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**SUMMARY OF THE THIRD MEETING OF
THE GLOBAL FORUM ON SUSTAINABLE ENERGY:
PUBLIC-PRIVATE PARTNERSHIPS FOR RURAL ENERGY DEVELOPMENT
GRAZ, AUSTRIA x 27-29 NOVEMBER 2002**

BACKGROUND PAPER NO. 1

**Submitted by the
Permanent Mission of Austria to the UN**

SUMMARY OF THE THIRD MEETING OF THE GLOBAL FORUM ON SUSTAINABLE ENERGY: PUBLIC-PRIVATE PARTNERSHIPS FOR RURAL ENERGY DEVELOPMENT

27-29 NOVEMBER 2002

The Third Meeting of the Global Forum on Sustainable Energy (GFSE-3) was held from 27-29 November 2002 at the Wallzentrum of the University of Graz in the City of Graz, Austria. The meeting addressed public-private partnerships for rural energy development. It sought to examine the relevant outcomes of the World Summit on Sustainable Development (WSSD) and contribute to the further development of initiatives to promote implementation, such as the EU initiative on Energy for Poverty Eradication and Sustainable Development. GFSE-3 was convened by Irene Freudenschuss-Reichl, Special Representative and Assistant Director-General for UN Affairs at the UN Industrial Development Organization (UNIDO), and co-sponsored by the Austrian government, the City of Graz, the government of Sweden, UNDP, UNEP and UNIDO. Approximately 180 participants attended, representing government agencies, UN bodies, business and industry, non-governmental organizations and academia.

Under the overall topic of public-private partnerships for rural energy development, GFSE-3 included Plenary sessions focusing on: setting the stage; an introduction to public-private partnerships for rural energy development; innovative financial instruments for private sector involvement in rural energy development; making it work in Africa; advancing implementation of the energy outcomes of the WSSD; making it work in Asia; regional initiatives; and the role of operational international organizations and funding agencies for rural energy development. Participants heard presentations and engaged in moderated discussions on these topics. On Friday, 29 November, participants convened for a concluding panel on the way forward after the WSSD in Johannesburg.

A BRIEF HISTORY OF ENERGY FOR SUSTAINABLE DEVELOPMENT AND THE GFSE

The Global Forum on Sustainable Energy (GFSE) was launched by the Austrian Minister of Foreign Affairs in 1999. It stems from outreach efforts of the World Energy Assessment initiative, which was organized by UNDP, the UN Department of Economic and Social Affairs (DESA) and the World Energy Council. The GFSE provides a platform for a series of ongoing multi-stakeholder dialogues aimed at facilitating decision-making on energy policy issues in relevant fora and fostering public-private partnerships.

GFSE-1: The first GFSE meeting convened from 11-13 December 2000. It addressed the topic of Rural Energy – Priorities for Action, and served as preparation for CSD-9. Participants at this meeting considered the linkages between rural energy and sustainable development, enabling frameworks for attracting investment for rural energy, lessons learned, financing issues, the challenges and opportunities of regulatory reform, and innovation.

GFSE-2: The second GFSE meeting convened from 28-30 November 2001 and addressed the topic of Energy Technologies – Cooperation for Rural Development. Participants heard presentations and engaged in discussions on: stocktaking of the international energy discourse; facilitating the transfer of energy technologies suitable for rural development; case studies on successful modalities for transfer of energy technologies; and enabling policy environments and creating conditions for private sector involvement in the transfer of energy technologies for rural needs. They met in two regional working group sessions on rural

electrification and clean fuels for rural needs in Africa, and in Asia and Latin America. Participants also considered desired outcomes of and proposals for the WSSD.

WSSD: Energy was not dealt with specifically at the UN Conference on Environment and Development (UNCED) in 1992. However, as Agenda 21 and the Rio Conventions were being implemented in the 1990s, energy emerged as a significant consideration. The five-year follow-up meeting to UNCED in 1997 decided that the ninth session of the Commission on Sustainable Development (CSD-9) in 2001 would address energy, transport and atmosphere. CSD-9 was preceded by comprehensive preparations on energy issues, including through meetings of the Ad Hoc Open-Ended Intergovernmental Group of Experts on Energy and Sustainable Development and regional intersessional meetings. CSD-9 recognized, inter alia, that the Millennium Development Goals (which were set out in the UN Millennium Declaration in September 2000 and include the target of halving the proportion of people subsisting on one dollar a day or less by the year 2015) would not be met without increased access to modern energy services.

At the WSSD, which convened from 26 August – 4 September 2002 in Johannesburg, South Africa, energy issues were high on the political agenda, emphasized through the course of negotiations on the Plan of Implementation and in the WEHAB process initiated by UN Secretary-General Kofi Annan, who recommended a special focus on the issues of water, energy, health, agriculture, and biodiversity. In relation to poverty eradication, governments committed to take joint efforts to improve access to reliable and affordable energy services, promote sustainable use of biomass, and support transition to cleaner use of fossil fuels. Energy issues were also raised in the chapters on Small Island Developing States, Africa, Other Regional Initiatives, and in the chapter on Health and Sustainable Development. In addition to these negotiated outcomes, the WSSD encouraged the development of "Type II" initiatives, which comprised voluntary partnerships aimed at advancing implementation on the ground. Several of these Type II initiatives were launched in the area of energy for sustainable development.

REPORT OF GFSE-3

Participants to the Third Meeting of the Global Forum on Sustainable Energy (GFSE-3) heard presentations and engaged in discussion in eight Plenary sessions and a Concluding Panel from Wednesday, 27 November to Friday, 29 November. Additional events included a regional break-out session on Africa questions, moderated by Yvette Stevens (UN Special Coordinator for Africa), which met on Thursday afternoon, 28 November, and an excursion to local renewable energy installations, which was organized following the formal closing of GFSE-3. The following report summarizes the Plenary sessions and Concluding Panel.

OPENING PLENARY

Ambassador Irene Freudenschuss-Reichl opened the meeting at 9:30 am on Wednesday, 27 November. She welcomed GFSE-3 participants, noting that they represent the international energy community "that cares about energy for sustainable development and for the poor." She thanked the City of Graz for hosting the meeting.

WELCOMING ADDRESS: Peter Weinmeister, Vice Mayor of Graz, highlighted environmental action based on a partnership between the city government, NGOs and companies. He stressed that city projects can merge the objectives of environmental protection, economic profit, high-tech development, and an improved quality of life. He noted that Graz had been awarded the first Climate Star Award from the international climate alliance, having, among

other things, reached its Kyoto objective and cut air pollutants by 50% since a landmark smog event in 1989.

PLENARY ONE: SETTING THE STAGE

KEYNOTE ADDRESSES: Werner Druml (Austria) moderated the presentation of eight keynote addresses during the first Plenary.

Mainstreaming Energy into Development Cooperation: Johannes Kyrle, Secretary-General of the Austrian Ministry of Foreign Affairs, spoke on mainstreaming energy considerations into development cooperation. He stressed the need for taking a new course of action to achieve a sustainable energy future. On the WSSD, he felt more could have been achieved on energy for sustainable development, and said Austria will continue to play an active role in this area. Kyrle highlighted the provision of energy access in rural areas and to people living in poverty as a prerequisite for achieving the Millennium Development Goals (MDGs). He said Austria supports the use of a wide range of services from renewable energy sources, clean traditional fuels and energy efficiency, and stated that the production, distribution and use of energy affects economic and social development, notably of women, in addition to the environment. He said energy considerations should be mainstreamed into international cooperation and highlighted Austria's efforts in this regard.

Energy for Sustainable Development: In outlining Ethiopia's energy policy, Haile Assegede, Ethiopian State Minister of Infrastructure, emphasized ensuring self-sufficiency, developing alternative energy sources, minimizing environmental impact and reducing public sector dependence. He explained that 85% of the Ethiopian population lives in rural areas, and remarked on the high rate of deforestation resulting from exploitation of traditional energy supplies. Noting Ethiopia's trend of increasing energy consumption, the economic burden of importing fuel, and the capital intensiveness of building power plants, he underscored energy efficiency, renewable energy, public-private partnerships (PPPs), industrial development, capacity building, technology transfer and enabling policies for rural electrification. On electricity restructuring, he stressed ensuring affordable end products for the rural poor.

From Words to Actions -- Energy after Johannesburg: Werner Wutscher, Secretary-General of the Austrian Ministry for Agriculture, Forestry, Environment and Water Management, emphasized maintaining high political interest in energy issues. He recalled that a renewables target had not been set at the WSSD and highlighted the EU Energy Initiative's catalytic role in ensuring implementation of energy and poverty alleviation objectives. In outlining Austria's efforts to promote sustainable energy, he noted two time-bound targets in its energy strategy plan and elaborated on the energy partnership programmes and the promotion of best practices within its Green Electricity Act. While recognizing the benefits of energy market liberalization, he cautioned against creating market entry barriers for new energy sources. In closing, Wutscher stressed the need for action and for rendering the concept of sustainability accessible to the general public.

EU Initiative on Energy for Poverty Eradication and Sustainable Development: Friedrich Hamburger, Director, DG Development, European Commission, underscored improved access to energy as a necessity for meeting the MDGs. He highlighted the EU Energy Initiative, the objective of which is to facilitate the implementation of the MDGs using a menu of technological and institutional options. He said the Initiative will support institutional capacity-building and technical assistance to developing countries. Partnerships, including with the private sector, and market development will be important components. He said the Initiative will enhance and improve the dialogue on energy and support an increasing energy

profile in development plans and Poverty Reduction Strategy Papers (PRSPs). He hoped that GFSE-3 would promote the sharing of ideas and lead to action on the ground.

A Canadian Perspective: Gilbert Parent, Canadian Ambassador for the Environment, outlined the rural electrification process that took place from the 1920s-1950s in Canada. He stressed as keys to success government subsidies and power cooperatives, which were formed through community mobilization to help reduce energy costs and were successful in fostering a sense of ownership. He said a system of democratic accountability had forced the government to find solutions and stressed political will as essential. He noted that there is no single solution but said that each country must find a suitable strategy in consultation with stakeholders. He received a round of applause after announcing that Canada will ratify the Kyoto Protocol by Christmas. Parent then outlined the development of the renewable energy sector in Canada, noting the sector's role in energy diversification, and reaffirmed Canada's commitment to developing country electrification.

Global Network on Energy for Sustainable Development (GNESD): Jacqueline Aloisi de Larderei, UNEP Assistant Executive Director, introduced the UNEP-facilitated GNESD launched at the WSSD. Its objective, she stated, was to promote sustainable development and poverty alleviation through identifying policies and solutions that expand access to environmentally sound energy services. She further highlighted the network's advocacy role in improving global access to knowledge on sustainable energy options. She stated that an Interim Steering Committee, a Secretariat and a preliminary website had been established and elaborated on the network's first priority theme of energy access. In closing, she welcomed partners to the network, stressing transparency and demonstrable outcomes.

An American Perspective: Griffin Thompson, USAID, illustrated the inter-relationship between democracy and development, highlighting symmetries in the global trends of redistribution of political power through democracy and of decentralization of energy supply. He noted that both trends pursued the goals of freedom, liberty and equity, and stressed the role of distributed power generation, particularly through rural electrification, in delivering social, economic and political power, and enhancing true democracy and civil society participation in governance. He further linked these trends with the principle of subsidiary and the recent focus on networks, noting that through networks people are distancing themselves from linear solutions and returning to their "biological roots." He underlined that distributed systems are self optimizing and noted that discussions at the WSSD focused not on the negotiated text, but rather on partnerships, which multiply connections and augment networks.

Presentation by the City of Graz on Sustainable Energy in an Urban Context: Karl Niederl, City of Graz Environment Authority, stressed the need for links between ecological, social, cultural and economic development, and the importance of building networks. He outlined initiatives in Graz, including: an eco-network aimed at public outreach; an energy service company (ESCO) investing in thermal insulation for buildings; and an "eco-profit" project assisting companies in using environmentally sound practices that also provide economic benefits. He said the initiatives have spread internationally and created jobs locally.

PLENARY TWO: INTRODUCTION TO THE TOPIC OF PUBLIC-PRIVATE PARTNERSHIPS FOR RURAL ENERGY DEVELOPMENT

Albrecht Reuter (Verbundplan, Austria) moderated the second Plenary, which consisted of a keynote address and round-table discussion.

KEYNOTE ADDRESS: R.K. Pachauri, Director-General of Tata Energy Research Institute (TERI), India, highlighted energy for sustainable development as a key theme at the WSSD. On partnerships, he stressed the need to understand where the synergies lie and to consider overarching energy development issues that include development opportunities. Outlining the interests of and roles played by different stakeholders, he said that the complementary strengths of the partners should be harnessed. He highlighted TERI initiatives, noting that when an integrated approach is taken, the cumulative benefits are higher than the sum of benefits from the individual interventions. On what makes partnerships work, he stressed the need to specify the goals and roles of the partners, and the extent and timing of their involvement. He noted the importance of communication, transparency, follow-up and knowledge-sharing, and of building social and institutional capital.

ROUND-TABLE DISCUSSION – NECESSARY INGREDIENTS TO MAKE PRIVATE-PUBLIC PARTNERSHIPS WORK: Solar Solutions for Sustainable Development: Graham Baxter, BP Solar, introduced his company and highlighted two projects focusing on rural solar power: one in the Philippines, based on community needs and involving local governments; and one in Brazil, bringing energy to 60,000 school children. He stressed local ownership of projects and systems and the existence of a commercial infrastructure as the two key factors affecting project sustainability. He stressed the need for partnership between customers, beneficiaries, implementers and funders.

Electricity for All!: In presenting the E-7 Initiative, Charlotte de Silguy, Electricité de France (EDF), stated that providing "electricity for all" is achievable. She identified the main challenge as ensuring access to rural areas of developing countries and the prerequisite as creating partnerships with all stakeholders. Highlighting the correlation between lack of electricity and poverty, de Silguy stated that electricity access was the key to unlocking the "vicious circle of poverty." She underscored attracting private investors through public subsidies, and enhancing capacity building and technology transfer to ensure viability of rural energy projects. She proposed a "tailor made" approach, to provide energy in a way that integrates energy supply with provision of other basic services, such as clean water supply, education and health. Pierre Mollon, E7 Network of Expertise for the Global Environment, noted that the main challenge in rural energy development was the development of human capacity in developing countries.

It Takes Two to Tango!: Jan Murray, World Energy Council, outlined the role of the public sector in rural energy provision. She proposed designation of a specialized department devoted to rural energy services, and stressed the need for appropriate policies and legal frameworks clarifying the private sector's role in rural energy development. She supported targeted, transparent and time-bound subsidies, and emphasized the importance of reliable data on rural communities in developing countries. In conclusion, Murray stated that "there is no alternative" to PPPs, noting that few governments can shoulder the burden of rural energy provision and that private sector efforts would be ineffective without clear policy frameworks.

The Global Village Energy Partnership (GVEP): Dominique Lallement, World Bank, spoke on "harnessing energy for poverty reduction – people, productivity and partnerships," noting that half the world relies on traditional biomass for heating and cooking. She said the GVEP was launched at the WSSD following a process that began in the 1990s and consists of 75 partners across sectors worldwide. The partnership, she stated, aims to reduce poverty and enhance economic and social development around the world, through initiatives related to: action plans; capacity development; financing facilitation; knowledge management; and results and impact monitoring and evaluation. She said that, based on the outcomes of an

on-the-ground survey, the GVEP will promote energy for productive uses across sectors, cover rural and peri-rural areas, and support multiple energy technologies and sources.

DISCUSSION: In the ensuing discussion, a speaker from the floor said risk is a key determinant from a business perspective. Baxter agreed that risk should be shared in PPPs, and Pachauri said risk already is shared, through reputational risk and opportunity cost.

One participant stressed the potential for hydropower in Africa. Pachauri agreed that it makes sense to exploit hydropower where the potential is great. He stressed, however, that serious institutional and implementation issues need to be resolved. Lallement responded that the GVEP will finance projects in this area. Murray said hydropower should be considered on a case-by-case basis.

On cross-subsidies and collective funds, one speaker noted that while most presentations had highlighted their effective and important role in rural electrification, the trend in current energy sector reform is to discontinue subsidies. Mollon said privatization is advancing too quickly in some developing countries and supported long-term planning. Pachauri noted that subsidies are not always appropriately implemented and should be targeted to enable the development of poor communities.

PLENARY THREE: INNOVATIVE FINANCIAL INSTRUMENTS FOR PRIVATE SECTOR INVOLVEMENT IN RURAL ENERGY DEVELOPMENT

Vladimir Stehlik (GFSE, Austria) moderated the third Plenary, which involved two presentations and a discussion.

JI AND CDM MEDIATE PUBLIC-PRIVATE PARTNERSHIPS: Konrad Autengruber, VA Tech Hydro, described his company's activities and noted that, without hydropower, global carbon emissions from electricity generation would have been 28% higher in 1990 and be 51% higher in 2020. He provided an overview of worldwide hydropower potential, outlined possibilities for using joint implementation (JI) and the Clean Development Mechanism (CDM) as mechanisms for achieving Kyoto targets, and elaborated on a project structure for flexible instruments. In examining the risk-return analysis of renewables, he noted that despite high investment costs and a low internal rate of return, hydropower was a low risk option with a long infrastructure lifespan. He expanded on the benefits of small hydro projects and outlined three examples of hydropower to meet Kyoto targets that did not involve construction of new hydro plants.

THE FINANCING OF SUSTAINABLE ENERGY SUPPLY – INSTRUMENTS AND

EXPERIENCES OF KfW: Elke Hellstern, Kreditanstalt für Wiederaufbau (KfW), introduced KfW's options for financing sustainable energy, and described its involvement in concessionary financing, commercial financing, development of innovative financing instruments, and preliminary investigation and analysis of PPPs. She introduced several KfW-funded renewables projects and presented a matrix illustrating different financing strategies for distinct categories of renewables. She noted that KfW's activities focus on competitive and non-competitive grid-connected options, with limited activity in market competitive, off-grid renewables. In conclusion, she stressed the importance of smart subsidy schemes, Kyoto flexible mechanisms, strengthening strategic partnerships and improving legal and macroeconomic framework conditions.

DISCUSSION: Gustav Grob of the International Sustainable Energy Organization (ISEO) said world energy demand would grow by 2% annually between 2000-2050, and estimated a

5.2% average annual increase in renewable energy demand. He said the ISEO is a newly established network focusing on the renewable energy challenge and encouraged participants to visit the website at <http://www.uniseo.org>.

One speaker from the floor questioned the projected depletion of fossil fuels, noting that coal reserves are predicted to last longer than oil and sources of uranium areas are yet unexplored.

On the CDM and JI, another speaker noted the high transaction costs and said CDM might not be appropriate for smaller projects in rural areas. Hellstern noted that a decision on the use of ODA to support CDM projects is currently being considered in the OECD development assistance committee (DAC), and its outcome will determine the extent of CDM application. Autengruber highlighted the bundling of small projects as one solution.

PLENARY FOUR: MAKING IT WORK IN AFRICA

Moses Zama (Zambia) moderated the fourth Plenary, which involved four presentations and a discussion.

ENERGY FOR SUSTAINABLE DEVELOPMENT IN AFRICA - NEW DIRECTIONS AFTER

WSSD: Ogunlade Davidson, Energy and Development Research Centre, University of Cape Town, stressed the diversity of Africa. However he noted common trends in the continent, such as low energy connectivity and investment rates, rich energy resources, and reliance on natural energy systems vulnerable to global change.

He outlined problems in the African power, oil, gas and renewables sectors and stressed the need to "think bigger and move faster" and act on: widening access to cleaner fossil fuels and to renewables such as geothermal, hydropower and modern biomass; bringing modern energy sources to rural areas; mobilizing funding; and building capacity. He highlighted electricity as a human right and said it is a necessary but not sufficient condition for poverty eradication.

ENERGY FOR SUSTAINABLE DEVELOPMENT WITHIN THE NEW PARTNERSHIP FOR AFRICA'S DEVELOPMENT (NEPAD):

Yvette Stevens, UN Special Coordinator for Africa, underscored that many countries in Africa are receding rather than developing. She said NEPAD was launched to put Africa on a path of sustainable growth and development, and energy is a cross-cutting issue in this context. She outlined NEPAD energy activities: power system projects; gas/oil regional and sub-regional transmission projects; feasibility studies; capacity building projects including macro-level planning; and facilitation projects. She said NEPAD will assist governments to provide a conducive environment for PPPs. On rural energy development, she said all energy options need to be considered and said the link between rural energy and development should be reflected in Poverty Reduction Strategy Papers. She concluded by calling for action.

CONCESSION APPROACH FOR PRIVATE PARTICIPATION IN ELECTRICITY SUPPLY – A MOZAMBIQUE CASE STUDY:

Ralf Tobich, Emcon Consulting Group, presented a case study on the use of concessions for private participation in electricity supply within three district capitals in Mozambique. He provided a profile of the project environment, noting, inter alia, lack of investment incentives, poor customer service, poor coordination with local authorities, inadequate maintenance, non-adherence to contract provisions and high losses. He noted that the broad framework for concessions exists in the provinces and stated that the objective of the official rural electrification plan was to develop detailed instruments to enable implementation. He outlined characteristics of the concession approach and specified elements

of the concession contracts. In conclusion, he highlighted government commitment, stakeholder consultation, local community involvement, flexible mechanisms, definition of rights and obligations and effective monitoring as key ingredients for PPP success.

A NEW APPROACH TO PRIVATE-PUBLIC PARTNERSHIP: Youba Sakona, Africa Rural Energy Enterprise Development (AREED), demonstrated how energy services required throughout Africa could be delivered on a sustainable basis by small to medium-sized local enterprises. He highlighted AREED's project with five African countries, which provided entrepreneurs with services, start-up financing and clean energy technology. He noted that these projects de-link dependence on donor support, are enterprise-centered and driven by local markets. He concluded by stating that many possibilities and entrepreneurs exist and that they simply need to be identified and supported.

DISCUSSION: A speaker from the floor noted contradictions in the presentations between the affordability issue on the one hand and large-scale energy production systems requiring big investments and external funding on the other. Another speaker agreed, wondering whether rural electrification will be forgotten by the commercial drive. Davidson responded that the energy sector has to be considered at different scales. Stevens stressed the need for both large-scale energy production for industrial uses and small-scale energy for rural purposes. Tobich noted that while big projects have long lead times, small rural energy projects can be implemented quickly, and Sakona pointed out that the transaction costs of small-scale projects are low.

Another speaker called for attention to energy access in urban areas. Davison commented that electricity access actually has decreased in cities following power sector privatization.

PLENARY FIVE: ADVANCING IMPLEMENTATION OF THE ENERGY OUTCOMES OF WSSD

Irene Freudenschuss-Reichl (Austria) moderated the fifth Plenary, which consisted of five presentations and a discussion.

WEHAB-PROCESS ON ENERGY: Stephen Karekezi, African Energy Policy Research Network (AFREPREN), highlighted the emphasis placed on energy and poverty reduction through the WEHAB process. He outlined problems faced by rural people living in poverty and highlighted the role of energy in resolving these problems. In presenting the findings of WEHAB's energy component, he stressed the role of small and low-cost cleaner energy in improving living conditions, noting that these technologies were affordable, cash-based, low risk, easy to maintain and operate, environmentally sound, could be made locally, and provide a basis for transition to higher-cost technologies. He emphasized focusing on technologies costing less than \$300 to reach the poor and noted that establishing a sustainable small-scale cleaner energy industry would require little investment. In conclusion, he identified reasons why such technologies have not been widely disseminated and stated that their ideal entry point was small micro-credit institutions.

JOINT DECLARATION ON "THE WAY FORWARD ON RENEWABLE ENERGY": Thorbjørn Fangel, Danish Ministry of Environment, outlined the deliberations on setting a renewables target throughout the WSSD process. Fangel explained that following unsuccessful negotiations for a renewables target at the WSSD, target proponents expressed the need for a political signal, which led to the formulation of the EU-driven joint declaration on renewable energy. Countries supporting the declaration recognize the role of time-bound targets and

commit themselves to cooperation. He reported on follow-up activities to the declaration, which included recent informal consultations at UNFCCC COP-8 and in São Paulo. The São Paulo meeting, he noted, highlighted the role of the CSD in advancing discussions on renewables. He further reported that an international steering committee has been established to prepare for the World Conference on Renewables proposed by the German government at the WSSD, and announced that the Danish government had also recently voiced its intention to host a renewables conference.

THE BRAZILIAN ENERGY INITIATIVE: Jose Goldemberg, University of São Paulo, presented the Brazilian Energy Initiative (BEI) to increase the global share of renewable energy to 10% by 2010, adopted by the Latin America and the Caribbean region and proposed at the WSSD. He noted environmental and job generation arguments favoring renewable energy and highlighted links between the BEI and Kyoto Protocol implementation. He said that under the BEI, countries could reach the goal individually or jointly through the trading of renewable energy certificates, as the initiative recognizes that "one size does not fit all." He noted that the BEI would bring developing countries on board with regard to addressing climate change through promoting renewable energy, and stated that many developing countries would be in a position to sell renewable energy certificates.

RENEWABLE ENERGY AND ENERGY EFFICIENCY PARTNERSHIP - REEEP: Ama-Lee Amin, Environmental Policy Department, UK Foreign Office, discussed the REEEP, launched by the UK to forward WSSD commitments and the G8 Renewable Energy Task Force's objective to drive down costs of renewable energy to serve more people through a variety of technologies.

She said REEEP is still being developed, with likely focal activities to include: state-of-the-art policies for power sector reform; renewable energy for rural development; and innovative financing and market-based mechanisms. The initiative will be linked to other partnerships in the area, including those focusing on energy access for poverty reduction.

PROMOTION OF RENEWABLE ENERGY MARKETS IN THE MEDITERRANEAN: Highlighting this Italian Type II initiative, Andrea Marroni, Italian Ministry of Environment, said its objectives are to alleviate poverty by providing renewable energy services and to increase the share of renewables in the Mediterranean. He said the initiative builds on existing networks and partners with agencies such as UNEP and the International Energy Agency (IEA) and aims to promote: policy compatibility; capacity building; project management assistance; and increased investments. He said the initiative seeks to respond to regional needs in an environmentally sustainable and economically viable way, to harness the North-South cooperation potential in developing regional markets, and to develop options for valuation of renewable energy benefits.

DISCUSSION: Noting the benefits of renewable energy, one delegate questioned the resistance to a renewables target at the WSSD. Karekezi clarified that some African countries were resistant to the target because it excluded large-scale hydro. He further noted that these countries might not have realized that the target could have been reachable without including large-scale hydro. Fangel stated that the initial top-down EU approach was ineffective, and noted current efforts to engage different countries and regions in discussions on renewables.

Another participant stressed affordability of energy options, to which Goldemberg replied that renewables were not expensive in light of heavy subsidization of fossil fuels. He stressed leveling the playing field and noted instances, such as using photovoltaics (PV) in remote areas, where renewables were more affordable than conventional fuel sources.

PLENARY SIX: MAKING IT WORK IN ASIA

Susan McDade (UNDP) moderated the sixth Plenary, which heard four presentations and then engaged in a discussion.

MONGOLIAN RURAL ENERGY POLICY: Sarantuyaa Zandaryaa, UN University, gave an overview of the situation in Mongolia, noting that 45% of the population lives in rural areas and 30% are nomadic. She said energy access is limited, and highlighted government initiatives in the energy sector, including a sector strategy focusing on sustainability, access, affordability and conservation. On rural electrification, she noted high costs and poor service. She outlined the significant potential for solar and wind power as well as mini-hydropower, and presented a solar energy programme underway. She said renewable energy has the potential to improve the lives and welfare of the rural population.

BROKERING PARTNERSHIPS FOR A MARKET-BASED INITIATIVE ON INCOME GENERATION THROUGH GLOBAL RURAL RENEWABLE ENERGY DEVELOPMENT: Hubert Zimmer, Renewables for Development (RfD), presented his programme based in the EU and China, noting that it promotes tapping into the renewable energy potential of rural areas to produce income-generating activities. He said power production should be privately operated, and clients should pay for electricity to feel a sense of ownership. He stressed that the time has come to build micro-economies based on commercial renewable energy that promote poverty alleviation and climate change mitigation. He said political support, public awareness, financing and the technologies are the necessary elements, and invited participants to visit his website for more information at: <http://www.RforD.org>

PROMOTION OF RENEWABLE ENERGY THROUGH INNOVATIVE FINANCIAL MECHANISMS IN BANGLADESH: Dipal Barua, Grameen Shakti (GS), stated that GS was formed in response to the energy crisis in Bangladesh, where 70% of the population lacks access to electricity. Focusing on the non-profit's solar programmes, he explained that GS provides, inter alia, several financing options to solar home system (SHS) buyers, post-sales maintenance and training to local youth on installing and maintaining systems. He highlighted the socioeconomic impacts of the 10,000 SHS installed, including improved education due to provision of lighting, increased incomes from extended work hours, and burgeoning new businesses. He highlighted diverse examples of how rural populations have used the SHS, and also noted that GS has introduced communication facilities and micro-utilities to promote income generation. The next mission, he reported, is the establishment of village Internet centers.

DEVELOPMENT OF RE-MASTER PLAN FOR BHUTAN: Tamang Bharat, Bhutan's Ministry of Trade and Industry, provided baseline information on Bhutan's energy sector and noted that the nation's five-year development plans had identified rural electrification (RE) as a priority theme. With a mission to provide electricity for all by 2020, the RE-Master Plan also aims to reduce dependence on fuel imports, alleviate poverty and incorporate social, economic, financial and environmental aspects of rural development needs. Bharat outlined technology options and research components of the Plan and stated that its expected date of implementation is 2007. He identified funding mobilization as the main challenge and highlighted several potential areas for cooperation, including assistance in transfer of appropriate technologies and in establishing appropriate institutional frameworks and efficient management models.

DISCUSSION: On the concrete benefits of renewable energy, particularly of PV, Bharat said children are doing better in school because they have more time to study, women have a chance to weave after sunset, and as incomes improve more appliances, such as rice cookers, are being purchased. Barua noted health benefits related to new cooking methods. Zimmer said PV provides light, but no productive value-added.

One speaker noted the importance of linking energy and micro-credit schemes, and said formal and large-scale energy companies will have to set up finance corporations to serve and create their markets. On reaching the poorest of the poor, Barua said credit schemes should be set up with energy as the instrument for income generation.

PLENARY SEVEN: REGIONAL INITIATIVES

Ambassador Mulumba Semakula Kiwanuka (Uganda) moderated the seventh Plenary, which heard four presentations and then engaged in a discussion.

PROMOTING SUSTAINABLE RE SYSTEMS IN THE CARIBBEAN ISLANDS – STATING

THE PROBLEM: Tom Roper, Climate Institute, noted that small island States produce little greenhouse gas, but are highly vulnerable to climate change. He said they currently depend on high-cost imported fossil fuels, but are suited for renewable energy. On barriers to renewable energy, he noted high upfront costs and a lack of government commitment and capacity. He highlighted a Sustainable Energy Plan set up in St. Lucia, noting that implementation will include facilitating private sector investment and access to financing, project development assistance, capacity building and awareness raising. He noted his institute's Global Sustainable Energy Islands initiative, and said that for renewable energy to be successful, communities must see its environmental, social and economic value. He said when small island States take a leadership role, developed countries will have no excuse for not developing their use of renewable energy.

A NATIONAL RESPONSE – DOMINICA: Ambassador Crispin Gregoire, Dominica, described the circumstances in the island State, which relies on diesel and hydropower. He highlighted the new Sustainable Energy Initiative, a part of the national integrated development plan, which aims to provide reliable, affordable electricity for all, secure the energy supply domestically and promote income through exporting energy. He said government and public support is high. He outlined the vision of Dominica as the "Nature Island of the Caribbean," with 100% renewable energy, eco-tourism, organic agriculture and environmentally-friendly industry.

PROMOTING SUSTAINABLE ENERGY IN THE PACIFIC: Atul Raturi, Papua New Guinea (PNG) University of Technology, highlighted the diversity of the Pacific Islands with regard to their population size, density, land area, access to electricity and potential for renewable energy sources. He noted the success of PV in Kiribati, where systems are managed by a utility providing reliable and cost-effective service. He reported that biomass constitutes almost half the energy used in the Pacific Islands and highlighted the use of coconut oil as a diesel substitute. He stated that Niue would be the first exclusively wind-powered country in the world in several years. Raturi then outlined different management models for rural electrification used and suggested establishing utilities in the larger countries. In conclusion, he stated that rural electrification technologies are the only option for providing electricity to the majority of people living in remote areas in the Pacific.

IMPLEMENTING JOHANNESBURG – PPPs TO TRANSFORM SMALL ISLAND

DEVELOPING STATES INTO "RENEWABLE" ECONOMIES: Ambassador Vinci Clodumar, Nauru, provided background information on Nauru's geography and its history of economic development. He stated that following development of its phosphate industry, the entire country was electrified, economically robust and heavily dependent on fossil fuels. Discovery of heavy metals in the phosphate caused a decline in the industry, and Nauru's economic situation changed, such that the government could no longer afford the \$13 million fuel bill. He urged partnerships to provide assistance and develop alternative fuel sources.

Ambassador Enele Sopoaga, Tuvalu, urged delegates to recognize the Pacific Islands for their commitment to addressing vulnerability and poverty. He stressed the linkage between energy and climate change, and the need to address affordability, build capacity and improve management systems. He expressed Tuvalu's support for initiatives on renewables and urged proper management and mainstreaming of the dialogue process to avoid duplication and ensure political support.

DISCUSSION: In the ensuing discussion, one speaker stressed the need to guarantee a reliable energy supply when shifting to renewable energy, not least for the sake of tourism. He supported focusing on energy efficiency and combined heat and power systems in cases where a processing industry exists. Roper underscored the need to take a broad view when considering an appropriate energy mix. Another speaker stressed the role of government in implementation.

Thomas Kraneis, Lahmeyer International, provided an overview of projected growth in renewable energy, focusing on wind power, which he noted will create over one million jobs in 20 years.

PLENARY EIGHT: THE ROLE OF OPERATIONAL INTERNATIONAL ORGANIZATIONS AND FUNDING AGENCIES FOR RURAL ENERGY DEVELOPMENT

Genevieve Verbrugge (France) moderated the eighth Plenary, which heard five presentations and then engaged in a discussion.

UNIDO'S APPROACH TO INCOME GENERATION IN THE CONTEXT OF RENEWABLE

ENERGY PROVISION: Cahit Gürkök, UNIDO Energy Programme, spoke on PPPs for rural energy development. He noted that traditional use of biomass restrains economic and social development and often leads to land degradation and deforestation. He said access to and rational use of energy, as well as climate change considerations, are the main elements of UNIDO's Energy Programme. He outlined the Programme's approach to rural energy project design and implementation as comprising: capacity building to include local participation; technology transfer for local assembly and manufacture of energy equipment; and productive end-use of energy. He highlighted UNIDO projects on the ground, including mini-hydro projects.

PRODUCTIVE USES OF RENEWABLE ENERGY FOSTER PUBLIC-PRIVATE

CONVERGENCE: Gustavo Best, FAO Sustainable Development Department, examined the convergence of the agriculture and energy sectors with regard to energy for agricultural and other productive uses and agriculture as a source of biomass energy. He highlighted several examples of small-scale agricultural appliances operated by renewable energy. Outlining applications of renewables for the cottage industry and commercial sector, he noted that renewable energy for cooking lags behind. Identifying barriers to public-private convergence,

he noted a lack of: intersectoral communication between energy providers and agriculture; clear policy; and financial resources. As benefits, he mentioned: new employment; health benefits; halted rural emigration; carbon substitution; cleaner and sustainable transport and industry; new market development; and better infrastructure.

THE LP GAS RURAL ENERGY CHALLENGE – FUELING SUSTAINABLE DEVELOPMENT:

Susan McDade, UNDP Sustainable Energy Programme Team, presented the "LPG Challenge," a partnership aimed at providing heat for productive uses. She outlined the methodology and future steps of the programme, noting that over two billion people cook with traditional fuels. Lack of access to energy, she stated, affects women and girls disproportionately with respect to health, literacy, fertility, safety and future economic participation. Recalling that governments at the WSSD committed to transition to cleaner liquid and gaseous fossil fuels, McDade stated that liquefied petroleum gas (LPG), which she described as a clean-burning modern energy source, was readily available and has demonstrated health and environmental benefits over conventional fuels. She highlighted its potential for productive uses and debunked the myth that the poor are unable to pay for fuel. She stated that they often do pay and noted the opportunity costs of fuel collection.

GTZ'S EXPERIENCES ON ENERGY FOR RURAL DEVELOPMENT: Bernhard Bösl, German Agency for Technical Cooperation (GTZ), stressed his government's commitment to renewable energy and energy efficiency. Highlighting the objectives of German development cooperation as well as concrete activities, he noted six strategy areas related to energy: policy advice on sustainable design of the energy sector; renewable sources for grid-based electricity; renewable energy sources for improved rural energy services; efficiency and conservation; technical assistance to electric utilities; and measures to implement the UN Framework Convention on Climate Change (UNFCCC). On rural energy projects, he said GTZ seeks to assist with advice regarding legislation, policy and taxation, design of market-oriented dissemination strategies and financing mechanisms, adaptation of quality standards and control procedures, and capacity-building and public sensitization.

BASE'S CONTRIBUTION TO RURAL ENERGY DEVELOPMENT: Virginia Sonntag-O'Brien, Basel Agency for Sustainable Energy (BASE), said BASE aims at building partnerships to finance sustainable energy projects. A UNEP collaborating center, it acts to build a community of entrepreneurs and financiers for sustainable energy and to serve as an information clearing-house and broker to facilitate project finance in this area. She highlighted a recent publication compiling investors in sustainable energy and two upcoming BASE Investment Forums, planned for the spring of 2003. On BASE support for development of rural energy, she said it can: build a pool of energy projects to offer investors; help entrepreneurs get their projects ready for investors; and build links between public and private funders.

DISCUSSION: One participant emphasized, and panelists supported, South-South cooperation in technology transfer. Gürkök highlighted potential for such cooperation through existing and transferable technology such as mini and micro hydro. Some delegates raised concerns that LPG was not a renewable fuel. Best noted that LPG is a transitional fuel, and McDade highlighted the cost of traditional fuels in terms of health and greenhouse gas impacts. One participant remarked on the lack of access to electricity in urban areas, and one developing country participant inquired on plans being considered for African countries. Bösl stated that GTZ develops tailor-made plans in collaboration with its partners, and McDade suggested that developing countries include an energy feature in their development plans linked to their PRSP. Best stated that FAO can offer policy development, but stressed the need for data, policy direction and political will. Ambassador Sopoaga inquired on the feasibility of

wave or tidal technology and several panelists explained that this technology was not yet cutting edge or easily transferable.

CONCLUDING PANEL - THE WAY FORWARD AFTER JOHANNESBURG

Thomas Johansson, International Institute for Industrial Environmental Economics, Lund University, chaired the concluding panel held on Friday, 29 November, on the next steps for the world energy community and the GFSE.

PANELISTS' COMMENTS: Steven Karekezi highlighted the issue of energy and rural transport, which he said had not been addressed during the meeting. He noted that transport is important for moving products to markets and creating rural enterprises. On partnerships, he supported bringing together micro-credit institutions, small enterprises and small-scale technology agencies, providing an alternative vision for developing countries.

Irene Freudenschuss-Reichl stressed the WSSD mandate to focus on implementation, which she said will take place at the regional, national and local levels. She challenged participants to consider whether international collaboration in the UN context has to be restructured to deliver. She proposed showcasing local and regional endeavors at the CSD, and building discussions around such examples. On Type II energy partnerships, she suggested a mechanism for exchange of information to harmonize and avoid overlaps. She mentioned the idea supported by a number of participants that GFSE could carry out analytical work in this regard. On issues emerging from GFSE-3 to be further pursued, she mentioned: subsidies; re-regulation of the energy market; small-scale enterprise and micro-finance; and urban energy use. She noted the role of the GFSE as a bridge between negotiators in UN forums and people in project and programme work. She raised the question as to whether a regional preparatory meeting could be useful.

On why large energy companies – with competencies and resources to make a difference – are sidestepping rural populations, Graham Baxter noted profit pressure and an unfavorable global economic situation. On reasons to get involved, he noted corporate responsibility issues and said rural areas offer a potential future market to grow into. He stressed risk sharing, saying business will take some of the risk, but noted that partners need to make rural markets attractive in the short term. He noted the role of subsidies and the need for security with regard to good governance, project delivery and financial return.

Jose Goldemberg said he was "shocked" that many at the meeting had not grasped the message of the WSSD and only paid lip service to sustainability. He stressed the idea of leap-frogging, noting that developing countries need not repeat the mistakes of the developed world. He said renewables cannot be dismissed as too expensive, noting high future costs if things are not done right. He said renewable energy seems expensive because of current fossil fuel subsidies, and noted that renewables bring about benefits in the form of job generation. He supported targets and timetables because they influence the development of projects, especially at the national level.

Alfredo Alonso, Cuba's Center for Management of Priority Projects and Programmes, recommended that the GFSE move beyond discussions on electricity in its considerations of sustainable energy development. He proposed focusing future GFSE presentations and discussions on: small scale technologies for rural development; success stories in developing countries; UN agencies' project outputs; and policy planning for strategic development. Rather than focusing on household electrification, Alonso underscored developing community services

such as electrifying rural schools, hospitals and developing communal communications centers.

DISCUSSION: Several participants highlighted the role of partnerships in promoting sustainable energy development and noted the need for a framework to maximize synergies and ensure that partnerships are complementary. Suggestions that discussions be furthered at the CSD and through the GFSE were put forth. Many participants noted the divide between developed and developing countries with respect to levels of greenhouse gas emissions. Some noted that developed countries do not have the right to impede development of developing countries, and one developing country participant emphasized that people living in desperate conditions have no choice but to exploit available resources, including fossil fuels. One delegate stressed the need to look at renewable energy and energy efficiency in tandem. He highlighted the scope for biomass energy from waste in the rural sector, including using rice husks and coconut shells.

A delegate from the UNFCCC stressed consideration of the needs of countries with economies in transition and noted the Convention's technology database located at <http://www.unfccc.int>. One participant highlighted the role of micro-credit institutions in poverty alleviation and another urged consideration of externalities when quantifying benefits of potential energy options. A delegate from Africa described this forum as a unique opportunity for learning and networking, while another recommended more discussions on policies and strategies. Recommendations for advancing the work of the GFSE included furthering work on partnerships in the intersessional period, convening regional workshops in Africa and Latin America, and organizing a side event at UNFCCC meetings. Several participants also called for examples and case studies at GFSE of good government policies promoting: sustainable energy; energy efficiency; poverty reduction; and a conducive framework for the private sector.

In conclusion, Baxter stressed the need for a robust project environment in order for the private sector to get involved in rural energy development. Karekezi said that, recognizing the desperate situation in Africa, it makes sense to focus on small-scale inexpensive sustainable energy projects that address poverty, create jobs and can be locally manufactured. He stressed that recipient Parties have to be active in defining their needs and preferences for energy technology.

Panel Chair Johansson thanked GFSE-3 participants and organizers, and GFSE Convenor Freudenschuss-Reichl closed the meeting at 1:15 pm.

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