Blue Economy and Renewable Energy in SIDS

SIDS' Leadership in Renewable Energy Policy and the Capacity Challenge

Nicholas Watts MSc DPhil FRSA

20th REFORM Group Meeting, Salzburg August 31-September 4 2015, One the Way to COP 21 in Paris. Climate Protection Policy, Carbon Markets and Sustainability

Current activities

UN ‘Sharp End’ partnership, Education in Small States Research Group, Graduate School of Education Centre for Comparative and International Research in Education (CIRE)

Environmental Policy Research Centre (FFU) Freie Universität Berlin

Convenor, Caribbean Studies Association (CSA) Environment and Sustainability Strand (E&S) (2016 in Haiti)

Education Adviser and Trustee, Coordinator of Fisheries Programme, Commonwealth Human Ecology Council

Side event coordinator, SIDS Samoa conference, September 2014
CHOGM Blue Economy workshop, Malta November 2014

Speaking to the COW (October 2014)

The blue economy

- Sustainability principles based on the green economy as applicable to SIDS and coastal communities

- The marine environment as a source of food and livelihoods, tourism, renewable energy, hydrocarbon and mineral resources, medium of trade through shipping

- Recommendations regarding financing, policy integration, enhanced governance mechanisms for governance of the high seas, research assessment and data sharing, cooperation including civil society, an integrated ecosystem approach including valuation of blue capital

- Focus on integrated approach to SDGs 4 (Education), 7 (Energy), 14 (Oceans) and 13 (Climate Change) and data for SDGs

Small States and RE

- Vulnerabilities predispose SIDS to RE:

"With limited resources, small states face many challenges:

- dependence on a narrow range of exports
- high transportation costs due to insularity and remoteness
- dependence on strategic imports such as food and fuel
- susceptibility to natural disasters and environmental change
- decline in global trade and investment
- lack of readily available information for investors and trading partners
- limited capacity to harness growth opportunities.

Some larger countries - Botswana, Jamaica, Lesotho, Namibia and Papua New Guinea - are classified as small states as they share similar characteristics.
- See more at: http://thecommonwealth.org/our-work/small-states?page=1#sthash.Ig7FcBVS.dpuf" Commonwealth Secretariat

‘A Commonwealth for the Blue Economy’

‘Blue Skills’

Big ocean states: sustainable exploitation of marine resources for sustainable livelihoods

Threats to sustainability: warming, acidification, overfishing,pollution, stocks migrate, coral bleaches

Opportunities: (eco) tourism, sustainable livelihoods, seabed minerals, renewable energy

Seychelles at UN SIDS Side Event

(HE Jean Paul Adam, Minister of Finance Trade and the Blue Economy)

We see the **blue economy concept as an opportunity to flip the oceans from a space for extraction to a space for development**. We look at land-based development and we often speak about land-use plans. Very few countries actually have marine spatial planning or, looking at it another way, development plans based on the ocean. This is what Seychelles wants to do and we are working with a few partners.

Renewable energy is very important for SIDS, but in a small country like Seychelles one of the big challenges is that although there is **plenty of sun and wind, there is nowhere to put wind turbines or solar panels**. Many feasibility studies have shown that the best place for wind turbines in Seychelles is offshore, but there is then the issue of how to get energy from the turbine to the shore at an affordable cost.

However, there are many **emerging technologies that focus on energy from the ocean that are well worth exploring**, including energy from differential temperatures in the ocean; wave and tidal energy; and the use of deep ocean temperature for air conditioning. Existing prototypes are not yet commercially applicable but it is important to begin planning in this direction.

One marine resource that is relatively untapped in Seychelles is **seagrass**. We believe there is a large potential for seagrass as a resource. One example would be seaweed: as a food resource, but in certain cases as an energy resource, and also it can be used for other applications in agriculture.

By way of conclusion, the **climate change** issue is obviously an existential one for island states. The oceans are a source of risk in terms of climate change because of the acidification that comes from carbon absorption, but there are increasing opportunities to mitigate or adapt better to climate change in relation to global solutions. In the particular context of Seychelles, one innovation that we have been proposing is what is called **'debt for adaptation swaps'**, which essentially involves agreeing certain areas that can be designated as marine protected areas, having a value allocated for that area, and getting trust funds set up that allow us to have debt forgiveness from countries that are our creditors. This would give us the policy space to be able to implement other climate change projects using our own funds.

Why engage with the Commonwealth?

- The Commonwealth **has a heart** (as well as a soul)
- The Commonwealth **speaks for SIDS** and small countries (31 of the 53 Commonwealth Member States, not counting Territories/OTs)
- The Commonwealth is **not uncritical of the regime of IFIs**
- The word “Commonwealth” still inspires affection and respect, and opens doors in Member States: **access to senior figures**
- The intergovernmental Commonwealth or the Commonwealth of the peoples, including OTs?
- The Commonwealth is **at a critical juncture and needs a theme** to re-establish a global profile - such as the blue economy

SE4ALL Recommendations

1. **Access to affordable and reliable energy services** is crucial to the success of the post-2015 development framework. Shifting to more sustainable and efficient energy systems globally is also crucial for tackling climate change – the most serious threat to future poverty eradication.

2. The **dual focus of the Sustainable Energy for AlL (SE4ALL)** initiative – **promoting universal energy access and a shift to low or zero carbon energy production globally** – should be supported. SE4ALL could form the basis of a standalone energy goal. The broad development impacts of energy poverty also make integrating energy targets and indicators in other goal areas crucial

3. Any energy goal requires a **meaningful and holistic definition of 'access'** that can capture development outcomes **including gender equality**. This requires a **'total energy access' approach**, rather than one that merely measures grid connection. The **package of energy and cooking services** included in Tier three of the SE4ALL Global Tracking Framework should be the **baseline for measuring access**. Concrete targets and indicators are also needed to address the gendered aspects of energy poverty.

4. Increased **financial, political and technical support for decentralised, low or zero carbon technologies** is critical. Financing energy services for the poorest also requires a combination of innovative public private partnerships, along with social enterprise initiatives and national government investment.

5. More finance and technological solutions alone will not guarantee success: a **'bottom up', participatory approach** to designing and delivering services is also crucial. The post-2015 framework must also recognise the role played by the public sector and civil society in delivering energy to the poorest.

6. The current SE4ALL **targets on renewables and efficiency must be increased** to incentivise sufficient action by 2030 to prevent dangerous climate change. This requires greater investment plus removal of incentives for fossil fuel production and consumption, with adequate protection for poor and vulnerable groups. **Poorer countries must also have the means of implementation** to incentivise adoption of low or zero carbon energy systems

SIDS ACCELERATED MODALITIES OF ACTION

(S.A.M.O.A. Pathway)

Outcome of the the Third International Conference on Small Island Developing States (SIDS Conference),
1-4 September 2014, Samoa

Sustainable Energy

25. Energy dependence is a major source of economic vulnerability for many SIDS and has been a key challenge for many decades. At the same time, though SIDS are often considered resource poor, **one source of wealth lies in their renewable energy resources**.

26. The three overall objectives of the Secretary-General's "Sustainable Energy for All" initiative (securing **access** to modern energy services, increasing **energy efficiency**, and **scaling up the use of renewable energy** in energy systems) can provide a useful framework in this regard.

27. We will work to

a) **Scale up financial suppor**t and investments as well as **technological transfer** and **capacity building** to develop and implement national, regional and inter-regional **energy roadmaps, policies, plans and strategies**, [i.e. MLG: is this policy ‘ask’ too much for small states?] including the expansion of renewable energy.

b) Develop a strategy and targeted measures to **promote marine renewable energy** as well as wind, solar and geothermal energy in SIDS.

c) Develop a **financing mechanism** to support the implementation of renewable energy projects in SIDS.

d) Encourage bold and **ambitious renewable energy targets** for the next decade, recognizing that **SIDS' leadership** could contribute to shaping the post-2015 development agenda in this area.

e) Enhance **regional and inter-regional SIDS-SIDS cooperation for research** and technological development and implementation of appropriate renewable energy and energy efficient and environmentally-sound technologies.

f) Provide **technical studies on grid stability and innovative storage mechanisms**.

SIDS SAMOA -
IRENA Ren-E Forum Statements

- Wu Hong Bo “SIDS not realised potential, decent jobs and opportunities for local industries, strengthening local economies”

- Adnan Amin : “IRENA: Global Energy Information Network, Roadmaps, Grid stability studies Samoa, Cook Islands, leadership from SIDS incl Samoa concrete and results-oriented”

- Baron Waqa, President Nauru: “50% electricity from RE by 2020 (currently 5%), CC ‘greatest moral challenge of all time’, 26% national budget spent on imported fossil fuel, IRENA roadmap central to SD strategy, need financial capacity for up-front cost, technical capacity, hope in Green Climate Fund”

- Henry Puna, PM Cook Islands “need clear vision, political will, 8PV power plants by April 2015 = 50% conversion; 22 licences to private sector producers, strong NZ support + SIDSDOCK + EU’”

- HE Lord Tu’ivakano, PM Tonga “SIDS have roadmap sometimes but don’t know how to go forth, so took out of Ministry of Energy into PM’s office, have waves, sun, wind, NZ govt established 1MW in Tonga (= 4% electricity), Japan setting up 1MW, $50M access to funds from UAE to set up 500KW in one of Northern islands…866MW clean energy=226000 L diesel/year, avoid 734 tonnes CO2 emissions…scattered fishing community dependent on bringing fish to main island, ice-making from diesel a problem, solar a good solution”

Caribbean	Population (millions)	RE supply in PJ (% of total primary energy supply)	Policy commitments
Anguilla (UK)	0.02		
Antigua and Barbuda*	0.09	0.0 (0.0%)	No information available (n/a)
Aruba (NL)	0.10		
Bahamas*	0.35	0.3 (1.0%)	No information available (n/a)
Barbados*	0.27	1.6 (7.5%)	Electricity:30% RE by 2012;energy use 10% RE by 2012, 20% by 2026. Targets (2029): 29% elec. RE, 22%efficiency savings ndicative electric energy efficiency indicative target of 22 percent savings by 2029.
Belize*	0.31	2.2 (19.8%)	No information available (n/a)
British Virgin Islands (UK)	(0.03)		
Cuba	11.2	76.6 (15.9%)	No information available (n/a)
Dominica*	0.07	0.2 (8.3%)	Increase RE from current 30% from hydro to 100% by adding geothermal;carbon negative by exporting RE by 2020.
Dominican Republic	9.7	79.2 (23.4%)	10% RE by 2015, 25% by 2020, 500 MW wind by 2015
Grenada*	0.10	0.3 (6.7%)	20% electricity and 20% transport from RE by 2020
Guyana*		20.0 (47.8%)	Low carbon development strategy, c. 90% electricity from RE (hydro), install c. 15,000 home solar PV systems, removing duties and taxes on RE, improve energy efficiency in buildings and promote awareness of RE.
Haiti	10.1	78.2 (71.9%)	No information available (n/a)
Jamaica*	2.7	22.2 (16,3%)	20% primary energy RE by 2030, 15% electricity RE by 2020
Montserrat (UK)	0.005		
Netherlands Antilles (NL)			
Puerto Rico (US)	3.6		
Saint Kitts and Nevis*	0.06	0.5 (11.9%)	20% RE capacity by 2015
Saint Lucia*	0.17	0.1 (1.8%)	Increase RE in national energy supply by 20% by 2020, reduce public sector electricity consumption by 20% by 2020; supporting measures consistent with the Green Economy Concept.
Saint Vincent and the Grenadines*	0.10	0.2 (6.1%)	30% of electricity from RE by 2015 and 60% by 2020; reduce use of fossil fuels in transport by 10% by 2015 and 15 % by 2020; reduce electricity generation by 5% by 2012 and 15% by 2020.
Suriname	0.53	5.4 (12.9%)	No information available (n/a)

Pacific	PopNn.	RE supply in PJ (% of total primary energy supply)	Policy commitments
American Samoa (US)	0.06		
Cook Islands (NZ)		0.0 (1.6%)	50% electricity from RE by 2015 and 100% by 2020, capacity and awareness building
Federated States of Micronesia	0.10	0.0 (4.2%)	
Fiji*	0.86	6.1 (33.6)	
French Polynesia (F)	0.27		
Guam (US)	0.16		
Kiribati*	0.10	0.7 (48.3)	
Marshall Islands	0.05	0.0 (0.0%)	20% energy RE by 2020; feasibility studies for 'game-changing' RE including waste-to-energy and OTEC plants by 2015.
Nauru		0.0 (0.0%)	50% of energy from alternative sources of energy including RE by 2015.
New Caledonia (F)	0.26	0.0 (2.6%)	
Niue (NZ)			
Northern Mariana Islands (US)	0.05		
Palau	0.02	0.0 (0.1%)	Clean, secure and affordable energy for all renewable energy.
Papua New Guinea*		80.6 (61.5%)	
Samoa*	0.19	1.9 (41.8%)	Increase RE contribution to total energy by 20% by 2030, promote energy efficiency, capacity development
Solomon Islands*	0.55	3.4 (54.5%)	
Timor-Leste	1.1	1.3 (26.4%)	50% energy from RE by 2030, universal access by 2030; by 2015 there will no household in the capital using firewood for cooking.
Tokelau (NZ)			**Committed to 100% solar**
Tonga*	0.10	0.0 (1.0%)	50% RE by 2020, efficiency improvements, universal access, institutional support
Tuvalu*	0.01	n/a	**Power generation 100% RE by 2020.**(Solar PV 60–95% of demand, Wind 0–40% of demand [if feasible], Biodiesel 5% of demand [import], Energy Efficiency – improvements of 30% for Funafuti.
Vanuatu*		1.0 (36.2%)	

AIMS **Africa, Indian Ocean, Mediterranean and South China Sea**	**Popn.**	**RE supply in PJ (% of total primary energy supply)**	
Cape Verde	0.49	0.1 (2.7%)	Target 50% RE (wind power) by 2020, already 25% wind; universal access;at least one island 100% RE by 2020, reduce fuel imports for electricity by 30% by 2020, reduce GHG emissions by 35% by 2020; min. 30% of desalinated water with RE, **goal of 0% emitter country by 2030.** Target 30% energy efficiency through new technology.
Comoros	0.74	2.7 (58.9%)	No information available (n/a)
Guinea-Bissau		4.5 (48.7%)	2% primary energy from solar by 2015
Maldives	0.33	0.0 (0.2%)	**Aim: carbon neutrality in energy sector by 2020**; electricity 50% RE by 2015; 60% electricity from solar by 2020. Promote energy efficiency, RE technologies, strengthen institutional framework
Mauritius	1.3	10.1 (16.9%)	35% electricity from RE by 2025 (including solar, wind, hydro, bagasse and landfill gas); energy efficiency;supporting measures incl. democratisation of energy supply
São Tomé and Príncipe	0.17		No information available (n/a)
Seychelles	0.09	0.0 (0.0%)	5% electricity from RE by 2020, 15% by 2030; diversify energy mix, universal access, efficiency, strengthen policy framework
Singapore		7.7 (0.7%)	

Martinique Action Plan for Renewable Energy Development on Islands
(22-24 June 2015)

- Windpower development for islands
- Geothermal energy development for islands
- Marine energy development for islands
- Sustainable biomass energy development for islands
- Biomass and waste-to-energy systems for islands

Link to Commonwealth Fisherfolk Livelihoods Research Programme

www.commonwealthfisheries.org

- Sustainable fisheries without fisherfolk? Need enhanced quality of life in communities: education, access to electricity
- Mobile phones and real time arrests of illegal fishers: need for domestic phone chargers
- Data and sustainable livelihoods / social cohesion
- Quantitative and qualitative analysis and the SDGs: citizen science, data production and management capacity
- Renewable energy and refrigeration, lighting

Learning from the Sharp End of Environmental Uncertainty in SIDS: The ‘Sharp End’ Partnership

Launched at SIDS conference

Building on 20 years of work on learning from SIDS at University of Bristol

Partners include UNESCO, Commonwealth Secretariat, universities, colleges and private educational associates (see below)

Sharp End Partnership I

AIMS
Maldives National University
State University of Zanzibar
University of Hong Kong Comparative Education Research Centre
Sazani Associates
University of Mauritius
Villa College Maldives
The Open University of Mauritius
University of Seychelles Education and Culture Research Institute
I**ndian Ocean Commission** ISLANDS project

CARIBBEAN
University of Belize
Sir Arthur Lewis Community College, St Lucia
University of the West Indies CERMES

PACIFIC
The University of the South Pacific
National University of Samoa
The University of Waikato

Sharp End Partnership II

EUROPE
University of Bristol
University of Bristol Education in Small States Research Group
University of Bristol Cabot Institute
University of Bristol Graduate School of Education
University of Bristol Centre for Comparative and International Research in Education
University of Bristol Human Rights Implementation Centre
University of Nottingham Centre for International Education Research
Freie Universitat Berlin, Environmental Policy Research Centre (FFU)
University of Malta, Institute for Islands & Small States
Department of Education and Children, Isle of Man

COMMONWEALTH/ GLOBAL/ INTERNATONAL
Commonwealth Secretariat (https://www.thecommonwealth-educationhub.net/about/)
Commonwealth Human Ecology Council
Commonwealth Association of Museums
UNESCO
UNESCO/IIEP International Institute for Educational Planning
UNESCO-UNEVOC International Centre for Technical and Vocational Education TVET

Sharp End challenges

1. **The meaning of ESD in the context of the Blue/Green Economy**
   - the roles of education and training in the Post-2015 Sustainable Development Agenda
   - identifying skills required in the shift to blue/green economies, and the institutional developments to suppor their development at all levels.

2. **Providing data for evidence-based policies** through all stages of the policy process - agenda-setting, policy formulation, implementation and monitoring and evaluation.
   - development of universality metrics (how we measure progress of development in the North in response to the demands of the South)
   - training for data capture: formal institutions as well as ‘citizen science’ and the deployment of primary secto workers (in forestry, farming and fisheries) to provide data and thereby secure for themselves supplementary livelihoods (in particular, when resource exploitation is suspended for a period to allow resources to recover)
   - development of accessible data repositories on a national and regional basis, including identifying appropriate host institutions.

Sharp End continued

3. **Knowledge sharing and collective learning between SIDS.**
Best practice examples, such as visits by key actors to see working examples in other countries in their region, may be replicated across all SIDS regions: Caribbean, Pacific and AIMS (Atlantic, IndiaIndian Ocean, Mediterranean and South China Sea)

4. **The cultural dimension of sustainable development** will be a central component of the Partnership. This is important in recognising the diversity of histories and identities in traditional societies that have lessons for how to live in harmony with planetary boundaries. This may also include examples of traditional cultures in the 'North' (Canada, Australia, New Zealand in the Commonwealth and small states in the North) that are more closely related to cultures in the South. The role of museums and other cultural institutions will be significant here, as will the engagement of UNESCO and the Commonwealth Secretariat in the Partnership.

5. Finally, comes **the process side**, working on development of the best mix of techniques and technologies to promote ESD that may be organically integrated with practices and priorities in the South. These might include social media, MOOCs. webinars, as well as arrangements that facilitate students travelling from one country to another (including from large to small countries) to take a module as part of, for example, a Masters degree, in exchange with students from the South doing the same in the North, or paying a fee to the host institution in the South to help build local capacity.

.

IRENA Thematic Programme Areas 2014-15

- Planning for the global energy transition
  Mainstreaming renewable energy options and strategies in energy plans

- Gateway to knowledge on renewable energy
  Making renewable energy knowledge accessible to all

- Enabling investment and growth
  Improving policy frameworks and enabling market conditions for accelerated deployment of renewable energy

- Renewable energy access for sustainable livelihoods
  Contributing to sustainable livelihoods through access to renewable energy

- Islands: lighthouses for renewable energy deployment
  Transforming island energy systems through renewable energy
  Global Renewable Energy Islands Network (GREIN)

- Regional action agenda
  Regional cooperation on increasing deployment of renewables, to meet growing energy demand

IRENA Knowledge Gateway

- **Statistics Database** - Primary Data
- **Global Atlas** - Potentials
- **IRELP** (IRENA Renewable Energy Learning Partnership)- Education and Training
- **Coalition for Public Support** - Facts and evidence
- **Capacity Building Repository**
- **iREvalue Platform** - Value creation
- **IEA-IRENA Database** - Policies and measures
- **Cost database** - Costing
- **Best practices interface** - Cases
- **IRENA Toolbox** - Project Navigator, RRA, Energy planning
- **Network facilities** - SE4All Hub, GREIN , IOREC(International off-grid Renewables Energy Conference), PROSPER (Promoting a Sustainable Market for Photovoltaic Systems in the ECOWAS Region)

UNU WIDER Project:
The political economy of clean energy transitions

“Sustainable energy transitions involve the shift of resources between competing industrial sectors and political constituencies. Stakeholders in this process have varying degrees of political and economic power, and **understanding how political economic factors influence clean energy transitions is crucial** to effective policy formulation and facilitating transitions to sustainable energy systems. This project seeks to contribute to enhanced understanding of these factors.”

Deploying expertise of the REFORM group to South-South policy exchange and transfer?

Capacity: Data, research, education

- building partnerships across research institutions both public and private to develop **regional hubs for collection of, and access to SDGs data** (energy, fisheries, education) to improve the evidence-base for policy;

- **strengthen the role of universities, university consortia** (University Consortium for Small Island States UCSIS Virtual University for Small States of the Commonwealth VUSSC, the ‘Sharp End” partnership) **and energy research networks** in policy communities through South-South-North cooperation;

- development of **South-South policy networks and exchange**

- identifying and promoting **transferable best practice from and between Commonwealth and EU countries**, particularly supporting South-South transfer

Summary

- SIDS need RE and stand to benefit disproportionately (cost of diesel imports as percent of GDP)
- SIDS lack capacity: institutional and financial
- SIDS show leadership, ambitious targets: but how credibly (lack of data)?
- Why do SIDS matter? (moral high ground, UN votes for China?)
- Will IRENA's initiatives succeed 'alone'?
- What can/should we do? Analysis of political economy of RE in SIDS; design of skills curricula for blue economy; helping to strengthen regional data gathering and accessible repositories…
- How might we work with the 'Sharp End' partnership?