



United Nations
Educational, Scientific and
Cultural Organization

Organisation
des Nations Unies
pour l'éducation,
la science et la culture

Organización
de las Naciones Unidas
para la Educación,
la Ciencia y la Cultura

Организация
Объединенных Наций по
вопросам образования,
науки и культуры

منظمة الأمم المتحدة
للتربية والعلم والثقافة

联合国教育、
科学及文化组织

Report by the Director-General on the execution of the programme (34 C/5) (01 January - 31 December 2008)

Major Programme II - Natural sciences

**Part II – Programmes and programme related services
II.A – Programmes**

MAJOR PROGRAMME II - NATURAL SCIENCES

Biennial sectoral priority 1: Promoting research and technical capacity-building for the sound management of natural resources and for disaster preparedness and mitigation

Para. 02025 - MLA 1: Fostering policies, technical capacity-building, research, networking, education and international cooperation in the fields of water, ecological and earth sciences for enhancing societal responses

Regular budget: Activities (rounded to \$ thousand)

Planned: \$10 245

Actual: \$4 689

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
<p>Knowledge base relating to the impacts of global change (including climate change) on river basins and aquifer systems improved – particularly in arid and semi-arid regions – via development of adaptation strategies and sharing of strategies with national authorities and other decision-makers.</p>	<ul style="list-style-type: none"> • Techniques, methodologies and approaches developed to better define global changes including climate changes and feedback mechanisms of hydrological processes, and shared with national authorities, decision makers and national/international institutions. • Guidelines for the knowledge base and capacities in water resources management in arid and semi-arid zones strengthened through G-WADI network. • Background paper on global change impacts on river basins and aquifer systems developed. • Key research topics identified related to global change impacts on river basins and aquifer systems, and critical global change drivers. • Through conferences, seminars, training courses, guidelines have been formulated to intensify focused research for identifying and assessing climate change impact on groundwater in various regional situations. • Improved capacity building and exchange of information on sediment related issues and management plans developed through the Workshop on Global Change Impacts and Role of International Sediment Initiative (ISI) and the preparation of ISI background paper. Guidance developed and disseminated for improving monitoring, data collection and processing, and 	<ul style="list-style-type: none"> • Networking initiatives and partnerships are critical for streamlining action at the regional level. 	<p>Synergies developed across IHP themes and activities through the identification of common topics for coordination of research agendas for different IHP projects and networking partners.</p> <p>Project administration, planning and consultation meetings organized back-to-back to minimize costs.</p> <p>Activities are organized jointly with other international and regional organizations and national institutions to share costs.</p>	<p>Key policy interventions identified for adaptation to climate change, which will be shared with National Committees for UNESCO-IHP and UN agencies.</p> <p>Partnerships have been established to ensure sustainability of activities in the regions.</p>	

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
	storage systems in arid and semi-arid areas.				
<p>Knowledge base relating to sustainable water governance improved, by means of policy-relevant cultural, social and scientific responses, with a special focus on urban water management.</p>	<ul style="list-style-type: none"> Aspects of water management and governance enhanced and promoted by workshops, training courses, research projects. Knowledge and information on transboundary aquifers improved by the preparation of guidelines and maps of transboundary aquifers. Knowledge and capacity building on sustainable urban water management promoted by: expert meetings and projects addressing specific topics; global training at the 4th World Urban Forum; and regional/national projects. Scientific knowledge and understanding of water quality problems improved through expert meetings and the establishment of Water Quality Expert Group. National and regional challenges such as environmental management in the Arab region addressed. The capacity of water professionals to address water issues in general and conflict resolution enhanced through: training (LAC, Middle East, Mekong area and others); and research on conflict and cooperation in various basins (Central America, Middle East, West Africa). 	<ul style="list-style-type: none"> Synergetic partnerships between stakeholders, public and private partners of various backgrounds and concerned UN-agencies help to formulate better adapted, policy-relevant responses. These cooperation initiatives require time and specific resources and skills to overcome disciplinary, language and cultural barriers; this should be taken into account in activity and strategic planning. There is strong demand on training of trainers on urban water management, targeting various stakeholders and in particular in developing countries. Partnerships and networking at regional and sub-regional levels enhance the implementation and the sustainability of actions. The selection of candidates for training should take into account their level of motivation and their chances of applying acquired knowledge upon their return to home. 	<p>Cost-effectiveness was optimized through the extensive use of seed funding, mobilization of extra-budgetary sources, synergy and cooperation on joint HQ and FO activities, and strategic partnerships involving cost sharing, and institutional support from UNESCO Centres and Chairs.</p> <p>Numerous partnerships and cooperation initiatives were established with UNESCO cat 1 and 2 institute/centres, UN agencies, national and regional public and civil society institutions and the private sector, and leveraged policy-relevant cultural, social and scientific responses.</p>	<p>The combination of enhancing and sharing data, and providing training and information to youth and informed public are expected to produce long-term benefits; seed funding approach and extrabudgetary projects target creation of ownership of long-term commitments.</p> <p>Local partners took ownership of the initiatives launched by UNESCO, and critical partners and networks to lead and carry out the activities in the future have been identified.</p>	
<p>Freshwater education programme developed within the framework of the United Nations Decade of Education for Sustainable Development.</p>	<ul style="list-style-type: none"> Case studies and recommendations for water education at all levels identified in LAC through Regional Workshop on Water Education held in Paraguay. Related events took place in Lebanon, Viet Nam and for the Commonwealth of Independent States. UNESCO Tertiary Water Education Grants Programme launched by the IHP Intergovernmental Council; first batch of grantees is attending MSc classes. Educational tools strengthened via: a pilot curriculum for Integrated Water Resources 	<ul style="list-style-type: none"> There was high interest from stakeholders in formal and informal water education. There is a large difference in the resources committed by different partners due to local financial and institutional constraints. Resources to fully implement the grants programme are difficult to identify under the current conditions. Establishment of river basin organizations in Kazakhstan raised 	<p>Strategic partnerships, donations, extra-budgetary sources, and use of ICT help to increase cost-effectiveness. In some cases external partners raised significant co-financing catalysed by UNESCO seed-money.</p>		

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
	<p>Management (IWRM) for Kazakhstan; the development of multilingual e-learning courses on urban water management, in collaboration with UNESCO Chair on Sustainable Water Management in China; and the establishment of IHP Nagoya Forum.</p> <ul style="list-style-type: none"> • Professionals in Haiti, Costa Rica, Morocco and Asia Pacific trained on Integrated Management of Water and Satellite Remote Sensing. • Water education in schools in Uruguay and in China strengthened. • Community and school education in the Volga Basin strengthened. 	<p>the need for capacity building in IWRM.</p> <ul style="list-style-type: none"> • High receptivity of Chinese education system actors for the implementation of joint programme with children. Additional funds required in China to maximize impact and ensure wider coverage. • Changes in attitudes and perceptions of water in the Volga Basin as a highly valuable resource reached through education activities. 			
<p>State of the world's freshwater resources monitored, assessed and reported for improved water management policies and governance.</p>	<ul style="list-style-type: none"> • The 3rd edition of the World Water Development Report (WWDR3) finalized. With the active involvement of 26 UN agencies and under the leadership of UNESCO, WWDR is recognized as the most authoritative report on the state of freshwater resources and demonstrably showcases what UN can deliver jointly. • Initiatives on national water development reports taken: Sri Lanka report published and groundwork for India report prepared. 	<ul style="list-style-type: none"> • Successful preparation of the WWDR requires effective planning on the part of the WWAP Secretariat. Full cooperation of the UN-Water (26 UN Agencies) is crucial to the successful finalization of the WWDR. 	<p>Almost all information exchanges and consultations were done using the online tool of the WWAP Secretariat (ALFRESCO). This assured solid feedback from all regions with an absolute minimum cost.</p>	<p>WWDR is the reporting mechanism of the UN system on the state of global freshwater resources. The agencies are fully supportive of this process and the donors are interested in the work of the WWAP Secretariat, as demonstrated by the recent external evaluation.</p>	
<p>Institutional capacities in ecosystem management and applied geosciences strengthened to foster policies, research and learning for reducing biodiversity loss, for mitigating and adapting to global change, and for enhancing earth system understanding and monitoring, including the fight against desertification.</p>	<ul style="list-style-type: none"> • MAB Young Scientists Award granted to 10 young scientists, most of them from the developing countries including 8 women, to perform research in sustainable environmental management focusing on biosphere reserves. • 85 African students-Master II and 3 Ph.D. from 12 countries graduated from ERAIFT, despite the post-conflict situation in DRC; ERAIFT has increased its visibility as Centre of Excellence capable to train future decision makers who will remain in the region (fighting brain-drain); inauguration of the ERAIFT Campus, completely renovated and equipped. • "Sustainable Management of Marginal Drylands" (SUMAMAD) scientific synthesis published and 	<ul style="list-style-type: none"> • Continued support to young researchers, particularly from developing countries is essential in building national capacity in sustainable ecosystem management. • By functioning as a hub for information and capacity building, ERAIFT has now a potential to become an Observatory for the Forests of the Congo Basin. • Diffusion of scientific and educational information is essential 	<p>Substantial extrabudgetary funds confirmed for 2009-2013 following the donor roundtable in June 2008.</p>		

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
	<p>policy brochure produced for decision-makers; proceedings of UNESCO conference on "The Future of Drylands" published; English and French version of UNESCO "Teaching Resource Kit for Dryland Countries" produced and disseminated via ASPNet.</p> <ul style="list-style-type: none"> • Under the chairmanship of UNESCO, after having successfully completed its mission over 10 years, the Integrated Global Observing Strategy (IGOS) was officially closed by all its partners and has transitioned its working themes to GEO (Group on Earth Observation). • Thirty-third International Geological Congress held in August 2008 under the auspices of UNESCO was a major highlight of the International Year of Planet Earth, launched at UNESCO in February 2008. • UNESCO Category 2 International Research Centre on Karst established in Guilin, China. • Space Education Programme trained students and teachers at the Regional Space Meeting in Ecuador; establishment of inter-institutional committee for Space Education. 	<p>for sustainable ecosystem management, in particular for combating desertification.</p>			
<p>Sustainable development promoted via establishment of interdisciplinary learning laboratories using sites of the World Network of Biosphere Reserves for research on biodiversity and sustainability.</p>	<ul style="list-style-type: none"> • A book of case studies, "Biosphere Reserves, Spaces for Integration of Conservation and Development: Successful Experiences in Iberoamerica" has been published. It serves as basic learning tool for the itinerant seminar on biosphere reserves in the region. • The Third World Congress for Biosphere Reserves (Madrid, February 2008) assembled some 800 government officials, biosphere reserve practitioners and scientists who adopted the "Madrid Action Plan" as a blue-print for using biosphere reserves within the world network as learning sites for sustainable development and as research/conservation sites for biodiversity conservation. 	<ul style="list-style-type: none"> • At the local and national levels, funding will need to be generated to ensure the adequate implementation of the Action Plan, as it is carried out at the site level of biosphere reserves by their managers. 			
<p>Ecological, biodiversity and biological resources management improved, and capacities</p>	<ul style="list-style-type: none"> • UNESCO, in partnership with ICSU and UNU, designed a multi-year programme on ecosystem change and human well-being. The programme was based on the knowledge gaps identified by 	<ul style="list-style-type: none"> • There is a clear recognition of UNESCO as an important partner in the biodiversity and ecosystem service science and policy area, 	<p>The UNESCO-UNU-ICSU programme was designed thanks to funds obtained through the Zayed International</p>	<p>About 2,000 scientists from 120 countries participated actively in the Millennium Ecosystem Assessment and</p>	

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
<p>enhanced for socio-ecological research including eco-hydrology, to attain the MDGs and other internationally agreed development goals.</p>	<p>the Millennium Ecosystem Assessment; It benefited from the advice of a dedicated UNESCO-UNU-ICSU international and multidisciplinary group of experts, and was developed in the context of a clear enabling policy framework represented by the recognition by the intergovernmental community of the need for scientific research and international cooperation to underpin the work of intergovernmental processes at the interface of biodiversity and ecosystem service science with policy.</p> <ul style="list-style-type: none"> • UNESCO and the Convention on Biodiversity (CBD) are currently preparing a renewed MoU, working on a joint programme on the links between biological and cultural diversity, and exploring possibilities of enhancing the role of MAB and biosphere reserves in design and implementation of the foreseen international regime on access to and benefit sharing from genetic resources. • Second phase of SUMAMAD developed. The project will be expanded to include African experts, thus linking them with other drylands experts from Asia, Arab States and Latin America. 	<p>following its co-sponsorship of the Millennium Ecosystem Assessment and the International Assessment on Agricultural Science & Technology for Development. At a recent Intergovernmental and Multi-stakeholder Meeting on an Intergovernmental Platform on Biodiversity and Ecosystem Services, several governments and international organizations supported that UNESCO should co-sponsor and contribute to the secretariat of an intergovernmental panel on biodiversity and ecosystem services.</p> <ul style="list-style-type: none"> • UNESCO has been recognized as an important partner in implementation of multilateral environmental agreements, including the CBD. At the international level, biosphere reserves have been highlighted as models for implementing the CBD's ecosystem approach and testing new approaches to achieving the 2010 Biodiversity Target and the goals of the CBD and other agreements, including by combining actions targeting biodiversity and cultural diversity in an integrated way. • Additional funding would need to be secure to enhance UNESCO's role in the implementation of multilateral environmental agreements. • Provision of extra-budgetary funding will be crucial for implementation of the second phase of SUMAMAD-2. 	<p>Prize for the Environment awarded to the Millennium Ecosystem Assessment upon its completion in 2005.</p> <p>Partnership arrangements with UNU will result in increased cost effectiveness.</p>	<p>the International Assessment on Agricultural Science & Technology for Development.</p> <p>The establishment of an intergovernmental panel on biodiversity and ecosystem services during the first half of 2009 would provide a self-sustaining platform for continuation of the work in this area undertaken by UNESCO.</p> <p>The Madrid Action Plan states clear indicators of progress and sustainability, including the enhanced collaboration between biosphere reserves and MAB Committees with the CBD, Ramsar Convention, WHC, Convention on Migratory Species, and other biodiversity-related conventions.</p>	

Para. 02026 - MLA 2: Oceans and coastal zones: improving governance and fostering intergovernmental cooperation through ocean sciences and services

Regular budget: Activities (rounded to \$ thousand)	
Planned: \$3 710	Actual: \$1 651

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
<p>Management of ocean resources and coastal areas improved via development of policy-relevant information on impacts of climate change and variability on marine ecosystems and coastal zones.</p>	<ul style="list-style-type: none"> • 2nd Ocean in a High CO2 World Symposium held under the high patronage of HSH Prince Albert II. Scientists met to assess what is known about ocean acidification, and published a Summary for Policymakers, Research Priorities Report, and the Monaco Declaration. Development of a Guide to Best Practices for Ocean Acidification Research initiated. • The degree of implementation of the open ocean module of the Global Ocean Observing System (GOOS, composed of a network of buoys, moorings, floats, tide gauges and repeat ship of opportunity hydrographic lines) stands at 60%. • West Africa project on Adaptation to Climate Change in Coastal Zones officially launched in November 2008. • In response to UNGA resolution 60/30, IOC and UNEP as lead agencies have prepared the Assessment of Assessments report (as part of the effort to establish a regular and global process for assessing the state of the marine environment). • Co-organisation of 4th Global Conference on Oceans, Coasts and Islands: "Advancing Ecosystem Management and Integrated Coastal and Ocean Management in the Context of Climate Change" Hanoi, Vietnam, April 2008, 2 policy briefs published and disseminated through the Global Forum on Oceans, Coasts 	<ul style="list-style-type: none"> • Need to improve media coverage and impact of major events by involving BPI during the initial planning stages of the events. • The initial goals of GOOS are being met, but at a slower rate than originally planned and timely completion of the 2012 target goals do not seem plausible. GOOS is developed based on in kind opportunistic national commitments of observing components. This process depends on international coordination and capacity development and technology transfer. Commitment of sustained funding to the coordination process is a major challenge. • Need to develop effective execution mechanism with national government and UNDP country offices. • Need extra budgetary resources for the completion of the Assessment of Assessment work. • Diversity of interests in ocean management and governance need to be harnessed and translated at national level 	<p>Raised extra-budgetary funds for these activities at a rate of approximately 10 EB to 1 RP.</p> <p>Very high. The relatively small IOC investment in this project has led to the obtaining of a 4 Million USD GEF Grant.</p> <p>High, through In-kind contribution.</p> <p>High, several partners have co-sponsored the event.</p>	<p>IOC and partner organizations have agreed to make this symposium a regular event to be held every 4 years. IPCC and the Royal Society of London support IOC to continue this activity.</p>	

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
	<p>and Islands.</p> <ul style="list-style-type: none"> • Co-organisation of the international Symposium on the Effects of Climate Change in the World's Oceans. This was an important opportunity to further develop the truly international nature of research related to the effects of climate change on the world's oceans. • Co-organisation of the World Conference on Marine Biodiversity (Valencia, November 2008). It focused on the review of the current understanding of marine biodiversity, its role in marine ecosystem functioning and its socio-economic context. It provided an assessment of current and future threats and potential mitigation strategies for conservation and regulation of marine resources. 	<ul style="list-style-type: none"> • The identification of future research priorities requires the establishment of an international forum in which experts can exchange ideas and define areas of collaboration 	<p>High, several organisations co-sponsored the conference.</p>	<p>Number of publications arising from the Conference</p>	
<p>Healthier ocean ecosystems and sustainable coastal and ocean environments achieved by means of development and dissemination of scientific research, better information and procedures on which policies can be based.</p>	<ul style="list-style-type: none"> • Development of an international strategy for a decadal survey of large scale circulation and carbon cycle processes of the oceans (2013-2023) initiated. • The largest global dataset of surface ocean carbon ever assembled was developed, in a common format and publicly available, to improve studies of ocean uptake of anthropogenic CO₂. • Marine science institutes leadership practices, fund-raising techniques, and training were strengthened, resulting in better information to policy makers on coastal issues and science solutions. • IOC Strategic Plan for Oceanographic Data and Information Management implementation started through coordination activities with IOC/HAB, SCOR, JCOMM and OBIS. Agreement reached with WMO on linking of Ocean Data Portal prototype with WIS through JCOMM Pilot Project for WIGOS. • Standardization in ocean data exchange effort started through Ocean Data Standards Pilot Project. • Ocean Data and Information Networks in Africa and Caribbean region reach new level by 	<ul style="list-style-type: none"> • International data sharing is hindered by the need for scientists to publish results before making the data publicly available. This situation could be improved through collaborative publications and recognition for data collectors. • Improved information sharing between prime institutes in a country would improve delivery of scientific solutions. • Data management is often not considered a core objective in ocean science and observation programmes; the development of data management plans and reaching agreement on standard methods will need to be a medium-term goal • Staff turnover remains a problem in many developing countries 	<p>High, several partners have co-sponsored the event</p> <p>Three workshops were harmonised within IOC through sharing lecturers and logistical arrangements.</p> <p>The IOC Project Office for IODE (Oostende) is a cost-effective facility for hosting meetings as well as training events. The staff has quickly gained all necessary experience to plan and implement events taking care of all related tasks thereby reducing pressure on HQ</p> <p>The ODINs are nationally driven and owned activities</p>	<p>ODINs need to maximize mainstreaming into national and regional priorities in coastal and ocean management and produce the necessary data and information products</p> <p>IODE EB support is now provided by a small number of Member States. This represents a risk. The pool of Member States supporting IODE needs to be increased</p> <p>25 African Member States agree on project document</p>	

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
	<p>producing Marine Atlases, contributing to coastal management. Ocean Data and Information Network established for small Island Pacific States (ODIN-PIMRIS).</p> <ul style="list-style-type: none"> • IODE network reaches 77 IODE national coordinators for data management and 34 IODE national coordinators. • Regarding Harmful Algae Blooms: 1 GEOHAB Core Research Project Plan published; A Special issue of the Elsevier Journal 'Harmful Algae', HABs and Eutrophication published; 3 International training workshops, 2 capacity enhancing expert workshops and 1 meeting of regional network (FANSA South America) implemented. • With regard to 'Marine Modelling', a scoping activity was completed, and the GODAE Final Symposium roundtable on future activities in research for ocean forecasting was held. • Global Coral Reef Monitoring Network: Training was conducted in association with Reef Check and World Fish Center with ecological and socioeconomic training held in more than 38 countries. 'Status of Caribbean Coral Reefs After Bleaching and Hurricanes in 2005' was published and distributed; launched at World Bank, Washington DC, and IOC-UNESCO, Paris in January and February, 2008. Status of Coral Reefs of the World published and distributed; launched in Washington DC, at IPCC meeting in Poznan, Poland and in Berlin, December 2008 and in GCRMN regions in December 2008 and January 2009. 	<p>cooperating in ODIN projects – we will need to aim towards training larger number of national experts to counter this problem</p> <ul style="list-style-type: none"> • The growing range of activities and geographic coverage of the IODE programme requires more human resources at the Secretariat level to ensure optimum impact and timeliness • The weak perception in some governments of what UNESCO does besides education in some cases prevents access to more substantial extra-budgetary resources and institutional commitment to achieve the expected results. 	<p>The cooperation with other organizations has led to improved harmonization and has attracted additional EB funding</p> <p>High. Achievements are primarily through concerted action of member states and thus reflect a significantly larger investment than the funds and manpower provided by IOC UNESCO. RP funding covers coordination and framework activities.</p>	<p>for 4th phase of ODINAFRICA (2009-2013)</p> <p>Member States confirmed priorities for HAB which prove that this continues to be a national priority.</p>	
<p>IOC Biennial Strategy 2008-2009 implemented and results achieved reported to UNESCO governing bodies.</p>	<ul style="list-style-type: none"> • Reporting is ongoing for the IOC 25th Assembly (June 2009). The IOC Biennial Strategy 2008-2009 is reflected in the approved 34 C/5. This ensures that reporting for both the General Conference/Executive Board and the IOC Assembly are consistent though with different level of aggregation. 				

Para. 02027 - MLA 3: Promoting science, knowledge and education for disaster preparedness and mitigation, and enhancing national and regional coping capacities, including through support for the development of risk reduction networks and monitoring and assessment measures, such as tsunami early warning systems

Regular budget: Activities (rounded to \$ thousand)	
Planned: \$1 309	Actual: \$614

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
Risks from tsunami and other ocean-related hazards reduced through early warning systems and preparedness and mitigation measures.	<ul style="list-style-type: none"> Indian Ocean: National Tsunami Warning Centres operational in Australia, India, Indonesia, Malaysia and Thailand. Caribbean Sea: national and regional structures and responsibilities defined, preparation for operational phase well advanced. European System: defined regional architecture, cross-Mediterranean enhancement developed. Pacific system: regional responsibilities newly defined, communication improved, end-to-end performance assessed. Extended support provided to all Intergovernmental Coordination Groups (ICGs) for Tsunami in technical matters and capacity building to member states; technical support groups optimized, in view of future merge; secretarial support and assistance provided to ICGs, enhanced interaction with all stakeholders, including NGOs and IGOs Guidelines and standards developed, adapted and implemented. Manuals & Guides #49 (Tsunami Preparedness for Disaster Managers and Planners) translated and printed (English, French, Spanish). Performance test in the Pacific (October 2008) run and evaluated 	<ul style="list-style-type: none"> Cooperation between different cultures on the non-technical level (downstream) needs stronger and long-term support. General language adaptation of all documents and procedures improves acceptance. Continuity of activities with community strongly improves performance and implementation rate. Special emphasis still needed to develop and maintain cross-national, regional operation, stakeholder attitude. Preparedness and mitigation measures need broader and deeper implementation efforts. Small and efficient support unit at Secretariat needed, and continuously supported. 	<p>Member states own, control and operate systems.</p> <p>Criteria as operational effectiveness provide day-to-day indication of performance indicators, and suggest remedial action.</p> <p>Experienced Secretariat support improves performance and effectiveness of regional TWS operation and implementation.</p>	<p>As ownership by member states is increased, sustainability is increased and nearly ensured. The ICG Secretariat for the Indian Ocean Tsunami Warning System (IOTWS) is now funded through 2013 by Australia. The ICG Secretariat for the Mediterranean and North East Atlantic (NEAMTWS) is now established in Bonn, Germany.</p> <p>Moving from tsunami to ocean-related hazards optimizes technical infrastructure and improves acceptance and support on the national level.</p> <p>Mainstreaming into national disaster management plans ensures political and financial support</p>	
Risks from hydrological extremes (floods, drought, etc.), earthquakes, landslides, volcanoes as well as risks from human-induced disasters mitigated through integrated approaches focusing on policy advice, strengthened networks and capacities for monitoring and assessment, knowledge dissemination and education.	<ul style="list-style-type: none"> Coastal hazards mitigation through Integrated Coastal Area Management: Following the organization of 3 expert group meetings, the draft guidelines on Hazard awareness and risk mitigation in ICAM have been prepared in collaboration with WMO, UNEP, UNU-EHS, and NOAA. The final document is going through a peer review prior to publication early 2009. 	<ul style="list-style-type: none"> Partnership with authoritative regional institutions ensures quality of cooperation in strengthening regional networks and capacities on disaster risk reduction. Revitalizing new regional networks on disaster risk reduction remains challenging. Additional resources need to be mobilized. UNESCO is expected to continue 	High, UNESCO investment was matched by co-sponsors demonstrating the demand for such services.	Stable contribution of extra-budgetary funds to continue or complete ongoing initiatives	

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
		<p>coordinating partnerships and further its role in promoting education for disaster reduction and safe schools initiative. There is a need to work more closely with ED sector, thus enhancing inter-sectoral cooperation within the Organization. The challenge to solicit stakeholders in educational sectors for promoting education for disaster risk reduction is crucial.</p> <ul style="list-style-type: none"> • Further articulation with UNDP efforts and partnership with country National System for Emergencies needs to be pursued. • Cooperation between water centres, regional offices and other UN organisations requires improvement. 			

Biennial sectoral priority 2: Strengthening national and regional research and innovation systems, capacity-building, the use of technologies, and scientific networking, and encouraging the development and implementation of science, technology and innovation policies for sustainable development and poverty eradication

Para. 02032 - MLA 4: Supporting science, technology and innovation policies for sustainable development and poverty eradication, and developing capacities in basic sciences, energy and engineering

Regular budget: Activities (rounded to \$ thousand)	
Planned: \$5 332	Actual: \$2 091

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
<p>Evidence-based national science, technology and innovation policies formulated and adopted, integrating the principles of sustainable development and, as appropriate, the contribution of local knowledge, formulated and adopted.</p>	<ul style="list-style-type: none"> • The first phase of science policy formulation was completed in countries (Benin, Burundi, Central African Republic, Gabon, Madagascar, and Sudan) where comprehensive knowledge of the status of STI systems exists now. Science policy formulation also was initiated in Botswana, Malawi and Zambia. • UNESCO is assisting the United Republic of Tanzania, a pilot country for the One UN initiative. UNESCO, which was given leadership of the Innovation and Technology Thematic 	<ul style="list-style-type: none"> • There are great expectations in Africa that UNESCO will be able to help all countries develop/revise and adopt national STI policies. However, UNESCO resources are inadequate and the response of the donor community is below expectations. • UNESCO holds a comparative advantage in science policy. We should strengthen our cooperation 	<p>UNESCO's inputs were limited to the provision of the international expertise required for the process. In very few cases local consultants were paid by UNESCO.</p> <p>UNESCO's RP contribution to this process did not exceed \$60,000. The outcome is more</p>		

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
	<p>Group within the One UN Programme, is spearheading the UN contribution to the reform of the STI system, and will also participate in the implementation of two important actions in science education and environment.</p> <ul style="list-style-type: none"> • National science policy evaluation conducted in Albania through Venice Office, in Afghanistan through Kabul Office and science policy review initiated in Jordan. • Critical policy issues for indigenous knowledge addressed in posters for Vanuatu educational workshop. Policy issues for biodiversity conservation and sustainable development using indigenous knowledge in Bosawas BR in Nicaragua addressed via workshops and publication. • Regional training workshop for senior policy officials in the 14 SADC countries conducted, as well as training programme for south-east Asia. • Science, Technology and Gender report distributed, including at Arab Women in Academic Sciences and Technology conference in Jordan and at the Mercosur Forum on S&T and Gender in Buenos Aires. • Assistance provided, with partners, to Arab STI Strategy, including proposal to establish the Arab League Ministerial Council for S&T, to be submitted to Summit of Heads of Arab States. • UNESCO participated in the organization of a Central African regional symposium on Science, Technology and Parliament, in March 2008, which resulted in the launch of Inter Parliamentary Forum and decision to create a Centre for research and training in regional S&T policy and a sub-regional Fund for S&T. • Capacity building efforts in science parks development strengthened through training for future science parks managers worldwide (Daejeon, R. Korea, November 2008), in Africa (Johannesburg, September 2008) and in the Arab States (Beirut, November 2008), as well as technical assistance to Kenya and Egypt. 	<p>with the World Bank, UNIDO, WIPO and UNCTAD.</p> <ul style="list-style-type: none"> • The prototype Bosawas book generated a wave of enthusiasm from indigenous communities, as well as the Vice-Minister of Indigenous Affairs. Opportunities for extrabudgetary support were identified. • There is a need for evidence-based policies. It is essential to strengthen the cooperation between UIS and SC. • UNESCO must continue to promote the recommendations of this report at all levels. • Previous Summits approved recommendations on STI on three occasions. Implementation failed due to lack of follow-up mechanism. This strategy proposes a solution. • UNESCO needs to pursue the work with parliamentarians in the area of science. To be effective, this cooperation should be limited to cooperation with Science Committees in national parliaments. • Helping countries moving from education and research to development and innovation is the challenge UNESCO faces. The development of science parks is a step in the right direction. 	<p>than \$10 million.</p> <p>Translation done in partnership with ISESCO, national science academies etc.</p>		

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
	Assessment of Iranian Science Parks carried out.				
Policies and practices for sustainable development of SIDS, including in the light of climate change, shared within and across SIDS regions.	<ul style="list-style-type: none"> • A high level intersectoral UNESCO mission was carried out to the Republic of Mauritius in September 2008. Organized in the framework of the initiative 'Maurice Ile Durable', its aim was to identify areas of cooperation to advance sustainable development policies and practice. • "On the Frontlines of Climate Change: An Internet Forum for Indigenous Peoples, Small Islands and Vulnerable Communities" issued articles on early impacts and adaptation to climate change and generated many exchanges among indigenous communities and SIDS (Caribbean, Indian Ocean, Pacific) and other areas. • The global Sandwatch Project on beach monitoring and sustainable management of coastal environments further expanded via new edition of the quarterly e-newsletter, a video contest, new partnership arrangements, and a workshop as part of the project "Mobilising Caribbean Youth to Adapt to Climate Change"; Sandwatch flagged as an exemplary community linked project in the publication on "Showcase and disseminate good practices and projects" carried out in the context of ASP Network. 	<ul style="list-style-type: none"> • Numerous hurdles were overcome in organizing this mission and in developing the MoU that required close collaboration across sectors, and between headquarters and field. • Maintaining the trilingual capacity by translating articles and inputs has been challenging and time consuming. • Thanks to its popularity, Sandwatch benefits from volunteer network of schools: students, teachers and principals; youth groups; non-governmental and community-based organizations. 	Greater outreach and global visibility were ensured through partnerships with other UN organizations. Collaboration with CI sector is underway to use Multimedia Centres and networks to increase outreach.		
National and regional capacities for research, training and education in the basic sciences strengthened to foster applications for societal needs and to encourage careers in science, taking into account gender equity and equality.	<ul style="list-style-type: none"> • IBSP held advanced international science schools/workshops on Modern Mathematical Physics (Cotonou, Benin), Heavy Quark Physics (Dubna, Russian Federation), Plasma Research and Education in Developing Countries (Almaty, Kazakhstan) and UNESCO-IBRO Neuroscience School on "Fundamental and Behavioural Neuroscience" (Nairobi, Kenya) that heralded IBRO/IBSP African Neuroscience Collaboration - Building brain sciences in Africa. • The International Centre for Synchrotron-Light for Experimental Science and Applications in the Middle East (SESAME)'s "soft" inauguration was held under the auspices of the King of Jordan and with the participation of the Director-General of UNESCO. Following an effort supported by UNESCO, Daresbury Laboratory (UK) donated 	<ul style="list-style-type: none"> • IBSP's experience has started to make it an efficient means for harnessing regional and international cooperation for capacity-building in science and science education, and for providing scientific advice to policy- and decision-makers. The programme offers excellent opportunities for substantial measures to be taken for strengthening national capacity in science and, as emphasized by the Overall Review Committee for Major Programmes II and III, it is of strong relevance to UNESCO's capacity-building role. 	The partnerships launched by the programme are based on a cost sharing approach. Resources are multiplied by contributions from partner organizations such as IBRO, ICGEB, ICTP, SESAME, TWAS, and national institutions participating in IBSP projects.		

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
	<p>to SESAME five state-of-the-art beamlines.</p> <ul style="list-style-type: none"> • The brochure “IBSP: What it is what it does” was published and circulated. • In cooperation with major scientific partners, knowledge and scientific capacity was built through dissemination of research results, and through workshops/conferences/other training activities in science education methodologies (Microscience Experiments), and cutting-edge life science topics, with priority given for activities in Africa and for young scientists. • The Global Ministerial Forum on Research for Health in Bamako, November 2008, was co-organised with WHO, the World Bank and other partners in an intersectoral and inter-agency effort to address strengthening research for health, development and equity, and to involve all stakeholders in the broader issues of research for health and the necessity for national research systems strengthening; • Training workshops were held for secondary school and university physics teachers on Active Learning in Optics and Photonics in Zambia and Cameroon in cooperation with ICTP, SPIE, US-NAS and Essilor. Advice and technical assistance were provided concerning training programmes for secondary school physics teachers in Morocco. • Scientific journals in biotechnology and microbiology disseminated at no charge to institutions in developing and least developed countries. 	<ul style="list-style-type: none"> • Concentration on fewer activities with major partners has streamlined capacity-building activities; mobilisation of extrabudgetary funds remains a challenge for development of projects. • Intersectoral task-teams provide a valuable mechanism to provide UNESCO’s added-value to global and interagency actions. The Call to Action arising from the Global Forum and the relevant follow-up activities would also require an intersectoral approach. • Increasing the number of publications available for dissemination is a challenge. 			
<p>National capacities and knowledge base for the rational and balanced use of alternative sources of energy enhanced, and energy policies, management and conservation for sustainable development promoted with a view to translating them into national development plans which ensure food security and climate change mitigation.</p>	<ul style="list-style-type: none"> • Training workshop for national representatives and local leaders organized in Niger on renewable energy. • Regional expert meeting for western Africa experts on “Experiences and best practices on the use and application of solar energy systems” held in Lomé, Togo. • Consultations and preparatory work carried out to define a national strategy/policy for the development of renewable energy in Benin as 	<ul style="list-style-type: none"> • Identifying additional extrabudgetary funding is a continuing concern. 	<p>Renewable energy activities are implemented in partnership with other international institutions. UNESCO’s contribution serves often as a catalyst to activities with multiplier effect.</p>		

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
	<p>well as the implementation of two pilot solar schools.</p> <ul style="list-style-type: none"> • Further technical support to the Community of Sahel-Saharan States (CEN-SAD). • Lectures on ECO-village (energy self-sufficient village) concept broadcast in Asian countries via School on Internet Asia satellite network. • Regional assessments held for the Arab States to identify priorities for renewable energy and modes of regional cooperation. 				
<p>Human and institutional capacities in engineering, technology and innovation strengthened, with a focus on knowledge management in engineering, engineering policies and a culture of maintenance.</p>	<ul style="list-style-type: none"> • The UNESCO-AAAS workshop on science and engineering education at the 2008 Annual Meeting of the American Association for the Advancement of Science led to further cooperation between AAAS and UNESCO. • A workshop on STI and development at the Manchester Institute of Innovation Research helped advance this field and an initiative on innovation for development with OECD and IDRC. • The first UNESCO Report on engineering "Engineering: Issues and Challenges for Development" was soft-launched at the 2008 World Engineers' Convention in Brasilia - the largest engineering event in the world, supported and opened by President Luís Inácio Lula da Silva. Other publications include an ongoing project on engineering education, sustainable development and climate change. • The 2008-2009 round of the award-winning Daimler-UNESCO Mondialogo Engineering Award began with record team registrations. • The UNESCO Chair in Problem-Based Learning in Engineering at Aalborg University was launched, as were international networks on engineering studies, women engineers, and cooperation with the UNESCO Forum on Higher Education and Research. 	<ul style="list-style-type: none"> • Getting across the importance of engineering in development and addressing the MDGs - with insufficient engineers there will be no prospect to address the MDGs and such areas as water supply and sanitation, renewable energy, disaster response and reconstruction. The UNESCO Report on engineering should help address these concerns. 	<p>Extra-budgetary funds now account for more than twice regular programme funds. Most of the Regular Programme and extra-budgetary activities are conducted with partners, including NGOs such as the World Federation of Engineering Organisations, Engineers Without Borders, other UN and international agencies, SIDA/SAREC, IDRC and OECD. These partnerships are vital in organising programme activities and associated publications.</p>		

Para. 02014 - Addressing the needs of Africa

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
<p>UNESCO Action Plan developed and implemented in response to the African Union action platform for science and technology.</p>	<ul style="list-style-type: none"> • Action Plan comprising three flagship projects: capacity-building in STI policy, enhancing science and technology education, and the African virtual campus developed and implementation under way. In particular: <ul style="list-style-type: none"> - African Virtual Campus centres were equipped in Benin and Senegal; - science education technical support continued to the Community of Sahel-Saharan States for the GREET programme; - Formulation of S&T policies under way in various Member States (see immediately below). 				
<p>Science and technology policies and planning capacities of African Member States strengthened.</p>	<ul style="list-style-type: none"> • First phase of science policy formulation (stock-taking exercise) completed in 6 countries (Benin, Burundi, Central African Republic, Gabon, Madagascar and Sudan) and initiated in 3 others (Botswana, Malawi and Zambia); second phase (national consultations) completed in 3 countries (Burundi, Madagascar and Sudan). • In Tanzania, further to a request from the highest authorities for UNESCO's assistance for conducting a comprehensive review and repositioning the Tanzanian STI system, the UNCT agreed to UNESCO's proposal for science components to be included in the One UN programme. UNESCO spearheaded and coordinated the formulation of proposals in support of the STI system reform (amounting to US\$10 million to be financed from the One UN fund and other sources) and is now supervising implementation by a team of UN agencies and development partners. 	<ul style="list-style-type: none"> • There is a great expectations in Africa that UNESCO will be able to help all countries develop/revise and adopt national STI policies. However, UNESO resources are inadequate and the response of the donor community is below expectations. 	<p>UNESCO's financial inputs were limited to the provision of the international expertise required for the process. In very few cases local consultants were paid by UNESCO.</p>		
<p>Knowledge transfer and sustainable human and institutional capacity-building improved in order to develop a national culture of maintenance.</p>	<ul style="list-style-type: none"> • Training workshops on science and engineering education and innovation for development held. • Toolkit on "Management of Maintenance" developed. 	<ul style="list-style-type: none"> • One of the challenges of working to promote the "Culture of Maintenance" is that asset management and the management of maintenance is not regarded by governments around the world with any sense of priority, although this situation appears to be changing in 			

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
		response to the economic crisis.			
Knowledge base and capacities for local, national and regional water management strengthened.	<ul style="list-style-type: none"> • Research network of hydrogeologists of volcanic areas in three countries in East Africa strengthened. • Results of remote sensing capacity building projects in TIGER compiled, reviewed and edited for publication, serving as a showcase of how satellite information can help in water management in Africa. 	<ul style="list-style-type: none"> • In view of funds limitations, forging new partnerships and developing existing ones appear critical. • Through the partnership established with ESA (European Space Agency), African Institutions had direct access to ESA material and experience to improve their water resources management. 	<p>UNESCO contribution was part of a greater effort with partners to spread cost.</p> <p>Provision of global data on-line proved cost effective.</p>		
Knowledge base and capacities in formulating national energy policies and conducting pilot projects strengthened.	<ul style="list-style-type: none"> • Training activities held in two African countries <ul style="list-style-type: none"> - Mauritania: senior managers and technicians trained in decentralised rural electrification using solar equipment. - Niger: senior representatives and local leaders trained on the use and application of renewable energy. • A UNESCO/ISESCO regional expert meeting reviewed "Experiences and best practices on the use and application of solar energy systems" (Lomé, Togo), with the participation of representatives from western Africa countries. • Preparatory work for the formulation of a national strategy/policy for the development of renewable energy in Benin, as well as the implementation of two pilot solar schools, initiated. 	<ul style="list-style-type: none"> • To respond to the enormous needs for enhancing local capacities in Africa to manage, use and maintain renewable energy systems will require the mobilization of additional resources. 	Renewable energy activities are implemented in partnership with other international institutions, with UNESCO contributing seed money.		
Initiatives in the fight against desertification encouraged and supported.	<ul style="list-style-type: none"> • English and French versions of new UNESCO Teaching Resource Kit for Dryland Countries diffused to African dryland countries through UNESCO ASPNet. 	<ul style="list-style-type: none"> • ASPNet focal points will need to actively promote new teaching resource kit for dryland countries. 	Preparation of drylands kit has been funded by extra-budgetary resources.		
Policy advice delivered to establish national and regional research systems, especially through support to identified centres of excellence.	<ul style="list-style-type: none"> • Networking between African biotechnology institutions strengthened through support provided for the organization of the African Congress on Biotechnology (in cooperation with the Biotechnology Research Centre, BTRC, Tripoli, Libya). The Congress, which benefited from the active contribution of the International Centre for Genetic Engineering and Biotechnology (ICGEB, Cape Town) and was attended by representatives of scientific and 	<ul style="list-style-type: none"> • Facilitating the greater involvement of scientists from the Region 	Very cost-effective as the activities were largely funded by the BTRC	The Government of the Libyan Arab Jamahiriya is very supportive of this initiative and discussions are under way for additional funding under the UNESCO/Libyan funds-in-trust arrangement.	

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
	research institutions and NGOs from 20 countries in Africa as well as representatives of ICSU-Africa, NEPAD and UNECA, sets out recommendations for capacity-building and science education for the region.				

Para. 02106 - UNESCO-IHE Institute for Water Education (UNESCO-IHE)

Funding is provided exclusively from extrabudgetary sources

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
Impact of water education and training for sustainable development increased, primarily aimed at developing countries.	<ul style="list-style-type: none"> • Four fully accredited Masters' Programs offered with 336 students enrolled, of which over 90% are from developing countries. Joint Masters specializations are offered with Mondsee (Austria), Hohai (China), Sri Wijaya (Indonesia) and Dundee (Scotland). • About 75 registered PhD students, 6 graduated in 2008. • About 500 professionals trained in short courses in 2008. • The IHP Council approved a resolution establishing a tertiary Water Education Grants Programme, a facility to attract funds for water education fellowships. 	<ul style="list-style-type: none"> • Acquisition of fellowships for participants in developing countries is a continuous challenge. Member States will be invited to make use of the newly established Tertiary Water Education Grants Programme to sponsor multi-year fellowships. • Innovation in education is in progress and should lead to more joint programmes with partners in the South and to more flexible programmes (more elective modules, more online learning options). 	<p>The Institute operates on a 100% extra-budgetary basis.</p> <p>Investments are being made in more online courses and joint programs to reduce student's portion of costs.</p>	<p>Demand for MSc programs is consistently high, but availability of fellowships is too limited. The Tertiary Water Education Grant Facility is an example of a measure taken to generate fellowships.</p>	
Research capacity in the water sector increased, focusing on MDG-related topics and primarily aimed at solving problems in developing countries.	<ul style="list-style-type: none"> • All of UNESCO-IHE's research is relevant to development and 90% is carried-out in partnership with professionals and institutions from the South. In 2008, the volume of research further grew: 12 new PhD fellows started and over 200 scientific publications were produced. • The institute started implementing the research component of the programmatic cooperation agreement with the Dutch Ministry of Foreign Affairs (DGIS), which includes a grant for research on the MDGs. 	<ul style="list-style-type: none"> • The speed of implementation of the programmatic cooperation with DGIS should increase and continued efforts must be made to further increase the scientific level of UNESCO-IHE's research. Full membership of the SENSE Research School is being pursued; a self-evaluation of the research is in progress. 	<p>The Institute operates on a 100% extra-budgetary basis.</p>	<p>The quality and relevance of IHE's research are key indicators for achieving a sustainable programme.</p> <p>The membership in SENSE will stimulate high-level scientific output, whereas the cooperation with Southern partners should ensure relevance and credibility.</p>	

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
Capacity-building increased through numerous long- and short-term international cooperation programmes to strengthen endogenous capacities of local water-related organizations.	<ul style="list-style-type: none"> Important capacity building initiatives were implemented, including support to water programmes of universities in Ghana, Rwanda, Indonesia, Vietnam, etc. and an extensive training program for the water supply and sanitation sector in Iran. 	<ul style="list-style-type: none"> The funding base of IHE should be further diversified so as to depend less on Dutch funds. For quality management purposes, an evaluation system for projects was introduced early 2008. 	see above	There is substantial demand for the capacity building services of UNESCO-IHE. These activities are typically project-based and acquisition is done through tendering.	
Partnerships reinforced to share and develop knowledge and information, and to conduct joint activities in education, research and capacity-building.	<ul style="list-style-type: none"> Partnership development funds have been secured for the coming 5 years through the programmatic cooperation with DGIS. A novelty is that a system has been set in place (will start in 2009) by which partners can submit proposals to IHE's internal research funds. The Institute is very active in / supportive to regional networks in Indonesia, the Nile Basin, the Asia-Pacific region and Southern Africa. 	<ul style="list-style-type: none"> The institute will need to be selective and invest more in activities with a limited number of strategic partners. The Asia-Pacific Water Forum network of hubs is a new and very active one. Collaboration with different category 2 UNESCO centres is ongoing. Examples are ICHARM (Japan), HidroEx (Brazil), UniValle (Colombia), and University of Dundee (Scotland). 	see above	The future of UNESCO-IHE is one of a partnership-organisation which develops and delivers joint education and research with partners around the globe.	

Para. 02207 - Abdus Salam International Centre for Theoretical Physics (ICTP)

Regular budget: Activities (rounded to \$ thousand)

Planned: \$1 015

Actual: \$508

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
Advanced research training of scientists, especially women and young scientists, and university teaching staff in physics and mathematics enhanced.	<ul style="list-style-type: none"> In 2008 ICTP organized 60 training activities on subjects including elementary particle physics, cosmology, condensed matter physics, materials science, mathematics, computational physics, geophysics, climatology, biophysics, medical physics, laser physics, and nonconventional energy sources. Overall, 4,000 visitors have participated in these activities. The average participation rate of female scientists is about 30%. 29 students from developing countries are studying within the Sandwich Educational Training (STEP) programme. 	<ul style="list-style-type: none"> Through feedback received from participants in its activities, ICTP is open to suggestions for improving the scope of its programmes. For example, in March 2008, ICTP held the second of a new series of Workshops on Entrepreneurship for Physicists and Engineers from Developing Countries designed for scientists in developing countries who wish to learn about intellectual property rights issues and entrepreneurial skills, and about how scientific knowledge can be used for economic development. 	Getting exposure to such advanced courses for participants to these programmes would be at a much greater cost if they were organised in their own countries. It would also be extremely difficult to get the right sort of expertise without connections to ICTP.	<p>Training activities are designed to allow scientists to keep up to date with the state of art in their specific fields and to return to their home institutions and build on the knowledge acquired.</p> <p>The STEP students are enrolled in Ph.D. programmes in their home countries. The large majority of the Diploma students go back to their own countries to pursue their research.</p>	

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
	<ul style="list-style-type: none"> • Fifty students from developing countries are studying within the ICTP Diploma Programme in the areas of Condensed Matter Physics, High Energy Physics, Earth System Physics, Mathematics and Basic Physics. 	<ul style="list-style-type: none"> • By following the careers of participants, ICTP is able to modify or adjust its programmes. 			
<p>South-South cooperation and activities in Africa strengthened.</p>	<ul style="list-style-type: none"> • ICTP has strengthened cooperation in Africa and the South more generally through new partnerships, including collaborating with the National Mathematical Centre in Abuja, Nigeria which was inaugurated in March; the Horia Hulubei Foundation in Bucharest for the creation of a Romanian scientific centre of excellence; the Ministry of National and Higher Education, Executive Training and Scientific Research of the Kingdom of Morocco to help in the creation of a Centre for Physics and Mathematics; and continuing to enter into collaborative agreements with developing country institutions to work together on special programmes to help them. • ICTP has joint programmes with several countries in the South including Brazil, China, Cuba, and India which invite a number of scientists from other developing countries. • Ten students from sub-Saharan Africa are studying in the ICTP Diploma programme in Basic Physics. • Twelve students from sub-Saharan Africa are studying within the Mori Fellowship Programme. The Mori fellowships are funded through UNESCO Japan Funds-in-Trust. 		<p>50% of the expenses are covered by Brazil, China and India.</p>		
<p>Synergies with other organizational units contributing to Major Programme II enhanced.</p>	<ul style="list-style-type: none"> • ICTP has continued its collaboration with other divisions of the Natural Sciences Sector in the areas of ocean variability, climate variability and impacts of climate change on human societies and natural ecosystems, ecological and environmental economics, geohazards, tsunami research focused on the seismic origin of tsunamis. 				

Intersectoral Platforms

Para. 08006 - Science education

Regular budget: Activities (rounded to \$ thousand)	
Planned: \$	Actual: \$

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
Needs, priorities and challenges and good practices in science, technology, engineering and mathematics (STEM) education identified in selected Member States through a comprehensive review of existing data and research on science education.	<ul style="list-style-type: none"> Some information on science education needs in Africa and Arab regions gathered. Global survey is in preparation. E-learning for science and technology literacy and using biosphere reserves as learning sites for sustainable development are being explored. 	<ul style="list-style-type: none"> Possible delay in obtaining responses. 	Cost-sharing with partners.		
National STEM policies and programmes improved.	<ul style="list-style-type: none"> An International Meeting on the Teaching of Science Education and the creation of international network of Science Educators have contributed to on-going preparation and development of Science/Maths Education Policy Paper. 				
Capacity and knowledge base of policy-makers, curriculum planners, teacher trainers, and teachers for quality STEM education improved.	<ul style="list-style-type: none"> Training activities held for teachers and students in physics, mathematics, chemistry and space education in Africa, Arab region and the Russian Federation. Active learning training manual translated into French, and Microscience materials improved to suit national needs. 	<ul style="list-style-type: none"> Contacts with teachers, curriculum planners, policy-makers and representatives of Ministry of Education should be maintained to strengthen capacity of teacher trainers and teachers to do practical science experimentation. Continuing activities require further financial support. 	Cost-sharing with partners and local organizers.		
National and regional capacities for advanced training and university education in basic sciences strengthened.	<ul style="list-style-type: none"> Training workshops in Optics and Photonics for university physics teachers were held in Zambia and Cameroon. Support given to Asian Physics Education Network for active learning workshop in physics and engineering in Malaysia. 	<ul style="list-style-type: none"> Contact between university faculty, teachers and representatives of Ministry of Education encouraged in teacher-training activities and in some cases initiated through UNESCO. Collaboration with UNESCO centres, scientific unions, professional societies and regional networks provides an effective mode of programme implementation. 	Cost-sharing with partners, sponsors and local organizers.		
STEM curricula integrated into teacher education as well as science journalism into journalism education.	<ul style="list-style-type: none"> Five TTISSA countries identified with priorities on science and mathematics teacher education. Selected African institutions to launch model journalism curricula along with science 				

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
	communication course.				
Ethical values related to the development, implementation and application of science and technology incorporated into teaching and learning.	<ul style="list-style-type: none"> The Global Ethics Observatory Database on Ethics Resources was launched in October 2008. This database is designed to reinforce ethics teaching in regions where such activities are absent or minimal, by making resources in ethics available online. Regional expert meeting to identify and analyze ethics teaching programmes have taken place in Morocco and in the Ivory Coast. The UNESCO Bioethics Core Curriculum, based on the principles of the Declaration, was officially launched in October 2008. The Core Curriculum has been introduced in the Philippines and in Saudi Arabia. Potential test sites will be identified in 5 regions. The Ethic Teacher Training Course was held in Belarus in November 2008. Regional initiatives in environmental ethics have been launched in Russia and in West Africa. 	<ul style="list-style-type: none"> The speed and low cost in which this database was set up and populated is due to best practices from the setting up of previous GEObs databases. Introducing bioethics teaching also depends on the availability of qualified and interested teachers; combination with the Ethics Teacher Training Course programme will therefore be necessary 	<p>The cost and time of setting up this database has been very low, and further resources were focused on increasing its content, making it more cost-effective than initially projected.</p> <p>Study materials for the core curriculum are being included in the GEObs Database providing a synergistic strategy for both projects and reducing overall costs of implementation.</p>	<p>The core curriculum provides a basis for introducing bioethics teaching, especially the principles of the Declaration, in areas where such teaching is still unavailable. The core is publicly available for implementation by individual teachers. Study materials for the core are also publicly available online through the GEObs Database on Resources in Ethics.</p>	
High-quality materials developed for science, mathematics and technology education.	<ul style="list-style-type: none"> “Girls into science” training manual translated and printed; a policy brief on “Science education policy making - eleven emerging issues” published. A “Teaching Resource Kit for Dryland Countries: a creative approach to environmental education” published. A teaching kit on great apes developed by a partnership between UNESCO, the French Museum of Natural History and the Coopération française within the Great Apes Survival Project (GRASP). 		<p>Non-professional translators of specific subject materials who are familiar with the material do better work at a fair price.</p>	<p>Training materials in specific subjects in national languages increase teachers’ and students’ ownership of materials and maximize their use in teaching and learning.</p> <p>The teaching materials provided are expected to have a long-term impact on environmental understanding and education.</p>	
Understanding of and interest in scientific and technological issues, studies and careers increased among students, especially girls.					

Para. 08009 - Contribution to the implementation of the Mauritius Strategy for the Sustainable Development of Small Island Developing States (SIDS)

Regular budget: Activities (rounded to \$ thousand)	
Planned: \$	Actual: \$

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
<p>Interlinked environmental and sociocultural change in SIDS documented and policy frameworks, modalities and tools for sustainable living identified, shared and applied within and across SIDS regions.</p>	<ul style="list-style-type: none"> • The site which reports on UNESCO-wide activities and events in SIDS updated and further developed. New dedicated pages related to activities in SIDS have been created by colleagues in the intangible cultural and Communication and Information websites. • A high level intersectoral UNESCO mission was carried out to the Republic of Mauritius in September 2008. Organised in the framework of the initiative "Mauritius Ile Durable", its aim was to identify areas of cooperation to advance sustainable development policies and practice. • The global Sandwatch Project on beach monitoring and sustainable management of coastal environments was further expanded: <ul style="list-style-type: none"> (i) a new issue of the quarterly e-newsletter The Sandwatcher widely distributed; (ii) Sandwatch Climate Change Video Contest advanced; (iii) Sandwatch network strengthened with existing partners; and through collaboration with international partners; (iv) Sandwatch has been integrated into the Cook Islands science programme; (v) November 2008, participants from 10 Caribbean countries took part in a workshop "Youth and Climate Change: Cool Youth Leading the Way" to create awareness about climate change in their home countries as part of the project "Mobilising Caribbean Youth to Adapt to Climate Change"; (v) Sandwatch flagged as an exemplary community-linked project in "Showcase and disseminate good practices and projects" in the context of ASP Network. 	<ul style="list-style-type: none"> • Updating Internet site is a time consuming task. All sectors contribute inputs. • Numerous hurdles were overcome in organising this mission. • For Sandwatch, Item (ii): a one-on-one work with 30+ individuals was necessary to explain the details of the competition and how to access YouTube channel. Item (iii): networking is a daily activity requiring personalised interaction that represents a major task of the Sandwatch Foundation (UNESCO's contractor coordinating the Sandwatch project) 	<p>The website is highly cost-effective for Member States to consult and be re-directed to additional information.</p> <p>Thanks to its popularity, Sandwatch benefits from volunteer network of schools: students, teachers and principals; youth groups; NGO and community-based organizations.</p>	<p>Sandwatch has become an active network of students, teachers and communities in all SIDS regions, with a momentum of its own.</p>	
<p>Sustainable development issues integrated into educational programmes in SIDS ensuring awareness and a better</p>	<ul style="list-style-type: none"> • Intersectoral approach to ESD developed in the Pacific with strong links to strengthening curriculum relevance in SIDS, increasing cultural content, local/indigenous knowledge and use of 				

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
<p>understanding of the issues at stake.</p>	<p>Pacific languages and understanding of key environmental issues such as climate change. Mock up of redesigned Our Pacific Heritage education kit presented to Pacific Heads of Education meeting in October 2008. Countries for mapping and pilots identified.</p> <ul style="list-style-type: none"> • Teachers' Guide for ESD in the Caribbean was published and disseminated widely to all Member and Associate Member States in the Cluster and was made available electronically. • Within the UN-DESD, Timor Leste participated in the "Southeast Asia ESD Coordination and Capacity Building Workshop" (September 2008, Manila, Philippines). The Workshop developed capacities of the countries in leading and coordinating ESD, in strengthening political will for ESD, in linking and establishing support for ESD related initiatives, and in developing national ESD monitoring systems. • In the framework of supporting literacy and non-formal education for sustainable development, the CONFINTEA VI report was prepared by the Maldives and their attendance was assured to the regional preparatory conference. This contributed to the national advocacy events organized to celebrate the International Literacy Day. 	<ul style="list-style-type: none"> • Non-resident status in the Maldives and scarce resources for support to government has hampered UNESCO's role. 			
<p>Local and indigenous knowledge recognized and reinforced in SIDS education and environmental management, including as a response to climate change.</p>	<ul style="list-style-type: none"> • Since its launching in June 2008, 8 internet postings in English, French and Spanish were emailed to more than 50,000 SIDS and indigenous contacts as part of the 'On the Frontlines of Climate Change: An Internet Forum for Indigenous Peoples, Small Islands and Vulnerable Communities'. These postings on Early Impacts and Adaptation generated numerous exchanges among communities in SIDS and other parts of the world. • A set of 7 educational posters addressing critical policy issues for indigenous knowledge, was launched by the Minister of Education and the National Commission of Vanuatu. The launch contributed to a week-long workshop on how to bring traditional knowledge into the education system (Port Vila, December 2008). 	<ul style="list-style-type: none"> • Running a trilingual Forum with regular 3- weekly postings has proven highly demanding on the section's limited human resources. • While Vanuatu government policy supports the strengthening of indigenous knowledge in school curricula, available resources are limited and teachers are ill-prepared. 	<p>Greater outreach and global visibility were ensured through UN partnerships.</p> <p>The posters are proving to be a cost-effective manner to spread the message.</p>		

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
	<ul style="list-style-type: none"> On the ground piloting of the pedagogical Learning Resource Pack for the interactive CD-ROM "The Canoe is the People: Indigenous Navigation in the Pacific", was initiated in select schools in the Cook Islands and Marshall Islands. Continued promotion and distribution of MAB Discovery kit. 	<ul style="list-style-type: none"> The step-wise introduction of new curriculum materials, in particular indigenous knowledge materials, requires a great investment of time and wide consultation in order to ensure success. 			
<p>Knowledge base for assessing water resources, especially in SIDS, enhanced.</p>	<ul style="list-style-type: none"> Capacities of water resources managers from Mauritius and Seychelles developed for integrated water resources management through a training workshop focusing on water catchment and quality management. 				
<p>Integrated heritage policies developed for SIDS: representation of heritage from SIDS on the World Heritage List improved safeguarding measures for intangible cultural heritage developed, and capacities for sustainable management of tangible and intangible heritage enhanced while strengthening international cooperation.</p>	<ul style="list-style-type: none"> In the framework of Youth development and poverty reduction through sustainable community tourism in the Caribbean (Youth PATH), the following results were obtained: (i) Youth PATH projects initiated in 12 English and Dutch speaking Caribbean countries (ii) more than 150 young people have received training in heritage tourism, entrepreneurship, product development and life skills training. Assistance towards the Maldivian national WH inventory-making. Current focus of ratification of cultural conventions in the Pacific states as a first step, followed by working with countries to progress nominations for the World Heritage List. Workshops held with Governments in Fiji and PNG. Workshops held with Governments in Fiji, PNG and Kiribati in 2008. World Heritage nominations completed for PNG, Vanuatu and New Caledonia and listing occurred in Sept 2008. Further work needed to development management capacity for Pacific World Heritage sites. Presentation of the 2003 Convention for the Safeguarding of the Intangible Cultural Heritage to the Ministry of Education and Culture of Timor-Leste. Timor Leste museums supported through: list of museums established; the UNESCO/ICOM 	<ul style="list-style-type: none"> Follow up needs to be provided with Pacific countries to complete the ratification and nomination processes 			

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
	<p>Museum Studies Training Package 'Running a Museum' and a series of Cultural Heritage Protection Handbook were translated into Indonesian language and published; technical assistance and advice provided to the Government of Timor-Leste for the organization of an exhibition on Timorese artefacts held at the Museum and Art Gallery of the Northern Territory in Darwin, Australia in November 2008.</p> <ul style="list-style-type: none"> • Implementation of projects to safeguard ICH elements that have been incorporated into the Representative Lists of Tonga, Vanuatu, Dominican Republic, Cuba, Jamaica and Comoros. • Implementation of safeguarding project in Haiti. • New ratification of the 2003 Convention for the Safeguarding of the Intangible Cultural Heritage in Barbados (October 2008) and Papua New Guinea (September 2008). • Two national consultation meetings with Papua New Guinea, Fiji and Tonga and a sub-regional meeting in the Pacific on the 2003 Convention. • Evaluation of the Festival of Pacific Arts and developing its relation to the 2003 Convention thanks to the contribution of extra-budgetary funds from Norway. 	<ul style="list-style-type: none"> • Capacity-building and support to SIDS for intangible cultural heritage safeguarding policies. 			
<p>Information literacy and knowledge of sustainable development challenges and practices enhanced.</p>	<ul style="list-style-type: none"> • Media Workshop on Climate Change held in Apia and several Pacific journalists included in delegation to UNFCCC COP-15. • Information literacy curricula developed and adapted for undergraduate and postgraduate degree programmes, and formulation of Information For All Committee in Maldives. • Fifteen journalists in post-conflict Timor-Leste were trained on peace journalism. • The development of free and pluralistic media within CCA / UNDAF was fostered in Bhutan, 	<ul style="list-style-type: none"> • Most journalist participants in Timor Leste did not know about peace journalism, and they realised that they may have contributed to the escalation of conflicts through provocative reporting. The journalists need further advice and supervision to ensure that their news items put peace building as a 	<p>Programme in Maldives also supported by UNDP</p>		

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
	Maldives and Sri Lanka.	main priority.			
Participatory mechanisms and community networks strengthened, with particular emphasis on youth participation.	<ul style="list-style-type: none"> A call for proposals focused on youth led projects in raising awareness and education on HIV and AIDS prevention was widely distributed in November 2008 to SIDS countries via Youth Visioning for Island Living. Proposals from the Caribbean, Pacific, Indian Ocean and Africa were reviewed and short-listed. The organization of the 2008-2009 Mitsubishi Asian Children's Enniki Festa in Timor-Leste supported to promote the diversity of cultural expression of the school children in Timor-Leste. Compilation of youth actors in Maldives at a research and operational level for the Youth Strategy. Pacific regional youth stakeholders consortium has been established including youth organisations, regional organisations and UN agencies. Collaborative approaches are in place for developing improved national youth policies, strengthening Pacific youth organisations and projects focused on vulnerable youth. The UN has also set up a Youth Advisory Panel to provide input to UNDAF and UN agency activities. 	<ul style="list-style-type: none"> Some islands have very limited access to Internet. Alternative ways had to be found to reach youth in these islands (e.g.: contact intermediate people). The number of partners/ competing interests of the youth consortium is difficult to manage, particularly as all are spread across the Pacific and have few opportunities to meet together 		A number of the project leaders managed to secure local support (financial and in-kind) allowing continuation of activities beyond UNESCO support.	

Para. 08016 - UNESCO Action to address climate change

Regular budget: Activities (rounded to \$ thousand)

Planned: \$ **Actual: \$**

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
Enhanced scientific understanding of climate processes, drivers, and impacts for improved climate projections, with research and models scaled down to provide regional and subregional projections of climate change impacts.	<ul style="list-style-type: none"> WMO and UNESCO as conveners for the preparation of workplans for UN activities in the cross-cutting area of science, assessment, monitoring and early warning, have convened meetings with interested UN organization and agencies on the knowledge base. This cooperation will contribute to and be highlighted 	<ul style="list-style-type: none"> Enhanced UN Cooperation in the field of climate change is a priority area for inter agency cooperation. 	The cost-effectiveness of enhanced UN cooperation will likely prove to be substantial in the future as UNESCO catalytic funding can be multiplied through UN partnerships.	The CEB process is firmly established.	

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
	<p>at the Third World Climate Conference in 2009.</p> <ul style="list-style-type: none"> • UNESCO has also participated actively in the overall UN climate change cooperation efforts lead by the CEB and its HLCP working group on climate change, such as in the preparation of the publication “Acting on Climate Change: The UN System Delivering as One” presented to the UNFCCC COP 14 in Poznan, Poland December 2008 by UN Secretary-General Mr BAN Ki-moon. • The WMO-IOC-ICSU World Climate Research Programme held a Modelling Summit (May 2008, Reading, UK) which responded to a strong need for regional climate modelling, and identified serious limitations in simulating regional features due to scientific and computational limitations. It recommended the establishment of a world climate research facility. 	<ul style="list-style-type: none"> • Additional research on climate change is an international priority 			
<p>Increased Member State commitment to building and sustaining the global ocean observing systems for climates, including monitoring networks, coordination mechanisms, data systems and the creation of data products and information.</p>	<ul style="list-style-type: none"> • The sustained ocean observation system continues to provide essential data for improved scientific understanding and the generation of predictions and products concerning the role of the ocean in global climate change and associated societal impacts. • The IOC submitted two action pledges to the UNFCCC, for sea level monitoring and prediction through GOOS and for a project on Adaptation to Climate Change: responding to coastline change in its human dimensions in West Africa through Integrated Coastal Area Management (ACCC). 				
<p>Strengthening climate monitoring activities at UNESCO sites (biosphere reserves, World Heritage sites and geoparks).</p>	<ul style="list-style-type: none"> • Two project concepts developed focusing on biosphere reserves and climate change monitoring: <ul style="list-style-type: none"> - “Global Climate Change in Mountain Sites (GLOCHAMOST) - Elaborating Adaptation Strategies in Biosphere Reserves” (submitted to donor agencies); and - “Establishing the World Network of Biosphere Reserves as an Observatory and Learning Platform for Climate Change Monitoring, Mitigation and Adaptation”. 	<ul style="list-style-type: none"> • Implementation of the projects will depend on the provision of extra-budgetary funding. 			

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
<p>Increased volume of and access to high-quality climate data and information for Member States, including regular analyses of needs, gaps and barriers.</p>	<ul style="list-style-type: none"> • Regular analysis of needs and gaps are provided to the governing bodies of GOOS and sponsors thereof (IOC, WMO, UNEP, ICSU), UNESCO as well as the UNFCCC. • The IOC participated in a UNFCCC workshop focused on data and observations necessary for impacts, vulnerability, and adaptation to climate change. The outcomes informed the formulation of the second phase of the UNFCCC's work in adaptation to climate change, which calls for increased engagement with partners in identifying sustained observations needed for work in climate adaptation. • IOC Member States in the framework of GOOS and the WCRP maintained development of the open-ocean observing system for climate. Highlights in this period included the sustenance of the Argo profiling float and surface drifter networks at designated numbers, the completion of about 85% of the repeat hydrographic survey of ocean carbon, and the successful joint launch by the U.S. and France of the Jason-2 satellite, assuring continuity in high-quality sea level measurements from space. • Techniques, methodologies and approaches developed to better define global changes including climate changes and feedback mechanisms of hydrological processes, and shared with national authorities, decision makers and national and international institutions. • Guidelines for the scientifically sound management of groundwater resources in all regions are in preparation and guidelines for the knowledge base and capacities in water resources management in arid and semi-arid zones were strengthened through the G-WADI network. • Through Conferences, seminars, training courses, guidelines have been formulated to intensify focused research to identify and assess climate change impact on groundwater considering specific regional situations. • Improved capacity building and exchange of 	<ul style="list-style-type: none"> • Identified key research topics and partners. • Web based information system launched as the main platform for providing access to data and tools. 	<p>Cost- effectiveness is high, and synergies were developed across IHP themes and activities.</p>		

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
	<p>information on sediment related issues and management plans developed in cooperation with International Sediment Initiative (ISI) and national authorities. Workshop on Global Change Impacts and Role of International Sediment Initiative organized. ISI background paper prepared and discussed.</p> <ul style="list-style-type: none"> • Guidance developed and disseminated for improving monitoring, data collection and processing, and storage systems in arid and semi-arid areas. • Launching of the GRAPHIC project North Andros case study aiming at assessing the sustainability of groundwater resources in island settings under climatic and human stressors. 	<ul style="list-style-type: none"> • Institutional and technical local involvement. Case study proposal by Bahamas and ratification by the other project member Islands. 	<p>Seed money for the improvement of coastal aquifers within the framework of global change.</p>		
<p>International agreement on priorities for implementation of global networks and development of policy-relevant information for observing the impacts of climate variability and change on ocean, freshwater, and terrestrial ecosystems and the biodiversity contained therein.</p>	<ul style="list-style-type: none"> • The Madrid Declaration on the UNESCO Man and the Biosphere (MAB) Programme and the World Network of Biosphere Reserves (WNBR) elaborated during the 3rd World Congress of Biosphere Reserves and the 20th MAB-ICC, calls upon "UNESCO to actively pursue coherent approaches and strengthen cooperation within the UN system, particularly with UNDP and UNEP with the aim to enable Member States to use biosphere reserves as places to demonstrate and promote the achievement of the Millennium Development Goals (MDGs) and other UN targets, such as the commitment of Parties to the Conventions dealing with biological diversity, combating desertification and climate change". The Madrid Action Plan agreed at the Madrid Congress recognizes the importance of climate change and includes the target that biosphere reserves should be used as learning sites for research, adaptation, mitigation in relation to climate change. 	<ul style="list-style-type: none"> • The WNBR is increasingly perceived by Member States as an important network for providing information and know-how necessary to observing and for addressing climate change impacts. 			
<p>Improved information on the impacts of climate change on World Heritage which will contribute to priority setting for management action.</p>	<ul style="list-style-type: none"> • A Policy Document on the impacts of Climate Change on World Heritage Properties was published and distributed widely. 				
<p>Improved understanding of climate change impacts and of</p>	<ul style="list-style-type: none"> • 'On the Frontlines of Climate Change: An Internet Forum for Indigenous Peoples, Small 	<ul style="list-style-type: none"> • The new Forum takes on the challenge of bringing community- 	<p>Partnerships established with other UN organizations</p>		

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
<p>adaptive capacities with particular emphasis on vulnerable societies, cultures, and ecosystems, including World Heritage sites, biosphere reserves and geoparks.</p>	<p>Islands and Vulnerable Communities' was launched in June 2008 reaching out to more than 50,000 SIDS and indigenous contacts. This Forum and its new website, builds upon and extends the success of Small Islands Voice. It provides an online space for small islanders, indigenous peoples and other vulnerable communities to exchange grass-roots experiences and knowledge related to climate change impacts and adaptation. [see also SIDS platform]</p> <ul style="list-style-type: none"> • In cooperation with the Institute of Lowland Forestry and Environment-ILFE of Novi Sad, Serbia, UNESCO organized the first meeting of a Working Group which reviewed <i>"Needs and Priorities for Research and Education in Biotechnology applied to emerging Environmental challenges in SEE countries"</i>. • Based on such assessments the Workshop elaborated strategies and actions necessary for climate change mitigation in SE Europe. • The state-of-the-art of glaciological research being carried out in the LAC region and a declaration was approved ratifying the commitment of Member States Representatives to the Snow and Ice Group of Experts on the priority of increasing awareness on the importance of preventing, preserving and mitigating the incidence of climate change on glaciers at the Coordination Meeting of the group of experts on Snow and Ice. • 50 to 70 technicians and decision makers sensitized on climate change impacts through a workshop in Mali. • International Conferences (South Africa, Libya, and Kampala) organized on Integrated Water Resources management (IWRM) with more focus on groundwater and climate change. • Support for national IHP committees of Benin and Ghana to undertake a data collection and analysis for evidence of climate change impacts on water resources and implications for their management. • Establishment of an African Drought Monitor 	<p>level voices into global climate change debates. It also expands the audience to associate small islands, indigenous peoples and other vulnerable communities.</p> <ul style="list-style-type: none"> • In SEE countries, there is an urgent need to develop research capacities to develop appropriate biotechnology for the environmental and agro-forestry sector, contributing to regional sustainable development. • Committed working group with a shared interest and objective. High exchange of information and cooperation • High water vulnerability to pollution from cities and climate change in Africa. • Creation of synergy with ongoing activities on climate change in the countries. • Close cooperation between water 	<p>including the Office of the High Commissioner for Human Rights, and the Secretariats of the Convention on Biological Diversity, and of the UN Permanent Forum on Indigenous Issues.</p> <p>Seed money to support coordination meetings and research.</p>		

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
	and implementation into the strategy of the inter-sectoral platform of climate change.	centres, regional offices and other UN organizations is needed.			
Increased use of integrated climate change adaptation measures and policies that respond appropriately to environmental, economic, cultural, social, gender, educational, attitudinal and behavioural factors.	<ul style="list-style-type: none"> The UNESCO Climate Change Platform participated in the Workshop on Adaptation to Climate Change: Strengthening Capacities in Africa organized by the German Development Institute and the Stockholm Environment Institute. 				
Enhanced education, training, and public awareness of climate change and its impacts, and strategies for adapting to change and mitigating its causes.	<ul style="list-style-type: none"> Successful dialogue initiated during the Expert Workshop on Mainstreaming Biodiversity into Education between UNESCO, as task manager for Chapter 36 of Agenda 21, the Convention on Biological Diversity (CBD) in reference to Article 13 of the CBD, the UNFCCC in regards to Article 6 of the UNFCCC, and Ramsar Convention to strengthen and enhance joint Communication, Education and Public Awareness (CEPA) activities. Exchanges of experiences and good practices on climate issues initiated with DESD, UNESCO Associated Schools (ASPnet), and other school networks such as CarboSchools Europe, UNESCO Chairs/UNITWIN networks, and in cooperation with other agencies (such as UNEP Ozone Division). The ESD media training and resource kit "Media as partners in education for sustainable development", produced by UNESCO with the Thomson Foundation, was officially launched. The media kit seeks to assist media professionals in their efforts to report on sustainable development issues, and contains a chapter focusing on climate change. The global Sandwatch Project on beach monitoring and sustainable management of coastal environments was further expanded in the framework of Education for Sustainable Development and the Associated Schools Network. [see also SIDS platform] 	<ul style="list-style-type: none"> Inter-agency cooperation is on-going process which takes time. 			
Enhanced education, training and knowledge base for the	<ul style="list-style-type: none"> Regional consultation carried out in Central Asia to identify collaborative mechanisms among 				

34 C/5 Expected Results	Achievements	Challenges/ Lessons Learnt	Cost- Effectiveness	Sustainability (Indicators or Measures)	Recommendations by the Executive Board
<p>rational use and applications of renewable energy sources for climate change mitigation.</p>	<p>different organizations concerned by renewable energy in the region.</p> <ul style="list-style-type: none"> • Eight lectures on the ECO-Village (energy self-sufficient village) concept were broadcast to 25 universities in south-East Asia. • Training seminar for local managers and technicians involved in the decentralised rural electrification using solar energy systems held in Mauritania and national training workshop organised in Niger on the use and application of renewable energy. • Preparatory work carried out to identify priorities and define modalities for the preparation of a national strategy/policy paper for the development of renewable energy in Benin. 				
<p>Wider dissemination of knowledge and information on climate change, and to increase awareness of potential mitigation actions and strategies that elicit long-term behavioural change, especially through emphasis on environmental ethics, market mechanisms and dissemination of quality information through mass media that targets both women and men.</p>	<ul style="list-style-type: none"> • The World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) drafted a report on the ethical implications of climate change. The report was discussed at the extraordinary session of COMEST held in Paris in November 2008 and circulated for comment and review to a wide range of stakeholders. In addition, activities on environmental ethics teaching, including curriculum development, are ongoing in Asia-Pacific, CIS and West Africa. 				