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Renewable Energy

Small Island States, the CDM and Carbon Finance

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SPEAKER AFTER SPEAKER AT THE JANUARY MAURITIUS CONFERENCE HIGHLIGHTED THE DANGERS OF CLIMATE CHANGE TO SMALL ISLAND DEVELOPING STATES (SIDS). Despite contributing a miniscule proportion of the world's greenhouse gas emissions they are the most vulnerable, in some cases facing threats to their very existence. Most are ill equipped to deal with their existing energy and environmental problems[1], let alone confront the climate challenges of the next century. Nevertheless the Alliance of Small Island States (AOSIS) understands that its members "*can, by promoting a clean energy environment, set an example for the rest of the world*" – former AOSIS Chair Ambassador Neroni Slade.

From the beginning of the climate change negotiations AOSIS has been outspoken in its demand that developed nations reduce their own emissions and fund adaptation programmes and, while initially wary of emissions trading, AOSIS members have been ardent advocates for arrangements that would enable them to take part in the CDM.

Most SIDS are specially suited to utilize combinations of modern renewable energy options and it would seem that this, together with energy efficiency and the CDM would be a slam dunk for SIDS. What then is happening? The answer for most is very little.

THE 2004 WORLD BANK CARBON DEVELOPMENT FUND ANNUAL REPORT SAID:

"*Despite the steady growth of the carbon market over the last three years, four countries (India, Brazil, Chile and Indonesia) today represent two-thirds of the supply of greenhouse gas emission reductions in terms of volume…leaving the Least Developed Countries and Africa essentially bypassed, raising concerns about the long-term distribution of the benefits of the CDM*".

This trend is mirrored elsewhere:

- The Banks' own funds have, with few exceptions, been invested in exactly the same way, and in the countries with 'Economies in Transition';
- The first registered CDM project was in Brazil. Of the next eight, none are from the SIDS, the other LDC's or Africa; of those more recently submitted and currently being considered, only very few are from these groups of countries;
- In CBNet's own Bazaar none are from SIDS – though 6 are African;
- Of the 126 projects in the 'pipeline' list maintained by the UNEP/RISO Centre only three are from SIDS – Jamaica, Fiji and Papua New Guinea (a gold mine project);
- The rapidly growing EU trading scheme allows CDM and JI involvement but is going a similar way, as are the schemes promoted by the Netherlands, Belgium and Austria;
- Not surprisingly a New Zealand JI project, benefiting from the country's triple A rating, is preferred to a project in a Pacific neighbour - Tuvalu, Kiribati or the world's smallest nation, Niue;
- The two initial 'gold standard' projects are in New Zealand and South Africa.

There are now a significant number of carbon funds and programmes – 24 according to 'Carbon Market Update' (multinational financial institutions; government/local institutions; private funds; equity investors; VER buyers; and support programmes) totaling over $2 billion in the funds alone. Hopefully the fund managers will consider a wider geographical distribution than the above trend shows.

Why does this comparative lack of opportunity for the SIDS to take part in carbon trading exist and what can be done to overcome their difficulties? Among the barriers are the:

- Lack of government and utilities' commitment;
- Small size of the utilities;

- Few personnel with the technical competence and experience to plan, develop and maintain facilities;
- Lack of successful projects which can be 'seen and touched';
- Often high up front cost and scarcity of finance;
- Most SIDS depend on diesel and have no experienced experts on renewable energy or access to resource assessments[2].

A lot of effort is being invested in developing regional and national energy policies but they often lack the full backing of Governments and utilities. When the Climate Institute was first asked for assistance by St. Lucia we requested the Cabinet to commit itself to action that it did, immediately reducing duties on renewable energy imports. Subsequently, after consultation with key groups, a national energy plan and implementation arrangements were agreed. Unfortunately, although its officials were supportive, the privatized utility board (LUCELEC) refused to take forward a Canadian investor's 13.5MW wind farm proposal, which may have actually reduced the cost to consumers. With Government patience and a change of management, renewable projects are now slowly proceeding.

Utilities are also small – the 24 members of the Pacific Power Association (PPA) have a combined maximum peak demand of 905MW, less than many individual western and Japanese plants. Half have 15MW or less. In the Caribbean, St. Lucia has 64MW, DOMLEC (Dominica) 24. Not surprisingly there is a corresponding lack of skilled personnel with knowledge of renewables or energy efficiency possibilities. During a 2002 training course in St. Lucia run by the Climate Institute it became clear that a number of the engineers had no knowledge of how solar and wind energy worked and how their systems could use either, or other technologies. Few have seen successful applications of renewable energy technologies and most aid related projects fail[3].

Even where policies have been developed, thorough resource assessments (as under the SWERA programme) haven't been carried out. Some years ago a donor was keen on wind power for the Pacific without remembering that Magellan gave the ocean its name because for much of it there was very little wind. All options need to be investigated – solar, wind, hydro, geothermal, biomass, and wave/ocean. Equally challenging is encouraging energy system improvements and consumer efficiency – the cheapest kilowatt is the one not generated and not used.

Finally, diesel units are cheap to purchase, well known but expensive to run and renewables' high up front costs are compounded by lack of capital, small investment size and perceived country risks.

Nevertheless, progress is possible and a number of SIDS are pressing forward and could be assisted through access to carbon funds. For example, the Republic of the Marshall Islands (RMI) has adopted a very practical 'National Energy Policy Vision' to firstly electrify its outer islands and secondly reduce the capital, Majuro's, dependence on expensive imported diesel. Lessons have been learnt from the numerous failed schemes in the Pacific and the utility that has been given responsibility will consult with each community, provide maintenance and collect revenue.

FOLLOWING THE INITIAL WORK OF THE CLIMATE INSTITUTE IN THE CARIBBEAN, FIVE ORGANIZATIONS HAVE COME TOGETHER TO FORM THE GLOBAL SUSTAINABLE ENERGY ISLANDS INITIATIVE (GSEII)[4] that is currently working with St. Lucia, Dominica and Grenada and has twenty local projects under way or under development. The UNF has also provided funds for one of the partners to undertake a preliminary examination of the use of biomass (coconut oil) for electricity generation and transport. The GEF has funded OAS, another partner, to investigate geothermal prospects in Dominica, St. Lucia and St. Kitts and Nevis. Barbados, with strong Government support, has installed more than 30,000 solar hot water systems – the world's highest penetration.

Electicite de France on the French Territory of Guadeloupe provides the most comprehensive programme; 25% of their energy now comes from 8 different technologies including geothermal, wind, solar, biomass and hydropower. Efficient use of energy also plays a significant role – 350,000 subsidized energy efficient lamps cut 7MW from peak demand (bigger than some whole Pacific systems).

An Energy Service Company (ESCO), Solar Dynamics, based in Trinidad and Tobago has already had projects in a number of Caribbean countries and demonstrates what might be possible in individual or groups of SIDS.

IT'S THEREFORE POSSIBLE FOR THE FORTY PLUS SIDS TO TAKE ADVANTAGE OF THE CDM'S SMALL-SCALE PROJECT (UP TO 15MW) RULES with their 'simplified' modalities and procedures (for project design, baseline determination and monitoring, environmental impacts) and the opportunity to bundle projects and lower fees.

The key requirements are:

- Receptive SIDS governments and international support;
- Most SIDS must start by developing a national renewable and energy plan based on a realistic assessment of current facilities and options for renewable and efficiency projects and, while these are being prepared, any opportunities for moving forward should be grasped;
- Operational arrangements must be developed, particularly the setting up of 'designated national authorities' for the CDM; to date less than a quarter of SIDS have done so.

Of equal importance will be international assistance to build capacity and help assess opportunities. Crucial here will be the availability of targeted ODA from individual and multinational donors. For instance, a trust fund contribution from an individual country such as Australia through the World Bank could help identify and plan projects in Tuvalu, or the Solomon Islands and be backed by the likelihood of support from the Bank, the IFC or a Carbon Fund.

However, there is still a risk of being ignored or forgotten as demonstrated by reference to several major CDM programmes that have omitted inclusion of SIDS:

- Asian Development Bank's CDM facility and 'Asia Least cost GHG Abatement Strategy Program';
- UNEP's CD4CDM – capacity development for the CDM;
- Japan's "Future CDM" project launched in 2004, now in its second phase;
- Japan Carbon Finance's MOU with India's TERI to develop CDM projects in South Asia;
- Many other developing countries have been approached by and signed MoU's with Annex 1 partners.

At the Johannesburg WSSD the EU announced a 250m Euro Energy Fund which will be of particular assistance to LDC's, Africa and SIDS but there have unfortunately been delays and the first grants are unlikely before 2007. The most effective action that the EU should take in the next 18 months would be to provide resources for planning, training and project development so that immediate benefits can flow from its major and welcome initiative.

TRAINING ABOUT THE CDM AND ITS POSSIBILITIES WILL BE AS ESSENTIAL AS TRAINING ABOUT RENEWABLE ENERGY ITSELF. For example, with financial assistance from the US Department of Interior, the E7, together with the Pacific Power Association, has just conducted a successful first course on renewables for Northern Pacific Island utility engineers who now understand the engineering concepts and the relationship of renewable energy to their existing systems. Funds for the South Pacific engineers' course have so far not been found.

What is lacking and compounds the challenges already mentioned is the availability of courses/workshops targeted at the special needs of SIDS[5] although existing courses can be adapted to meet the special requirements of small systems and explore the idea of bundling projects. It is only through either the international agencies or NGO initiatives such as the GSEII that well designed training can be organized; we would recommend government, utility and private sector participation.

BECAUSE SIDS UTILITIES ARE SMALL, EVEN TINY, CDM PROJECTS WILL BE EVEN SMALLER. An IT Power report, although mentioning that transaction costs of bundled projects may be higher, has pointed to reducing the impact of those costs, lowering risks and making small scale projects more financially viable, for example bundling could be across projects, countries or even groups of countries although a key issue will be keeping the baseline studies simple. One technology combination of solar and hydro was suggested.

IT Power recommends that the number of financiers, whether grant and/or commercial should be kept small. They argue, "*in the short term capacity building will be necessary to initiate and support local organizations in bundling small scale projects and coordinate, train and support local project developers*."

This is similar advice to that given in a recent CDM Investment Newsletter that also recommended bundling smaller energy efficiency projects. The authors however suggested the same geographic area/country but it may well be that a group of smaller Caribbean neighbours could be combined. A pre-condition will be for the SIDS to discover energy efficiency and encourage a single institution such as an ESCO or donor to become involved. We are currently working with a British non-profit agency that so far has provided energy efficient lamps to two SIDS and is working with two more.

Carbon funding won't save a bad project but can make a marginal or better proposal more viable, particularly by adding additional financial flows and mitigating country, currency and transfer risk.

Deals are possible, as the recent sale of CER's by the Australian company Pacific Hydro and the Fiji Electric Authority through ABN AMRO to UK's Accord Energy (2 hydro projects) demonstrates. Also, Papua New Guinea has engaged a local merchant bank, Pacific Capital Limited, to negotiate the sale of potential carbon credits.

Another option may be to use the national energy planning process and project ideas in the GSEII's Caribbean partners and the Marshalls and develop four individual CDM projects; for example, the Marshalls outer islands solar electrification project involves about 1,700 households and an estimated US$8m investment.

What is certain is that, unless special measures are taken, the CDM will have sailed by with few, if any, SIDS on board.

[1] Environmental, social and economic drivers come together as SIDS struggle with expensive, and sometimes unreliable, fossil fuel energy sources. Costs per kWh are often four or more times higher than an American or European pays – US25 to 35 cents per kWh. 70% of Pacific Island residents don't have access to electricity, making do with kerosene, candles and batteries.

[2] UNEP's comprehensive 'Solar and Wind Energy Resource Assessment' (SWERA) of 13 countries included only one island nation, Cuba.

[3] In Barbados there is a magnificent looking wind turbine built by a donor with no agreement with the utility for its operation – it stands there silent with its electrical equipment stripped.

[4] UNIDO is also now a partner with funds from the Rockefeller Brothers Fund and the United Nations Foundation (UNF) and others

[5] The EU's SYNERGY project conducted a number of seminars to build capacity in Sahel and Sub-Saharan countries and envisages taking 3 specific cases to the feasibility study stage. A summary can be found in ADB Finesse Africa's November 2004 edition as can an account of an African Development Bank programme on renewable energy for bank staff. Also, The e7 has published a 'how to guide' and, with UN DESA in September last year, conducted two workshops in Nicaragua and Ecuador on the CDM and power sector development.