



United Nations
Educational, Scientific and
Cultural Organization

Islands of the future

Building resilience
in a changing world





Front cover photo:

Yelea Katipale from Niua School with the canoe she made during the piloting of *The Canoe Is the People: Learner's Resource Pack* in Pukapuka by the Cook Islands Ministry of Education for UNESCO's Local and Indigenous Knowledge Systems (LINKS) Programme. Photo by M. Easterbrook, Cook Islands Ministry of Education.

Taking Stock, Looking Forward

Twenty years down the road from the *Barbados Programme of Action* (1994) and ten years after the *Mauritius Strategy* (2004), Small Island Developing States (SIDS) are in Apia, Samoa to take stock and define future priorities at the Third International Conference on SIDS, from 1 to 4 September.

This Conference carries strategic stakes and will help to shape a stronger, new global sustainable development agenda beyond 2015. It must recognize the importance of SIDS in providing early-warning to the planet as a whole – as custodians of vast ocean spaces that are essential for food security, biodiversity, carbon sequestration and cultural diversity.

Small island societies have a record of thriving in challenging times. Their long histories are characterized by innovative approaches, societal mobilization and adaptation rooted in tradition and continuity. Over the years, SIDS have made significant advances towards sustainable island living. They have become living laboratories of education for sustainable development. Faced with a future whose only certainty is change, SIDS must indeed constantly invest in education, scientific research as well as in human capacities to foster resilience and adaptation. In doing so, they are looking for genuine partnerships to address their priority needs and to move forward in an empowered manner.

UNESCO's action in support of its 39 SIDS Member States and 7 Associate Members is anchored in its mandated fields: education, natural sciences, social and human sciences, culture, communication and information. Our overarching goals are to enhance existing capacity and networks; promote solution-oriented actions; mobilize key actors and constituencies; and generate momentum and actions that are culturally-sensitive and scientifically-sound. The multidimensional aspect of the challenges that SIDS are facing requires meaningful collaboration across generations, within society – notably through the involvement of youth, the advancement of gender equality and the empowerment of women, among societal and institutional sectors, and between islands and regions.

As we collectively develop an ambitious and common development agenda for post-2015, UNESCO is committed to renew its action for SIDS on the basis of the outcomes of the Third International Conference on SIDS in Apia, towards a better future for all, characterized by justice, equity and human rights.



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Contents

3

Promoting Quality Education in Islands

15

Building Island Resilience

22

Valuing and Sharing Island Heritage and Identities

29

Building Knowledge Societies in Islands

33

Boosting Science Capacities and Social Well-Being

39

Managing Natural Resources for a Sustainable Future

44

The UNESCO Participation Programme in SIDS



Promoting Quality Education in Islands

With many SIDS having achieved the Education for All goals, UNESCO Member States are increasingly concerned with the quality of education. More and more countries, as well as development partners, have started to focus on the idea of Learning for All, as opposed to Education for All.

In addition to promoting quality teaching at all levels of education, UNESCO is assisting countries in building their capacities for education, policy-making, planning, monitoring and evaluation.

Assessing progress towards Education for All

Since 2002, UNESCO has been monitoring progress towards achieving the Millennium Development Goal of Education for All by 2015, via regular editions of its *Education for All Global Monitoring Report*, which contains data from the UNESCO Institute for Statistics.

Although most SIDS have now achieved the Education for All goals (see table p.11), access to education still poses a challenge, especially in the Pacific, where islands within the same country can be separated by hundreds of kilometres. In remote areas and among people with a low income, access poses a particular problem for preschoolers, children with disabilities, secondary school pupils and those studying vocational education.

In some SIDS, the net primary enrolment rate is still below 90%, including in Antigua and Barbuda, Comoros, Dominican Republic, Grenada, Samoa and the Solomon Islands. Timor-Leste deserves special mention, as primary enrollment has risen from 67% in 2005 to 90% in just six years (see table p.11).

Improving teaching and learning in the Pacific

UNESCO's priorities for improving basic education in the Pacific reflect those of the Pacific Education Development Framework for 2009–2015, adopted by the Pacific Heads of Education Systems and the Pacific Islands Forum Education Ministers' Meetings. *The Pacific Professional Standards for School Principals* were approved by the latter in 2012. They had been prepared by UNESCO and the Secretariat of the Pacific Board for Educational Assessment, part of the Secretariat of the Pacific Community (SPC), in collaboration with Pacific island countries. They are currently being adapted to meet national needs in Kiribati, Tuvalu and Vanuatu with technical and financial support from UNESCO.

Since 2006, about 400 teachers, principals, teacher trainers and education planners have benefitted from capacity-building workshops run by UNESCO on education planning, monitoring, evaluation and statistics. These have taken place in the Cook Islands, the Federated States of Micronesia, Kiribati, the Marshall Islands, Nauru, Palau, Papua New Guinea, the Solomon Islands, Tonga, Tuvalu and Vanuatu. Materials from the competency modules developed by UNESCO with partners are being progressively incorporated into teacher training and in-service programmes in the region using Japanese Funds in Trust and CapEFA (from Denmark, Finland, Norway, Sweden and Switzerland) funding.

In 2012, UNESCO supported the *Pacific Islands Literacy and Numeracy Assessment* for children in years four and six from 14 SIDS, in order to establish regional benchmarks for literacy and numeracy. Regional and country reports on the findings were published in 2013. UNESCO has provided similar support for assessing and monitoring adult literacy levels in several provinces of Papua New Guinea. Partners included the Secretariat of the Pacific Board for Educational Assessment and the Australian Agency for International Development (AusAID).

Removing barriers to quality sexuality education in the Pacific

UNESCO organized a regional consultation in Fiji in May 2011 at a workshop on HIV and AIDS Education and Reproductive Health Education, in collaboration with the Secretariat of the Pacific Community, UNAIDS and the United Nations Population Fund (UNFPA). As a result of this workshop, UNESCO and its partners commissioned an attitudinal survey in Nauru, Niue, Palau and Samoa. The findings of this survey, released in 2013, overwhelmingly show that students, parents and teachers alike think that sexual and reproductive health should be part of the school curriculum. Many teachers, however, feel ill-equipped to teach this topic.

Strengthening the quality and delivery of comprehensive sexuality education in the Caribbean

During 2012 and 2013, UNESCO supported the University of the West Indies Open Campus to develop and offer across the Caribbean sub-region an online Diploma in Instructional Approaches to the life-skills based curriculum for teaching comprehensive sexuality education to young people in Caribbean schools, called Health and Family Life Education (HFLE). The initiative, carried out in collaboration with the Caribbean Community (CARICOM) secretariat, UNICEF and UNFPA, is aimed at strengthening the capacity of the education sector as key providers of comprehensive sexuality education. The capacity building resource is further bolstered by an HFLE Caribbean website, launched in 2014 and hosted by the University of the West Indies Open Campus, to showcase good practices in HFLE school delivery, offer a resource library of teaching and learning materials and facilitate networking and sharing among HFLE teachers and stakeholders in a regional community of practice.

Promoting education for sustainable development in the Caribbean

UNESCO is the lead agency for the UN Decade of Education for Sustainable Development (DESD) (2005–2014). The Organization has promoted Education for Sustainable Development (ESD) policy dialogue, capacity-building, sharing of best practices and awareness-raising in partnership with Ministries of Education, the CARICOM Secretariat, NGOs and other stakeholders.

Several capacity-building workshops have been held on ESD Monitoring and Evaluation, mainstreaming Climate Change Education in teacher education and ESD policy dialogue. In 2008 and 2013, UNESCO organized conferences in Kingston to review achievements since the launch of the DESD, key challenges and success stories on ESD in the region. The participants recommended that the post-2014 ESD programmatic framework should pay special attention to strengthening capacities in ESD policy, climate change education for sustainable development, teacher education, the non-formal education of youth and adults, and building partnership with the media to raise awareness of the importance of ESD. The sub-regional meeting held in 2013 made recommendations for the 2014

Global Conference on Education for sustainable development. In 2012–2013 a situational analysis of the mainstreaming of Climate Change Education for Sustainable Development (CCESD) in Guyana was implemented in collaboration with the University of the West Indies. The key findings and recommendations are to be incorporated into the ESD Policy to be developed by Guyana.

The work to promote ESD worldwide will now be scaled up under the Global Action Programme on ESD (GAP), the official follow up to the UN Decade of ESD, which will be launched in November 2014. GAP will focus on five priority action areas: policy integration, whole-organization approaches, educators, youth and local communities. GAP Partner Networks will consist of diverse stakeholders who have made major commitments to support one or more of the five Priority Action Areas. The Networks will provide a major platform for bringing together a wide range of SIDS stakeholders.

Promoting education for sustainable development in the Pacific

A coordinating mechanism for implementing education for sustainable development in the Pacific was endorsed by the Pacific Islands Forum Education Ministers Meeting in Nadi, Fiji, in September 2006. This framework puts the *'think global, act local'* adage into practice by translating the international vision into focused priority areas and objectives for action at local, national and regional levels in the Pacific.

Niue, for instance, is focusing on the integration of Niuean culture and language in the national curriculum. As a micro-state with a population of less than 2,000, Niue's schools utilize the New Zealand school curriculum.

With climate change already impacting daily lives on the low-lying atolls of Kiribati and Tuvalu, these countries have chosen to focus on integrating climate change and disaster risk reduction into their education system at all levels.

Tonga is developing an annual programme with a focus on key issues related to sustainable development. Each session will be devoted to a specific theme. For example, during the session focusing on non-communicable diseases, pupils will be encouraged to bring only healthy foods to school, play sport and learn more about nutrition. This programme is currently being piloted in the Nukualofa area.

Teaching Pacific children traditional navigation

Indigenous knowledge is also a focus of education for sustainable development. *The Canoe is the People: Indigenous navigation in the Pacific* is an interactive multimedia educational resource, developed by UNESCO to honour islander knowledge of the oceans and navigation. The resource is available in English and New Zealand Maori at www.canoeisthepeople.org. The Cook Islands Ministry of Education worked with UNESCO to develop an educational resource pack that accompanies classroom use of these pedagogical materials.

The Samoan Voyaging Society has started a schools outreach programme in which members visit schools and talk about their ocean voyages. They also offer school children an opportunity



to sail on Samoa's traditional vessel or *vaka*, the *Gaulofa*. The Fijian Voyaging Society has developed a database of navigational terminology and star maps in the various dialects of Fijian and Rotuman, a Polynesian language from an outlying Fijian island.

Integrating climate change into education for sustainable development

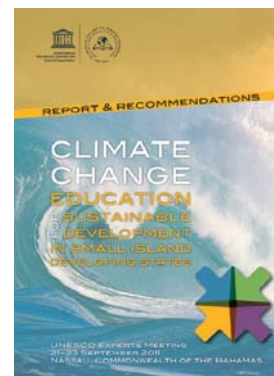
Launched in 2009, UNESCO's CCESD programme helps Member States strengthen their educational response to climate change in Africa and SIDS, in particular. The programme facilitates dialogue through regional and international experts meetings, develops national programmes in pilot countries and provides technical guidance. It also develops teaching and learning resources and acts as a clearing house for information and resources on climate change education.

National pilot programmes were implemented in the Dominican Republic (see box below), Cuba, Guyana, Mauritius and Tuvalu. These country-level programmes are working with policy-makers, curriculum developers and educators. In the first phase of implementation, a national survey on the status of climate change education has been conducted. Its findings will inform the establishment of a team of national partners, capacity-building of key education personnel and the development of a national strategy.

Developing regional cooperation to strengthen climate change education

At the global level, UNESCO has provided technical assistance, policy dialogue, capacity building and dissemination of best practices in climate change education for sustainable development. In this context, UNESCO organized the global experts meeting on CCESD and Adaptation in SIDS in Nassau, the Bahamas, in September 2011. This meeting gathered around 100 experts, primarily from SIDS in the Caribbean, Pacific and Indian Oceans. The recommendations of the experts meeting called for more focus in education sector plans, policies and programmes in SIDS to 'take into account the interdisciplinary nature of climate change education for sustainable development; to link local and global perspectives; to involve learners and communities in the planning and design of educational programmes and to learn from local and indigenous knowledge and respect other systems of knowledge, traditions and values.' Their recommendations guide current national CCESD programmes in SIDS.

At the regional level, in March 2013, a three-day expert meeting was held in Mauritius, bringing together approximately 100 participants primarily from the African region, including African SIDS. Recommendations were adopted to promote education as an important means to enhance adaptation to climate change in the context of sustainable development in African countries, including SIDS.



Training teachers in climate change education in the Dominican Republic

More than 400 primary and secondary teachers received training between March and September 2013. They learned new methodologies for helping young people understand the causes and consequences of climate change and the need for attitudes and behaviour patterns to change, in order to facilitate mitigation of, and adaptation to, climate change. The teachers used UNESCO course materials which had been translated into Spanish and adapted to the Dominican context.

The training was part of a project coordinated by the National Council for Climate Change and the Clean Development Mechanism, in partnership with the Ministry of Education and the National Teacher Training Institute (INAFOCAM). The United Nations Institute for Training and Research (UNITAR) and UNESCO are providing technical assistance and financial resources. The Government of the Dominican Republic increased the national expenditure on climate change education with an additional USD 1 million to continue the programme. These additional funds cover 85 training courses for 3,000 teachers all over the country, three train-the-trainer workshops, as well as the participation of 25 teachers in international and regional cooperation to engage with other countries on the topic of climate change education.

The project is part of the National Climate Change Learning Strategy, which is in turn directly linked to the National Development Strategy (Vision 2030) and other policy instruments which promote a new model of low greenhouse gas emissions and climate resilience. The vision is that, by 2030, Dominican society 'has an education system and implements public policies that generate institutional capacities and human resources to address the challenges of climate change adaptation and mitigation.' A similar programme is being implemented in Cuba since 2014.

Using ocean science to teach children about climate change

Scientific Educational Resources and Experience Associated with the Deployment of Argo profiling floats in the South Pacific Ocean (SEREAD) is an educational programme that adapts data from these floats to the existing curricula of Pacific island schools. There are currently over 3,600 Argo floats patrolling the planet's ocean. These floats record ocean temperature, salinity and changes in ocean heat content; they are thus a vital tool for monitoring climate change.

SEREAD teaches basic scientific fundamentals in a hands-on approach, using examples that build on Pacific pupils' everyday observations and experiences. So far, SEREAD has developed three out of four units for inclusion in primary and secondary school curricula: What is Weather? (for lower primary schools), What is Climate? (for upper primary schools) and Oceans Rising, a unit on sea-level rise for lower secondary

schools. The fourth unit will focus on climate change. Topics will include the role of the ocean in the climate system and ocean-related hazards: storm surges, tsunamis, the reasons for the intensification of tropical cyclones, etc.

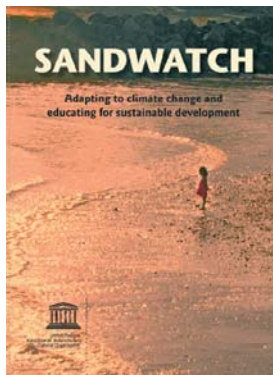
Experts from within and beyond the Pacific sit on the SEREAD Steering Committee, including experts from the UNESCO's IOC, Scripps Institute and SOPAC.

SEREAD is being introduced into the Pacific Island school systems through cooperative arrangements with the local Ministries of Education. By 2011, SEREAD teacher training workshops had been run in the Cook Islands, Samoa and Tonga. SEREAD has also collaborated in teacher training workshops in Kiribati and Tuvalu, combining SEREAD, Sandwatch and SPC/Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) training materials.

For details: www.argo.ucsd.edu/SEREAD.html

In parallel, in partnership with the University of the West Indies (UWI), multiple national and sub-regional teacher training workshops in ESD were organized in 2012–2013 to equip teacher education institutions in the Caribbean to incorporate climate change in pre-service and in-service teacher training programmes. The Caribbean Network of Teacher Educators for Sustainability was also relaunched in 2013 as a strand within the Mainstreaming Environment and Sustainability in the Caribbean Universities (MESCA) network. The Teacher Education Network for Sustainable Development is seen as providing on-going support for teacher educators as well as a platform for exchanging and sharing good practices, approaches and skills. This action falls within the Tortola Declaration on Climate Change Education which was adopted at a meeting organized by UNESCO in Tortola, British Virgin Islands, in 2011. The regional network and declaration will be the basis and platform to institutionalize and strengthen Climate Change Education for Sustainable Development in the Caribbean.

The recommendations of these global and regional meetings serve as a contribution to the 2014 *Conference of the Parties to the United Nations Framework Convention on Climate Change* as well as the *UNESCO World Conference on Education for Sustainable Development* to be held in November 2014 in Nagoya, Japan.



Fostering education for sustainable development through Sandwatch

The Sandwatch project was launched by UNESCO in 1999 as a volunteer network of primary and secondary school students and teachers of UNESCO Associated Schools. The programme is spearheaded by UNESCO and the Sandwatch Foundation, and supported by various partners, including the Government of Denmark. Many years of piloting and improving Sandwatch led to the development of tutorial manuals (in English, French, Portuguese and Spanish), coastal monitoring protocols, a global database, training videos, websites and networks in all SIDS regions. The Sandwatch network is now

active in more than 30 countries worldwide. It has grown into a volunteer network of children, youth and adults who work together to monitor and analyse changes, including those induced by climate change, in their beach environment using a standardized approach, scientific method and low-cost equipment (see adjacent box). The collected Sandwatch data have the potential to inform global scientific and decision making processes. To this end, Sandwatchers have now started entering data from these field-based observations into the global Sandwatch database launched in March 2013.

The Sandwatch network continues to grow. Kiribati joined the programme in 2012. It is currently integrating Sandwatch into the national primary school curriculum and adapting the Sandwatch training manual for use in remote island schools. In 2013, Sandwatch was extended to Cuba and Timor-Leste, where schools are involved in monitoring beaches. Pupils are also studying their region's local and indigenous knowledge in relation to coastal management and climate change adaptation.

In 2013, UNESCO developed a training course on Climate Change Inside and Outside the Classroom, in collaboration with Rhodes University and the Sandwatch Foundation. The course targets teachers, teacher trainers and community educators, combining theory in the classroom with outdoor exercises. The first in a series of training workshops took place in Grahamstown, South Africa, in October 2013, for East and Southern Africa. The second workshop, in Cabo Verde, Praia, in November 2013, involved participants from Western Africa. A third workshop took place in the Dominican Republic in May 2014 involving participants from the Caribbean region. The fourth session is devoted to the Pacific region.

Strengthening Institutional capacities in education statistics in the Caribbean

Since 2006, UNESCO, through its Institute of Statistics, is strengthening the capacities of Statistical Units of Ministries of Education in Education Statistics. The statistical capacity building programme for the Caribbean is supported by the Japanese Funds-in-Trust. It aims at improving the quality of statistical reporting of cross-national comparable education statistics as well as the presence of those data in prominent international reports and annual EFA Reports. Over 100 statistics personnel have been trained under this capacity building programme that included a review of the scope of different surveys: the timeliness, accuracy, coverage and comparability of the data that are being provided by the country; as well as training on the methodology and analysis of the main international comparable indicators produced. In addition, two sub-regional workshops built the capacity in education statistics of 23 Caribbean countries in 2011 and 2014.

Supporting vocational education in the Caribbean

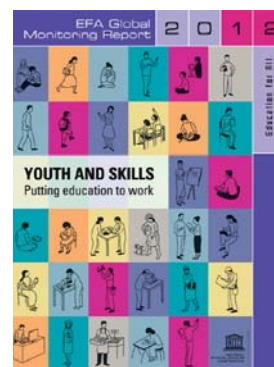
UNESCO addresses the challenges of preparing skilled, entrepreneurial and employable youth and adults by strengthening Technical and Vocational Education and Training (TVET). Within the framework of the CARICOM and UNESCO global strategy on TVET UNESCO has been working closely with UN Agencies, Donor Agencies, Ministries of Education and National Training Agencies. The success story in the past five years has been the recognition and rapid development of comprehensive TVET Policies designed to deliver quality skills training for the labour market needs. A significant percentage of TVET

A primary school in the Bahamas stands by its beach

Since 2004, pupils at Hope Town Primary school in the Bahamas have been monitoring and protecting their beach with their teacher within the school's Sandwatch programme.

In 2005, the beach was badly damaged by several devastating hurricanes. The government used heavy equipment to scrape sand from the sea floor to restore the sand dunes on the beach. Assisted by the community, Hope Town Primary Sandwatchers worked tirelessly to plant the newly-constructed dunes with 'sea oats', a hardy dune grass.

In 2011, the area was again impacted by a hurricane but this time the dune stood firm, thanks to the roots of the sea oats, which did their job by holding the sand in place.





A student learning practical skills at one of the training centres of Heart Trust National Training Agency of Jamaica. Heart Trust/NTA Jamaica is a UNESCO UNEVOC centre.

practioners have participated in the UNEVOC e-forum on TVET best practices. Projects target mainly the significant percentage of out-of-school youth, with the aim of giving them the skills to contribute to the development of their society.

By supporting networking among TVET specialists in the Caribbean and beyond, the global UNEVOC network and e-forum are now firmly established as a valuable resource and innovative platform for TVET experts to exchange knowledge and experience. The UNESCO–UNEVOC Global Forum: Skills for Work and Life Post-2015 will take place in Bonn from 14 to 17 October 2014.

Assessing the status of tertiary education in SIDS

In 2009, UNESCO's International Institute for Educational Planning published a study on tertiary education in small states, defined as having a population of less than three million. *Tertiary Education in Small States: Planning in the Context of Globalization* underscored the specificity of cross-border universities in the South Pacific and Caribbean, where the University of the West Indies and the University of the South Pacific cover 16 and 12 countries respectively. The report acknowledged the foresight of the University of the South Pacific, which from the outset provided dual face-to-face and distance learning to reach the greatest number of students. This has helped the university cope with a growing social demand for tertiary education. This demand is equally strong in the Caribbean, where enrollment at the University of the West

Indies doubled between 2001 and 2008 from 20,000 to 43,000 students. The report underscores the challenge universities face of finding the right balance between government and non-government sources to ensure sustainable funding, in a context of growing student rolls and strong competition for students. Jamaica, for instance, counts 23 public and 29 private tertiary institutions, including community colleges.

A report commissioned by UNESCO was presented to high-level government and CARICOM officials in 2007. Entitled *Using Science, Technology and Innovation to Change the Fortunes of the Caribbean Region*, the report observed that there were 'competent higher education institutions in CARICOM but virtually no full-time funding for postgraduate studies, with the possible exception of Trinidad'. The report observed that 'this situation was aggravated by the progressive loss of the regional character of the University of the West Indies by devolution of authority to national authorities.' The author argued that 'political devolution would undermine the impetus towards regional integration.' He also argued that academic research was best advanced in SIDS through regional collaboration and that 'territories without a University of the West Indies campus needed urgent attention.' The report recommended setting up a Research and Innovation Agency which would administer a fund to ensure full-time postgraduate study and postdoctoral fellowships. In April 2008, Grenada convened a high-level meeting involving ministers of science and technology and education, heads of tertiary institutions and captains of industry to discuss the report's findings. One of the report's main recommendations, the creation of a Caribbean Science Foundation to strengthen linkages between academia and the private sector, was launched at the Caribbean Science Forum in September 2010 (*UNESCO Science Report 2010*).



Monitoring the gender balance at universities in SIDS

In most SIDS, university enrolment approaches gender equality (45–55%) or shows an imbalance in favour of women, according to recent data from the UNESCO Institute for Statistics (see graphs below). Data are unavailable for most of the Pacific but this trend is visible in Africa and the Caribbean, as well as in Bahrain and Singapore. Women make up more than 40% of science and engineering students in Antigua and Barbuda, Barbados and Grenada and more than 30% in most of the SIDS for which data are available.

However, women are less present than men in the higher echelons of the university system. The authors of the chapter on CARICOM¹ in the *UNESCO Science Report 2010* observed that, 'in the English-speaking Caribbean, women outnumber men at both undergraduate and postgraduate level. At the University of the West Indies' Mona campus in Jamaica, for example, about 73% of undergraduate students were women in 2006/2007.' The authors go on to say that 'there is still a paucity of senior women at professorial level, however. The Faculty of Pure and Applied Sciences at the University of the West Indies counts just four women professors out of a staff of over 150.'

Ensuring quality higher education in the Caribbean

Since the adoption of the Mauritius Strategy in 2005, UNESCO has worked closely with Caribbean Tertiary Institutions in capacity building, sharing of best practices and research in all programme areas of UNESCO. UNESCO partnered

¹ see <http://unesdoc.unesco.org/images/0018/001899/189958e.pdf>

Status of Education for All in SIDS

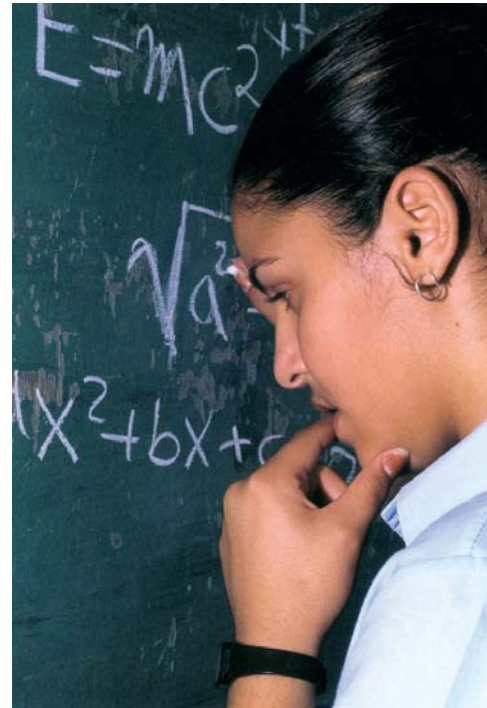
UN Region	Country	Population	Children per woman	Net enrolment rate for primary education (%)	
		2011	2005-2010	2005	2011
Africa	Cabo Verde	500,585	...	96.52	93.50
	Comoros	753,943	5.08	77.76 +2	...
	Mauritius	1,306,593	1.58	...	...
	São Tomé & Príncipe	168,526	4.45	96.19	98.39 -1
	Seychelles	86,879	2.30	95.14	...
Asia Pacific	Bahrain	1,323,535	2.23	96.69	...
	Cook Islands	15,779	...	96.77 +2	94.38 -1
	Fiji	868,406	2.75	95.70 +1	96.53
	Kiribati	101,093	3.16	...	...
	Maldives	320,081	2.42	97.54	94.58
	Marshall Islands	54,816	...	...	99.40
	Micronesia (Fed. States of)	111,542	3.62	...	...
	Nauru	10,185	...	...	...
	Niue	1,446	...	...	...
	Palau	20,643	...	...	...
	Papua New Guinea	7,013,829	4.10	...	...
	Samoa	183,874	4.47	91.44 +2	92.18
	Singapore	5,187,933	1.26	...	...
	Solomon Islands	552,267	4.40	77.01	86.84 -1
	Timor-Leste	1,153,834	6.53	66.84	90.38
	Tokelau	1,162	...	...	...
	Tonga	104,509	4.03	98.83	...
	Tuvalu	11,206	...	...	...
Vanuatu	245,619	3.63	98.67	...	
Caribbean	Antigua & Barbuda	89,612	2.17	90.15 +2	85.61
	Aruba	108,141	1.74	97.29	99.69 -1
	Bahamas	347,176	1.91	95.33	97.50 -1
	Barbados	273,925	1.83	91.00	95.05 -3
	Cuba	11,253,665	1.50	94.69	98.17
	Dominica	67,675	...	91.12	94.10 -2
	Dominican Republic	10,056,181	2.67	82.68	89.43
	Grenada	104,890	2.30	95.24 -1	87.03 -2
	Haiti	10,123,787	3.55	...	...
	Jamaica	2,751,273	2.40	88.27	82.04 -1
	St Kitts & Nevis	53,051	...	94.67	84.53
	St Lucia	176,044	2.04	91.33	87.28
	St Vincent & Grenadines	109,365	2.13	96.08	93.92 -1
Trinidad & Tobago	1,346,350	1.80	86.40	93.94 -1	

Notes ... missing data
 +n / -n denotes that data refer to n years after/before the reference year

Source: UNESCO Institute for Statistics

with the CARICOM Secretariat to strengthen institutional capacity in Quality Assurance by working closely with the Caribbean Area Network for Quality Assurance in Tertiary Education (CANQATE). CANQATE, constituted of all the Tertiary Institutions of the region, was established in 2004 as a subnetwork of the International Network for Quality Assurance Agencies in Higher Education, established within a UNESCO-World Bank partnership. CANQATE promotes capacity-building among institutions of higher education and facilitates regional discourse on policy and research in the fields of quality assurance and quality enhancement. It also engages policy-makers, researchers, evaluators, administrators and faculty in professional development. CANQATE is now chaired by Trinidad and Tobago.

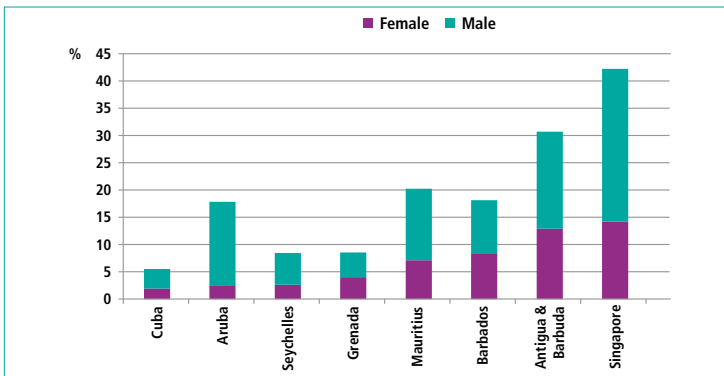
Vocational Institute
Ernesto Guevara, Cuba



© UNESCO/ASPnet/ MSC Waldo Jose Torres

Within the framework of its Strategic Plan for 2011–2014, CANQATE is implementing the second phase of a project for a Global Initiative for Quality Assurance Capacity. Funding from the Korean Funds-in-Trust in 2012–2013 enabled UNESCO to support CANQATE in developing and enhancing country core groups which will act as branches of the network on the ground to foster collaboration in quality assurance across the Caribbean. A critical mass of quality assurance experts were trained under these Korean Funds-in-Trust support. A significant number of UNESCO Chairs in various disciplines were established in Jamaica, Guyana, Curacao and Suriname.

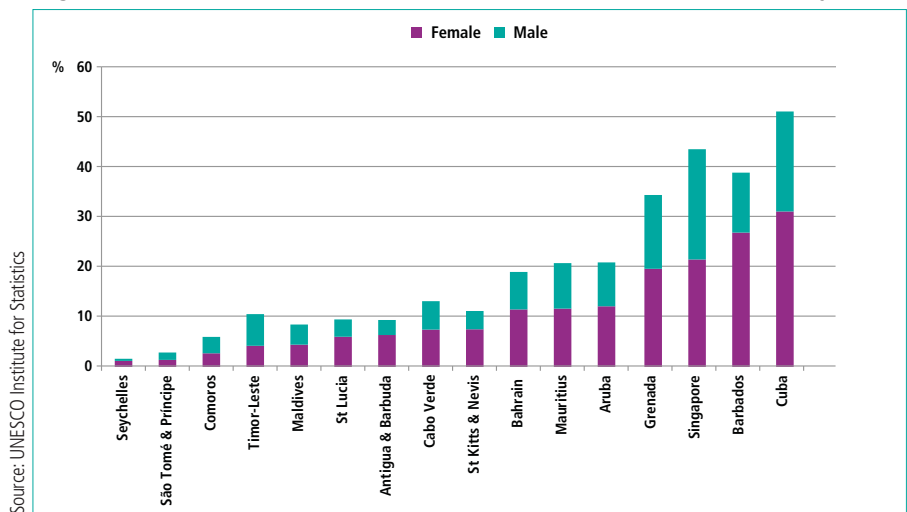
Figure 1: Percentage of university students enrolled in science and technology fields in SIDS, 2011 or most recent year



Source: UNESCO Institute for Statistics

Note: Includes manufacturing, construction and agriculture; does not include medicine

Figure 2: Overall enrolment ratio of 18–25 cohorts in SIDS, 2011 or most recent year



Source: UNESCO Institute for Statistics

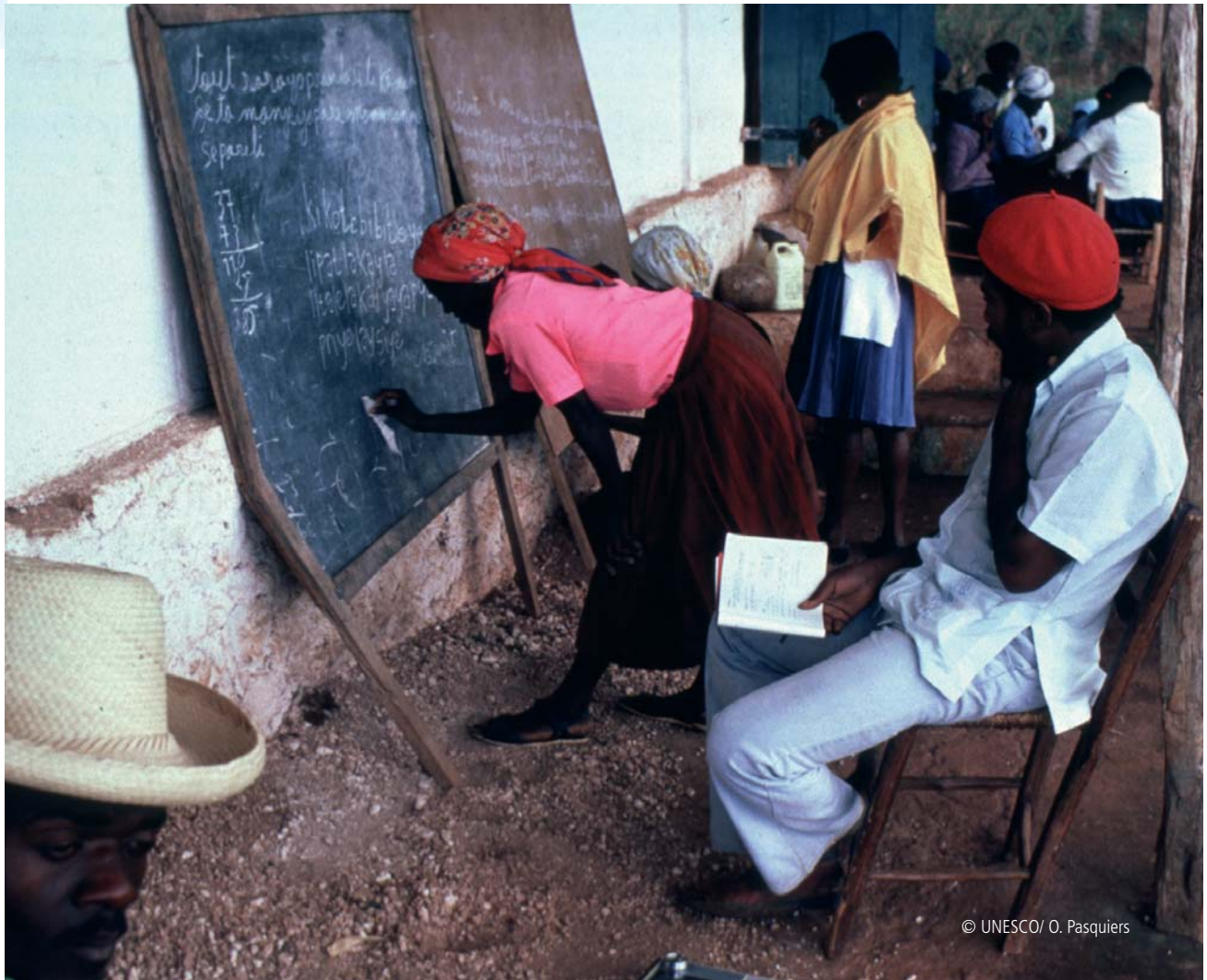
Strengthening South–South–North cooperation

Since the 1990s, UNESCO has established more than 20 UNESCO Chairs in SIDS to foster South–South–North cooperation. The most recent Chairs were established from 2010 in Cuba, Curaçao, the Dominican Republic and Jamaica (see table p.14).

The University Consortium of Small Island States (UCSIS) is part of the UNESCO university twinning (UNITWIN) network, established in June 2006 within an agreement between UNESCO and the University of the West Indies. The consortium's mission is to build the institutional capacity needed to implement the Barbados Programme of Action. The consortium groups the University of the West Indies, University of the South Pacific, currently host of the platform, Universidad de las Palmas de Gran Canaria, University of Malta, University of Mauritius, University of Seychelles and the University of the Virgin Islands.

In 2012, with funding from the Government of Spain through UNDESA, the consortium put the finishing touches to a joint masters' programme on island sustainability. The universities are currently collaborating on integrating this online masters' degree into their academic programmes.

**Literacy workshop
organized by UNESCO
for youth and adults in
the street, Haiti**



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UNESCO Chairs and UNITWIN networks in SIDS

Country	Title and host institution	Inscribed
Bahrain	UNESCO–Cousteau Ecothechnie chair in Environment and Sustainable Development, University of Bahrain, Manama	2001
Cuba	UNESCO Chair in Environment and Development, Higher Institute of Applied Science and Technology	2012
	UNESCO Chair in Culture and Development, Centro Nacional de Superación para la Cultura, Havana	2002
	UNESCO Chair Biomaterials, Universidad de La Habana, Havana	1998
	UNESCO Chair in Conservation of Cultural Goods, Havana	1995
	UNESCO Chair in Education Sciences, Instituto Pedagógico Latinoamericano y Caribeño, Havana	1994
	UNESCO Chair in Information Management in Organisations, Universidad de La Habana, Havana, and Universidad de Murcia, Spain	1993
	UNESCO Chair in University Management, Universidad de La Habana, Havana	1993
	UNESCO Chair on Agricultural Biotechnology for Local Development, University of Granma, Bayamo	2014
Curaçao	UNESCO Chair in Caribbean Small Island Development, University of the Netherlands Antilles	2010
Dominican Republic	UNESCO Chair in Teacher Training and Reading/Writing Research, Pontificia Universidad Católica Madre y Maestra	2012
	UNESCO Chair in Social Sciences, Public Policies and Democratic Governance, Instituto Global de Altos Estudios en Ciencias Sociales	2010
	UNESCO Chair in Communication, Democracy and Good Governance, Pontificia Universidad Católica Madre y Maestra, Santo Domingo	2003
	UNESCO Chair in Peace, Human Rights and Democracy, Universidad Autónoma de Santo Domingo, Santo Domingo	1999
	UNESCO Chair on Social and Academic Inclusion for Disabled People with Special Educational Needs, Universidad Iberoamericana	2013
	UNESCO Chair on Water, Women and Governance, Instituto Global de Altos Estudios en Ciencias Sociales (IGLOBAL), FUNGLODE, CEHICA	2014
Fiji	UNESCO Chair in Teacher Education and Culture, University of the South Pacific, Suva	1998
Jamaica	The Small Island States Universities Consortium on Capacity-Building to implement the Barbados Programme of Action (BPOA), University of West Indies	2006
	UNESCO–Commonwealth Regional Chair in Education and HIV and AIDS, University of the West Indies	2004
Mauritius	UNESCO Chair in Higher Education, Mauritius Institute of Education, Le Réduit	1994
Papua New Guinea	UNESCO Chair in Freedom of Expression, Divine Word University, Madang	2001

Building Island Resilience

Surrounded by ocean, SIDS are particularly vulnerable to natural disasters of both hydro-meteorological and geological origin. Global climate change is expected to exacerbate natural disasters of hydro-meteorological origin, such as hurricanes, floods and drought. Rainfall within a 100 km radius of the eye of a cyclone, for example, is projected to increase globally by about 20%. In addition to climate change, population growth and urban development are increasing the vulnerability of SIDS to natural disasters, particularly in urban and coastal areas.

While geological hazards are unrelated to climate change and less frequent than hurricanes, floods or droughts, they nonetheless exact a terrible toll. Hundreds of thousands of people died in the Indian Ocean earthquake and tsunami in 2004 and in the earthquake which devastated Haiti in 2010.

Helping Haiti recover from the earthquake

In the three years that followed the 2010 Haiti earthquake, UNESCO trained more than 350 masons in earthquake-resistant housing, reconstructed and equipped secondary schools and vocational colleges, provided psycho-social support for secondary schools and helped establish community radio stations. The Haitian coastal hazard warning services were also rapidly made operational again.

A seismologist from UNESCO's Abdus Salam International Centre for Theoretical Physics (ICTP) offered a seismology course at the State University of Haiti in 2012. The intensive two-week course covered the full spectrum of earthquake sciences, from physics to risk reduction and how to save lives in the event of an earthquake. After the workshop, students visited schools in Port-au-Prince to instruct young Haitians on what to do in the event of an earthquake. ICTP also recruited Haitian students for its Postgraduate Diploma Programme in Italy.

Supporting policies which build resilience

UNESCO provides policy support to help SIDS move beyond a response-oriented approach to disaster prevention and preparedness. The Organization is encouraging a multihazards approach which involves the development of early warning systems and the mainstreaming of disaster risk reduction and climate change adaptation in SIDS' environmental, development and education policies.

Guidelines for community-based disaster risk reduction have been collected from several countries by different agencies and consolidated into a regional compendium for the Pacific. This work was completed by UNESCO, in collaboration with SOPAC, UN-OCHA, UNDP and other key stakeholders.

At the second CELAC summit in Havana, Cuba, in January 2014, the Heads of States of Latin America and the Caribbean adopted a special declaration on SIDS. They recognized that special attention should be given to capacity building, prevention, recovery and resilience in SIDS, including for support to technology transfer, capacity building and human resource development.

Coping with floods and drought

In many SIDS, floods and drought have become a common occurrence. Since the 1970s, for instance, more intense and longer droughts have been observed over much of the Caribbean. Governments have become aware of the need for integrated water resources management. They are also contemplating ways of coping with water shortages, such as by establishing desalinization plants or providing new subsidies to farmers and industry.

In 2010–2011, UNESCO produced several publications providing guidelines, tools and best practices for water-related disaster mitigation. Topics included flood and drought management in a context of climate change and climate variability. Launched by UNESCO in 2013, these publications were prepared through the International Flood Initiative, in cooperation with the International Centre for Water Hazards and Risk Management (ICCHARM), which operates under the auspices of UNESCO.

Within the same International Flood Initiative, maximum rainfall events and floods are being studied in Latin America and the Caribbean. Courses were also offered in 2012 in Antigua and Barbuda and in Haiti on Hydrological Regionalization and Water Balances.



Ensuring water security in emergency situations

Floods, storms, tsunamis and other natural disasters often perturb the supply of drinking water to affected populations. The studies conducted since the 2004 tsunami in the Indian Ocean have identified specific aquifer systems that cannot be contaminated by either natural or human-induced disasters and can thus be used in an emergency.

Launched in 2010, the programme *Quo Vadis Aquifers?* (Where are you going, aquifers?) involves UNESCO and the United Nations University. It addresses the links between groundwater degradation and human security. One of the components implemented by UNESCO is Groundwater for Emergency Situations. The Maldives figures among the case studies.

In 2011, UNESCO's International Hydrological Programme (IHP) ran a seminar in the Dominican Republic on Groundwater, Climate Change and Human Activity: Assessment and Adaptation in Latin America and the Caribbean. The seminar was part of a global initiative led by UNESCO called Groundwater Resources Assessment under the Pressures of Humanity and Climate Change (GRAPHIC).

In 2010, in Cabo Verde, UNESCO provided local officers with training on mapping flood risk zones and drafting emergency plans. UNESCO also installed two very high-frequency transmission stations, so that local communities could be made aware of disaster risk reduction via radio broadcasts.

In November 2013, UNESCO IHP organized in Kingston, Jamaica, an International Workshop for the Development of a National Drought Atlas for the Caribbean Countries. Participants were trained to develop applications for the analysis of extreme hydro-climatic events and the generation of vulnerability maps for climatic extremes, as well as the development of the Caribbean Drought Atlas.

Camp for internally displaced persons, Haiti



Monitoring and preserving the ocean through sound science

The recently released Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) states with very high confidence that in the context of SIDS, sea-level rise is expected to exacerbate inundations, storm surges, erosion and other coastal hazards, thus threatening vital infrastructure, settlements and facilities that support the livelihood of island communities. In the Caribbean and Pacific islands, more than 50% of the population live within 1.5 km of the shore. Almost without exception, international airports, roads and capital cities in the small islands of the Indian and Pacific Oceans and the Caribbean are sited along the coast. To develop effective adaptation measures, SIDS need to be able to benefit from sea-level monitoring networks such as those coordinated through UNESCO's Intergovernmental Oceanographic Commission's (IOC) Global Ocean Observing System (GOOS), and its regional components.

Through its Outcome Document, the 3rd International Conference on SIDS has also identified the threat of Ocean Acidification (OA) due to increased CO₂ emissions since industrialization. Ocean Acidification already shows negative consequences on coral reefs, pelagic fisheries, aquaculture, and the island communities that depend on them. However, there are few sustained observations of marine carbonate chemistry and ecosystem response to the changes already being experienced. UNESCO's IOC has been helping SIDS to expand OA research, monitoring and observations through increased international collaboration via, for instance, the Global Ocean Acidification Observing Network (GOA-ON), the International Group for Marine Ecological Time-Series (IGMETS), and its involvement in the International Ocean Carbon Coordination Project (IOCCP).

Improving disaster management and adaptation to climate change



Beyond the monitoring of sea-level rise and other negative effects of climate change, UNESCO's IOC also seeks to increase SIDS' ability to adapt to the negative impacts of climate change through ecosystem-based solutions and integrated coastal zone management (ICAM). These programs target SIDS' disaster prevention and sustainable development priorities simultaneously. For example, in the Ribeira Lagoon of Maio Island (Cabo Verde), IOC used soil rehabilitation and coastal reforestation to combat coastal erosion through the Adaptation to Climate Change in Coastal Zones of West Africa (ACCC) Project. Anti-salt dike construction in the Ribeira Lagoon estuary has reduced the risk of the lagoon bursting its banks in the event of flooding. Through its Marine Spatial Planning (MSP) programme, and particularly through its renowned *Step-by-step Approach for Marine Spatial Planning toward Ecosystem-based Management* guide, UNESCO's IOC is also working to improve climate resilience, implementing sustainable development practices, and improving climate change adaptation within SIDS.

After two Cuban biosphere reserves were severely affected by Hurricanes Ike, Gustav and Paloma in 2008, UNESCO implemented a project with the Cuban Man and the Biosphere Committee and the National Centre for Protected Areas to

restore management capacities in these biosphere reserves (see also box on p.39). A broad multidisciplinary team assessed the damage to ecosystems, enhanced local communities' capacity to adapt to climate change and raised awareness of disaster prevention measures among decision-makers.

Tourism is an important source of revenue for SIDS. It also happens to be a collateral victim of natural disasters. UNESCO's IOC ran a regional workshop in Bridgetown, Barbados, in March 2011 for English-speaking Caribbean states that are heavily dependent on coastal tourism. The main objective was to assist countries in building resilience in coastal management, especially as regards adaptation to climate change, by introducing them to the knowledge and expertise of the Coastal Zone Management Unit in Barbados. Since that meeting, the Inter-American Development Bank has provided a grant of US\$750,000 to support the development of a regional monitoring, evaluation and reporting information system for disaster risk management and climate change adaptation in the Caribbean tourism sector.

As a follow-up to this workshop, the United Nations Department of Economic and Social Affairs (UNDESA) and UNESCO IOC Subcommission-IOCARIBE in collaboration with the Economic Commission for Latin America and the Caribbean (ECLAC) Subregional Headquarters for the Caribbean, organized the Expert Group Meeting on *Implementing Rio+20: Integrated Planning for Sustainable Coastal Area Management in the Caribbean Region*. The meeting was held at the ECLAC Subregional Headquarters for the Caribbean, Port of Spain, Trinidad and Tobago, in March 2014.

The meeting provided recommendations to be considered by SIDS in their forthcoming 3rd International Conference on SIDS (Samoa, September 2014), where the topic of ocean and seas and the ocean-based economy is expected to figure prominently in the pursuit of sustainable development.

UNESCO was involved in the Post-Disaster Needs Assessment for Samoa following Cyclone Evan in December 2012. Cyclone Evan caused extensive damage in Fiji, Samoa and Wallis and Futuna. Local flooding and a storm surge in Samoa compounded the impact, destroying homes, crops and infrastructure around the main urban area of Apia. UNESCO led the disaster risk management assessment and the impact assessment for the education and social sectors; it also conducted the first assessment in the Pacific of the impact of a disaster on heritage sites.

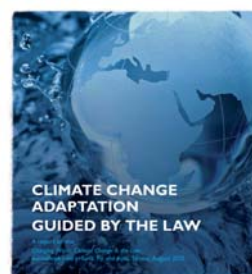
UNESCO has developed a toolkit for Samoan village communities to assist in the implementation of the national Disaster Risk Management and Climate Change Adaptation programmes. The Samoa National Disaster Management Office is rolling out the toolkit nationally with the support of the Samoan Red Cross. It is expected that the toolkit on *Community-based Disaster Risk Management and Climate Change Adaptation* will be adapted to other countries in the Pacific.

Giving islanders a voice, integrating their knowledge

The UNESCO-led Climate Frontlines initiative seeks to strengthen the voices of small islanders, indigenous peoples and local communities in global debates on climate change. Climate Frontlines was launched in 2008, in partnership with the Secretariat of the Convention on Biological Diversity, Secretariat of the Permanent Forum on Indigenous Issues and the Office of the High Commission on Human Rights and with support from the Government of Denmark.

Training on climate change and the law

In 2013, UNESCO ran two Climate Change and The Law workshops with the world's biggest law firm, DLA Piper. The workshops targeted lawyers, legal researchers and government officers from Fiji and Samoa. Participants from Papua New Guinea and Tonga also attended and more training workshops are envisaged for other Pacific countries.



Exploring perceptions of climate change

In 2013, UNESCO began investigating how three different groups – communities living near a conservation area, secondary-school teachers and media officers – perceive climate change, as well as their decision-making processes and adaptive capacities. The multicountry project on Sharing Perceptions of Adaptation, Resilience and Climate Knowledge (SPARCK) involves Vanuatu, Samoa and Fiji.

Innovative mobile surveys and focus group sessions in all three countries revealed a number of key differences between groups and countries.

Teachers have requested more training workshops on climate change. They also felt they were hampered by inadequate resources for teaching the topic. Communities living near a conservation area saw education as a key response to climate change.

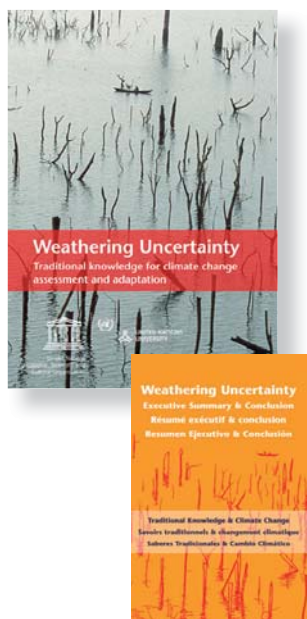
SPARCK community focus group survey in Savaii, Samoa



© Denis Chang Seng/ UNESCO 2013

Communities understood the potential issues but not everyone believed they were threatened directly.

As for the media, they perceived the use of technical terms and acronyms by climate change agencies as key problems in communicating on the issue. Improving information channels between agencies and media outlets was also seen as crucial.



Climate Frontlines places a special emphasis on SIDS. It highlights not only their great vulnerability but also the need to take their sophisticated local knowledge into account in decision-making related to climate change. As of 2013, nine community-based research projects in SIDS had received grants. In 2013, a regional experts meeting was held in Auckland, New Zealand, on traditional calendars in the Pacific for informing climate adaptation policies.

A special chapter focusing on small islands was included in the UNESCO-UNU publication *Weathering Uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation*, published in 2012. Key data and references provided by the book contributed to the prominent recognition of indigenous knowledge in the recently released Fifth Assessment Report of the IPCC.

In 2011, UNESCO prepared a video documentary on using traditional knowledge for early warning in the Cook Islands. The video examines how traditional knowledge can be used to foretell and prepare for cyclones. The video was prepared by the Emergency Management Services of the Cook Islands with support from UNESCO and has been screened on national television and made available to schools.

DVD: Lessons learned from the tsunami that hit Samoa, American Samoa and Niua Islands in Northern Tonga on 29 September 2009



Preparing for tsunamis

Following the strongest tsunami in living memory in the Indian Ocean in 2004, the UNESCO's IOC took the lead in coordinating the establishment of tsunami warning systems in oceans around the world. It organizes regular tsunami early warning exercises every two years or so in the Caribbean, Indian Ocean and the Pacific to test the efficacy of their early warning systems.

In the Pacific, the UNESCO's IOC is working with Fiji, Palau, Samoa, Tonga, Tuvalu and Vanuatu, to develop National Tsunami Response Plans and standard operating procedures for key agencies, using a common format and structure to streamline such plans across the region. This project is being implemented in collaboration with SOPAC. In 2013, the UNESCO's IOC extended support to Kiribati and Tuvalu, among its newest members, for capacity-building related to tsunamis. It also assisted the Solomon Islands in reviewing its Tsunami Support Plan through a national tsunami simulation exercise conducted in the wake of

the tsunami that hit Santa Cruz Island in February 2013, resulting in the loss of 10 human lives.

UNESCO has developed and distributed a video documentary on the 2009 tsunami in Samoa, American Samoa and Tonga to the Disaster Management Office and other relevant institutions and organizations in Samoa and Tonga, in order to share communities' experiences and lessons learnt from this major disaster. Whereas the Pacific early warning system has been in place since the 1960s, the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions was only established in 2005, despite years of advocacy by the UNESCO's IOC. It took the tragic tsunami in the Indian Ocean a year earlier to trigger the system in the region.

In 2005, there were just a dozen seismic stations in the Caribbean, a handful of sea-level stations, tsunami inundation maps in just one territory, no evacuation maps or communication tests, just one tsunami warning focal point and no warning centres or tsunami information centres in the region. Nine years later:

- Over 110 seismic stations permit the effective location of earthquakes;
- Over 60 coastal and oceanic stations monitor sea level and permit the detection and forecasting of tsunamis;
- A Caribbean wide GPS network which holds promises for enhanced tsunami warning systems is almost fully implemented;
- The Pacific Tsunami Warning Center and West Coast and Alaska Tsunami Warning Center provide tsunami information products;
- A Caribbean Tsunami Information Center (CTIC) has been established in Bridgetown by the Government of Barbados under an agreement with UNESCO;
- 30 of the 32 Member States have designated and engaged Tsunami Warning Focal Points and Tsunami National Contacts;
- Several countries have now conducted tsunami hazard assessments and devised evacuation maps;
- Communication tests are conducted monthly;



Students of the Althea Scatliffe Primary School in Tortola, British Virgin Islands, heed the call to evacuate low-lying areas and head to higher ground during the National Earthquake and Tsunami Full Scale Simulation Exercise dubbed Caribe Wave/Lantex 11. The exercise helped schools and emergency responders test their earthquake and tsunami preparedness.



© Department of Disaster Management, BVI

Picture of a warning message on a mobile phone during the 2011 CARIBE WAVE exercise



© Marta Marin

- More than half of the members have tsunami emergency response plans;
- Three Caribbean-wide tsunami exercises were conducted, in 2011, 2013 and 2014.

The most recent Caribbean Tsunami Exercise was held on 26 March 2014. Some 95% of countries and territories participated in this exercise, which mobilized more than 200,000 people and broad media coverage. The Indian Ocean Tsunami Warning System was put to the test in April 2012 when a strong earthquake off the west coast of Sumatra in Indonesia triggered waves of up to 1 m. The UNESCO's IOC reported that the system had performed well during this first real test. UNESCO conducted a full assessment report to identify potential improvements to the system.

Giving children tools to cope when disaster strikes

In 2012, UNESCO and UNICEF published the findings of a study on *Disaster Risk Reduction in School Curricula*.² The case studies of 30 countries included Cuba, Fiji and the Maldives. The study found that, in both Cuba and Fiji, disaster risk reduction education was woven into various subjects at both primary and secondary levels, such as biology, geography and social studies, within a broad interdisciplinary approach to teaching children about the interrelation between society and nature. In the Maldives, the Ministry of Education began mainstreaming disaster risk reduction into primary and secondary curricula in 2009 within a project supported by UNDP.



Currently, five Caribbean countries are pilot-testing a technical guide on how to integrate disaster reduction education into school curricula. The guide has been developed by UNESCO and UNICEF as a follow-up to the aforementioned study.

UNESCO is also helping countries integrate disaster risk reduction and climate change adaptation into school curricula (see also p.6). For example, in the Pacific, an integrated Climate Change and Disaster Risk Management Education Framework is being developed to guide efforts by the education sector to integrate this more fully into school planning, curriculum and community outreach.

Since 2007, UNESCO has been working with schools in Cuba and the Dominican Republic on Risk Prevention and Education in Emergency Situations caused by Natural Phenomena in Caribbean Islands. Within this project, UNESCO published a book in Spanish in 2012 on *Education for Sustainable Development, Disaster Prevention and the Protection of Mental Health in Schools and Communities*. Designed for teachers and pupils, it was inspired by the particularly violent hurricane season of 2008. The 200-page book is accompanied by

an interactive DVD, which includes documentaries and educational games. The package has since been distributed in Cuban schools. The same year, UNESCO prepared five posters to help schoolteachers in the Caribbean introduce new subjects. The posters cover: (1) environmental hygiene, (2) earthquakes, (3) hurricanes, (4) flooding, tornados and landslides, and (5) psychological and psychosocial support to persons in extreme situations.

² See <http://unesdoc.unesco.org/images/0021/002170/217036e.pdf>

Valuing and Sharing Island Heritage & Identities

UNESCO supports SIDS in designing and implementing innovative cultural policies to strengthen heritage and creativity. This involves protecting and safeguarding tangible and intangible heritage, promoting responsible tourism, boosting creative industries and transmitting traditional knowledge through cultural institutions such as museums, archives and cultural centres, with a special focus on indigenous and local communities and youth.

The safeguarding of the historical environment in SIDS enhances the resilience of communities to threats resulting from uncontrolled globalization, natural disasters and climate change. When peoples and communities are affected by disasters or challenged by rapid change, cultural programmes that support the rehabilitation of heritage, traditions and institutions can help restore a sense of continuity, self-esteem and confidence in the future. Consideration for culture should therefore be integrated into disaster-risk reduction and climate-change mitigation, as well as adaptation plans and policies (see p.15 – Building Island Resilience).



Reaffirming the importance of cultural identity for sustainable development

UNESCO's efforts to help SIDS strengthen their cultural capacity and resources for sustainable development are in line with Chapter XIX on Culture in the *Mauritius Strategy*, as well as with emerging regional initiatives. The Ministers of Culture of the Pacific islands and territories convened in Honiara in the Solomon Islands in 2012 to endorse the *Pacific Regional Cultural Strategy: Investing in the Pacific Cultures (2010–2020)* as a framework for regional cultural cooperation. UNESCO contributed substantially to the strategy, which cites UNESCO conventions on culture as guidelines for regional and national cultural policy.

In preparation for the Third International Conference on Small Island Developing States in 2014, UNESCO convened, at the request of Pacific SIDS, a Round Table on *Culture and Sustainable Development in SIDS and the post-2015 agenda*, in Nadi in July 2013. Participants acknowledged the importance of culture as the foundation for well-being in the Pacific and highlighted the need to put adequately funded national cultural policies in place to strengthen the culture sector and cultural industries, in particular. They also stressed the importance of integrating culture in sustainable development strategies and the need to strengthen the Pacific voice on culture in sustainable development at the international level.

The outcome document from the Caribbean Preparatory Conference in Kingston, Jamaica, in July 2013 recognized the importance of promoting cultural identity as a means of advancing sustainable development and called for a people-centred approach to poverty eradication. Furthermore, the interregional preparatory meeting held in Bridgetown, Barbados, in August 2013, reaffirmed the role of culture as a driver and enabler of sustainable development.

Aerial view of the
Marshall Islands



© UNESCO/Eric Hanauer

Improving World Heritage management

Of the 32 World Heritage sites in SIDS, the majority are cultural properties, with the remainder being natural (7) and mixed (1) sites. Since 2008, 11 new sites have been added to the list (see table p.24).

Almost all Pacific SIDS are Parties to the 1972 World Heritage Convention. Since 2010, three countries from this region have seen their first site inscribed on the World Heritage List: Fiji, Kiribati and the Marshall Islands, through implementation of the *Pacific World Heritage Action Plan (2010–2015)*. Workshops focusing on topics ranging from management plan development and database establishment to sustainable tourism have been held in several Pacific island countries since 2010, including Palau, Samoa and Fiji.

The *World Heritage Small Island Developing States Programme* provides SIDS with support and assistance in managing their listed properties and preparing new nominations for the World Heritage List. As of July 2013, over 300 participants have benefitted from the workshops run within this programme. In the framework of this programme, a project aiming to develop regional capacity-building activities for Pacific and African SIDS and to strengthen the existing activities in Caribbean SIDS was approved in 2011 and supported by the Government of Japan with a total budget of US\$ 1 million.

The *Caribbean Capacity-Building Programme (CCBP)* focuses on long-term training for cultural heritage management, in response to the World Heritage Committee's call for greater local expertise to enable fuller protection of the current World Heritage sites and encourage new nominations. It features a network of heritage experts and universities. The programme's training module is a widely used online tool devoted to various aspects of management: tourism, historic centres, risks, cultural landscapes and natural heritage. Over 200 Caribbean experts have been trained since 2007 and States Parties have been mentored in the process of new nominations for the World Heritage List. A special issue of the periodical *Culture and Development World Heritage in the Caribbean* including an evaluation of the CCBP, was published in June 2014. These capacity building efforts have led to the ratification of the 1972 World Heritage Convention by The Bahamas, which subsequently entered into force on 15 August 2014, making the island country the 191st State Party to the Convention.

As a part of the *Pacific World Heritage Action Plan*, a Pacific Heritage Hub was established in Fiji at the University of the South Pacific in 2013. Encompassing 22 Pacific island countries and territories, the hub intends to strengthen the links between UNESCO, Pacific island governments, institutions, organizations and indigenous communities to enhance knowledge management, strengthen heritage management and facilitate sustainable funding and partnership-building. The hub organized several seminars and workshops on diverse topics related to Pacific heritage in 2013. It is currently developing an undergraduate course on heritage management at the University of the South Pacific, in cooperation with Australian universities, under an agreement with the Government of Australia.

Building cooperation among marine properties

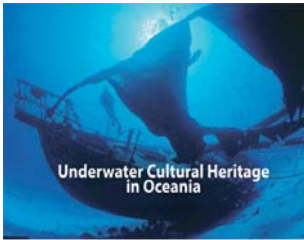
UNESCO launched the World Heritage Marine Programme in 2005. A Memorandum of Understanding was signed with the French Marine Protected Area Agency in 2013 which provides a framework for developing cooperation among marine World Heritage properties in the Pacific. These include the sites of overseas territories, such as the Lagoons of New Caledonia: Reef Diversity and Associated Ecosystems (France) and Papahānaumokuākea (USA). A first meeting

of regional stakeholders and the managers of existing and potential marine World Heritage sites took place in New Caledonia in 2014. In addition to strengthening cooperation, the meeting aims to foster the exchange of best practices among site managers in the Pacific and involve major NGOs in protection measures.

World Heritage properties in SIDS

Country	Property	Category	Year of designation
Bahrain	Pearling, testimony of an island economy	Cultural	2012
	Qal'at al-Bahrain – Ancient Harbour and Capital of Dilmun, Bahrain	Cultural	2005
Barbados	Historic Bridgetown and its Garrison	Cultural	2011
Belize	Belize Barrier Reef System	Natural	1996
Cuba	Historic Centre of Camagüey	Cultural	2008
	Urban Historic Centre of Cienfuego	Cultural	2005
	Alejandro de Humboldt National Park	Natural	2001
	Archaeological Landscape of the First Coffee Plantations in the South-East of Cuba	Cultural	2000
	Desembarco del Granma National Park	Natural	1999
	Viñales Valley	Cultural	1999
	San Pedro de la Roca Castle, Santiago de Cuba	Cultural	1997
	Trinidad and the Valley de los Ingenios	Cultural	1988
	Old Havana and its Fortification System	Cultural	1982
Cabo Verde	Cidade Velha, Historic Centre of Ribeira Grande	Cultural	2009
Dominica	Morne Trois Pitons National Park	Natural	1997
Dominican Republic	Colonial City of Santo Domingo	Cultural	1990
Fiji	Levuka Historical Port Town	Cultural	2013
Haiti	National History Park – Citadel, Sans Souci, Ramiers	Cultural	1982
Kiribati	Phoenix Islands Protected Area	Natural	2010
Marshall Islands	Bikini Atoll Nuclear Test Site	Cultural	2010
Mauritius	Le Morne Cultural Landscape	Cultural	2008
	Aapravasi Ghat	Cultural	2006
Palau	Rock Islands Southern Lagoon	Mixed	2012
Papua New Guinea	Kuk Early Agricultural Site	Cultural	2008
St Kitts and Nevis	Brimstone Hill Fortress National Park	Cultural	1999
St Lucia	Pitons Management Area	Natural	2004
Seychelles	Vallée de Mai Nature Reserve	Natural	1983
	Aldabra Atoll	Natural	1982
Solomon Islands	East Rennell	Natural	1998*
Suriname	Central Suriname Nature Reserve	Natural	2000
	Historic Inner City of Paramaribo	Cultural	2002
Vanuatu	Chief Roi Mata's Domain	Cultural	2008

* Inscribed on List of World Heritage in Danger in 2013



Protecting underwater heritage

There is a growing awareness of the tremendous potential of submerged sites for sustainable cultural tourism as well as recreation. Studies demonstrate that, for example, divers remain longer and spend more in the places they visit than other kinds of tourists. Given the importance of tourism in SIDS, as highlighted in the SIDS Programme of Action, it is vital for them to protect, study and enhance their submerged sites.

UNESCO supports SIDS in this endeavour through the 2001 Convention on the Protection of the Underwater Cultural Heritage, ratified already by many of them. There is no list under this convention. Any underwater cultural heritage is considered de facto worthy of protection. The Convention provides legal site protection, sets standards for underwater archaeology and guarantees international cooperation.

Several publications on underwater heritage in SIDS have been produced by UNESCO, such as the *Underwater Cultural Heritage in Oceania and Caribbean Underwater Cultural Heritage* manual and training course book. Numerous training courses were organized, for instance in 2012 in Jamaica and Cuba. In collaboration with international partners, many scientific conferences have also been held, for example, the 2014 Asia Pacific Conference that took place in Hawaii.

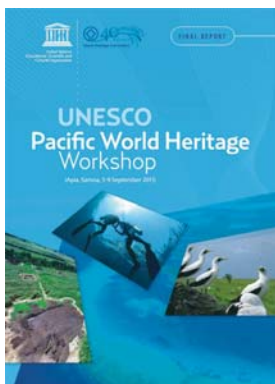
In 2013, UNESCO organized a workshop in Saint Kitts and Nevis that elaborated a *Model Law for the Protection of Cultural Heritage*, based on the 2001 Convention.

The Bahamas hosted in July 2014, a regional meeting for Latin America and the Caribbean (LAC) on underwater cultural heritage, as a follow-up to the 2013 Lima Ministerial Meeting on the *Protection of Underwater Cultural Heritage* which was attended by ministers and experts from 24 countries in the LAC region, 11 of which were Caribbean SIDS (Antigua and Barbuda, Barbados, The Bahamas, Belize, British Virgin Islands, Cuba, Dominican Republic, Guyana, Jamaica, Sint Maarten, Trinidad and Tobago).

These capacity building efforts have led to the ratification of the 2001 Convention on the Protection of Underwater Cultural Heritage by two Caribbean SIDS, Antigua and Barbuda in 2013 and Guyana in 2014.

Underwater cultural heritage was also the subject of a meeting in April 2014 during the New York intersessional preparatory meeting for the Third Conference on SIDS. During the conference itself in Apia, Samoa, a parallel event will be run by UNESCO focusing on the SIDS submerged heritage.

Safeguarding intangible heritage in the Caribbean and Pacific



In many SIDS, there has been a shift away from a focus on subsistence, strong family units and community towards consumerism, individualism and a decline in traditional social systems. These trends hamper the transmission of traditional knowledge. Safeguarding this living heritage can only be done with the active engagement of the communities who are its custodians, creators and transmitters. That is the goal of the 2003 Convention for the Safeguarding of the Intangible Cultural Heritage.

Half of the Pacific island states have become Parties to this Convention. These are currently developing national policies and strategies, in order to better safeguard their intangible heritage at country level.

Belize, Jamaica and Trinidad and Tobago are the beneficiaries of a sub-regional project funded by Japan which is assessing the policy-making process in these countries and developing a framework for a community-based inventory of their living heritage. Within this project, national workshops were held in Belize City and Kingston in 2012 on implementing the convention and, in all three countries in 2013, on community-based inventorying. These were attended by government officials, NGOs and community practitioners.

A Norway funded programme for the strengthening of national capacities was implemented in 2012–2014 in Cuba, Dominican Republic and Haiti, including workshops for on-site activities with local communities to document the intangible heritage.

Similar training sessions have been run throughout the Pacific, in particular in Samoa and Papua New Guinea. In addition, the following countries have received technical assistance: Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Nauru, Palau, Solomon Islands, Timor-Leste, Tonga and Vanuatu.

At the Caribbean Youth Forum on Intangible Cultural Heritage in Saint George's, Grenada, in November 2012, 26 young people from 16 SIDS exchanged information and developed their own national and sub-regional action plans for safeguarding intangible cultural heritage. Their participation was funded by Bulgaria and the Intangible Cultural Heritage Fund.

Ensuring due regard for gender equality

A consultation on Women's Empowerment for a Culture of Peace and Non-Violence was held in Nadi, Fiji, in June 2013, in cooperation with UN Women and the UNDP Pacific Centre. It underscored the need to ensure that the Convention for the Safeguarding of Intangible Heritage is implemented with due regard for gender equality, by incorporating substantive gender components into capacity-building activities in the Pacific and sharing experiences through the periodic reports prepared by States Parties.

Using intangible heritage to strengthen community resilience

The contribution of intangible cultural heritage to strengthening community resilience to natural disasters and climate change has been attracting increasing attention. Examples include traditional knowledge relating to weather forecasting, vernacular buildings, village governance and the reciprocal exchange of items of traditional wealth for social networking and protection.

Heritage-related sites and cultural activities in Samoa were assessed in the Post-Disaster Needs Assessment following Cyclone Evan in December 2012. Published by the Samoan government with the assistance of the UN and the World Bank, the assessment report identified the critical role of community-based practices at the village level in building and maintaining community resilience.

Kiribati community members



© UN Photo/Eskinder Debebe

Backstopping museums

Museums are playing an increasingly crucial role in ensuring the transmission of knowledge about cultural heritage, at a time when the role of communities and extended families has been weakened by globalization.

UNESCO is supporting a number of museums in the Pacific. In 2010, it provided training in documenting and promoting cultural property to help Timor-Leste safeguard its movable cultural heritage. UNESCO assisted the Samoan authorities in producing a report on the *Museum in Samoa: Past, Present and Future* and contributed to improving the website of the National Museum of Samoa. UNESCO is also helping to preserve the Fiji Deed of Cession and other key items of documentary heritage in Fiji, through the Memory of the World programme (see also p.28).

With the support of UNESCO and the participation of The International Council on Monuments and Sites (ICOMOS), the Pacific Islands Museum Association ran a Youth Speak Workshop in the Solomon Islands in July 2012 to raise awareness of the importance of culture as a source of identity and creativity.

Combatting illicit trade in artefacts

In many SIDS, a growing number of artefacts of great value are leaving their country of origin without a proper record of the transaction, some of which are turning up later in museums outside the region. UNESCO has been partnering with the Pacific Islands Museum Association to provide policy assistance and regional workshops, in order to promote the 1970 Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property.

In 2010, UNESCO supported the publication of catalogues featuring cultural objects, and notably wooden artefacts, from national collections. A workshop on the application of the 1970 Convention in the Caribbean was held in Saint Lucia in December 2012 and a special issue of the periodical *Culture and Development* was published in 2013.

Supporting the emergence of dynamic culture sectors

In recent years, there have been two main international mechanisms for implementing the UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions in SIDS.

The first is the International Fund for Cultural Diversity. Since 2010, over 10% of the fund have been devoted to projects in SIDS. Approximately US\$400,000 have been granted to six SIDS to foster the emergence of dynamic national cultural sectors. These projects cover areas ranging from the development and implementation of national cultural policies (Grenada, Saint Vincent and the Grenadines), the strengthening of cultural industries as a means of tackling youth unemployment in most deprived areas (Kiribati, Cuba, Saint Lucia), to improving access to international markets for creative industry professionals (Barbados).

The second mechanism is the UNESCO–EU funded project for an *Expert Facility to Strengthen the System of Governance for Culture in Developing Countries*. From 2011 to 2013, this project provided four SIDS with technical assistance: Barbados, Haiti, Mauritius and the Seychelles. These missions were designed to help countries establish legal and institutional frameworks for the development of national culture sectors and introduce policies that address the role of culture in social and economic development, particularly through cultural industries.

As a result, the Seychelles has adopted a new policy on creative industries and a strategy for the development of its music industry. An assessment has also been made of the state of Haiti's book industry. A series of comprehensive recommendations have been developed for making cultural industries one of the main contributors to the Barbadian economy. Among other examples, a strategy has also been adopted to support the development of cultural industries in Mauritius, along with clear action plans.

Preserving the memory of the slave trade

Four of the 20 members of the International Scientific Committee of the Slave Route Project come from SIDS. In 2011, UNESCO commissioned two studies on topics that had been insufficiently researched until now: the slave trade and slavery around the Red Sea and in the Pacific (see also the Memory of the World programme on p.31).

Over the years, the project has contributed to inventorying, preserving and promoting sites and places of memory related to the slave trade and slavery on islands of the Caribbean and Indian Ocean. A methodological guide and training modules on *Tourism of Memory* are currently being developed by a group of international experts. These materials will be especially useful for SIDS in the Caribbean and Indian Ocean engaged in cultural tourism, as they should help them to diversify their potential in this area.

In Saint Kitts and Nevis, the National Committee of the Slave Route project was introduced to the public in July 2011, through a series of lectures and consultations under the themes, *Towards the Erection of a Monument in Remembrance of our Ancestors, the Abolition of Slavery and the Slave Trade*.

In the Indian Ocean, a programme entitled Routes of Slavery and Endured Labour was launched in 2004 with the assistance of the Slave Route project. It aims to highlight the historical links that Mauritius, Seychelles, Madagascar and La Réunion have developed with Africa, India and China.

In Cabo Verde, a cartoon on the slave trade in Cidade Velha was developed in 2010 to educate young people. In Guinea-Bissau, UNESCO supported the Festival de Cacheu on slavery and the slave trade on the island of Bissau in November 2011. The designation of a Cacheu Memorial, currently under consideration, will contribute to defining the touristic itineraries of places of memory in Guinea-Bissau, Cabo Verde, Gambia and Senegal.

In March 2013, the bureau of the International Scientific Committee met in Barbados to discuss an action plan for the Slave Route Project for the UN Decade of People of African Descent (2013–2022), as well as events to mark the project's 20th anniversary in 2014 in the Caribbean, the Indian Ocean and other regions.

***Breaking the Silence,
Beating the Drums,
International Slave Day
commemoration***

© UNESCO/ Dominique Roger



Building Knowledge Societies in Islands

Young Timorese journalists



© UNESCO

UNESCO contributes to Chapter XVIII of the *Mauritius Strategy on Knowledge Management and Information for Decision-making* by applying an interdisciplinary approach. In order to build inclusive knowledge societies, UNESCO fosters media pluralism and the freedom of the press, the preservation of documentary heritage, universal access to information in the public domain and a broader access to knowledge.

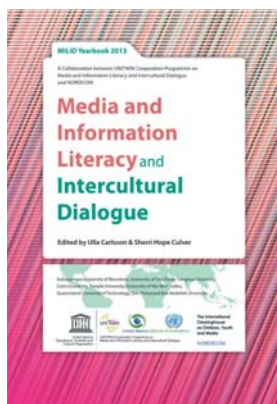
UNESCO assists SIDS in developing policies and cooperation mechanisms for the adoption of open education resources, open access, free and open source software. It also promotes policies related to information and communication technologies (ICTs) that are both gender-sensitive and gender-inclusive.

Networking TV producers on HIV and AIDS

UNESCO's Network of Young TV Producers on HIV and AIDS is a UNAIDS-supported project that has strengthened the professional skills of more than 300 young television producers worldwide since 2002, including 40 participants from 18 SIDS. The trainees have taken part in awareness-building sessions about the challenges raised by the HIV and AIDS pandemic and the risks related to multiple concurrent partners, low levels of condom use, gender-based violence, homophobia, social stigma and drug abuse.

In 2002, 2008 and 2013, UNESCO ran training sessions for trainers and peer-review exercises in Asia-Pacific and the Caribbean, in close collaboration with the Regional Media Centre of the Secretariat of the Pacific Community, the Caribbean Broadcasting Association, the Asia Pacific Institute for Broadcasting Development, the Asia Pacific Broadcasting Union and other partners. The collaboration resulted in the coproduction of 14 short documentaries by young television producers, with free distribution rights to facilitate the exchange of programmes among broadcasters in Asia-Pacific, the Caribbean and beyond. UNESCO's handbook for TV producers on HIV and AIDS, *Getting the Story and Telling it Right*, was a key resource during project implementation.

Today, UNESCO's Network of Young TV Producers on HIV and AIDS is active in Anguilla, Antigua and Barbuda, Bahamas, Barbados, British Virgin Islands, Dominica, Fiji, Grenada, Guyana, Jamaica, Maldives, Montserrat, Papua New Guinea, Solomon Islands, Saint Kitts and Nevis, Saint Lucia, Sint Maarten and Saint Vincent and the Grenadines.



Improving media and information literacy

The University of the West Indies is part of a network of universities and libraries within UNESCO's University Twinning (UNITWIN) Cooperation Programme on Media and Information Literacy and Intercultural Dialogue. UNESCO established a partnership with the University of the West Indies in 2011 to conduct a study of media and information literacy levels among school teachers in Antigua and Barbuda, Guyana, Jamaica and Trinidad and Tobago. The Maldives was involved in a similar assessment among university students. The findings are available in the *Media and Information Literacy and Intercultural Dialogue Yearbook*.

Another member of the UNITWIN network, the Association of Caribbean Universities and Institutional Libraries, sits on the steering committee of the recently formed Global Alliance for Partnerships on Media Information and Literacy.

Between 2007 and 2012, UNESCO worked with the Broadcasting Commission of Jamaica, the Joint Board of Teacher Education and the Caribbean Institute of Media and Communication to improve media and information literacy in Jamaican primary and secondary schools. Phase one of the project (2007–2010) entailed creating and testing print and video materials which were then used to train Jamaican teachers; these materials were also tested on ten primary school children. During Phase two (2010–2012), the materials were expanded and 80 teachers of children in grades five to eight received training in five pilot schools.

UNESCO's *Model Media and Information Literacy Curriculum* has formed the basis of two national online courses developed by UNESCO in cooperation with the Media and Information Literacy and Intercultural Dialogue Network. After the first course was launched in February 2013, students enrolled from East Timor-Leste, Cook Islands, Haiti, Jamaica, Saint Lucia and Trinidad and Tobago. The second course was launched in November 2013.

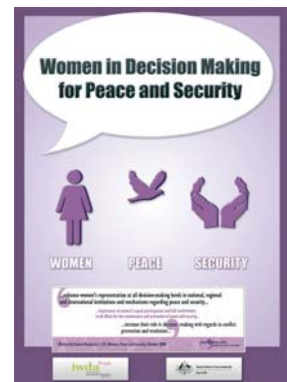
In July 2013, policy-makers in Saint Lucia piloted the draft *Media and Information Literacy Policy and Strategy Guidelines* at a workshop supported by UNESCO for the members of the Organisation of Eastern Caribbean States.

Fostering gender-sensitive media

In 2012, UNESCO finalized Gender-Sensitive Indicators for Media, in cooperation with the Caribbean Broadcasting Union, Asia–Pacific Broadcasting Union and other partners. These indicators have since been piloted in four media houses in Barbados, Jamaica, the Maldives and Trinidad and Tobago, which have carried out a self-assessment in partnership with UNESCO and the two regional broadcasting unions. The indicators have since informed gender-sensitive policies and strategies adopted by five broadcasters in Antigua, Barbados, Jamaica, the Maldives and Trinidad and Tobago. In parallel, the Caribbean Broadcasting Union facilitates an exchange of lessons learnt through its annual meetings.

In collaboration with the University of the South Pacific, an online course on gender and media has been developed as part of the Journalism studies program. This course is available to degree students as well as through short courses. The online course allows practicing journalists to remotely access the latest thematic knowledge on how to improve both the quality and frequency of reporting that enhances gender equality.

In partnership with UNWomen and IFJ-Asia/Pacific, UNESCO is undertaking a comprehensive Research Study on Media and Gender in Asia-Pacific, involving Vanuatu. The study, which will be released for the Post-2015 Summit, will investigate the situation of women at work in the media, their challenges, obstacles and needs; the number of women in senior and decision-making positions; the role of unions, associations and women's networks and expectations from their actions; and best practice case studies of campaigns, media workplaces, and the coverage and representation of women.



Building Caribbean knowledge societies

Between 2008 and 2014, UNESCO supported the training of hundreds of journalists from Caribbean islands to strengthen their capacities to communicate properly on a variety of issues such as hurricanes, heritage, HIV and AIDS, gender, new technologies and ethics in the internet.

UNESCO works closely with Ministries of Education, Microsoft, Intel, Tertiary Institutions and the CARICOM Secretariat to advance ICTs in Education amongst CARICOM members. The primary focus is on ICTs in education policy, promoting best practices, Open Education Resource policies and other tools such as Free and Open Source Software. Stakeholders recognize the importance of ICTs as a means to enhance learning and contribute to quality education and as an important tool for building the knowledge society.

The roll-out of ICTs in Education policies in the Caribbean is based upon best practices from Asian experiences with ICT Policies and Master Plans. The major thrust of the ICT programme was on the development of high quality ICT Policies and Master Plans.

During 2012–2013, the intergovernmental Information for All Programme worked closely with Caribbean States to implement the declaration and list of actions adopted at the programme's First Regional Meeting for the Dutch- and English-Speaking Caribbean in Saint George's, Grenada, in June 2011, on the theme of *Building Caribbean Knowledge Societies*. At the end of this meeting the delegates signed on to the Saint Georges Declaration which outlined the vision of Building Caribbean Knowledge Societies in the future. This resulted in the launch of a 17-country Caribbean study in December 2012 which has enabled Member States to assess national usage of free and open source software, open data and open educational resources in the region. The 17 case studies concern Antigua and Barbuda, Bahamas, Barbados, Belize, British Virgin Islands, Cayman Islands, Curaçao, Dominica, Grenada, Guyana, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Sint Maarten, Suriname and Trinidad and Tobago. Since December 2012, UNESCO has been assisting countries in preparing national roadmaps to integrate these assessments into their development strategies.

To assist Caribbean countries and territories in updating their national policy frameworks, UNESCO has provided them with its *Policy Guidelines for the Development and Promotion of Open Access*³, published in English, French and Spanish in 2012. A significant number of countries have now developed ICTs in education policies and master plans, including Antigua and Barbuda, Dominica, Guyana, Jamaica, Suriname and Trinidad and Tobago.

Preserving documentary heritage

UNESCO's Memory of the World Programme was founded two decades ago. UNESCO intervenes not only at the policy level but also attempts to raise awareness of the value of preserving documentary heritage among governments, specialists and the general public. UNESCO also provides training and implements projects like the digitizing of the sound archives of the Broadcasting Corporations of Samoa and the Solomon Islands.

UNESCO provides training for librarians and national archivists in digital archiving and preservation of national heritage. Librarians and archivists learn

³ English version: <http://unesdoc.unesco.org/images/0021/002158/215863e.pdf>

how to convert existing print and audiovisual material into digital formats, as well as digital archiving methods. Libraries are also encouraged to enroll in UNESCO's World Digital Library project. In 2011 and 2012, archivists, librarians and information specialists from Fiji, Mauritius, Palau and the Solomon Islands were trained in knowledge preservation.

In 2011, UNESCO provided the Ministry of Education of the Seychelles with support in researching the history of slaving in the country, preserving and disseminating the findings of this research via CD-ROMs and in integrating the history of slaving into the curriculum of secondary schools.

In September 2012, UNESCO held an international conference in Vancouver, Canada, on *Memory of the World in the Digital Age: Digitization and Preservation*. The event attracted participants from Barbados, Fiji, Guyana, Jamaica, Madagascar, Papua New Guinea, Saint Kitts and Nevis, the Seychelles and Singapore.



A young Timorese reads a local daily newspaper

© UN Photo/Martine Perret

SIDS documentary heritage in the Memory of the World Register

Documentary heritage	Submitted by	Inscribed
On the Birth of a Nation: Turning Points	Timor-Leste	2013
Arthur Bernard Deacon (1903–1927) collection	Vanuatu, UK	2013
Records of the Indian Indentured Labourers	Fiji, Guyana, Suriname, Trinidad and Tobago	2011
Silver Men: West Indian Labourers at the Panama Canal	Barbados, Jamaica, Panama, St Lucia, UK and USA	2011
The Constantine Collection	Trinidad and Tobago	2011
Nita Barrow Collection	Barbados	2009
Documentary Heritage on the Resistance and Struggle for Human Rights in the Dominican Republic, 1930–1961	Dominican Republic	2009
Farquharson's Journal	Bahamas	2009
Original Negative of the Noticiero ICAIC Latinoamericano	Cuba	2009
Registry of Slaves of the British Caribbean 1817–1834	Bahamas, Belize, Bermuda, Dominica, Jamaica, St Kitts and Nevis, Trinidad and Tobago, UK	2009
Federal Archives Fonds	Barbados	2009
Catecismo Corticu, First Catechism Written in Papiamentu Language	Curaçao	2009
Book for the Baptism of Slaves 1636–1670	Dominican Republic	2009
Sir William Arthur Lewis Papers	St Lucia	2009
José Martí Pérez Fonds	Cuba	2005
The C.L.R. James Collection	Trinidad and Tobago	2005
Documentary Heritage of Enslaved Peoples of the Caribbean	Barbados	2003
The Eric Williams Collection	Trinidad and Tobago	1999
The Derek Walcott Collection	Trinidad and Tobago	1997

Boosting Science Capacities & Social Well-Being

At a time when SIDS are confronted with global phenomena that include climate change and social challenges such as migration and high youth unemployment rates, UNESCO has been supporting the design of public policies in the Pacific and Caribbean. These policies are grounded in evidence-based analyses and shaped by participatory approaches.

Documenting 'climate refugees'

In 2008, the 2,500 inhabitants of the Carteret Islands in eastern Papua New Guinea made headlines as the world's first 'climate refugees'. Carteret is an atoll composed of six low-lying islets that have become progressively less habitable over the past decade. There is evidence that land subsidence and sea-level rise are exacerbating coastal erosion, saltwater inundation and the depletion of freshwater resources. Progressive waves of migrants have settled in nearby Bougainville, where they are confronted with new problems, including limited access to land for housing and vegetable-growing and high levels of crime and violence. These are some of the findings of a study undertaken by UNESCO, in partnership with the Asia–Pacific Migration Research Network and the University of Papua New Guinea.

At a regional workshop in Fiji in May 2009 on *Climate Change and Migration in the Pacific*, it became clear that the Carteret Islands are not an isolated case. Migration accelerated by the physical and economic impact of climate change is already occurring in a number of Pacific localities. The workshop was the first in the Pacific to tackle climate change-related migration. Hosted by the Asia–Pacific Migration Research Network, with the support of UNESCO and the University of the South Pacific, it concluded that climate-related migration in the Pacific needs to be better documented and understood.

Supporting better informed policies in the Caribbean

In 2012, UNESCO commissioned three studies to assess capacities in the Caribbean for effectively utilizing social data and analysis in the formulation and planning of sustainability policies. The first study reported on the data gaps which hinder social analysis and was prepared by the CARIBSAVE Barbados Office. The second focused on the interaction between the social sciences and civil society when policy formulation and planning tackle the social dimensions of environmental change; this study was prepared by the Caribbean Natural Resource Institute in Trinidad and Tobago. The third study proposed a roadmap for creating a regional environmental change clearing house cum knowledge management hub in the Caribbean; it was prepared by Conrad Douglas Associates in Jamaica.

All three reports were analysed and validated at a subregional meeting on Environmental Policy Formulation and Planning in the Caribbean Region, held in Saint Kitts and Nevis, in May 2013. The meeting was organized by UNESCO, in collaboration with the Government of Saint Kitts and Nevis. In addition to governmental officials, the meeting brought together regional experts and representatives of CARICOM and the Organization of the Eastern Caribbean States. A ministerial roundtable provided an opportunity to map out options for utilizing social data and analysis more effectively in policy-making at the national, regional and international levels.

Disseminating environmental ethics

In Cuba in January 2013, UNESCO's *Jose Marti Project of World Solidarity* appealed 'for a culture of nature' at a symposium organized by the project during an international conference entitled *For Equilibrium in the World*. Social scientists speaking different languages from around the Caribbean used this opportunity to draft a series of recommendations for ethically grounded responses to environmental challenges in the Caribbean. The same year, the Centro de Estudios Martianos in Cuba developed a web-based toolkit consisting of a compilation of the critical thought of José Martí regarding environmental ethics.

Networking researchers across the Pacific

UNESCO sponsored the creation of the Pacific Islands Universities Research Network (PIURN). The network was the outcome of a meeting held in November 2012 in Fiji, which brought together more than 30 senior researchers and representatives of intergovernmental technical agencies. UNESCO's partners in this endeavour were the Technical Centre for Agricultural and Rural Cooperation of the African, the Caribbean and Pacific Group of States/European Union, the University of the South Pacific, the University of Papua New Guinea, the Secretariat of the Pacific Community and the Australian National University. The meeting identified specific gaps in science, technology and innovation policy, in relation to national and regional development plans and frameworks. One recommendation called for greater acknowledgment of the relationship between science and local and indigenous systems of knowledge.

Eight months later, in January 2013, the formal agreement for the establishment of the PIURN network was signed by 11 Pacific Universities in Suva, Fiji, in July 2013, involving the University of the South Pacific, Fiji National University, National University of Samoa, Pacific Adventist University, Papua New Guinea University of Natural Resources and Environment, Papua New Guinea University of Technology, University of French Polynesia, University of Goroka, University of New Caledonia, and University of Papua New Guinea.

UNESCO has also run awareness-building campaigns in recent years in the Cook Islands, Kiribati, Samoa, Tokelau and elsewhere to encourage people to document their local and traditional knowledge, so that it can help shape science policies.

Promoting Science, Technology and Innovation in the Caribbean SIDS

UNESCO is contributing to the establishment of sound evidence-based STI policies in the Caribbean. In a recent sub-regional workshop, participating countries outlined their priorities for regional policies, providing particular emphasis on areas such as the need to establish a single virtual Caribbean STI space, to promote STI education, and to enhance regional collaboration in research, science popularization and higher education. The need for capacity building in drafting and implementing STI policies was also highlighted, aiming at developing a 'Caribbean STI Policy approach'. UNESCO is committed to supporting these processes, in partnership with regional organizations such as the Caribbean Science Foundation, the Caribbean Academy of Sciences, the Caribbean Council for Science and Technology, and CARISCIENCE, among others.

Within the framework of the International Basic Sciences Programme, UNESCO implemented the Global Micro-science Experiments Project. Nearly a Decade



© UN Photo/Evan Schneider

Rebuilding schools after the 2010 earthquake, Haiti



© UNESCO/E. Abramson



Faces of tsunami disaster, Maldives

after the Global Micro-science Programme was launched by UNESCO and the International Union for Pure and Applied Chemistry (IUPAC) in 1996, the Micro-science approach has been introduced into over 80 countries.

The global micro-science experiments project is a hands-on science education initiative. It gives primary and secondary school, as well as university, students the opportunity to conduct practical experiments in physics, chemistry and biology, using kits that come with booklets describing possible scientific experiments. These micro-kits are veritable mini-laboratories. They are cost effective and safe, in so far as pupils never need to use more than a couple of drops of chemicals for experimentation. Micro-science materials are available in many language versions. Through the micro-science project in the Caribbean, UNESCO has continued to promote science education and its role in development, enhance public interest in science, and play a key role in building scientific capacity and promoting science-based development in the developing world. Emphasis is on training science teachers through e-learning and up-to-date science education curriculum material, in cooperation with partners well-established in open and distance learning. It also aims to facilitate international cooperation and global partnerships for developing and strengthening national and regional capacities in the basic and physical sciences and mathematics.

In 2010, the UNESCO Institute for Statistics published *Measuring R&D: Challenges faced by Developing Countries*. In February 2011, UNESCO followed up with a regional workshop on science, technology and innovation (STI) indicators in Saint George's, Grenada, in collaboration with the National Commission for UNESCO. The workshop showed participants how to apply international standards and identify other problems encountered by Caribbean countries in responding to data surveys, in order to tailor capacity-building to national priorities.

Fostering greater social inclusion in the Caribbean

The *Port of Spain Declaration* was adopted in Trinidad and Tobago in May 2012 by the second Management of Social Transformations programme (MOST) forum of ministers of social and sustainable development from the Caribbean. Under the theme of Promoting Equity and Social Inclusion, the forum highlighted the challenges facing youth with disabilities, during exchanges between representatives of civil society and public authorities.

UNESCO followed up the forum's recommendations with four separate activities in 2012–2013. A report published in June 2013 compared public policies for the social inclusion of youth in the different CARICOM countries. The study was carried out by the National Centre for Youth Development of the Jamaican Ministry of Youth and Culture and Youth Crime Watch at the University of the West Indies Mona Campus in Jamaica. The final report was coordinated by the Jamaica National Commission for UNESCO.

The second activity concerned the development of a curriculum on public policies for social inclusion for the Henri Christophe Campus of the State University of Haiti. The curriculum was prepared by Haitian scholars, in partnership with the Institute of the Americas. The new Roi Henri Christophe Campus was established as part of post-disaster reconstruction, following the 2010 earthquake.

A third activity consisted in policy-oriented research intended to help the Haitian Ministry of the Female Condition and Women's Rights design and implement policies in favour of the social inclusion of women. The study was prepared by Haitian scholars, in partnership with the Institute of the Americas.



Lastly, the Interuniversity Institute for Relations between the European Union, Latin America and the Caribbean (IRELAC) conducted a comparative review of the inclusiveness of policy instruments for the development of youth, in the context of international cooperation with Haiti.

Developing national youth policies in the Pacific

In the Pacific, investment in the young is largely channelled through education systems which are struggling to provide access and improve quality. UNESCO has worked with several Pacific countries to develop national youth policies which set realistic targets for addressing priority issues. Revised policies have been adopted in Nauru and the Marshall Islands, in partnership with the Secretariat of the Pacific Community, in Tuvalu, with the Commonwealth Youth programme, as well as in Tokelau. Innovative use of UNESCO's Participation Programme has assisted other Pacific countries to develop their National Youth Policies, such as the Cook Islands.



© UNESCO/T. Mousbe

Youth representatives in the Seychelles in July 2013, at a regional preparatory meeting for the International Conference on SIDS in 2014

Giving young people a voice

Youth Visioning for Island Living gives young people an opportunity to design and implement projects that voice their concerns and break their isolation. This may entail producing feature films or organizing island-wide public discussion forums and competitions. Between 2005 and 2013, some 40 young people from Dominica, Grenada, Guinea-Bissau, Haiti, Jamaica, Mauritius, Niue, Papua New Guinea, Samoa, Seychelles and Tanzania (Zanzibar) developed and managed their own projects. Topics included HIV/AIDS, fish farming, the documentation of climate change and documentaries on the lives of young Pacific women.

Involving youth in defining the post-2015 development agenda

In 2013, UNESCO, UNICEF and UNFPA launched an invitation to young people to voice their views on what the priorities should be for their region over the next decade. The *My World, My SIDS* campaign attracted over 200 applicants. Of these, 70 young people between the ages of 12 and 30 were selected from the Atlantic, Caribbean, Indian and Pacific Oceans to bring forward their perspectives through three regional and one inter-regional preparatory meetings for the International Conference on SIDS in 2014. The young ambassadors who gathered in Fiji, Jamaica and the Seychelles agreed on the priorities for their island homes: improving access and quality of education, taking action on climate change, and including young people as partners in sustainable development. Organized into active regional and global networks, their voices have already been heard through their concrete proposals for the post-2015 development agenda and the 2014 review of the SIDS Programme of Action.

Training Caribbean youth in tourism and film

In 2012, communities in Jamaica, Saint Lucia, Saint Vincent and the Grenadines and Trinidad and Tobago participated in UNESCO's programme for Youth Poverty

Learning MovieMaker in Barbados



© Cha Boyce

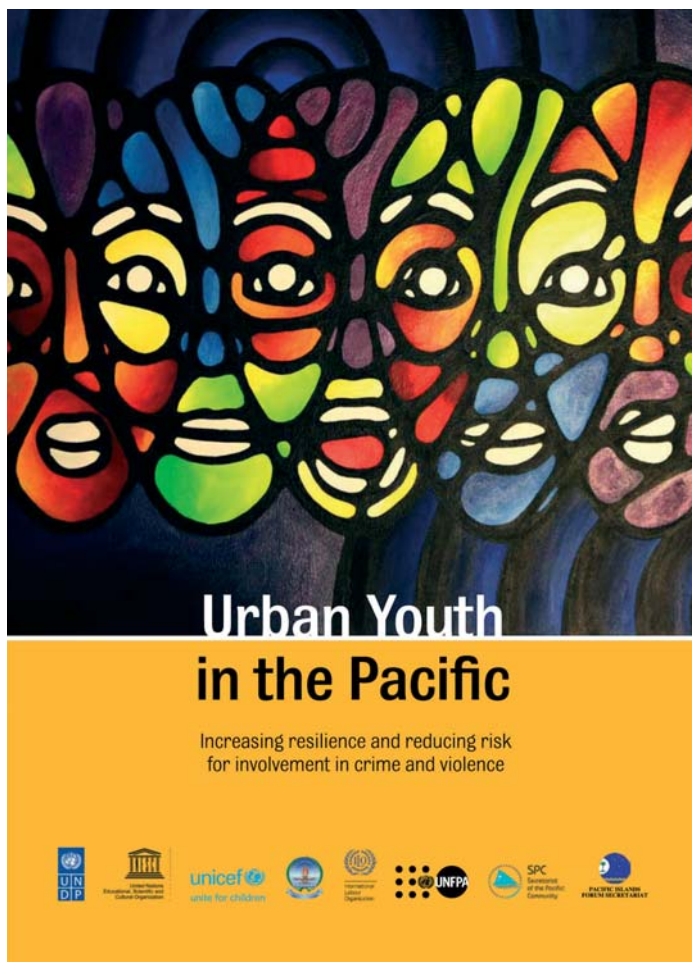
Alleviation through Tourism and Heritage (Youth PATH). In Jamaica, young people from the mountainous Sligoville Great House area received training as tour guides, in collaboration with the Jamaica Cultural Development Trust. To help visually impaired youngsters participate in UNESCO activities, sections of the document *Clubs for UNESCO: a Practical Guide* were translated into Braille and printed.

Pupils from various secondary schools and other institutions in Trinidad and Tobago were introduced to film-making through another Youth PATH project called *My Town, My Country, My World*. The pupils received training in movie direction, acting, script writing, lighting, audio effects, graphics and brochure preparation. The project was implemented by the Save Our Society Foundation, in coordination with the Trinidad and Tobago National Commission for UNESCO. The trainees learnt how to establish a company and were introduced to financial planning. They also produced a short film entitled *My Town, My Country, My World, Island Lights*, the launch of which was reported on by national media.

Entrepreneurship was also the theme of the Youth PATH project implemented in Marriagua in Saint Vincent and the Grenadines, known for its mineral waters. The trainees explored the region's potential for the development of spas. The project was implemented by the Highlanders Community Group, in partnership with the Grenadines Hoteliers Association and the Ministry of Tourism, among others. In Saint Lucia, trainees from Anse-La-Raye and Canaries were offered a wide range of courses: tourism hospitality, production and commercialization of local crafts, entrepreneurship, small business management and dance and theatre production.

Attacking the roots of youth crime and violence in the Pacific

Violence and crime involving young people is a growing problem across the Pacific, notably in Papua New Guinea. Inter-school violence has escalated to the point where injuries have been serious and property damage extensive. This phenomenon is associated with lack of job opportunities. Where jobs are limited, social and cultural activities can build skills and offer youth a sense of community. These are some of the findings of an interagency study on *Urban Youth in the Pacific: Increasing Resilience and Reducing Risk of Involvement in Crime and Violence*⁴, published jointly in 2011 by UNESCO, UNDP, Pacific Centre, PIFS, UNICEF, ILO, UNFPA, Pacific Youth Council and SPC, with financial support from AusAID.



⁴ www.undppc.org/fj/_resources/article/files/UrbanYouth_in_the_Pacific.pdf

An involuntary return to Paradise

When UNESCO began consulting different stakeholders about revising the *National Youth Policy* in Tonga, concerns were raised about the growing number of young people being returned involuntarily to their country of birth. Many of them lost residency status in their adopted home because they had committed crimes.

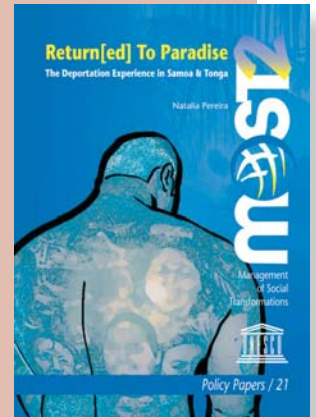
The problem was common to several Pacific countries, particularly those with high levels of migration to the USA. Many young people deported to the Pacific no longer had family, social or cultural ties to their country of birth, leaving them isolated and estranged.

In 2011, UNESCO published the study *Return[ed] to Paradise: the Deportation Experience in Samoa and Tonga*⁵. It documented the average length of time incarcerated, types of offence, transportation and treatment at the border, reintegration and issues of marginalization and discrimination. Consultations conducted in Samoa and Tonga with deported individuals, in partnership with UNEP and the Pacific Islands Forum Secretariat, identified three primary

areas where programmes were urgently needed to assist youth: employment; job training and educational courses; and counselling or therapy.

The study informed the National Workshop on Deportees to Samoa run by UNESCO in 2010, which in turn led to the development of a comprehensive government reintegration programme for returnees under the auspices of the Samoan Charitable Trust for Returnees.

In 2012, UNEP used this experience to publish guidelines on *Working with Deported Individuals in the Pacific: Legal and Ethical Issues*⁶.



⁵ <http://unesdoc.unesco.org/images/0019/001928/192858e.pdf>

⁶ www.undppc.org.fj/_resources/article/files/Working_with_Deported_Individuals_in_the_Pacific-web.pdf

Developing creative industries for youth in Kiribati

In 2009, UNESCO conducted a study of opportunities in Kiribati for the development of creative industries, to generate job opportunities and broaden social skills. The study looked at creative industries in the widest sense, from traditional crafts through to modern artistic forms like graphic design. The key finding was that opportunities did exist but young people lacked both the technical artistic skills and the financial knowledge needed to embark on starting up and managing such enterprises.

The study recommended reviewing school curricula to ensure that pupils left school with both artistic and financial literacy. UNESCO partnered with the International Labour Organization to adapt to Kiribati schools an existing financial literacy tool called *Know About Business*. This material is now available in Kiribati language and is being integrated through the national curriculum review process into primary and secondary school curriculum.

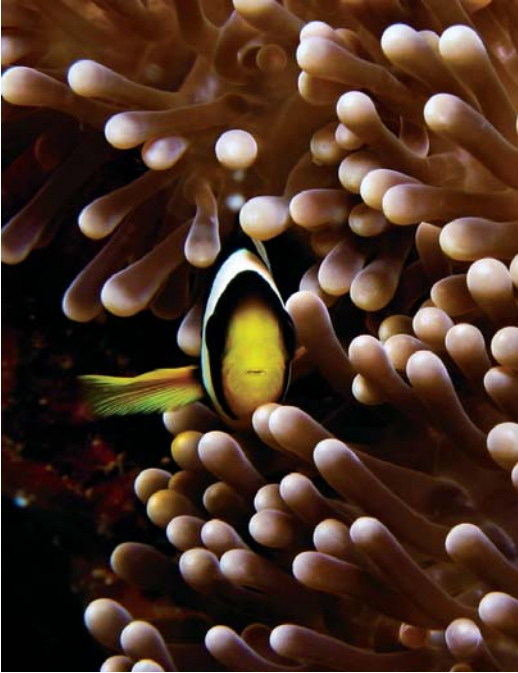
Locals in Tebikenikora, a village in Kiribati, a Pacific island nation affected by climate change



© UN Photo/Eskinder Debebe

Managing Natural Resources for a Sustainable Future

Baa Atoll, Maldives



© Atoll Ecosystem Project/Ministry of Housing & Environment

Island nations have a lot in common. They are endowed with both land-based and ocean resources and, thanks to their isolation, host biodiversity that tends to be both endemic and unique. They also face environmental challenges. Low-lying atolls in the Pacific are particularly vulnerable to sea-level rise, for instance, and Caribbean islands are experiencing more frequent hurricanes. Most island nations are experiencing increasingly erratic rainfall, even as their populations are growing.

How can island nations best manage their natural resources in order to sustain life and livelihoods? Making the right decision requires good governance. Good governance springs from rational management practices which in turn rely on sound knowledge of the state of natural resources and the ability to predict future trends. UNESCO is helping SIDS to assess their natural resources, manage them sustainably and put good governance practices in place. It is also encouraging SIDS to cooperate with one another. As they often face similar environmental challenges, it makes sense for them to share solutions.

Managing natural resources through biosphere reserves

The flagship achievement of UNESCO's Man and the Biosphere (MAB) Programme over the past four decades has been the constitution of a vast network of 621 biosphere reserves in 117 countries. Of these, 15 are situated in nine SIDS in the Atlantic, Caribbean, Indian and Pacific Oceans.

Each biosphere reserve counts core zones reserved strictly for conservation, surrounded by larger buffer zones and transition areas where local inhabitants are encouraged to experiment with different approaches to sustainable development, such as ecotourism, sustainable agriculture and aquaculture or renewable energy. In addition to fostering conservation and development, each biosphere reserve provides the local population with logistic support through training, education and scientific research.

Four biosphere reserves in SIDS have been established recently. In Africa, the Island of Principe became São Tomé and Príncipe's first-ever biosphere reserve in 2011. The same year, Baa Atoll in the Indian Ocean became the Maldives' first biosphere reserve; the country has subsequently begun implementing the biodiversity conservation project, *Atoll Ecosystem-based Conservation of Globally Significant Diversity in Baa Atoll*.

In the Caribbean, two countries have recently joined the World Network of Biosphere Reserves: Saint Kitts and Nevis in 2011, with the designation of Saint Mary's Biosphere Reserve, and Haiti in 2012, with the designation of La Selle Biosphere Reserve (see table p.40).

Expanding the network

UNESCO is currently assisting the Government of Timor-Leste in adopting the biosphere reserve concept. The National Commission of Timor-Leste to UNESCO is working with the Environmental Sciences Unit and the Department of Forestry to enhance management of Timor-Leste's only natural reserve, Nino Konis Santana National Park. The project is being supported by the Governments of Spain and Japan.

UNESCO ran a workshop in Curaçao in November 2012 to consider potential sites for new coastal and marine biosphere reserves in the Caribbean. This was followed up by an interministerial and expert conference on the same theme in Saint Kitts and Nevis in March 2013. A preliminary inventory of Caribbean marine biodiversity was presented to both meetings. This inventory was the first in the region to combine information and data on biodiversity with information on the impact of human activities. The meetings resulted in the adoption by the beneficiary countries of a declaration and an action plan, *Biosphere Reserves as Tools for Socio-economic Development in the Caribbean Small Islands States*. These countries include Antigua and Barbuda, Bahamas, Barbados, Curaçao, Dominica, Grenada, Jamaica, Saint Kitts and Nevis, Saint Lucia, Sint Maarten, Saint Vincent and the Grenadines and Trinidad and Tobago.

UNESCO is embarking on a new initiative to revitalize the Pacific Biosphere Reserve Network (PacMAB). In this framework, a meeting took place in Nadi, Fiji, in April 2014, where participants acknowledged the establishment of Biosphere Reserves as a tool for integrating biodiversity conservation management and sustainable development in the Pacific. Biosphere Reserves are ideal places to reconcile economic development, social development

Biosphere reserves in SIDS

Country	Biosphere reserve	Year of designation
Cuba	Ciénaga de Zapata	2000
	Buenavista	2000
	Península de Guanahabibes	1987
	Cuchillas del Toa	1987
	Baconao	1987
	Sierra del Rosario	1984
Dominican Republic	Jaragua-Bahoruco-Enriquillo	2002
Haiti	La Selle	2012
Maldives	Baa Atoll	2011
Mauritius	Macchabee/Bel Ombre	1977
Micronesia (Federated States of)	And Atoll	2007
	Utwe	2005
Palau	Ngaremeduu	2005
São Tomé & Príncipe	Island of Principe	2011
St Kitts & Nevis	St Mary's	2011

and environmental protection, through partnerships between people and their environment in the Pacific region. It was the occasion to reaffirm the uniqueness of the cultural, social and environmental features of the Pacific Islands and the necessity not only to protect but also to develop these significant attributes. This initiative will contribute to i) strengthening the PacMAB network, ii) increasing nominations of new biosphere reserves, iii) promoting sustainable use of natural resources and sustainable development in the Pacific SIDS, and iv) enhancing environmental monitoring, research, training and capacity building.

Monitoring the environment through remote sensing

In Kingston on 3–5 December 2013, UNESCO and the University of Ghent (Belgium) ran a workshop on remote sensing for government officials and academics from Barbados, Dominican Republic, Haiti, Jamaica, and Trinidad and Tobago. This was the first phase of a new project designed to establish collaboration between Caribbean governments and universities with space agencies to promote remote-sensing for environmental management.

Experimenting sustainable development in Cuba

In Cuba, a five-year project launched in May 2013 is reinvigorating traditional farming methods that are compatible with biodiversity conservation. The aim is to foster the sustainable use of agricultural biodiversity, while improving the livelihoods of communities. The project is currently under way in the Cuchillas del Toa and Sierra del Rosario Biosphere Reserves and will ultimately involve all six Cuban biosphere reserves. The endeavour brings together Biodiversity International, UNESCO, the Cuban Institute for Basic Research in Tropical Agriculture (INIFAT), Cuban National System of Protected Areas (CNAP) and UNEP.

With the Caribbean experiencing more frequent hurricanes and tropical storms, UNESCO is also encouraging the active cooperation between Cuban biosphere reserves and World Heritage sites with the aim of devising a strategy for protecting them and helping local communities adapt to climate change. The case studies are targeting sites that have been affected by hurricanes since 2008: the Baconao, Cuchillas del Toa and Sierra del Rosario Biosphere Reserves and the Humboldt Park and Valle de Viñales World Heritage sites.

The European Space Agency (ESA) and French Space Agency (CNES) donated high-resolution imagery for the participants' use. The University of Ghent processed this imagery to illustrate the ravages in these island nations of climate change, sea-level rise, coral bleaching, uncontrolled urban and tourism development, severe deforestation and selected natural hazards such as earthquakes, hurricanes, flooding and landslides. The case studies discussed during the workshop are presented in a publication entitled *Changing Small Island Developing States: a space perspective on environmental change in the Caribbean* published in 2014.

The project is initiating an online database to enable all the images and analyses to be shared with partners. In addition, the University of Ghent is developing educational tools based on these images and case studies. Products from the project will be communicated to policy makers in each small island state. The project will also provide practitioners of the Sandwatch project with historic satellite images of beaches, as a complementary tool to the Sandwatch international database (see p.7)

The project benefits from the support of the Belgian Science Policy Office and is being implemented in partnership with the International Society of Photogrammetry and Remote Sensing.

Embracing energy independence in Tokelau

In 2012, Tokelau went from being completely dependent on imported diesel fuel for its electricity supply to 100% renewable energy-based. Today, the three atolls have some of the largest stand-alone solar photovoltaic systems in the world.

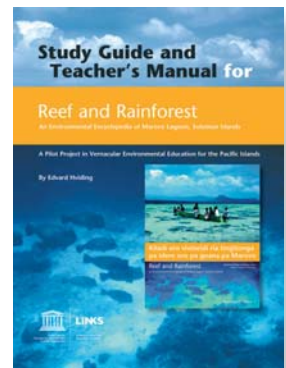
This achievement is the outcome of a process which began back in 2001, when UNESCO launched a pilot solar photovoltaic project for Fakaofu Atoll, with UNDP funding. A feasibility study of an integrated grid-connected photovoltaic electricity supply followed, which in turn led to the design of the system then to an environmental impact assessment and tender management. In parallel, Tokelau prepared and endorsed its first National Energy Policy and Strategic Action Plan in 2004.

Transmitting island ecological knowledge

A sub-regional network of traditional medicine practitioners was formed in the Seychelles in February 2013, at a meeting organized by UNESCO and attended by practitioners, NGOs and researchers from the region. Practitioners from Comoros, La Réunion (France), Madagascar, the Maldives, Mauritius and the Seychelles, in dialogue with decision-makers and scientists, are developing ethical codes and exchanging best practices concerning the sustainable use of medicinal plant resources. They also plan to develop appropriate community-based education programmes. Special emphasis will be placed on traditional women's knowledge.

In 2011, approximately 115 East Timorese benefited from training in environmental education based on local and indigenous knowledge related to plants. The training was organized by UNESCO, in close collaboration with the Timor-Leste National Commission for UNESCO and local NGOs.

In the Solomon Islands, UNESCO has worked with teachers and local communities in Marovo Lagoon, as well as with the Ministry of Education and Bergen University in Norway, to develop a locally accessible, Wiki-based online educational resource that supports classroom use of UNESCO's *Reef and Rainforest* encyclopedia of Marovo's indigenous knowledge (2005). Using the 'Marovo Wiki' and associated lesson plans, teachers and their pupils worked in their own language to moderate, improve and expand the educational content relating to local knowledge of local environments. The result is a series of Marovo-language lesson plans, available since 2012, that promote indigenous language and knowledge in the classroom.



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Improving groundwater governance

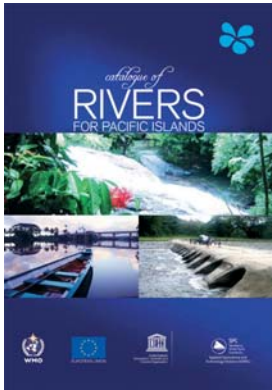
UNESCO is acting upstream to improve the governance of groundwater worldwide, via the development of a *Global Framework for Action*, which will consider the specificity of SIDS. The GEF-funded Groundwater Governance Project was launched in September 2011 by UNESCO in partnership with FAO, the World Bank and the International Association of Hydrogeologists. Five regional diagnoses have been prepared after a series of consultations. These will serve as the basis for the *Global Framework for Action* due out in 2014.

Assessing the quality and quantity of groundwater

In many SIDS, the quality and quantity of groundwater are now threatened by population growth, urbanization and climate change. Groundwater is already suffering from saltwater intrusion as a corollary of rising sea levels. Rainfall is also becoming increasingly erratic, raising the spectre of periodic drought.

For the low-lying atoll nations of the Pacific, securing safe and sufficient freshwater is a constant challenge. Unreliable rainfall patterns and the absence of lakes or rivers mean that many atoll communities rely almost





exclusively on groundwater. In the face of these problems, some governments are contemplating expensive alternatives to groundwater like desalination technologies. There are other solutions, however.

UNESCO's International Hydrological Programme (IHP) began compiling information on the aquifers of 43 SIDS in 2013. Information and data are being collected for a wide set of hydrogeological and socio-economic indicators, via questionnaires submitted to national experts and governments in each of the participating SIDS. The data will then be integrated into indices to facilitate priority-setting within water management strategies. To qualify for the project, a country must have a maximum surface area of 50 000 km² and a population not exceeding 5 million.

The aim is to provide an estimation of how the quantity and quality of water in these underground systems may change over the next 15–20 years. A parallel goal is to shine a spotlight on aquifers of particular concern, in order to catalyse international support for remedial measures. UNESCO is implementing this two-year project (component on the aquifers of SIDS) within the wider Transboundary Waters Assessment Programme financed by the Global Environmental Facility (GEF).

Cataloguing and comparing river basins in the Pacific

In 2012, UNESCO's Apia Office published the first-ever *Catalogue of Rivers for Pacific Islands*. The book documents the principal characteristics of the main rivers in eight Pacific island countries. Rivers are not found in all Pacific countries and are generally confined to larger, more elevated islands. Those islands fortunate enough to have permanent rivers rely on them greatly for their water supply, agriculture and fishing, transportation and power generation, as well as for recreation.

The *Catalogue of Rivers for Pacific Islands* reviewed the available data sets and compiled them into a consistent style and format. Current data sets are often patchy, highlighting the difficulties that countries face in maintaining consistent and long-term data sets. The catalogue was produced with the support of the UNESCO-IHP, the European Union, WMO and the Secretariat of the Pacific

Community Applied Geoscience and Technology Division (SOPAC).

Flow Regimes from International Experimental and Network Data (FRIEND) is an international research programme run by the UNESCO-IHP which helps to set up regional networks to analyse hydrological data on river flow. The Asian–Pacific FRIEND network is coordinated by UNESCO's Jakarta Office. In 2011, the office published *Flood Design Hydrograph information supplied for the Asia Pacific Region*, with a case study from Papua New Guinea. FRIEND is coupled with the regional Flood Forecasting and Warning System assessment project, which undertakes comparative studies in Asia–Pacific.

Lagoon in Kiribati



The UNESCO Participation Programme in SIDS

In addition to its regular programme, UNESCO supports initiatives undertaken by Member States in the Organization's fields of competence through the Participation Programme. The PP gives priority to least developed countries, developing countries, post-conflict and post-disaster countries, countries in transition and small island developing states (SIDS). SIDS have participated actively in the Participation Programme, implementing projects across the full range of UNESCO's programme areas. For the 10-year period from 2004 to 2013, UNESCO awarded more than US\$16.4 million to its 39 SIDS Member States and 7 Associate Members for the implementation of 845 national and regional projects.

PP funding has enabled SIDS countries to expand and build on the work done through regular programme funding. This has resulted in many innovative projects, such as the official Niuean-English Dictionary; youth community radio programs in Tokelau; enhancement of the Coconut Oil Production in Saint Vincent and the Grenadines; the Mathematics Olympiad in Cabo Verde; among many others.

This support testifies to the strong synergies between UNESCO's priorities and those of SIDS.

Biennium	2004-2005	2006-2007	2008-2009	2010-2011	2012-2013
Assistance to SIDS in US\$	4.3 million	2.9 million	3.8 million	3.3 million	2.1 million
Number of SIDS beneficiaries	37	33	34	28	26
Number of projects supported in SIDS	240	165	183	149	108

UNESCO's Intersectoral Task Team for Small Island Developing States

Participating UNESCO programmes

Education, Natural Sciences, Social and Human Sciences, Culture, Communication and Information.

The present booklet is a collective effort of UNESCO's five programme sectors at headquarters and in the field offices of Apia, Bangkok, Dakar, Dar-es-Salaam, Doha, Havana, Jakarta, Kingston, Yaoundé, Nairobi, New Delhi and Port-au-Prince. Thanks are due to the UNESCO Institute for Statistics for contributing data and graphics on education and to colleagues, partner institutions and organizations who contributed information, ideas, text and graphics. We also extend thanks to E. Kiget, L. M'Boueri, T. Oliverira and A. Uwamaliya for their assistance throughout the compilation process of this new edition.

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