Chapter 4

Access and Coverage

4.1 K-12 Education

4.1.1 Good practice: Using broader education system reforms to lay an institutional foundation and create entry points for ESD

Ministries of education in SIDS are faced with a challenging mix of responsibilities, constraints and competing demands. Nonetheless, many countries have found opportunities to infuse sustainability-related content and relevant pedagogical approaches into their systems during ongoing processes of educational reform and modernisation.

In a relatively ambitious approach spread over the past eight years, Tonga has undertaken a broad review of its education sector, leading to the development of the *Lakalaka Policy Framework* which foregrounds considerations of culture and progress; a teacher professional development plan which makes reference to sustainability; and perhaps most notably, a new curriculum framework entitled *Quality Education for a Sustainable Future*, which places considerable emphasis on ESD.

An example from Solomon Islands is somewhat more representative of how ESD is being incorporated into reform efforts. In 2008, the country undertook a curriculum review, resulting in a national curriculum statement which calls for an outcomes-based approach to curriculum development across the system, while also highlighting the importance of values and attitudes that will be useful in later life. The statement identifies environmental and health education as guiding principles and highlights ethics and citizenship as key learning outcomes for the development of curriculum at all levels.

Most of the focus countries have adopted a similar approach. While working concertedly to modernise and strengthen basic features of their education systems, they have incorporated ESD-related rhetoric into their key frameworks, strategies and planning documents. Terms such as 'sustainability', 'sustainable livelihoods', 'sustainable development' and other related concepts are quite common in the key education documents of the focus countries. For ESD advocates this work may seem insufficient, but it nonetheless provides important entry points for motivated teachers as well as civil society organisations (CSOs) to undertake ambitious ESD initiatives such as whole school approaches. Furthermore, the strengthening of basic aspects of the education system – especially those related to quality – are fundamental to the good practice of ESD. While contemporary methods like student-centred and active learning pedagogies do not equate to ESD, there is broad recognition that effective ESD requires a shift away from lecture-oriented approaches to those which better engage learners. As such, these changes reflect an important step in the right direction.

Extending the good work: Education systems are multifaceted, with many subsystems. In order for ESD-related interventions to gain real traction, a concerted sector-wide effort is needed. It is not enough to adjust policy, or include reference to sustainability in curricula if, for example, examination systems remain grounded in content knowledge, or adequate teacher professional development is not provided to facilitate the shift. The Tongan example has good potential from the perspective of system-wide ESD integration because of the relative coherence of a number of its policy initiatives around themes of culture and sustainability. However, it will be important that adequate resources are attached to the policy decisions. Another systematic approach discussed in more detail elsewhere in the report is provided by Mauritius, which has undertaken a process of rethinking its national development trajectory through the concept of Maurice Ile Durable (MID), and along with this, is working towards the reorienting of its education system to support sustainable development.

4.1.2 Gap: Despite the presence of some supportive policies, ESD is not consistently making it into schools in a systematic or comprehensive manner

The above good practice of incorporating ESD rhetoric and entry points into national documents is an important starting point, and provides entry points for further activity. However such 'presence' in the official agenda does not necessarily translate into any systematic implementation at the school or classroom level. In many of the focus countries, ministry of education[1] (MoE) documents have only a small number of references to sustainability, making it more absent than present. In others, policies and curricula are strong on ESD, but the documents are too new to have resulted in strong implementation. Reports and interviews suggest that at the school level, ESD continues to be perceived as an add-on to academic programmes or incorporated into science classes as environmental content. In some cases, there may be good overarching policy statements that are not effectively translated into implementation strategies, and in other cases, sustainability may be integrated into the policy documents of some departments but not others. The result is a confusion or competition of priorities with fragmented implementation often being led by committed individuals, or by organisations (often CSOs) outside of the K-12 system. Despite good intentions and prevalent will among teachers and educational leaders, examples of high quality ESD being implemented at the school level appear few and far between.

Bridging the gap: There are some examples of relatively consistent approaches to ESD within K-12 systems leading to meaningful implementation. In Jamaica, for instance, themes relevant to sustainability have been included in curricula ranging from pre-primary (building foundations through learning to care for one's self, as well as basic environmental knowledge) through to secondary (more academic, with complementary focus on social responsibility and environmental topics). However, even in the case of such systematic curriculum reform, the work has received some criticism, particularly at the secondary level, due to an emphasis on learning about the environment rather than a more integrated or comprehensive notion of ESD (Collins-Figueroa et al. 2005). Furthermore, as ESD is introduced in curricula, there continues to be a need for corresponding changes in other aspects of the system such as exam systems and teacher training to create an enabling environment for implementation.

In the Pacific, UNESCO has indicated that it has raised the prospect of comprehensive school or ministry-level sustainability programmes at a number of ESD workshops, but that there has been relatively little interest in this approach. Nonetheless, such an approach is what appears to be needed if concerted ESD implementation is going to proliferate at the school level. If decision-makers take sustainability as a core value, the potential for reorienting policy to support it is almost limitless. Consideration of such possibilities provides a sense of how whole school systems might be reoriented to push forward the agenda of sustainability concertedly. Some policy examples might include:

- A process whereby all new policies would be audited for environmental considerations such as: quantified projections of the carbon emissions the policy would result in; water, energy, land and other resource use; ecological impact; etc. (along with other considerations such as gender, culture etc.);
- Incorporating environmental audit criteria into school inspection and licensing processes, and including them in school performance reports;
- System-wide league tables of environmentally friendly schools;
- Policies around resource consumption at schools (water, energy, paper etc.) and waste management, aimed at reducing resource use, re-using materials, promoting recycling and reducing pollution;
- Procurement guidelines requiring consideration of environmental impacts, embodied energy (the sum of all the energy required to produce goods or services), carbon footprints and other ethical sourcing criteria when purchasing inputs for the education system.

4.1.3 Good practice: Giving students real experiences with nature, sustainability and caring for their environments

While other aspirations may exist, education in many countries can be characterised as a process of transmitting bodies of knowledge and skills. This emphasis on teaching content continues to characterise the practice of ESD. However, in most of the focus countries there also exist good examples of educators going beyond teaching 'about' sustainability and the environment to create a more active engagement of students with sustainability issues, which will result in more authentic or transformative learning. The broad range of extra- and co-curricular approaches includes clubs, field trips, special events, research activities, project-based rich tasks and whole school approaches. A small sampling of these initiatives will be illustrative of their diversity. In Guyana, the state Environmental Protection Agency (EPA) has been increasingly active in the school system, and establishes and registers school environment clubs, providing a number of supports and resources for club supervisors. The EPA also provides a number of other opportunities for schools, including in-school presentations and support for field trips, as well as other non-school-based activities. In terms of special events, reports from Jamaica refer to Earth Day, National Environmental Awareness Week, Peace Day and National Heritage Week; whereas reports from Samoa include references to World Food Day, World Environment Day, National Environment Week,

Arbour Day, International Ozone Day, Biodiversity Day and National Cleanup Day. While students' day-to-day experiences may still be dominated by rote learning in many cases, it is clear that there are a broad range of opportunities which schools and teachers are capitalising on to provide exposure to ideas around sustainability through extra- and co-curricular activities. In addition, there is evidence that student-centred approaches to learning are becoming more common, including research activities, discussions, project-based rich tasks and whole school approaches, thus contributing to an increasingly diverse and authentic learning experience for students.

Extending the good work: While the importance of the experiential activities mentioned above should be noted, their limitation is that they tend to be *supplemental*. The provision of one-off experiences through field trips and special events are likely to have limited impact on students and may even serve to trivialise important issues, as they are outside their daily routines. Part of the issue is that such 'add-ons' tend to be organised from outside of the education systems, initiated by CSOs or multilateral organisations. While there may be the endorsement of MoEs for such initiatives, they tend to survive as 'squatters' in the formal education system. More promising approaches are emerging in a number of countries, in which MoEs are more directly incorporating ESD into their core thinking on education. With a clear prioritisation of ESD, there is a chance for extra- and co-curricular activities to become a more influential aspect of students' daily experiences.

On the premise that students learn what they live, ongoing clubs and whole school approaches are more promising. However, these approaches are often threatened by competing priorities such as academically-oriented exams – sending a clear message to students about what is actually important. Since exams are a driving force in many education systems, one approach to encouraging a reorientation of classroom life towards sustainability would be to incorporate ESD more centrally into exams – not through the superficial inclusion of content, but by requiring a demonstration of relevant problem-solving and application skills, as well as critical thinking in relation to that content. Ultimately, for ESD to be successful, it will be important for MoEs to re-evaluate existing exam structures and assessment mechanisms, as well as other common drivers such as textbooks, and rework those drivers so that students, teachers, principals and supervisors have incentives to work with ESD more earnestly and comprehensively.

In the Caribbean, the Caribbean Examinations Council (CXC) has indicated an interest in ESD through participation in recent ESD initiatives. While existing exam structures and contents do not yet reflect a strong commitment to ESD, the basis for the ongoing development of CXC exam structures and related syllabus development is grounded in the concept of the creation of 'the Ideal Caribbean Person' (Jules 2011), as defined by the heads of government of the Caribbean Community (CARICOM). This definition includes concepts closely related to ESD, including: environmentally sensitive; democratically engaged; culturally grounded; historically conscious; and gender and diversity respectful (Jules 2011). If the CXC is successful in substantively integrating these foundations into its work, there is great potential for examinations to be a driver of education in the region to provide a more focused push towards ESD.

4.2 Higher education

4.2.1 Good practice: Development of specialised post-secondary programmes in priority areas for sustainability

A number of universities throughout the focus countries are offering programmes that focus on priority areas for sustainable development. Predictably, the most common examples come from programmes in environmental science, or tourism and leisure, supplying an important economic niche with graduates who have a grounding in principles of conservation and sustainable resource management. One example of a university aspiring to go well beyond this is the University of the South Pacific (USP). With twelve member countries, including four focus countries in this study (Nauru, Samoa, Solomon Islands and Tonga), USP is in a good position to play a leadership role in ESD throughout the Pacific. In addition to standard classroom-based delivery, USP has developed programme structures well suited to its island context, including a variety of distributed learning options where students can earn credit through self-study and distance education courses. Having been identified as both a United Nations university (UNU) regional centre of expertise (RCE) in ESD and an Asia-Pacific cultural centre for UNESCO (ACCU–UNESCO) Centre of Excellence (CoE), USP is the lead agency for the promotion of sustainable development in higher education for the Pacific islands. In addition, USP has taken a lead role in the implementation of the Pacific Regional ESD Framework. The university has highlighted quality, relevance and sustainability in its strategic plan, and offers a number of programme specialisations directly related to sustainable development.

In the humanities, the USP is also implementing a project entitled Mainstreaming ESD at USP to Enhance Education based Capacity Building for Sustainable Development in the Pacific Island Countries. The project is aimed at enhancing ESD opportunities in a variety of fields through innovative curriculum development and programme delivery methods. The project has three components covering teacher education, sustainability education and community empowerment. The sustainability education component in particular addresses a number of ESD priority areas which will provide opportunities for students to pursue studies and future careers in areas which will contribute to sustainability in the region, including: a Postgraduate Diploma in Sustainable Islands and Oceans Development; a Postgraduate Diploma in Environmental Sciences; and a new Master of Laws (Environmental Law). In addition to programmes under the Centre of Excellence Project, the USP's Pacific Centre for Environment and Sustainable Development (PACE–SD) – also co-ordinating the implementation of the regional ESD action plan – has a number of programmes of its own related directly to sustainability and climate change.

Extending the good work: Recognising the importance of higher education institutions in sustainable development, the United Nations Environment Programme (UNEP) has spearheaded the development of the Global Universities Partnership on Environment and Sustainability (GUPES). The main aim of GUPES is to promote the infusion of environment and sustainability concerns into teaching,

research, community engagement and management of universities and other tertiary institutions. Working internationally, GUPES, along with the International Network of Teacher Educator Institutions involved with reorienting teacher education to address sustainability, and the University Consortium of Small Island States (UCSIS), provide a potential support network for higher education institutions in SIDS that are interested in strengthening their work on ESD. In addition, regional networks such as the planned Pacific Network of Island Universities Higher Education for Sustainable Development Framework or informal networks such as the one established through the Mainstreaming Environmental Sustainability in Caribbean Universities (MESCA) audit discussed below, provide opportunities for the continued sharing of experiences between institutions for the strengthening of ESD-oriented programmes. This process has already begun, evidenced by the Network of Island Universities (NIU) EDULINK project, which brings together USP along with the National University of Samoa and the University of Papua New Guinea, resulting in new course offerings focused on thematic areas related to sustainability.

While global networks like GUPES have an important role to play in advancing ESD in higher education institutions, the role of USP in both the conceptualisation and implementation of ESD in the Pacific is particularly noteworthy. As a regional centre of expertise on ESD under the UNESCO model, USP has made important contributions to advancing ESD in the region. Currently, both the Caribbean and AIMS regions lack such a centre, and one source in the Caribbean has suggested that this is something that should be explored further. As a regional university itself, the University of the West Indies (UWI) would be in a good position to carry out this role, perhaps led by the UWI's Institute for Sustainable Development (ISD), which was established in 2006 with a mandate to make a more effective contribution to the sustainable development of the entire Caribbean region. The main objective of the institute is to promote and support sustainable development in the small island developing states and other developing countries (UNEP, undated). While the AIMS region has no such regional university, a similar approach – perhaps building on existing in initiatives like UNESCO's Avicenna Virtual Campus (Mediterranean) or African Virtual Campus – could be considered.

4.2.2 Good practice: Assessing ESD in post-secondary institutions beyond the programme level

Recognising that any programme of tertiary ESD reform must begin with good information, a group of 33 concerned participants representing 11 Caribbean universities convened in 2009 to discuss how ESD could be assessed in order to yield useful data for planning and improvement. With the support of the United Nations Environment Programme (UNEP), this initial meeting marked the launch of the Mainstreaming Environment and Sustainability in the Caribbean Universities (MESCA) initiative. The methodology of this initiative involved adapting a tool that had been developed for use in African universities, Mainstreaming Environment and Sustainability in African Universities (MESA), for use in the Caribbean context. Subsequently, an ESD audit was conducted in six universities, including the UWI,

Mona Campus (Jamaica). The audit addressed the following areas in relation to ESD: curricula; teaching approaches; research and scholarship; planning; co-ordination; building and grounds; energy and water usage; waste management; and even diversity. What is particularly noteworthy in this audit is that it goes well beyond a simple checklist indicating the presence of sustainable development- related programmes of study. The MESCA tool delves quite deeply and comprehensively into higher education for sustainable development, and has yielded rich data, providing good initial understanding of many of the contextual factors related to ESD in Caribbean higher education institutions.

Other monitoring and evaluation activities have also been undertaken outside of the MESCA process. For example, an evaluation of the environmental studies programme at the University of Guyana was undertaken independently of the MESCA process in 2010. In the Pacific, under the EDULINK project, three universities have done some analysis of their programming in relation to ESD. As quality assurance in higher education receives increasing attention, it will be worthwhile to mainstream ESD-related criteria into all such appraisal and monitoring activities, not just those explicitly focusing on ESD.

Extending the good work: While there is often benefit to simply measuring something, in the sense that it helps to raise awareness and understanding, the biggest potential impact of an exercise like the MESCA audit lies in using the data set to guide policy and planning decisions. The findings of the MESCA audit have been cogently analysed, and the logical next step is to use this information for planning purposes, in order to build on areas of strength and address areas of relative weakness. As evidenced by a number of ESD mapping exercises in the focus countries, the follow-up on good research has sometimes been lacking. As the MESCA audit was apparently quite successful in gaining support and buy-in from stakeholders, it will be important to maintain this momentum to ensure that it results in meaningful changes, and not just good information.

Noting that the MESCA tool has proven useful, and that it was itself an adaptation from its African predecessor, there is good reason to believe it could be successfully adapted for use in other contexts as well. In the Pacific particularly, a number of university networks already exist, and multi-university projects such as EDULINK would provide a good opportunity for such research as a results-oriented monitoring approach.

It is also worth noting that the rationale for a study like the MESCA audit is not limited to higher education. There would be great value in further adapting this tool, or developing an alternative, for use in primary and secondary schools, and in TVET institutions. With the growing recognition of the value of whole school approaches to ESD, tools such as this one, which serve to illustrate what is meant by 'whole school', are an important step forward.

4.2.3 Good practice: Incorporating ESD into research and scholarship in post-secondary institutions

In higher education, while much of the emphasis on ESD tends to be on programmes of study – emphasising student learning in sustainability-related fields – the role

of universities as centres of research and scholarship is also important. With a recognition of their natural and cultural assets, many tertiary institutions in SIDS have begun to develop graduate programmes and research emphases on sustainability issues. This has led to a number of fruitful partnerships between university faculties, and between universities and other institutes. For example, the University of Guyana has an ongoing partnership with the Iwokrama International Centre for Rainforest Conservation and Development (IIC), which regularly hosts student groups, graduate students and scholars who are involved with research on biodiversity, natural resource management, ecosystem services and other specialisations. Demonstrating a solid understanding of the need for cross-disciplinary approaches in sustainable development, the university's School of Earth and Environmental Sciences was formed in 2005 by integrating programming from the Department of Geography, the Faculty of Arts, the Environmental Studies Unit and the Faculty of Natural Sciences, in order to provide students with the broad foundation needed to address sustainability issues.

USP, in addition to its leadership in co-ordinating ESD interventions across the Pacific, is also conducting innovative and well-grounded research related to sustainability and ESD in the region. Prominent themes in graduate research include equity, access and relevance – all of which relate squarely to central issues in ESD. As one illustrative example of USP's research activities, under the context of the NZAid-funded Sustainable Livelihood and Education in the Pacific (SLEP) project in Tonga, USP's Institute of Education (IoE) was commissioned to conduct a study identifying strategies and policy options that national MoEs could adopt in order to alleviate hardship in the region. In consultation with NZAid and the Tongan MoE, the IoE designed a study to identify the skills, knowledge and values that enable Pacific peoples to live sustainably in their communities. With IoE as the lead, and involving curriculum writers on the research team itself, the study collected rich data on local concepts of sustainable development and livelihoods, which in turn guided the development of a new national curriculum framework as well as new courses of study for primary schools.

Importantly, the study did not take its starting point from imported concepts of poverty, education or sustainable livelihoods, but rather worked from within Pacific knowledge systems, using local cultural constructs and terminologies which are germane but drawn from local worldviews. Tongan concepts such as poverty, wealth, livelihood and personhood (including the human relationship with the land) differ markedly from their non-Tongan equivalents, and working within such deeply-rooted local concepts was cited as a success factor in the work. It was acknowledged, too, that in order to remain coherent and not distort findings through the research process, an authentic research framework would be necessary. Building on the work of other scholars in the region, the team approached their work using the Kakala Research Framework. In this approach, the *kakala*, a traditional garland, is used as a metaphor for the inquiry process, with different elements of the garland providing rich local meaning to guide different aspects of the research methodology. In addition, the team incorporated Tongan ethical principles into the research design, and detailed culturally-relevant data collection techniques such as *talanoa* and *nofo* – local approaches to oral and narrative inquiry. This attention to working within local knowledge

systems was important to the authenticity, relevance and overall coherence of the research (Fua 2009). As evidence of this success, the research has subsequently fed into the development of Tonga's new draft curriculum framework which emphasises sustainability with a strong cultural element, reflecting a positive step in aligning ESD within the formal sector with local culture and values.

Extending the good work: While the Tongan example provides an exciting glimpse into the possibilities for ESD-related research, there remains a dearth of such research. While some of the work may be taken up by donor-supported projects such as SLEP, such work is often restricted by programme frameworks. Universities, and to a lesser extent private sector and civil society organisations, have a key role to play in responding to the need for high quality research on ESD. While there are strong examples of scholarship on ESD from all three of the focus regions, reports regularly highlight the need for more work in this area (see Collins-Figueroa et al. 2005; Down 2011; UNCSD 2012). Now eight years into the UNDESD, some fundamental questions remain unanswered, including:

- How can the effectiveness of ESD initiatives be assessed, and what should qualify as results?
- What impact do donor agendas or regionally-focused activities have on ESD at the national level?
- What is the impact of whole institution approaches on learning for sustainability at different levels of the system?
- What are the core competencies that teachers need for ESD and how can these be developed?
- What impact do different ESD initiatives actually have on student learning?

In an effort to mitigate the knowledge gap and provide a forum for the sharing of lessons learned on ESD in the Caribbean, the Nesoi Foundation undertook to launch *The Caribbean Journal of Education for Sustainable Development* (The Nesoi Foundation 2011). The inaugural issue of the journal was replete with high-quality scholarship from prominent academics and practitioners in the region. However, despite positive responses, the journal did not proceed to a second issue due to lack of funding – one of the unfortunate casualties of limited financial support for ESD.

4.3 Technical and vocational education and training

4.3.1 Gap: TVET programmes and structures oriented towards sustainability

Many tangible aspects of sustainable development are driven by higher education that connects sustainability with opportunities for economic participation for a growing number of young adults. With strong linkages to industrial and commercial sectors, and natural resource development, TVET is an important area of national ESD offerings. Through alignment with the business community, there should be a strong potential for mutual reinforcement between TVET institutions interested in ESD and 'green businesses' or social enterprises. However, there is no evidence of

such symbiosis to date in the focus countries. With the recognition of the important role of TVET institutions in advancing sustainability through the workforce, special attention has been given to reorienting TVET through a number of international workshops and symposiums in recent years (see for instance UNESCO–UNEVOC 2009). However, a review of papers from these meetings, including submissions from several of this study's focus countries, suggests that the emphasis tends to be much more on the quality of TVET programmes in general, including training and certification approaches, quality assurance mechanisms and a shift to competency-based approaches, rather than any explicit emphasis on addressing sustainability through TVET systems. While quality is necessary to the practice of good ESD (in TVET or any other form of education), there seems to have been a tendency to apply the term 'ESD' in the field, without significant attention to how TVET programmes might be reoriented to address sustainable development.

Bridging the gap: One positive exception to this comes from rural Guyana, where the Bina Hill Institute is working with local indigenous students to provide technical and vocational training in areas related to natural resources management, forestry and wildlife management, in addition to a more fundamental focus on life skills. Bina Hill is associated with the Iwokrama International Centre for Rainforest Conservation and Development (IIC), and both institutions place an emphasis on ESD in their educational offerings and institutional focuses, including contributions to research and monitoring of local ecosystems. With the support of the Guiana Shield Initiative and the IIC, Bina Hill has also offered courses on 'ecosystem services', reflecting the country's increased emphasis on preserving its immense natural capital and leveraging it in a sustainable manner to fuel development, as articulated in Guyana's national Low Carbon Development Strategy. The ecosystems services course provides students with basic environmental science foundations, as well as delving into aspects of monitoring and accounting for this natural wealth, thus helping to prepare them to participate in the green economy which is beginning to take shape in the country.

The case of Guyana, with 80 per cent forest coverage and very low population density, is quite distinct from that of the other focus countries. However, there are parallel opportunities in other countries related to the biodiversity and ecosystem services provided by reefs and other natural areas. In urbanised areas, entry points for ESD into TVET may be quite different. With a growing emphasis on employability and bridging school and work, a number of donors are beginning to focus on employment- and workforce-oriented programming. In terms of ESD, this presents an opportunity to explore entrepreneurship programmes targeting the green economy – an area of focus highlighted at the recent 2012 United Nations Conference on Sustainable Development (commonly referred to as Rio+20). Emerging areas in this field include social entrepreneurship (which uses business methodologies to produce social or environmental benefits), triple bottom-line business management (in which 'profitability' is balanced with considerations for 'people' and the 'planet'), micro-banking, sustainable livelihoods and other concepts focused on healthy, small-scale economic development. Working at the regional level, organisations like the Pacific Association of Technical and Vocational Education and Training (PATVET) are attempting to reorient TVET in the region towards a greater focus on life skills

and sustainable livelihoods, which – in addition to strengthening traditional areas of TVET activity – also provide entry points for supporting this kind of economic transition. As with other aspects of ESD implementation, the rhetoric may be ahead of the practice in this area, but nonetheless creates space for ESD advocates to pursue good work.

4.4 Pre-service teacher education

4.4.1 Good practice: Increased focus on ESD in teacher education institutes

In 2000, UNESCO launched a Chair on Reorienting Teacher Education to Address Sustainability and established an international network of teacher education institutions committed to this cause. The capacity of the teaching force was identified by many of the individuals consulted in this study as one of the major constraints to quality education in most SIDS, and this constraint is amplified in the face of effective ESD – which requires not only effective pedagogical skills, but also technical knowledge and skills related to critical thinking, problem-solving and sustainability issues. Notwithstanding that large portions of the currently-practising teaching workforce in many SIDS may have little or no pre-service teacher training, the reorientation of teacher training demands attention if ESD is to gain real traction. Responding to this need, a Caribbean Network of Teacher Educators was formed in 2004 to address sustainable development, and a number of related regional events have been held, including the development of a teachers' guide to ESD in the Caribbean and an online discussion group. A relaunch of this network is planned for November 2012, which should help to reinvigorate a focus on teacher ESD in the region.

To date, none of the focus countries has government-mandated ESD requirements for teacher certification, nor are there related mandates requiring teacher education institutes to offer ESD coursework. However, there is some excellent work being undertaken by teacher training institutes themselves to raise the awareness of ESD issues and practices among graduating teachers.

Progress has been particularly noteworthy in Jamaica, where earlier activities around teacher environmental education have provided a foundation for teacher education for sustainable development. As far back as 2000, teacher education innovators at Jamaica's Mico Teachers' College were exploring how teachers could use literature in the classroom to address issues of active citizenship and violence, as well as broader issues related to sustainability and social development. In a related initiative, academic staff at UWI developed a graduate course on literature and ESD, which has gone from being an elective to a course requirement in the language education programme. Another core course in teacher education, entitled *Changing Cultures Changing Schools*, explores school culture and change management, including an exploration of eco-schools. This work stands out because of its emphasis on literature, culture and citizenship, as opposed to the more directly environmental approach to ESD common in much of the Caribbean. Also notable in this regard is an undergraduate course in teaching Caribbean poetry, which was designed in collaboration with Cambridge University, and integrates a sustainability focus through a strand on literature and the environment. Moreover, work is underway to develop a new Master's level

specialisation in ESD (Down 2011). In addition to these courses, the university is also exploring ESD possibilities campus-wide. A steering group has been formed to prepare an implementation plan for a campus forum to plan for a whole institution approach to environment and sustainability.

In terms of demonstrable results, the Sustainable Teacher Environmental Education Programme (STEEP) appears to have had a lasting impact on teacher education in Jamaica. STEEP was implemented by Jamaica's Joint Board of Teacher Education (JBTE), and focused on teacher training institutes. The project integrated environmental ESD into a number of courses, and provided an interdisciplinary environmental education elective for pre-service teachers. The project also implemented a number of other activities aimed at action-oriented learning and campus greening. Through this programme, all the staff (including grounds, janitorial, housekeeping, culinary etc.) from four of the UWI-affiliated teacher training institutes became aware of their roles in ESD, and began initiatives for changing practices which have reportedly been sustained. Furthermore, the STEEP-developed course on Environment and Sustainability has become a feature of the BEd programme in eight teachers' colleges. This course, along with three other relevant courses – citizenship; personal development (life skills); and health and family life education – have been made compulsory for all pre-service teachers in the programme, regardless of specialisation (early childhood, primary, or secondary). As such, while government policy may not require new teachers to have training on ESD, these teachers' colleges are nonetheless helping to ensure that they do.

In the Pacific, leadership has been shown by teacher educators at USP's School of Education (SoE) and Institute of Education (IoE). These individuals have succeeded in attracting important resources to advance teacher ESD in the region, in particular through the UNESCO Chair of Teacher Education and Culture and the ACCU-UNESCO Centre of Excellence project. The SoE has sought to integrate mainstream sustainability issues into their teacher education programmes, and as such, while specific coursework around ESD is not required, many of the relevant themes and practices have been incorporated throughout the programmes. At the graduate level, a number of courses specifically touch on ESD, and a specialised postgraduate diploma in ESD has been proposed.

Extending the good work: In order for ESD to become broadly implemented, teachers must have an adequate background in it. For this to happen, it will be necessary to address ESD within teacher certification and training requirements. While part of this process can be led by teacher training institutes, it is important also that guiding policies which govern teacher certification, hiring and promotion paths complement such course requirements.

While policies, course offerings and course requirements will all contribute to the reorientation of teacher education to address sustainability, the rationale for whole school approaches to ESD in the K-12 school system is also valid in teacher education. The STEEP project was notable for the fact that it went well beyond curriculum development to look at how environmental principles were upheld at the institutes themselves. Many of the key teacher training institutes do not reference ESD or

sustainability in their mandates. More commonly, ESD is present only in optional components focused on environmental education or related issues. This relies on interested students to capitalise on the available ESD entry points, which is unlikely to result in a broad reorientation of teacher education unless policies are changed to incentivise or require ESD coursework. For its part, UNESCO (2007) has published a compendium of good practices in ESD from teacher education institutions, in addition to supporting the international network mentioned above. However, Jamaica is the only one of the focus countries whose primary teacher education institute is a member of this network.

For universities and MoEs that are truly committed to sustainability, a systemic approach would be to make teacher education on ESD a requirement for graduation and certification. While this appears some way off in most of the focus countries, many have taken an important step by including ESD content specifically in their K-12 curricula, which should in turn influence what gets included in teacher education curricula. While universities like UWI and USP are responding by mainstreaming and mandating ESD in their programmes, it is important to keep in mind that including ESD content is not the same as a true reorientation of the educational process. In teacher education for sustainable development, as in other ESD, the objective is to put in practice a new and more active and sustainability-oriented vision of education, rather than adding to that which is already in place.

4.5 In-service professional development for teachers and school leaders

4.5.1 Good practice: Localised, focused, curriculum-linked teacher training accompanied by resource materials

Projects like Jamaica's STEEP and USP's Centre of Excellence have recognised the critical role of teachers in ESD implementation. However, the reality in most SIDS is that many practising teachers lack formal training, and few have any training at all related to ESD. As such, while pre-service teacher education is important, the in-service professional development of practising teachers is of immediate concern.

Over time, a number of lessons have been learned about in-service professional development for ESD, which have improved the general practice. In Maldives, ESD themes have been incorporated into broader pedagogical reforms, which have included training of teachers on inquiry-based approaches to teaching environmental education. This approach shows strength in that it recognises the importance of balancing ESD with other compatible reform agendas, and emphasises active learning and the direct engagement of students with environmental issues. In Jamaica and Guyana, emphasis has been on curriculum linkages and locally relevant content, and evidence suggests also that both resource materials and training are strengthened when they are paired with one another. In both the School Environment Programme (SEP) (Jamaica) and the Mangrove Management Programme (Guyana), teacher training was provided with resource materials in order to ensure that teachers were comfortable with using the resources in their classrooms.

Extending the good work: Although ESD is on the agenda of most of the focus countries' MoEs, most MoEs have not been actively involved in teacher professional development on ESD. Where MoEs have been involved, the work has tended to be on an ad hoc basis, or through broader training programmes with only tangential relevance to ESD. More commonly, teacher professional development on ESD has been undertaken by CSOs (such as the Jamaica Environmental Trust (JET)'s School Environment Programme in Jamaica) or multilateral organisations (such as UNESCO). There is a missed opportunity for better co-operation in this area, since in many cases CSOs are providing ESD training to public sector teachers – which should arguably be the responsibility of MoEs – but without full MoE support or formal endorsement of the work. For example, while many countries have a credentialing system that requires teacher professional development, there is no evidence of CSO-delivered training on ESD being credited in any of these systems, even when the CSOs have sought this out. Where MoEs or other government departments are involved, in-service teacher training on ESD tends to be undertaken on an ad hoc basis or through donor-funded projects. As such it remains somewhat peripheral to the core of teacher development. There is little evidence from any of the focus countries of systematic MoE-led teacher training on ESD, or relevant policies that would make such training broadly available or mandatory.

4.5.2 Gap: The implementation gap – putting training into practice

While the provision of professional development opportunities on ESD is one thing, one-off training activities often fail to translate into actual changes in classroom practice. Teachers may learn about ESD and related topics, and may be highly motivated during training activities, but upon returning to their classrooms they struggle to find the time or means to effectively implement what was learned. This is disheartening and inefficient. As attractive as training activities may be to donors as a means of targeting large numbers, and as a means of disseminating ESD knowledge and skills, the surrounding context of such training and the anticipated classroom implementation need to be given serious consideration.

Bridging the gap: Through over a decade of experience with the School Environment Programme (SEP), the JET has developed a number of working principles to help ensure the effectiveness of the programme. In the SEP approach, training is not conceived of as a one-off event expected to change teaching practices on its own, but rather as a component of a broader system of supports and incentives which exerts a positive force on teaching practices over time. Their 'fertile ground rule' requires that schools interested in participating in the programme submit an application endorsed by at least two teachers, as well as the principal. The application process helps to ensure a minimum level of commitment, as well as ensuring that there are a sufficient number of interested parties in the school to give the programme life. When training is provided in this context (typically at least twice per year), it occurs alongside a number of programme support structures, which reduce barriers to teachers implementing what they have learned. Training certificates signed by government officials provide formal recognition of participation, and the support of principals and supplementary resource materials (teachers' guides), as well as follow-up school support visits by SEP staff, enhance motivation to do the work well.

In essence, the SEP approach provides a set of incentives and supports, which makes it as easy as possible for teachers to implement effectively what they have learnt. This approach is consistent with many of the recognised best practices in teacher professional development more generally (see for example Garet et al. 2001), which highlight the importance of making professional development a contextually-relevant ongoing process. However, as a CSO, the SEP works with teachers from outside the MoE system, and this limits the potential impact of the work. While CSOs may be able to align much of what they do with MoE systems, MoEs themselves have much more scope to align and support ESD training. Ideally, ESD-related professional development would be undertaken alongside complementary initiatives including those mentioned above, as well as curricular and examination reforms, linking training on ESD with re-certification or promotional pathways, school improvement programmes, ESD training for principals and so on. Additionally, such professional development could come with a requirement that participating teachers pass on their training in their home schools to help expand the reach of ESD training when resources are limited.

4.5.3 Gap: Establishment of ESD-oriented 'learning community' mechanisms

One of the growing trends in the field of teacher professional development, particularly in under-resourced and rural contexts, is the concept of professional learning communities (PLCs). PLCs, in their most basic implementation, are simply groups of practitioners who share and discuss their work. The structure is flexible and can be formalised to include scheduled topics, chairpersons and presentations. The model works well at the school level (for small schools) or with grade level or subject area groupings (in larger schools), and has demonstrated effectiveness in improving teacher pedagogy as well as learning outcomes in contexts where resource constraints make it difficult to implement more conventional (training-oriented) teacher professional development models. The PLC model would be appropriate for the sharing of ideas and practices around introducing ESD in the classroom, as well as the implementation of coherent school-wide approaches. As PLCs can be implemented at the school level, the model is potentially viable in the context of isolated island communities.

Bridging the gap: While many schools have regular staff meetings, these tend to be administrative in nature, rather than focusing on school improvement and quality issues. However, with this culture of regular meetings in place already, a shift towards a more pedagogically-oriented PLC meeting could be introduced effectively. Similarly, in contexts where professional development is already being offered using a cluster approach, PLCs could be implemented using existing cluster structures. With support from central or district level offices, in terms of resource materials on ESD, this could be an effective means of proliferating ESD principles throughout the system. Experiences from other countries suggest that it works well to introduce the PLC concept first in relatively competent and receptive schools. In a 'change catalyst' model, these schools would theoretically work towards systematically implementing ESD school-wide, eventually becoming demonstration sites of effective ESD that could support other nearby schools.

4.5.4 Gap: Targeting school leaders as key change agents in school-based ESD

A number of interviews and reports suggest a perception that schools are the 'units of change' in ESD implementation. This is to say that despite national policies and available resources or supports, it seems to be at the school level where ESD is either brought to life or not. Where effective ESD is taking place, it tends overwhelmingly to be in schools where there is a highly engaged and motivated principal, or another influential staff member taking on this leadership role. It is notable, therefore, that there is very little evidence of work being done to build the capacity of principals to introduce ESD in their schools. Like the teachers in their schools, many principals lack any specialised training in educational leadership, and very few have any training in ESD. As focal points and sometimes gatekeepers at their schools, this group of leaders will be important to the successful rollout of any broad scale ESD-related initiatives, including those related to the introduction of new curricula.

Bridging the gap: While little information is available on leadership work in ESD, sources from Tonga have indicated that there are monthly meetings for school leaders. Such meetings provide an important forum for sharing of information and experiences, and rollout of programmes related to ESD. In the case of Jamaica, accompanying environmental education programmes, the Management Institute for National Development (MIND), which is responsible for training government employees, offers ESD courses for both teachers and school leaders. In addition, some of their core programmes, such as one focused on school management, have been adjusted to include ESD and related issues. As quality-related education reforms continue, and ESD implementation progresses in the focus countries, one area where the two could come together is in the development of professional standards for school leaders which incorporate ESD awareness and/or practices. If this approach were combined with standards for school inspection and supervision that incorporate environmental audit criteria, school planning frameworks which include greening initiatives and professional development around ESD, a strong push towards the implementation of whole-school approaches could be generated.

4.6 Non-formal education/community education

4.6.1 Good practice: Bridging school-based ESD with community life

There are a number of organisations that are working to provide ESD experiences for school-aged children, both in and out of school. This continuity between the school and the surrounding community helps to create a consistency of experience that reinforces messages about sustainability, resource use, consumption and other related concerns. A number of organisations involved with ESD activities are implementing packages of complementary activities, which are creating synergy between experiences in and out of school.

One such organisation is Live & Learn Environmental Education (LLEE). LLEE is active across the Pacific region, and implements a variety of ESD-related programmes specific to the needs of the host countries, which include three of the focus countries of this study: Maldives, Papua New Guinea and Solomon Islands. In Maldives for

instance, LLEE has been involved in projects to support local partners in school-based environmental education, while also working with partners at the community level on public awareness-raising and environmentally-aware community development initiatives. Working across several sectors and levels in this way contributes to a coherent picture of what sustainability might mean in the lives of growing school children. Another programme, of broader geographical scope but narrower technical focus, is Sandwatch, one of the flagship projects of UNESCO's global Associated Schools Project Network (ASPnet). While some of the Sandwatch activities are school-based, the emphasis of the programme is on student and teacher involvement in the monitoring and preservation of coastal areas. As with the work of LLEE, the connection between what gets perceived as important at school, and what gets perceived as important outside of school, contributes to the success of the Sandwatch programme. In addition, the emphasis on collaborative and critically-oriented activities involving both children and adults contributes to the development of engaged citizenship and civic-mindedness, both of which are important to sustainable development.

Extending the good work: Both LLEE and Sandwatch have managed to forge relationships with school systems and individual schools, allowing some connection between out-of-school activities and in-school learning, but this bridge is limited to particular themes and activities. With better support and leadership on the government side, a more robust connection could be established. There is untapped potential to strengthen ESD in this manner. This may require a component of community education, as some MoEs have indicated that there is often parental pressure for schools to maintain a strong focus on preparing students for exams. However, the success of a number of initiatives focused on introducing sustainable livelihoods in the curriculum, as well as attitudinal surveys, such as one which UNESCO has carried out on HIV/AIDS education, suggest that a focus on life skills may be a good entry point for bridging school-based and community-based ESD.

A promising government-led approach to collaboration with civil society is being initiated in Maldives. Under this programme, the Education Development Centre (EDC) has assigned interested CSOs to particular schools to work with students on a selected ESD-related project. Some of the schools have selected energy as a focus, and students have been responsible for conducting energy audits and related programmes. The approach helps to funnel CSO activity into appropriate channels so that expertise is applied in ways that complement school activities. Furthermore, because the curriculum of Maldives includes 'using sustainable practices' as a key competency, there are numerous curriculum entry points where ESD activities supported by CSOs can tie in with classroom-based learning.

One country where strong community/school links of a different sort have been noted is Samoa, where the Ministry of Education, Sports and Culture (MoESC) has developed formal partnerships with local communities for the provision of quality educational services. Typically, the MoESC provides teaching staff and materials, while the community supplies land and buildings. In a context where formal education has been criticised for being overly-academic and detached from daily life, this model of joint

ownership creates a foundation for co-operation on ESD to help better integrate school and community. However, the extent of communication and co-operation between the school and community is often dependent on the motivation of principals or the community itself. At the central and district levels, consideration should be given to how ESD may be fostered through working with school management committees, boards of trustees, or other joint planning groups.

4.6.2 Good practice: Providing a progression of learning opportunities in local natural environments

One of the tenets of good environmental education, and good ESD, is the provision of learning opportunities in natural environments, in order to provide first-hand experience with nature for the purposes of deepening understanding and developing a sense of place. Children and young adults in many SIDS have excellent opportunities for such experiences, ranging from informal to very well-structured. In an innovative programme targeting the needs of inner-city youth in Jamaica, the Jamaica Environmental Trust (JET) has worked with youth and community organisations to arrange trips to nearby natural areas where the youth could gain first-hand experiences with the country's rich flora and fauna. For many of the youth, having never been outside of urban environments, the experiences provided them with strong and lasting impressions. While these experiences may be frightening to some, for others they provided an entry point to environmental learning. As JET is involved in many aspects of ESD, as well as research and advocacy on sustainability issues, the organisation is well-positioned to help connect these children with additional learning opportunities as they grow.

Situated in a rural rainforest area, Guyana's Iwokrama International Centre for Rainforest Conservation and Development (IIC), has a very different context. In addition to hosting world-class research scientists and international student groups, the centre runs a broad range of outreach and educational programmes for the youth of the local indigenous communities. Among other community-oriented programmes, IIC runs wildlife and conservation clubs, providing for many local youth a first opportunity for systematic and scientifically-inclined learning about their natural environment. Unlike the urban youth mentioned above, these local youth come with vast knowledge and experiences developed through their lifelong immersion in the local area and their enculturation within the indigenous knowledge system. As such, the scientifically-oriented learning provided through IIC is complementary, and the centre has developed an approach that validates both knowledge systems and their value in ecosystem management. IIC has developed the concept of a 'conservation leadership ladder' whereby a progression of experiences from easily accessible entry points like these clubs can provide a first rung, and subsequent experiences such as the centre's training courses on subjects like forest botany, tourism and guiding, resource management and so on, can (and does) propel them into lifelong careers in conservation, as well as post-secondary and even graduate studies.

Extending the good work: The concept of the conservation leadership ladder has a great deal of potential for cultivating leaders in sustainable development, and

has relevance beyond conservation and even beyond the environmental sector to other aspects of sustainability including civic engagement, law, social justice, public health, culture and the arts and so on. The model is essentially based on the idea of providing initial exposure and accessible yet engaging learning experiences (like those provided by JET for inner city youth), and ensuring that incremented opportunities for increasingly formalised learning continue to be made available. While IIC is distinctive in being able to offer a very broad range of experiences itself, from community outreach to world-class scientific research, this same principle can be applied to other areas and institutions, with the idea of ensuring that those with the will and capacity to pursue work in the field of sustainability are not prevented from doing so for lack of opportunity. Over the years, IIC has learned from its experiences, and has cultivated a broad range of formal and informal partnerships with various programmes and institutions, both foreign and domestic, resulting in an extensive network of expertise and opportunities benefiting students in their programmes, as well as strengthening the programmes themselves.

4.6.3 Gap: Systematic approaches to community-based ESD

A number of sources have noted the importance of community-based non-formal education and information sharing. While community-based educational structures do not resemble educational institutions in the colloquial sense, they are well-established cultural institutions in most of the focus countries. However, the available information on community-oriented ESD focuses on standard delivery non-formal education programmes (workshops, community events etc.) and university outreach programmes. Furthermore, one of the challenges cited to the progress of ESD implementation has been that these traditional community-based institutions are sometimes at odds with policies and decisions related to education and ESD implementation coming from the formal sector. This suggests a need for a more systematic approach to working within these existing community structures, with full respect for the customs and approaches used for sharing of information within them, for stronger community-based ESD.

Bridging the gap: A small number of initiatives have identified practices that seem to have potential to make the desired community-level impacts. The IIC mentioned above has identified an unexpected benefit related to their programming and hiring practices, which gives some preference to applicants from local indigenous communities. What IIC has observed is that in addition to individual benefits related directly to their programme involvement, a meaningful number of these former staff and students have subsequently gone on to influential positions in their communities. With such relationships between the centre and nearby community leaders established over time, IIC is in a very good position to support broad and powerful community-based ESD within traditional channels.

Also in Guyana, an organisation called ECHO (Environmental Community Health Organization) has been working actively at the community level. Their Green Ambassador Programme involves youth in community-oriented service learning activities that help them to contribute to conservation and sustainability at the local

level. This programme has drawn participants from school-based eco-clubs which are common in the country, and is part of a tiered approach to ECHO's work with communities that also includes the establishment of eco-teams involving adults and community leaders to support student and youth activities (Kaieteur News 2010).

In another example, work done in Nauru under the PRIDE project (see section 5.1) – while aimed at information gathering rather than dissemination – utilised highly sensitised approaches to working in communities, with great success, also resulting in openness and positive relationships between individuals. These same approaches would likely have some applicability for work within communities in ESD delivery.

4.6.4 Good practice: Provision of topical ESD opportunities at the community level

Across the focus countries, there tend to be plenty of opportunities for learning for community members interested in seeking them out. In most cases, there are a number of government departments involved in awareness-raising on sustainability issues. In Guyana for instance, the Civil Defence Commission has a community programme which addresses disaster risk management, as well as issues related to resilience and adaptation. In Jamaica, with a very active environmental advocacy community, a great number of community-based groups are raising awareness and mobilising communities in conservation activities. Universities are also involved in outreach work and quasi-formal continuing education work. USP, for example, has conducted numerous activities related to climate change. In the Pacific, intergovernmental and civil society organisations similarly tend to be very involved. The Secretariat of the Pacific Regional Environmental Programme (SPREP), among others, is active in implementing community-level programmes related to issues such as biodiversity conservation, waste management and other environmental themes.

Extending the good work: Part of the challenge of ESD is the integrated nature of sustainability. Sustainability is not a collection of individual issues; it is a holistic systems approach to viewing the human position in the world – typically described in social, economic and environmental terms. The challenge for organisations delivering topic-based or thematic programmes is around making them somehow cohere with one another. This challenge is exacerbated by the availability of funding – the lifeline of most CSOs – which tends to pigeonhole programming and reporting into particular topic areas, creating a disincentive for big-picture thinking. At present, it tends to be larger organisations such as UNESCO which have the stability to think big that provide the glue which holds these many disparate initiatives together into a somewhat coherent framework. However, at the ground level, this coherence may be somewhat less. While regional and country-level frameworks can contribute to directing donor funds into the areas which need them most, it is also important for governments and multilateral groups to support networking and collaboration between different groups in order to avoid duplication, and foster complementarity and synergy between activities.

4.7 Mass media and outreach

4.7.1 Good practice: Collaboration between ministries and mass media outlets

With so much focus on formal education and non-formal education, the potential of mass media for awareness-raising and dissemination of information is sometimes overlooked. However, there have been a number of promising collaborations on ESD between ministries and mass media outlets. In an innovative approach from Samoa, the Climate Change Quiz Competition involved colleges across the country, and was televised live over a period of several nights. This competition engaged students and teachers, and helped to raise public awareness of environmental issues and information. In Guyana, under the Mangrove Management Programme, the MoE developed teaching materials as well as a complementary DVD of a programme entitled *Holding Back the Sea*. On their own, these resources might be unremarkable, but what is special is that the programme is aired regularly on Guyana's Learning Channel. In addition, the teachers' manual includes information on conducting field trips to mangrove reserves. As such, a number of complementary pieces are in place to provide students with a rich learning experience in relation to mangrove preservation.

Extending the good work: Most SIDS have a number of publicly-funded or education-oriented media outlets, as well as independent media, in addition to those that are commercially operated. These provide good entry points for co-operation and advocacy around public-oriented ESD. Tonga's Ministry of Education, Women's Affairs and Culture (MoEWAC) is working to seize this opportunity, getting involved in national and regional media industry-oriented workshops, in order to foster opportunities for co-operation. The ministry has worked with local media to educate them on agendas such as EFA, the MDGs and the UNDESD, and one representative has indicated that the media has become a 'catalyst and advocate for local co-operation and contributions to sustainable development, especially at the grassroots and community level'.

4.7.2 Gap: Leveraging the potential of mass media as a medium for ESD

ESD has come to be associated with, inter alia, small-scale and natural approaches, hands-on experiences with nature, grounded in indigenous knowledge systems, activity and engagement, as well as critical and creative perspectives on important social and environmental issues. None of these associations are commonly made with mainstream or mass media sources. While the workings of mass media may run contrary to much of the established thinking on 'good ESD', the reach and impact of mass media as mechanisms for raising awareness and even affecting public opinion are undeniable. As such, there is probably a great deal of untapped potential in the use of these media for awareness-raising campaigns related to sustainability issues. The review of available information turned up no reference to systematic work with mass media for ESD. The few references to media, like those mentioned above, have tended to be focused on particular issues, with no broader plan for systematic awareness raising on sustainability in more comprehensive terms.

Bridging the gap: Certainly the collaborations mentioned in the preceding 'good practice' suggest the viability of working with media outlets, as well as the potential impacts. As evidenced by the climate change quiz programme, in popular programming formats such approaches can generate considerable excitement and interest. However, there is always a danger of trivialising important issues that warrant more critical analysis, and therefore such approaches need to be carefully considered and thoughtfully implemented. While the two examples mentioned above were television-based, good opportunities remain through the development of engaging online platforms, as well as radio and newspaper content. In one example from Samoa, the Ministry of Natural Resources and the Environment (MoNRE) has produced a weekly column for the local newspaper, intended to help foster environmental awareness and engagement among young people. For its part, UNESCO has done quite a bit of work in the area of media capacity development, with programmes focused on a range of sustainable development issues such as climate change, HIV/AIDS, and the MDGs. UNESCO has also developed a training resource entitled *Media as partners in education for sustainable development* (Bird et al. 2008), which provides suggestions and examples of how the relationship between media organisations and education systems can be enhanced to support sustainable development.

Another potentially powerful tool that has yet to be utilised on any large scale in the focus countries is that of social media and new media tools. While different countries and cultures may vary in their preferences for social media, the importance and prevalence of online activities is increasing steadily. A number of CSOs from the ten focus countries have some online presence, including Facebook pages and Twitter accounts, but in most cases there appears to be little activity on these sites. One emerging trend in the new media that could have very good potential for enhancing ESD activities is 'gamification', which applies game design techniques and approaches to non-game contexts in order to encourage the adoption of certain behaviours. This approach could work well in school greening initiatives, for example, if structures were set up to award points or otherwise reinforce and incentivise waste reduction and resource conservation through student-led monitoring. Related game techniques include the awarding of points for certain activities, badges or certificates for certain accomplishments, as well as levels of achievement. The structure could be established to bring groups together, working co-operatively to implement ESD activities, or to create friendly competition between classrooms or schools. While such an approach runs the risk of trivialising sustainable behaviours, or focusing too much on superficial activity and extrinsic motivators, there could nonetheless be merit in exploring the idea further in relation to whole school ESD approaches.

4.8 Institutional capacity strengthening

4.8.1 Good practice: Building institutional capacity for sustainable development – ESD for governments

ESD discussion usually focuses on formal and non-formal educational structures, and one area that is easily overlooked is the learning of governments themselves. As with teachers and community members, most of those in influential governmental posts

have limited background in sustainable development, and the existing structures of most governments were not established with sustainable development in mind. Working with experts outside the government system in the development of sustainability plans and policies may result in quality deliverables, but does little to build internal expertise or institutional capacity. Recognising the need to establish better means of supporting and leading sustainable development, some of the focus countries have undertaken restructuring and educational activities to grow and adapt organisationally for this purpose.

One example of such an approach is Jamaica, which through the Environmental Action Programme (ENACT) programme, sought to promote its own sustainable development by increasing the capacity of key institutions in the public sector, private sector and communities, to manage resources and the environment in a sustainable way. The programme used a capacity development model that involved individual-level training to develop knowledge and skills, as well as working with organisational structures to improve procedures and mechanisms to enable those individuals to apply their learning better. ENACT aimed ultimately to impact the system level to enable supportive policy, legal and institutional frameworks. As part of this process, the programme worked closely with the National Environmental Protection Agency (NEPA), and established a National Environmental Education Committee (NEEC) within it. NEEC went on to develop Jamaica's National Environmental Education Plan for Sustainable Development, as well as a number of curriculum modules and other deliverables.

Extending the good work: As governments respond to the imperatives presented by climate change and globalisation, many are recognising the need to grow and adapt, rather than simply working harder or redirecting resources within existing structures. To accompany the development of its Low Carbon Development Strategy, the Government of Guyana in 2011 established a new Ministry of Natural Resources and the Environment (MoNRE). Similarly, recognising needs of its own, the Government of Tonga recently established a new Ministry of Training, Employment, Youth and Sport (MoTEYS), affirming a commitment to training and employment in the country. There is also a growing recognition of the need to revisit the existing structure of line ministries. Through the Tonga Education Sector Programme (TESP), for example, Tonga's Ministry of Education, Women's Affairs and Culture undertook its first ever approach to sector-wide strategic planning, resulting in a number of substantive changes to approaches and policies. These activities all reinforce the view that ESD is not something that one party subjects another to. Rather, it is a process of ongoing learning and iteration whereby all involved should grow and adapt as a result.

Note

1 Ministry of education (MoE) is used as a generic term, recognising that different countries use different names for line ministries.

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