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a daily multi-stakeholder magazine on climate change and sustainable development

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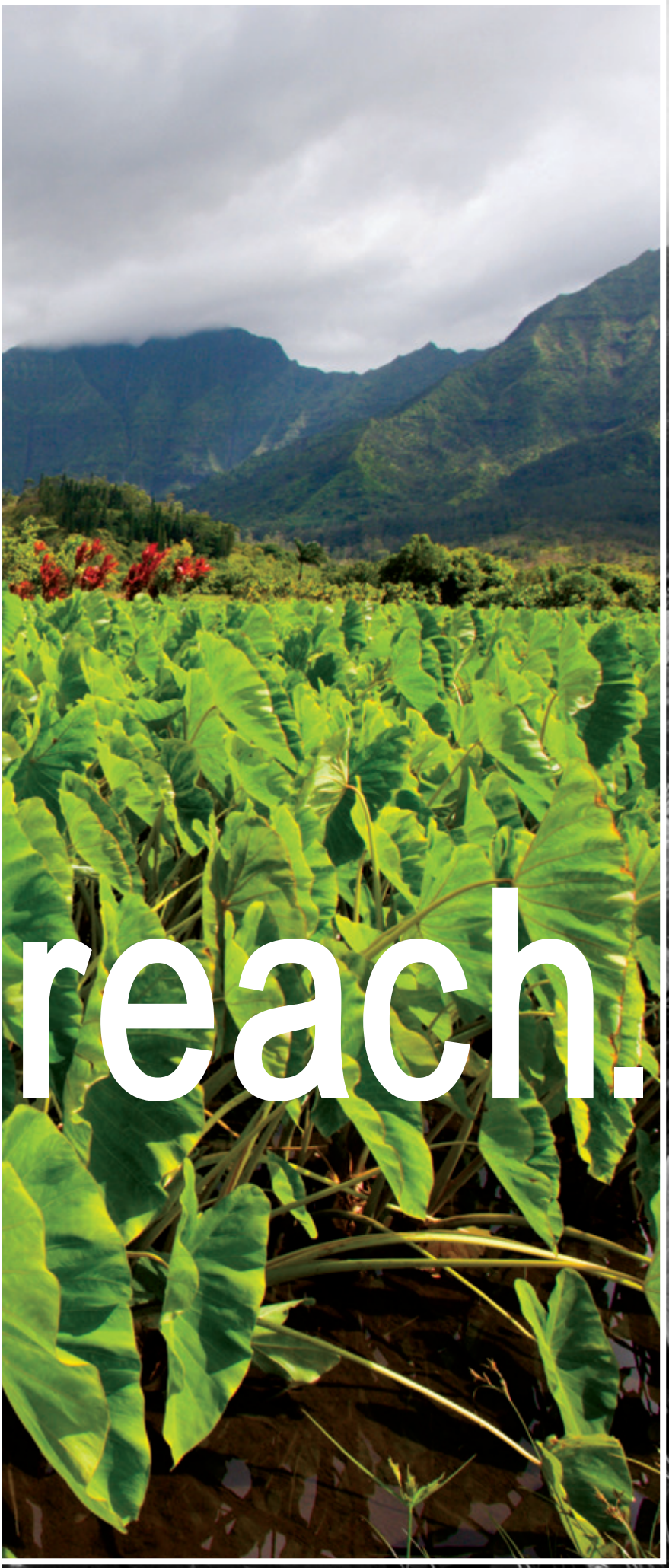

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Outreach is a multi-stakeholder publication on climate change and sustainable development. It is the longest continually produced stakeholder magazine in the sustainable development arena, published at various international meetings on the environment; including the UNCSD meetings (since 1997), UNEP Governing Council, UNFCCC Conference of the Parties (COP) and World Water Week. Published as a daily edition, in both print and web form, Outreach provides a vehicle for critical analysis on key thematic topics in the sustainability arena, as well as a voice of regional and local governments, women, indigenous peoples, trade unions, industry, youth and NGOs. To fully ensure a multi-stakeholder perspective, we aim to engage a wide range of stakeholders for article contributions and project funding.

If you are interested in contributing to Outreach, please contact the team (acutter@stakeholderforum.org or ifenn@stakeholderforum.org)

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Water management is key for SIDS development

Eva Blässar and Steven Downey
Global Water Partnership

We haven't forgotten the photo of the Maldives government when it held a cabinet meeting underwater in October 2009 before the now-infamous Copenhagen climate conference. The publicity stunt was meant to highlight a no-joke future: the threat of global warming to the low-lying nation – and to many other Small Island Developing States (SIDS).

Five years later that threat has not diminished so the desire of the Third International Conference on SIDS to 'focus the world's attention on a group of countries that remain a special case for sustainable development in view of their unique and particular vulnerabilities' is all the more urgent.

Every one of the conference's six priority areas of the multi-stakeholder partnership dialogues have a relationship to water resources management. The cross-cutting nature of water resources was succinctly captured during national stakeholder consultations on water earlier this year: 'Water is the engine of our sustainable development.'

Global Water Partnership (GWP) recently published a Technical Background Paper on the challenges facing SIDS, particularly those in the Caribbean. The paper notes that two obstacles to development are (i) diverse organisational arrangements and (ii) lack of political support.

As to the first obstacle, this Third International Conference's overarching theme – 'The sustainable development of Small Island Developing States through genuine and durable partnerships' – provides an answer. What better way to bridge fragmentation (diverse organisational arrangements) than through genuine and durable partnerships?

The Caribbean has a large geographical footprint, but small and dispersed populations and landmass. The states all face similar climatic conditions that influence their water resources. Therefore it makes sense that water management should focus on developing common frameworks and standards. But this has turned out to be easier said than done because a feature of water resources in the Caribbean is the diverse arrangements that govern water management. For instance, Jamaica and Guyana have a ministry dedicated to water management, while in most states water management forms just one part of a ministry portfolio, and often responsibility is spread across more than one ministry.

So far, the most successful projects have been those that address specific stakeholder concerns or issues at national, community or watershed level. The results reinforce the message that an integrated approach, which requires partnership across sectors, works best when it addresses real issues that resonate with people's everyday experiences with water and their environment.

The second obstacle, lack of political support, is also addressed by one of the Conference goals, namely, to 'seek a renewed political commitment by focusing on practical and pragmatic actions for further implementation.'

What pragmatic actions have furthered development in the Caribbean? In 1998, the Forum of Ministers of the Environment of Latin America and the Caribbean agreed that integrating water and coastal resources management was a priority. In 2002, at the Johannesburg World Summit on Sustainable Development, the Caribbean states also committed to developing integrated water resources management (IWRM) plans and water use efficiency (WUE) plans by 2005.

Realising these ambitious commitments was a challenge in the Caribbean. But recent research suggests that advocacy needs to be complemented by so-called 'brokering' actions. Brokering is about reconciling the needs and aspirations of different stakeholders, particularly the politicians. This is achieved by ensuring a 'fit' between the problem perceived by politicians, and the proposed solution. This suggests that approaches that seek broad water management reform will seldom 'fit'. More gradual approaches are required, unique to each country, combined with international financial contributions. Such approaches may be more successful, especially if they have support at the very highest political level.

So this Third International Conference already has the answers: partnership and political will. We can only hope that the delegates will not waste time over the wording of vague declarations and noble intentions, but sit down and start working on the practical solutions ■

MORE INFO

This article draws on the expertise of the Global Water Partnership, an international network of 13 Regional Water Partnerships, 85 Country Water Partnerships, and more than 3,000 Partners in 172 countries.

Why gender matters for food security

UN Women

Ensuring there is enough food to go around and that everyone has access to it has always been a concern at all levels of society, but the effects of climate change and changes in human consumption have elevated it to a critical issue, especially in Small Island Developing States (SIDS) regions.

Pacific countries are largely low-lying, isolated and agriculture-dependent, which means increasing ocean acidification, soil salinisation, disasters, temperature increases and overfishing have an immediate and noticeable effect on food security. For many SIDS there is a limited amount of arable land – 60 per cent of Tuvalu's land and 40 per cent of Tonga's is already used for agriculture – and the impacts of climate change will further reduce the availability of locally grown food at the same time as reducing income from agriculture.

Many Pacific countries are already struggling with food security, which further threatens social and economic development. Globally, 60 per cent of those who are undernourished are women and there is a strong correlation between hunger and gender equality – the countries that rank highest on the index of global hunger also score poorly in gender equality.

Women are heavily involved in subsistence agriculture and aquaculture, both of which are earliest and hardest hit by many of the effects of climate change and overfishing. Men on the other hand tend to be more involved in growing cash crops. A 1995 study done in South Tarawa, Kiribati, showed that women were responsible for 80 to 95 per cent of seaweed farming, collection of shellfish and lantern farming, while men were responsible for 95 to 100 per cent of rod fishing, gillnetting, line fishing and trolling from the reef and ocean.

Despite their critical role in food production, existing gender inequalities mean that women often face barriers when it comes to accessing agricultural land, training, credit, information, technology and services. The agricultural production they perform also tends to be considered part of a woman's household responsibilities.

Similarly, when their ability to grow enough food for their families is threatened, women often have more trouble finding an alternative income through the formal sector or migration because of culture barriers, as well as a lack of economic opportunities and education.

Instead, their workload increases as they look for new ways of feeding their families while also caring for those who fall sick as a result of poor nutrition.

pic: Lime seller at Suva market, Fiji. By UN Women/Olivia Owen

On the flipside, the roles women play in food production gives them unique knowledge and skills that can help communities and countries adapt to the impacts of climate change.

For example, coastal flooding and erosion paired with unsustainable land management in the Totoya Islands in Fiji, have reduced the amount of land available to grow crops, leading to lower yields. The women on the islands have used their knowledge of the production of local, nutritious food and traditional food preservation methods to grow resilient crops in vegetable gardens as well as to make flour, both of which will help reduce the reliance on imported products.

If we are to ensure sustainable social and economic development, men and women need to be consulted equally on initiatives to ensure new technologies and training are equally accessible. A study of various developing countries from 1970-95 showed that 55 per cent of the gains made in reducing hunger were due to the progress in women's education and the levels of equality.

The success of any actions we take relies on women's priorities, needs and concerns being heard and reflected in the planning, budgeting and decision-making processes around food production and security. For this to happen, existing issues of gender inequality and women's empowerment must be addressed ■

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www.facebook.com/unwomenpacific

Water and sanitation, food security and waste management for Small Island Developing States

Ryan Bachoo
Commonwealth Correspondent from Trinidad and Tobago

It is not uncommon for Small Island Developing States (SIDS) to feel like David standing in front of Goliath. There are currently 52 SIDS in three geographic regions, with a combined population of 63.2 million people. If we put them all together, they would be four times smaller than the United States, with roundabout the population of Britain or France. Scattered in remote locations, the size and resources of these nations make issues such as water, food and waste a frightening challenge.

When it comes to water and sanitation – or lack of sanitation – the figures are staggering; 1.1 billion people lack access to safe drinking water, 2.6 billion lack adequate sanitation and 3.4 million die every year from a water related disease. Fixing such water problems goes beyond just quenching a thirst or taking a shower. Clean water prevents water-borne diseases such as cholera, diarrhoea and dysentery. Remember, one in five child deaths are due to a water-related illness.

In 2010, UN Secretary-General, Ban Ki-moon said, 'More people die from unsafe water than from all forms of violence, including war,' and that is essentially what SIDS are fighting – a water war. Perhaps it is time then that war-like action is taken. Perhaps it is time the world started throwing money behind water systems like it does behind war. The world is at a stage where we can now heavily invest in systems such as solar-powered water pumps, rainwater harvesting, water distillation and sand and earth water dams. My favourite, from The Hunger Project, is teaching communities to be self-sufficient by operating equipment – not just helping those affected by poor water sanitation, but working with them to achieve a common goal.

Yet, as scarce as water is, there seems to be an overwhelming influx of food in many SIDS. In Trinidad and Tobago, a population of just over a million people imports $4 billion worth of food annually. Barbados' population of 283,221 has a food bill in excess of $700 million. In 2006, the Caribbean region's food import bill reportedly stood at US$5 billion. So when did Caribbean nations get tired of feeding themselves? With such high food importation bills, it seems that farmers in SIDS are discouraged to carry out their trade.

This is where change needs to start. Farmers need to be motivated to feed their communities and countries. Governments need to make locally produced food easier and more accessible, by providing farm workers with bursaries and gratuities. Then, when nations are producing endemic crops, governments can start supporting trade through an open, fair, transparent and rules-based system. Agricultural trading is imperative in today's globalised world, but it should be done in a practical and fair manner. Sadly, according to the World Health Organization (WHO), there is enough food in the world to feed everyone adequately, but too much is wasted.


pic: Asian Development Bank

It either goes down the drain or into our bins, which is another aspect of life SIDS need to improve upon – waste management. For comparison, in 2012, Americans generated about 251 million tons of trash, and recycled and composted almost 87 million tons; equivalent to a 34.5 per cent recycling rate. That's not great, is it? However, in Trinidad and Tobago, bins with individual sections for plastic, glass and paper were recently placed throughout the capital, Port of Spain. Users tended to ignore the different sections and openly used whichever section was more convenience for them. A practice that is trivial in developed nations is a challenge for SIDS, due to a lack of experience and education in waste management. That is why it is important SIDS begin with the fundamentals. Waste management practices will have to start in schools where young people can grow into the habit of recycling, understand it and know its importance. Governments need to make waste management part of the curriculum at all levels.

SIDS face many challenges in the modern world, and it is only through dialogue such as these at the Third International Conference on Small Island Developing States can we really catch up with the developed world ■

MORE INFO

Commonwealth Correspondents is a network of youth writers supported by the Commonwealth Youth Programme. See: www.yourcommonwealth.org and www.thecommonwealth.org

The Tina River experience: Power (only) through partnership

Paul Roughan
Tina River Hydro Project

> Genuine partnerships are not just important for sustainable development; they are absolutely essential. This has been the lesson of Tina River Hydro in the Solomon Islands, where a flagship renewable energy project is approaching construction. Tina Hydro will displace more than 80 per cent of the electrical energy currently supplied by diesel generation.

It is also now beginning to catalyse additional partnerships which are set to enable further sustainable development outcomes, such as the integrated management and protection of large tracts of unique highland rainforest. Both of these themes were shared at a side event on Wednesday at the SIDS Conference in Samoa.

More than four-fifths of the Solomon Islands' land mass remains customary in nature – not subject to any central or formal administrative structure or process, and subject to the organic and complex workings of social, cultural and spiritual relationships that permeate it. It is the ultimate indigenous terrain, where non-tribal authority, including the independent state of Solomon Islands, does not even have records.

As autonomous landowners, it could be said, indigenous Solomon Islanders do in fact play the part of the 'crown' in other jurisdictions. The significance of this comes into prominence when thinking about arrangements between landowners and would-be investors, including the government.

This opacity and autonomy of customary land is often invoked as a reason for the difficulty with which large 'development' projects are able to access such land. Certainly, the lack of registration denies any possibility of title, which in turn hampers the possibility of using land as security in commercial dealings.

Yet, this is often exactly what landowners wish. The possibility of securitising land means the possibility of its loss. And if this means foregoing the potential future benefits from a large project, well, the historical record suggests that this is a preferred outcome.

Instead of registration, titling and the tabling of said title in commercial deals with far off and often invisible commercial financiers, the converse desire is expressed as the notion of 'partnership'.

Instead of 'putting up' one's land to join the gamble that commercial finance can be, landowners often express a preference for partnership, in which they retain hold of their land while offering its use to a potential partner who would bring to the deal knowledge, connections and commercial nous. Together, this partnership would bring together two parts of a package which, if then viable, would mark a profitable and successful ongoing relationship.

As autonomous landowners, it is not surprising that conceptions of partnership extend to partnerships with the national government. These partnerships often contemplate relations between equals – a kind of treaty if you will, of a type not at all unlike those between sovereign equals.

This 'partnership' then is the holy grail of the great majority of landowners, and the professed desire of many (but by no means all) investors as well. Despite this, achieving it in practice has proven extremely difficult.

The Tina River Hydro Project has tackled this difficulty by building on partnership as an absolutely fundamental foundation, and in so doing has developed a model which acts:

- To register, title and commercially secure customary land without the original customary owners losing it;
- To create an equitable long term partnership between the government and indigenous landowners;
- To host a US$ 100 million plus infrastructure PPP investment (a hydropower dam, lake and station) on the land held and governed within the framework of the said partnership; and
- To emplace the entire arrangement – power infrastructure, landowner-government partnership, titled land – within a broader context of benefit sharing arrangements with the related tribes and communities co-located near the project, but whom are not landowners of the land used for the project.

The Tina Hydro Project is now undergoing international tender, with the land for the project secured by models emphasising social license and based on partnership. The land on which the power scheme will be located has been negotiated to vest in a 50-50 venture between the tribes owning it customarily, and the government. The surrounding indigenous people who are hosting this land but who are not owners of the core land, are beneficiaries of a 15 per cent benefit sharing partnership whereby 15 per cent of the national benefit is applied to social development in their areas. The development will be constructed under a build-own-operate-transfer model by a private developer, selling power to the national public power utility as a PPP ■

From vulnerabilities to opportunities: Building food, nutrition and trade resilience of SIDS

Isolina Boto
ACP-EU Technical Centre for Agricultural and Rural Cooperation (CTA)

A substantial body of research has demonstrated that Small Island Developing States (SIDS) are more vulnerable to economic shocks and natural hazards compared to other countries or regions.

Although SIDS have significant differences in terms of size, population, socio-economic conditions, infrastructure and standards of living, there are many disadvantages that derive from their small size. This includes a narrow range of resources, excessive dependence on international trade, high transport and communication costs, high population density, and so on. Due to their small size, isolation and the fragility of island ecosystems, their renowned biological diversity is among the most threatened in the world. Natural disasters are of special concern to small islands because of their dependence on agriculture and tourism which are particularly vulnerable to natural and environmental degradation.

Food security is also of concern due to the vulnerability and limited scale of agriculture, already facing uncertain impacts from temperature and precipitation changes. Agriculture has been the mainstay for survival and economic development in many SIDS. However, many islands are highly dependent on imported food and agricultural products, and very susceptible to changes in world food prices. Such prices may spike upwards as climate change exacerbates droughts and floods in the world's major agricultural producing regions. There is usually great competition for land resources from tourism, agriculture and other land activities, and the various uses should be carefully planned.

In islands where tourism is the dominant activity, most, if not all, foods and beverages are imported, leaving their economies susceptible to changes in world food prices. Promoting local supply linkages in agriculture will therefore have a two-fold benefit; improving food and nutrition security, and enhancing value added for domestic and regional agricultural products.

Enhancing economic and trade resilience: Policy implications and transformative partnerships

New opportunities have arisen in value-added goods and services and niche markets at local, regional and international levels and to benefit from these, it is necessary to ensure that producers receive the right incentives, and that governments make strategic investments targeting institutions and infrastructure that will bolster the potential of the sector and assist with its transformation.

Building resilience against increasing volatility and external shocks requires appropriate agricultural and trade policies to reduce import dependence and boost local production.

pic: Taro roots for sale in Papeete, Tahiti. By Éole Wind, flickr.com/eole

Developing the capacities of SIDS to diversify production, enhance productivity and add value through quality niche products requires an optimisation of the use of indigenous capacities and resources. In order for this objective to be achieved sustainably, SIDS will have to innovate, develop new technologies, and transform their adaptation and mitigation techniques.

To move from a position of vulnerability and dependence to one of resilience, small island economies must also explore new areas of economic development and strengthen diversification strategies. Sound policies focused on broadening the 'options' for small island economies should be designed to exploit the interlinkages between sectors like agriculture, tourism, industry, ICTs, finance etc. The services sector, and in particular agro-tourism, represents a genuine opportunity to link local producers to agribusiness.

Public private partnerships (PPPs) are key to addressing the main challenges of small islands in terms of regional trade, infrastructure, transport and communication and access to capital.

The Technical Centre for Agricultural and Rural Cooperation (CTA) is a joint institution of the African, Caribbean and Pacific (ACP) group of states and the European Union established 30 years ago and operating within the framework of the Cotonou Partnership Agreement (www.cta.int).

In the context of the Third International Conference on Small Island Developing States, CTA announced a number of new partnership initiatives that will start from 2015 in support of sustainable agri-food systems and agribusiness in the Pacific. In partnership with the Pacific Island Private Sector Organisation (PIPSO), CTA will host an annual agribusiness forum that will bring together farmers and entrepreneurs. CTA and the Consultative Group on International Agricultural Research (CGIAR) will launch a research and development programme on climate change adaptation and resilience building for fishers and farmers that will engage regional partners, including the Secretariat of the Pacific Community (SPC) and the Secretariat of the Pacific Regional Environment Programme (SPREP) ■

Towards scientific and methodological innovation in SIDS groundwater resources management

Leszek Jeremi Bialy and Tales Carvalho Resende
United Nations Educational, Scientific and Cultural Organization (UNESCO)

There is increasing recognition of the significance of aquifers in ecosystems, including those in Small Islands Developing States (SIDS). SIDS have limited options when it comes to exploration of freshwater resources. Their highly constrained freshwater resource base and the patterns of development on limited habitable land pose particular challenges.

Additionally, the relatively short length of surface water circulation in SIDS poses limits on the variety of possible interventions to minimise the negative impact of anthropogenic activity and may lead to groundwater over-utilisation. The quality and quantity of groundwater are now threatened by population growth, urbanisation, and adverse environmental impacts, including pollution, saline intrusion, soil erosion and mass wasting, which makes groundwater both a fragile and vulnerable resource.

Management of groundwater resources, particularly in SIDS, is not an easy task mainly because of groundwater's unseen and little understood nature, e.g. understanding saline intrusion. The relative fragility of the hydrological cycles on SIDS means that for the exploitation, planning and development of groundwater resources, management strategies need to be carried out within particular hydro-environmental limits and with special care. Groundwater resources management, aiming at sustainable and responsible exploitation, including adequate protection of the groundwater resources, is therefore of key importance and has to be based on scientific, hydrological, environmental, economic, social and legal principles.

In recent years, increasing attention has been paid to innovative integrated water resources management on SIDS and adaptation to climate change, based on modelling and assessment of potential resources against the needs of growing populations. Innovation on SIDS groundwater resources management should integrate groundwater into a wider environmental–socio-economical context (holistic approach); explore cross-cutting issues and causal chains to better understand the processes of change in groundwater cycles; and use this improved understanding for optimising groundwater assessment and monitoring programmes, and adaptive management.

A starting point for long-term and sustainable groundwater resources management requires policy makers and scientists to start talking the same language and working together to collect and share information, to better understand ongoing processes, and in particular to identify key management issues in order to address and develop adequate management strategies and action plans. The quality of such processes is highly dependent on the science and innovative approaches adopted in the acquisition of data and information for the assessment and monitoring processes.

Collection of data and assessment and monitoring activities related to groundwater resources on SIDS are very challenging. Technical and scientific data are either missing or inadequate, mainly because of a shortage of expertise to collect and analyse data, and a lack of financial resources. The assessment and monitoring of groundwater resources in SIDS can be extremely costly because of the remote geographical distribution of islands. Groundwater resources management strategies should then first be based on less intensive, cross-cutting and holistic assessment and monitoring with the purpose of giving a snapshot of the current situation, and to identifying aquifers that, due to their strategic importance, deserve priority in being addressed.

An example is the ongoing Global Environment Facility (GEF) funded Transboundary Waters Assessment Programme (TWAP) executed by UNESCO International Hydrological Programme (IHP), which includes a SIDS groundwater systems component that is currently being applied to 42 SIDS in the Caribbean, Asia-Pacific and Africa. The assessment goes beyond an inventory of SIDS groundwater resources and uses a set of indicators to define the priorities that need to be addressed. These indicators are based on field data. Ten core indicators, encompassing the hydrogeological, environmental, socio-economic and governance dimensions of the systems have been identified. Common use of these indicators in the different SIDS may be considered to facilitate communication between stakeholders with very diverse levels of knowledge and professional backgrounds. These indicators will allow for defined priorities to be addressed at national level, as well as ease comparison, technical and policy knowledge sharing, and strengthen regional cooperation between the different SIDS.

Finally, it cannot be over-emphasised how important effective communication and interaction between the scientific community, decision makers and the media are in the use and conservation of groundwater resources ■

Where there is no decentralisation: Restoring solid waste services in Haiti's Palms Region

Rachel Savain and Anne Scheinberg

pic: Excavation of the controlled landfill's first terrace in Grand-Goave, Haiti. Source: Authors, 2014

There is a movement towards decentralisation in Small Developing Island States (SIDS). The transfer of power, resources and responsibility from central government to lower government levels has proven effective in improving municipal service provisioning. However, can local government restore and maintain solid waste services with little decentralisation? Haiti's coastal Palm Region faces this issue four years after being the epicentre of a devastating earthquake. Development efforts in this region reveal that measures may mitigate the impacts of highly centralised government operations. The findings demonstrate that (1) South-to South knowledge exchange, (2) participative processes, and (3) localised solutions may help revitalise solid waste management in this context.

While Haiti's constitution provides a strong basis for decentralisation and holds municipalities solely responsible for waste services, several studies reveal that the country's political culture is dominated by the central authorities. The political norms heavily influence operations between government levels and restrict effective public service provisioning by local government. Pre-earthquake, Palm Region's authorities provided ad hoc waste services based on central government funding. Despite their situation, the four municipalities, Gressier, Leogane, Grand-Goave, and Petit-Goave, created their own regional inter-communality and solicited the help of other municipal associations in Canada, France, and the Netherlands to promote decentralisation in the region. Establishing a modernised integrated waste management system was one of the main goals of the municipalities. The four year cooperation between the regional municipal association, CMRP, and VNGI international, a Dutch Municipal Association highlights how to increase the probability of restoring waste services with little decentralisation.

South-to-South knowledge transfer permitted the exchange of skills and experiences between CMRP and other nations facing similar difficulties. To implement collection services, VNGI and CMRP replicated parts of a door-to-door waste collection and fee system implemented in Mali. Each city provided solid waste collection services that were subsidised by VNGI for 3-6 months. Public consultations helped the municipality establish pick-up times, collection methods, etc. For example, within two years, Leogane increased their service from one metropolitan zone to four zones. Waste collection was coupled with a door-to-door public awareness campaign, media, and neighbourhood meetings. Community feedback and technical data were collected and processed. As a result, the municipality covers about 25 per cent of the operations in the pilot zone. Seeking south-to-south knowledge transfer allowed CMRP to consider how other municipalities endured comparable challenges.

Lack of decentralisation forced the region's government to find locally focused solutions. To establish the directives for their waste management and fee collection systems, Gressier, Leogane, and Petit-Goave passed regulations. Punishments for pollution, instructions for the population, and service options were considered. While the municipal laws encourage the inclusion of initiatives in local governance practices, the municipalities struggle to enforce the punishments and sometimes even the regular service the regulations call for. Nevertheless, the regulations are crucial in the absence of comprehensive waste management legislation at the national level in Haiti. The strategy allowed the local government to use the little legal powers allotted to them.

Participative processes included all pertinent actors in decision-making. The practice facilitated shared responsibilities among stakeholders in a controlled landfill project. VNGI financed the construction, and provided expertise based on experiences in South Africa. To ensure ownership, the central government bought the land. The regional municipal association, CMRP, is responsible for managing the site in collaboration with the central government. A memorandum of understanding was signed between the government institutions and VNGI to facilitate accountability. Neighbourhood meetings allowed CMRP residents to communicate their requests. For example, they asked that a concrete wall blocks their view of landfill operations. Sharing responsibilities was the key ingredient necessary to include all actors, specifically consulting the central government to ensure collaboration.

In countries with highly centralised government operations, local authorities must use all the tools at their disposition to set up their waste management systems. The VNGI case study shows which measures may help municipalities aiming to restore waste services in similar conditions: (1) exchanging knowledge between developing nations, (2) including all actors in the decision making process, (3) and solving problems locally ■

MORE INFO

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Integrating sound management of chemicals and waste in the Sustainable Development Goals

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Chemicals are an integral part of our daily life. There is hardly any industry in which chemicals are not used and no single economic sector in which chemicals do not play an important role.

Global chemical sales are expected to grow about 3 per cent per year to 2050, with much of the expansion – in use and manufacturing – in developing countries and countries with economies in transition. The production, consumption, use and disposal of products are increasing the presence of chemicals in developing and transition economies. Demand for electrical/electronic goods, rapid technology change and high obsolescence rate of these items have increased the generation of large quantities of obsolete and near end of life electronic products, many of which are being disposed of in developing countries.

The cost to national economies of human and environmental exposure to harmful chemicals is often unrecognised, but can be substantial, as outlined in United Nations Environment Programme (UNEP)'s Cost of Inaction report and the World Health Organization (WHO)'s work on the burden of disease. In spite of their limitations, estimates indicate considerable risks associated with the current state of management of chemicals and its waste, including:

- Annual costs of environmentally mediated diseases in US children of US$ 54.9 billion (range US$ 48.8–64.8 billion). This amounts to 2.8 per cent of total US health care costs;
- Costs of lead poisoning, prenatal methylmercury exposure, childhood cancer, asthma, intellectual disability, autism, and attention deficit hyperactivity disorder were US$ 76.6 billion in 2008;
- The removal of lead from gasoline is a highly cost-effective measure. In the United States alone, the benefits of phasing out lead were estimated to outweigh the costs more than 10 times; and
- In Belize, implementing Good Agricultural Practices (GAP) over a five year period would allow for a net benefit US$ 166 per acre per year and represent a US$ 61 million net present value over a five year period, with a benefit/cost ratio of 3.15.

This provides evidence that achieving the Johannesburg Plan of Action goal of the sound management of chemicals by 2020 would yield significant benefits not only for reduced risks to human health and the environment, but also for economic development and poverty reduction.

The sound management of chemicals, and the Sustainable Development Goals

The Open Working Group on Sustainable Development Goals' Outcome Document (July 2014) proposes various global goals with relevance to the use of chemicals and their sound management, for example: 'End hunger, improve nutrition and promote sustainable agriculture' (proposed goal 2); 'Attain healthy lives for all' (3); 'Attain gender equality, empower women and girls everywhere' (5); 'Promote sustainable infrastructure and industrialization and foster innovation' (9); 'Promote sustainable consumption and production patterns' (12); and 'Strengthen the means of implementation and the global partnership for sustainable development' (17). Specific targets include:

- By 2030, substantially reduce the number of deaths and illnesses from air (indoor and outdoor), water and soil pollution (3.7);
- By 2030, improve water quality by reducing pollution, eliminating dumping of chemicals and hazardous materials, doubling wastewater treatment and increasing recycling and reuse globally (6.3);
- Promote the sound management of chemicals and hazardous wastes in accordance with agreed international frameworks and by 2030 significantly reduce their release to air, water and soil (12.3); and
- By 2030, prevent and control, and reduce marine pollution of all kinds, particularly from land-based activities (14.1).

Achieving the Sound Management of Chemicals

The Global Chemical Outlook (GCO, UNEP) sets out over-arching recommendations that if implemented would contribute to improved management of chemicals:

1. Develop and implement comprehensive, multi-stakeholder and prevention oriented chemical management strategies tailored to the economic and development needs of the developing countries and countries with economies in transition;
2. Mainstream sound chemicals management into national public health, labour, social and economic development programmes;
3. Regulate and reduce the use of chemicals of highest concern, and substitute with safer alternatives;
4. Integrate and coordinate regional, international and intergovernmental chemical management programmes to promote synergies and increase effectiveness; and
5. Develop and implement national, regional and international approaches to financing adequate capacity and resources to support sound chemicals management.

Mainstreaming the management of chemicals into national development will ensure that the production, use and disposal of chemicals are done safely and promote the economy and human health and wellbeing ■

Promoting career prospects for young people in the sciences to ensure sustainable island living

Nicole Webley
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On Tuesday, the Seychelles Ministry of Environment and Energy, the Government of the Dominican Republic and UNESCO organised a side event that provided a platform for four young scientists, from Comoros, Samoa, Mauritius and Haiti, to advocate for improved science education and the promotion of careers in the sciences for young people in SIDS. The meeting was chaired by Professor Rolph Antoine Payet, Minister of Environment and Energy (Seychelles).

The writing is on the wall – there is a need for SIDS to use Science, Technology and Innovation (STI) in a more comprehensive way to achieve sustainable development. One way in which this may be achieved is by strengthening investment in science education and encouraging young women and men to pursue science related careers and entrepreneurial opportunities. STI policies provide a holistic framework for the improved governance of science within SIDS by linking knowledge to markets and decision making. Good quality education in Science, Technology, Engineering and Mathematics (STEM) improves the employability of young people and countries' economic competitiveness, productivity, growth and social transformation. Furthermore, a well-trained workforce tends to pursue additional learning opportunities, and improves investors' confidence – important factors for achieving economic stability. Greater investment from SIDS in STEM education and more exposure of young people to careers and opportunities in the sciences will empower SIDS' youth to tackle the challenges faced by their regions, providing that the economy is able to utilise their skills and knowledge. Improved cooperation is also needed between SIDS, in partnership with universities, research networks and private sector entities in balancing the demand for skills and services with the human resources available. The major recommendations of the young scientists on the panel included:

- Greater efforts need to be made in SIDS to encourage young people to pursue careers in the sciences, particularly to address priority island issues such as water, waste management, youth unemployment, climate change, degradation of biodiversity, and sustainable use of energy;
- Science education and popularisation in SIDS are important mechanisms to encourage young people and society to invest in science;
- Improved teacher training in the sciences plays an important role in ensuring quality education in SIDS;
- Strengthened STI policies in SIDS can facilitate improved connections between market demands and knowledge production, skills training and labour mobility, and thus ensure job and entrepreneurial opportunities at home for young SIDS scientists, and reduce brain drain; and
- Greater efforts should be made to include indigenous knowledge and local resources in finding solutions to address SIDS' challenges ■

UNESCO is committed to following up on the major outcomes of the SIDS Conference through the implementation of an action plan based on the Samoa Pathway.

Side events calendar

DATE	TIME	VENUE	TITLE	ORGANISERS
THURSDAY 4th SEPTEMBER	09:00 - 10:30	CM 4	Education and Research for Sustainable Development	National University of Samoa, Centre for Samoan Studies
		CR 3	Fossil Fuel to Renewable Energy (FFRE) Transition Workshop Series	UN Office for Sustainable Development
		CR 1	Ocean Resources and Climate Resilience	Permanent Mission of the Commonwealth of Dominica to the United Nations & Caribbean Community [Caricom] Climate Change Centre (CCCCC)
		CR 2	Organic Islands – Role and Potential of Organic Agriculture for sustainable development	IFOAM – International Federation of Organic Agriculture Movements
		CM 5	Regional cooperation as a gateway to enhance SIDS partnership in the Indian Ocean	Indian Ocean Commission
	11:00 - 12:30	CR 1	ICT for Sustainable Development	Pacific Centre for Environment and Sustainable Development (PACE-SD), The University of the South Pacific, Laucala Campus
		CM 5	Regional Dimensions of the Sustainable Development of SIDS	UNESCAP
		CR 2	SIDS Women at the Forefront of Sustainability: Water-Food-Energy Nexus	Risxcel UK Ltd
		CM 4	South West Indian Ocean Humanitarian Team: Lessons Learned and Best Practices from the Caribbean and Pacific experiences	Government of the Union of Comoros
		CR 3	What's in it for SIDS? IPCC Fifth Assessment Report	CDKN

Reflections from the Third International Conference on SIDS, Wednesday 3rd September

Jacqueline Fa'amatuainu

The model of sustainable development is undergoing a conceptual transition. Innovative financing mechanisms are needed to support SIDS in meeting their national development goals. And the private sector must be called upon to support this transition. The moderator of the multi-stakeholder partnership dialogue on sustainable energy, Elizabeth Thompson, echoed this as a lesson to be learnt in forming durable partnerships.

Sustainable energy is impressing a significant leverage point for transformative partnerships. While these goals appear to be idealistic, it is essential to move from brown to green energy. The statements at the dialogue declared a common acknowledgement of the imperative that all prospective donors should follow these new avenues for development. The conceptual shift for sustainable development is necessary to move policy from simply consulting with stakeholders to processes that are based on robust partnerships which enhance energy security and reduce greenhouse gas emissions.

Government officials, intergovernmental agencies and Non-Government Organisations (NGOs) progressed in a climate of trust in the dialogue. The positions of the different actors were clear. As anticipated, the conclusion was that lasting partnerships are required to catalyse action in which SIDS can then take ownership of their national priorities.

If we look at the current situation as a wake-up call for ambitious renewable energy share, it becomes clear that a single act of intervention would not be able to reduce the energy intensity of these small economies. It is not easy to continue this dialogue and sustain durable partnerships without the support of the private sector.

While governments tinker around the edges of sustainable economic development, with a modest agenda aimed at phasing down greenhouse gas emissions, business stakeholders around the world are increasingly adopting sustainable practices and creating jobs in the process. The revelation here is the degree to which we can find a balance between environmental, economic and social outcomes.

The sharing of best practice among states, major intergovernmental agencies and other stakeholders shows a deep concern to create durable partnerships as the norm for sustainable development. But underlying growing demand and pressures in expanding energy supplies is a challenge of securing quality energy data. Innovation is required.

pic: Windwärts Energie GmbH, by: Mark Mühlhaus/attenzione

As a final consideration, there seems to be the belief that sustainable economic development must proceed from a concept that 'balances' environment, social and economic considerations, but that practice continues to allow policy agendas to be weighted more heavily in favour of certain vested economic interests. If the world is to transition to a sustainable energy platform, I ask if SIDS are perfectly situated for this work to start? Can SIDS really address the environment through the Sustainable Energy for All (SE4ALL) initiative and through renewable energy access and energy efficiency measures. It is really up to us. In any case, a 'robust stewardship' for sustainable energy is required ■

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