacific region, the use of traditional fuels for cooking and kerosene for lighting is the norm. The use of these resources with inefficient technologies causes indoor air pollution and has a negative impact on health, in particular on women and children. Although electricity is the preferred energy for lighting, a large section of the population in many developing countries does not have access to electricity owing to the lack of infrastructure in their area.

(2) We are convinced that the problem of rural energy can be solved by widening the commercial energy base and, in that respect, we shall adopt an appropriate policy and strategies to accelerate rural electrification and the exploitation of available renewable and other energy resources with the involvement of local communities.

D. Energy efficiency

(1) There is considerable scope for improving efficiency in the production, conversion, transmission, distribution and usage of energy in the developing countries of the region. All concerned need to strive to obtain the full benefit of energy efficiency and cost-cutting initiatives throughout the energy cycle. Wastage needs to be minimized in the industry, household, commercial, transport and agriculture sectors. To this end, we shall formulate and implement energy efficiency policies to change the production and consumption pattern and take coordinated action towards cost-effectiveness, economic efficiency and environmental sustainability.

(2) All opportunities for enhancing energy efficiency in industrial production, domestic use, in buildings and in transport have to be identified and pursued. Energy efficiency will be sought through energy efficiency audits, promoting and, where appropriate, mandating minimum required energy for all important industries suitably phased depending on individual country requirements. All electrical equipment, including all household appliances, could be subjected to energy labelling. Similarly, in the transport sector, in order to minimize urban air pollution, minimum required fuel rating and emission standards could be established. In all these efforts, the cooperation and active participation of machinery manufacturers and consumer associations should be sought. We shall undertake to enable all energy efficiency measures to be put in place through appropriate national-level policies, including the enactment of comprehensive legislation for this purpose.

(3) All means of increasing energy efficiency and reducing pollution will be explored, including switching to natural gas and other environmentally friendly fuels. All forms of new and renewable energy, such as biomass, solar, wind, hydro, geothermal and energy carriers, should be exploited, with due consideration being paid to the availability of resources and local conditions. The potential of natural gas in the region to minimize environmental impact needs to be explored.

E. Mobilization of financial resources

(1) The flow of international assistance to the Asian and Pacific region is inadequate. There is a need for strong international public and private financial and technical assistance for the effective implementation of national policies and programmes aimed at sustainable energy development, particularly in developing countries.

(2) Financing is the most important issue in the promotion of increased utilization of energy. New and appropriate methods need to be explored for mobilizing financing through financial institutions and the private sector, including the provision of rural credit, and credit for working capital and marketing activities, as well as for removing all the bottlenecks impeding the flow of funds.

(3) Private and public sector financing as part of innovative financing for sustainable energy plays a significant role in guaranteeing accessible and affordable energy services for all people, particularly those in developing countries. Considering the fact that most developing countries do not have institutional structures that are adequately prepared to deal with the scale of risks associated with major energy investments, there is a need to expand existing international mechanisms or develop new mechanisms to identify risks and ensure they are managed on a transparent basis and with an effective and equitable partnership between investors and host countries.

(4) We urge developed countries to honour their commitments made at the United Nations Conference on Environment and Development, held in Rio de Janeiro, Brazil, in 1992, in terms of official development assistance and technology transfer. We support the early replenishment of concession funds in international financial institutions. We feel strongly that there is a need for new and additional financing mechanisms and devising financial incentives to encourage private sector investment to promote sustainable energy development. In that respect, we urge the developed countries to provide additional financial and other resources to developing countries, and at the same time, we support the use of innovative and special financing for the implementation of sustainable energy development plans.

F. Technology transfer

A major area of concern in the region is the inadequate technology transfer in the area of both advanced clean fossil fuel technologies and new and renewable energy technologies. In order to implement sustainable energy production and consumption policies, access to and the transfer of

environmentally sound technologies and corresponding know-how are important. The requisite technology is available, mostly in the developed countries but also in some developing countries. We urge all concerned to facilitate and finance technology transfer on favourable terms in line with Agenda 21. In order to achieve the above-mentioned objective, there is a need to strengthen the existing mechanism and the United Nations involvement.

G. Market reform and energy pricing

(1) Where an appropriate market mechanism is established to attract investment, the public interest must be ensured by maintaining the prices at affordable and acceptable levels by safeguarding the protection of the environment.

(2) Most countries of the region have been undertaking various forms of restructuring and reform in the energy sector. These market-oriented mechanisms should be encouraged.

(3) The existing structure of subsidies in many countries distorts the market in favour of conventional energy and discourages the penetration of renewable energy and energy efficiency initiatives. We will aim to target subsidies carefully for the benefit of the poor and for the promotion of sustainable energy, and to phase them out gradually over the long term.

H. International and regional cooperation and assistance

(1) While we fully recognize the importance of promoting sustainable energy development and will endeavour to make our best efforts in undertaking all possible measures towards its implementation, it is imperative that the international community provides the necessary assistance to our efforts by enhancing national capacity, mobilizing financial resources and facilitating technology transfer. We are confident that, with cooperation and assistance at all levels, we will be able to fulfil our commitments.

(2) In many parts of the region, a considerable potential exists for intraregional cooperation in the joint trans-boundary energy sector, infrastructure development and energy trade. The establishment of new grid connections and extension of the available one between countries of the ESCAP region, where appropriate, in order to promote electricity trade, should be facilitated. To actualize this potential, it is essential that the developed countries and international donor institutions assist developing countries of the region in their efforts to enhance technical cooperation in the field of energy.

For example, the diffusion of experiences of developing countries of the region in the field of renewable energy and energy efficiency should be encouraged through regional cooperation.

(3) We recognize the urgent need to improve the development and production activities of hydrocarbon fields through integrated cost reduction, more efficient arrangements and the application of appropriate technology. In this regard, we call on the concerned countries in the region and international organizations, as well as relevant stakeholders, to promote cooperation in this area.

(4) We urge all concerned United Nations funding bodies and programmes, regional commissions, specialized agencies, governmental and non-governmental organizations**,** international and regional institutions, civil society, funding agencies and donor countries, as well as the private sector, to assist and support our efforts to attain our sustainable energy development goals.

Adopted in Bali, Indonesia, on 24 November 2000

PART TWO

SUSTAINABLE ENERGY DEVELOPMENT ACTION PROGRAMME, STRATEGIES AND IMPLEMENTATION MODALITIES FOR THE ASIAN AND PACIFIC REGION, 2001-2005

Adopted in Bali, Indonesia
On 24 November 2000

SUSTAINABLE ENERGY DEVELOPMENT ACTION PROGRAMME, STRATEGIES AND IMPLEMENTATION MODALITIES FOR THE ASIAN AND PACIFIC REGION, 2001-2005

INTRODUCTION

1. Policies and programmes of sustainable development were initiated in various countries by national and international organizations following the United Nations Conference on the Human Environment, held in Stockholm in 1972. The efforts were intensified after the historic Agenda 21 was adopted as the blueprint for sustainable development at the United Nations Conference on Environment and Development, held in Rio de Janeiro, Brazil, in 1992. Sustainable energy development has been at the core of many of these programmes, as energy production and consumption activities are closely linked with issues of sustainable development. Sustainable development efforts are directed mainly towards social aspects, such as poverty alleviation and environmental protection. Accessibility to commercial energy[1] supply is essential for any programme of alleviating poverty through the provision of basic minimum human needs or increasing employment opportunities. The increasing production of energy should, however, be effected in ways that are both economically and ecologically sound. Sustainable energy development programmes were designed in consonance with these objectives. While significant progress has been made in some countries of the Asian and Pacific region, there are wide gaps in most countries between intention and action, and between action and achievement. The Action Programme briefly reviews what has already been done and ways in which sustainable energy development efforts can be accelerated.

2. The broad reasons for the unsatisfactory outcome of sustainable energy development efforts have been identified as the following:

(a) Since 1972, economic development has been significant in the region, but attempts to integrate environmental and social considerations into economic decision-making in many sectors of the economy have not been successful;

[1] All forms of energy, including some biomass fuel, which are traded in the market.

(b) Poverty alleviation and promotion of equity issues have not been considered in decisions in the energy and environment sectors in some countries;

(c) Regulatory intervention in many countries has not provided undistorted price signals. In some countries, efforts of regulators to mix the control instruments with market-based instruments have not been very successful;

(d) Funding of sustainable energy projects and programmes has been inadequate and continues to be based on traditional concepts of financial prudence. Innovative methods of financing have yet to be developed in most countries to promote investment in renewable energy projects and energy research and development programmes;

(e) Institutional changes have been marginal and institutions have largely failed to enlist the support of civil society, particularly local-level communities, which could and should have become the agent of change through participation in policy-making through advocacy and in implementation through partnerships;

(f) International and regional cooperation is still inadequate in the energy sector, although some concrete action has been taken in the subregional groupings.

3. Actions taken at the national and regional levels in respect of sustainable development have been reviewed on several occasions in ESCAP and in other forums. One such comprehensive attempt was the Regional Action Programme for Environmentally Sound and Sustainable Development, 1996-2000, adopted at the third Ministerial Conference on Environment and Development in Asia and the Pacific, held in 1995. This was reviewed at several expert group meetings and was further examined recently at the Preparatory Meeting of Senior Officials for the Ministerial Conference on Environment and Development, 2000, held in Kitakyushu, Japan, from 31 August to 2 September 2000.

4. The preparatory meeting in Kitakyushu reviewed the implementation experience of Agenda 21 and the Regional Action Programme for 1996-2000 and came to the following conclusions:

(a) The Regional Action Programme for 1996-2000 had identified 24 programmes for priority action. Fewer, more targeted, achievable programmes should be adopted in future;

(b) An action plan should include practical mechanisms for implementation;

(c) In the region, the inadequate increase in official development assistance (ODA) had been compensated to some extent by an increase in private capital flows. However, private sector finance was not a full substitute for ODA as private sector funding failed to internalize externalities;

(d) All countries must be persuaded to accept and act on the view that the overarching need for poverty alleviation was a fundamental prerequisite to sustainable development that had not been accepted in practice in many countries;

(e) There was a need to intensify efforts to increase the degree of public access to information on sustainable development.

5. Based on these lessons learned and having considered the current and emerging critical issues, the Regional Action Programme for Environmentally Sound and Sustainable Development, 2001-2005 was discussed and adopted at the Ministerial Conference, held in Kitakyushu on 4 and 5 September 2000. It listed the following eight programmes areas:

(a) Environmental quality and human health;

(b) Biodiversity;

(c) Coastal and marine environments;

(d) Freshwater resources;

(e) Desertification and land degradation;

(f) Globalization and policy integration;

(g) Climate change;

(h) Sustainable energy development.

Although sustainable energy development is listed as a specific programme area, energy-related actions, policies and programmes are also included in the other relevant programme areas.

6. At the Preparatory Meeting, it was noted that an increase in demand for energy was inescapable in view of the high economic growth prospects in the countries of the ESCAP region but that such increase in energy demand had to be met by a choice of fuels and technologies which would keep the negative

environmental impact to the minimum possible level. The need to refine energy environment policies with a clear focus on poverty alleviation was emphasized. In keeping with those ideas, a mission statement was developed.

I. MISSION STATEMENT FOR SUSTAINABLE ENERGY DEVELOPMENT

7. The mission statement for sustainable energy development incorporated in the Regional Action Programme for 2001-2005, reads "***to enhance the capacity of concerned stakeholders in developing sustainable energy development strategies under which energy services can be expanded and improved with a minimum compromise on environmental quality***". Due weightage must be given in focusing on poverty alleviation, equity and social justice.

II. AREAS FOR ACTION

8. In the programme area on sustainable energy development of the Regional Action Programme for 2001-2005, the following areas for action have been identified:

(a) Developing policies to promote energy utilization for poverty alleviation by ensuring energy availability at affordable prices;

(b) Strengthening planning capacity in sustainable energy development by establishing clear linkages to other sectors;

(c) Promoting implementation of a supply- and demand-side energy efficiency programme in the region;

(d) Promoting the application of renewable and clean energy technologies in the region;

(e) Promoting and assisting a dedicated global project to create 100 per cent renewable-energy in the small island developing states of the region;

(f) Mobilizing financial resources from traditional sources and the private sector.

9. Those areas of action are discussed below with the short-term and long-term activities that could be undertaken in each of them.

A. Developing policies to promote energy utilization for poverty alleviation

10. There is a vicious circle in which the lack of required energy in terms of quality and quantity leads to poverty, which in turn leads to a reduction in or even denial of access to existing sources of energy, leading to greater poverty. It is recognized that, of around 2.0 billion people in the world who are deprived of the minimum needs of energy, the majority live in the ESCAP region.

11. The poor in both rural and urban areas face different kinds of energy deprivation. In most urban areas, the distribution networks have been established in respect of electricity as well as kerosene and liquefied petroleum gas, but access to electricity in particular is made difficult by poverty.

12. In rural areas in many developing countries, the electricity networks have not been extended. The petroleum product distribution networks established by the oil companies do not extend to rural areas in many countries. A number of intermediaries work in sequence to bring the supply to the rural poor and, ultimately, the poor in the rural areas pay more for their fuel needs than their city counterparts.

13. To remedy this situation in the short run, it is necessary to carry out the following measures:

(a) To develop policies which enable the generation of small-scale power and the extension of the electricity grid and supply systems for kerosene or clean biofuels to areas where the rural poor live;

(b) To simplify procedures to enable the poor to receive the basic requirement of electricity and kerosene;

(c) To subsidize the lifeline supply of energy to the poor by treating the environment and distribution infrastructure as a "sunk cost" (investment for general socio-economic development) and not counting it when the retail energy price is being fixed;

(d) To promote decentralized management of energy systems based on purchasing bulk power from the grid and distributing it in small rural habitations, using locally available labour and entrepreneurship;

(e) To promote, wherever possible, decentralized power generation projects based on biomass or other renewable energy resources which can increase employment opportunities for the rural poor through public-private

cooperation. A capital (one-time) subsidy could be given based on the remoteness of the rural habitation and the likely public cost of extending grid power.

14. Harnessing investment for building the infrastructure to supply energy to the poor in rural areas continues to be a problem. The governments should accept the responsibility for extending energy supply to the poor and should have policies that encourage the absorption, in full or in part, of the capital costs of energy infrastructure for supply to the poor. The investment for extending the infrastructure for energy supply to the poor in both urban and rural areas should be borne as part of the socio-economic investment and treated as a sunk cost in calculating energy supply charges for the poor. This is a very pragmatic suggestion to break the vicious circle of poverty and energy consumption and deserves the attention of economic planners of developing countries.

15. The setting up of local resource-based power plants using resources such as biomass can generate large employment opportunities for every megawatt installed, as well as stimulate employment through small industries. Energy distribution companies managed by local people will reduce the operating costs of distribution and can stimulate employment opportunities.

16. As a long-term activity, it is necessary to take up systematic decentralized planning to provide clean, sustainable, affordable energy to each village based on the optimal choice of fuels and supply sources, including the supply of electricity from the grid. These decentralized energy entities in rural areas should be provided with technical, financial and managerial support by public institutions such as "incubator companies" in the computer industry.

B. Strengthening planning capacity in sustainable energy development by establishing clear linkages to other sectors

17. After the Rio Conference in 1992, ESCAP took several initiatives to promote the incorporation of environmental protection concerns in energy planning. Such planning exercises have become more complex due to liberalization, which has reduced the importance given to overall economic planning. Furthermore, the international energy price has become volatile and unpredictable. Nonetheless, in spite of the growing complexity, the need to have a long-term sustainable energy development plan with adequate understanding of the environmental and equity issue is becoming critical.

18. In the short term, the activities to be taken up include the following:

(a) Database development and maintenance should be pursued through systematic collection of data relating to energy potential, consumption patterns and levels, and environmental pollution. Arrangements for this should be made not only through government sources but by enlisting the cooperation of civil society. This activity would require a substantial amount of human and financial resources and needs to be designed on a long-term basis;

(b) The awareness and understanding of civil society on the linkages between energy and other economic and social sectors should be enhanced. Discussions through a variety of media on issues related to sustainable energy in various sectors will have to be arranged periodically to disseminate information and to increase awareness, understanding and commitment;

(c) The key sectors or geographical areas where there is immediate scope for action on sustainable energy development should be identified with the cooperation of the agencies of civil society;

(d) Special consideration should be given to disadvantaged groups of society, for the equitable distribution of energy.

19. As a long-term activity, the necessary legal and institutional arrangements should be designed and set up to support sustainable energy development, including research, development and demonstration of innovations in technology and institutional arrangements.

C. Promoting the implementation of a supply- and demand-side energy efficiency programme in the region

20. The use of energy in traditional or even with modern technologies ends up with only a part of the heat values of primary fuels being used effectively, while the rest of the primary energy is wasted. It is generally accepted that approximately two thirds of the primary energy is lost in various stages of conversion, transmission and distribution under conventional technologies.

21. On the supply side, in the fuel industry, especially in the electricity industry, there is enormous scope for efficiency gains at each stage of the supply chain from generation, transmission and distribution. Switching environmentally friendly fuels, such as natural gas, may also reduce the quantity of energy required, if flexibility is available.

22. In order to realize this energy efficiency gain on the demand and supply side, some of the following short-term activities could be taken up:

(a) At the subnational and national levels, efforts should be initiated to improve the awareness of the potential for energy efficiency gain among residential, industrial, transport and agricultural consumers. The understanding and appreciation of the real costs and the potential for saving are obscured by various subsidies for fossil fuel technologies. In each country, the potential and problems of efficiency improvement should be documented and discussed with civil society;

(b) Energy audit for different industries is already available in many countries of the Asian and Pacific region. Where it is not, immediate nationwide energy audit programmes, including establishing proper guidelines for energy audit, could be launched in energy-intensive industries. The results of these audits should contribute to demand-side management. Rating of appliances and differential tariffs to penalize wasteful use of electricity could be devised;

(c) Private-public and stakeholder partnerships to realize the energy efficiency potential should be identified and promoted. The different energy users could form partnerships in developing projects such as captive collective power plants to take advantage of economies of scale and reduce environmental pollution. In some countries, the laws may need revision to make these possible. In the upstream oil and gas industries, cost reduction initiatives should be encouraged through the application of the minimum facilities concept, and the sharing of inventories and services.

23. With regard to long-term measures for energy efficiency, there is a need to look at every single industry and examine the potential for shifting over to a new technology which will be more energy-efficient and cause less environmental impact. In the transport sector, in selected cities, the replacement of petrol-driven vehicles by vehicles driven on compressed natural gas or electricity could be considered. In the meantime, a reliable and efficient mass transport system needs to be developed. These measures would enhance air quality in large cities in the region.

24. A whole shift is possible towards a much more energy-efficient technology in certain major energy-intensive industries, including the chemical and steel industries, if efforts are backed up by research and development and accepted by the private sector.

D. Promoting the application of renewable and other clean energy technologies in the region

25. The adoption of renewable and other clean energy technologies reduces the adverse environmental impact to near-zero levels and opens up the possibilities of bringing the economic and social benefits to the rural people. Moreover, if traditional energy use methods were replaced by state-of-the-art energy technologies, employment opportunities would increase in rural areas. In spite of the fact that renewable energy technologies are win-win options, they do not normally receive the attention that they deserve and are seldom adopted because the relative cost benefits become distorted by the explicit and implicit subsidies extended to fossil fuel energy technologies and because of the relatively small size of the technologies. Many of the viable renewable energy technologies have not been adequately popularized and aggressively commercialized for want of institutional arrangements to provide support for such installations at the stages of planning, financing and operating.

26. However, there are several examples within the ESCAP region of countries with successful implementation of projects for renewable and other clean energy technologies. A number of them provide lessons which could be used in the adoption of nationwide micro-sized energy projects which have broad social acceptance by communities. Some countries of the region have registered good progress in introducing renewable and other clean energy technologies through appropriate institutional arrangements.

27. The increasing cost of oil-based power and the poor quality of electricity supply through the grid has given a boost to renewable technology in rural areas. While it is necessary to overcome the complexities related to the Clean Development Mechanism under the Kyoto Protocol to the United Nations Framework Convention on Climate Change, it has drawn the attention of many countries of the region towards the promotion of renewable and other clean energy technologies that reduce greenhouse gas emissions.

28. Now is the appropriate time to take up the specific activities that would promote renewable and other clean energy technologies. The short-term activities should include the following:

(a) Identifying, through a comprehensive survey of and consultation on needs and resources, the renewable and other clean energy technologies that are relevant to specific areas in each country and to specific sectors;

(b) Involving local communities, non-governmental organizations and women's groups in the planning and implementation, management and evaluation of energy projects;

(c) Reviewing energy pricing policies and gradually reducing the subsidies on fossil fuels;

(d) Promoting the adoption of decentralized energy systems for lighting, cooking and small (agro) industrial motive power through joint ventures with private-public participation;

(e) Encouraging commercial banks in the public and private sectors so that they will provide funding for small renewable and other clean energy projects through "line of credit" arrangements provided by international financial institutions;

(f) Promoting enhanced technical cooperation among countries of the region. Some of the countries in the region have expertise and experience (technological and promotional) in some renewable and other clean energy technologies; these should be carefully identified and their assistance sought for technology transfer;

(g) Encouraging energy service companies to provide managerial and operational support for microlevel energy installations by households and small industries.

29. The measures required for long-term activities include:

(a) A review of energy-pricing policies with a view to gradually reducing all subsidies across the board and to depoliticizing the fixing of energy prices by setting up independent regulatory bodies or agencies over a definite time frame. It may be noted here that, as long as poverty continues, there will be a need to extend some well-focused and targeted subsidies to the poor to enable them to meet their minimum energy needs. But such subsidies have to be arranged in ways that do not disturb the possibilities for a level playing field in the energy market;

(b) Appropriate institutional arrangements have to be designed and established with nationwide coverage and in partnership with all the stakeholders to support the renewable energy-based technologies irrespective of scale.

E. Promoting and assisting a dedicated global project to create 100 per cent renewable energy in the small island developing states of the region

30. The ESCAP region has a number of small islands scattered in the Pacific region with several unique problems. The ecology of these small island developing countries is very fragile. The unique problems of these countries were discussed at the Global Conference on the Sustainable Development of Small Island Developing States, held in Barbados in 1994, and a Programme of Action for the Sustainable Development of Small Island Developing States was evolved. This affirmed that the sustainable development of these small states was both essential and achievable.

31. In August 2000, in Kitakyushu, while reviewing the progress on the Barbados Programme of Action, governments asserted that climate change remained their urgent and primary concern. While the Kyoto Protocol was assisting in a small measure to cope with climate change problems, it was urged that programmes be organized to assist small island developing countries to reduce biomass consumption and fossil fuel. All possible technologies should be investigated for feasibility and promoted where appropriate to rational circumstances, with due consideration of available resources.

32. In the short term, it would be useful to initiate all the required surveys and studies and to prepare a feasibility report in a "bankable" format of a master plan for sustainable energy development in the small island developing states.

F. Mobilizing financial resources from traditional sources and the private sector

33. Funding the sustainable development of the energy sectors of the region will be one of the biggest challenges facing the countries themselves and the international community and international private and public financing institutions. Funds will also be required for energy development, energy transport and energy conservation. Infrastructure for the transportation of liquid fuels or natural gas through very large transnational or even transcontinental pipelines or for liquefaction and re-gassification facilities for liquefied natural gas will need heavy investment.

34. The nature of funding will depend on the type of projects, the technology involved, the size of the projects, and the sponsoring agency, as well as the special needs of the beneficiary population. Historically, most of this funding for the energy sector came from ODA and from international funding agencies such as the World Bank and the Asian Development Bank. While funding for

large-scale projects from various sources can be directed to national governments or, with the support and guarantee of national governments, directly to projects, funding for small-scale projects would be possible only through country-level funding agencies under "line of credit" arrangements under softer terms.

35. In addition to ODA, the role of public and private investment is also of crucial importance to promote sustainable energy development. Considering the fact that most developing countries do not have institutional structures and are not adequately prepared to deal with the scale of risks associated with major energy investments, there is a need to expand existing international mechanisms or develop new mechanisms to identify risks and ensure that they are managed on a transparent basis and shared equitably between investors and host countries.

36. In order to fund innovative small and medium-sized energy projects, local venture capital funds need to be set up. These funds could mobilize resources from the domestic and international private sector and make equity capital available to small and medium-sized projects and entrepreneurs.

37. Philanthropic institutions could also take up this work. They might set up companies, which could fund ecologically sound and economically viable projects. They might also extend small grants towards project formulation.

38. The Global Environment Facility (GEF) has helped some countries in the region. A wider spread of GEF funds could be achieved only by making the procedures of appraisal of projects by GEF more "user friendly". There is also a need to consider setting up a funding mechanism at the regional level that would have more flexibility to address energy projects. The fund should appraise projects according to the three objectives of sustainable energy development. It should examine (a) whether the project helps the poorer sections of the population by direct and indirect contribution; (b) whether it uses less energy than other projects to receive the same level of benefit; and (c) whether each additional unit of energy used produces less environmental impact.

39. There is a need to enhance the capacity of the developing countries in carrying out considerable preparatory work within the country in order to obtain funds from institutions and the private sector. The most important step is to have tariffs and prices fixed through independent regulatory bodies and agencies. The management of the energy industry should be professionalized. Government, however, could keep strategic control over energy security and the supply of the lifeline needs of energy of the poor.

III. TOOLS FOR IMPLEMENTATION

40. Action in the different priority areas for sustainable energy development could be undertaken using certain tools which are common to all areas. Some of the tools may be of relevance at the national level, while some may be useful for action at the subregional, regional or global levels.

41. The important tools for implementation, which will be discussed below, are the following: policy formulation and planning; strategic environmental management; governance, institutions and capacity-building; legislative and fiscal arrangements; technology networking and transfer; environmental and energy education, information, public awareness and training towards sustainable development; poverty alleviation; and regional cooperation and energy trade.

A. Policy formulation and planning

42. The urgent need for action towards sustainable energy development is well recognized. In the normal course of events, these concerns should be incorporated in national economic plans, but in recent times the trend towards marketization and globalization has considerably reduced the emphasis on planning at the national level. Sustainable energy development requires a long-term view of energy and related sectors. Considerations of arranging for a more reliable supply of needed energy nationwide and its equitable distribution among segments of society will have to be incorporated in sustainable energy development plans. Plans for all other sectors should reflect concerns for environmental protection, poverty alleviation and energy conservation. These should, however, be indicative plans with scope for market-driven decision in all investments.

B. Strategic environmental management

43. This is a policy tool to manage environmental quality. It should set in motion a process to turn the long-term vision of sustainable development into a set of actions involving different sectors and segments of the society. Each problem in each area would be analysed against a background of overall economic, ecological and social considerations. The strategic management approach would seek partners and supporters from all segments of society by information dissemination for public awareness of the goals of the strategic planning.

C. Governance, institutions and capacity-building

44. In sustainable energy development, it will be difficult to achieve any success unless there is delineation of powers and devolution of resources to subnational and local levels. Several of the actions discussed are relevant at the local level and increased opportunities have to be created to get them examined, approved, implemented, monitored and managed at the same level.

45. Existing institutions need to be revamped or new institutions set up to regulate and develop the energy sector with specific concerns for sustainable energy development. Institutional development efforts should include the development of the capacity of the human resources in these institutions. The regulatory staff have to be trained in the skills of welfare economics, social cost-benefit analysis and tariff fixation.

46. The efforts needed for capacity-building for sustainable energy development are considerable and cannot be managed by a single country. Some of the centres could be identified as regional centres for training. Needless to say, the levels of achievement and experience in different countries may be the criteria for designating the centres of excellence in various areas for action.

D. Legislative and fiscal arrangements

47. The legal structures of most countries for governance of the energy sector are designed to protect and regulate the public sector monopolies. These have to be amended or replaced by legislation to allow private sector participation and to promote competition, which is the key to increased efficiency. Similarly, taxes and subsidies should be reviewed, where appropriate, to promote renewable and environmentally sound technologies.

E. Technology networking and transfer

48. In some countries, a large pool of manpower working in the energy sector with adequate technical or managerial backgrounds already exists. These persons could be retained to become trainers for sustainable energy development training to be given to others. As the skills available in some countries may be useful to other countries, technology networking and transfer could play an important role. Recent technological innovations in information technology make it possible for network partners to interact at extremely low cost. Information sharing and discussions could be done over the Internet. The transfer of technology in the renewable energy and clean fossil fuel technologies through such networks should be encouraged by international and regional cooperation.

49. In order to achieve the objective “Transfer of technology in the field of renewable sources of energy”, there is a need to strengthen the existing

mechanisms in the United Nations, including in particular the Asian and Pacific Centre for Transfer of Technology. Such an arrangement should have the following objectives:

(i) Organizing a data bank on renewable energy application technologies;

(ii) Training of experts;

(iii) Transfer of technology (with the target of expanding renewable energy applications and cost reduction);

(iv) Facilitating free exchange of international information on renewable energy technology.

50. The required funds for the proposed arrangement should be provided through the funds available to the United Nations.

F. Environmental and energy education, information, public awareness and training towards sustainable development

51. Most of the problems of the sustainable energy development sector arise from a lack of public awareness of the consequences of environmental degradation and the associated overall long-term social costs and short-term health impacts. If the Regional Action Programme for 2001-2005 is to have the full support of all sections of the society, these should all be educated. Schoolchildren, teachers, government officials, industrial managers, housewives and the general public have to become aware of the dimensions of the pollution problem in their country and locality. Environmental and energy-related subjects should be incorporated in the school curriculum for primary and secondary levels, and environmental and energy information and communication should be disseminated widely through the mass media. Frequent discussions and seminars have to be organized for the different stakeholders to discuss the issues involved in sustainable energy development as applicable to them. This could be facilitated by preparing and issuing papers, information brochures and technology pamphlets relevant to different areas of action. Such literature could be produced at a central place and made available to all country institutions. In recent times, television has penetrated even the remote villages. This could be used as a medium for the dissemination of information on sustainable energy development.

G. Poverty alleviation

52. The overarching concern, which should permeate the examination of each issue under sustainable energy development, the selection of each project and the formulation of each policy in this area, is poverty alleviation. At every step, as the move is made towards sustainable energy development, its linkage with poverty alleviation measures should be established. Projects which could make a positive contribution towards poverty alleviation should be given priority and projects should be selected that ensure efficient energy consumption with the least cost and with minimum environmental degradation. Strategies will have to be devised whereby the production and distribution of energy become a key instrument for poverty alleviation.

H. Regional cooperation and energy trade

53. In order to enhance the planning capacity of each country, it is essential to take advantage of the expertise and experience gained in other countries of the region. Increased intercountry participation and exchange of expertise and training programmes organized by institutions, either individually or jointly, should be facilitated including through, inter alia, modalities of technical cooperation among developing countries, a tripartite arrangement involving the active participation of the developed countries and international donor institutions.

54. Country plans may seek out possibilities for building up partnerships for the sharing and/or trade of energy resources and transfer of technology. Such activities could be actively facilitated by subregional organizations in partnership with international financing institutions.

IV. CONCLUSIONS

55. The urgent need for positive action towards sustainable energy has been recognized. The areas of action and tools for implementation have been identified. Many of them are cost-effective today, but some may need more research and development efforts. The time has come to set in motion, after careful consideration of alternatives, national plans of action for sustainable energy development which provide for competitive growth of energy supply industries to serve all sections of the community, particularly the impoverished sector, with the help of regional and international organizations. The objective of sustainable energy development is achievable and a start can be made today to move towards it.

PART THREE

RESOLUTION 57/6
IMPLEMENTATION OF THE SUSTAINABLE ENERGY DEVELOPMENT ACTION PROGRAMME, STRATEGIES AND IMPLEMENTATION MODALITIES FOR THE ASIAN AND PACIFIC REGION, 2001-2005 IN SUPPORT OF THE BALI DECLARATION ON ASIA-PACIFIC PERSPECTIVES ON ENERGY AND SUSTAINABLE DEVELOPMENT

Adopted in Bangkok, Thailand
At the 57th session of the Commission
On 25 April 2001

RESOLUTION 57/6 IMPLEMENTATION OF THE SUSTAINABLE ENERGY DEVELOPMENT ACTION PROGRAMME, STRATEGIES AND IMPLEMENTATION MODALITIES FOR THE ASIAN AND PACIFIC REGION, 2001-2005 IN SUPPORT OF THE BALI DECLARATION ON ASIA-PACIFIC PERSPECTIVES ON ENERGY AND SUSTAINABLE DEVELOPMENT

The Economic and Social Commission for Asia and the Pacific,

Recalling the decision made at its fifty-sixth session to hold a high-level regional meeting on energy for sustainable development and the need to move towards sustainable patterns of production, distribution and use of energy, as stressed in the Programme for the Further Implementation of Agenda 21, adopted by the General Assembly at its nineteenth special session held in 1997, and the multi-year programme of work of the Commission on Sustainable Development,

Recalling also Economic and Social Council resolution 1999/60 of 30 July 1999 on preparations for the ninth session of the Commission on Sustainable Development,

Recalling further Commission resolution 56/4 of 7 June 2000 on the promotion of a sustainable energy future for small island states,

Recalling the mission statement and programme areas as contained in the Regional Action Programme for Environmentally Sound and Sustainable Development, 2001-2005 adopted by the Ministerial Conference on Environment and Development in Asia and the Pacific, 2000, held in Kitakyushu, Japan, from 31 August to 5 September 2000,

Convinced that energy is a crucial input to economic and social development, and that energy development and use in all its social, economic and environmental dimensions will also contribute to poverty alleviation,

Acknowledging that an increase in demand for energy is inescapable in view of the high economic growth prospects in the countries of the Asian and Pacific region, but that the increase has to be met by a choice of fuels and technologies which would keep the negative environmental impact to the minimum possible level,

Acknowledging further the need to enhance the capacity of concerned stakeholders in developing sustainable energy development strategies under which energy services can be expanded and improved with a minimum compromise on environmental quality,

Noting with satisfaction the successful outcome of the High-level Regional Meeting on Energy for Sustainable Development held in Bali, Indonesia, from 21 to 24 November 2000, which adopted the Bali Declaration on Asia-Pacific Perspectives on Energy and Sustainable Development, and the Sustainable Energy Development Action Programme, Strategies and Implementation Modalities for the Asian and Pacific Region, 2001-2005 (hereinafter referred to as the Sustainable Energy Development Action Programme),

Noting that the Sustainable Energy Development Action Programme identified several areas for action, as follows:

(a) Developing policies to promote energy utilization for poverty alleviation by ensuring energy availability at affordable prices;

(b) Strengthening planning capacity on sustainable energy development by establishing clear linkages to other sectors;

(c) Promoting the implementation of a supply-side and demand-side energy efficiency programme in the region;

(d) Promoting the application of renewable and clean energy technologies in the region;

(e) Promoting and assisting a dedicated global project to create 100 per cent renewable energy in the small island developing states of the region;

(f) Mobilizing financial resources from traditional sources and the private sector,

Noting further that the Bali Declaration and the Sustainable Energy Development Action Programme stress that international cooperation is necessary to support regional efforts in enhancing national capacity, mobilizing national resources and facilitating technology transfer,

1. *Welcomes with satisfaction* the findings, conclusions and recommendations contained in the report of the High-level Regional Meeting on Energy for Sustainable Development, including the Bali Declaration on Asia-Pacific Perspectives on Energy and Sustainable Development, and the Sustainable Energy Development Action Programme, Strategies and Implementation Modalities for the Asian and Pacific Region, 2001-2005 adopted by the Meeting;

2. *Calls upon* all members and associate members who made commitments expressed in the Bali Declaration to fulfil those commitments, to undertake appropriate measures at the national level and to actively pursue the implementation of the Sustainable Energy Development Action Programme;

3. *Further calls upon* donor governments and agencies, regional and international financial institutions, United Nations bodies and specialized agencies, non-governmental organizations and the private sector to assist developing countries in enhancing their national capacity, mobilizing resources and facilitating technology transfer as mutually agreed;

4. *Notes in particular* the call to shift from agenda to action as recommended by the High-level Regional Meeting;

5. *Requests* the Executive Secretary, in order to implement the Bali Declaration:

(a) To assist members and associate members in mobilizing human, financial and technical resources for the implementation of the recommendations of the High-level Regional Meeting, including the Bali Declaration and the Sustainable Energy Development Action Programme;

(b) To undertake a comprehensive regional programme to assist countries of the region, particularly the developing countries, in the formulation of effective strategies on the efficient use of energy and the application of renewable and clean energy technologies;

(c) To promote effective coordination of the activities of all relevant United Nations bodies and specialized agencies, as well as private sector organizations, non-governmental organizations and other sections of civil society, in facilitating and monitoring the implementation of the Bali Declaration and the Sustainable Energy Development Action Programme;

(d) To follow closely the outcome of the ninth session of the Commission on Sustainable Development and undertake appropriate follow-up action at the regional level in support of the Bali Declaration;

(e) To include in the agenda of the fifth session of the Committee on Environment and Natural Resources Development, to be held in 2003, a midterm review and assessment of the progress achieved in the implementation of the recommendations of the High-level Regional Meeting on Energy for Sustainable Development, the Bali Declaration and the Sustainable Energy Development Action Programme, and to report on this review to the Commission at its sixtieth session in 2004.

5th meeting
25 April 2001

PART FOUR

NGO PERSPECTIVES ON THE SUSTAINABLE ENERGY DEVELOPMENT ACTION PROGRAMME FOR THE ASIA-PACIFIC REGION 21 AND 22 NOVEMBER 2000

SPONSORED BY:
GOVERNMENT OF JAPAN
UNDP AND UNEP

ORGANIZED BY:
PELANGI AND ESCAP

NGO PERSPECTIVES ON THE SUSTAINABLE ENERGY DEVELOPMENT ACTION PROGRAMME FOR THE ASIA-PACIFIC REGION

I. ASIA-PACIFIC NGO SYMPOSIUM ON REGIONAL PERSPECTIVES AND INITIATIVES FOR ACHIEVING A "SUSTAINABLE ENERGY FUTURE FOR ALL"

21-22 November 2000, Bali, Indonesia
organized by ESCAP
in cooperation with PELANGI, Indonesia
and in parallel with the
High-level Regional Meeting on Energy for Sustainable Development

The Asia Pacific NGO Symposium was organized by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), in cooperation with PELANGI, Indonesia, with support provided by the United Nations Development Programme (UNDP), the Government of Japan and the United Nations Environment Programme (UNEP). The Symposium was organized as an associated side event at the ESCAP High-level Regional Meeting on Energy for Sustainable Development, hosted by the Government of Indonesia and held at Bali International Convention Center (BICC), Nusa Dua, Bali, Indonesia, 21-24 November 2000.

The Symposium was convened with the objective to facilitate the exchange of information and experiences among participating NGO representatives and resource persons of the Asia-Pacific region. In addition, participants were invited to discuss NGO perspectives on the development of a sustainable energy action programme for the Asia Pacific region.

In their concluding session the NGO Symposium participants agreed on the following:

A SUSTAINABLE ENERGY FUTURE FOR ALL: A COMMON VISION

Sustainable energy is energy for promoting sustainable human development, which involves no negative health, environmental, and social impacts in its production and use, and which can be supplied continuously to

future generations. Such energy is essential for sustainable development and to counter the potentially devastating impacts of climate change. The primary objective of governments, civil society, and intergovernmental bodies should be to provide sustainable energy for all. This objective can be best achieved by a combination of strong governmental and intergovernmental leadership in adopting policies that promote conservation and sustainable energy production and use. Strong civil society and NGO leadership roles are also important in further implementing and publicizing the conservation and sustainable energy strategies and technologies. Many of the existing strategies and technologies are cost-effective and are working in the real world of local communities. The widespread dissemination and utilization of such strategies and technologies could cut greenhouse gas emissions by more than 50 per cent over the next ten years, as well as contribute to real sustainability for all communities.

PARTICIPATION BY UNDER-REPRESENTED SECTORS IN DECISION-MAKING

Recognizing that in order to achieve the vision outlined, it is essential that all citizens, including low-income persons, women, indigenous peoples, youth, the aged, the disabled, and other under-represented sectors of civil society participate and have key roles in energy decision making at all levels and in all aspects, we support the following actions:

STRATEGIES TOWARDS ACHIEVING A SUSTAINABLE ENERGY FUTURE

Access to sustainable energy

Energy should be accessible to all at an affordable price and on an equitable basis. Such supplies should be capable of being continued indefinitely to achieve social and environmental goals. For this purpose, national programmes for sustainable energy development are required to give priority to the development of indigenous energy resources, conservation and improving efficiency through demand and supply side management, developing the most sustainable renewable technologies, and increasing opportunities for private and public sector cooperation. All governments, international organizations, international funding agencies, and various major groups of civil society, including NGOs, should work together in a global partnership to plan, fund and implement such efforts.

Power plants which severely pollute the environment in their vicinity and which cause significant health hazards should be decommissioned as soon as possible.

Each nation should initiate a political process that establishes quantitative targets for energy production from renewable energy resources.

Energy conservation and efficiency

A key way to achieve sustainable energy is to promote energy conservation and efficiency strategies and technologies in all sectors, including government, industry, agriculture, commerce, housing, transport and consumer products. Many conservation strategies make a considerable impact at minimal cost. These include sustainable planning, design and construction of built environments and efficiency of industrial and commercial equipment and products.

Sustainable renewable forms of energy

Micro-hydro: Hydroelectric energy is currently the most widely used renewable energy technology in large-scale installations. Large dams destroy bio-diversity, and adversely affect the ecosystems in surrounding. NGOs are concerned that current generation capacity of large hydro plants should not be increased without due consideration of the environmental and social dimensions. Stricter controls for determining negative environmental impacts should be enforced. Instead, investments should be re-directed to micro-hydro and run-of-the river power plants.

Wind: Wind energy, through the use of modern wind turbines, is a form of renewable energy that is already cost-competitive with oil and natural gas in many parts of the world. Small wind turbines are cost-effective in non-grid-connected rural areas. One possibility is to use combined wind-solar energy systems. In this technology, solar photovoltaic panels and wind turbines combine to provide energy, which decreases the use of costly battery storage systems. More extensive pilot projects are needed to fully realize the potential for completely decentralized small wind applications.

Biomass: Biomass should be used for the production of biogas. However, the commercial production of biomass for power generation, such as monoculture tree plantations, often adversely affects nearby ecosystems. Land used for plantations may sometimes be used for food production.

Solar Thermal: Solar thermal technologies are the most cost-effective option for applications in which low temperatures are required, such as solar stills, solar water heaters and solar cookers.

Solar Photovoltaics (PV): Solar PV technology is an especially cost effective and convenient technology for the generation of electricity in rural areas, especially in remote areas where grids connection is impractical. Solar PV

technology is currently providing the energy to power remote telecommunications equipment in almost every country in the region. Another cost-effective solar PV technology is building-integrated PV technology, in which the solar PV panels are integrated into building materials, and thus the "higher" cost of the PV is decreased by the savings in the building materials. Another strategy in grid-connected areas to promote the use of solar PV is net metering, in which the customer is credited for solar production during the daytime, and debited for use of energy from the grid during night periods.

Sustainable energy for rural areas

More than one-half of the world's population lives in rural areas, of which the vast majority is in developing countries. Recent research has revealed that the solid fuels used in poor rural households can cause many diseases, for example, infectious respiratory diseases, chronic respiratory diseases, asthma, blindness and heart disease. The immediate dissemination of information about the use of sustainable renewable energy technologies, such as solar PV for electricity, solar cookers, solar water heaters, and hybrid wind-solar systems for electricity, can alleviate the problems of rural health and poverty. Strong efforts must be made to promote appropriate rural energy solutions with integrated components of income generation and village development. Strong priority should be placed on energy programmes that alleviate poverty by encouraging integrated income generation schemes.

Sustainable energy for transport

Over the last 50 years or more, there have been enormous government subsidies to support the use of motorized vehicles, which are among the biggest consumers of fossil fuels. There have been and continue to be direct non-renewable fuel subsidies which should be gradually eliminated. It is important to establish and enforce efficiency standards on fuels and emissions, to promote the use of alternative fuels in order to decrease the level of urban pollution. Cleaner vehicles using liquefied petroleum gas (LPG) or compressed natural gas (CNG) can be important in the transition towards more sustainable transport. Such vehicles include non-motorized transport, transport with zero emissions and transport using hydrogen fuel cells, solar or other sustainable forms of energy. Transport planning and design, and the increased production and use of clean fuel based forms of mass transportation and non-motorized forms of transport are equally significant. Considering the urgency of this issue ample funds, for pilot demonstration projects are needed to attract investment from the private sector.

TIME FRAMES FOR ACHIEVING SUSTAINABLE ENERGY STRATEGIES

Governments, international organizations, international funding agencies and various major groups of civil society, including NGOs, should establish time frames between 2002 and 2010 for achieving the above strategies. Such bodies should cooperate in order to ensure that the strategies are achieved within the established time frames.

TOOLS FOR IMPLEMENTING SUSTAINABLE ENERGY STRATEGIES

End Harmful Energy Subsidies and Re-Direct Funding into Sustainable Energy

Governments should phase out subsidies for fossil fuels, nuclear energy and large-scale hydropower and re-direct funding to energy conservation and the production and consumption of the most sustainable renewable sources of energy. These include micro-hydro, wind, solar cookers, solar PV for remote areas, hybrid wind-solar systems, and biomass.

The social goals of consumer subsidies would be best achieved by targeted support to low-income and other disadvantaged groups.

Full Cost Accounting in all Energy Policy and Pricing Decisions

External benefits, such as the benefits to health, society and environment, should be calculated into the cost of sustainable, renewable sources of energy. Similarly, external costs, such as the costs to health, society, and environment from the production and consumption of unsustainable forms of energy, should be internalized into all energy policy and pricing decisions.

Mobilizing Financial Resources and Innovative Financial Strategies

Various financial strategies to achieve the goal of access to sustainable energy should be strongly supported. These include: micro-credit and rural credit for small sustainable energy businesses; incentives for energy conservation initiatives and marketing/development of sustainable renewable energy technologies; “green choice”, in which power customers are given the option to pay more for non-polluting energy, funding for the systematic collection and dissemination of data on energy conservation, efficiency and the

most sustainable renewable energy resources and redirecting subsidies towards research and development activities. Such subsidies should result in simple, cheap and easy-to-manage energy production technology.

Sustainable Energy Capacity Building

Capacity building to promote sustainable energy for government and NGO representatives would upgrade their skills and knowledge to undertake long-term planning integrating environmental, social and economic aspects.

Sustainable energy education and training is needed for energy policy-makers in governments, intergovernmental agencies, and major groups in civil society. All sectors should support such education.

Sustainable energy education for the general public, especially primary school children, is important to achieve the goal of a sustainable energy future for all.

Climate Change and Sea Level Rise

Some countries in the ESCAP region are vulnerable to sea level rise and extreme weather events. Governments must therefore implement disaster mitigation and preparedness programmes and undertake appropriate infrastructure planning. This will require the allocation of additional funds.

International and Regional Cooperation

Networks among governments, intergovernmental regional and international agencies, and major stakeholders in civil society should be established to share information on sustainable energy and the transfer of energy technologies. The exchange of expertise and training programmes can strengthen capacity in each country, region or sub-region.

Technology transfer among countries in the region can be a major tool for sustainable energy development. Appropriate information technology can support an enabling environment for networking, regional and international cooperation and technology transfer.

CONCLUDING RECOMMENDATIONS ON NGO NETWORK FOR SUSTAINABLE ENERGY DEVELOPMENT IN ASIA PACIFIC REGION

The NGO Symposium participants recommend the following measures to all governments and to the participants in ninth session of the UN Commission on Sustainable Development:

(a) encourage the civil society and relevant agencies of ESCAP countries to implement the actions and measures proposed in this document;

(b) encourage the establishment of a network for a sustainable energy development and invite, civil society and other relevant organizations of Asian and Pacific countries to participate in the network;

(c) agree that the primary function of the network is to provide a forum to strengthen cooperation among civil society groups of ESCAP countries in implementing the NGO initiatives for sustainable energy development in the Asia and Pacific region;

(d) agree that projects be developed for pursuing the outcome of the symposium and that UN organizations be requested to assist for this purpose;

(e) request the donor community to provide adequate financial support to the NGO network and its projects;

(f) express deep appreciation to the authorities, donors and related agencies for their participation in the network for sustainable energy development in Asia and Pacific region.

II. STATEMENT BY THE REPRESENTATIVE OF THE NGO SYMPOSIUM

Mr. Chairman,
Distinguished Delegates,
Ladies and Gentlemen,
Colleagues and Friends,

Thank you very much for giving me the opportunity to share with you and with all participants at the High-level Regional Meeting the main outcomes of the NGO Symposium on Regional Perspectives and Initiatives on Achieving a Sustainable Energy Future for All, which was held on 21-22 November 2000 at the Bali International Convention Center, and which I had the privilege to co-chair.

Our NGO Symposium was attended by more than 50 representatives of non-governmental and non-commercial organizations and invited resource persons. The Symposium participants shared their experiences on advocacy and practical project work for promoting more sustainable energy production and efficiency in energy use. Participating organizations portrayed their project initiatives featuring innovative approaches, success stories and the resulting policy recommendations.

NGOs play a vital role in almost **all countries** energy activities. In more affluent countries NGO's accomplish important work for promoting greater efficiency in energy use and energy conservation. In less and least developed countries NGOs are actively engaged in poverty alleviation and renewable energy development projects.

In the NGO perspective, sustainable energy is energy for promoting sustainable human development, which involves the least possible negative health, environmental, and social impacts in its production and use, and which can be supplied continuously to future generations.

The NGOs also reviewed the documentation under your consideration. In this context our most important observations and concerns are the following:

- The cleanest possible energy should be accessible to all at affordable prices and on an equitable basis continued indefinitely to achieve social and environmental goals;

- Each nation should initiate a political process that establishes quantitative targets for energy production from renewable energy resources;

- ❖ NGOs call for greater empowerment of hitherto under-represented sectors of civil society in public sector decision making, including energy policy formulation;

- ❖ NGOs are concerned that large hydro plants should not be constructed without due consideration of the environmental and social dimensions. Stricter controls for determining negative environmental impacts should be enforced. Investments should be re-directed to micro-hydro and run-of-the river power plants;

- ❖ All economic sectors must aggressively pursue and implement strong energy conservation, demand side management and planning programmes;

- ❖ Solar Photovoltaic technology is an especially cost effective and convenient technology for the generation of electricity in rural areas;

- ❖ Wind energy is already cost-competitive with oil and natural gas in many parts of the world;

- ❖ Biomass should be used for the production of biogas while avoiding monoculture tree plantation sources as these often adversely affects nearby ecosystems;

- ❖ Solar thermal technologies are a cost-effective energy option for many industrial and residential sector applications where only low temperatures are required;

- ❖ Research has consistently revealed that the solid non-renewable fuels used in poor rural households come from the destruction of precious bio-diverse environments and cause many diseases the costs for which are borne by the population. Strong efforts must be made to promote appropriate cleaner rural energy solutions calculating these costs and hazards in all approaches;

- ❖ Strong priority should be placed on energy programmes that alleviate poverty by encouraging integrated income generation schemes;

- ❖ Efforts to eliminate fuel subsidies for transport should be engaged in strenuously;

- ❖ Establishing and enforcing higher efficiency standards for all fuels and vehicular emissions, creating better transport planning and promoting the use of alternative cleaner fuels will quickly decrease the existing heavy quantity and impact of urban generated pollution;

- ❖ It is commonly agreed throughout almost all sectors that energy subsidies are harmful to sustainable energy success. NGOs feel that these subsidies should be gradually phased out and re-directed into sustainable energy sources;

- ❖ Governments should move to phase out subsidies for fossil fuels, nuclear energy and large-scale hydropower and re-direct funding to renewable sources of energy;

- ❖ External benefits, such as the benefits to health, society and environment, should be internalized into all energy policy and pricing decisions;

- ❖ Various financial strategies to achieve the goal of access to sustainable energy should be strongly supported;

- ❖ Capacity building and sustainable energy education and training is needed for energy policy-makers in governments, intergovernmental agencies, and major groups in civil society;

- ❖ Sustainable energy education for the general public, especially primary school children, is important to achieve the goal of a sustainable energy future for all;

- ❖ Networks among governments, intergovernmental regional and international agencies, and major stakeholders in civil society should be established to share information on sustainable energy and the transfer of energy technologies.

The NGO Symposium participants recommended the establishment of a network for a sustainable energy development. Projects should be developed for active NGO participation in sustainable energy development for which adequate financial support should be provided from public funds and international donor support.

We invite all delegations to study our NGO position paper which provides some further details on the fore mentioned issues. Our position paper provides important inputs that we propose for inclusion within the scope of CSD-9 preparations.

Keeping firmly in mind the strong demand for fast action and the unique opportunity this current age presents we hope for and encourage a truly speedy paradigm shift which will bring the urgently required lasting benefits for our entire society while sustaining the one home in which we live. In the context of these inputs we seek the most serious of commitments from all of you present here today. If strong civil society, NGO, governmental and intergovernmental leadership truly adopts widespread dissemination and utilization of these strategies and technologies, we can cut greenhouse gas emissions by more than 50 per cent over the next ten years. With this in mind we wish all here success in the accomplishment of our hearts goals for the longevity and prosperity of all who inhabit this planet.

PART FIVE

REGIONAL BUSINESS FORUM

CO-HOSTED BY
GOVERNMENTS OF INDONESIA
AND AUSTRALIA

23 November 2000

REGIONAL BUSINESS FORUM
23 November 2000
Bali, Indonesia

SUMMARY RECOMMENDATIONS

CONTEXT

Indonesia and Australia co-hosted a Forum of regional business leaders numbering some 90 including officials. The Forum conducted its deliberations under four working groups, namely, Energy and Environment, Energy End Use Efficiency, Energy Infrastructure and Access to Energy Services in Remote Locations.

Key findings and recommendations from each of the working groups are attached.

KEY RECOMMENDATIONS

The key recommendations of the Forum are summarised below.

The Business Forum recommends that Ministers and Governments:

1) Energy Policy reform

Implement energy sector policy reforms that increase competition in the relevant markets, noting that effective competition can deliver cost reductions for industry and consumers.

Governments of the region should take action to progress towards the development of competitive, appropriately regulated energy markets, regardless of whether ownership of facilities is private or public, provided there is competitive neutrality.

Experiences from established competitive markets should be drawn upon, including the example of inter regional competition.

Only with competitive markets will the huge capital flows, that the private sector can provide, be attracted and deployed efficiently.

National markets should provide for cross-border trading to create a greater regional market.

2) Business risk

Governments should provide the policy and regulatory frameworks that will attract private sector investment in sustainable energy development on terms that are compatible with the other requirements for energy sector reform, including environmental protection, as well as:

- ❖ Equitable sharing of risk between host country and investor, such that risk rests with the parties best able to manage that risk;
- ❖ Encourage private sector investment through increased market competition; and
- ❖ Promote good corporate governance and responsible business practices between government and business to manage risk.

3) Subsidies

Governments need to create an economic environment, which promotes growth. Removal of subsidies can help create this environment.

Transparent cost reflective pricing is essential for efficient markets.

Governments need to unbundle commercial and social objectives and functions. The private sector should perform a commercial role and compete fairly so market forces can optimise the efficiency of energy use.

The Government (Public Sector) should be responsible for social welfare. Subsidies are appropriate but should be targeted, transparent and reach those for whom they are intended. Hidden subsidies should be removed because they cost more and seriously distort the market.

Governments should remove untargeted and hidden forms of subsidies, and in doing so, will open up market opportunities for the private sector.

There is a need to publicise information about subsidies, including who they are intended to benefit, to the community. This is an important part of the process of opening up the market.

Where subsidies are used, for example, to deliver social obligations or to stimulate research and development, emergent technologies and the like, they should be transparent and constrained to specific purposes and limited time frames.

4) Government assistance

We propose that governments provide assistance towards the initial capital outlays for remote area renewable energy projects, and then allow market mechanisms to cover ongoing operation and maintenance costs. The nature and quantum of such assistance can be determined for each project through a transparent and open bidding system.

Encourage governments to collect and generate solar, rainfall and wind reliable resource data, to make resource assessments publicly available, in order to assist private investors in making decisions on renewable energy projects.

5) International cooperation

Propose, where appropriate, that enhanced international cooperation be undertaken and promoted to share experiences on how best to facilitate the development and market entry of energy efficient end use technologies, particularly through already established forums such as the APEC Energy Working Group (EWG).

This includes the active dissemination of information between the business, education and government sectors, which will strengthen institutional arrangements.

Enhanced international cooperation is strongly encouraged, with a real emphasis on cooperation at the regional level.

Bilateral cooperation in business-to-business joint ventures can offer significant ‘win-win’ economic and social potential in stable competitive markets.

Training and education at all levels is critical to maximize technology transfer and the development of management and operational staff.

Consideration could be given to a regional centre for renewable energy technology development, bearing in mind current institutional arrangements.

6) End Use Efficiency

Acknowledge the considerable scope for economic increases in energy efficiency in both developed and developing countries and the contribution that this could make in achieving sustainable development objectives.

I. REPORT BY THE WORKING GROUP ON ENERGY AND ENVIRONMENT

QUESTIONS

Four questions were put to the Working Group for consideration:

- How will Governments attract the private capital essential for the projected 2-3 per cent growth in energy demand, estimated at about $US 1,000 billion per annum?

- With private sector capital, how will Governments avoid further damage to the environment from energy developments?

- How will Governments ensure a sustainable balance between supply and demand?

- How will Governments ensure equitable access to energy supplies?

CONTEXT

The Asia-Pacific region, with its rapid economic growth, continues to be heavily dependent on conventional fossil fuels. Current trends predict continued increases, supplied mainly from fossil fuels.

While abundant energy use is essential for improving the economic and social conditions and quality of life in the region, the major means of energy production and consumption are not sustainable in the long term. Moreover, there is a growing awareness of the close links between energy conversion and use and environmental problems.

Growing evidence of negative environmental and human health consequences of conventional energy production and consumption cannot be ignored. They are local (e.g., urban pollution and associated health effects), regional (e.g., acid deposition) and global (e.g., greenhouse effects).

For countries to embrace the goal of sustainable development there must be dramatically increased efficiency in production, transmission, distribution and consumption of energy. Increased efficiency can be effected along two parallel and complementary paths; firstly through new and improved sustainable technologies and secondly by removing constraints to economic investments in environmentally sound and sustainable energy supplies. 'No-regrets' strategies can simultaneously benefit the environment and human health as well as the

economy. However, free and fair market environments in the energy sector are essential for both.

The creation of such environments is the responsibility of Government. Without them private capital flows will be constrained.

This report compiles the discussion and conclusions of the **Working Group on Energy and Environment** and makes recommendations for consideration by Ministers.

KEY CONCLUSIONS

1. Increasing the competitiveness of markets:

   - ❖ Competitive regulated markets with segregated operations (e.g., generation, transmission and distribution), rather than vertically integrated monopolies, are crucial to economic energy delivery and optimal use of resources;

   - ❖ Governments need, however, to create an enabling and orderly environment to attract major private sector investment;

   - ❖ Regional cross-border trade and distribution of energy, as in the EU, needs to be planned for long term implementation to attract efficient investment and energy flows across national boundaries;

   - ❖ Ownership is secondary to competition; a competitive market can include both public and private utilities, provided there is competitive neutrality in the treatment of taxes and dividends;

   - ❖ ODA, where used in conjunction with private capital, should be focused on the amelioration of social issues that cannot readily be addressed in the competitive market.

2. Cost reflective pricing and the reduction of subsidies:

   - ❖ Cross subsidies between sectors (e.g., industry and domestic) must be progressively eliminated. Prices to all consumers must be fully and transparently cost reflective;

   - ❖ Subsidies may be used by Governments for specific social purposes, R&D stimulation and the like must not be retained too long. They must be phased out once the objectives are achieved and before dependence is assumed;

- ❖ Subsidies can otherwise encourage the continuation of inefficiencies and not allow for further efficiency gains;

- ❖ Subsidies are not cost-reflective and can distort markets.

3. Internalising external environmental and social costs:

   - ❖ A number of mechanisms in place now, or being debated internationally, which promise to encourage and enhance investment in sustainable technologies;

   - ❖ Currently, without such mechanisms, some cleaner fuels and renewable technologies are more costly (e.g., gas vs. oil) and thus unlikely to be adopted;

   - ❖ A number of reasons exist for developing countries not supporting these mechanisms, essentially concerns as to increased financial burdens. Steps are needed to overcome these constraints;

   - ❖ Governments should instruct multilateral financing institutions to include environmental values in to their project evaluations;

   - ❖ The benefits deriving from the use of Kyoto flexibility mechanisms should flow to both investing and consuming entities so that risks and rewards are balanced;

   - ❖ There is a need to recognize the differences between developed and developing countries with regard to the ability to pay for environmental costs at this stage;

   - ❖ Governments of developing countries have difficulty with internalizing costs due to the lack of clear mechanisms for this;

   - ❖ There is a need to recognize that CDM and similar mechanisms are not a ‘pot of money’ but are used to mitigate emissions in other countries.

4. Managing and reducing risks:

   - ❖ The minimization of sovereign risk, including local political and social stability, is a critical role for Governments if the right environment for international investment is to be fostered and sustained;

- ❖ Economic and legal incentives have their place in attracting investment and reducing risk but care must be taken to ensure they are targeted to specific outcomes and do not become market distorting subsidies;

- ❖ Security of contracts and the underlying legal framework is crucial.

5. International cooperation:

- ❖ The priority focus must be on regional and trusting cooperation. Common problems and solutions, stimulating best technological practice, can most readily be solved if shared;

- ❖ Governments and existing regional fora (e.g. APEC Energy Working Group) must continue to lead in supporting such cooperation. Private sector cooperation and investment will follow;

- ❖ Cooperation should support the transfer of technology, ideally via commercial joint venture in which both parties play significant and constructive roles;

- ❖ Joint ventures (several examples were described by delegates) should aim to be sustainable in the long term, even when founded on an initial project, and provide meaningful participation for both parties;

- ❖ Joint ventures offer very substantial 'multiplier effects' in the creation of local jobs and related economic opportunities. The investor can bring capital and technological and managerial skills. The host can bring political support, skilled staff and labour, customers, local knowledge and supporting investments and thus sponsor new commercial opportunities as a flow-on;

- ❖ Joint ventures must include mutual training and education if technology transfer and human capacity development are to follow. The aim must be to enhance and develop local and regional capacity.

KEY RECOMMENDATIONS

1. Increasing the competitiveness of markets

- ❖ Governments of the region should take action to progress towards the development of competitive, well regulated energy markets, regardless of whether ownership of facilities is private or public, provided there is competitive neutrality;

- ❖ Experiences from established competitive markets should be drawn upon;

- ❖ Only with competitive markets will the huge capital flows, that the private sector can provide be attracted and deployed efficiently;

- ❖ National markets should provide for cross-border trading to create a greater regional market.

2. Cost reflective pricing and the reduction of subsidies:

   - ❖ Transparent cost reflective pricing is essential for efficient markets:

   - ❖ Where subsidies are used, for example to deliver social obligations or to stimulate R&D, emergent technologies and the like, they should be transparent and constrained to specific purposes and limited time frames.

3. Internalising external environmental and social costs:

   - ❖ The internalising of external environmental and social costs within agreed and workable mechanisms is essential if the imperatives of sustainability are to be advanced, as they must, by market forces:

   - ❖ Appropriate institutions, both national and international, must develop, ratify and promulgate those mechanisms:

   - ❖ A greater awareness of such 'flexibility mechanisms' must be given to all stakeholders if efficient markets are to be developed:

4. Managing and reducing risks:

   - ❖ Of all risks perceived by investors, sovereign risk is paramount;

   - ❖ Stability and predictability of market structures and regulatory arrangements are also fundamental;

   - ❖ Risks (financial, currency, legal, technical etc.) must be carried by the party best able to manage that risk.

5. International cooperation:

- ❖ Enhanced international cooperation is strongly encouraged, with the real emphasis on cooperation at the regional level;

- ❖ Bilateral cooperation in business-to-business joint venture can offer significant 'win-win' economic and social potential in stable competitive markets;

- ❖ Training and education at all levels is critical to maximize technology transfer and the development of management and operational staff;

- ❖ Consideration could be given to a regional centre for renewable energy technology development.

II. REPORT BY THE WORKING GROUP ON ENERGY END USE EFFICIENCY

CONTEXT

The rapid economic growth that the Asia-Pacific region has experienced over the last two decades has resulted in a corresponding upsurge in energy usage. In fact, energy inputs have played a crucial role in this rapid economic growth. While the demand for energy within economies keeps growing, escalating global oil prices, increasing energy-related pollution and the need to address greenhouse mitigation responsibilities, have increased the real and opportunity cost of energy usage.

The growing cost of energy usage has led to the re-evaluation of the quantity of energy usage and its efficiency. Given that national economies will not be able to reduce energy usage in the shorter term, the substantial inefficiency of energy conversion is of increasing importance. Improving economic as well as technical efficiency of energy conversion will enhance energy security and brings about environmental benefits.

Emerging economies in the region have the advantage of being able to adopt new and innovative technology without the capital cost incurred in R&D. In addition they are also able to choose from a range of technologies to suit their specific national requirements.

This report compiles the conclusions arising from the discussions of the Working Group on Energy and End-Use Efficiency and makes recommendations to be submitted for consideration by Ministers.

KEY CONCLUSIONS

I Key Issues (Focus Topics)

1) A positive impact of energy efficiency policies and programmes

General conclusions on energy efficiency policies were noted as:

- ❖ Implementation has positive impact on people;
- ❖ Energy security is important;
- ❖ Reduction of expenditures is also important from a business perspective;

- ❖ Establishment of energy efficient equipment is also important for industry.

Business is interested in competitiveness process rather than a standard government policy approach. Business is interested in extending market access.

It was noted by one participant that the language in the agenda papers did not reflect 'real' issues that are needed to achieve the targets – business needs to assist government to identify these issues and the programmes/policies which will meet their shared goals.

A Japanese delegate identified practical programmes, which they had used to increase energy efficiency - e.g., changes in materials in production lines to produce increased energy efficiency.

It was important to note that developing countries needed 'simple' policies/programmes to address energy efficiency, and that implementation would be different for each country.

It was noted that subsidies prevent the full benefits of energy efficiency being realised.

Policy has also been adopted in some of the developed countries and areas of the region (e.g., Australia, Taiwan Province of China) which is specifically targeted to effecting end use energy efficiency e.g., energy labelling, MEPS, which have helped create an industry and develop markets for new products and technologies.

Energy security policies will also be different for each country, e.g., oil exporters to oil importers, thus, the meaning of energy security will be different for each country.

The simple way will be to encourage policies, which aim to reduce energy consumption by consumers and industry.

An example was given of a Swiss company in Jakarta, which reduced air pollution hand in hand with energy consumption, by checking vehicles for emissions etc. Regular maintenance for cars has the double benefit of protecting the environment and decreasing energy use. Major inefficiencies exist in Indonesia with the high number of 2 stroke motor bikes which waste 30 per cent more fuel than 4 stroke bikes (Bali itself has 90,000 bikes) – big potential for savings here (with simple measures).

The use of unleaded gasoline would also assist in driving energy efficiency in the transport sector within Indonesia. It has also been shown that modern cars have sophisticated sensors and don't use leaded gasoline – more efficient engines – means less energy use.

It was noted that there is little incentive to make changes (i.e., no government incentives).

Cars consume too much fuel due to traffic jams – thus it is important to improve traffic management in tandem with energy efficiency programmes – such as road construction and traffic divergence.

Must view energy efficiency programmes in tandem with other priorities for the country.

Developed countries need to stop relocating obsolete technology to developing countries.

The buying power of people is less in developing countries. Government needs to adopt policy to provide energy in the most efficient way such that people can buy the energy. Subsidies assist in providing this buying power. It was recognised that this is a disincentive to investment. There is no incentive to adopt a better (more expensive) system, which includes energy efficiency measures.

There is no Government regulatory support to improve energy efficiency such as in Australia, Japan, Taiwan Province of China.

In heavy industry, there is a need to adopt new technology – which includes technology transfer. It was noted that the Indonesian Government attracts capital by saying to business 'low cost of energy and low cost of labour' – thus – you get inefficient processes.

2) Potential for increasing energy end use efficiency

As above.

3) Increasing market competitiveness

It is a necessity to develop policies to create a more competitive energy sector – as well as liberalise investment rules (e.g., direct foreign investment). Competitiveness requires reduction in number of monopolies. This will be the

biggest help for efficiency (business and energy) and investment. Need to remove subsidies – little incentive to be energy efficient.

Electricity sector in Indonesia – moving towards this direction (policy paper is being prepared, the law is being revised, new market structure is under discussion, implementation likely to occur between 2003 and 2007):

- Java and Bali – to be competitive;
- Other – probably stay government owned - due to scattered nature of islands and other barriers.

Promoting energy efficiency can create new markets e.g., Japan: looking at distributed generation, cogeneration, heavy industry selling excess power to grid.

Establishment of energy conservation centres in developing countries would assist in educating energy intensive industry as they do not understand the importance of energy end use efficiency. There is a large need for information, programmes (audits etc).

4) Reducing subsidies

As above.

Indonesian Government is reviewing its policy of subsidies on energy (i.e., looking at passing the subsidy to people through other means, such as social security, then they can really target the needy).

The issues was raised that the income of consumers must be able to afford the economic value of the commodity – this is one of the problems of competitive markets being introduced. Thus, there is a need to raise the standards of living first, or in tandem with energy market reform.

There is the problem of how to improve capabilities of consumers to buy the commodities.

Industry want to improve energy efficiency – it might be helpful if Government incentives – tax incentives, Government supported loans etc to adopt energy efficient equipment. This will assist in developing new markets and technologies, which improve energy efficiency and provide export opportunities.

5) Internalising environmental damage costs in energy prices

Government has responsibility to legislate to control health and environmental effects from energy supply and use.

Japan – have regulatory approaches – based on energy conservation law – every manufacturing company must meet targets – these are very cost effective and simple and meet goals with minimum costs.

The one that bears the consequences and costs is the energy industry – the question was raised - is there another way for everyone to bear this costs?

It was noted in Switzerland that there is the polluter pays principles, i.e., costs for correcting environmental damages are included in the costs of the commodities.

New Projects – In Indonesia when new projects are constructed – have to pass Government regulations on environmental standards (loans are dependent on this). What to do with existing plants? How do we address this?

Including environmental damage costs increases price of energy – encourage people to use less – triple benefits of conservation, efficiency and minimise environmental damage. This could be an option for certain countries.

Japanese give awards to industries, which use energy effectively (information programmes). Could be useful for Indonesia to implement – including mandating the use of natural gas – but in Japan there is competition between fuel sources which acts as an incentive (this is not the case in Indonesia).

6) Targeting impediments at the sector level

Market impediments are commonly targeted by Governments. Information programmes are a common policy initiative (e.g., mandatory efficiency standards and MEPS).

Competition policy and appropriate regulation should be targeted. Implementation barriers for energy efficiency programmes should be noted and addressed.

Politics will be an issue here – e.g., Indonesia has plenty of gas – need to develop a market (barriers – remoteness, lack of infrastructure (e.g., pipelines), lack of policy to lead the industry to make use of these resources, and thus, to make policies which address energy end use efficiency.

Mandatory labelling systems – introduction is very effective for consumers for demand side management (e.g., Australia and Japan).

Indonesian Government does not have political will to do anything about this issue – they would wish it to be developed by the business community - proposal has moved to KADIN – they could not develop it – economic incentive is not there to push the issue.

Labelling could be done on a voluntary basis with a lessor role for government – and more emphasis on which areas will give the greatest benefit e.g., electric motors, compressors etc. What are your priorities and is there scope for a cooperative basis between countries of the region? [It was agreed that there was a need for this type of dialogue].

Information services e.g., Japan – energy advisory companies which advise heavy industry, provide an energy audit, provide solutions to assist energy efficiency (energy performance contracting possibilities). Indonesia has also been developing this industry. The Indonesian government has been progressing this type of policy – through joint ventures (with European countries) – no monopoly on this service.

Lack of energy expert managers – we need to promote this type of work – 'train the trainer' – as well as education and training – encourage the sharing of information between countries.

Competition policy is important – need level playing field.

7) International cooperation

Very important between APEC economies which do not seem to actively engage as well as EU countries.

Intellectual Property (IP) rights are important with respect to international development.

Greater sharing of information is essential e.g., through APEC Energy Working Group.

8) Others

It is important to look at the issues noted above from a short term and long term focus.

It is also important to have good Corporate Governance to assist in the development of projects. This will assist in managing risk and developing good partnerships with the private sector to gain the full benefits of end use efficiency projects.

KEY RECOMMENDATIONS

- Acknowledge the considerable scope for economic increases in energy efficiency in both developed and developing countries and the contribution that this could make to achieving sustainable development objectives.

- Propose the following policy priorities for realising this potential:

- implement energy sector policy reforms that increase competition in the relevant markets, introduce cost reflective energy pricing by gradual removal of energy price subsidies;

- provide the policy and regulatory frameworks that will attract private sector investment in sustainable energy development on terms that are compatible with the other requirements for energy sector reform including environmental protection, as well as:

  - equitable sharing of risk between host country and investor;

  - encourage private sector investment through increased market competition; and

  - adopt sector specific policies where it is clear that these will overcome remaining impediments and where policy implementation will produce mutual net benefits;

- Promote good corporate governance and responsible business practices between government and business to manage risk;

- Propose where appropriate that enhanced international cooperation be undertaken and promoted to share experiences on how best to facilitate the development and market entry of energy efficient end use technologies, particularly through already established forums such as APEC Energy Working Group (EWG), which includes the active dissemination of information between the business, education and government sectors which will strengthen institutional arrangements.

III. REPORT BY THE WORKING GROUP ON ENERGY INFRASTRUCTURE

CONTEXT

Governments, when engaging with industry need to be aware of the demanding competitive international market environment in which energy industries operate. Industry investment decision-making will be strongly influenced by this.

Government need to be aware of the shift in the global market place, which is occurring in two ways – firstly in the general market place where countries are in direct competition with each other. Countries need to take this into account in their marketing and programmes to attract foreign investment. Secondly, competition that exists within divisions of international companies for company resources to invest in their local operations.

KEY CONCLUSIONS

Governments need to give investor security and certainty:

- There is a need for governments to have clear, transparent policy and legal frameworks to ensure certainty for investors. This is particularly important for the energy sector given the long set up times and high investment dollars involved. Key policies need to be enshrined in laws not lower level regulations;

- If the governments can get the policy frameworks right there would be less need to rely on loans to develop infrastructure – because private sector investment would flow;

- Need for security of contracts;

- Need for an integrated approach to development of energy policies, and pricing;

- Need for governments to develop comprehensive plans for utilisation of gas and other energy resources. (suggested look at the model of dividing up country into zones, allow private sector to bid for different zones, to build and license gas distribution networks in the zones to supply both domestic and industry needs). One suggestion was that governments look at use of energy franchise systems;

- Need for effective consultation with industry in the development of national energy policies, laws and plans – to ensure opportunity for private sector participation.

Subsidies:

- Governments need to create economic environment, which promotes growth – removal of subsidies can help create this environment;

- Governments need to unbundle commercial and social objectives and functions. Let the private sector perform commercial role and compete fairly so market forces can optimise the efficiency of energy use:

  - Let the Government (Public Sector) be responsible for social welfare of people;

  - By all means give subsidies but make sure they are targeted transparent and reach those for whom they are intended;

  - Don't have hidden subsidies because they cost a lot more and seriously distort the market;

- Governments should remove untargeted and hidden forms of subsidies, and in doing so will open up market opportunities for private sector;

- Need to socialise information about subsidies – including who they are intended to benefit – to the community. This is important part of the process of opening up the market.

There is scope for regional cooperation in energy sector but government policies would need to be developed in complementary with other regional neighbours. This would have to be based on a system of free market energy pricing. This could maximise efficient use of energy resources in the region (ASEAN pipeline)

Incentives:

Need for government to provide incentives (e.g., pricing and taxation) to business to encourage investment in more sustainable development energy sectors, particularly where additional new technology risks are involved.

Other:

The working group also noted the Summary of the Recommendations concerning accelerating investments in natural gas supplies, infrastructure and trading networks in the APEC Region (Appendix A of Agenda Paper by Dr Ki-Joong Kim from the Asia Pacific Energy Research Centre). It was considered that the list of recommendations was comprehensive and appropriate with two exceptions.

(a) The bolded wording in the recommendation *to establish health and safety standards for the construction and operation of natural gas infrastructure consistent with* ***highest international standards*** should be changed to read ***generally accepted international standards***.

(b) The *recommendation to remove subsidies (direct and indirect) for fuels competing with natural gas,* should have and additional sentence as follows: - **Targeted subsidies for social considerations (the very poor) are acceptable**.

KEY RECOMMENDATIONS

It was also considered that the business forum might wish to consider whether it would be appropriate to make the following recommendations to Ministers:

- Acknowledge the large potential for improved energy infrastructure to contribute economically to sustainable development in both industrialized and developing countries;

- Propose the following policy priorities for realizing this potential;

- Implement energy sector policy reforms that increase competition in the relevant markets, introduce investment and cost reflective pricing by removing energy price subsidies, and provide the policy and regulatory frameworks that will attract private sector investment in energy infrastructure on terms that are compatible with the other requirements for energy sector reform;

- ❖ Encourage multilateral funding agencies, including the GEF (Global Environment Facility), to finance investments in key technologies, including fossil fuel technologies that will lead to more environmentally sustainable energy infrastructures. The use of (CDM) Clean Development Mechanism could also be considered in this approach;

- ❖ Propose where appropriate that enhanced international cooperation be undertaken to share experiences on how best to improve the sustainability of energy infrastructure;

- ❖ Prepare a statement of principles that includes the above and any other key issues that the working group identifies and that could subsequently be used to assist governments in their national policy development and to facilitate beneficial international cooperation.

IV. REPORT BY THE WORKING GROUP ON ACCESS TO ENERGY SERVICES IN REMOTE LOCATIONS

CONTEXT

The provision of energy services such as cooking, heating and lighting to remote rural communities in the Asia Pacific region is a major goal that presents significant challenges. Some 2 billion people in remote rural areas do not have access to adequate and reliable sources of energy, especially electricity, and rely on traditional sources of energy such as fuelwood, crop residue and animal dung, with resulting health and environmental impacts.

A major problem in remote locations is that energy, technology, technology service and financial markets are weak. Options for energy provision include extension of the electricity grid, use of remote diesel generator sets, and renewable sources of energy, such as wind, geothermal, mini and micro hydro, biomass, solar photovoltaic (PV) and solar thermal. Natural gas is also an option, and is seen as a linking fuel to a sustainable future.

The major impediment to expanding electricity grids to remote areas is the high capital cost of additional infrastructure, and often it is not economically or technically feasible for distant, dispersed and poor populations. Renewable energy technologies (RETs) are often a viable solution, and offer environmental, health and economic benefits. RETs involve the use of indigenous resources, resulting in less imports of energy, and can broaden the taxation base in local government areas.

Major oil companies such as BP and Shell are investing in renewable energy, especially the manufacture and sale of PV systems. RETs have high upfront capital costs but negligible operation and maintenance costs. A number of successful approaches have been implemented in remote areas, including leasing arrangements for renewable energy systems (Kiribati, South Africa), facilitating joint ventures to develop local manufacturing plants (Kenya), and implementing innovative rural 'micro-financing' schemes (Bangladesh).

This report compiles the conclusions arising from the discussions of the Working Group on Energy and Environment and makes recommendations to be submitted for consideration by Ministers.

KEY CONCLUSIONS

The viability of renewable energy technologies will vary across regions, countries and applications, and will depend on resource availability and relative costs of conventional and non-conventional sources of energy, and the taxation structures within countries.

Renewable energy projects are strongly competitive in off grid applications, moderately competitive in grid support but may be less competitive in grid connected applications. Projects that generate employment and income streams may be more economically and socially viable.

Different solutions will need to be offered across the Asia-Pacific region to take account of the varying physical, economic and social circumstances. Governments will need to take account of these circumstances and the capacity of different sectors of the community to pay for projects in remote areas when considering support for renewable energy projects. For the rural poor, government assistance will need to be greater than for other sectors of the community. Uniform price tariffs across all sectors of the community may not be effective.

Role of Governments

Both public and private sector input is critical for the provision of energy services to remote areas. Governments can bring partners for project financing together, such as multilateral financing institutions and banks. Governments can create appropriate frameworks and policies to facilitate private sector involvement.

Governments can create financial incentives and energy conservation funds for the take up of renewable energy, such as in Thailand, where there is an incentive of up to US1.5 c/kWh for renewable energy projects through a bidding process, in the early years of operation.

Governments should not distort the price of electricity for consumers. Changes to prices and tariff structures should be undertaken gradually on an interval basis, and pricing should allow for competition on the basis of location.

Governments can play an education and awareness-raising role in providing generic information on the costs and benefits involved with renewable energy projects, so that people can make informed decisions about choosing projects.

Governments should be prepared to contribute to the initial capital costs of renewable energy projects targeting the rural poor, and then allow market mechanisms to cover ongoing operation and maintenance costs. Government assistance can decline over time.

To address the lack of technical expertise to install and maintain systems, governments can encourage local cooperatives and local financing institutions. Governments can facilitate development of infrastructure and supporting institutional arrangements, and develop systems of supporting services such as establishment of training and maintenance capabilities. Local communities should also be engaged directly in the development and delivery of energy services and in undertaking institutional strengthening. Local assembly and production can create investment and employment opportunities.

International cooperation

There are significant advantages to greater sharing of information across countries in the region, particularly in examining successful and best practice approaches to energy service provision.

There are greater opportunities for linking developing and developed countries, particularly in effective technology transfer and in involving private and public stakeholders.

KEY RECOMMENDATIONS

We recommend that the Business Forum endorse the following recommendations for submission to Ministers for their consideration and inclusion in the statement of principles in order to assist national governments in their national policy formulation:

- Acknowledge individual circumstances of countries in approaches to energy provision in remote areas, particularly the physical, economic and social situations.

- Acknowledge the large potential for cleaner and more appropriate technologies in increasing access to energy services and reducing environmental and health impacts of energy use in remote areas;

- ❖ Propose that governments provide assistance towards the initial capital outlays for remote area renewable energy projects, and then allow market mechanisms to cover ongoing operation and maintenance costs. The nature and quantum of such assistance can be determined for each project through a transparent and open bidding system. As the number of projects increases, governments can reduce assistance over time.

- ❖ Propose greater exchange of information, particularly successful and innovative approaches and best practice to remote area energy service provision. Propose that countries examine the extent to which successful and best practice approaches can be applied in the region, taking into consideration individual circumstances and policy and regulatory environments. Propose enhanced international and regional cooperation, particularly sharing of experiences;

- ❖ Encourage the creation of suitable environments for investment and institutional strengthening. Build partnerships between public and private institutions, including financiers, companies, governments, utilities, non-government organisations and local communities. Encourage private sector participation by minimising development and transaction costs through clear, standardised, integrated, coordinated and consistent approaches;

- ❖ Encourage effective institutional arrangements at the operating levels, and the involvement of local cooperatives and communities in projects from design to operation. In country technology development, local manufacturing and technology transfer should also be encouraged. Intellectual property issues would need to be taken into consideration in the transfer of technologies;

- ❖ Encourage governments to collect and generate solar, rainfall and wind reliable resource data, to make resource assessments publicly available, in order to assist private investors in making decisions on renewable energy projects.