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Living at the sharp end of environmental uncertainty in small island states

Learning from the 'sharp end' –Exploring implications for sustainability and Education for Sustainable Development

A conference at the University of Bristol, UK 17th July 2014

This event was organised by the Education in Small States Research Group, (part of the Research Centre for International and Comparative Studies), together with Sazani Associates and the Cabot Institute with participation and input from the Commonwealth Human Ecology Council (CHEC) and the Commonwealth Council for Education (CCfE). Dr Denny Lewis-Beynoe, Economic Advisor at the Commonwealth Secretariat, was also a participant.

The event was hosted by the University of Bristol, Graduate School of Education. It was a lively, vigorous and highly interactive meeting that examined the key issues of concern for small island states, especially

their vulnerability to climate events, and the ways in which education for sustainability is helping to increase their resilience to disasters. The event celebrated the twentieth anniversary of the foundation of the Education in Small States Research Group at Bristol whose Director, Professor Michael Crossley, welcomed guests to Bristol and who had specifically requested CHEC's presence at the meeting. It was fitting that the Keynote Address to the meeting on "Living with Environmental Uncertainty in a Small Island State: Challenges and Strategies from St. Lucia and the Caribbean" was given by Dame Pearlette Louisy, the Governor General and Head of State of St. Lucia and a graduate of the Bristol School of Education.



A major contribution was made by Sazani Associates who specialise in community engagement through participatory research and the development of integrated programmes for sustainable development. It is an international not for profit, research and development organisation with offices in UK, Belize and Zanzibar. This multi award winning organisation was established in 2005 by an interdisciplinary group of experienced practitioners (academics, consultants, project managers) from all over the world, dedicated to the use of participatory approaches for research, development and learning. Through Sazani, a group of teachers from Zanzibar participated in the meeting, together with Mwanaida Abdalla Saleh from the Zanzibar Ministry of Education.

Other key participants included Professor Colin Brock, Honorary Professor of Education at the University of Durham, UK, and Adjunct Professor of Education at the University of Malaya, Malaysia, formerly UNESCO Professor of International Education at Oxford and the author of the first book on education in small island states and Professor Rich Pancost, Director of the Cabot Institute, Bristol University's truly multi-disciplinary research centre conducting programmes to tackle the challenges of uncertain environmental change.

CHEC was represented by volunteer Rhonda Cox and Governing Board members Mark Robinson, Nicholas Watts and Ian Douglas. The Commonwealth Council for Education was represented by Mark, Fatimah Kelleher and Peter Williams.

Keynote address

Welcoming remarks by Michael Crossley, Rosamund Sutherland and Cathryn MacCallum were followed by Dame Pearlette Louisy's Keynote Address. Drawing attention to the particular issues of small island states (SIDS) and the value of local knowledge and understandings of climate change, Dame Pearlette stressed the importance of local context in the face of environmental change. She recalled the succession of international meetings on small islands states beginning in Barbados in 1994, followed by Mauritius in 2005 and to be continued in Samoa in August 2014. At the first meeting the importance of recognising economic, social and environmental vulnerability was stressed, with cultural vulnerability being added in Mauritius as the fourth pillar that mitigation strategies would have to address. Bodies like the Cabot Institute researching the environmental risks and uncertainties helped to bring together the four pillars to address living at the sharp end.

Defining vulnerability as the likelihood of harm occurring in the local social, economic and environmental context, Dame Pearlette discussed how the Caribbean Islands' dependence on agriculture and tourism for economic survival put them at great risk; a catastrophic natural disaster could disrupt tourism for months. With changing weather conditions, the hurricane season now lasts for the six months June to November, rather than two, with some 21 major storms forecast for the 2014 season. Most human settlements in the islands are on the coast, with parts of some of them below sea level. For example, Castries,

the capital of St. Lucia, faces severe flood problems. Conditions are changing to such an extent that one day the people and the government might wake up and ask in shock and awe "What has happened?"



Dame Pearlette Louisy

Various collaborative regional and international bodies are helping island states to prepare for and respond to disasters (Box 1). Some operate at the governmental level, others report on and monitor environmental conditions while the youth network works with communities. Insurance funding from CCRIF can greatly assist individual states to recover from disasters. This regional collaboration helps small states to cope with the likelihood that all their territory may be affected by a single event, whereas bigger countries usually have some unaffected regions from which help can be sent to other areas in difficulty.

Dame Pearlette then explained the ways in which St. Lucia prepares for, and responds to, natural disasters. Two great volcanoes Soufrière and the Grande Piton overshadow the island and have left a legacy of volcanic debris on the island's steep slopes. When hurricanes arrive, their heavy rains can trigger landslides that carry this rock debris across roads and on to buildings. The effects of hurricanes thus go far beyond flooding and coastal wave damage. The silt from the ash deposits can begin to fill water-supply reservoirs and trigger water supply shortages that affect the whole island. Hurricane Tomas in 2010 caused damage costing US\$ 336.2 million, equivalent to 43 per cent of St. Lucia's GDP, or nine times the amount contributed to the economy by agriculture and four times that derived from tourism. The Government was forced to borrow money and to expand its national debt. It is because of a range of factors that St. Lucia is the most vulnerable country in the world.

St. Lucia is working to increase the nation's resilience and is aiming to move from a vicious circle of increasing vulnerability to a positive circle of increasing resilience. The Government's policy for

dealing with hazards includes a climate change adaptation policy, a strategic programme, an adaptation programme and a national environmental education policy and strategy. Community level action plans and participatory action can share knowledge between generations and increase capacity building from below. Young people can play a key role in this.

Sustainable development is being mainstreamed at all levels of education mainly through the actions of NGOs, including the St. Lucia National Trust, the St. Lucia Red Cross and the GEF small grants programme. Sustainable development can be a fundamental way of conceptualising education as a force for social change. It equips people to anticipate uncertainty and to plan for the future. The way in which we manage knowledge, particularly in education affects development and can help to reduce poverty. Education for environmental uncertainty is urgently needed across all small island developing states to increase resilience and to develop sustainable responses to environmental challenges.

Caribbean Regional bodies involved in mitigation of, and adaptation to, change

CDEMA Caribbean Disaster Emergency Management Agency (<http://cdema.org/>)

CCCCC Caribbean Community Climate Change Centre (<http://www.caribbeanclimate.bz/>)

CCRIF Caribbean Catastrophic Risk Insurance Facility (<http://www.ccrif.org/>)

OECS Organisation of Eastern Caribbean States (<http://www.oecs.org/>)

University of West Indies Seismic Research Centre (<http://www.uwiseismic.com/>)

CERMES Centre for Resource Management and Environmental Studies
(<http://www.cavehill.uwi.edu/cermes/default.aspx>)

CYEN Caribbean Youth Environment Network (<http://www.cyen.org/documents/homepage.html>)

Plenary session on living with environmental uncertainty

In the second plenary session, Virginie Torrens of the Indian Ocean ISLANDS Project spoke of environmental knowledge and learning between the Comoros, Madagascar, Mauritius, Seychelles and Zanzibar in co-operation with La Réunion. In the face of climate change and rising sea levels, these island

states are working together with the help of the Indian Ocean Commission to develop a regional sustainable development framework for small island developing states, to improve cross-sectorial planning capacity, to expand capacity for resilience and to create innovative funding institutions. NGOs are working with

ministries to help empower individuals become agents of social change. Teacher training and university education are part of this process. Teachers' guides on sustainability oriented towards the needs of each individual country have been prepared. In Madagascar a particular emphasis has been placed on disaster risk management. A comic book about a crab (called DILANS) and his travels around the islands has been produced in four languages, helping to improve mutual understanding and environmental awareness. More collaboration by Universities in the region is being sought and a "Université virtuelle pour l'Environnement et la Développement" (UVED) is being proposed, with the internet being used to link schools.

Frances Crescentia Koya Vaka'utu of the University of the South Pacific presented lessons on environmental change from the Pacific Islands emphasising their multiple realities, their varying agendas and the influences of tourism. Recognising the economic, social and environmental dimensions of vulnerability, she stressed that the issues included the association between development and increased consumerism and commodification. Economic development is still seen as a cure-all by most public authorities, while the environmental crisis is not a key concern. Even though ecological concerns are a serious matter for small island developing states, there is little public discourse on sustainability. Meanwhile, indigenous knowledge and practices for living in harmony with nature are being lost. Growing trade relations with the rapidly expanding Asian economies

are becoming an important issue for the Pacific islands. Faced with rising sea levels, Kiribati is buying land in Fiji to ensure food security and Tuvalu is looking for ways to increase biogas resources. Raising consciousness and increasing environmental education is being helped by cultural events in the region that highlight sustainable development.

Rich Pancost, Director of the Cabot Institute, University of Bristol, re-emphasised that the global climate is changing rapidly. There is no doubt that carbon dioxide in the atmosphere does change the world. The uncertainty is less about the rate of climate change and more about when and where the impacts will occur. Pointing out that ocean acidification is a major consequence of the changes in the chemistry of the atmosphere; Professor Pancost explained that compared with such events in the recent geological past, today the changes were far faster than anything that had happened naturally. We have to be concerned because multiple changes are occurring at the same time. The emphasis on adaptation and resilience runs the risk of being an excuse for not acting to reduce emissions and slow that rate of chemical change. It is important for everyone to be resilient, but also to answer the questions of who causes the environmental change and who bears the burden of the consequences of change.

The morning ended with lively discussions over the variety of issues raised and the many alternatives for educators to intervene at multiple levels to encourage understanding and debate about sustainability and environmental change.

Group sessions on interdisciplinary initiatives and implications for small states

In the afternoon, the meeting divided into three groups: a) Learning about sustainable development in small states; b) International research and c) International agency responses. CHEC representatives participated in groups b) and c). From the report to the final plenary session, we learnt that the Learning about sustainable development in small states group suggested that schools and governments should promote sustainable development education. Parental involvement was important but government funding was needed to encourage this. Curriculum changes are necessary and could be achieved through collaboration between teachers and NGOs. The media also have an important role to play, but a long-term commitment by all parties is essential.

Mark Robinson spoke in the session on International Agency Responses and was able to explain CHEC's activities. The other speakers were Bill Burson, CfBT/DFID, Fatimah Kelleher, CEC, Dr Denny Lewis-Bynoe, Commonwealth Secretariat, and Dr Keith Holmes, UNESCO. The session was ably chaired by Prof Simon McGrath of Nottingham University.

It emphasised the importance of building bridges between different organisations and of developing inter-disciplinarity, inter-sectorial collaboration, and working across professions. Education can be a vector for change and sustainability needed to be seen as a lifelong commitment. Some of these participants were planning to go to the SIDS meeting in Samoa in August 2014, which would

provide an opportunity to extend the relationships developed at Bristol.

Ian Douglas and Nicholas Watts contributed to the Interdisciplinary research session which began with Snaliah Mahal's elegant presentation on climate change adaptation in the Caribbean and South Pacific. Talking about her personal experience of Hurricane Tomas in October 2010, she emphasised the immediate impact of the destruction and damage to infrastructure and the economic uncertainty that followed. Pointing out that similar impacts are felt in small island developing states in the Pacific and Indian Oceans, she discussed the variety of agencies involved in relief and recovery. However, it was important to develop networking and to recognise, and indeed emphasise, that things cannot just be left to governments, everyone has to do something to mitigate, adapt and build resilience.

Ian Douglas reported on the work done in the CHEC Women's microfinance climate project – sharing practice and accelerating community learning – led by Donnell Davis - involving women from Commonwealth Pacific islands and funded by the Commonwealth Foundation. Each island provided examples of community activities ranging from fund-raising to build a local school to helping women to establish small businesses to provide alternative income in the face of loss of their crops due to increasing soils salinity as a result of rising sea levels.

Nicholas Watts presented the SAUCE (Schools at University for Climate Change) project, showing how a stimulating learning environment could inspire and excite people aged 9 to 13. Well-organised practical work and demonstrations of the relevance to everyday life, such as the food miles involved in producing the Kinder egg, a chocolate egg containing a plastic toy, were good ways to deliver sustainability education and could be applied anywhere. The SAUCE project emphasised the value of a combination of arts, social and natural science approaches and the importance of giving children a sense that they could make a contribution. He distributed copies of the SAUCE Handbook and SAUCE Resources Guide¹)

Hassan Ugail, University of Bradford, talked about the US\$ 1.5 million field research station he had helped to establish in the Maldives where not only would the impacts of environmental change on coral reefs be investigated, but where field classes would help local students to understand what was happening to their local surroundings.

¹ (these can be found at <http://www.schools-at-university.eu/downloads/index.html>)

SMALL ISLAND STATES

Antigua and Barbuda
Bahamas
Barbados
Belize
Cape Verde
Comoros
Cook Islands
Cuba
Dominica
Dominican Republic
Fiji
Federated States of Micronesia
Grenada
Guinea-Bissau
Guyana
Haiti
Jamaica
Kiribati
Maldives
Marshall Islands
Mauritius
Nauru
Niue
Palau
Papua New Guinea
Samoa
Singapore
Seychelles
Sao Tome and Principe
Solomon Islands
St. Kitts and Nevis
St. Lucia
St. Vincent and the Grenadines
Suriname
Timor-Leste
Tonga
Trinidad and Tobago
Tuvalu
Vanuatu

A key sustainability element was the development of an aquaponics system in which fish farming and plant cultivation were integrated in a sustainable manner. Such systems could be replicated in other small island developing states to enhance local supplies of plant foods and fish protein. Erica Hendy,

Cabot Institute, gave an account of how research she had done on past environmental changes and events such as volcanic ash falls, helped us to understand the present. When natural extreme events are superimposed on environments greatly altered, and often destabilised, by human activities, the consequences for both people and all other forms of organisms can be extremely serious. Past major volcanic events, such as the eruption of Krakatoa, have global climatic consequences and we need to recognise that they could happen again.

Reporting the conclusions of this group, Jay Coombs, of Sazani Associates, Belize, said that

progress towards sustainability needs planning and implementation across communities by governments. Climate change can reverse progress. Information needs to be shared through national and regional collaboration. Essential data needs to be readily accessible. The household dimension of the responses to climate change needs greater recognition, especially emphasising the role of women in developing resilience. Engaging children on sustainable development through activities such as the SAUCE project is highly empowering

Final plenary discussion and closing comments

Dame Pearlette Louisy asked whether the principles of sustainable development education were universal or necessarily contextual. She enquired whether there were principles that the practitioners could translate into a concrete pedagogical approach. The principles needed to be set out clearly for use at the local level. Knowledge management is important. In St. Lucia the Red Cross had been particularly successful in getting its response teams to help in formulating community and household disaster response plans. However, there may be too many agencies involved and better co-ordination between them is required.

Mwanadi Abdalla Saleh said that the meeting had helped her learn a lot. In Zanzibar 14 years of sustainability programmes including training and improvement in school health offered experience that could be applied elsewhere. However she felt that a big social effort was needed to improve people's health and wealth in the majority of small island states. Starting with the children was a good idea and projects like SAUCE were an excellent model.

Virginie Torrens spoke of the need for collaboration between countries and regions: united we stand, divided we fall. She believed that concern for the Blue Economy was coming from the small island states, but that better progress towards greater sustainability could not wait for governments. Communities and NGOs are highly significant in making advances in the right direction.



Delegates from Zanzibar

Rich Pancost addressed the importance of sustainability in projects and the need to ensure long-lasting benefits. The Caribbean regional agencies such as CCRIF (Box 1) were a good example of effective international mutual support. Examples of good practice and the power of working together were important. The field research station on the Maldives was one such example.

Colin Brock spoke warmly about the quality of the meeting, the importance of sustainability education and the great power of collaboration and exchange of ideas between and across disciplines. He thanked Michael Crossley and his team for organising such an effective and useful meeting.

Follow up to the meeting and opportunities for CHEC

Nicholas Watts stayed to discuss research opportunities and partnerships on July 18th, largely on the basis of the SAUCE programme and CHEC's work on fisheries. These discussions produced a Partnership proposal for the SIDS meeting in August 2014 on the topic of the Conference, i.e. "Learning from the Sharp End of Environmental Uncertainty in Small States", to promote collaboration in research and training for sustainability in SIDS across the Caribbean, Pacific and AIMS regions, working with small, low-lying territories in a similar context. CHEC is included in this partnership proposal, which was planned to be launched at the Samoa SIDS meeting, and mentioned in the CHEC Side Event at Apia on the Blue Economy. Terra Sprague, Research Fellow at the Bristol Graduate School of Education, who organised the meeting on July 17th, was invited to join the CHEC delegation to Samoa. [The 'Sharp Ends' Partnership was successfully launched at the CHEC Side Event at the SIDS meeting²



Dame Pearlette Louisy and audience



South Pacific Islands

² :
<http://www.stakeholderforum.org/sf/outreach/index.php/previous-editions/sids/sids-day-5-climate-change-and-social-development/11696-a-partnership-of-learning-from-the-sharp-end-of-environmental-uncertainty-in-sids>

Views of the meeting by Rhonda Cox

Introduction



St Lucia after the storm

We are constantly reminded that we live in a world where the effects of climate change are inevitable. It does not matter where we live; the change in the weather pattern, global warming, flash flooding and air pollution, they all impact our health and livelihoods. Those of us living in Western, industrial societies may not have been aware or may

have forgotten, that our co-habitants, living on small islands remain a special case for sustainable development and are more vulnerable to climate change. The conference fed my thoughts of the implications for sustainability with focus on education.

Understanding the nature of climate change through education allows us to ‘modify behaviour’. The hope is that it will dullen the sharp end of climate change. The keynote speaker Dame Louisy, made mention of the Education for Sustainable Development, a United Nations Educational, Scientific and Cultural Organisation (UNESCO) initiative; whose aim is to develop the knowledge, values and skills to participate in decisions about the way things are done individually and collectively. This strategy hopes to increase knowledge and decrease vulnerability. However, funding remains the greatest barrier to change as it prohibits the development of human capital and limits SIDS ability to build resilience. I fully agree that SIDS are living on the ‘sharp edge’, however, I do think governments need to take more responsibility for the impact of climate change. Strong policies need to be implemented to mitigate erosion, deforestation and the devastation of mangroves.

Welcome by various representatives of the panel

This Conference brought together a wealth of knowledge and experiences on the issues and challenges faced by Small Island Development States (SIDS) if Climate Change is not addressed. The Sharp End was certainly highlighted by the keynote speaker Dame Pearlette Louisy, who in her esteem gave the attendees a clear insight into the devastation of St. Lucia. We were also reminded by Professor Michael Crossley; the Co-ordinator of the Research Centre for International Comparative Studies that the “aim is to learn ‘from’ Small Island Developing States in the South Pacific, the Indian Ocean and the Caribbean. It is important that we use a wide range of professional bodies; both academic and professional practitioners in the field. Those sponsoring the conference such as Sazani Associates and the Cabot Institute and the

Graduate School of Education, has explored these issues within a global context.

Other significant welcome remarks by Professor Sutherland also reminded us that this is an important year for SIDS; celebrating 20 years of collaborative work and also celebrating the transfer of traditional knowledge among education practitioners in the field has been the “hallmark of good interdisciplinary approach”. This issue is not one being dealt with in a vacuum as stated by Cathryn MacCallum, Director of Sazani Associates. She was pleased to showcase the work being done through the link created between schools in Wales and Zanzibar. With a focus on sustainable development through reciprocal learning, both teachers and students are able to share knowledge in the areas history, and environment.

Keynote Address by Dame Pearlette Louisy

A distinguished speaker, Dame Pearlette began by giving us a flavour of her own ties to Bristol approximately 20 years ago. This was by no means a distraction. Her link to the University's Comparative Study Department since graduating in 1994 grew out of a research group at the School of Education. She takes to heart Michael Crossley's statement "context matters more than policy makers and researchers recognise". In this vein Dame Louisy was able to put the effects of climate change on SIDS and in particular its affects/impact it has on St Lucia and by extension the mirroring effect on those who also live on small islands.

Introducing the effects of climate change on SIDS from a historical perspective, Dame Louisy noted that the United Nation Environmental Programme grew out of the Barbados Programme of Actions in 1994 an international approved programme which outlined strategies to mitigate the effects of climate change, and to adopt the Barbados Programme of Action for the sustainable development. The programme explicitly identifies coastal and marine resources as an area requiring urgent action. It is important that planning and development on coastal environments and its communities implement the Programme of Action. This year Samoa will be hosting Barbados +20. The hope is that the 'score card' it produces will be one in which SIDS and the international community are able to celebrate the milestones the Programme of Actions has achieved.

Set against the background of the Brundtland Report 1987 Dame Pearlette reminded us of the basic concept of sustainable development and its link to the environment.

“Humanity has the ability to make development sustainable to ensure that it meet the needs of the present without compromising the ability of future generations to meet its own needs.”

(Brundtland Report 1987)

The Report also set out a long term environmental strategy, solidified collective action with an integrative approach. Similar to the conference being attended, it is a forum for government officials, researchers, academics, private enterprise and the public, who all play a central role in mitigating the effects of climate change

Having paved the way in her opening address, Dame Louisy unravelled the main issues of the theme. She did this by defining what is meant by environmental uncertainty. Finding several definitions; and condensing her findings, she summed up this concept by stating that it is best described as the lack of knowledge about the nature of things and a lack of understanding of how the ecological system will change in the future. The underlying question one must consider is what accounts for the lack of knowledge with specific reference to SIDS.

Whether we refer to the effects of climate change or the impact of the weather on the Caribbean does not change the fact that the chain of islands are located in what Dame Louisy highlighted as the subduction zone, which is vulnerable to hurricanes. These islands are small, for example St Lucia is 616sq. km., which leaves the entire island vulnerable to disasters. The impact of hurricanes on the local economy spans activities tied to the environment such as agriculture, tourism (sea and land based). The damage can be extensive as it destroys fragile ecosystems and human settlements. The effects of climate change to these islands are also experienced through drought, longer hurricane seasons and rising sea levels. The impact on the lives of those living in urban and rural areas will be more severe depending on the infrastructure. Therefore, consideration must be given to the structure of the houses and provision of infrastructure such as roads, water and the electricity supply.

Dame Louisy proceeded by presenting with the challenges St. Lucia faces, showing us photos after a storm or heavy rainfall. The devastation ranges from land slippages (where houses are literally sitting on the edge of cliffs), landslides, high volume of silt in water ways and flooding. The catastrophic impact on the lives of citizens coupled with the damage to the fragile ecosystem is evident. The government has responded by putting in place a climate change policy, which encompasses resilience, adaptation measures, and education policies. Apart from governmental efforts,

Non-Governmental Organisations such as St. Lucia National Trust and Red Cross Society are working collaboratively to address the issue. The Caribbean has taken the initiative to work together to mitigate to the

effects of climate change. The chain of islands has in the past created institutions to support each other economically and culturally and with an additional remit to tackle the impact of climate change

Living with Environment Uncertainty: Challenges and Responses

Indian Ocean Commission Education for Sustainable Development in Small Island States

Virginie Torrens

This project is funded by the European Union, and is based on policy and regional co-operation. Countries work both independently and collaboratively in the following four areas:-

- ✓ Coral reefing
- ✓ Risk financing
- ✓ Climate Change and
- ✓ Waste Management

The initiative is project based; therefore, schools and teachers must be motivated to implement the programme of work. The reality of the situation means that only the schools with the drive and the understanding of environmental issues will take up the cause. There is no obligation to transfer knowledge as it is not part of the national curriculum.

The aim is to develop the region's social, economic and environmental capacity. Based on the

strategy implemented, each country is allowed to adopt measures which will take into consideration its unique situation. Ms Torrens did however, mention that trade and economic issues do not filter into environmental policy. This raises the question as to whether governments believe that policies which take the environment into consideration will hinder economic development.

The Pacific Islands also lack the political will to deal effectively with ecological concerns. The constant battle between sustainability and sustainable development may have been the deciding factor as to whether the environment takes precedence or not. As sustainability often means meeting the immediate needs of humans in society and does not take inconsideration the long term impact on the environment.

Cabot Institute: Rich Pancost

Rich Pancost is a scientist who made an excellent attempt to merge the understanding of science and human experience. Rich was very good at highlighting the main goals of the Cabot Institute; its aims are rooted in science and research, and clearly stating that scientist cannot make any firm prediction on how much temperatures would rise or the exact pattern of storm/hurricanes. The operative word here will be 'uncertainty'. He believes that the main issue though is how do scientist, researchers, educators, governments and interest groups understand the issues in relation to climate change and:-

- ✓ Water security
- ✓ Food supply
- ✓ Environmental hazards and the impact on human lives
- ✓ Energy needs
- ✓ The effects of climate change

He also highlighted the need to understand the interconnectedness of the social, environmental and engineered systems – past, present and future. What I did find interesting and resonates with ecological

ideology is our experience of the environment; the fact is that we experience it differently. My own personal experience is from a Caribbean perspective. My formative years began in the countryside, with parents who allowed us to experience and appreciate nature's fauna and flora. Today, I remain passionate about environmental issues even though I live in a city. It is also important to understand that human existence is not solely dependent on the environment but the relationship we have with each other.

Rich Pancost concluded with questions which I believe have obvious answers.

- ✓ What are the ripple effects of more/less rain?
- ✓ How do we propose to live in the short and long term?
- ✓ Who causes the uncertainty of environmental change and who bears the burden?

We are all connected what we do in the west does not just affect the west. We do need to consider specifically how people in SIDS are now living on the 'sharp end.'

Interdisciplinary Initiatives & Implications for Small States: Learning about Sustainable Development in Two Small States

I attended this session which was led by Cathryn MacCallum and Saada Rashid and Virginie Torrens.

It was geared towards exposing the work of Sazani Associates, who have been working collaboratively with schools in Wales and Zanzibar, promoting global learning, participation, inclusion and critical/creative thinking. It is important to state the difference between the two countries lies in the formalisation of Education for Sustainable Development within the curriculum. The approach is topic specific and interdisciplinary. The working relationship is based on eight key characteristics:-

- Shared value and vision
- Collective responsibility
- Group work
- Reflective programme of enquiry
- Openness
- Networks and partnership
- Inclusive membership
- Mutual trust and respect

Sazani Associates have produced a wealth of learning resources for teachers and students. Focusing on several areas of sustainable development such as:-

- ✓ Solar Cooker Comic
A comic illustrating the ease in which solar cookers – a sustainable cooker that needs no fuel – can be used at home to cook traditional Zanzibar meals.

- ✓ Community Enterprise Training, Food and Nutrition
- ✓ Health & Sustainable Living which deals with Biodiversity, Biology, Geography, Education Resources, Family, Food and Nutrition

Virginie Torrens also showed us videos developed to teach children how to care for the environment. These resources target the very young, the future of our global society. Access to this information is not limited to students living in Small Island, but knowledge which can be shared on a global scale.

Our session concluded with a group discussion based on the following questions:-

- ✓ How has education changed over the last 10 years?
- ✓ What can be done to improve the education?
- ✓ Who is responsible?

The general view from the group centred on the growing role of information and technology, which has played an important part in the development of education. It has drawn countries and issues closer together specifically in the area of environmental issues and ways it can be mitigated. What is needed is further commitment by government and other stakeholders to increase funding for projects. However, responsibility for action on ESD is mutual; individuals and governments must work collaboratively to solve the problem of sustainable development.

Plenary Discussion: Learning from Small States

The reports from the three discussion groups held earlier and final statements from the speakers from the morning session again did not fail to hammer home the importance of Education for Sustainable Development (ESD). The report from the group which I participated in again reiterated the need for governments, civil society and the media, to play their part in addressing the issues of Sustainable Development. I will agree that each actor has a pivotal role; the need for government to implement policies which can be translated into action if significant progress is to be made.

The message from the Interdisciplinary Research group noted the need for corroborative planning at the national and regional level. This should take into consideration economic impact on SIDS. The suggestion centred on supporting the progress made by countries in the Caribbean:

1. Sharing information at the national and regional levels.
2. Promoting the good practices in the Caribbean and the South.
3. Partners having access to data and evidence based on planning in a systematic way.
4. Promote the role women play in sustainable development.
5. Develop programmes whereby children can have links with universities can be significant agents of change.
6. Creating relationships between science and practitioners; highlighting issues of food security, use science to support local knowledge on the effects of climate change.

The information generated from the International Agency's panel discussion found that agencies played a significant role in bridging the gap between the 'us and them'; policy makers, teachers and professionals from the various agencies. Again, emphasis was placed on education as a vector of change in the fight to reduce the impact of climate change.

In closing, I believe the conference was a success. It allowed for some key agencies to disseminate knowledge on what it means for those

'Living at the Sharp End of Environmental Uncertainty in Small Island States'. The participants reiterated the importance of education. However, a major barrier was noted by Dame Pearlette Louisy, as she suggested that more progress can be made if ESD is defined globally. As the ethos of ESD it is difficult for practitioners to translate into action. We are all responsible for the environment; non-governmental organisations, academics in the field, governments and citizens. SIDS are leading the way for others to follow.

Paul Collins (on Facebook July 24th 2014)

Last week I was invited to attend a conference in Bristol (UK) to mark 2014 being the International Year of Small Island Developing States (SIDS). It was a fascinating conference, with speakers from several SIDS offering their perspective on living at the sharp end of environmental uncertainty. I had the opportunity to speak with those who work on the ground in communicating the issues around climate change to local communities. It really was an eye opener and I learned a lot! I spoke a little about climate fiction (cli-fi) as an emerging genre and how I think could be used to engage people of all ages and

backgrounds on climate change. This seemed to go down very well and I came away energised and with some contact names that I've picked up with again. Some have joined me and other cli-fi enthusiasts at the Facebook cli-fi group I've set up, Cli-fi Central <https://www.facebook.com/#!/groups/320538704765997/>

The conference further brought home to me the importance of a global engagement on climate change issues and how these issues are real and present for many desperate communities. They can't wait for action and we all have a critical part to play.

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