Islamic Educational, Scientific and Cultural Organization (ISESCO)

Report on ISESCO Activities implemented in the Fields of Science, Technology and Innovation

Submitted to

the 15th Session of the General Assembly of COMSTECH

Islamabad, Islamic Republic of Pakistan
31st May – 1st June 2016
INTRODUCTION

The Islamic Educational, Scientific and Cultural Organization (ISESCO) has the honour to submit before this august Assembly of the 15th General Assembly of the Organization of the Islamic Cooperation (OIC) Standing Committee on Scientific and Technological Cooperation (COMSTECH), the report of the activities implemented during the interim period since the Fourteenth Session of the General Assembly of COMSTECH, held in Islamabad on 11-13 January, 2011, corresponding to 6-8 Safar, 1432 Hijri.

Pursuant to the goals set in ISESCO Medium-term Plan for the Years 2010-2018; taking into account the resolutions of the General Conference and the decisions of the Executive Council; in compliance with the Resolutions of the Islamic Conference of Ministers of Higher Education and Scientific Research; further to the recommendations of the meetings of the Consultative Council for the Implementation of the Strategy for Science, Technology and Innovation in Islamic Countries; guided by the orientations of the OIC Ten-Year Programme of Action and the OIC Vision 1441 H for Science and Technology, and in the light of the recommendations emanating from various events on important scientific and technological issues, ISESCO carries on with implementing programmes and activities to strengthen Member States’ capacities to raise higher education standards and promote science, technology and innovation, which contribute towards creating a strong positive impact on the targeted sectors.

Taking full cognizance of the prowess of science and technology in sustainable socio-economic development and keeping up its responsibilities, ISESCO implemented a number of important programmes in various educational, scientific and technological fields and undertook appropriate measures in order to improve in scientific areas where major weaknesses were indicated. Major activities were expanded to strengthen the capacities of Member States in areas of immense potential for sustainable socio-economic development. Prime focus was on enhancing networking among the Islamic countries in the scientific fields, accelerating transition towards knowledge-based economies, promoting of scientific research, improving quality in higher education, strengthening parliamentary forums, invigorating science policy, promoting biotechnology and nanotechnology, encouraging science parks establishment, improving integrated management of water resources and protection of biosphere, mitigation of disaster risk, promotion of renewable energy, empowering women role in science, encouraging young scientists and safeguarding the Islamic values by paying due attention to ethics of science and technology.

ISESCO has also established a wide network of cooperative relationships with a large number of UN institutions and specialized agencies, international, regional and local organizations, national NGOs, academic and cultural institutions, Islamic associations and
institutes, national institutions in Member States, as well as with the media, publishing and distribution institutions. ISESCO has so far entered into more than two hundred (200) cooperation agreements.

It is worth mentioning that all activities have been implemented under three main sector-specific priorities, namely (a) Reinforcing Scientific and Technological Capacities for the Achievement of Development; (b) Developing Higher Education Competitiveness and (c) Preservation of the Biosphere.

During the reported period, ISESCO devoted attention to projects and programmes under major priority areas targeting vital scientific and technological needs focusing on re-innovating science policies and governance, and encouraging policy makers and government officials to take effective measures for the promotion of higher education, science, technology and innovation on realistic grounds.

STI activities are at the core of ISESCO agenda for sustainable development, considering that the creation of a scientific knowledge-based society can provide a firm foundation for scientific and technological progress for the Member States. Being committed through its programmes to enhance scientific, technical and human capacities for Member States to participate in the emerging knowledge society, ISESCO implemented various programmes which aimed at the promotion of public understanding of new scientific and technological developments and integration of knowledge in the socio-economic development process. Higher scientific education, which plays a fundamental role in bringing economic and social changes, was promoted through encouraging creation of science parks and business incubators as well as the development of sectors with high added value and generators of employment, especially that they are considered as economic and technological components capable of fostering knowledge-based economies by bringing complete cohesion between the researchers and industries to work for mutual benefits. Thus, emphasis was placed on strengthening university-industry partnership, through linking scientific research, knowledge and innovation with the industrial sector, and channelling research results into commercial output and innovation, so as to utilize technological advances and new knowledge towards socio-economic progress.

Realizing the importance of improving science and technology policies and programmes through stimulating the dissemination of new scientific knowledge, ISESCO endeavoured to assist Member States to set up national systems of innovation, considering that scientific knowledge and technological innovation are the right approaches to development challenges and the efficient drivers of economic advancement of societies. The implemented activities mainly focused on stimulating appropriate policy decision so that it aligns with development goals along with improving government and STI management.

ISESCO also concentrated on developing indigenous technologies and efficient absorption of imported technology appropriate to priorities and resources, the aim being to allow Member States to attain technological competence and self-reliance, to reduce vulnerability, particularly in strategic and critical areas, thus making the maximum use of indigenous resources. ISESCO exerts efforts towards strengthening necessary components of
technological innovation infrastructure through assisting Member States in formulating environmentally sustainable technology policies enabling them to utilize technologies and trades for commercial and economic benefits.

ISESCO also pursued efforts to promote new technologies and practices in agriculture to enhance production capacities through imparting trainings in best practices with regard to new technology tools. Special emphasis was placed on strengthening capacities in agricultural technologies, water management and food processing. Thus, the adoption of new technologies was encouraged to improve land productivity and increase the efficient use of natural resources.

In the light of the Strategy for Promotion of Nanotechnology in the Islamic World, adequate approaches were adopted to encourage developing an integral vision of nanotechnology, defining research priorities, opening opportunities for interdisciplinary teaming and collaboration at local, regional and international levels. Through partnership with international institutions in nanotechnology research, promising areas of research in nanotechnology were identified including their potential development into joint entrepreneurship and ventures by stimulating synergy in capacity building, innovation and joint research. Likewise, on-line training courses in nanotechnology were launched to meet human resources requirement in this field.

ISESCO has always given special attention to technologies of critical importance in order to build up Member States’ capacities to utilize them for their socio-economic benefits. Biotechnology and Genetic Engineering, which hold enormous economic potential, have always been given due consideration by ISESCO. Based on the Implementation Mechanisms for the Strategy for Promotion of Biotechnology in the Member States, which were developed in consultation with the representative experts from Member States, ISESCO conducted various seminars, meetings, symposiums solely or jointly with other international organizations, to benefit biotechnologists through sharing of experiences and knowledge of new breakthroughs. Application of biotechnologies was also promoted through extending research grants, organization of various training courses, workshops and other forums for exchange of information and discussion of research findings in biotechnology.

Protection of the biosphere has always remained a prime priority for all. Drawing on its strong sense of environmental responsibility, ISESCO implemented a number of programmes for preserving the biosphere, promoting preservation and sustainable utilization of natural resources and stepped up efforts to adopt measures towards transition to green economy under the Islamic Environment Action Programme, which was adopted by the 4th Islamic Conference of Environment Ministers. Under its Strategy for Promoting Energy Efficiency and Clean and Renewable Energy Sources Use in the Islamic World, ISESCO implemented programmes to secure energy resources that are sustainable and available in the long term at reasonable cost. More attention will be paid to energy needs in rural and remote areas to improve the quality of life of poor communities.

Since a number of Member States are facing water challenges and are expected to suffer from severe water shortage, ISESCO exerted efforts in line with the mechanisms of the Strategy for Management of Water Resources in the Islamic World to tackle the water challenges through reinforced policies, to improve water governance and to set targets for provision of
supplies within the general context of poverty alleviation and environmental sustainability. ISESCO also implemented programmes to improve sound management of the marine environment and safeguard ocean resources in the Islamic world.

ISESCO also addressed the issue of climate change and enhanced Member States' capacities to adapt to the adverse effects of this phenomenon. Based on the Action Programme to Benefit from Adaptation Funds and Clean Development Mechanisms, ISESCO strived to develop capacities of the competent parties in the Member States to benefit from adaptation funds and clean development mechanisms. Under the Executive Plan for the Implementation of the Strategy for Disaster Risk Reduction and Management in Islamic Countries, ISESCO implemented programmes to reduce and mitigate the impact and effects of disasters and develop good governance within sustainable development. Priority was given to partnership, continuous training, improving the capacities for effective emergency intervention and sensitizing the general public for better preparation.

In order to intensify efforts towards enhancing the culture of scientific and technological innovation and valorising the role of quality in achieving comprehensive excellence in higher education, ISESCO pursues implementing the “Key Performance Indicators: a Guide for Assessment, and Quality Enhancement for Universities in the Islamic World (KPI)” document approved by the Sixth Session of the Islamic Conference of Ministers of Higher Education and Scientific Research, in order to enable higher education quality assurance systems to bring excellence in university education and establish academic linkages to capitalize on scientific and technological innovation, quality and accreditation drivers.

Women role in science and technology was promoted through offering special opportunities to women in all scientific and technological programmes of ISESCO. Women Science Chairs established by ISESCO also contributed to encourage women’s participation in science and technology. New programmes were implemented to provide better access to high quality education, impart professional training and encourage women scientific associations. Efforts were continued to promote gender equality and balance, acknowledge social rights of women and to project women’s role in social development, while keeping in view the Islamic principles and values. Likewise, ISESCO promoted the participation of the youth in scientific development process, through initiating Youth Science Academy as a platform for the youth to coordinate with government bodies to overcome challenges and obstacles facing youth action.

Safeguarding the features and distinct characteristics of the Islamic civilization and protecting it from the ethical challenges arising from advances and innovations in science and technology has always been an area of attention of ISESCO since its inception. Seminars, symposia and ethical expert meetings organized under the Islamic Body on Ethics of Science and Technology (IBEST), in cooperation with national ethical commissions in the Member States, also helped to pave the way for standard setting. General consensus among the public at large and researchers in particular was promoted through publication of books on various important ethical issues. Joint implementation of international events with specialized international organizations helped to bring various important ethical issues to limelight and discussion promoted consensus.
ISESCO Center for Promotion of Scientific Research (ICPSR), which was established to promote, coordinate and guide advanced studies and scientific research in all fields of science and technology for sustainable economic development in the Islamic countries, implemented scientific events, offered research training, established expert panels in important scientific fields, and published various material. Research grants were offered, which attracted major attention of young scientists and researchers in the Member States. Twenty issues of the Official Journal of ISESCO Center for Promotion of Scientific Research "ISESCO JOURNAL of Science and Technology" were published till November 2015.

Within its mandate under ISESCO framework, the ICPSR contributed to the promotion of science, technology and innovation through supporting innovative scientific research, networking among Member States for the dissemination and exchange of scientific information and promotion of local knowledge, allocating research grants, research facilities and prizes, *inter alia*, for the improvement of the skills of students, researchers and teachers. The ICPSR also endeavoured, during the reported period, to strengthen national capacities in science and technology (engineers, researchers, teachers, technicians, etc...) through conducting experts’ meetings addressing innovation challenges to knowledge-based economies and encouraging linkages between university and industry, as well as raising awareness about the importance of protection of intellectual property related to national innovation systems.

It is to be mentioned that the activities and programmes implemented during the reported period were initiated solely or in collaboration with international, regional, national organizations, non-governmental institutions and scientific academies and associations. Further, ISESCO also actively participated in prominent conferences, seminars, symposia, workshops and other scientific meetings, or extended financial & technical support.

ISESCO and COMSTECH share many noble objectives and are enjoying very constructive and exemplary relations in implementing joint programmes for promotion of science, technology and Innovation in the Member States. Within the framework of the Cooperation Agreement existing between ISESCO and COMSTECH, and with the intention of strengthening the partnership and promoting coordination, both organizations have joined hands in fulfilling the Islamic agenda emanated from various forums including Islamic Summit Conference as well as under the Strategy of Science, Technology and Innovation in Islamic Countries, Vision 1441 on Science and Technology and OIC Ten Year Programme of Action. ISESCO will always remain interested to strengthen this fruitful cooperation between the two parties.
Islamic Educational, Scientific and Cultural Organization (ISESCO)

ISESCO’s Report on Activities implemented in the Fields of Science, Technology and Innovation
January – December 2011
Field of Action 3.1
SCIENCE POLICY

3.1.1
Scientific, Technological and Innovation Policies

Activities implemented by ISESCO:

- World Science Forum - Parliamentary Forum on the Role of Parliaments in the Changing Landscape of Science (Budapest, Hungary: 7-19 November 2011), organized in collaboration with UNESCO with the participation of 700 scholars and scientists from 108 countries of all continents.

- Launching of the African Parliamentary Network on Science and Technology (Addis Ababa, Ethiopia: 2-5 May 2011), organized in collaboration with UNECA and attended by 75 representatives from African countries and other parts of the world.

- Training Workshop on Science, Technology and Innovation (STI) Policy Embracing Structured innovation for Socio-economic transformation (Kuala Lumpur, Malaysia: 13-17 June 2011), organized in collaboration with UNESCO and ISTIC with the participation of 50 scholars from various regions of the world.

- Support for the development of Science and Technology Policy and Programmes (Dakar, Senegal, 18-2 April 2011), for the benefit of policy and decision makers in science.

- Workshop on “Writing projects proposals for securing funding” (N’Djamena, Chad: 7-11 February 2011), with the participation of 20 scientists from science and technology institutes in Member States.

- The Role of Science Parks in National and Regional Development-International Conferences in the S&T Parks (Isfahan, Iran: 22-24 November 2011), for the benefit of science park managers.

Analysis and Evaluation Results

Science and Technology have always remained the primary force behind progress of human civilization. Still, the capacity to create scientific knowledge and underlying vision to adopt research approaches to solve their own challenges and profit from opportunities, determines any nation’s capability towards achieving a real, sound and comprehensive development. The Islamic Educational, Scientific and Cultural Organization (ISESCO), in line with its charter, and following the Strategy for Science, Technology and Innovation in Islamic Countries, which was approved by the Islamic Summit, places
greater emphasis on the promotion of scientific developments and the strengthening of capacities in technological innovation. The new era presents challenges and opportunities of unseen scale for Member States. Growing complexity of grand challenges including climate change, food shortages, energy deficiency, drinking water scarcity, natural and technological disasters, and political instability, require science and technology to play its due role. As such, ISESCO, during recent years, has enhanced efforts towards more intensive application of science and technology. During 2011, a much stronger science Action plan was implemented by ISESCO.

The Division of Science and Research Development Policies of the Science Directorate, under this axis, accords attention to resonating efficacy of new scientific advances and encouraging Member States to take modernized and innovative scientific decisions to gear scientific development towards socio-economic progress. Higher authorities as well as policy and decision makers are involved in collective actions to impart confidence and establish faith in scientific development and are exposed to the right techniques and tools to enable them to gear their scientific progress towards socio-economic progress. The World Science Forum, held in Budapest, Hungary, is one of such forums which bring together most influential scientific personalities from around the world. ISESCO collaboration with UNESCO for this Forum is spread over a decade. The 2011 World Science Forum approved the Declaration “On a New Era of Global Science” which required the world’s scientific establishments to assume a new role. The Forum in 2011, which was attended by more than 700 scholars and scientists from 108 countries of all continents, covered most important topics of science and innovation policy from climate change to the problems of science funding in changing world economy. The international experts from academic communities, scientific institutions, governments, international organizations, parliaments, national policy making bodies and also international scientific and political press expressed their apprehensions and recommended various ways to utilize science in addressing challenges being faced by the international community.

In the Parliamentary Forum on the Role of Parliaments in the Changing Landscape of Science, organized jointly by ISESCO, UNECA and UNESCO, ministers and their representatives recognized that efforts to strengthen and articulate responsibilities for science and technology policy at the governmental level need to be pursued vigorously. The round table helped to determine ways and to enhance at a very high level alignment and mutual commitment among major national stakeholders to collaborate towards innovation in the economy, the public sector and society at large in pursuing advances in knowledge and applying the results of research they commit to adhere to all the principles of ethics and responsibility that belong to the common heritage of mankind and to turn science, technology and innovation into major drivers of sustainability. Another major achievement in line with this objective was the launching of the “African Inter-Parliamentary Network on Science, Technology and Innovation” in the African Parliamentary Forum, in collaboration with the United Nations Economic Commission for Africa (UNECA), UNESCO and other partners. The major aim was to strengthen new forms of STI governance through cooperation and dialogue among parliamentarians, policy-makers, the scientific community, industry and the representatives of media, civil society and the private sector. The Forum brought together more than 70 participants including Speakers and Deputy-Speakers, members and staff of African Parliaments, scientists, media pro-
fessionals, government officials, civil society from 21 African countries and representatives of regional and international organizations.

Through this Forum global science, technology and innovation trends in relation to opportunities, challenges and trends for African Development were presented with reference to the role of parliament. Detailed discussion helped to build a participatory approach in STI within parliament. Emphasis was given to promoting enabling environment and appropriate financing mechanism for STI development. Experiences from various parliaments of African countries like Morocco, the Gambia, Botswana, Nigeria, Senegal, Ghana, Kenya, Tanzania as well as regional parliaments like of East Africa, SADC Parliamentary Forum, West Africa, ISESCO and UNESCO were brought forward to present the trends in Africa. The Forum examined the Charter of the Parliamentary Forum and the Steering Committee was established.

ISESCO strives to update and invigorate science policies to enable Member States to set up necessary infrastructure and systems for achieving realistic progress in implementation of scientific plans and projects. The Workshop on STI Policy-Embracing Structured Innovation for Socio-Economic Transformation supplemented ISESCO’s efforts in acquisition of new knowledge and skills on science policy implementation especially using research knowledge for promotion of innovation in industry in Member States. Participants from various government departments, research institutions, industries and universities benefited from the workshop which covered an important range of topics including science, technology and innovation policy planning, development, coordination and implementation, best practices in STI systems, practical applications of STI implementation, commercialization of research output, research and innovation processes, bridging industry, government and academic strategic technological mapping, SME’s promotion systems, SME’s case studies and certifications etc.

During 2011, the national workshop on developing the national strategy on biotechnology and bio-safety in Senegal, assessed the national situation of biotechnology and Bio-safety and made a diagnosis of the situation. It also proposed ways to strengthen and promote biotechnology and its applications. The workshop highlighted the constraints and presented appropriate solutions for the benefit of economic and country development. It was recommended to begin the process of accreditation of some laboratories including capacity building in human resources and infrastructure and development of synergies between all national structures based on the comparative advantages of different actors.

In order to strengthen the National System of Innovation, ISESCO pays a lot of attention to strengthening the role of science parks in promotion of science and technology. The International Conference on the Role of Science Parks in National and Regional Development helped to highlight the importance of science and technology parks as economic and technological development complexes in encouraging indigenous knowledge and technologies. Various successful models were offered to participants representing government departments, scientific policy institutions and representatives of private sectors. It was projected that such parks are the perfect breeding ground of businesses and institutions of the global knowledge economy. They also promote economic development and competitiveness of regions and cities by offering business opportunities and added value to mature companies, and fostering entrepreneurship. The Conference helped to foster regional cooperation among science park managers.
ISESCO also continued to develop skills and imparted training to researchers, scientists and administrators on the writing of research proposals so as to benefit from the opportunities existing at the international level. The workshop in N’Djamena identified the constraints of partnership in scientific research, presented ways to harmonize methodological approaches that can improve the quality of pilot projects to facilitate access to credit and funding. The workshop explained the mechanisms for funding research and the basic principles for developing a bankable research project. The skills developed during the workshop would help researchers and scientists secure the necessary funding for viable projects from other sources.

3.1.2
Strengthening Scientific Infrastructure
Activities implemented by ISESCO:

• Regional Seminar on Improving Capacities of Research Policies and Identification of Marketable Science and Technology Research Areas (Jakarta, Indonesia: 10-13 October, 2011), organized in collaboration with WAITRO and attended by 60 researchers from different institutions and universities in the region.

• Participation in the Third Islamic Conference of the Ministers of Health (Astana, Kazakhstan: 28 September-1 October 2011), organized in cooperation with OIC for the benefit of health institutions in Member States, with the participation of Ministers of Health in Member States.

• 6th Meeting of the OIC Task Force for Vision 1441H on Science and Technology (Islamabad, Pakistan: 10 January 2011), organized in collaboration with COMSTECH, OIC, IDB and SESRIC.

• Brain Storming Session on “Developing Policy Guidelines for Proper Coordination of S&T Programmes in OIC Institutions” (Islamabad, Pakistan: 10 January 2011), organized in collaboration with OIC, IDB, COMSTECH and SESRIC.

• 14th General Assembly Meeting of COMSTECH (Islamabad, Pakistan: 11-13 January 2011), organized in collaboration with OIC, IDB, COMSTECH and SESRIC.

• Meeting to Select 10 Outstanding Centres of Excellence in the OIC Member States to Upgrade them to World Class Institutions (Islamabad, Pakistan: 14 January 2011), organized in collaboration with OIC, IDB, COMSTECH and SESRIC.

• Third Meeting of the Steering Committee of the Islamic Conference of Health Ministers (Jeddah, Kingdom of Saudi Arabia: 22-23 January 2011), organized in collaboration with OIC.

• The 3rd International Congress of Medical Law with special focus on Patient’s Rights (Kish Island, Iran: 22-24 February 2011), organized in collaboration with World Health Organization (WHO), UNESCO, the Organization of Forensic Medicine and the Iranian Ministry of Health and Medical Education, with the participation of a large number of medical students and doctors.

• Conference for Pakistan-U.S. Science and Technology Cooperation Programme (Dubai, United Arab Emirates: 23-24
March 2011), attended by a large number of scientists.

- Workshop on Biological Research Capacity to Address Societal Needs in the Middle East, Afghanistan and Pakistan and North Africa (State of Kuwait: 13-17 March 2011, for the benefit of biology researchers.

- Participation in the inauguration ceremony of the Islamic Citation Centre Headquarters (Shiraz, Iran: 3 April 2011), organized in collaboration with ISC.

- International Symposium on “Finance in the Service of Economic Development” (El Jadida: Kingdom of Morocco: 5 May 2011), organized in collaboration with Chouaib Doukkali University, with the participation of economy university students and scholars.

- Governing Board Meeting of the International Science, Technology and Innovation Centre for South-South Coopération (ISTIC) (Kuala Lumpur, Malaysia: 13 June 2011), organized in collaboration with ISTIC, with the participation of national and international scientists.

- Second Meeting of Advisory Expert Panel for OIC Water Vision (Astana, Kazakhstan: 13-14 July 2011), organized in collaboration with OIC, IDB, COMSTECH and SESRIC.

- Participation in the Joint Management Team of the Atlas of Islamic World Science and Innovation (Istanbul, Turkey: 11-12 June 2011), organized in collaboration with OIC, IDB, COMSTECH and SESRIC.

- 7th Pan-African Forum on the modernization of the public services and the institutions of the State (Rabat, Kingdom of Morocco: 27-28 June 2011), organized in collaboration with CAFRAD.

- Meeting of Experts on the mobility of workers in the Maghreb (Rabat, Kingdom of Morocco: 14-16 September 2011), organized in collaboration with UNECA.

- Workshop of restitution of work of the project: Cold oases and Agdals-Amellago: World Agricultural Heritage (GIAHS) (Rabat, Kingdom of Morocco: 14-16 September 2011), organized in collaboration with FAO.

Analysis and Evaluation Results

Since its inception in 1982, ISESCO, as a specialized institution of the Islamic world, has placed at the core of its objectives the indigenization of knowledge in Member States, the edification of the scientific society, the development of capacities in the field of science, technology and innovation through promotion of universities, centers of excellence in research and development as well as the strengthening of industrial sectors. To achieve the objectives of its Strategy for Science, Technology and Innovation in the Islamic World, which was revised at the 4th Islamic Conference of Ministers of Higher Education and Scientific Research (Baku, 2008), ISESCO has been putting more emphasis on highlighting the role of science and technology in the economic development, to orient the youth in Member States towards scientific professions and activities and qualify them for the job market through high quality training programmes, and to show government authorities and decision-makers the ways in which science can best meet the expectations and needs of the society.

During 2011, under this axis, the Division of Science and Research Development Policies implemented programmes to influence the operations of Research and Technological
Organizations (RTOs) and to further promote cooperation to make the operations more effective in achievement of results. The Regional Seminar on Improving Capacities of Research Policies and Identification of Marketable Science and Technology assisted the RTOs to develop appropriate mechanisms to allow them to stay ahead in competition in the fast-changing and ever-expanding business environment. Accurate models were presented to improve their capacity to manage the development of science and technology, improve innovation in research activity and continuously search profit from research output, technology and innovation to sustain their business operations. The workshop stressed that RTOs should reformulate their corporate strategies and develop new business models to capture and sustain their research operations. RTOs were recommended to raise their standard of profitability, efficiency, productivity and quality to enhance their competitiveness. Attention was given to developing and enhancing the skills of senior managers of RTOs, knowledge and expertise in order to enable them to deliver the value to the market. Panel discussions, case studies, lectures and visits to Research Centers were included in the Seminar to improve capacity in providing value to their organizations towards competitive advantage.

ISESCO works to foster cooperation and collaboration among Member States as well as at the global level through partnership with regional and international organizations for global enhancement of science and technology. Under this axis, ISESCO took active part in a number of scientific events of prime importance to synergize efforts in achievement of common objectives. In this regard, ISESCO actively participated in the Third Islamic Conference of the Health Ministers Steering Committee and presented its efforts to address health challenges in Member States. The Conference adopted a number of important resolutions covering a broad range of health-related issues, including Polio eradication, HIV/AIDS, tuberculosis and malaria control and vaccination and vaccine production and improving maternal and child health in OIC Member States. The Conference urged OIC Member States to assess the existing national public health system and develop, strengthen and maintain the core country capacities required under the international health regulations (2005) through the mobilization of both domestic and external resources and expertise. The Conference, in the light of ISESCO’s proposal for establishment of Islamic Health Organization, emphasized the necessity of establishing a body within the OIC responsible for monitoring programmes coping with public health challenges facing the Islamic Ummah.

During the 14th General Assembly Meeting of COMSTECH, which brought together Minister of Science and Technology from the Islamic world, ISESCO presented the report on the progress achieved in the field of science and technology and highlighted issues of prime importance for the Islamic world. Presence of OIC and other Islamic organizations provided an opportunity to hold side meetings. The 6th Meeting of the OIC Task Force for Vision 1441H on Science and Technology reviewed the progress and took important decisions for implementation. A Brain Storming Session on “Developing Policy Guidelines for Proper Coordination of S&T Programmes in OIC Institutions” was also held. During the Meeting to Select 10 Outstanding Centres of Excellence in OIC Member States to Upgrade them to World Class Institutions, the committee recommended five centres of Excellence for support in the near future.
ISESCO participated in the Health Steering Committee and took active part in finalization of preparation for the upcoming Ministerial Conference. The Committee reviewed the draft Strategic Health Programme of Action of OIC Member States for 2012-2022. The Committee after hectic discussions prepared the Terms of Reference for the preparation of the Strategic Health Programme. The Meeting also reviewed the status of implementation of the resolutions of the previous two Islamic Conferences of Health Ministers and discussed new health issues facing the Islamic world.

ISESCO also took part in the inauguration of the 13-stroey new building of the Islamic Citation Centre, which was established in the light of Resolution of the 9th General Conference held in Rabat, in 2007. ISC continued to collect and process Arabic and Persian languages scientific journals to citation analysis in order to allow them to be included in international citation processes. To map trends of science, technology and innovation, ISESCO participated in the Joint Management Meetings of the collaborate project “Atlas of Islamic World Innovation” which supports and conducts landmark studies to explore relationship between science, technology, innovation, faith, culture and politics. These studies make scientific development process more visible for decision makers as well as government sector, allowing them to take effective measures for the promotion of science, technology and innovation in Member States.

As for fostering scientific cooperation, ISESCO participated in the Governing Board Meeting of the ISTIC which was established through ISESCO and UNESCO joint efforts, encouraging the Centre in the implementation of an effective agenda. Through participation in the International symposium on “Finance in the Service of Economic Development” ISESCO presented a brief on social exclusion and role of microfinance in economic development. The symposium projected the role of innovative finance. Within the framework of the engagement of ISESCO to the values of good governance, particularly in the current context of economic and social crisis in Arab countries, the forum organized by the CAFRAD, UNDP and others helped to reflect on the problems of good governance in Africa and particularly on the corruption plague through various mechanisms for reinforcing transparency. The meeting of experts on the mobility of workers in the Maghreb organized by the UNECA highlighted the challenges of mobility of workers, and discussed various challenges especially in the legal and institutional fields. ISESCO stressed on the diffusion of knowledge and mobilization of process.

ISESCO also fostered its cooperation with FAO and took part in the workshop on restitution of work of the project “World Agricultural Heritage (SIPAM/GIAHS)” towards the promotion of the conservation, the management and the sustainable exploitation of its Member States’ natural resources. This workshop aimed to sensitize the importance of the agro cultural knowledge and to set up pilot actions in order to develop the conservation farming systems of the clever systems of the World Agricultural Heritage, particularly with Morocco, country occupying the 2nd rank among Mediterranean countries for its wealth of biodiversity.
Drivers of Industrial and Economic Development

Activities implemented by ISESCO:
• Sub-regional Workshop of Experts on the economy of the knowledge and Employment: the role of the technopolis in economic development (Hammamet, Tunisia: 26-28 September 2011), with the participation of a large number of economy experts from Member States.

Analysis and Evaluation Results
Innovation in the industrial sector is mostly dependent upon technological innovations which are achieved through scientific research. This requires a strong bond between universities and industries based on mutual benefit. All Member States, notwithstanding the level of their development, need to develop their industrial and technological base, through strong partnership in conducting research and creating new knowledge. The Division of Science and Research Development Policies always promoted stronger links between science, technology and innovation, and economic development. Under the University-Industry Science Partnership Programme efforts were exerted to promote innovation through supporting the development of high-tech clusters, science parks and technology business incubators as availability of these platforms could assist Member States in their effort to promote science and technology innovation and the commercialization of R&D, science and engineering education as well as continued professional training.

During 2001, the Division of Science and Research Development Policies adopted a comprehensive approach. The Workshop of Regional Experts on knowledge Economy and Employment: the role of the Technological Parks in Economic Development, proved highly beneficial in projecting the need of creation of knowledge based economy through promotion of the industrial sector, especially through creation of science parks and technology business incubators. The Workshop discussed in length the role of creation of science and technology parks in promotion of knowledge economies and employment opportunities. This workshop brought together specialists from the Mediterranean region and Europe to discuss scientific and technological parks, creation of specialized companies in information technology, and the development of the sectors with high added value and creators of employment.

The workshop benefited the chairmen, managers, and directors of the Tunisian technological parks and incubators, who discussed national actions with respect to regional approaches. The workshop included visits of science and technological parks to give practical examples and discussion focused on existing university-industry partnerships. The Workshop visits made best impact on the various technological parks as high quality expertise was highly beneficial for improving the performances of technological parks. The participants highly recommended the establishment of an African network of the technological parks in 2012.
Field of Action 3.2
TECHNOLOGICAL DEVELOPMENT

3.2.1
Technological Development
Infrastructure

Activities implemented by ISESCO:
- Workshop on Technology Foresight (Abuja, Nigeria: 23-25 February 2011, with the participation of 178 engineers, researchers, planners and managers.
- Award of prizes and medals to talented science students in cooperation with the 24th Khawarizmi International Awards (Tehran, Iran: 5 February 2011), organized jointly with IROST for young researchers in the field of science & technology.
- Regional Training Workshop on Technology Transfer and Climate Financing (Beirut, Lebanon: 27-30 September 2011), organized in collaboration with UNEP/ROWA and the Ministry of Environment in Lebanon.

Analysis and Evaluation Results

New Technologies are tools to progress. The capacity to absorb, adapt and develop new technologies is indeed an indicator of the economic progress of a country. Under this axis, the Division of Engineering and Technology of the Science Directorate concentrated on developing indigenous technologies and efficient absorption of imported technology in line with priorities and resources so as to allow Member States to attain technological competence and self-reliance, and to reduce vulnerability, particularly in strategic and critical areas, making the maximum use of indigenous resources. The Division exerts efforts towards strengthening the necessary components of technological innovation infrastructure through assisting in technology policies to enable Member States to pursue an environmentally sustainable technology policy and utilize technologies and trades for commercial and economic benefits.

Through the Regional Workshop on Technology Foresight with the theme "Integrating Technology Foresight for Sustainable Development" in Nigeria, ISESCO brought together industrialists, academics, policy makers, commentators and others concerned with the future of science, technology and innovation, and facilitated communication to enable them to coordinate their R&D plans, and make adjustments in the light of their competition and future predictions. The Workshop assisted higher educational institutions in upgrading the skills of their staff through re-orienting their programmes to ensure that they meet the needs of emerging technologies. The workshop helped the participants to develop con-
sensus on research priorities, create a shared vision of the future they would like to achieve and also outlined future methods of technology communication, transfer and promotion in line with global standards. The workshop stressed that Foresight is a key to resuscitate industries and a tool to promote industrialization. The Workshop explained that existence of various organizations and their efforts on technology foresight and future innovation is a necessity and described the usefulness of the technology foresight process in constructing and shaping the desired future of a given society and its several approaches that should be used in proper combination. The workshop attracted 110 participants representing stakeholders and organizers from the country and beyond. The workshop achieved its results as the participants came up with major resolutions which stressed that Nigeria should adopt technology foresight to guide its sectoral and national development efforts.

During the reported period, the Division of Engineering and Technology continued its support for young researchers and technologists through awards and prizes. The Festival of the Khawarizmi International Award, named after Khawarizmi, one of the most distinguished Islamic and Persian mathematicians in the world is hosted each year and always inaugurated by the highest office in Iran, as well as various government authorities, scientific community, representatives of international organizations and the media. During the 24th Khawarizmi International Award, ISESCO awarded three prizes and medals to talented young scientists as previous years. This Award is a genuine recognition of the efforts of researchers, innovators and inventors and is a token of appreciation for their achievements and contributions in the realms of engineering, basic and social sciences, agriculture and arts. Indeed, ISESCO contributes to such awards to encourage young researchers to orient their career to innovation in technologies, so as to provide the countries with new inputs for industrial and technology development.

The Regional Training Workshop on “Technology Transfer and Climate Financing”, which focused on the phase-out of inefficient lighting in the Arab region, shared with government officials and stakeholders the potential of efficient lighting in terms of energy, financial and CO2 savings and engaged in discussions on how to best promote the phase out of inefficient lighting in the Arab region as well as globally. Against this backdrop, preparation of a Regional Report on Efficient Lighting in the Arab Region is envisaged in order to present accurate information on the current status of efficient lighting in the region, and propose transition plans and the possible outcomes of transition. The Report draws heavily on data and information published by governments, the private sector, international organizations and researchers. A very short questionnaire was especially designed and distributed to concerned experts/institutions in different countries. It was envisaged that the current gap in data would be filled during the meeting. Based on data available, the report recommended policy interventions to remove some barriers and catalyze market transformation. It also recommended to promote adequate education, institutionalization and legislation allowing a full transition to more efficient lighting and also to encourage local manufacturing of efficient lighting technology.
Critical Technologies for Self Reliance

Activities implemented by ISESCO:

- Seminar on "Welding Industry, Cooperation Horizons and its Role in Development of Entrepreneurship" (Tehran, Iran: 18-19 December 2011), organized in collaboration with SANAT SAMAN COMPANY (SANSA) and the Institutes of Standards & Industrial Research of Iran (ISRI), and with the participation of 528 young entrepreneurs, agents and experts of this industry in Islamic countries.

- Supporting Agro Pilot Project for enhancing agro-productivity-awareness raising among the farmers community for the development of the cultivated area in the village of Hanly (Djibouti: September 2011), for the benefit of the farmers community.

- Project on the development and expansion of a farm in the village of Dai (Djibouti: October 2011), for the benefit of Farmers Community.

- Supporting Agro Pilot Project for Enhancing Agro-Productivity- BASSA Farmers Association (Sierra Leone: September 2011), for the benefit of Farmers Community.

- Supporting Agro Pilot Project for enhancing agro-productivity- Falaha Village Community Association (Sierra Leone: September 2011), for the benefit of Farmers Community.

- Training Workshop for Capacity Building in the Field of Agriculture and Modern Technology in Irrigation (Kabul, Afghanistan: 17-20 May 2011), organized in collaboration with Afghanistan Ministry of Agriculture, Irrigation and Livestock, and with the participation of concerned agriculture sector from 16 provinces from all over Afghanistan.

- International Conference on Nanotechnology and Fourth Meeting of ISESCO Expert Panel on Nanotechnology (Dubai, United Arab Emirates: 28-30 November 2011), organized in collaboration with COMSATS, and with the participation of Nanotech Institutions from Member States.

- International Conference on Nano-materials and Nano-ethics (Lahore, Pakistan: 30 November-2 December 2011), organized jointly with COMSATS, and with the participation of Nanotech experts from various regions of the world.

Analysis and Evaluation Results

The Division of Engineering and Technology, under this axis, undertook to promote indigenous technologies and technologies of critical importance. These technologies include all cross cutting emerging technologies which are of critical importance to Member States. Since agriculture is the mainstay of the majority of Member States, special emphasis was placed on the implementation of agricultural projects directed towards improving agricultural productivity. Special attention was devoted to the support of such projects which enabled the farming communities to increase their profits and improve their living standards. Major attention was given to the promotion of nanotechnologies in Islamic countries.

At the present time, the welding industry is an imperative branch of industry used for
manufacturing of various industrial projects. More than 50% of activities of many of industries in various projects are related to welding industry. In order to introduce, justify and defend the need of promotion of welding industry, ISESCO in collaboration with Sanat Saman Company & Institute of Standards & Industrial Research of Iran (ISIRI) implemented the Seminar focused on the welding industry, cooperation horizons and its role in development of entrepreneurship for the agents and experts of this industry in Islamic countries. The role of welding industry was examined in oil, gas & chemical industry, construction industry & safeties, and defensive industries. Entrepreneurship and technical and vocational training in welding industry were also emphasized. The seminar also focused on the increasing needs of Islamic countries in this industry, the critical status in Islamic countries due to their special geographical and economic situations and the wonderful potential of this technology in creating job opportunities. The Seminar presented the losses caused by lack of integrated standard system, its exclusive ownership within the power of developed countries, the exit process of national capital through this technology, and lack of a specific body in charge of this industry which caused the existing gaps in welding industry to increase remarkably.

ISESCO exerts efforts to promote new technologies and practices in agriculture to enhance production capacities and enable needy Member States to meet their food and fiber requirements. A number of small scale projects on animal farming and agro-forestry were supported by ISESCO in 2010. During 2011 ISESCO supported agro pilot projects in Sierra Leone and Somalia for enhancing agro-productivity.

ISESCO has also devoted special attention to the needs of conflict-affected countries. The Training Workshop was an activity in a series of capacity-building programmes that ISESCO had been supporting towards rehabilitation of agriculture sector in Afghanistan. The main objectives of the workshop were to assess key on-farm water management constraints of irrigation systems in Afghanistan with reference to major cropping systems and to demonstrate a model of water management suitable to Afghanistan's climate conditions. The workshop also addressed the vast development of wastewater treatment technologies that increase the potential of transforming wastewater from being a threat to health and the environment to a source of water to enhance water budgets in agriculture sector. Using reclaimed wastewater in agriculture was also outlined as an approach to preserve freshwater for drinking purposes and other critical developmental needs. Participants from 16 provinces from all over Afghanistan benefited from the training courses.

ISESCO stepped up efforts to promote nanotechnology in the light of the Strategy and Implementation Mechanisms approved by ICMHESR-5. During the International Conference on Nanotechnology and Fourth Meeting of ISESCO Expert Panel on Nanoeconomics held in UAE, the deliberations revolved around emerging research that focuses on the applications of Micro and Nano technologies. The Conference discussed venture investment that takes the results from the laboratory to the product and universities and research agencies that foster the development of feasibility studies at its institutions. The Conference provided the opportunity for academics, researchers, scientists, engineers, policy makers and implementers, to assess Nano and Micro technologies for emerging applications and their prospects in the region, share research results, discuss new technologies, collaborative research and business developments, and showcase start-up ventures.
Another event organized by ISESCO towards achievement of the objectives was the International Conference on “Nano-materials and Nano-ethics” held in Lahore, Pakistan. This Conference focused on the following themes: Nano-materials for energy and water applications; Nano-materials for environmental remediation; Nano-sensors for the environment; fate and transport of Nano-materials in the environment; Nano-ethics/scientific ethics; environmental ethics; nano risk framework. This Conference provided an avenue to gather researchers to discuss recent discoveries and their industrial applications as more than 200 participants including academic and research institutions, international, non-governmental, and inter-governmental organizations, businesses and industry sector attended the meeting. The Conference brought together experts, researchers, academics, environmentalists, and representatives from several related local and regional organizations, to discuss the current status, unmet ethical needs, challenges, and opportunities in the field of nanotechnology from ethical and social perspectives. The Conference enhanced experience and knowledge sharing among the scientists from US, Europe, Pakistan and other Asian countries, while exploring the scientific aspects of nanotechnology that are pertinent to the environment, and the concepts of ethics in general and environmental ethics in particular, with regard to nanotechnology. The participants discussed the Nanomaterials based strategies that can be developed for the betterment of the environment and identified the methodologies to implement technological and ethical practices for the promotion of environmental nanotechnology.

ISESCO, in order to promote nanotechnologies, also gives special attention to awareness raising campaigns. In this regard, ISESCO published three booklets in its three working languages entitled: "Nanotechnology and how it will affect the world". This booklet emphasizes the application of nanotechnology in various scientific areas including industry of the electric household appliances, production and the storage of energy, data processing, transport, communication, medicine and health. The booklet also gives indications on the developments of nanotechnology in the future and its impact on the life of people.

### 3.2.3

**Capacity Building in Biotechnologies**

**Activities implemented by ISESCO:**
- Regional Seminar on "New Trends in Biotechnology Research and their Potential in Developing Countries" (Brunei Darussalam: 29 November-1 December 2011), organized in collaboration with the University Brunei Darussalam, and with the participation of 15 researchers from Biotech-Institutes in Brunei Darussalam, Bangladesh and Pakistan.
- Bio-safety and Bio-security International Conference: Healthier and more secure Communities in the MENA Region (Sharjah, United Arab Emirates: 21-22 November 2011), organized jointly with COMSTEC, and attended by experts from Member States.
- International Training Workshop on Bioinformatics for Young Biotechnologists (Lahore, Pakistan: 9-11 December 2011), organized jointly with A-IMBN Forman Christian University, Lahore, Pakistan, and attended by bio-technologists and researchers from Member States.
Analysis and Evaluation Results

The impact of biotechnology on various fields like health, food/agriculture and environmental protection has been enhanced in recent years due to revolution in biology. Techniques have been developed to produce rare and medicinally valuable molecules, to change hereditary traits of plants and animals, to diagnose diseases and cure them either through biotechnologically derived proteins and polypeptides forming a new class of potential drugs, or through immunodiagnostically designed vaccines and also to clean up the environment, produce safer foods and bioprocess of new products by biocatalysts. Approved products in the pipeline and renewed public confidence make it one of the most promising areas of economic growth in the near future. The Division of Engineering and Technology created International Biotechnology Advisory Committee (IBAC) consisting of senior biotechnologists and scholars to coordinate with the national biotechnology commissions and committees of Member States to recommend best strategies, approaches and methodologies to promote biotechnology in Member States. Various seminars, meetings, symposiums organized by ISESCO, either on its own or jointly with other international organizations, benefited biotechnologists through exchange of experiences and knowledge on new scientific and technological breakthroughs.

The Regional Seminar on “New Trends in Biotechnology Research and their Potential in Developing Countries” discussed new trends and technologies in the field of biotechnology. A total of 15 participants from Asian Member States benefited from the Seminar. During the 3-day working session the experts and participants conducted various commendable presentations and rich discussions. At the end of the Seminar the participants agreed to enhance collaboration with each other, and recommended sharing of ideas, facilitate each other’s open doors for research facilities, and start preparing joint projects in biotechnology, encourage the government to fund biotechnology research, introduce biotechnology in their undergraduate and postgraduate courses. The Seminar called on ISESCO to organize more seminars frequently and raise more awareness of biotechnology in Islamic countries and promote biotechnology among scientists and students of developing/Islamic countries.

With the advancement of technologies and expansion of research activities, bio-security and bio-safety threat has emerged as more daunting than ever in the past. Since most Member States lack effective bio-security and bio-safety policies and guidelines, and are more prone to both natural and man-made biological security threats and disasters, ISESCO pays attention to promote commitment to threat surveillance, prevention, diagnosis and mitigation for ensuring security of the people in Member States. It is necessary to improve awareness of Member States and develop skills and in-depth knowledge of the various processes, regulations, guidance, legal requirements and methods of monitoring to protect humans from the hazardous effects of biological products. The Third International Conference of Bio-safety and Bio-security in Sharjah helped to raise awareness about precautionary measures to protect and safeguard people from any natural or man-made bio-disasters, which uncontrolled scientific research may create due to negligence or mismanagement. The conference discussed various regional biosecurity and bio-safety policies and guidelines, shared experiences and examined suggestions for enhancing coordination in fortifying regional policies for mutual benefit. The conference benefited from ISESCO’s previous efforts and bio-safety and bio-security guidelines prepared earlier to ensure
more security from any mishaps or disasters in the future, or to cope in a better manner. Another area of focus in 2011 was Bioinformatics, applications of computer science and information technology in biology, as it is expected to play enormous role in the understanding of biological processes and innovative biotechnologies. For Member States, bioinformatics are found more extremely helpful in health and agriculture sectors. Unfortunately, in most of the Islamic countries, biotechnologists in the area of bioinformatics are either non-existing or existing with limited number to take up challenges posed up by the new developments in biological genomics. In order to enable biotechnologists to improve their performances in health concern, fight diseases and improve crop productivity, the International Training Workshop on Bioinformatics for young biotechnologists, which was held in Lahore, Pakistan, helped to impart required knowledge and develop necessary skills and to enable them to benefit from the use of bioinformatics. ISESCO also planned under this training workshop to provide young biotechnologists in the Islamic world with hand-on intensive training on how to use global available sequencing database and how to manipulate genomic data via bioinformatics. The training provided the participants from various Member States with suitable knowledge to work with the most important bioinformatics steps. The training workshop was designed meticulously to include basic bioinformatics and establishment of a gene bank to the Next Generation DNA sequencing stations. The training workshop efficiently covered the bioinformatics analysis of the molecular construction through advanced Vector NTi software. The Training Workshop enabled the participants to get hand-on training on using bioinformatics resource portal such as Ex PASy and NCBI gene bank. Participants learned the protein structure with structural bioinformatics tools. The expertise developed on the human genome sequencing with high speed technology will enable the participating biotechnologists to apply what they have learned into the current running sequencing projects in their own countries and institutes. The training workshop gave special focus on genome mapping and analysis.
Knowledge Based Scientific Development

Activities implemented by ISESCO:

- Olympiad of Mathematics for Young Girls (Tlemcen, Algeria: 26-28 December 2011), organized in collaboration with University of Abou Bakr Belkaid, and attended by mathematics student girls from Member States.

- Young Men and Women Camping for Excellence in Science for the Arab Region (Amman, Jordan: 3-10 July 2011), implemented jointly with UNESCO, and attended by youth students.

- Workshop on “Internet Security enhancing safeguard measures for the Member States” (Damascus, Syria: 23-27 July 2011), organized jointly with COMSATS and INIT and attended by 37 participants from Member States.

- Training Course on “Use of Information Technology for small scale farming communities in rural areas” (Islamabad, Pakistan: 13-15 December 2011), organized jointly with COMSTECH for the benefit of related senior officers and trainers to support farmers of rural areas.

- International Seminar on “Empowering Women in Science, Technology and Innovation” (Selangor, Malaysia: 19-21 September 2011), organized jointly with UNESCO and ISTIC, and attended by women scientists from various regions of the world and also by the representatives of various international organizations.

- Revising the Statutes of the Network of Women Scientists in the Islamic countries (ISESCO Headquarters, Rabat: September 2011), for the benefit of women scientists.

- Conference on “Changing Mindsets to Promote Women and Girls in Science” (Washington DC, USA: 13-15 June 2011), organized in collaboration with the State Department OES Bureau in Washington D.C. USA, and attended by a large number of women and girls in scientific fields. A workshop on science journalism was organized alongside this conference.

- Training Workshop in the context of the Seventh World Conference on Science Journalism for Young Science Journalists (Doha, Qatar: 25-27 June 2011), attended by 20 science journalists from Member States.

Analysis and Evaluation Results

Economies of the world are increasingly based on knowledge and information.
Knowledge is now recognized as the driver of productivity and economic growth, leading to a new focus on the role of information, technology and learning in economic performance. Creation of KBEs where knowledge is created, acquired, transmitted and used more effectively by enterprises, organizations, individuals and communities for greater economic and social development, has remained a focus of attention under Science Action Plans. The Division of Scientific and Technological Education exerted considerable efforts, under its previous Three-Year Action Plans, in diverting attention of Member States to various important aspects of such transformation and promoting scientific knowledge base for the general public. It encouraged various agents of scientific knowledge promotion in society to plan an effective role in enhancing general interest of the public in scientific development and to stimulate scientific curiosity through promotion of scientific activities like exhibitions, science museums etc.

The Division of Scientific and Technological Education has always extended support to Excellence Science Camps for Young Girls, which are organized every year. During 2011, ISESCO collaborated with the Olympiads in Mathematics for young girls, which was both an educational tool allowing competitiveness and promoting gender issue by highlighting competence. It also served as a tool of empowerment for girls and an instrument of integration to bring together in one place young girls and teachers, from the region by giving an opportunity for best students from the sub-region to share and increase excellence in mathematics for girls.

The “Camp of Excellence for Girls in Science” organized under the patronage of HRH Sumaya Bint El Hassan in Jordan, helped female students look towards better future, to reduce gender disparities in the field of science and technology in Arab States as well as provided girls with the possibility of embarking upon science careers in their quest for self-dependence and poverty reduction. It was attended by elite female students from high school science specialization from four Arab States. The Camp also improved access of girls to scientific and technological education by providing clear ideas of career opportunities.

In order to advance safeguard measures on internet security of Member States, ISESCO organized the workshop on internet security which taught the principles of information/network security from the perspective of providing security awareness and its best practices for the real world applications. The workshop focused on both the theoretical and practical aspects of information security. The key areas of the workshop included Network Security, Organizational Security, and Cryptographic Techniques for Network Security, Biometric Security and Web Security. The intensive course was intended for professionals working in any field involving cryptography or network security. The participants from different countries developed a thorough understanding of network protocols, models, topologies and related security threats.

Over the past two decades, there has been a remarkable progress in the use of ICT in agriculture, especially in the area of farmers’ access to market information. Farmers Information Services at both the national and regional levels are a promising new field of research and application especially in developing countries in the emerging field of agriculture. The necessity of conducting programmes on using ICT was a timely approach for ISESCO. Keeping in view this background, the Regional Training Course on use of ICT for Small Scale Farmers Communities in Rural Areas which was organized in collaboration with COMSTECH was designed to train senior officers and trainers,
with a view to enabling them to support farmers of rural areas for using agricultural best practices and improving their incomes. Analyses of the outcomes of the course indicated that the participants emphasized the utilization of all kinds of ICT tools to strengthen the livelihoods of small scale farmers of rural areas. National authorities were solicited to provide free of cost agricultural information services to the farmers.

In order to redress gender inequality, the Division of Scientific and Technological Education under this axis devotes special attention to empowering women in science and technology. During 2011, ISESCO contacted Member States to get their opinions and views on the statutes of the Network of Women Scientists in Islamic countries and revised it in the light of their comments and remarks received. The Network was approved at the Fourth Islamic Conference of Ministers of Higher Education and Scientific Research, held in Baku, Republic of Azerbaijan, in October 2008 (Resolution ICMHESR-4/2008/R.2.9).

The International Seminar on Empowering Women in Science, Technology and Innovation was organized in collaboration with UNESCO and ISTIC, to address a range of critically important themes related to gender equality and women empowerment in Member States. The Seminar invited various speakers from Member States to inform on status, particularly their involvement of women in formulation of policies, decision making and national planning process. The seminar stressed the necessity that Member States should implement international standards and norms as well as extend technical and financial support to forge conducive environment for empowering women. Similarly, the Conference on Changing Mindsets to Promote Women and Girls in Science, which was held in USA, examined the role of women in various sectors and recommended a set of measures for promotion of women role in the national development process. The Conference covered different subjects including Empowering Women and Girls to Excel in STEM (science, tech, engineering, math), Impacts of Media Images on Women and Girls, Changing Institutional Frameworks to Advance Women Scientists, and Women and Science: Basis of 21st Century Knowledge Economies, which was held to develop sound ideas for various action to be taken to empower women in scientific professions.

The Division of Scientific and Technological Education also devotes attention to promoting science journalism and encouraging various agents of scientific knowledge promotion in society. It is impossible to achieve popularization of scientific concepts and knowledge and raise understanding of new technological developments unless all available multi-media programmes are utilized in achievement of this goal. The training workshop for young journalists in the context of the Seventh World Conference on Science Journalism for young science journalists was in continuation of ISESCO efforts to strengthen awareness of the general public and youth in Member States. The Workshop discussed the rules of scientific writing and the importance of relying on primary sources, and work plan to write scientific articles. The workshop developed skills on utilization of various multi-media programmes for the promotion of new scientific and technological developments and knowledge in the society; strengthen the role of scientific information display centres through supporting their activities and encouraging scientific events towards promoting popularization of scientific concepts. The training promoted interest of scientific reporting in journalists, scientific reporters and broadcasters in radio and television.
Science Education policies and Human Resource Development

Activities implemented by ISESCO:


• Regional Workshop on introducing new trends in science curricula and teaching material (Dhaka, Bangladesh: 15-17 November 2011), organized jointly with UNESCO, and attended by 26 chemists and researchers.

• National Training Course on “Micro Science Experience on Organic Chemistry” in 4 countries, (Khartoum Sudan: 24-27 October 2011), organized jointly with UNESCO and attended by Science Laboratories Teaching Staff from the Member States.

Analysis and Evaluation Results

The new understanding of the concept of science as a humanistic activity in which people can form and shape their knowledge based on their ideas in connection with related situations, objects, and evidences in the space of their previous knowledge and experiences is apparently different from the traditional definition which emphasized on receiving facts and concepts. Accordingly, the meaning of science education has been transformed from learning which is just looking for scientific facts and concepts in an abstract environment, to the kind of science learning which includes scientific skills, attitudes and moral issues. ISESCO believes that the outside-school learning domains needs to be strengthened and the inside-school science and education curriculum has to be designed according to different trends and requirements of the society. On the other hand, science and technology education should be based on creativity and innovation, entrepreneurship, empirical evidence and emphasis on new technologies. The Division of Scientific and Technological Education, therefore, has always focused greater attention on implementing major programmes with adequate planning in order to strengthen science education infrastructure in Member States.

The National Seminar which was organized by ISESCO in collaboration with the Guinean National Commission for UNESCO sought to improve and update the new trends in science education and strengthen the human resources of research institutions and the creation of scientific and technical staff that can provide training and quality education in all relevant scientific and technical disciplines. The goal of the seminar was to share the skills and knowledge necessary for successful integration of best practices in education for required needs in national economy and industry. Additionally, the desired outcome was to enable other sectors as private and industrial actors to gain knowledge and skills.

Learning and teaching methods, curricula and assessment are all highly influential in the formation of student attitudes towards science, as is the quality of the teaching that they experience. Therefore, ISESCO in 2011 emphasized on promoting knowledge and introducing new concepts in science education for students at primary and secondary levels in a three-day Regional Workshop on Introducing New Trends in Science Curricula and Teaching Materials in Bangladesh.
which was attended by 27 science teachers and curriculum developers from the Maldives, Iran and Bangladesh. The workshop recommended developing curricula in such a way that learners are encouraged to follow activity-based and participatory way in the class rooms. Basic concepts of science and mathematics should be introduced and included in the curricula from the pre-primary level (Kindergarten and nursery) through introduction of nature, its surroundings and their relationship with everyday life. This workshop focused on developing an enthusiastic mind and attracting more children towards science. It recommended that integrated science curricula (general science) could be designed from class I to class VIII; the science textbooks should include topics with suitable illustrations that would fascinate the minds of the young. Stories and discoveries could be included to make it more interesting and e-learning and IT based teaching need to be gradually included into all schools and colleges- to make it more attractive and cost effective. It was also stressed that computer facilities with internet facilities must be provided to all educational institutions.

The Division of Scientific and Technological Education also runs the global Micro-science Experiment Project, a hands-on science education project that gives primary and secondary school students the opportunity to conduct practical work in physics, chemistry and biology, using kits that come with booklets describing possible scientific experiments. The main objectives of the Project are to promote practical science experimentation and capacity building for science education, to improve science curricula by inclusion of hands-on experimentation for a better understanding of science and to increase the interest of young people in science so as to promote gender equality, scientific literacy and the choice of scientific careers. Micro-science experience plays an important role and is recommended as a complement to the conventional apparatus used in schools.

During 2011, workshops were conducted to provide an opportunity to the participants to explore a new concept of practical biology and chemistry experience. Participants gained new ideas on the teaching and learning of sciences, with special focus on chemistry and biology. The kits were designed and standardized by renowned scientific and research institutions and examined to be practical at various geographical settings facilitating the sophisticated biological and biochemical experiments without laboratory space and equipments. The Micro science kits were delivered and in the workshop plenary lectures were followed by extensive discussion and practices. The Workshop on Micro-Science experiments in Khartoum was organized in cooperation with UNESCO in order to adopt the micro-science methodology into Sudanese curricula. The Sudan developed their own specific Sudanese kits for their schools. The Workshop benefited 40 local participants including secondary teachers, curriculum planners, representative of different ministries and other national stakeholders.
Integrating ICTs in Science Education

Activities implemented by ISESCO:

• Symposium on “Sub-regional Partnerships for the utilization of ICT Technologies and Tools for Science Education” (Cairo, Egypt: 24-26 November 2011), organized jointly with UNESCO, and attended by 34 participants from educational institutes in Member States.

• National Workshop on “New Electronic Delivery Methods in Science Education” (Yaoundé, Cameroon: 21-23 March 2011), attended by science teachers from Member States.

• Preparation of Virtual Science Education Programmes in areas of critical importance (ISESCO Headquarters, Rabat: September 2011), for the benefit of educational institutes in Member States.

Analysis and Evaluation Results

The integration of information technology and communication in education is crucial as this will contribute in an effective manner to consolidating a society based on scientific knowledge and relevant knowledge required by the new millennium. Under this axis, ISESCO has deployed efforts to promote integration of information and communication technologies in the education system at all levels through conducting training courses, workshops and seminars in teaching science subjects. ISESCO has also exerted efforts to enhance the quality of education through supplying learning packages, utilizing new information and communication technologies and drawing up multimedia and open distance education programmes tuned into the needs of students.

The Regional Symposium on “Academia-Industry Hi-level Partnership for Technological Advancement and Jobs Creation in the Arab Region” which was held under the patronage of H.E. Dr. Essam Sharaf the Egyptian Prime Minister, and the President of the Egyptian Higher Council for Science and Technology to tackle the theme: “Harmonization & Mobilization of Academia for the 21st Century”, discussed current basic and applied sciences curricula in Higher Education Institutions and examined best modalities to incorporate converging technologies and science into curricula. The Symposium suggested reorienting academia to substantively contribute to the national GDP and region’s economy by re-alignment with new millennium industry needs. The Symposium stressed on creating the right environment for enhanced academia-industry partnership that could lead the efforts for technological advancements in all economic sectors.

Since African Member States are facing many development challenges without being able to construct a firm base in higher education and scientific research due to financial constraints, ISESCO focused on promotion of information and communication technology in education and teaching and its integration at all levels to provide coverage for the extension of scientific education, including remote areas to mitigate the shortage of teachers. In this regard, the National Workshop on New Electronic Delivery Methods in Science Education in Cameroon helped to promote the integration of information and communication technology in the education system at all levels especially in the teaching of science and improve distance learning and marketing knowledge. The Workshop helped to prepare the diagnosis on the use of ICTs and their adoption in education in general in order to establish the strengths and weaknesses, to propose solutions to make ICT more scientific and
efficient, to develop mechanisms to build sustainable capacity of the staff of distance learning and to update the schools to meet the needs of the knowledge society. The Workshop encouraged the development of virtual education, training centers, virtual universities and a framework of partnership and synergies. It also promoted the modernization of infrastructure of science education through the provision of the required e-learning software. The government of Cameroon was recommended to introduce ICT education in school curricula, to create multimedia centers and equipment in laboratories and computer rooms of schools and equip computers in high schools. The participants recommended that the government adopt the project, which will certainly help to address the many challenges facing our educational system. The government was recommended to deploy financial and material resources appropriate to the importance of this project.

Virtual Education as a new method and efficient can be very useful for Member States. Virtual education fills a gap that a traditional educational setting cannot provide. The biggest of these is special education, which is costly and during the economic crises times many schools are finding it difficult to provide services due to lack of funding. Under this axis, ISESCO also initiated preparation of virtual Science Education Programmes and focus to prepare programmes in the field of Nanotechnology. It is expected to bring high quality course for the student community to easily learn the new knowledge.

### 3.3.4 Higher Science Education

**Activities implemented by ISESCO:**

- Extraordinary Islamic Conference of Ministers of Higher Education and Scientific Research (Riyadh, Kingdom of Saudi Arabia: 4-5 October 2011), organized in collaboration with the Ministry of Higher Education in the Kingdom of Saudi Arabia and attended by higher education institutions in Member States.
- Preparatory Meeting to organize an Extraordinary Meeting of the Ministers of Higher Education and Scientific Research (Riyadh, Kingdom of Saudi Arabia: 6 January 2011), organized jointly with the Organization of Islamic Cooperation (OIC) for the benefit of universities in Member States.
- Round Table on “Strengthening Linkages in Higher Education Sector for Quality Assurance” (Riyadh, Kingdom of Saudi Arabia: 5 October 2011), attended by higher education institutions in Member States.
- Forum and Exhibition on Higher Education Services in OIC Member States (Turkish Republic of Northern Cyprus: 28 November-1 December 2011), organized jointly with OIC, IDB and Ministries of Foreign Affairs and attended by 54 higher education experts from Member States and various organizations.
- Participation in the Global Forum on “Rankings and Accountability in Higher Education: Uses and Misuses” (Paris, France: 16-17 May 2011), organized jointly with UNESCO and with the participation of universities in Member States.
- Symposium on “Transforming Universities Programmes and Curricula as per contemporary need in scientific fields” (Tlemcen, Algeria: 20-23 September 2011), with
the participation of universities and higher education institutions.

- Experts Meeting to revise the Document titled “Ranking Universities of the Islamic World” (Riyadh, Kingdom of Saudi Arabia: 13-19 June 2011), organized in collaboration with the Ministry of Higher Education in the Kingdom of Saudi Arabia and OIC, and attended by higher education institutions.

- Regional Seminar on “Education for development and competitiveness: linking education and training to the labour market” (Porto Novo, Benin: 18-21 April 2011), for the benefit of 17 researchers and scientists from the region.

**Analysis and Evaluation Results**

Achieving excellence in higher education is imperative for the Islamic world to reclaim its rightful place in the international arena, and to meet requirements of sustainable economic development. The Division of Scientific and Technological Education has always contributed to improving quality and performance in higher education to help Member States in the process of national building and securing the conditions of economic success. The Extraordinary Session of the Islamic Conference of Ministers of Higher Education and Scientific Research held under the patronage of the Custodian of the Two Holy Mosques, King Abdullah Bin Abdulaziz Al Saud, in Riyadh, Kingdom of Saudi Arabia, considered the document on “Key Performance Indicators: Guidelines for Assessment, and Quality Enhancement for Universities in the Islamic World”. The Member States recommended that their higher education institutions implement a number of the proposed measures under each category of the KPIs, and called for establishing a governmental mechanism in each Member State to ensure the follow-up of universities’ implementation of the criteria laid out in the document. The Member States also stressed the importance of the system of benchmarking as compared with the controversial approach of global ranking of universities, and recommended proposing indicators on the national systems of higher education as a whole instead of the mere focus on such indicators pertaining to individual universities. After lengthy discussion, the conference adopted the document and decided to organize seminars and workshops to generate awareness about the KPIs document, and called upon Member States to accord due priority to KPIs, urging them to facilitate their higher education quality assurance systems to bring excellence in university education and establish academic linkages to capitalize on scientific and technological innovation, quality and accreditation drivers in attaining global educational excellence. The document provided an adequate framework for evaluating higher education institutions in Member States and improving their performance.

The Round Table on “Strengthening Linkages in Higher Education Sector for Quality Assurance” also contributed to achieving the objective of enhancing quality in higher education. The round table discussed the best practices and strategies for enhancing quality in higher education institutions of the Islamic world, the importance of accreditation and international recognition, together with their role in the overall development of higher education in the Islamic world. It also examined the vital linkage of higher education to the promotion of science, technology and innovation in Islamic countries. Earlier, UNESCO had participated in the proceedings of the Global Forum which was organized by UNESCO and attended by more than 250 higher education experts, authorities and representatives of the most widely observed and
influential university ranking bodies from around the globe. Along with Times Higher Education, Shanghai Jiao Tong Ranking, and QS World University Ranking representatives, ISESCO presented the efforts made by the Organization in promoting higher education in Islamic countries. It also presented the project which ISESCO launched in collaboration with the Organization of Islamic Cooperation (OIC) for ranking universities to raise the standards of universities in Islamic countries to be included in top 500 universities in the world. The Forum addressed various important issues such as transparency in ranking, accountability tools, rankings and their impact on policy and practices.

The Forum and Exhibition on Higher Education Services in OIC Member States held in the Turkish Republic of Northern Cyprus proved very helpful to further development of higher education services in OIC Member States. The Forum created opportunities for direct contact among the different actors in the field of training and education, promoting investment in the education sector and developing partnership between universities and other educational institutions in OIC Member States particularly with regard to the exchange of student and training activities. Due to efficacy of the Forum, it was decided by the President of the Turkish Republic of Northern Cyprus to organize the Forum regularly on biannual basis.

The Symposium on "Transforming Universities Programmes and Curricula as per contemporary needs in scientific fields" organized in Algeria helped to identify the strategies and steps to improve human and institutional capacities in science and technology education and to promote the implementation of the accreditation system at universities and institutions. It also sought to meet the market demands and national needs and priorities. The Symposium presented the evaluation system of higher education and suggested shifts in strategy and national policy for higher education and scientific research towards bringing synergy between the university and employment. This symposium discussed important topics to showcase the mechanisms of interaction University/Employment by performing the on-hand inventory of the potential offers of employment at national, regional and local levels. The Symposium stressed the necessity to develop better understanding of these mechanisms and make concrete proposals to minimize the gaps between supply and demand for university graduates.

The Regional Seminar on "Education for development and competitiveness: linking education and training to the labour market" organized in Porto Novo, Benin, contributed to linking research results to innovation in technologies to reduce the technological and economic dependence of Member States. The diagnosis was established and major constraints were identified with regard to the interaction between university business schools and the industry. Different countries from the sub-region were present. Various solutions to constraints were presented. It was demonstrated how participatory management and joint involvement of universities and industrial companies can produce a real synergy in the development and promotion of the added value of each country integrated into the virtual platform management as well as the development of the proposed implementation of the platform integration of universities, engineering institutions and the industry. It was also highlighted that the strategy to address the roles and missions of the chambers of commerce and the industry in the process of integration and connection of universities, engineering institutions and industry are highly important.
Management of Natural Resources

Activities implemented by ISESCO:
- Workshop on Application of Ecosystem based Approach in Fisheries Management (Jeddah, Saudi Arabia: 12-14 December 2011), organized jointly with PERSGA, with the participation of Fisheries Departments of Arab and Asian Member States.

Analysis and Evaluation Results

Sustainable use of natural resources has always been supported by ISESCO under its successive action plans to utilize the potential for long term economic benefits of their own people without compromising the ability of future generations to meet their own needs and enjoy the same quality of life and environment. In order to promote sustainable utilization of water and natural resources for economic and social benefits, ISESCO continued its efforts to build capacities of Member States by encouraging and assisting them through policy dialogue to formulate effective national policies and regulations for sustainable utilization of these resources.

Considering that Islamic countries are rich in natural resources, the Division of Sustainable Environment and Natural Resources has always promoted sustainable use of natural resources. During the reported period, the Division conducted a workshop in Saudi Arabia on the application of ecosystem-based approach where it presented a perfect mechanism for managing natural resources and the environment. Traditionally, management efforts have been focused around particular uses such as agriculture or tourism, resulting in separate governance regimes for each use. Experience portrayed that such a sectoral approach results in conflicts among users and is inadequate in meeting the need for environmental protection. The training workshop proved beneficial in formulating strategies and guidelines to make the ecosystem-based management operational. This generally explains, beside the principles of the approach, the stepwise processes to shift from traditional types of management to the ecosystem-based management.

The workshop enhanced skills on implementation of ecosystem approaches in the region through focusing on application of its principles, particularly fishery management tools of Monitoring, Control and Surveillance (MCS) systems. The workshop thus provided
technical guidelines for mainstreaming the approach in the mechanism of fisheries management. The workshop programme was designed to make participants understand the concept and principles of the Ecosystem Approach to Fisheries (EAF), its theoretical background and other scientific principles of relevance, and to recognize EAF linkage to global and regional objectives, legislation and initiatives. The workshop explained major management measures, approaches and processes in view of EAF; linkage to the EAF of major fishery management tools and mechanisms with emphasis on Monitoring, Control and Surveillance (MCS) systems. The participants were familiarized with the methodologies through demonstrating case studies, and identifying options and hands-on training. They acquired further information; prerequisites; essential acquaintance of relevance to the topic and specific to the region. The workshop identified and discussed issues approaching the implementation of EFA in the Red Sea and the Gulf of Aden. Twenty-five participants from Member States benefited from the course.

3.4.2 New and Renewable Energy Technologies

Activities implemented by ISESCO:

- Legislative framework and increasing awareness on the use of alternative and sustainable energy in Western Africa (Dakar, Senegal: 23-25 January 2011), organized jointly with UNESCO and attended by renewable energy institutes.

- World Renewable Energy Regional Conference (Bahrain: 14-17 November 2011), organized jointly with WREN and attended by 25 participants from renewable energy institutes.

- Invigorating the Renewable Energy Policy (Lomé, Togo: 4-9 October 2011), organized jointly with WREN and attended by 15 participants from renewable energy institutes in Member States.

- African Regional Energy Expert Meeting (Bamako, Mali: 28 November-7 December 2011), organized jointly with UNESCO and attended by renewable energy institutes.

- Renewable Energy Congress on Industrialization: Opportunities for Entrepreneurs” (Bali, Indonesia: 17-19 October 2011), organized in cooperation with WREN and the Indonesia Society of Renewable Energy (METI-IRES) as a local organizer. The Congress was attended by 700 delegates from 49 countries worldwide including some ISESCO Member States.


- ISESCO-WREN International Seminar on Renewable Energy-Policy, Security, Electricity, Sustainable Transport & Water (Brighton, United Kingdom: 3-9 July 2011), organized jointly with WREN and attended by experts from renewable energy institutions.

- Fourth Session of the Asian Forum (School) on Solar Electricity for Rural Areas (Kuala Lumpur, Malaysia: 20-24 June 2011), in collaboration with the Solar Energy Research Institute (SERI) and in cooperation with UNESCO, for the benefit of 20 officials from ministries and academia from Asian Member States.
• Regional Seminar on “the use and application of Renewable Energy Technologies” (Cameroon: 18-22 July 2011), organized jointly with UNESCO for the benefit of rural population.

• International Conference on “Water & Renewable Energy for Sustainable Food Security” (Beirut, Lebanon: 2-4 December 2011), organized jointly with the Arab Academy for Science, for the benefit of 57 participants from arid regions.

Analysis and Evaluation Results

Energy as a main driver of economic and social development and improved quality of life has always remained ISESCO’s priority under its sustainable development strategy. Hence, conservation and management of the available sources of energy and promotion of the use of new and renewable resources of energy have been essential elements of various capacity building activities. In order to support the international agenda in achievement of the Millennium Development Goals concerning renewable energy priority as well as to meet the burgeoning energy demands, the Division of Sustainable Environment and Natural Resources continued its efforts to promote utilization of renewable energy and promotion of entrepreneurship in energy industrialization. The collaboration between ISESCO and the World Renewable Energy Network (WREN) in organizing the prestigious World Renewable Energy Congresses at international and regional levels enabled the promotion of renewable energy technologies and applications for the benefit of all Member States.

The sub-regional symposium entitled “Legislative framework and increasing awareness on the use of alternative and sustainable energy in Western Africa”, organized in Senegal discussed the status regarding the existing legislation and laws of using renewable energy sources. The symposium focused on implementing at the regional and national levels, the legislative framework that would help to educate the various stakeholders on the use renewable energy resources at a large scale. The thrust was to promote regulation and legislation for the development of standards and labeling of products after standardized tests to ensure quality control and sustainability in Africa. The symposium discussed the role of the private sector and cooperation between Member States in Africa, the constraints of an institutional and regulatory framework; the constraints related to financial, economic, commercial and market aspects; the technical constraints that could be associated with training and information; and finally the control of local production of certain equipment and the strengthening of national capacities in this area. The symposium paved the way for the establishment of legislative and regulatory framework at sub-regional and regional levels for investment.

The recent Regional Renewable Energy Congresses which were organized in Bahrain and in Indonesia helped to project new research and knowledge in various areas of renewable energy. In Indonesia, the congress addressed “Boosting the Use of Low Carbon Energy for a Better World” as a main theme. The Congress which was attended by approximately 700 delegates from over 49 countries worldwide witnessed the presentation of more than 300 papers on new advancements in various renewable energy technologies and policy making in developing and developed countries. The Congress provided an excellent opportunity for 23 national and international companies to exhibit their new technological achievements in energy sector.

Solar energy is expected to become an important component in the total energy picture in many developed and developing countries and will play an important role
towards achieving long-lasting, sustainable and environment-friendly renewable energy resources. In this connection, the “Third School of Solar Energy for Francophone Countries of Africa” organized in Mali focused on providing a basis for energy development in Africa, strengthening renewable energy with qualified personnel to carry out the planning, management and development of solar programmes. It also sought to establish a set of dynamics for scientific exchange and transfer of know-how. The School trained teams of trainers in maintenance of solar equipment. The Regional School on Solar Energy served as a strategy and appropriate training as well as a unique simulator to disseminate knowledge on solar energy for decentralized rural electrification and development of solar energy in African countries.

ISESCO also organized the Fifth Summer School on Solar Technologies for rural areas in Malaysia, which introduced various technologies and applications of solar and other renewable energy for the rural area such as PV, wind, hydro power and biomass. HOMER software was introduced to the participants to design a more cost effective energy system. Finally, the practical approach was to enhance the delegates’ understanding of the overall process on making solar cells and panels and installation, system checking, commissioning and maintenance of photo-voltaic system. A total of 20 participants, who are officials from ministries and academia from Malaysia, Indonesia, the Islamic Republic of Pakistan, the Islamic Republic of Iran, the Republic of Kazakhstan and the Republic of Azerbaijan benefited from this workshop.

In this direction, ISESCO, jointly with UNESCO, published a book entitled: “Nuclear Reactors: Theory and Practical” in order to promote the use of clean nuclear energy at reduced cost. This book is expected to further draw attention to preserving and managing energy resources and promoting suitable renewable energy technologies.

ISESCO also continued to conduct its regular Symposium in Brighton which discussed the pros and cons of new initiatives in promotion of renewable energy. The Seminar provided a highly specialized atmosphere with latest and quality information on a wide array of renewable energy applications in the new life including hydrogen generation technologies, climate change-innovative energy and water solutions, wind energy programmes and heating and cooling designs of buildings and energy economic models.

In order to prepare a document on national strategy and policy on promoting renewable energy in Togo, a mission was sent to Togo. The national meeting organized by the ministry of energy and forest resources in Togo was attended by a large number of stakeholders representing the national sector of renewable energy. During this meeting, the experts made necessary diagnosis and prepared terms of references of the document, together with the national partners. The Regional Seminar on the use and Application of Renewable Energy Technologies held in Cameroon also helped to review the strategies for developing renewable energy in African Member States and to implement an action plan for medium and long term on the promotion of renewable energy in Africa. The Seminar strengthened cooperation between Member States in order to exchange best practices in different regions; and encouraged interactions between economic operators to strengthen the capacity of research centers and universities in implementation of pilot projects on renewable energy.

The International Conference on “Water & Renewable Energy for Sustainable Food Security” organized in Lebanon tackled the
challenge of energy and water utilization for addressing food security.

Through the papers presented at this event, particularly on the role of science and technology in water and food security in dry areas. Some key drivers were given on energy and water availability and options for achieving sustainable food security in the Arab world. The conference discussed water conservation as a must for survival in the Arab region, Water use assessment for water-resources planning, water security in the Arab region and desalination systems. The conference also presented the impact of climate change on trends of drought frequency and water use in the eastern Mediterranean. Other scientific fields were debated such as food supplies, energy and water.

3.4.3
Integrated Management of Water Resources

Activities implemented by ISESCO:

- 10th Arab Conference on Environment (Cairo, Egypt: 19-23 June 2011), in joint collaboration with AUYE, and attended by environment experts from water institutions in Arab countries.
- 2nd Meeting of the Advisory Panel on OIC Water Vision (Astana, Kazakhstan: 13-14 July 2011), organized jointly with OIC and the Ministry of Agriculture of Kazakhstan, and attended by water institutions in Member States.
- Training workshop on groundwater protection (Tunis, Tunisian Republic: 14-18 November 2011), in association with ALECSO and UNESCO Cairo Cluster Office.
- International Workshop on “Water Pollution: Prevention, Control and Abatement Strategies” (Tehran, Iran: 19-22 December 2011), organized jointly with UNESCO, RCUWM and the Iranian Ministry of Energy, with the participation of water institutions in Member States.
- Training Program on “Household Water Recycling Technologies” (Amman, Jordan: 31 October-3 November 2011), organized jointly by COMSTECH, for the benefit of Member States, with the participation of 46 water institutes staff.
- Regional Training Workshop on “Environment Hydrology” (Cairo, Egypt: 29 May-2 June 2011), organized in collaboration with the Regional Centre of Hydrology, and attended by staff of water institutions.
- International Conference on “DSS to achieve Integrated Water Resources Management” (Amman, Jordan: 3-5 June 2011), organized with ACSAD for the benefit of experts from water institutions in Member States.
- Training Workshop on Groundwater Modeling (Djibouti: 25-29 December 2011), organized in collaboration with the Ministry of Development and Environment in Djibouti, and attended by 19 scientists from water institutions in Member States.

Analysis and Evaluation Results

Of all the natural resources available to human beings, water is the most essential for every human activity. However, negligence in proper management of water resources has aggravated the challenges in Member States. Depletion of fresh water resources and other water-related issues like pollution, diseases, aquatic life, poverty and hunger
requires immediate attention of concerned authorities. Effective and sustainable management of water resources has been recognized as a top priority under ISESCO Action Plan 2010-2012. In this regard, the Division of Sustainable Environment and Natural Resources prepared the Strategy for Water Resources Management which was endorsed by the Islamic Summit held in Malaysia in 2003. Most of the programmes planned under the current Three-Year Action Plan 2010-2012 were mostly based on the implementation mechanisms of this Strategy.

ISESCO, in cooperation with the Arab Union for Youth and Environment, organized the tenth Arab Conference on Environment (Green Cover and Arab Forest Promising Resources) to debate different topics on public policy and planning; water, environment, agriculture and sustainable development; the impacts of climate change on agriculture. The conference suggested to protect cedar trees and devoted special attention to enforcing some legislation and laws which can be applied to extensive removing and cutting of these trees. The conference also discussed subjects such as capacity building and raising awareness in the field of environment through the ministries of Information, Education and Religious Affairs. The participants requested support for a resolution on new protected mountainous area called Ain El Samaka which is characterized by rainfall, special types of trees and flowers.

Sustainable development may not be achieved in realistic terms unless concern authorities in Member States implement realistic plans to safeguard, conserve and manage the available water resources. During the Second Meeting of the Advisory Panel on OIC Water Vision hosted by Kazakhstan, ISESCO sought to strengthen the complementarities and synergy at regional levels in water resources monitoring and management in order to cope with impacts of climate change and avoid conflicts over common water resources. In this connection, the panelists recommended that the ISESCO-devised Strategy for Water Resources Management should be consulted in revising the OIC Water Vision and invited ISESCO to play a determinant role in implementation of OIC-Water Vision action plan and initiatives.

In an effort to protect ground water resources, the workshop held in Tunisia was designed to introduce groundwater resources professionals, students, and water resources managers to the principles of numerical groundwater flow modeling and its application to solve the problems of groundwater resources. The Module provided to participants training, working knowledge and applications of the latest versions of groundwater flow modules, and the analysis, evaluation, and management of groundwater systems. The practical part of the Module was designed to teach groundwater flow modeling key concepts, procedures, and techniques with hands-on computer training in the modeling of complex hydro-geological systems.

ISESCO pays more attention to water pollution which takes a large number of human lives in Member States. The Internation Workshop on Water Pollution Control was a joint activity undertaken with UNESCO towards rehabilitation of water sector in the Asian Region. The workshop served as a basis for the development of policy guidance to assist Member States in addressing water quality challenges for sustainable water resources management. The workshop also identified the critical problems related to water quality and water pollution, assessing their causes and trends, and developing recommendations for solutions and strategies to tackle water quality challenges in Asian countries. The workshop highlighted the effective and integrated management of
water resources in Member States, while emphasizing the importance of management of water resources issues in rural and urban areas.

ISESCO and COMSTECH conducted training workshop in Amman, Jordan, to improve knowledge on waste water reuse. This training programme on the subject of household wastewater recycling technologies and associated field visit improved the understanding of participants of the new developments in the field of wastewater treatment and environmental protection. The workshop also presented new insights into new possibilities to those interested in public private partnerships in water and wastewater sectors. The workshop provided the opportunity for the public and private sector to deal with sanitation projects.

Since water deficit is acute in most of Arab countries especially obvious shortage in clean drinking water, the 31st International Post-Graduate Training Course on Environmental Hydrology for Arid and Semi-Arid Regions discussed various aspects including available water resources in Arab states, supply and demand, types of water resources (surface, groundwater, desalinated and retreated). Special emphasis was placed on management of shared water basins coming from outside Arab borders. The water experts from the Arab region along with international experts recommended various solutions in order to alleviate suffering of the Arab region due to acute shortage of safe drinking water.

Since climate change impact on water resources is becoming sensitive, a Regional Conference on “Applying a Decision Support System as a Tool for Integrated Water Resources Management and Climate Change Adaptation” in Jordan assisted in the establishment of a comprehensive system for the IWRM process to ensure the sustainable water management based on the available resources. The conference explained the steps that have been approved in Jordan in the field of water and future plans to find alternative sources of water to fight poverty of water, scarcity and increased demands in Jordan. A number of 85 experts participated to share experiences in this event. The conference conducted field tour to view each of the Tel Pomegranate and the Jordan Valley and then to the mosque of Abu Obeida Ben Al Jarah to see how to filter water and how the acute shortage in sea water and drought threatened unless a remedy is adopted.

ISESCO also conducted Workshop on numerical modeling of the flows of subterranean water in Djibouti under which almost all related fields affecting water sustainability, management, evaluation, quality and protection were covered. The workshop reinforced the capacities of the concerned workforce in management and development of water resources in Djibouti, through training in use of the numerical system of modeling. The skills developed during the workshop would help in effectively manage water resources in Djibouti.

### 3.4.4 Ocean Resources

**Activities implemented by ISESCO:**

- Regional Seminar on “Coastal Water Management and Sustainable Use of Marine Resources” (Muscat, Sultanate of Oman: 5-7 November 2011), organized jointly with UNESCO, with the participation of trainers in water management.
- Training Workshop on “Mangrove Re-Plantation Techniques” (Yogyakarta, Indonesia: 26-29 January 2011), in collaboration with PERSGA for the benefit of Member States.
Sub-regional Workshop on Studies and Scientific Research on "Biodiversity and its role in maintaining environmental balance" (Sultanate of Oman: 21-23 November 2011), with the participation of marine institutions.

Analysis and Evaluation Results

Most of ISESCO Member States lie on shores and, therefore, sustainable use of oceans, seas, islands and coastal zones are critical for their sustainable development and economic prosperity. The Division of Sustainable Environment and Natural Resources also attaches great importance to protection of the environment and conservation of ocean resources and encouraged focused planning and policy formulation to ensure their renovation and development in a sustainable manner. ISESCO, under its Action Plan 2011, implemented a programme to devote more attention to areas of vital concern in the management of ocean resources in Member States.

The Regional Seminar on Coastal Water Management and Sustainable Use of Marine Resources discussed vulnerability assessment in order to provide the theoretical background and knowledge on approaches and methodologies currently used in vulnerability assessment of coastal and marine environment. The Seminar presented various economic valuation tools which could be used to identify the existing and potential economic value of the coastal and marine environment and implement measures to integrate the environment into the socio-economic development process in the region. The Seminar discussed various drivers and likely impacts of climate change on coastal and marine environment and the risks imposed on infrastructure, natural resources, biodiversity, and other socio-economic aspects. The experts also talked on topics like risk prediction, assessment and management, observation systems and forecasting, developing vulnerability scenarios and data analysis.

The mangrove forests, established at the confluence of salt sea and freshwater rivers, form a unique environment which reacts with sea and land to create a suitable ecosystem for different kinds of plants and animals and provide a wealth of ecological goods and services to coastal communities. However, mangrove forests are exposed to extensive degradation and destruction as a result of excessive deforestation for timber production, rapid expansion of fish and shrimp farming, and establishment of tourist resorts and development projects based on profitability and not sustainability. It is extremely necessary to undertake the necessary measures to protect and rehabilitate mangrove forests in order to preserve the environment and ensure the safety and sustainability of coastal communities. ISESCO devoted special attention to protection of Mangrove forests and organized a series of "Training Workshop on Mangrove Re-Plantation Techniques Programme" on mangrove rehabilitation for the benefit of Member States in Southeast Asia. By opening these workshops to a wider range of regional and national partners and audience, ISESCO intended to enrich the training environment with new knowledge and experience, and to diversify data, techniques and approaches and finally to enhance creativity and interaction in delivering scientific and technological findings. ISESCO strived to encourage more plans and policies at national and regional levels to safeguard this natural wealth and to ensure its regeneration and restoration in a sustainable manner.

Loss of Biodiversity is irreversible. Climate
change, globalization and overexploitation, population growth and others are causing an alarming loss of biodiversity and habitats across the globe. Human populations rely heavily on the freshwater, resources, goods and services which are linked with biodiversity. ISESCO has always paid attention to conservation and protection of biodiversity. Focus was given to developing effective landscape management approaches to help reduce biodiversity loss. The sub-regional workshop on studies and scientific research on biodiversity and its role in maintaining environmental balance in Oman discussed national policies and planning for promoting and developing protected areas aimed at sustainable uses of environmental resources. The workshop came up with various important recommendations to encourage conservation of biodiversity for sustainable development. It was stressed to keep more focus on protected areas in order to increase scientific knowledge and raise awareness among specialists and the public about sustainable environment and conservation of biodiversity.
Environment Protection

Activities implemented by ISESCO:

- Expert Meeting for development of data and technician sharing joint programmes for cost effective maintenance operation and utilization of national Satellite Earth Stations (Islamabad, Pakistan: 12-15 July 2011), organized in joint cooperation with COMSTECH and ISNET, for the benefit of experts from national observatories.

- Training Workshop on “Using geographical information systems for monitoring environmental and agricultural features in addressing climate change problems in Africa” (Libreville, Gabon: 20-23 June 2011), organized jointly with CRASTE-LF and IDB for the benefit of Member States.

- Training Workshop on “Forest Carbon Stock Assessment for Reducing Emissions from Deforestation and Forest Degradation” (Islamabad, Pakistan: 14-18 February 2011), for the benefit of Member States.

- Regional Workshop on strengthening policies and action plans for protecting green zones to combat desertification and improving desert environment towards sustainable development (Sharjah, United Arab Emirates: 12-14 December 2011), for the benefit of Member States.


- Regional Workshop on “Setting up projects for adaptation and mitigation of climate change and its impact on Biodiversity” (Lomé, Togo: 11-13 July 2011), organized jointly with IEPF with the participation of 67 scientists from Member States.

- International Conference on Information Space and Climate Change (Rabat, Kingdom of Morocco: 30 November-2 December 2011), organized in collaboration with CRASTE-LF, OOSA-UN Vienna University of Rabat, and attended by 70 academicians and university researchers in this field.

- Workshop on “Impact Assessment, Vulnerability and Adaptation to Climate Changes” (Tangier, Kingdom of Morocco: 25-29 September 2011), organized in collaboration with IUCN, and attended by 37 scientists from Member States.

- Workshop on “Social, ecological and agricultural resilience in the face of climate change in the Arab Region” (Sharam El Sheikh, Egypt: 19-23 June 2011), organized in collaboration with IUCN, and attended by 35 experts in environment.

Analysis and Evaluation Results

The need to protect the environment and other basic resources on which our civilization depends is the most urgent impera-
tive. ISESCO, in the light of the Islamic Declaration on Sustainable Development and General Framework of Islamic Agenda for Sustainable Development adopted by the Islamic Conferences of Environment Ministers, implemented a number of programmes for protection of environment and to deal with environment management challenges in the Islamic countries. Various actions were targeted to deal with specific challenges facing Member States.

The recent spectacular development and achievements in Satellite Technology and its applications necessitated ISESCO to address this field of technology and project its vast and unlimited potential in various important sectors of the economy. The Expert Meeting was another joint activity organized under ISESCO fruitful cooperation with COMSTECH and ISNET which culminated in a series of successful events in the field of space science in a bid to promote capacity building in space science and its applied technologies in Member States at the operational, research and policymaking levels. This Expert Meeting aimed at highlighting the challenges and opportunities facing the development of cooperation among OIC countries for space-related programmes as well as for knowledge-sharing and capacity-building in satellite ground and earth station operations. Therefore, it introduced and discussed models of collaboration in these promising technologies which may provide grounds for futuristic cooperative programmes among Member States towards reaping benefit from the increasing role that space plays in supporting socio-economic welfare as well as political and developmental policies. Experts from space related organizations of OIC countries presented technical papers and discussed operational and maintenance problems and solutions of satellite earth and ground station operations and data processing techniques. Proposals from the participants on promoting cooperation among participating countries were also discussed in relation to activities of ground segments of remote sensing and communication satellites including communication with satellite; tasking and controlling of satellite; downloading of satellite telemetry; processing and archiving; backup procedures; and trouble shooting in case of operational problems. The Expert Meeting was a follow-up of other successful Meetings and Workshops on space science and satellite technology undertaken in cooperation with COMTECH and ISNET.

The Workshop organized in Sharjah, UAE, on “Enhancing Planning and Policies” which was aimed at protecting the green belt against desertification and improving the desert environment, imparted new knowledge on implementing national policy and planning to address the problem of desertification in Arab countries, and to learn about the efforts made by Arab countries to address this phenomenon, particularly through expanding and developing cultivated areas around the deserts and sharing experiences among Member States on relevant mechanisms of action in this regard. The participants discussed issues such as the natural and anthropogenic causes of desertification, the reality of the Arab desert environment and ways to develop it, and the socio-economic impact of this environment.

The Second Meeting of the Climate Change Network for West Asia and the First DNA Forum in Jordan discussed the climate change challenges facing Member States. The Meeting discussed action plan to make the network more effective. It was recommended to provide adequate financial support for the operation and implementation strategy; improve the management of knowledge, create a database and promote cooperation between different sectors. It was stressed to give attention to the legislative and economic incentives to activate the
ecological footprint. Experts were asked to work on the dissemination of information on climate change that can be used to develop an effective strategy to manage and reduce greenhouse gas emissions. The need to increase transparency in the calculation of greenhouse gases and reporting from various agencies and authorities was also stated.

ISESCO also organized a regional workshop on “Setting up projects for adaptation and mitigation of climate change and its impact on Biodiversity” in collaboration with IEPF where simplified strategic solutions were proposed to solve certain vital environmental questions. The workshop benefited a large number of participants from African Member States, who were enlightened with best methodologies and applied practices suitable at the national level.

The training workshop on using geographical information systems for monitoring environmental and agricultural features in addressing climate change problems in Africa organized jointly with IDB and CRASTE-LF in Libreville, Gabon, strengthened the capacities on remote sensing and its applications on natural resource management and agriculture development and helped to harmonize processing of data. The workshop benefited a large number of African Member States which shared regional experiences in remote sensing, including data acquisition for real-time detection and prevention. The workshop also provided available knowledge required for understanding natural resources, agriculture potentialities at the regional level with a view to assisting in the development and updating natural resources management policies and the applications of spatial technologies in African countries.

The Search Project “Social, Ecological and Agricultural Resilience in the Face of Climate Change Project” was developed to implement a framework for local-level capacity development and methodology development as to increase resilience to climate change in five countries (Jordan, Occupied Palestinian Territories, Lebanon, Egypt and Morocco).

Training Workshop on Impact assessment, vulnerability and adaptation to climate changes in Morocco focused on a better understanding of all project staff and key stakeholders on climate risk vulnerability assessment (using CRISTAL and CVCA) that will be used in SEARCH. Furthermore, the workshop used the outputs of the vulnerability assessment process to develop an adaptation strategy and M&E plan for a resilience strategy. The workshop developed practical understanding of various tools which includes gathering information on climate hazards, impacts and how communities respond (coping and adaptation strategies), assess those responses and identify adaptation actions to improve resilience to climate hazard while accounting for various other non-climate risk factors. In the same vein, the Workshop on Participatory Planning Approach and Management in the face of Climate Change which was in Egypt under the SEARCH project helped to increase social and ecological resilience in watershed ecosystems of the Mediterranean region in the face of climate and other drivers of change.

The international conference on information space and climate change: “Geo-spatial information and climate change: impact and adaptation in Africa” organized in Rabat, strengthened and supported existing networks of experts in the field of space information. The Conference promoted the exchange of geospatial information needed to conduct impact assessments of climate change in Africa and encourage African institutions of setting up projects and funding offered through international programmes aimed at reducing the effects of climate change. This international conference also highlighted the state of the art in climate change and its effects in Africa (continental,
Combating Natural Disasters

Activities implemented by ISESCO:

• The First Expert Meeting on “Earthquakes and Natural Disasters” (Rabat, Morocco: 14-16 September 2011), organized jointly with AIDMO, and attended by 15 scientists from Member States.

• Training Course on “GNSS applied for sustainable development” (Lomé, Togo: 3-7 October 2011), organized in collaboration with CRASTE LF and OOSA-UN Vienna for the benefit of Member States and attended by 15 participants.

• Diagnostic Study on Recent Mega Flood and Other Climate Extremes in Pakistan in Relation to Climate Change (Islamabad, Pakistan: September 2011), for the benefit of national authorities.

• Translation of Tsunami Awareness material into the Arabic Language (ISESCO Headquarters, Rabat: October 2011), organized jointly with UNESCO, for the benefit of Member States.

• Sub-regional Expert Meeting on Health Disaster and Emergency Management (Tehran, Iran: 6-7 February 2011), with the participation of health experts from the region.

• Expert Workshop on "Managing Climate Change at the Local Level: Challenges and Opportunities for the Arab Region" (Cairo, Egypt: 17-20 January 2011), organized by CEDARE and UNEP/ROWA, with the participation of Environment Ministries in Arab Member States.

• Translation in Arabic of all IOC materials for Arab states (ISESCO Headquarters: December 2011), in joint collaboration with NEAMTIC and UNESCO, for the benefit of Member States.

Analysis and Evaluation Results

No country, regardless of its economic position or degree of social development, is immune to natural disasters. Inadequate preparations made human life and property more vulnerable to disasters. In order to strengthen the capacities of Member States to face natural disasters, ISESCO, under its long and short-term action plans, has mobilized resources to equip them with adequate facilities and latest technologies in order to save life and property, to protect important infrastructure, and to save the huge economic losses suffered after each natural disaster. The Division of Sustainable Environment and Natural Resources implemented a number of programmes in 2011 to build capacities to face natural disasters.

The First Expert Meeting on Earthquake and Natural Disasters in Arab World” organized in Rabat focused on disaster reduction and provided the necessary mechanisms to put in place, and the appropriate policies to be adopted and integrated into disaster prevention programmes. The meeting stressed the importance of building up the capacity of individuals and communities to confront disasters. It was highlighted that Member States when drawing up their development plans rarely earmark resources to priorities such as disaster-related damages. Participants in the Forum recommended the following:
to work in coordination between scientific and research institutions located in Arab states and the surrounding area on the dangers of earthquakes and other natural hazards, and exchange visits. It was agreed to create standards legislation and code of construction and reconstruction appropriate to the reality of the Arab region and to impose the regulations and building codes to resist the dangers of earthquakes and natural hazards in order to reduce the human and material losses in Arab Member States.

Using Global Navigation Satellite Systems in various applications has expanded significantly in recent years, it provides three basic services (position, speed and time) and now part of everyday life. ISESCO organized the Training Course on “GNSS applied for sustainable development” in Togo to provide theoretical and practical knowledge on GNSS systems as well as references and contact information. The training course imparted skills to exploit the knowledge base relevant to the use of positioning systems. The training workshop was designed for scientists and researchers with responsibilities in the provision of value-added services, which will allow government departments as well as those in the private sector and NGOs to benefit from new technologies on science space.

ISESCO also initiated a diagnostic Study on Recent Mega Flood and Other Climate Extremes in Pakistan in Relation to Climate Change. This study is expected to help immensely Member States to take all precautionary measures to safe life and property and huge economic losses, which is caused due to lack of preparedness.

The Workshop on "Managing Climate Change at the Local Level: Challenges and Opportunities for the Arab region in Cairo, discussed the key issues relating to climate change, sustainable development and the challenges faced by Member States and how to mitigate the impact of environmental disasters on the environment, humans and biodiversity in Member States. The Workshop was a step forward which would stimulate better communication and rapprochement between Member States to exchange experiences in the field of climate changes and global warming, and the ways and means to face obstacles that stand in the way. The workshop also focused on providing appropriate solutions for the development of work based on the international signed agreements in the field of climate change in order to serve the public interest of each of ISESCO Member States.

Providing adequate information is a part of planned strategy in the management of water resources. During 2011, ISESCO also translated into the Arabic language material on warning systems for tsunamis and other sea-level related hazards for Arab Member States in the Maghreb region. The activity was undertaken in cooperation with the Tsunami Information Centre for the North-eastern Atlantic and the Mediterranean (NEAMTIC) to develop the Tsunami Early Warning and Mitigation System for the NEAM region (NEAMTWS). The ultimate goal is to make citizens, especially youth, aware of risks of floods from the sea in coastal areas such as tsunamis, storm surges and strong swells and acquiring knowledge on and practicing safe behavior. It is expected that identification, sharing and dissemination of good practices in plans, methods and procedures to strengthen preparedness for sea level related hazards will help build capacities of Member States. Currently, 37 NEAMTWS Member States, out of 39, have established their Tsunami Warning Focal Points. The Tsunami Warning Focal Point receives international tsunami warnings from the NEAMTWS or other regional warning centers. The documents along with the website and booklets were translated into Arabic in order to involve Arab countries in this project. It is expected that these efforts will increase the number of Arab countries actively involved in NEAMTWS.
Social and Human Sciences Policies

Activities implemented by ISESCO:

• Organization of “Open Day” on Knowledge Economy in Member States” (Tlemcen, Algeria: 23 May 2011), attended by 100 economy students.

• Organization of “Open Day” on Knowledge Economy in Member States” (Lomé, Togo: 30-31 May 2011), attended by 60 students in the field of economy.

• Organization of “Open Day” on Knowledge Economy in Member States” (Dakar, Senegal: 31 March-1 April 2011), attended by 100 economy students.

• Training Workshop on job creation, knowledge economy and governmental policies in MENA Region (Marseille, France: 12-14 November 2011), organized jointly with CMI, and attended by 50 experts from the MENA region.

• Organization of “Open Day” on Knowledge Economy in Member States” (Baghdad, Iraq: October 2011).

• Publication of Study on Knowledge Economy and Islamic Financing (ISESCO Headquarters, Rabat: April 2011), for the benefit of social science institutes.

• Support for the research project in Social and Human Science entitled: Mechanisms to face new challenges of social security (Baghdad, Iraq: October 2011).

• Support for the research project in Social and Human Science entitled: the social and economic impact housekeepers: a case study of the state of Khartoum (Republic of the Sudan: October 2011).

• Seminar on “Knowledge Economy and Employment- the role of Technopolis in economic development” (Tunisia: 26-28 September 2011), organized in collaboration with UNECA, and attended by 30 national and international experts in economy.

• Women economic empowerment programme on Kunu Production for Women Economic Empowerment Program (Lomé, Togo: 26-30 March 2011), organized jointly with WAITRO for the benefit of women in poor communities in, for the benefit of 50 Groupings of rural women.

• Network of the Women for Mentoring Networking: Rural caravan in the area of Skhirat- Temara - Ain Atiq (area of Reduction) (Kingdom of Morocco: 20-24 June 2011) with the participation of 100 women.

Analysis and Evaluation Results

The world is moving fast into the knowledge and innovation economy which is
combined with transformations of social patterns and economic engagements. Countries worldwide have begun making preparation to embrace the changing requirements stipulated by the new economy. Top on the agenda of these requirements is the need to strengthen each country’s Science, Technology and Innovation framework, especially in South countries. STI are key drivers of the knowledge economy. Knowledge-driven industries now account for a major share of global economic growth. The future will witness further expansion in the knowledge-driven business where innovation is a major determinant of competitiveness.

Under this Axis, the Division of Social and Human Sciences promotes transition to knowledge-based societies and supports social and human sciences institutions, universities and research centres through strengthening their research programmes in order to understand, analyze and manage social transformations.

In this regard, ISESCO organized a number of Open Days to sensitize students, academic communities as well as general public to the needs of new knowledge-based economies. The open days organized in various regions of the Islamic world helped to sensitize decision makers, researchers, students and economic actors to the positive repercussions of investment in the knowledge economy. The open days introduced topics related to the importance of innovation, the capitalization and the diffusion of knowledge through new information technologies and their impact on the human development of the economy. On the sidelines of the open doors on the knowledge economy, Cheikh Anta Diop Library of Dakar organized a roundtable on the topic “Towards an economy of the knowledge in Africa”, and presented research tasks and innovations of young students of research laboratories of the University and scientific innovators as well as exposed works of ISESCO on this subject. A prize “JPO on the economy of the knowledge” was awarded to the two best innovating creators.

The open days organized in Togo (Lomé) benefited approximately 200 participants (students, professors, heads of undertakings). These days featured two roundtables on “the importance of the knowledge economy in Africa” and “the contribution of ICTs to the knowledge economy in Togo” as well as a presentation of the research tasks of the schools of engineers, administration and trade of Togo. The open day organized in Tlemcen coincided with the celebration of Tlemcen as capital of the Islamic culture. This day featured two roundtables which brought together several professors and students on “the economy and the knowledge society: concepts, stakes and prospects” and “groups carrying knowledge and know-how”.

During the Second Annual Meeting of the Center of Marseilles for Integration in the Mediterranean (CMI), discussions were primarily related to the added value of the CMI as a platform for disseminating knowledge and developing partnerships like the external communication around the Center. A planning of the clusters was carried out for 2011. About fifty participants took part in this event including experts, representatives of international agencies, consulates and academics. It was recommended to improve networking and external communication of the CMI (To reinforce the website, the newsletters, communication about the events and the use of Arabic as a third language of the center). It was also suggested to initiate
a new type of partnership in particular with ISESCO, the development of new sets of themes (environment and water, employment and mobility of the workers, knowledge economy, innovation and technology. ISESCO was granted links with the website of the CMI on “ISESCO’s efforts in developing the knowledge economy”.

Within the framework of this axis, ISESCO has always supported research projects to analyze and evaluate the impact of new human, social, and economic transformations on our societies. Under the year 2011 of its action plan, ISESCO announced more research grants to observe and study more closely the process of globalization in order to manage the impact on our societies. It is expected that the research grants offered during 2011 will assist in the formulation of social policies and also assist in taking appropriate decisions. It will also help to direct the future generations to adopt right choices. ISESCO research grants have always helped improve research activities in social and human sciences in our universities and research centres.

During the reported period, the Division also initiated preparation of a study on Knowledge Economy and Islamic Financing in order to access new aspect of the Islamic financing in the light of globalization and new trends which are based on the knowledge economies. It is expected that this study will provide guidelines and knowledge in order to improve economic financing to allow the Member States to take appropriate step with confidence. This study is expected to define underling principles and systems before materializing the close relationships which controls them as well as the means that can generally bring Islamic finance to the real economy. In addition, it would be a question of measuring the importance of the diffusion of new information and communication technologies with that of improvement of human dignity by the use of Islamic finance.

The Division of Social and Human Sciences also exerts efforts under this programme to strengthen the role of women in social development keeping in view Islamic principles and values. Various activities are organized to examine women progress towards empowerment and tackle the social, economic, political and cultural obstacles to increase their capacity. Under the women economic empowerment programme during 2011, ISESCO launched the project on Kunu Production. Technology for high quality kunu production that is fit for both national and international consumers was disseminated to women; training was provided in packaging and presentation of kunu of international standard through local Muslim cooperatives. ISESCO also developed standard production and training manuals. Muslim women capable of producing standard kunu for local and international communities were provided incentives and offered necessary unit for mass production.

Within the framework of its actions of reinforcement of confidence and self-reliance of the woman in her socio-economic environment, the first rural caravan of the Network of Mentoring and Networking in Rabat sensitizing women to the fundamentals and the principles of mentoring and its use for the reinforcement of their personal and or professional capacities. This caravan targeted, through various associations of the area, the rural populations of Temara, Skhirat, Ain Atiq and created a social impact through involvement of high number of recipients.
3.6.2
Scientific, Technological and Innovation Policies

Activities implemented by ISESCO:

- Caravan for sensitizing: Information Education and Communication (IEC) on the code of the family, marital violence and the grounds for appeal (Nouakchott, Mauritania: 25-28 April 2011), for the benefit of the public, with the participation of 200 young girls and women.

- Publication of analytical guide on “Social and human problems impeding peace and tranquility in the world” (ISESCO Headquarters, Rabat: December 2011), disseminated to Member States.

- Regional Workshop on “Techniques of social dialogue and conflict management” (Nouakchott, Mauritania: 25-28 July 2011), organized jointly with Munazamat Al-Dawa, and attended by 16 participants from Member States.

- Publication of Study on Critical Social Security Problems Causing Conflicts in Islamic Societies (ISESCO Headquarters, Rabat: August 2011), for the benefit of Member States.

Analysis and Evaluation Results

Promotion of peace and tranquility in our societies is an imperative more than ever. In order to consolidate understanding among Muslims and contribute to the establishment of peace and security, ISESCO spearheaded to deal with various social and human issues in the society and devise ways to cope with them in order to streamline the contributions towards the development of an ideal Islamic society. In this process, ISESCO pays adequate attention to tackling the social problems which block peace and social tranquility through various means. ISESCO has always promoted human, civil, economic and social rights, asserting that these rights provide firm foundation for peace and justice and enable all human fellows to live with each other in dignity and freedom.

Within the framework of the action to promote peace and justice, ISESCO organized a caravan to sensitize the audience to the code of the family and violence with regard to women in villages of Nouakchott. This caravan sensitized the young girls and the associate managers to the physical and psychic risks of early marriage by involving them in the social development of their locality.

ISESCO, in order to fight some specific evils in our societies and neutralize discrimination, improve communication tools and interpersonal relationships, and increase capacity to solve conflicts in a constructive and peaceful manner, organized a training workshop in Nouakchott on the techniques of social dialogue and the mechanisms of conflict management for the benefit of Member States. The training workshop stressed on recognition of human rights including civil and political rights, such as the right to life and liberty, freedom of expression, and equality before the law as a tool for the promotion of peace. The training workshop benefited trades unionists, actors of community development and representatives of governmental and non-governmental organizations. The workshop assisted in developing the means for putting peace into action and building strong foundations on which social progress can rest. ISESCO sought to present viable solutions in order to create a more peaceful and non-violent society.

As part of promotion of peace, justice and human rights and consolidation of the rule of law, ISESCO prepared a guide, mostly related to the Maghreb countries. Through this guide, ISESCO strived to disseminate information on the social problems which
block peace and social quietude. This document seeks to be a source of reference for Member States in the development of educational programs on the culture of peace, like social dialogue and policy. In addition, it identifies the social and human main issues which block the development of peace and quietude in the world (particularly in the Maghreb) and presents the necessary strategic directions to safeguard dignity and human solidarity. It will be made available to universities and research institutes of the Islamic world in the form of a booklet of information which will be distributed to the teachers of high schools and higher education, students and researchers, etc.

3.6.3

Poverty Alleviation

Activities implemented by ISESCO:

- Sub-regional Experts Meeting on “Poverty Eradication Developing Countries” (Dhaka, Bangladesh: 27-29 December 2011), organized jointly with UNESCO for the benefit of poor communities, and attended by 26 experts from Member States.
- Regional Workshop on “Strengthening national policies on controlling diseases associated with digestions” (Amman, Jordan: 26-28 December 2011), for the general public, and attended by 18 participants from Member States.
- Project of treatment and control of Leishmaniasis, supported jointly with Munazamat Al Da’wa, (23 October -1 November 2011), for the benefit of health institutions.
- Expert Consultation Meeting on Research for Health in the Eastern Mediterranean Region (Cairo, Egypt: 5-6 June 2011), organized with the collaboration of WHO/EMRO.
- Tackling issues of social development through debate: Project of recruitment through Technology (Khartoum, Sudan: July 2011), for the benefit of unemployed young people.
- Project of Electrification of Classes 6 and installation of a line of Internet in Regional Secondary School in BAFATA (Bissau, Guinea Bissau: August 2011), for the benefit of poor communities.
- Project of Training Session in Tailoring and Model making, with the participation of concerned women and girls from Niamey, Niger, in July 2011.
- Supporting the activities of NGOs in tackling critical social problems in the Member States (ISESCO Headquarters, Rabat: March 2011), for the benefit of NGOs and charity organizations.

Analysis and Evaluation Results

Eradicating poverty lies at the heart of development economics. While development seeks to benefit all members of the society, the poor command our special attention. Any reasonable definition of poverty implies that significant numbers of people are living in intolerable circumstances where starvation is a constant threat, sickness is a familiar companion, and oppression is a fact of life. In Alfred Marshall’s words, “the study of the causes of poverty is the study of the causes of degradation of a large part of mankind”. Improving the lives of the poor must be at
the top of our agenda. ISESCO has always exerted efforts to alleviate poverty through creation of economic opportunities and facilitating provision of necessary social services. In pursuit of the Millennium Development Goal to reduce the number of people living in poverty by half by 2015, ISESCO continued its efforts during 2011 to develop synergy with United Nations agencies as well as other international and regional organizations to achieve the common objectives.

Conscious that the Islamic Asian region is in urgent need today to enhance its economic and developmental capabilities and to fill the income gap between urban and rural areas by developing effective national plans to facilitate the use of anti-poverty programmes in development, and realizing the important role of poverty eradication policies in promotion of the socio-economic condition of their Member States, ISESCO and UNESCO decided to hold a three-day seminar in Bangladesh. The Poverty Eradication Policy in Islamic Countries (PEPIC) workshop brought together and provided technical toolkits to researchers in Islamic countries, to design and implement policy relevant and methodologically rigorous contribution on the causes of and remedies to poverty in Islamic countries. The participants distinguished the differences between political poverty (governments are supposed to deal with it) and social poverty (poverty can be a source of shame and low status for individuals) implications. They also presented their countries’ policies and programs for poverty eradication. The seminar recommended contained Competency based training to empower people so that the goal of eradicating poverty is achieved. The participants also recommended creating and innovating new schemes for generating income among the poor, and linking quality education with poverty, income generating projects, self-employment opportunities and SME and entrepreneurship development training programs.

Improved health conditions, provision of basic education and addressing social security issues play a central role in alleviating the sufferings of communities living in poverty and improving their quality of life. ISESCO has always exerted considerable efforts within the framework of action plans to improve such condition for the sustainable development of poor localities. During 2011, ISESCO organized in the Sudan, the medical caravans in favour of Sudanese rural populations and African refugees on the Sudanese plateau in order to improve the performance of medical services, provision of basic education and other social services of crucial importance to improve quality of life of the populations living in poverty. This included disseminating recent information on diseases, provision of educational and medical services for the public in rural and urban areas. The participants of these caravans appreciated the services which were regarded as highly beneficial to them. They demanded that such sanitary services be reorganized in future in order to promote understanding and know-how on the sanitary and educational services which can help in providing healthy human resources for the rural world.

ISESCO has always supported the activities of non-governmental organizations working in the field of social and human sciences to tackle issues of vital concern like AIDS, drug trafficking, diseases, violence, delinquency, pollution, and other problems affecting underprivileged population and handicapped and destitute people. The support provided to the NGOs contributed to enhancing the capacities of Member States to combat poverty. During 2011, ISESCO supported a number of NGOs in implementation of viable projects to alleviate poverty and improve the living conditions of the populations in poor localities. ISESCO took care to ensure the follow-up and evaluation of
the projects and publish best projects so as the best practices are implemented for the benefit of other regions.

In the same context, ISESCO prepared a sub-regional study on the strategies and mechanisms for reducing poverty in the countries of the Sahara. The study focused on the misery of the populations living in absolute poverty conditions. Six experts from Member States operating in different concerned organizations contributed to this study. The axes of this study focused on the means to reduce the percentage of poverty by, inter alia, improving the activities of human resources and orienting them towards profitable objectives of development.

### 3.6.4

**Scientific, Technological and Innovation Policies**

**Activities implemented by ISESCO:**

- Strengthening database of ISESCO Ethical Web Portal (ISESCO Headquarters, Rabat: July 2011), for the benefit of National Ethics Commissions.
- Second International Congress of Bioethics with Emphasis on “Morality, Spirituality and Creationism” (Tehran, Iran: 5-7 February 2011), organized in collaboration with NIGEB, and attended by scientists and researchers in this field from Islamic and other countries.
- Regional Meeting on Ethics of Science and Technology (Beirut, Lebanon: 8-10 December 2011), organized jointly with UNESCO, and attended by participants from National Ethics Commissions.
- International Committee on Ethics of Science and Technology (Doha, Qatar: 9-12 October 2011), organized jointly with UNESCO.
- Publication of Study on Important Bio-Ethics Issues (Kuwait, State of Kuwait: October 2011), for the benefit of National Ethics Commissions.

**Analysis and Evaluation Results**

The 21st century has been named as the “Biotech Century”. It is concurrent with the appearance of so many new and emerging technologies that ethical subjects and their observance are becoming more crucial and significant. Consequently, many organizations, associations and governmental or civil ethical committees have been established to conduct research on the fundamentals and principles of ethics with respect to science and technology, thus making available a set of values that represent the codes of ethics to scientists and innovators of novel scientific processes. Bioethics is an issue which challenges science, ethics and morality. Accordingly, the last twenty years has confirmed the importance ISESCO has given to bioethical issues and disciplines based on the Islamic vision. The creation of the Islamic Body on Ethics of Science and Technology (IBEST), approved by the Islamic Summit held in October 2003, in Putrajaya, Malaysia, was in line with these efforts.

ISESCO calls for uniform guidelines among Member States to clear the debates raised on different bioethical issues. In order to promote and discuss elaborated issues on the ethics of new technologies, ISESCO launched during 2011, the web portal of
IBEST as a means of communication among scientists, researchers and physicians, in order to facilitate fast interaction in the field of ethics. IBEST ethical network portal will supervise the construction and function of the Islamic Ethical Network, provide continuous information about ethics in general and the view of Islam on specific questions related to ethics in all fields of research and medical practice. IBEST ethical network portal cannot be held responsible for any hazardous use of the portal and specifically the discussion Forum section. This forum will work as a hub for all specialists to share ideas and knowledge and to raise new issues related to bioethics. The activities of this forum and the updated information in the web portal will be a landmark for the advancement of bioethics in Member States. IBEST web portal contains valuable sections for updated ethical news and activities as well as a comprehensive glossary that enables researchers to allocate the means of common bioethical expressions.

With the progress achieved in science and technology, the need for ethical norms is felt even more. In this regard, the Second International Congress of Bioethics with emphasis on Morality, Spirituality and Creationism, organized in collaboration with NIGEB and some other international and national organizations in Iran, stressed the importance of developing and expanding the ethical concepts from the Islamic and other Abrahamic religions points of view in addition to raising awareness about the recent ethical trends particularly in biological sciences and biotechnology. Other congress outcomes emphasized the need to foster collaboration and intellectual exchange of bioethical ideas within Islamic countries and encourage scientists to investigate in this field.

ISESCO also participated in the 18th Session of IBC in Azerbaijan and in the meeting of the International Committee on Ethics of Science and Technology, which provided the opportunity for the members to discuss and finalize the report on the principle of respect for human vulnerability and personal integrity. The Meeting also discussed the special vulnerability of women, and situations of vulnerability induced by poverty, conflicts and war. During the session, the members of IBC appreciated ISESCO’s diverse and numerous activities on bioethics and ethics in science and technology which are undertaken jointly with UNESCO.

ISESCO efforts in bioethics reinforced cooperation among Member States to understand, cooperate and discuss the main critical issues. The Regional Meeting on Ethics of Science and Technology which was held in Lebanon examined the role of National Ethics Research Committees and discussed barriers faced by local research ethics committees. The Meeting focused on the challenges facing research ethics committees in the Arab region, the ethical and legal aspects of conducting research on human embryos, human tissue in research. The Meeting contributed to promoting cooperation on the bioethical issues in Arab and Islamic countries. Participants discussed several examples of cooperation between ethical committees in Arab states and examined prospects of expanded cooperation in the future. Starting organ implantation by creating the Arab Bioethics Society was the most important issue output. The Meeting stressed on the importance of raising awareness of bioethics among journalists and media specialists and called for a compatible and uniform commitment on ethics in health research in Islamic countries. It was also mentioned that the inappropriate image of Islam and the Muslim world should be improved through serious efforts, especially with regard to the application of Sharia and its manipulation in ethical issues.
pledged effective implementation of the main recommendations in such a way as to optimize, in the mid-term, investments in R&D and valorize scientific and technical research output through increased cooperation and interaction.

Besides, the ICPSR, jointly with COMSAT, runs its website (www.icpsr.org.ma), which was created in 2006 to serve the scientific community in the Islamic world. The website is regularly maintained and updated to meet the recurrent needs of internet users.

It is aimed at facilitating networking among scientific institutes, researchers, engineers, and academics in the domains of science, technology and innovation through the Islamic World Science Net (IWSN).

In 2011, some structural actions as well as updates were carried out. Also, 59 indicators (general, scientific, educational, environmental, economic, industrial, agricultural, health and telecommunication) were added to the website to describe and give a useful profile of each of the 57 OIC Member States.

The website also offers databases of research and development institutes, science academies, universities and experts, which are periodically updated with reliable information.

Moreover, this dynamic platform provides researchers with information on ISESCO-COMSTECH Research Grants are made available in 3 languages for young researchers (grants often indispensable for funding and completion of advanced research projects).

Likewise, the upgrading of the website requires that it be regularly and rigorously analyzed, maintained and managed. These different operations allow for carrying out the necessary improvements, enhance browsing and protect the website against cyber-attacks. Moreover, the Professional Web Analytics tool we have been using has allowed ISESCO and COMSAT, through monthly reports, to notice a rise in the number of the website’s visitors (the number has doubled in one year) and an increase in the duration of their visits. Therefore, we can deduce that this website facilitates and encourages ideas sharing, and exchange of information among researchers regardless of their geographical localization. Thus, the website operates as catalyst to the enhancement of the capacities of scientists and technologists in the Islamic world.

Being aware of the challenges of R&D and innovation for the countries of the South, and with a view to optimizing resources, ISESCO and COMSAT continued, during 2007 and 2008, the development and maintenance of the website of the ICPSR, in order to meet its users’ recurrent needs by the addition of new features.

Therefore, in March 2009, some ten virtual, scientific thematic groups were introduced and launched (new and renewable energies; science and research policy; bioscience/biotechnology and genetic engineering; bioethics; environment; mathematics; water management; nanotechnology; science parks management and ICT in science and technologies) and their respective coordinators were designated on the occasion of the 1st...
meeting held in Islamabad, Pakistan. These groups facilitated networking and expertise sharing among the researchers of the Member States.

Three other General Groups (Universities, Science Academies and Science Women) were added in 2012, and a second meeting of the scientific thematic groups for enhancing cooperation among the Islamic world was held on 18-19 October 2011, in Rabat, at ISESCO headquarters. The coordinators benefited from an advanced technical training aimed to broaden their knowledge and allow them to keep informed about their respective groups and properly manage them.

An evaluation of the last two years experience's strengths and weaknesses was made, with the objective of benefiting optimally from the website. It was also aimed at turning the website into a “meeting point” for its members to help them interact and share their information and experiences, which would contribute not only to improving the chances of a better cooperation among the Islamic Member States, but would also encourage North-South cooperation.

Thus, the website provides a network whose members knowledge serves for developing an efficient communication and collaboration system in the different domains of S&T. It also serves as a knowledge resources center for the scientists and technologists of the Islamic World. Moreover, the virtual, constructive encounters it allows for might lead, in the future, to the establishment of a discussion group that will examine innovation issues.

ISESCO and COMSATS work together to derive maximum advantages from the IWSN network. In other words, they work on facilitating the pooling of information and expertise, technological resources sharing, engaging partners interested in joint research activities, and disseminating information on R&D at the national and regional levels, so as to help the Islamic world’s scientists engage in an international (South-South and North-South) collaboration.

Scientific Research Facilities

- National Workshop on "Repair and Maintenance of Engineering Equipment in Universities, Research Institutes and Small Scale Industries"; Cairo, Egypt; 13-17 November 2011; 30 engineers and technicians from Egyptian Scientific Laboratories of Research and Excellence, COMSATS.
- Publication of “ISESCO Science and Technology Vision” Journal, Vol. 7, No. 12; ISESCO headquarters, Rabat, Morocco; November 2011; researchers and technical and scientific research institutes.
- National training workshop on “How to Develop Micro-Science Projects”; Banjul, Gambia; 10-13 January 2011; 15 teachers of scientific subjects in elementary and secondary schools and higher education institutions; UNESCO.

Evaluation and Analysis Results

Scientific equipment are indispensable working tools for the development of scientific, technological and industrial sectors. Against this backdrop, ISESCO Member
States make important investments in scientific equipment necessary for meeting the needs of students, researchers and teachers. In fact, providing the means necessary for promoting R&D and innovation is crucial for the emergence of excellent scientists and technologists capable of improving the education system in general.

However, budgets remain limited, which causes the degradation of certain laboratory equipment. For overcoming this problem and optimizing resources, preventive and/or remedial maintenance of those equipment is needed so as to prevent their overuse, or non-use in the worst cases.

To this end, and since 2004, ISESCO, in collaboration with COMSA TS, has been organizing workshops on repair and maintenance of scientific equipment in universities, research institutes and small enterprises, in the Member States.

Within this framework, more than 120 scientists, engineers and technicians have been trained in workshops to meet the needs of some countries (Sudan, Syria, Malaysia and Senegal) with regard to enhancing local capacities and maintaining scientific equipment. Such workshops particularly have allowed the Members States to be no more reliant on foreign expertise, and save time and effort.

Given the successful outcome of these programmes and the growing demand they have generated, it was deemed important to replicate the same activity in Egypt this year, in cooperation with the National Research Center (NRC), which was designated as an excellence center and a COMSATS partner.

Thirty engineers and technicians benefited from a theoretical and practical training to improve their knowledge and enhance their capacities, in order to keep them tuned to the latest advancements in scientific equipment. The training was supervised by two experts from the Pakistan Council of Scientific and Industrial Research Laboratories Complex (PCSIR) in Karachi, and an Egyptian engineer, as a local expert.

The workshop shed light on issues related to the maintenance and repair of scientific and engineering equipment, as necessary tools for researchers in universities and research institutes.

Over 10 technical, theoretical and practical sessions during 5 days, the participants were sensitized to the crucial and beneficial character of maintaining their equipment in good state. The Pakistani experts having supervised the workshop highlighted that the implementation of R&D activities in the universities, research centers and industrial sector can be ensured through a continuous training of the relevant personnel, so as to address the technical problems of scientific and engineering equipment, using local know-how and in a cost-effective manner.

In conclusion, the participants considered the workshop beneficial and pertinent, and recommended a South-South competence transfer through the provision of training grants of 2 to 3 months to young researchers in Pakistan's NRC, and that the NRC provide this training later on at the regional level.

The dissemination of research results, figures and content is an indicator of the scientific research quality in a given country, region or continent. Besides, free access to technical and scientific publications is a global requirement for a just sharing of information and for bridging the North-South scientific and digital gap. In fact, the free access, ensured by the new communication technologies, contributes to the enhancement of the scientific capacities and technological transfer. Furthermore, it allows for attracting more subscribers to papers and journals at the international level. Likewise, not only does such free access increase the visibility and the
impact of published works, but it also offers other advantages, such as facilitating research, saving time and consequently optimizing financial resources.

In order to allow such communication and exchange of scientific and technical information, ISESCO continues to work, jointly with its Member States, to initiate cooperation among scientists and researchers, while carrying on with the publication of its biannual scientific journal “ISESCO Journal of Science and Technology”. The journal’s new title “ISESCO Science and Technology Vision”, comes to adapt more to its content, and objectives. An editorial team selects the best articles and research papers sent to ISESCO, which cover diverse scientific and technical domains.

The Journal promotes innovation and dissemination of knowledge on the problems faced by developing countries. Its electronic version is regularly posted on the website of the ICPSR. It is an efficient means to increase the visibility of scientists and researchers and their works in the scientific community. ISESCO wishes that this initiative would contribute to the emergence of prominent scientists.

The introduction of scientific equipment to educational systems is expensive. Therefore, the teaching of scientific subjects is done in some primary and secondary schools in a theoretical way without any laboratory applied assignments. This approach might create a certain apathy to scientific subjects among a majority of such brilliant students in science universities or engineering institutes. This also leads to the loss of the human scientific capital desperately needed by our country.

Based on this observation, ISESCO, joined up with UNESCO, which launched the project of ”Micro Science Kits”, to address this problem that undermines the promotion of science education, respond to Gambia’s request and help it master this approach of science education promotion. Therefore, ISESCO, together with UNESCO, the Directorate of Science and Technology Education, and the Gambian National Commission, organized a training session for 15 participants (education experts, trainers of primary, secondary and higher education science teachers). This session was supervised by an international consultant, who is director of the microscience experiments programme, along with two national experts.

This training on the teaching of science to students of secondary schools and university students provides the opportunity to do lab works in biology, physics and chemistry, with the help of kits and brochures on scientific experiments. Although these kits are only mini laboratories, it is necessary to note that this method is only complementary to the theoretical course, and cannot substitute to the necessary laboratory equipment.

Thus, a national committee was established to develop a project proposal to be submitted to the Ministry of Primary and Secondary Education, to raise the necessary funds for introducing the ”Microscience Kits” into the Gambian educational system, and develop a “Gambian version of fundamental science education using micro-science experiment kits”. Emphasis was put not only on the introduction of this method, but also on sharing the knowledge needed for a successful integration into the national scientific curriculum in Gambia. This has allowed for sensitizing decision-makers to the importance of science experiments in microscience, and promoting the teaching of science subjects through the introduction of applied assignments into science education to stimulate the youth’s interest in science.
Synergizing Scientific and Technological Research

- Continued support for the research project: “Development of a Chemical Recycling System of Polystyrene Resin Waste for Polymer Coagulant in the Wastewater Treatment”; the Indonesian Institute for Science (LIPI); throughout 2011; researchers from the Member States.

- Continued support for the research project: “Differentiation of Mesenchymal Stem Cells from Placental Blood towards Vascular Endothelial Cells: the Clinical Application for the Regeneration of the Damaged Renal Tubules Following Renal Failure in Man”; Pasteur Institute in Casablanca; throughout 2011; researchers from the Member States.

- Continued support for the research project: “Establishment of Promotional Program for a Sustainable Use of Agricultural Soil based on Biological Remediation”; Bamako University, Mali; throughout 2011; researchers from the Member States.

- Continued support for the research project: “Studies on Zinc-Air Bipolar Cells Using the MCM-41 Electrolyte Gel”; the International Islamic University of Malaysia; Kuala Lumpur; throughout 2011; researchers from the Member States.

- Continued support for the research project: “Differentiation of Mesenchymal Stem Cells towards an Hepatic Cell Using MicroRNA in the Hepatic Differentiation”; National Center for Research, Sudan; May-December 2011; researchers from the Member States, COMSTECH.

- Supporting the Razi International Festival (16th edition); Tehran, Iran; 10 January 2011; researchers in medicine; Ministry of Health and Medical Education.

- Supporting the Farabi International Festival (5th edition); Tehran, Iran; 29 October 2011; researchers in human and Islamic science, Ministry of Science, Research and Technology.
Evaluation and Analysis Results

Support for scientific and technical research is a prerequisite for achieving sustainable development in the Islamic world, as well as the Millennium Development Goals (MDGs) by 2015. Yet, the majority of developing countries earmark less than 1% of their GDP to technical and scientific research, while developed countries allocate amounts three times as big as that. Also, the number of researchers in the developing countries is 7 to 8 times lower than it is in the countries of the North. These figures explain, to some extent, the Islamic world’s low performance and poor innovation in this regard. In fact, scientific and technical research requires substantial financial means, often inaccessible for science faculties’ laboratories and research centers in most of ISESCO’s Member States.

It is also unfortunate that institutional contribution in the countries of the South to the budgets of the different research institutes remains very low, although they are the most likely to benefit from the results of the research conducted in such institutes. Being conscious of innovation culture’s role in promoting research and of R&D’s impact on industry, the ICPSR continues to encourage the Member States to build a science-based society.

In order to improve university capacities and capitalize on accumulated experience, ISESCO continues to extend support to young researchers to meet their growing demand for assistance, given their difficult working conditions (obsolete equipment, lack of working tools, cost of studies, etc.). Within this framework, ICPSR, in collaboration with the OIC-affiliated COMSTEC, provided, this year, ten grants in nanotechnology, agricultural biotechnology, engineering sciences, medicinal plants and applied sciences. These grants, which amount to USD 10,000, were awarded to 2-year projects with important innovative, scientific, technical and economic potential.

The beneficiaries of these grants will submit semestrial reports accounting for the progress of their works as well as a final report, whose electronic version will be made available for all researchers on ICPSR website.

Furthermore, the 16th edition of the Razi Prize for Medical Sciences was held in Tehran and was attended by H.E. Dr Ahmadinejad, President of the Islamic Republic of Iran, as well as by the Ministers and Deputy Ministers of Health and Health Education, and several prominent academic personalities and foreign researchers. This annual prize is aimed at paying tribute to the Iranian researchers who have highlighted the innovative aspects of medical research, be it inside or outside their country, and to medical researchers of ISESCO Member States.

Those prizes are meant to reward high-quality and innovative research works carried out in the medical field, which can be applied to meet the needs of the community. More precisely, they were awarded to 42 laureates who undertook works on health sciences, nutrition, clinical medicine, surgery and pharmacology. These prizes are awarded to personalities as well as to research centers, NGOs and/or medical sciences journals. Also, a financial reward was offered by ISESCO to 6 laureates in bio-informatics, research in paramedical rehabilitation, medical biotechnology, clinical research, immunology and dentistry.

Besides, ICPSR extended its support to the 5th edition of the Farabi International Festival. This festival, organized by the Iranian Ministry of Science, Research and Technology, in cooperation with ISESCO, UNESCO, OECD, and other national partners, encourages research in human and Islamic sciences.
The Farabi international prize is awarded in 12 disciplines, namely Arts and Aesthetics; Economics, Management and Accounting; Education Sciences; Psychology, Behavioral Science and Physical Education Sciences; Fiqh, Usul Al Fiqh, Quranic Sciences and Hadith; History, Geography and Archaeology; Information Technology and Library Sciences; Studies on Islamic Revolution and Imam Khomeini; Language and Literature, Law; Philosophy, Theology, Ethics, Religion and Mysticism; Political Sciences, International Relations and Regional Studies; and Social Sciences and Communication.

Eminent professors in these domains took part in the Jury during the evaluation and final selection stages. The objective of this prize is to increase the role of religious references in human sciences, so as to contribute to alleviating or eliminating certain problems of our societies, through developing positive and constructive attitudes. The best researchers in Islamic and Human sciences, representing different countries, were celebrated in the presence of H.E. Dr Ahmadinejad, President of the Islamic Republic of Iran, as well as prominent national and international researchers. Out of 2033 nominations received, 42 laureates (36 Iranians, and 6 foreigners that submitted studies on Islam and on Iran) were awarded the prizes.

Creating competition among scholars and researchers in the different disciplines of human sciences plays an important role in establishing peace in the world. The support ISESCO extends to this festival underlines its commitment, originating in the noble Islamic principles and values, to fostering coexistence among peoples and responding to the present and future major challenges through the promotion dialogue of cultures and civilizations.
Field of Action 3.7
STRENGTHENING FOUNDATION OF SCIENTIFIC RESEARCH

3.7.1
Research Policy and Technologies Support

- National seminar on “Strengthening Interaction among Universities, Research Institutes and Industries for Fruitful Utilization of Research Results”; Conakry, Guinea; 19-21 December 2011; universities, ministries in charge of industry, mining and forest resources, and national research institutes.

- Strengthening the Islamic World Science Net (www.icpsr.org.ma); ISESCO headquarters, Rabat, Morocco; throughout the year; institutes, universities and national centers for scientific and/or technical research, COMSA TS.

- Second Meeting of the Coordinators of the Scientific Thematic Groups for Enhancing Cooperation among Islamic Countries; ISESCO headquarters, Rabat; 18-19 October 2011; scientists and researchers of the Member States, COMSATS.

Evaluation and Analysis Results

As part of the celebration of Conakry as the 2011 Islamic Culture Capital for the African region, ISESCO, in cooperation with the Ministry of Pre-university and Civic Education in Guinea, organized a national seminar on “Strengthening Interaction among Universities, Research Institutes and Industries for Fruitful Utilization of Research Results”.

The seminar brought together twenty representatives of universities, research institutes and relevant ministries in Guinea. The scheduling of the seminar for 2011 was due to the success of the previous session held in Tunisia in 2009, as well as to ISESCO’s eagerness to support its Member States to develop applied economic research towards better production and welfare. The seminar was aimed at bridging the gap between universities and the industrial sector, encouraging universities and research centers to develop applied scientific research and technologies for a high-value collaboration with the industrial sector, and fostering complementarity and interaction between universities and the industrial sector.

The seminar proceedings revolved around such various themes as Reflections on the Recent Evolution of Universities; University, Research and Enterprises: Case of Guinea; the Stakes of Knowledge-Economy in Africa; Partnership among Universities, Centers and Enterprises: Use of Research Results in Guinea.

The seminar was successful to the satisfaction of the participants who commended the high-level talks and the opportunity it offered to exchange ideas. The different working sessions were held in an academic, convivial atmosphere and with utter frankness, and witnessed a large attendance, reflecting the interest the participants had in the themes discussed. Several pertinent recommendations were issued, which concerned Guinea, its universities, research institutes and industries as well as ISESCO. The different partners
Islamic Educational, Scientific and Cultural Organization (ISESCO)

ISESCO’s Report on Activities implemented in the Fields of Science, Technology and Innovation
January – December 2012
3.1.1 Scientific, Technological and Innovation Policies

- Sixth Meeting of the Consultative Council for Implementation of the Strategy for Science, Technology and Innovation in Islamic Countries, ISESCO HQ, Morocco, 2-3 May 2012, attended by the representatives of the Member States nominated by the Fifth Islamic Conference of Ministers of Higher Education and Scientific Research held in Kuala Lumpur, Malaysia, in October 2010 along with OIC, COMS-TECH and IDB.

- African Inter-Parliamentary Network-AU Parliamentarian Forum on Science, Technology and Innovation, Cairo, Egypt, 16th-19th October 2012, Organized in collaboration with United Nations Economic Commission for Africa (UNECA) and attended by parliamentarians, legislators, scientists and research scholars from the African region.

- National workshop on writing projects proposals for securing funding, Dhaka, Bangladesh, 6th-8th November 2012, benefited 30 participants from government and non-government organizations in Bangladesh.

- International Conference on Science Policies and Restructuring of National System of Innovation, Brunei Darussalam, 3rd-5th October, 2012, attended by 25 participants from scientific institutions from Member States.

Analysis and Evaluation Results

The Islamic Educational, Scientific and Cultural Organization (ISESCO), in line with its charter, and following the Strategy for Science, Technology and Innovation in the Islamic Countries, approved by the Islamic Summit, places greater emphasis on promoting scientific developments and strengthen capabilities in technological innovation towards achieving a real, sound and comprehensive development in the Member States. Under the Action Plan 2010-2012, projects and programmes were prepared to target scientific and technological needs of the Member States, focusing on the concept of green economy and sustainable development. More comprehensive package programmes were initiated with international organizations to bring an evident impact in the achievement of results.

The Division of Science and Research Development Policy of the Science Directorate, under this axis, accords attention to build capacities in devising innovative science
policies and improve governance, strengthening the role of parliaments in science and technology and development of national systems of innovations. During the reported period, ISESCO convened the Sixth Meeting of the Consultative Council, in accordance with the Resolution of the Fifth Islamic Conference of Ministers of Higher Education and Scientific Research, and discussed new initiatives for realizing the objectives outlined in the Strategy for Science, Technology and Innovation in Islamic Countries. The Consultative Council assessed the progress achieved on various important decisions of the Islamic Ministerial Conferences and issued new recommendations. The Council also reviewed the report on Key Performance Indicators: Guidelines for Assessment, and Quality Enhancement for Universities in the Islamic World, and requested that seminars and workshops be organized along with experts’ meetings to generate awareness about the KPIs document and urge universities to enhance their higher education quality assurance systems. The Council also reviewed the draft project proposal for the establishment of the Pan-Islamic Research and Education Network (PIREN), which aims to activate the principles of solidarity, mutual assistance and equality and reinforce cooperation and networking among scientific and technology institutions.

The Members of the Consultative Council discussed various important issues and stated that the priority to implement the Strategy for Science, Technology and Innovation would be to establish programmes with time frame, teamwork and follow-up committees to help in implementing this strategy. They also proposed that investment in universities in Islamic countries should be expanded and cooperation and collaboration should be strengthened to share experiences and resources for mutual benefit.

ISESCO, under this axis, also focused on strengthening the role of parliamentarians in the development and promotion of science and technology. In the light of ISESCO-UNESCO joint Declaration of the First Parliamentary Forum in Helsinki, Finland, in 2003, ISESCO organized a number of Parliamentary forums at the regional level, attended by parliamentarians, Nobel laureates, journalists and scientists from different walks of life, which discussed ways of better governance of science and technology systems by promoting dialogue between government decision-makers, parliamentarians, scientists and other stakeholders. Under the African Inter-parliamentary Forum on Science Technology and Innovation (AIPF-STI), which was launched with UNESCO in 2010, ISESCO organized an African Union Parliamentary Forum on Science, Technology and Innovation in Cairo, Egypt. The Forum enhanced involvement of the parliaments as trustees of public mandate and concern of the African people with scientific development process in their own countries. Discussions were also oriented toward the issues and challenges facing the continent. Parliamentarians discussed various critical factors for promoting the enabling environment for harnessing the full potential of science technology and innovation (STI) for social and economic transformation of the continent. Parliamentarians discussed mechanisms to address and deal with emerging STI issues, such as the increasing of investment in R&D to at least 1% of the gross domestic product (GDP). The Forum recommended capacity building for young scientists in order to involve them in decision making on science technology and innovation in their countries. The Forum also discussed the Draft Action Plan for 2012-2013 of AIPF-STI and detailed program to focus on how to strengthen new forms of STI governance through cooperation and dialogue among parliamentarians, policy makers, scientific community industry and representatives of the media, civil society and the private sector.
Due to lack of skilled researchers and scientists, a huge number of available grants and supports go unutilized. ISESCO has been conducting workshops to inculcate skills that allow young scientists to prepare quality proposals for competing and securing funds. During 2012, Bangladesh benefited from a workshop in which participants were able to develop skills to identify, design, and develop better project proposals and communicate effectively with the prospective funding agencies. The workshop explained essential elements of model proposal to better design project proposals and gave various tips and tricks for writing quality project proposals.

Under the Strategy for Science Technology and Innovation, ISESCO made efforts to introduce new input to invigorate and rejuvenate science policies in the Member States. Internationally recognized science policy scholars were invited to take part in an international conference, along with senior scientists, researchers and authorities responsible for implementation of the science, technology and innovation policy from Member States and especially from Brunei Darussalam, to give their input on emerging science technology and innovation trends. The conference discussed various means and approaches to promote scientific capacities and specifically address the areas of national system of innovation, industrial development, and promotion of local technologies infrastructure among others. In order to strengthen national innovation systems, the conference exposed the audience to qualitative and quantitative tools for assessing industry needs. In this regard, stress was placed on strengthening and formulating national innovation systems with a view to mobilizing scientific and technological resources towards advancing knowledge and using them for economic gains. Discussion also emphasized that national science policies should be oriented not only toward catering to the future needs of their countries but also matching their priorities for introducing socio-economic changes.

3.1.2

Strengthening Scientific Infrastructure

- Meeting of the coordinators on citation and indexing, Shiraz, Iran, 22nd - 24th October, 2012, organized in collaboration with the Islamic Citation Centre, with the participation of editors-in-chief from a wide range of countries including Egypt, Malaysia, Iran, Lebanon, and Pakistan.

- Global Donors Forum 2012 - Workshop on Musterings Support to Sustainable Development, Kuala Lumpur, Malaysia, 26th - 27th April 2012, in collaboration with the World Congress of Muslim Philanthropists (WCMP), with the participation of distinguished philanthropists, public and private sectors leaders, social investors and experts.
- Consultation Meetings with Joint Partners Representation of ISESCO at regional and international scientific events.
  - 10th Meeting of the Economic Counsellors to the Embassies of the OIC Member States Accredited to Morocco, Rabat, Morocco, 12th January 2012.
  - Senior Official Meeting to discuss draft OIC Water Vision document, Istanbul,
Turkey, 12th-14th January, 2012, organized by the Organization of Islamic Cooperation (OIC), in collaboration with the Turkish Ministry of Forestry and Water Works, with the participation of 50 senior water experts from the Member States.

- Fifth Meeting of the Steering Committee for Health, Jeddah, Saudi Arabia, 31st January - 2nd February 2012, with the participation of Member States and concerned Islamic organizations.

- First Islamic Conference of Ministers Responsible for Water, Istanbul, Turkey, 5th-6th March 2012, hosted by the Ministry of Forestry and Water Affairs, in Turkey, with the participation of Ministers and Deputy Ministers from Member States, Islamic organizations, observers and international organizations.

- Scientific days on Islamic Finance “the challenges of international Islamic finance, the case of Morocco” Marrakech, Morocco, 30th-31st March 2012; organized by the Faculty of Law, University of Cadi Ayad, with the participation of about 40 Islamic finance experts from Morocco and Europe.

- Joint CMI-EIB-JCI Lebanon Workshop on “Innovation and Entrepreneurship in the Southern Mediterranean”, Darwazah Center for Innovation Management & Entrepreneurship, American University of Beirut, Beirut, Lebanon, 23-26 April, 2012, with the participation of about 40 young entrepreneurs from Lebanon, Syria, Jordan, Egypt, Algeria, Tunisia and Morocco, who discussed ways to be an “innovation” entrepreneur in the Mediterranean region.

- Sixth International Conference on e-commerce in Developing countries (ECDC), Shiraz, Iran, 9th-10th May 2012, organized by University of Isfahan, Islamic Citation Centre and other Ministries in Iran. 164 presentations were contributed by experts from 21 countries.

- International experts conference on measurement and policy approaches to enhance equity for the new generations in MENA, Skhirat, Morocco, 22nd-23rd May 2012, organized by UNICEF and the National Observatory for Human Development (ONDH) in Morocco, with the participation of about 100 experts from the MENA region, Asia, South America and Europe.


- 20th Session of the IHP Intergovernmental Council, UNESCO, Paris, France, 4th-7th June 2012.

- 4th International Conference on Intellectual Capital Management, Zanjan, Iran, 3rd-4th October, 2012, with the participation of university professors, thinkers, experts, students and individuals interested in the intellectual property and capital fields with scientific and financial cooperation of 31 international and national organizations.


Analysis and Evaluation Results

A sound scientific infrastructure is crucial for the success of any scientific and technological accomplishment. Under this axis, ISESCO mobilized forces and support for the development of important components and creation of a suitable environment for scien-
tic and technological development in the Member States.

Various forums and international reports reflecting very few scientific papers from ISESCO Member States were published in reputed journals covered by citation index, the root cause being the lack of expertise of young scientists and researchers in presenting their quality scientific research work in internationally accepted norms and procedures. In order to inculcate these skills, ISESCO conducted the Workshop on Scientific Writing and Publication, which benefited young researchers. The workshop demonstrated the ideal measures and standards for qualified research to be published in international journals. Participants were given hands-on training in scientific writing and project building. The workshop illustrated common mistakes in scientific writing and how to present qualitative scientific results in a quality manner. The workshop focused on plagiarism and other topics related to scientific writing. The workshop shed the light on the ethics of scientific writing and legalities in writing scientific papers. The workshop also improved skills in writing and publishing scientific papers which are at the core of the scientific process. It is expected that improving the quality and quantity of published research will have an impact on the quality of individual researchers, and also on organizations and entire regions.

The meeting of the coordinators on citation and indexing was exclusively dedicated to editors-in-chief of scientific journals with the highest impact factor in the Islamic countries. These journals have been systematically and regularly analysed for citation and indexing. In this meeting the issues, criteria for journals publication, articles’ reviewing, citation and scientific evaluation tools were analysed to keep pace with the most accredited journals of the world. Various suggestions to improve the method of journals’ publications and article reviewing were discussed in detail. The Member States were recommended to enhance their collaboration with ISC to improve the current scientific publication status.

The Global Donors Forum 2012 and the Workshop on Mustering Support to Sustainable Development aimed to promote effective environment and build strategies partnerships for high impact on social development. The Forum brought together distinguished philanthropists, public and private sectors leaders, social investors and experts to offer pragmatic insight and constructive response to global and regional challenges faced at international level. This global forum served as a market place for ideas, a platform for sharing knowledge and forging partnership and a launching pad for high-impact collaboration activities. The Forum examined current trends in effective grant making and impact investing, connecting them with needs and opportunities on the ground. The forum offered an array of learning and networking opportunities. The forum began with a high-level plenary session, followed by panel discussions, interactive round tables and workshops. The global forum played a small but crucial role in building a global culture of common concern and collaborative action towards making our world a better place.

Working together with other international and regional partners in science and technology for the achievement of common objectives has always remained an important component of ISESCO’s mode of policy. During 2012, ISESCO continued its active cooperation and collaboration with international, regional, national organizations, non-governmental bodies and scientific academies and associations through joint action or participation in prominent conferences, seminars, symposia, workshops and other scientific meetings. The Senior Official Meeting on the OIC Water Vision held in Istanbul, Turkey, approved the draft of the
OIC Water Vision, finalized the agenda and programme of the First Islamic Conference of Ministers responsible for water and also finalized resolutions of the Ministerial Conference. The Fifth Meeting the Steering Committee for Health finalized the recommendations of the Islamic Conference of Health Ministers and strategic work plan for health 2013-2022. The First Islamic Conference of Ministers Responsible for Water, held in March 2012, Istanbul, Turkey, with the participation of ministers and deputy ministers from Member States, Islamic organizations, observers and international organizations, adopted the OIC Water Vision which provides a framework for cooperation among the OIC countries for overcoming the common and major challenges of maximizing the productive use of water and minimizing its destructive impacts. The meeting organized by the Islamic Centre for Development of Trade (ICDT) helped to project the latest developments on trade between Member States of the Organization of Islamic Cooperation (OIC), highlighted the system of Trade Preferences among the OIC Members States and examined the challenges to raise the volume of commercial exchange among the OIC Members States. ISESCO's lecture on "promoting innovative financial tools: the ethical foundation of Islamic finance" gave emphasis to the virtuous links between Islamic finance and ethics of Islamic finance, its scope and main limitations.

The workshop on “Fostering Innovation, Supporting the Promotion and Financing of Innovation in the Mediterranean,” organized by the European Investment Bank (EIB) and the Center for Mediterranean Integration (CMI), in partnership with one of the main international non-governmental organizations for young active citizens in Mediterranean countries, Junior Chamber International (JCI), covered various mechanisms of promoting and developing entrepreneurial capabilities through a thriving small and medium-sized enterprise sector, developing a business plan and the basics of company setup and structure, strategy and alternatives for financing in order to enhance collaboration and transfer of knowledge and best practices among innovation stakeholders and entrepreneurs around the Mediterranean. Earlier, a guideline booklet was issued by JCI to cover the lessons learned, the best practices shared, the issues relating to entrepreneurship & innovation in the Mediterranean region.

The World Bank's Strategic Framework Paper on Targeting and Social Protection in Morocco, submitted to forty Moroccan officials, outlined an approach to help the poor (A quarter of the Moroccan population, 8.5 millions) and vulnerable people to fully participate in the economy and manage the risks they face. It also provided options for the development of a comprehensive and well-targeted social protection system, which would articulate social assistance and insurance.

The Sixth International Conference on E-commerce in Developing Countries attracted international audience to provide a forum for the dissemination of research accomplishments and promote interaction and collaboration between the researchers and practitioners in the e-commerce, e-banking, and e-capital market fields to meet and discuss current and future e-commerce needs and issues.

ISESCO also participated in the Brainstorming Workshop on Preparation of the OIC Strategic Health Programme of Action 2013-2022 in Ankara. This Strategic Health Programme will be considered by the upcoming 4th Islamic Conference of Health Ministers, scheduled for November 2013 in Indonesia.
Drivers of industrial and economic development

• National seminar on partnership between academia, universities and industry, Bamako, Mali, 12th-16th March 2012, with the participation of more than 25 experts from the African Member States.

• Training Workshop on Science, Technology & Innovation (STI) Policy Development-Technology Management for Socio-Economic Transformation, Kuala Lumpur, Malaysia, 11-15 June 2012, in collaboration with the International Science Technology and Innovation (MOSTI) of Malaysia, with the participation of 42 experts from 20 countries.

Analysis and Evaluation Results

No realistic economic progress can be achieved without commercial exploitation of scientific research findings and bringing innovation to industrial sector. Under this axis, ISESCO strives to establish university-industry partnership towards channelling research results into the industrial sector, and to communicate technological advances conducive to socio-economic development of the Member States. ISESCO also pays attention to strengthen various important components of national systems of innovation and promote interaction between universities and the production sector.

The national seminar organized in collaboration with the National Commission for UNESCO in Mali aimed to develop better synergies between universities, research institutions and companies applying for the training of qualified human resources and competencies. Since the private sector is characterized by a lack of dynamism, particularly in collaboration with universities and other institutions of applied research, and since the enterprises as well as industries never benefit from new scientific advances and research findings, it was imperative to build a strong and balanced partnership between academia and industry. The seminar discussed vital issues to strengthen partnership and defined implementation mechanisms to ensure better coordination between training and market needs and lay down the foundations for sustainable socio-economic development for grassroots communities. The seminar also identified constraints in establishing a strong and balanced partnership between universities / research institutions and the private sector in general, and recommended involvement of the private sector in training, promoting scientific research and proposing appropriate solutions to overcome the various constraints and mechanisms in order to strengthen partnership between stakeholders to improve the link between training and employment.

ISESCO, in order to channel scientific output towards industrial and economic development, also organized the Training Workshop on Science, Technology & Innovation (STI) Policy Development-Technology Management for Socio-economic Transformation to assess suitability of overall framework of development policies and importance of foresight in driving STls strategic agenda. The workshop assessed national policy for Science and Technology and S&T for policies. The Workshop also used best technology management tools to evaluate the impact of commercialization and entrepreneurship, human capital development, research and development funding. The workshop elaborated strategic partnership and collaboration. Local case studies helped participants to understand the best working modes. The participants also conducted study visits to research institutions and industries.
3.2.1 Technological Development Infrastructure


- Award of prizes and medal to talented Science students in cooperation with Khawarzimi International Awards, Tehran, Iran, 5th February, 2012, awarded to two young scientists.

- Steering Committee of the European Investment Bank’s programme (EIB) on “supporting the promotion and financing of innovation in the Mediterranean region”, ISESCO Headquarters, Rabat, Morocco, 31st January 2012, in collaboration with the Centre for Mediterranean Integration (CMI) and ISESCO, with the participation of 30 representatives from Mediterranean Partner Countries (MPCs).

Analysis and Evaluation Results

Technologies offer immense economic and social potentialities. The capacity to absorb, adapt and develop new technologies and utilize them for socio-economic development is, indeed, an indicator of the economic progress of a country. Under this axis, the Division of Engineering and Technology of the Science Directorate concentrated on developing indigenous technologies and efficient absorption of imported technology appropriate in accordance with priorities and resources so as to allow Member States to attain technological competence and self-reliance and reduce vulnerability. The Division exerts efforts towards strengthening the necessary components of technological innovation infrastructure through assisting in technology policies to enable the Member States to pursue an environmentally sustainable technology policy, enabling them to utilize technologies and trades for commercial and economic benefits.

ISESCO in collaboration with WAITRO is running the Senior Management Programme on Managing Research and Technological Organizations to benefit from the Technical Cooperation Programme (TCP) that seeks to enhance capacity research policy and management for developing countries. This workshop conducted in 2012 strengthened strategic competencies of senior Research Technology Organizations (RTO) Management Officials in managing and leading RTOs through sharing of best practices. The workshop defined leadership skills of high potential personnel in RTOs and provided platform for establishing networking among senior officials of RTOs and the promotion of joint cooperation among RTOs in develop-
Activities of the Science Directorate

The workshop covered some of the most important topics on research managements and policies specially managing policies development, workshop extended to cover the prospecting and capturing business opportunities from technology and innovation, how to create and develop values for R&D.

The Technical Cooperation Programme forms a part of the strategy and commitment to the promotion of technical cooperation among developing countries, the strengthening of regional and sub-regional cooperation, and the nurturing of a collective self-reliance among developing countries. The Programme was formulated-based on the belief that the development of a country depends on the quality of its human resources through training and provides a platform for the sharing of information and exchange of experience.

ISESCO also supports and encourages young researchers in their professional career development. In this regard, the Division of Engineering and Technology continued its support to young researchers and technologists through granting them awards and prizes. The festival of the Khawarizmi International Award is hosted each year by the Iranian Research Organization for Science and Technology (IROST) and always inaugurated by the highest office in Iran as well as attended by various government authorities, scientific community, representatives of international organizations, and the media. During the Khawarizmi International Award Festival, ISESCO awarded three prizes and medals to talented young scientists as in the previous years. The awards are to encourage young researchers to orient their career to innovation in technologies, so as to provide the countries with new input for the industrial and technology development sectors.

The Workshop on European Investment Bank’s programme (EIB) on “supporting the promotion and financing of innovation in the Mediterranean Region” was designed to promote knowledge economy and foster innovation in the MENA countries. The Workshop promoted the interaction between the governments, universities and the productive sector. The workshop shared diagnosis regarding innovation in the MENA Region and identified specific difficulties which related to the environment of innovation and its operational aspects. Since the environment was not very conducive to the development of an innovation culture, the regulatory and political framework for intellectual property was not adequate, financing was insufficient to meet requirements, and the operational tools for supervision, marketing and correlating supply and demand were also not sufficiently developed. The workshop performed diagnosis of difficulties which led to the constitution of various solutions like establishing a cooperative regional approach, creation of confidence-building tools, the networking of agents of change and the promotion of an open culture of entrepreneurship tailored to the existing context. The workshop specified five themes which contributed to fostering innovation. These were built on an exchange of “good practice”, the identification and creation of a number of promotional and support tools at the regional level and the promotion of volunteer-based pilot projects at both regional and national levels.
Critical Technologies for Self-reliance

- Framework for Commercialization of Indigenous Knowledge and R & D outputs, Abuja, Nigeria, 6th-8th June 2012, in partnership with the Nigerian National Office for Technology and Promotion (NOTAP), with the participation of more than 200 experts.


- International Training Session on “use of IT in Irrigation Management for Small-scale Farming Communities” 25th to 27th December 2012, Islamabad, Pakistan, in cooperation with the Inter Islamic Network on Information Technology (INIT) and OIC Standing Committee on Scientific and Technological Cooperation (COMSTEC), with participants from Bangladesh, Iran, Indonesia, Jordan, Mauritania, Malaysia, Palestine, the Sudan, UAE and Yemen.

- Launching a workshop for the Member States holding GIAHS (Globally Important Agricultural Heritage System), ISESCO Headquarters, Rabat, Morocco, 3rd-4th May 2012. The following Member States were represented in this forum: Algeria, Benin, Egypt, Morocco, Kazakhstan, Iran, Senegal, Tunisia, Libya, Pakistan, and Saudi Arabia.

- Preparation and translation of inventory of GIAHS (Globally Important Agricultural heritage System) on Member States, ISESCO Headquarters, Rabat, April 2012.

- Third International Conference on Nanotechnology-Nanotechnology potential for Islamic countries, 5-7 December 2012, Kuala Lumpur, Malaysia, with the participation of 160 nanotechnologists including speakers from Iran, Egypt, Pakistan, Indonesia, Bahrain, Bangladesh, Palestine, Jordan and Malaysia.

- International Workshop on Nanotechnology, Dhaka, Bangladesh, 21st-24th September 2012, in cooperation with COMSATS and Department of Chemistry, Bangladesh University of Engineering and Technology at Dhaka.

- Preparation of electronic courses for the benefit of the Member States, prepared by international experts from USA, Malaysia, Pakistan and other regions of the world.

Analysis and Evaluation Results

Our societies are being shaped by technologies. The pace of integrating new and advanced technologies transforms people, economies as well as countries and their interaction modes at international level. These changes hold the promise for greater wealth and improved living standards. ISESCO, therefore, focused under this axis on the support of Member States on the integration of new and emerging technologies and the incorporation of recent trends of technology management to develop the indigenous capacity, so as to build their technology absorption capacity as well as innovation capability for greater economic benefits, and facing their own challenges through indigenous resources.

The workshop on technology foresight with the theme (Packaging R&D Results and Invention for the Market) in Abuja, Nigeria, was organized in recognition of the importance of appropriate packaging of R&D results and inventions to industries. Since packaging of R&D results could play a vital role in wealth creation and industrial and economic development in developing countries, the workshop imparted training to build capa-
bility of researchers in order to exploit emerg-
ing and critical technologies for maximum
benefits. The workshop also acquainted re-
searchers with available research funds locally
and internationally and imparted information
to researchers on Intellectual Property rights.

Since agriculture is the mainstay of many of
ISESCO Member States, major emphasis
was placed on improving the capacities in
the agriculture sector. ISESCO, during the
reported period, supported small-scale agri-
culture projects in collaboration with
COMSTECH to promote crop cultivation,
livestock production and such projects as may
contribute directly to improve the living
conditions of rural and remote communities
which often lack basic services and amenities.
Support for viable projects helped to elimi-
nate unemployment and poverty, and facilitat-
eted the path towards green revolution
while improving environment sustainability
and reducing the climate change impact.

Worldwide, specific agricultural systems and
landsapes have been created, shaped and
maintained by generations of farmers based
on diverse natural resources, using locally
adapted management practices. These systems,
known as Globally Important Agricultural
Heritage Systems (GIAHS), represent a con-
tinuation of historic culture, traditions and
knowledge that have evolved over the centuries.
In order to protect these systems from the
impact of environmental degradation, FAO
and ISESCO initiated a Partnership Colla-
boration to promote the development of
agriculture, forestry and fishing as well as
strengthening their aspects related to science,
technology, knowledge and expertise, cul-
tures and assets in ISESCO Member States.
The ISESCO-FAO Collaborative Forum on
Globally Important Agricultural Heritage
Systems introduced the GIAHS Initiative in
the Member States and facilitated under-
standing of the significance of culture and
agriculture in sustainable development bet-
ween and among Member States. The Forum
projected the linkages of conservation and
revitalization of these agriculture systems to
the most current and future global develop-
ment challenges, such as rural poverty, exo-
dus towards megalopolis, exclusion of local
economies from international markets,
depletion of natural resources and the verti-
ginous loss of biodiversity.

With a view to modernizing agricultural
development systems in the Member States,
ISESCO conducted an International Training
Session on Use of IT in Irrigation Manage-
ment for Small-scale Farming Communi-
ties for the Benefit of Member States. The
training session focused on the integration
of ICT with the automation of irrigation
which would promote higher levels of sophis-
tication as well as comprehensive services
beyond automation, like water supply and
irrigation network design, water budgeting,
scheduling of irrigation timetables, etc.
Beyond agricultural irrigation, ICT and
automation are extensively used in water
supply networks, landscape irrigation,
municipal household water allocation and
consumption monitoring. The training ses-
sion was very successful in that it introduced
participants to advancements in this area,
while recognizing that the most outstanding
progress in the last decade, in the area of
communications and mechanized irrigation,
harnessed the power of computerized con-
trollers to improve water distribution and
machine performance. Participants from
agriculture sector and research centres focu-
sed on the final stage on how to develop a
comprehensive network design software that
would facilitate the computerized design of
irrigation systems based on topography,
aerial photography and GIS data. Future
advancement will enable the incorporation
of irrigation systems design and monitoring
as a component of comprehensive precision
agriculture. Technical institutes, extension
services and commercial irrigation equipment
suppliers, uploaded to the internet software packages that enable irrigators to calculate online the head losses in irrigation systems and the distribution uniformity of emitters and laterals.

ISESCO translated the document of “Globally Important Agricultural Heritage Systems Heritage for the future” into Arabic and French, to give excess to wider public in the Member States, consisted on the listing of different GIAHS sites identified in the Member States. The document presented how the biophysical characteristics, economic and socio-cultural developed within specific socio-cultural and ecological constraints and led to the creation of landscapes. The document was used during the first FAO-ISESCO Forum on launching and developing GIAHS for the Member States.

In view of the huge economic potential of nanotechnology, the Division of Engineering and Technology supported this multidisciplinary science, stressing on its commercial and economic applications and promising industrial exploitation in the Member States. To this end, the Division of Engineering and Technology implemented various projects in line with the Strategy which was adopted by the Fifth Islamic Conference of Ministers of Higher Education and Scientific Research held in October 2010 in Kuala Lumpur, Malaysia, to renew the commitments of the concerned authorities in the Member States to promote investments and cooperation among the member countries. ISESCO organized the Third International Conference on Nanotechnology (IWCN2012) which focused on the basics of nanotechnology, nano-tools and nano-fabrications and their potential applications as a future economic engine. Over 150 nanotechnologists presented their works in 4 specific workshops and plenary sessions. ISESCO also organized its Nanotechnology Network meeting during the IWCN2012, which discussed promotion of Nanotechnology under the Strategy of Nanotechnology approved by the 5th ICM-HESR. The Experts also endorsed the strategic plan for 2013 by performing ISESCO International conference on nanotechnology and international workshops on nanomaterials. The international workshop on Nanotechnology organized in Dhaka covered all important branches of nanotechnology and closely-related interdisciplinary fields like Health, Medicine, Food, Agriculture, Energy and Environment, ICT and Electronic Devices and Industry and Consumer Products. The workshop conducted a panel discussion on “Nanotechnology-Research and Education: Bangladesh Perspectives.”

Due to the increased trend towards virtual science education, ISESCO initiated virtual Science Education Programmes and focused on the preparation of programmes in the field of Nanotechnology. These programmes are expected to bring high quality courses for students to easily learn the new knowledge that a traditional educational setting cannot provide to fill the existing gap. Since traditional education proves costly and many schools are finding it difficult to provide services due to lack of funding, the virtual science education programme will help present cost effective, efficient as well as modern and up-to-date education alternatives.
Activities of the Science Directorate

3.2.3 Capacity Building in Biotechnologies

- International Seminar on Food Production and Processing Technologies, Islamabad, Pakistan, 6th-8th November 2012, in collaboration with the OIC Standing Committee on Scientific and Technological Cooperation (COMSTECH), with the participation of researchers involved in food production and processing, technical personnel from food industry, food policymakers, Agro-business professionals and food safety professionals.
- Preparation of Atlas of the Medicinal Plants, ISESCO Headquarters Rabat, July 2012, in collaboration with the Association of Medicinal and Aromatic Plants in the Arab World.

Analysis and Evaluation Results

Biotechnology and genetic engineering afford enormous economic potentials and are still at the very heart of research activities at international level. ISESCO in the light of the implementation Mechanism of the Strategy for Promotion of Biotechnology in the Islamic Countries approved by the Islamic Conference of Ministers of Higher Education and Scientific Research (ICMHERSR), ISESCO during the reported period consulted with the International Biotechnology Advisory Committee (IBAC) constituted earlier with the major aim to view the hurdles in the development of biotechnology and advise on the ways and means to promote biotechnology in the Member States.

ISESCO established the International Biotechnology Advisory Committee (IBAC) to recommend strategic planning for the promotion of biotechnology in the light of the Strategy for Promotion of Biotechnology in the Islamic countries. The Second Meeting of IBAC was convened in Amman. The Advisory Committee stated that biotechnology has been emerged as a major contributor to the advancement of agriculture, medicine, and environmental science. Recent developments in biotechnology, particularly molecular biology, promise major improvements in agricultural productivity, breakthroughs in human health care, and new solutions to environmental problems. It was recognized that Islamic countries were deriving only limited benefits from biotechnology due to limited investment, low priority in national planning by decision makers and non-availability of required human resources. The Advisory committee identified biotechnology in particular with regard to agriculture and health as an essential player in national development. The Advisory committee drafted a set of recommendation for the coming years.

ISESCO Member States have an agrarian economy which provides the backbone of Food Security. This security is only possible if the population is provided with nutritious food enough to meet the requirement for an active and healthy life. In this context, the International Seminar organized in collaboration with COMSTECH focused on food production and its downstream processing. It was stressed that a significant percentage of food gets spoiled either in storage or in transportation and thus impacts food availability, resulting sometimes in shortages and increase in prices. The seminar recommended food processing as an important component for ensuring food security and economic growth. The seminar covered production of crops for processing (wheat, rice, corn, barley,
potato, tomato, vegetables), processing technologies for these and other crops, livestock, poultry and dairy production and processing and food safety from consumer perspective.

ISESCO also started the strategic project on the preparation of the Atlas of Medicinal Plants with the major aim to advance knowledge and information on medicinal plants, and develop and rehabilitate useful plants in the Arab Member States. The project consisted in collecting data from Arab Member States and preparing an inventory of medicinal and aromatic plants, their use and taxonomy, description of plants, their origin and environment. The project also examined the biological and chemical properties of herbs, the use of tools associated with industries in the areas of different classifications of medicinal plants and aromatic, and the techniques used in their preservation. The document also defined the importance of wild plants and the importance of cultivated plants.
Knowledge-based Scientific Development

- Workshop on higher education and professional responsibilities for greater adherence to international standards in applied science and technology in the sub-Mediterranean region, Venice, Italy, 3-4 April 2012, in cooperation with UNESCO Venice Office and the Landau Network-Centro Volta.

- Training Workshop on New Trends of Technological Innovations to the profit of head of enterprises and Science Parks, Algiers, Algeria, 25th-26th September 2012, in partnership with the Centre for Mediterranean Integration (CMI) and in collaboration with the Algerian National Agency for the Promotion and Development of Technology Parks (ANPT), with the participation of high level stakeholders: government representatives from countries bordering the southern shore of the Mediterranean, heads of science parks, and experts from observatories, universities and international and regional organizations.

- Regional Workshop on the Popularization of Science in Asia-Pacific, Baku, Azerbaijan, 1st-3rd October 2012, with the participation of experts from the Asian Member States, (Pakistan, Bangladesh, Iran, and Azerbaijan).

- Camp of Excellence in Science, Mathematics and Physics for Young Girls, Banjul, the Gambia, from 27th to 30th December 2012, with the participation of 30 Gambian girl students in science, physics and mathematics.

- Workshop on Internet Security Enhancing Safeguards Measures for the Member States, Amman, Jordan, 16th-20th September, 2012, in collaboration with COMSA TS, the Inter Islamic Network on Information Technology (INIT), COMSAT Institute of Information Technology (CIIT), and the Royal Scientific Society (RSS), with the participation of experts from Morocco, Tunisia, Egypt, Pakistan, Iran, Bangladesh, Tanzania, Comoros, Nigeria, Brunei Darussalam and Jordan.

- Establishment of ISESCO Women Science Chairs and Strengthening their role, Algiers, Algeria, July 2012.

- Arab Science Youth Forum on fostering the role of the youth in scientific development, Sharjah, United Arab Emirates, 8th-10th October 2012, with the participation of youth representatives from United Arab Emirates, Jordan, Iraq, Sultanate of
Oman, Palestine, Qatar, Kuwait, Egypt, Lebanon, and Yemen.

• Regional Training Workshop on Science Reporting and Writing Scientific News and Events in Multi-disciplines of Sciences, Cairo, Egypt, 11th-14th August, 2012, in cooperation with Egyptian Syndicate of Journalists (ESJ).

Analysis and Evaluation Results

World economies are increasingly based on knowledge and information. Knowledge is now recognised as the driver of productivity and economic growth, leading to a new focus on the role of information, technology and learning in economic performance. Creating a Knowledge-Based Economy in which the production, distribution, and use of knowledge is the main driver of growth, wealth creation and employment across all industries has always remained an important part of ISESCO’s priorities under Science Action Plans. The Division of Scientific and Technological Education of ISESCO exerted considerable efforts, under the Organization’s previous Three-Year Action Plans, in drawing attention of Member States to various important aspects of such transformation and promoting scientific knowledge base for the general public. It encouraged various agents of scientific knowledge promotion in society seeking to play an effective role in enhancing general public interest in scientific development and to promote scientific curiosity. The Workshop on Higher Education and Professional Responsibilities for Greater Adherence to International Standards in Applied Science and Technology in the Sub-Mediterranean Region (Sub-MR) projected mechanisms for setting up the right tools and people required to bolster the establishment of international standards, best practices and guidance for a sustainable and responsible development across the Sub-Mediterranean region. The workshop covered important areas like assessing the needs and priorities in the Sub-Mediterranean Region, enhancing capacity building by developing appropriate curricula, promoting professional responsibility, including ethics and integrity. The workshop also explained mechanisms for developing common e-learning methodologies and tools, and disseminating the best practices, standards and concepts for further implementation of action plans in the Sub-MR. The workshop recognized huge demands on higher education and a pressing need for more vocational training and apprenticeships to create highly skilled jobs.

The Workshop on Technological Innovation for Heads of Science Parks, organized under ISESCO-CMI cooperation program, promoted innovative jobs and technological developments and imparted fresh knowledge to the concerned staff from the Member States in the management of science and technology parks. The workshop also highlighted the integration between governments, universities and the productive sector with emphasis on the establishment of science and technology parks as a key factor in the commercialization of R&D results. The workshop focused on ways to integrate innovative jobs (higher education and research, incubators, start-ups, mature firms, etc.) in the management process of technology parks. This workshop also provided opportunities to discuss current issues and problems being faced by heads of science parks with a special agenda on professionalism, exchange and support services to science parks (co-incubation, international co-mentoring, team building, etc.). The workshop reinforced networking among managers of science parks and innovative clusters.

Popularization of science creates a curiosity among the general public about scientific ideas and plays a central role in the socioeconomic, cultural and environmental development of a country. ISESCO endeavours to
equip the citizens of its Member States with information to help them comprehend scientific developments around them. The Regional Workshop on the Popularization of Science in Asia-Pacific elaborated various models of building scientific knowledge base for the general public. Various programmes for popularization of science and technology were discussed with the aim to bridge the growing gap between the progress of science and technology and the needs of the society either as a tool of human development or as a dominating factor of human life.

Towards popularization of science, ISESCO organizes scientific camps each year on a regular basis. In 2012, the Camp of Excellence was organized in Banjul for Gambian student girls in science, physics and mathematics. The Camp served both as an educational tool for the various colleges and schools involved to compare their studies, discuss the lessons learned in education and an instrument of integration to meet at the same place young girls, teachers, coaches and model women scientists in the country. It also helped as a tool of empowerment of girls who have not the same access as boys, especially when it comes to science and technology, providing an opportunity to increase the scientific knowledge as well as to exchange between students coming from different regions and provinces of the Gambia. Coaching and training were provided by teachers (mathematics, physics, biology and ICT). The course consisted of experimental parts with some video media in particular regarding reproductive health that focussed on adolescent sexual education and awareness of the harmful effects of STDs and AIDS. The leadership course was given in the form of one day seminar. The camp resulted in a successful exercise and model on how to strengthen and empower young girls and their career development as future scientists to contribute for the well-being of their communities and nations.

Cyber security is becoming more important due to enhanced use of ICTs. The workshop conducted on Internet Security taught the principles of information/network security from the perspective of providing security awareness and its best practices for real world applications. The workshop covered major aspects of information security ranging from theoretical understanding of cryptographic algorithms to practical subtleties of networked systems. The intensive course imparted knowledge and skills to the professionals working in any field involving cryptography or network security. The course, which included lectures, tutorials and practical exercises, focused on both the theoretical and practical aspects of information security. The key areas of the workshop included Network Security, Organizational Security, Cryptographic Techniques for Network Security, Biometric Security and Web Security.

ISESCO always encourages equal participation of women in all areas and levels related to science and technology to assure their full contribution to scientific development. Attention was devoted to promote women's professional career in science, engineering and technology through promotion of facilities, as well as through conducting continuous training and offering tributes to outstanding scientists. ISESCO established “Women Science Chairs” in various regions of the Member States to promote knowledge and scientific expertise among women scientists and researchers. In this regard, ISESCO established a new Woman Science Chair in Algeria hosted by the University of Algiers. The Chair was officially announced during ceremony and an Action Plan was announced to be implemented during the next two years. In parallel, ISESCO furthered support to “Women Science Chairs” established earlier to allow implementation of efficient scientific events for the benefit of women scientists.
Youth play a vital professional role in scientific development, provided that the contribution made by young scientists and engineers is acknowledged and conducive environment is provided for them to nurture their intellectual capabilities. A three-day Arab Science Youth Forum was organized to foster the role of the youth in scientific development, during which youth representatives presented and debated various models for encouraging the youth to participate in the national development process. The Forum called on governments to support the youth from all walks of life and listen to and identify their initiatives, projects, ambitions, talents and grievances to help tackle them in the coming stages. Youth representatives from the Member States presented the status of their programmes and stressed that youth equipped with intellect, creativity and innovation skills are able to materialize their thoughts and bring a new change in the progress of their countries. The Forum recommended governments to create collaborative channels between the authorities as well as political leadership and youth to identify concerns and challenges facing young scientists and engineers and find appropriate solutions to the problems they are facing in developing their careers. The urge was also for engaging the youth and seeking their views in government programs and development plans as well as supporting and helping talented youth to steer the scientific development process in the future. Developing positive participation methods for the youth in scientific development processes and preparing and qualifying promising future youth leaderships to proceed with the development process was also discussed. ISESCO is already making efforts to initiate the Islamic Youth Science Academy to provide a platform for the youth to coordinate with government bodies to overcome challenges and obstacles facing youth action.

ISESCO exerts efforts to popularize scientific concepts and knowledge so as to raise awareness and understanding of the general public, especially the youth, about new scientific and technological developments. It is impossible to achieve popularization of scientific concepts and knowledge unless all available means are channelled. Thus, apart from organizing science fairs, mobile schools, exhibitions, festivals and caravans, ISESCO also devoted attention to promote Science Journalism. Regional training workshops for science journalists are therefore regularly organized to train young science journalists in scientific reporting, with the participation of syndicates and organizations of young journalists. The science journalists are trained in reporting new scientific methods, processes, technologies, scientific innovations, etc. for the general interest of the public. Under the Action Plan 2010-2012, the regional training workshop organized in Cairo in cooperation with the Egyptian Syndicate of Journalists (ESJ) generated wider interest of journalists and discussed ways and means to better access and reporting procedures.
Science Education Policies and Human Resources Development


- Support for the Sixth Meeting on Engineering Technologies, Gaza, Palestine, 25th-27th March 2012, in collaboration with the Ministry of Higher Education and Ministry of communication and Technology, with the participation of more than 400 students and representatives of different ministries and technology institutions.

- National symposium on transforming university programmes and curricula as per contemporary needs in scientific fields, 29-31 May 2012, Bejaia, Algeria. More than 30 scientists and researchers as well as policy makers attended the symposium from Algeria and from the Maghreb region (Algeria, Morocco, Tunisia, and Libya) as well as from the United Kingdom and France.

- Training Workshop for Trainers on the Use of Micro-science Experiments (deferred from December 2012 to 2-5 January 2013 in Niamey, Niger, at request of cooperating party i.e., UNESCO), in association with Niger National Commission and the “Guri Vie Meilleure” Foundation, with Niger First Lady as the Chair, and with the participation of 31 science teachers and 100 high school science students.

- Consultancy for the Establishment of the Engineering Faculty of Djibouti, Djibouti, 9th-18th October 2012.

Analysis and Evaluation Results

Science education is the bedrock on which the whole infrastructure of the S&T system as well as the industrial and technological base is built. Science education needs to be expanded and interest should be enhanced to attract talent. Apart from this, the standard of teaching in schools, colleges, and universities counts and needs to be raised to the best international standards, to remain competitive at the international level. ISESCO, under this axis, exerts efforts to introduce adequate science education policies and improve the quality of education in all important sectors to serve as a foundation of the knowledge-based economy. Quality-assurance measures are enforced and incorporation of robust accreditation schemes is recommended. ISESCO also focuses on integrating information and communication technologies into science education and management through conducting various activities for policy and decision makers.

In order to improve university education in the Member States, ISESCO through long efforts had produced a document on “Key Performance Indicators (KPIs): Guidelines for Assessment, and Quality Enhancement for Universities in the Islamic World”. In order to adopt this document an Extraordinary Session of the Islamic Conference of Ministers of Higher Education and Scientific Research was convened in Riyadh, Saudi Arabia, in October 2011, which with consensus adopted the document. The document aims to improve the standards of higher education at universities in the Member States. In order to enable the universities to introduce this processes for quality assurance, ISESCO produced a stepwise guide to improve their performance to achieve competitive excellence in higher education in line with international standards. It is expected that this document will enable universities
to introduce clear measures to improve quality which were not available before.

The Sixth Meeting on Engineering and Technology organized by the Islamic University College of Engineering in Gaza enhanced skills and knowledge on practical science experimentation and capacity building for science, technology and innovation for graduate students. The meeting also provided an opportunity to graduate students to explore a new concept, practical experience and new methodology in implementing their graduate projects. The meeting was organized jointly with the Ministry of Higher Education and the Ministry of Communication and Technology. This Meeting also benefited more than 400 students and representatives of different ministries and technology institutions.

The national symposium on transforming universities’ programmes and curricula as per contemporary needs in scientific fields, organized in Algeria, also facilitated the promotion of a culture of quality in higher education, improved the service of internal quality assurance, promoted institutional self-assessment for universities and contributed to promoting university governance and quality assurance. Since the educational policies change in accordance with the type of human resources required by a rapidly changing economy and as the transition to a market economy-based requires the introduction into the education of new specializations, participants were introduced to policies and plans that meet the new requirements of educational planning and policies and the development of the needed qualified human resources for realistic development. The participants from Algeria, Morocco, Tunisia, Libya, the United Kingdom and France shared their experiences and presented various approaches on how to improve quality assurances at national and regional levels. The symposium also covered the mechanisms of University/Employment interaction by performing an inventory of the potential offers of employment at national, regional and local levels and also by developing a better understanding of these mechanisms. Concrete proposals were made to minimize the gap between supply and demand for university graduates and to consider the university as real business for training consulting-research-policy-investment and management and to identify the mechanism of interaction and synergy between university and employment.

In order to strengthen the practical capacities of science schools, ISESCO has conducted demonstration workshops on micro-science experiments since the last 12 years in collaboration with UNESCO. The scientific Training Workshop for Trainers on the Use of Micro-science Experiments conducted by ISESCO demonstrated the micro-science methodology to familiarize trainees with science education kits. Several experiments were performed including the electrolysis of water, titration and testing laws of electricity. The trained teachers attended a working session and discussed with inspectors, curricula planners and educational authorities how to integrate science kits in schools at the secondary and higher levels, and how to train other teachers. They examined the possibility of reproducing the kits in Niger and adapting the curriculum material prepared earlier by UNESCO and ISESCO. 100 high school science students also benefited from the workshop and were familiarized with the kits and performed several experiments in chemistry, biology and physics.

ISESCO assisted the government of Djibouti for the establishment of an engineering faculty in Djibouti. An international consultant prepared the feasibility study concerning the creation of an engineering faculty that meets international standards and development of
Integrating ICTs in Science Education

- First Meeting of Country Coordinators for the Establishment of the Pan-Islamic Research and Education Network (PIREN), ISESCO Headquarters, Rabat, Morocco 19th-20th March 2012.
- National Workshop on Distance Science Education Programme, Doula, Cameroon, 5th-7th June 2012, for 26 participants from education ministry and educational institutes from various regions of Cameroon.

Analysis and Evaluation Results
Integration of ICTs coined with virtual universities, digital resources and electronic exploratory applications have totally changed education environment. Under this programme, ISESCO encourages the Member States to promote their virtual education programmes to improve the quality of scientific and technical education. Under this axis, ISESCO’s focus is on updating educational programmes in the light of the new advances and on promoting e-learning to optimize time, energy, material inputs etc. in educational programmes.

ISESCO, during the reported period, introduced the concept of having a Pan-Islamic Research and Education Network (PIREN) to establish R&E connectivity between all the Islamic countries, to form a consortium of National Research and Education Networks (NRENs) of the countries of the Islamic world. Selected Islamic countries based on the status of NREN and geographical location were invited to attend the First Meeting of Country Coordinators at ISESCO headquarters in Rabat, Morocco, to discuss potentialities and mutual goals. This meeting found the Establishment of the Pan-Islamic Research and Education Network highly beneficial for the following Member States: Egypt, Iran, Kazakhstan, Malaysia, Morocco, Pakistan, Saudi Arabia and Senegal. The meeting aimed to provide best possible learning skills for young people, and promote active contribution in scientific research with a focus on the real problems being faced by countries. The networking was expected to provide operating and maintaining e-infrastructure and collaboration platform to facilitate sharing of resources and necessary tools to leverage joint research and better education.

In order to proceed further for the implementation of the PIREN project, few of the action plans were defined in the draft project proposal which included understanding the current status of NRENs in Islamic countries, analyzing the expansion in present structure, Gap Analysis (SWOT Analysis), resource generation and establish PIREN Web Portal. It was stressed that the establishment of Pan-Islamic Research and Education Network (PIREN) is not an option to consider rather the need of time, and so such initiative should be encouraged and fully
supported. All Member States were asked to conduct SWOT analysis and share the report on same to ISESCO and to understand strengths, weaknesses, opportunities and threats across the member countries of the Islamic world so that project planning can be effectively done for the success of this project. It was strongly recommended to encourage the creation of good contents, repositories and availability of applications and services among the member countries to serve as well as benefit from each other.

Distance education and learning is one of the prerequisites of the present information era. Under this axis, ISESCO bent efforts to promote integration of information and communication technologies in the education system at all levels and also to concentrate on distance education through conducting training courses, workshops and seminars in teaching science subjects. ISESCO also exerted efforts towards enhancing the quality of distance education through supplying learning packages, utilizing new information and communication technologies and drawing up multimedia and open distance education programmes tuned in to the needs of students. The national workshop on distance science education in Cameroon analyzed distance education programmes in Cameroon and the African region. Due to difficulties in securing education, especially for people from a distance, the workshop displayed the advantages of distance education and other kinds of virtual education as an intelligent tutoring system, simulated space of class. The workshop also emphasized the use of new gadgets (iPad and other software) and recommended asynchronous communications and also some instrument for distance education as Blogs, wikis, podcasts. The workshop enumerated distance education possibilities and prospects and emphasized special features and advantages of distance education that create confidence and wide development and introduction on proactive technology of distance education. It was also projected that distance education will solve the crucial problems facing the society, taking into account the requirements to world educational process expressed in “equal access to education” and “education through all life”. Emphasis was also placed on opening virtual campuses.

3.3.4

Higher Science Education

- Sixth Islamic Conference of Ministers of Higher Education and Scientific Research, Khartoum, the Sudan, 20th-21st November, 2012, under the patronage of His Excellency Field Marshal Omar Hassan Ahmed Al-Bashir, President of the Republic of the Sudan, with the participation of ministerial delegations from the OIC Member States and high representatives of international and Islamic organizations.

- High Level Quality and Accreditation Experts’ Meeting to Follow-up Implementation of “Key Performance Indicators: Guidelines for Assessment & Quality Enhancement for Universities in the Islamic World”, Jeddah, Saudi Arabia, 4th-5th October 2012, in collaboration with the Ministry of Higher Education, Saudi Arabia, the Federation of the Universities of the Islamic World, and the Organization of Islamic Cooperation (OIC), with the participation of 15 quality assurance experts from Member States.

- National Workshop on Education for Development and Competency: Linking
Analysis and Evaluation Results

Higher education institutions play a fundamental role in imparting education and effecting economic and social change in a society. Achieving excellence in higher education is imperative for the Islamic world to reclaim its rightful place in the international arena, and to meet requirements of sustainable economic development. The Division of Scientific and Technological Education has always contributed towards improving quality and performance in higher education to help the Member States in the process of national building and securing the conditions of economic success.

The Sixth Islamic Conference of Ministers of Higher Education and Scientific Research adopted the “Khartoum Declaration on the Role of Higher Education in Development of Science and Technology for Prosperous Future”. The Declaration asked the concerned higher government authorities in Member States to accord increased attention to the promotion of scientific research and reorient it in such a way as to address the development challenges being faced by Muslim countries. It also urged their legislative bodies to adopt necessary resolutions to provide more financial support and other incentives for developing scientific research. The declaration recommended promoting active collaboration among education and scientific research communities in the Member States to exchange expertise through the new emerging paradigm of communication networks in academic and research domains, while effectively joining the Pan-Islamic Research and Education Network (PIREN) to leverage joint research and better education. The conference urged the Member States to develop capacities of their higher education systems, expand their scope to comply with relevant new requirements, improve quality to achieve excellence in higher education, and accord due attention to enforce the “Key Performance Indicators” and develop follow-up and implementation mechanisms as well as benefit from the “Guide for Assessment and Quality Enhancement for Universities in the Islamic World” which was adopted by the Conference to assess their performance and overcome the problems and hurdles encountered in improving the quality of education at their universities, with a view to enabling them to enhance their standing at the international level.

The declaration recommended the Member States to pay special attention to employability issues regarding higher education graduates in such a way as to generate executive staff responding to the needs of businesses, governmental and non-governmental departments and industry sectors, achieve national economy development goals and provide suitable opportunities to benefit from the requisite knowledge, skills and professional aptitude to enable them to deliver high quality services and engage in competition at the international level.

The declaration also urged Member States to keep abreast of the major developments taking place in the realm of youth through emergence of new attitudes and behaviour patterns, which call for devoting further attention to assessing and addressing challenges in education, science and technology, particularly through setting up youth science academies and education associations enabling them to take up challenges and overcome hurdles in line with their own vision, approaches and choices.

The declaration recommended expanding the scope of the programme of establishing ISESCO chairs for women scientists in Member States, extending facilities and re-
sources to collaborate and jointly work in empowering women in scientific and technological fields, eliminating their marginalization, and reorienting their socio-economic status towards achieving social and economic gender equality in rights and duties in the Member States.

Alongside the conference, a roundtable was organized which focused on the “Role of Higher Education in Development of Science and Technology for a Prosperous Future”.

Earlier, ISESCO also organized the High-Level Quality and Accreditation Experts’ Meeting to Follow-up on the Implementation of the document on “Key Performance Indicators: Guidelines for Assessment & Quality Enhancement for Universities in the Islamic world”. The meeting discussed ways and means for implementation of the document on “Key Performance Indicators (KPIs)”. It also finalized the Guidelines for Assessment, and Quality Enhancement for Universities in the Islamic World”. Further, the expert meeting developed follow-up mechanisms of key performance indicators to ensure quality in higher education.

In the absence of a highly skilled workforce capable of contributing to the economic development process, it is extremely difficult to make any progress. Thus, in order to align higher education to the needs of sustainable economic development, ISESCO is committed to providing Member States with knowledge and technical support to enable them to meet the requirements of sustainable economic development. The National Workshop on Education for Development and Competency: Linking Education and Training with the Needs of the Labour Market, organized in Niger, provided an opportunity for capacity building and helped strengthening link of education to the needs of the labour market. The workshop conceptualized a holistic education-labour market framework, identified weaknesses of the system in better linking new and emerging needs of the labour market and provided policy advice on how to use education system to contribute to the rapid growth of the economy. Since the absence of required skill as per needs of the labour marker or even mismatch of skill was the result of absence of link in education to the labour market, it was recommended to help ministries of education and vocational training to give effective and efficient response to the needs of skilled labor for major projects that were open to Niger and the implementation of all major development strategies. The policy advice given in the workshop are expected to improve the situation and link education to develop dynamic education system responding to the needs of the labour market.
SUSTAINABLE ENVIRONMENT AND NATURAL RESOURCES DIVISION

Field of Action 3.4
NATURAL RESOURCES MANAGEMENT AND SUSTAINABLE DEVELOPMENT

Management of Natural Resources

- Symposium on addressing the impacts of mining exploitation on environment in Arab States, Rabat, Morocco, 22-24 February 2012.
- Regional training workshop on the application of GIS and GNSS in sustainable development, Porto Novo, Benin, 23-27 April 2012, with the participation of more than 30 experts from 11 countries (Benin, Burkina Faso, Cameroon Gabon, Mali, Niger, Nigeria, Senegal, Chad, Togo, and Morocco).
- Seminar on application of geophysical and geochemical techniques in exploration and investigation of metals, Rabat, Morocco, 22nd-24th February 2012.
- International workshop on conservation of Biodiversity, Rabat, Morocco, 13th-14th September, 2012, in collaboration with Network of Academies of Sciences in Islamic Conference (NASIC).

Analysis and Evaluation Results
Conservation, management and sustainable use of natural resources in the Member States have always been accorded due attention as they constitute a significant potential for economic benefits. These efforts are based on the principle that any exploitation of natural resources should be done without compromising the ability of future generations to meet their own needs and enjoy the same quality of living in a sound environment.

ISESCO, under this axis, continued its efforts to build capacities of the Member States by encouraging and assisting them through policy dialogue to formulate national policies and regulations. Knowledge and information were promoted through organization of international, regional and national conferences and meetings. Institutional and personal capacities have been built-up through training courses and workshops in natural resource conservation. Application of appropriate technologies has been promoted for sustainable development of natural resources.

The symposium on addressing the impacts of mining exploitation on environment in Arab States projected the importance of optimum exploitation of mineral resources while preserving the environment to contribute to
Activities of the Science Directorate

protecting the environment and prospect manufacturing rehabilitation of mining and use of remote sensing and GIS technology in the environmental area to solve existing problems. It also introduced the programs of monitoring and controlling emissions and substances in relation with air and waste water quality resulting from mining and manufacturing operations. The symposium also discussed various regional and international environmental legislation, exchanged the knowledge and experiences of various Arab States and introduced monitoring program related to air and waste water quality. The symposium enhanced awareness of the importance of preserving the environment in the field of mining exploitation and its relation to the development of mineral resource sectors.

The regional training workshop on the application of GIS and GNSS in sustainable development involved decision-makers at the regional level in West Africa, discussed vital policy measures and presented the latest studies and advances in the field of Earth Observation, especially in the region. The workshop discussed the findings of studies for the enhancement of capabilities in the field of remote sensing in the French-speaking African countries. The training imparted on the latest advances tools (object-oriented classification, classification and sub-pixel image processing etc.), strengthened capacities on remote sensing and its applications on natural resource management and agriculture development. The workshop imparted training on how to harmonize technical collection and processing of data and the development of regional experiences in remote sensing, including data acquisition for real-time detection and prevention. The training allowed participants ways and means to access to available knowledge and its acquisition, and sharing the best practices required for understanding of natural resources, agriculture potentialities at regional level with a view to assisting in the development and updating of natural resources management policies and the applications of spatial technologies.

ISESCO also pays attention to conservation and protection of biodiversity. In this regard, the International Workshop on Conservation of Biodiversity in the Desert Areas provided an opportunity to find solutions for resolving the problems faced due to eradication of cultivated lands in the Arab region and discuss ways to overcome the constant threats of increased desert areas. The workshop highlighted various threats existing in the desert areas and promoted the exchange of experiences and information about biodiversity conservation tools. The experts discussed various ways and means to optimize the use of the resources and utilize them in achieving sustainable development. An exhibition on conservation of biodiversity was also organized alongside the workshop which projected various endangered species and ways and means to protect them.

3.4.2

New and Renewable Energy Technologies


• Regional World Renewable Energy Congress, Beirut, Lebanon, 7th-8th December 2012, in collaboration with the Arab Academy of Science and the World Renewable Energy Network, with the participation of 50 renewable energy scholars from Member States and other countries.
• International Seminar on Renewable Energy and Sustainable Development in the Developing Countries, Brighton, United Kingdom, 9th-15th September 2012, in collaboration with WREN and attended by 20 participants and 13 speakers.

• Sub-regional symposium on utilizing alternate and durable resources of energy, Dakar, Senegal, 16th-18th January 2012.


Analysis and Evaluation Results

Energy is an essential commodity to meet our basic demands for social and economic progress, and use of renewable sources of energy is the only way in achieving a sustainable and safe future for us and our future generations. In order to support the United Nations renewable energy priority and to meet the burgeoning energy demands, ISESCO implemented a number of national and international activities under its Action Plan to promote the utilization of renewable energy and enhance efficiency and increase reliance on new and renewable resources of energy.

The sponsorship lent by ISESCO to the organization of the World Renewable Energy Conference in Colorado, USA, provided an excellent opportunity for a number of young and talented scholars from the Member States to benefit from the support and present their papers and to meet and exchange knowledge and experience at the international level. The scientific ambience of the Conference at the presence of more than 700 renowned scientists from all over the world, encouraged a great deal of exchange of knowledge and experience in renewable energy and inspired the participants with new ideas and notions in this new field of renewable technologies. Abstracts of papers presented in the conference were published by WREN jointly with ISESCO. H.E. the Director General of ISESCO was awarded an outstanding pioneering Award by the world conference in recognitions of his efforts for the protection of the environment and promotion of renewable energy. Active participation of ISESCO in the World Renewable Energy Regional Congresses has always enabled to highlight its role and dedication for sustainable development.

ISESCO Member States in the Arab regions need to keep abreast with recent advances in renewable energy area, which offer opportunities both leading to valuable intellectual property as well as cost-effective energy supplies. This requires the development of sophisticated national and international policies and enlightened political awareness to exploit new technologies. The Regional World Renewable Energy Congress organized in Lebanon concentrated essentially on the human-capability approach. Accordingly, reference was made to the UN Human Development Report, and its associated global, regional (such as the influential ten-volume Arab Human Development Report series), and national reports, taking into consideration the Gender Inequality Index, and the Multidimensional Poverty Index. The Congress addressed scientific, engineering, and technological so-
lutions relevant to the region and its peoples. The Congress stressed upon the utmost importance that the Arab Region capitalizes on the availability of renewable energy sources, the intellectual and manufacturing capability of its human capital, and the development of strategies to exploit energy security for the benefit of its peoples. The presentations highlighted that the Arab scientists, engineers, and technologists have generated relatively little internationally competitive wealth-creating intellectual property. Thus, networking between the scientific and industrial groups was considered as an urgent requirement to encourage innovation and to optimise the use of precious research facilities and undoubted academic prowess.

ISESCO places stress on continued training in the field of renewable energy. The international seminar on renewable energy with WREN in Brighton tackled various issues related to policy making, security, water resource management and the environment. The seminar discussed various measures and practices of the renewable energy technologies. ISESCO has been organizing such seminars in collaboration with WREN to allow for the exchange of expertise in the field of renewable energy. The seminar was also supported by the British Council, Commonwealth, Elsevier Sciences, and other organizations.

Solar energy is expected to become an important component in the total energy picture in many developed and developing countries and will play an important role towards achieving lasting, sustainable, and environment-friendly renewable energy resources. To keep pace with new science and technology developments, ISESCO conducted hands-on training in solar electricity for experts engaged with rural energy development in the Asian region. The first session of Asian School on solar electricity was hosted by the Solar Energy Research Institute of the Unversiti Kabangsaan Malaysia. The 5th session of Asian School promoted the use of environment-friendly technologies for developing Asian countries, by exposing the participants to international perspectives and experiences in solar energy applications and policy in rural areas and presenting the state-of-the-art review on solar energy technologies for rural applications. The School provided the opportunity for 14 regional experts to learn about case studies and design tools for solar system sizing and costing, micro-financing schemes, using newly developed analytical IT tools.

The regional training workshop on "Sharing and Dissemination of Information Geospatial Network in Africa" held in Cameroon for the benefit of experts in the sub-region of Central Africa, strengthened scientific capacity building in the field of Earth Observation through the sharing and dissemination of spatial information via a network in the field of science and technology space. The workshop focused on the harmonization of technical collection and processing of data and the sharing of regional experiences in the use of remote sensing and GIS tools, including data acquisition for monitoring and management of natural resources and other aspects of the environment in the context of climate change. The participants were provided with an update on the treatment techniques of geospatial data, and the development of regional experiences in spatial tools applied to environmental studies. Practical training on real data spatial (satellite images, DEM, vector data themes etc.), and on interface professional programs of remote sensing and Geographic Information Systems (GIS) was aimed to build capacities of the Member States in managing such spatial data. The workshop ended with a general discussion on the state of the Earth Observation in the African Member States. Future cooperation and dissemination of geospatial information through the web page created will benefit the Member States.
ISESCO followed closely on the progress on its regional consultations meetings on promotion of renewable energy in the African region. The national meeting of different actors for validation of the “National Policy on Renewable Energy Strategy for Togo” was held in the light of recommendations of the regional consultation seminar for African countries on promotion of renewable energies organized in Cameroon by ISESCO and IEPF (Institut de l’Energie et de l’Environnement de la Francophonie) in 2011. The project on policy and strategy for Togo on the promotion of renewable energies was discussed in detail in the first consultative meeting held in Togo in October 2011, where the international consultant contracted by ISESCO together with the stakeholders involved in Renewable Energy in Togo established the outline of the strategy document and necessary updating was done and all data related to this issue was gathered for preparation of a comprehensive strategy. This document was extensively debated in the National Meeting this year with representatives of various concerned sectors in Togo. Four working groups, established for the project, set up the strategy in view of the real status and human and financial capacities. The strategy finalized in the meeting was later submitted to the concerned ministry and authorities in Togo for adoption.

3.4.3
Integrated Management of Water Resources
- 14th Regional IHP Meeting and its Side Event Workshop on Water Scarcity in The Arab Region, Lebanon, Beirut, 30th April-2nd May 2012, with the participation of 13 water resources professionals at institutions from Member States and ESCWA.
- Regional Workshop on Desalination for Sustainable Development of the Arab Region, Tunis, Tunisia, 21-23 November 2012, with the participation of professionals in water desalination from Egypt, Libya, Tunisia, Algeria and Morocco.
- Seminar on Water Innovations and Young Entrepreneurs, Beirut, Lebanon, 8th-9th May 2012, in partnership with the Centre for Mediterranean Integration (CMI) and in collaboration with the World Bank Beirut Office, with the participation of 15 young high-skilled people and entrepreneurs who worked together and discussed entrepreneurs’ perspective on water innovation in the Mediterranean, and shared knowledge with about 10 Lebanon high level stakeholders.
- Assessment Studies of Climate Change Impacts on the Water Resources and desertification, Tunis, Tunisia, 30th April-2nd May 2012, with the participation of 30 experts from seven Member States.

Analysis and Evaluation Results
Water is indispensable for human life, health and well-being and central to all sustainable development processes, including environment integrity, food security, eradication of poverty, and transformation to green economy. Effective and sustainable management of water resources has been recognized as a top priority under ISESCO Action Plan 2010-2012. In this regard, the Division of Sustainable Environment and Natural Resources of ISESCO has been implementing the Strategy for Integrated Management of Water Resources
which was endorsed by the Islamic Summit held in Malaysia in 2003. During the reported period, the Science Directorate achieved some of the results by organizing programmes in line with the Implementation Mechanism of the Strategy for Management of Water Resources.

The 14th Regional IHP meeting and its side event workshop on Water Scarcity in the Arab Region, jointly organized with UNESCO and ALECSO, achieved their objectives. The meeting enabled to formulate an effective and sustained mechanism for effective IHP planning, implementation and capacity building in hydrological sciences and water resources management in the Arab region. The meeting discussed efforts of UNESCO and ISESCO towards better water resources management in the Arab region in the area of capacity building, developing tools, awareness raising, networking, training, research and water education at all levels. The meeting also identified common priority water issues in the Arab region in line with IHP, ISESCO and ALECSO programs and prepared a work plan for 2012-2013 based on the general Arab needs, challenges and priorities, based on the current approved work plans and the expected constraints. The meeting also discussed the status of the integrated water resources management policy and strategy in line with the MDGs.

Focusing on the area of water desalination which has remained in demand as per needs of the region, the regional workshop on desalination for sustainable development in the Arab region elaborated mechanisms and procedures to facilitate the working process in water areas, especially in desalination of water. Dialogue and consultations and the exchange of experiences on the regional level helped understand better practices. The workshop also elaborated an assessment of the best technologies available to desalinate water in rural areas. The workshop proposed applications of the best technologies available in the field of water desalination to fulfil the needs of rural areas and also to improve the world’s most arid regions. The participants assessed the results of new research, studies, reports and other works done in the field of water desalination and discussed new approaches to facilitate processes of desalination of water in rural areas, both inland and coastal, with a focus on promoting the use of renewable energy sources. The workshop recommended practical measures to encourage actors in the region to adopt more sustainable methods for water desalination, with a focus on the need to achieve integration and harmony with initiatives and other regional projects in the same area in order to expand the scope of work.

The Seminar on Water Innovations and Young Entrepreneurs was organized to provide answers to common problems facing young entrepreneurs and foster open developmental dialogue, with a special focus on barriers to innovation in the water sector. Obstacles highlighted were commonly-shared issues among entrepreneurs and industry practitioners in many developing countries. It was found that obstacles do not necessarily discriminate against age, with young people carrying the burden of risk at a high cost. Various other obstacles were discussed. It was found that due to lack of clarity regarding the role of the private sector, various new inroads for engagement with local public authorities that existed were not projected properly. It was also found that financing in acquiring both seed capital and long-term, equity investments toward growth and sustainability were lacking. Most of the entrepreneurs interviewed complained that because their innovations were new and not yet proven, it was difficult to secure loans from banks whereas the investors argued that the funding was available but the supply of “quality” business ideas were weak, while entrepreneurs argued that funding was not available and
opportunities for raising their visibility were limited and slow. The Meeting drafted various recommendations and strongly recommended that the monitoring and evaluation development experience with successful business requirements and planning can better support innovative practices in the water sector where technical know-how can be tailored to country needs.

Since some ISESCO Member States are suffering from desertification and land degradation due to various factors, including climatic variations and human activities, ISESCO exerts efforts to mitigate this phenomenon. New techniques such as remote sensing are promoted to find solutions to negate the impact and combat desertification. The International conference on using remote sensing for assessing the effect of desertification, which was held in Mauritania, identified initiatives and mechanisms to promote the use of space-based information for management and promotion of community involvement in desertification control. The conference also identified all available resources for the acquisition of knowledge and discussed modes of sharing best practices.

In the context of combating desertification, ISESCO conducted the Workshop on Assessment Studies of Climate Change Impacts on the Water Resources and Desertification in Tunisia and discussed in detail climate change, water and desertification and its relation with greenhouse gases. The workshop imparted new knowledge and tools to enhance the capacity for scientists, researchers and engineers working in the field of water resources and land degradation. The workshop explained new research methodologies for assessing and improving water management performance in an integrated water resource management framework, presented practical guidelines and best practices for institutions and introduced various policy measures for dealing with specific types of water management problems. The workshop focused on both groundwater and surface water basins by providing new technologies used to monitor water budget in shared water basins with special emphasis on legislation about water use, rights and obligations between shared countries and desertification.
Activities of the Science Directorate

Ocean Resources

- National Workshop on Coastal Pollution and Its Impacts on Aquatic Life, Sanaa, Yemen, 24<sup>th</sup>-26<sup>th</sup> September 2012, with the participation of twenty-seven experts from non-Member States.
- Regional Training Workshop on Adaptation of Climate Change on Coastal and Marine Environment, Jeddah, Saudi Arabia, 17<sup>th</sup>-19<sup>th</sup> September 2012.
- Sixth Arab Conference on Coastal Environment-Training workshop on coastal pollution, Hurghada, Egypt, 16-19 July 2012, in collaboration with the Arab Federation for Youth and Environment, with the participation of 40 experts from eight countries.

Analysis and Evaluation Results

Oceans hold great economic potential which at present is not utilized properly by ISESCO Member States. Lack of coordination, data, planning and management expertise is identified as a major weakness. Further, the misuse of the ocean and shores has been continuously polluting the marine environment. Under this axis, ISESCO has encouraged policies promoting the beneficial and long-term sustainable use of ocean resources. The National Workshop on Coastal Pollution and Its Impacts on Aquatic Life held in Sanaa presented a perfect mechanism for managing marine natural resources and the environment. Traditionally, management efforts were focused on recognizing the different sources of pollutants, as well as methods of removal and treatment. The training workshop provided input to formulate strategies and guidelines to keep the marine resources exploited in a sustainable manner, taking into account the policies for maintaining clean coasts. The problem of climate change, pollution and its negative impacts on aquatic life and land degradation in some Member States were discussed by details to find out approaches to mitigate these phenomena. The workshop helped in raising awareness of the importance of preserving clean coasts and enhancing cooperative work between men, women and stakeholders.

The unprecedented impacts likely to occur from climate change represent a serious concern that will increase the challenge of sustainable management in the Member States. Establishing a dynamic system at both national and regional levels for assessment of coastal vulnerability to climate change is needed. Within the framework of the Cooperation Programme between ISESCO and the Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA), the Regional Training Workshop on adaptation of Climate Change on Coastal and Marine Environment focused on vulnerability assessment in order to provide the theoretical background and practical training in approaches and methodologies currently used in vulnerability assessment of coastal and marine environment. The workshop discussed various drivers and likely impacts of climate change on coastal and marine environment and the risks posed in relation to infrastructure, natural resources, biodiversity, and other socio-economic aspects. Participants from the Arab Member States including those neighbouring the Red Sea and the Gulf of Aden were introduced to various topics on risk prediction, assessment and management, observation systems and forecasting, developing vulnerability scenarios and data analysis.

The training workshop on coastal pollution conducted in Hurghada, Egypt, discussed
the main resources in coastal areas and reasons which led to pollution. The workshop enhanced skills on implementation of ecosystem approaches in the coastal areas through focusing on the application of integrated management of natural resources, monitoring and control of pollutants. The workshop explained new management measures, approaches and necessary legislation to control the environment. The participants were familiarized with methodologies through demonstrating case studies, identifying options and hands-on training. The workshop also identified and discussed issues relative to the implementation of coastal management for aquatic life in the area. It also helped in raising awareness of the importance of preserving clean coasts and enhancing cooperative work between the concerned staff.
Field of Action 3.5
ENVIRONMENT AND DISASTER MANAGEMENT

3.5.1 Environment Protection

- Second Meeting of the Islamic Executive Bureau for the Environment, ISESCO Headquarters, Rabat 13th-15th March 2012, with the presidency of His Royal Highness Prince Turki bin Nasser bin Abdulaziz, President of the Fourth Islamic Conference of Environment Ministers and Chairman of the Islamic Executive Bureau for the Environment.

- Fifth Islamic Conference of Ministers of Environment Astana, Kazakhstan, 17th-18th May 2012, with the participation of Member States and concerned international organizations.

- Expert Meeting on Climate Change Network and DNA Forum, Marseille, France, 24th-26th September 2012.

- Regional Expert Workshop on Low Carbon Development Strategies and the Nationally Appropriate Mitigation Actions (NAMAs), Marseille, France, 24-26 September 2012, in collaboration with UNEP, RCREEE and the World Bank.

- Meeting of Civil Society Organizations in the Islamic World on Agenda of RIO-World Summit 2012, Hurghada, Egypt, 26th-29th April 2012, with the participation of 40 experts from eight countries.

- Expert Meeting on Ecosystem Based Adaptation to Climate Change in the Arab Region-Integrated Approach to Environmental Conservation PERSGA Headquarters, Jeddah, Saudi Arabia, 30th April - 2nd May 2012, with the participation of twenty-eight experts and representatives of various institutions from ten countries (Jordan, Oman, Morocco, Tunisia, Sudan, Egypt, Kuwait, Bahrain, Saudi Arabia and Djibouti).


- Exhibition of ISESCO-FAO GIAHS Programme, Rio De Janeiro, Brazil, 18th-22nd June 2012.


- Regional Workshop on “How to Facilitate Multi-Stakeholder Processes”, Cairo, Egypt, 1st-6th October 2012, in collaboration with International Union of
Activities of the Science Directorate

Conservation of Nature (IUCN) and the Center for Environment and Development for the Arab Region and Europe (CEDARE). It benefited 30 Participants from Egypt, Lebanon, Palestine, Jordan, Netherlands, Ireland and Morocco.

• National Policy Workshop on "Innovative Strategies for coping with Climate Change Adaptation- Scaling-up SEARCH Ramallah", Jenin, Palestine, 9th-10th December 2012, in collaboration with International Union of Conservation of Nature (IUCN), the Palestinian Hydrology Group (PHG) & the Union of Agriculture Workers Committee (UAWC), partnered with the Ministry of Agriculture, Ministry of Water Affairs and the Water Authority in the Jenin, Marj Sanour Watershed, with the participation of 37 experts and representatives of several organizations.

• Workshop on Adaptation Strategy of Climate Changes and Environment Protection for Egypt, Cairo, Egypt, 22nd-24th December 2012, with the participation of a group of environmental experts and stakeholders from Egypt, Jordan and Palestine.

Analysis and Evaluation Results

ISESCO since its establishment has been working in line with its vision for the preservation of nature, protection of life on the planet, response to sustainable development concerns, and promotion of international solidarity to help countries achieve their development and their peoples’ prosperity. The Division of Sustainable Environment and Natural Resources of ISESCO, under the Environment Action Plan in the Islamic World and in the light of the Islamic Declaration on Sustainable Development and the General Framework of Islamic Agenda for Sustainable Development, adopted by the Islamic Conference of Environment Ministers, implemented a number of programmes to protect the environment and deal with environment management challenges in Islamic countries. Various actions were targeted to deal with specific environment challenges facing the Member States. The Second Meeting of the Islamic Executive Bureau for the Environment, which was convened at the beginning of 2012, addressed various important environment issues and finalized the agenda for the the Fifth Islamic Conference of Environment Ministers in Astana, Kazakhstan.

ISESCO also organized the Fifth Islamic Conference of Environment Ministers held in Astana, Kazakhstan, within the framework of the Islamic World's Participation in the Rio+20. The Conference came out with Islamic Declaration on Sustainable Development for submission to Rio+20. The Conference also adopted the Islamic document on "Green Economy: its Role and Relevance in Islamic Countries" to project the Member States’ point of view and encourage them to consider devising strategies for the promotion of understanding and capacity building in relation to green economy. The Conference also underlined the necessity to assess the opportunities, challenges and risks associated with the concept of green economy and to provide infrastructure and upgrade institutions and individuals to ensure a gradual and smooth transition. The conference stressed the importance of dealing with green economy within the framework of sustainable development and poverty eradication, and avoided to address it from an environmental perspective with no heed of the economic and social dimensions of sustainable development.

The Conference also adopted an Executive Work Plan for the Implementation of the Strategy for Disaster Risk Reduction and Management in Islamic Countries which will be executed in collaboration with GFDRR, the World Bank and other international organizations. Apart from the setting up of vital
instruments of sustainable development, ISESCO updated the General Framework for Sustainable Development in the Islamic World in line with the green economy document and the new agenda of the Rio+20. Progress on establishment of the Islamic Academy for the Environment and Sustainable Development also got moment and necessary spade work was completed.

The role of civil society organizations is vital for success of any efforts for protection and preservation of environment. The Meeting of Civil Society Organizations in the Islamic World was convened to discuss the Agenda of Rio-World Summit 2012 and to prepare a collective response. This meeting discussed the Green Economy, with focus on the apprehension by the civil society that developed countries will use this document as a reason for applying constrains on import and export of agricultural products of developing countries, which will consequently increase the suffering of developing countries and would ultimately result in escalating the problems of poverty and unemployment, deteriorate health care, increase illiteracy and weaken the infrastructure capacities. The meeting underlined that the historical development of the sustainable agenda from Rio 0 (UNCED 1992 Agenda 21) examined the achievements of the Arab countries on the outcome of previous conferences, analyzed the obstacles retarding development, and viewed various options for renewed efforts for the future. The meeting strongly recommended to bring an action-oriented approach during the negotiations in Rio+20.

The Expert Meeting on Ecosystem-based Adaptation (EbA) to Climate Change in the Arab Region was the first workshop which introduced the concept of EbA, particularly to mid-level planners and decision-makers at relevant government ministries and agencies in the region. The workshop pushed adoption of EbA options, particularly in national adaptation programmes and plans. The workshop also provided technical guidelines for mainstreaming the EbA in the national plans. The workshop improved the understanding of the concept and principles of EbA, their theoretical background and other scientific principles of relevance. It also recognized EbA linkage to global and regional objectives, legislation and initiatives and presented requirements/prerequisites for the application of EbA.

The experts’ workshop on Nationally Appropriate Mitigation Actions (NAMAs) for Middle East & North Africa (MENA) countries imparted knowledge and skills to enhance their capacities with regard to low carbon development strategies (LCDS) and NAMAs, in fulfillment of the Durban Agreement on Climate Change. The workshop provided an opportunity for participants to expand their professional network and equip them with the necessary information to replicate lessons learned at the national level. The workshop developed skills in the use of analytical models and tools and foster peer-to-peer exchange between countries in the region, to undertake strategic assessments for Low Carbon Development, which could serve as an input to future nationally appropriate mitigation actions (NAMAs). The workshop enabled the participants to identify and design sector-specific mitigation activities, including the energy and land-use & forestry sectors. The workshop identified and proposed enabling activities to access emerging sources of additional climate financing, including scaled-up use of programmatic carbon finance instruments.

The Side Event at Rio+20 on “Sustainable Development: The Critical Role of Disaster Risk Management”, organized in collaboration with PME and the World Bank, presented background and history and detailed actions of the Islamic work plan to implement
Activities of the Science Directorate

the Islamic Strategy for Disaster Risk Reduction and Management. ISESCO also participated in SESRIC Side Event on Disaster Risk Management for OIC Member Countries-Accelerating actions for Comprehensive Disaster Risk Management. And as well as taking part in the Side-Event entitled “Sustainable Environmental Remediation and Restoration Post Military Conflict: the Experience of the United Nations Compensation Commission”, organized by the Presidency of Meteorology and Environment of the Kingdom of Saudi Arabia, in collaboration with the United Nations Compensation Commission (UNCC), ISESCO conducted various similar Side Meetings with international Organizations. The FAO and ISESCO Side Event entitled “Living Heritage for Sustainable Development” presented the experiences and lessons learned in promoting green economy through safeguarding and revitalization of the Globally Important Agricultural Heritage Systems; by exploring local solutions in sustaining agriculture development while promoting cultural diversity, and maintaining harmony between nature and people.

The impacts of climate change in various regions of the Islamic world have remained a concern for ISESCO. In the Arab region, which is already recognized as an arid region, there are increasing incidences of extreme weather events, and sand and dust storms, as well as impacts of such conditions on food security in increasing prevalent drought situations. ISESCO is therefore paying increased attention to adaptation to climate change. The national workshop on Adaptation strategy of Climate Change and Environment Protection for the Arab Republic of Egypt assisted in the efforts for adaptation to climate change. Egypt has developed the Climate Change Action Plan, the National Communication on Climate Change, the National Energy Efficiency Strategy, and the National Strategy for Solid Waste Management, which are parts of Egypt’s roadmap to manage its climate change activities. Various climate issues were analyzed with regard to the emerging situation in the region and impacts were examined on various sectors. The participants were requested to present their experiences to identify risks in this area to take advantage of them and stand on what should be done to preserve the environment now and in the future. Discussions and brainstorming sessions helped to understand various impacts including impact on the sea-level rise and effects on agricultural crops and increased scarcity of water.

During the reported period, ISESCO continued its collaboration with IUCN under the Social, Ecological and Agricultural Resilience in the face of Climate Change (SEARCH) project, a three-year project working in the region with 13 partners to use and create climate change adaption tools that will increase the resilience of the local community. The project, being funded by the European Union & implemented in 5 countries (Lebanon, Jordan, Egypt, Morocco and Palestine), has so far conducted a baseline survey that helps distinguish all present social, agricultural and environmental conditions in the watershed. More importantly, it has connected local communities with decision makers in order to come up with a shared watershed vision that calls for sustainable natural resource management by 2025. The training workshop on “How to Facilitate Multi-Stakeholder Processes”, conducted in Cairo, Egypt, contributed to developing skills for the success of water projects in the region. The workshop used a dynamic and active approach in training the participants. Brainstorming encouraged the individual and groups to add knowledge through their previous experiences and share ideas and opinions when it comes to implementing the SEARCH project. This technique helped participants build on their previous knowledge and experiences, noting different
points of view. This technique has helped all country teams in the SEARCH project to share their current implementation activities and pass on experience to other teams. Participants expressed their ideas and opinions through flashcards, flip charts, whiteboards, and other tools. In order to allow participants to exchange learning experiences and opinions, small groups were assigned specific tasks related to new ideas, concepts or problems. Role-play group assignments were given to the participants to help build experience. Groups were given a full scenario built on different characters that should undergo negotiations in order to attain the sought objective. This approach helped participants experience at first hand what was given to them in tips for negotiation and communication. Special attention was given to the trainees’ knowledge and experience, which gave them the opportunity for maximum interaction and participation by focusing more on demonstrations and applications rather than theoretical knowledge only.

ISESCO in collaboration with IUCN also conducted a workshop titled: "Innovative Strategies for Coping with Climate Change" under the SEARCH project. In Palestine, the implemented project was partnered with the Ministry of Agriculture, Ministry of Water Affairs and the Water Authority in the Jenin, Marj Sanour Watershed. Being affected by climate change, the Marj Sanour watershed has been coping with floods, droughts and frost. The workshop created national joint participation with all stakeholders, to come up with national policies and an action plan towards climate change adaptation in Palestine. The workshop played a huge role in creating a hub for lessons and knowledge exchange. The workshop succeeded in increasing understanding and knowledge sharing about climate change impacts in Palestine and created better relationships between stakeholders and also a cooperative atmosphere for knowledge sharing and national policy influencing.

3.5.2

Combating Natural Disasters

- Training Course on Preliminary Aids and Relief for Disaster Prone Region, Dhaka, Bangladesh, 20th-22nd December 2012, with the participation of 40 officers from authorities responsible for disaster management from Afghanistan, Pakistan, Indonesia, Maldives and Bangladesh.
- Regional Seminar on Integration of Sustainable Rehabilitation in Relief Measures in Disaster Management Programmes Jakarta, Indonesia, 9th-13th July 2012, in cooperation with the Ministry of Religious Affairs of Indonesia, with the participation of 23 experts from Indonesia, Malaysia, Bangladesh and Maldives.

Analysis and Evaluation Results

Natural disasters, like floods, storms, volcanic eruptions, earthquakes, cause millions of deaths, destroy important infrastructures, displace huge populations, and gross economic losses each year. Developing countries, especially in the African region, with their weak economies and with inadequate infrastructures, lack of information, skills and capabilities, remain more vulnerable to such losses, which aggravate their already depila-
I. Activities of the Science Directorate

ISESCO, under its long and short-term Action Plans, mobilizes resources to equip them with adequate facilities and latest technologies in order to save life and property, protect important infrastructures, and save huge economic losses resulting from natural disasters. A Strategy for Disaster Risk Reduction and Management in Islamic Countries was adopted earlier with a major focus on reducing and mitigating the impact and effects of disasters, developing good governance within sustainable development and in coordination with its programmes, projects and initiatives. Priority has been given to partnership, ongoing training and improving the quality of life. The strategy recommends constructive research, building up and utilizing information and draw benefits from everything achieved by the Kobe Action Plan. It urges for cooperation among Member States on the basis of takafal and experience sharing and building capacities at all levels and develop information tools and mechanisms to facilitate dialogue among partners. It also proposes information management networks and databases to develop common tools, sound applications and expertise sharing.

The 5th Islamic Conference of Environment Ministers (Astana, Kazakhstan, May 2012) approved an implementation work plan for the Islamic Strategy for Disaster Risk Reduction and Management, which was adopted in Fourth Session of the Islamic Conference of Environment Ministers (Hammamat, Tunisia, October 2010). The Organization of Islamic Cooperation (OIC), ISESCO, the Presidency of Meteorology and Environment of the Kingdom of Saudi Arabia, the Global Facility for Disaster Reduction and Recovery (GFDRR), the Islamic Development Bank and the World Bank have joined hands to implement the Action Plan. Later this Implementation Mechanism was presented in a side-event on “Sustainable Development: The Critical Role of Disaster Risk Management” at the United Nations Conference on Sustainable Development (Rio+20) in June 2012.

ISESCO organized the Training Course on Preliminary Aids and Relief for Disaster Prone Regions, to impart training on preliminary aids and relief measures so as not to leave the society vulnerable to disasters. The Member States were urged to accord top priority to disaster risk reduction in their national policies, and activate and build reference and coordination institutions to ensure implementation thereof, through developing necessary plans and diagnostic studies and conducting appropriate assessment processes. The training also covered detailed information on ways and procedures of immediate relief measures in the form of food, clean water, shelter, medical supplies, etc. to help the victims survive the immediate aftermath of the disaster and alleviating their suffering. The training also covered long-term rehabilitation in helping rebuild victim livelihood which were affected by disasters (this included home, transportation facilities, hospitals, schools, shops, farms, estates, and personal financial losses). After the training, the participants were better able to respond to relief measures, arrange preliminary relief, and design responses to disaster of national and regional magnitude.

In the same vein, the seminar in Indonesia helped improve skills of relief employees. International and national experts taking part in the seminar explained skills for disaster management and relief measures activities and how to tackle obstacles hindering relief work and suggested solutions to various problems in the panel discussion. The seminar also elaborated programmes for developing
necessary skills in order to be better prepared for natural disasters. Presentations were also focused on technologies for disaster mitigation and on creating a culture of safety and resilience among all societal groups. The seminar stressed the importance of early warning, education and raising awareness for better coping with disasters. Participants from different duty stations in disaster reduction were able to benefit from the seminar and shared their experiences and knowledge.
Workshop on ISESCO-CMI draft report on “Transforming Arab Economies: The Knowledge and Innovation Road”, ISESCO Headquarters, Rabat, 25th-26th June 2012, with the participation of forty experts, including policy makers from MENA countries: Egypt, Jordan, Lebanon, Morocco, Algeria and Tunisia; experts from regional and international organizations, such as the European Bank for Reconstruction and Development (EBRD), Mediterranean Institute, the European Investment Bank (EIB), the Korean Development Institute, etc, and representatives from the private sector and the civil society in MENA.

Organization of “Open Day” on Knowledge economy in Member States, Male Maldives, 5th May 2012.

Organization of “Open Day” on Knowledge Economy, Sanaa, Yemen, 16th September 2012.

Regional Seminar on Wāqf and Zakat and their Role in Addressing Social Problems (deferred from June 2012 to 14-15 January 2013 in Sharjah, UAE, at request of cooperating party i.e., Munazzamat Al-Dawa Al-Islamiyya), with the participation of Muslim scholars, civil society activists and heads of financial institutions.

ISESCO Research Grant in social and human science, ISESCO Headquarters, Rabat, July 2012.

Publication of study on knowledge economy and Islamic Financing, ISESCO Headquarters, September 2012.

Regional seminar on the protection of intellectual property and Indigenous knowledge, Saint Louis, Senegal, 18th-20th December 2012, with the participation of 24 experts from Mali, Guinea and Senegal.

National workshop of reinforcement of capacity of 50 communities of the rural women on the techniques of transformation and conservation of the Agricultural Products and the circuits of commercialization, Lome, Togo, 26th-30th March 2012, with the participation of a large number of rural women coming from different rural communities in Togo.

Analysis and Evaluation Results

ISESCO promoted research in social and human sciences to analyse major social, economic, technological and environmental transformations taking place due to the process of globalization in order to improve the formulation of economic and social development policies and address the major social problems existing in society.
ISESCO and CMI prepared the draft report on Transforming Arab Economies: The Knowledge and Innovation Road, in order to inform key policy-makers and interested stakeholders (Governments, Industry, Academia and Society) from the Mediterranean region on the importance of using a Knowledge Economy approach as a key element in any government’s long-term strategy to foster growth and create employment. Discussions were focused on the way to create a new economic model to succeed in the great transition that lies before them. Arab countries need more productive and competitive economies powered by knowledge and innovation. Participants shared their experiences on the development of Knowledge Economy strategies as well as on policies related to education, innovation, and ICTs. The workshop projected ways to create more and better jobs in the region through investments in various knowledge-related domains. The workshop underlined the need for further policy reforms for the successful implementation of knowledge-based development strategies in the region. In the light of recommendations, ISESCO will review and finalize the report with a great focus on country strategies in order to allow easy sharing with Arab governments. ISESCO will also create a knowledge economy website in the near future.

The “Knowledge-Based Economy” open days are organized on a regular basis by ISESCO under this axis, with the view to develop capacities of the Member States towards their transition towards a knowledge economy. The days are organized to sensitize governments to the positive impact of innovation areas, particularly the incorporation of knowledge in the economy through greater integration and wider dissemination of information technologies to business companies, citizens, state and other actors of society as well as sensitizing the general public to the importance of such integration of knowledge in economy. During the reported period, ISESCO organized Open days in Male, Maldives and Sanaa, Yemen, which projected the use of knowledge as a key factor for enhancing economic growth and wealth, and increasing employability in the industrial sector through interaction with students, policy makers, and civil society among others.

The study on knowledge economy and Islamic financing, published by ISESCO, defines the closer links between Islamic finance and knowledge economy, the more so as Islamic finance is currently one of the fastest-expanding sectors of the global financial market and an innovative financial tool within the financial and conventional sector. The study presents the more common instruments offered by Islamic finance (Shariah-compliant Current and Saving Accounts, Murabaha, Ijara (Leasing), Musharaka (Equity Participation), Mudaraba (Partnership Financing), Istinaa (Commissioned Manufacture). It explains the exact difference between Islamic and conventional finance and its future challenges.

Zakat and Waqf are greatest economic practices, important for the empowerment of community and the improvement of lives of people. ISESCO exerts efforts to consolidate the role of Zakat and Waqf to contribute effectively towards sustainable development actions and poverty alleviation. The regional seminar on “Zakat and Waqf and their role in addressing social problems” helped sensitize and mobilize decision-makers for structuring strategic institutions for collecting Zakat. The seminar provided an opportunity to the Muslim scholars (Ulema), civil society activists and leaders of financial institutions to meet, exchange information and good practices and analyze Zakat and Waqf impact on social issues. The seminar also made concrete proposals for a practical strategy for collection and use of Zakat and improvement of living conditions of poor people in the Member States.
In view of the difficulties and problems facing social categories in health coverage, food self-sufficiency, the seminar recommended the Member States to take practical initiatives to make effective the obligation to pay Zakat.

The seminar suggested to develop rational management systems of Zakat funds and encourage and support lead firms, both public and private, to provide substantial support from their Zakat funds to organizations specialized in fighting against poverty. The seminar proposed to tackle the negative consequences that may be arisen due to youth unemployment. It was deemed necessary to organize more meetings of experts and training sessions to develop solutions in view of the challenges posed by the growth of social inequalities in the context of globalization, especially in the field of education, health, housing, food and employment.

As part of this axis, ISESCO has always supported scientific research to analyze and assess the impact of new developments in society in the light of Islamic values and Sharia. The spread of globalization and the rapid development of new technologies that provide unprecedented transformations in Muslim societies, made it necessary to exert greater efforts to save the uniqueness of the Muslim society. Under its 2010-2012 action plan, ISESCO has granted fellowships to observe and study more closely the process of socio-political transformations to better manage it. The objective is also to promote the Islamic character of Muslim societies and guide future generations so that they do not deviate. These fellowships are designed to improve research in the social sciences and humanities in different universities of the Member States.

It is crucial to develop the capacity of universities and other institutions dedicated to research in social sciences and humanities in the Member States, and contribute to the effort of Member States to grant fellowships and support for investigations to observe social phenomena. The research results are generalized to policy makers, scientists, researchers, students and the public, to help understand the social transformations that are taking place in their societies. Priority was given to social issues of critical importance. New areas of research priority will be determined through the identification of research trends to address issues that are caused by major economic and social transformations. Given the lack of know-how and expertise, investigation and research, training and appropriate workshops will be organized to exploit new technologies and new knowledge.

The relationship between indigenous or traditional knowledge and intellectual property law is a complicated contemporary legal problem. The seminar on the protection of intellectual property and indigenous knowledge defined how to secure traditional knowledge systems either within an intellectual property regime or through some other over-arching legislative or policy framework. The seminar paid attention to indigenous peoples’ concerns that include legal questions involving copyright, patents, trademarks, designs and/or confidential information; Issues that are not always legal or commercial in nature and can include ethical, cultural, historical, political, religious/spiritual and moral dimensions. The seminar emphasized that indigenous people must be centrally involved in developing appropriate frameworks for access and use of their knowledge and knowledge practices. Future directions are dependent upon the development of frameworks that enhance and embolden indigenous perspectives on existing and emerging knowledge management approaches. The seminar recommended that indigenous knowledge should no longer be considered a raw resource from which others benefit. It was mentioned that indigenous people were asking for their cultural systems and ways of
governing knowledge access and use to be recognized as legitimate, and to be respected as custodians/owners/nurturers of knowledge that is valuable within and beyond indigenous contexts.

ISESCO promotes consensus on gender mainstreaming in line with the Islamic principles and values conducive to effective women’s participation in the socio-economic development. Similar attention is paid to issues of vital concern in youth sustainable and egalitarian human development so as to allow them to contribute to peace in societies. In this regard, the national training workshop organized under the theme “technical processing and preservation of agricultural products and marketing channels”, in collaboration with the Togolese Association of Agricultural Products Transformers, was the first of its kind in Togo. The workshop attracted a large number of rural women belonging to different rural communities in Togo. The workshop improved productivity development opportunities for rural women, strengthened their role in society through the development of skills and know-how by providing them with full training in mastering the technical processing and preservation of agricultural products. This initiative demonstrated the ability of rural women to mobilize resources, as they were inadequate for serving the community.

### 3.6.2

**Promoting Human Rights and Peace**

- National Seminar on Social Reformation and Protection against Insolent Behaviour, Yaoundé, Cameroon, 26th-29th November 2012, in collaboration with Munazzamat Al-Dawa Al-Islamiya, with the participation of 30 officials from government departments responsible for youth issues.
- Publication of analytical guide on “social and human problems impeding peace and tranquillity in the world”, ISESCO Headquarters, Rabat, April 2012.
- Publication of a study on critical social security problems causing conflicts in Islamic societies, ISESCO Headquarters, Rabat, September 2012.

**Analysis and Evaluation Results**

Absence of peace is conducive to injustice and hostility. Peace and tranquility are more needed than ever in societies, especially those living in conflict and turmoil. In order to consolidate understanding among Muslim people and contribute to the achievement of peace and stability, ISESCO spearheaded to deal with various social and human issues in society and devise ways to cope with them in order to streamline efforts towards the development of an ideal Islamic society. In this process, ISESCO pays adequate attention to tackle the social problems which hinder peace and social tranquillity through various means. ISESCO has always promoted human, civil, economic and social rights, asserted these rights that would provide firm foundation for peace and justice and allow all human fellows to live with each other in dignity and freedom.

The feeling of frustration among youth is on rise due to various reasons including unemployment, political instability, poor overall investment climate and lack of growth. This frustration, exacerbated by extremely high
youth unemployment rate and increasing poverty, has made them more prone to endemic diseases, crime, alcoholism, drug addiction, violence, lack of civility and also to serious aggressive behaviour. Coaching youth, undoubtedly, is a central concern of ISESCO, which spares no effort to address youth issues and improve their living conditions to channelize their role and energies positively in nation building process. To this end, ISESCO organized the National Seminar on "reform and social protection against the insolent behavior among young people (understand and act against problems of antisocial behaviour among young people)", in Cameroon. The seminar put up the scenario and informed and instructed youth leaders including managers of youth associations and organizations on the most effective solutions likely to reduce difficulties and help reduce frustration. Participants were also presented with tools that will significantly reduce the anti-social behavior among adolescents. The seminar enabled participants to address issues of major interest to support insolent young, such as antisocial behavior among adolescents: circumstance and event, violence and behavioral problems among adolescents. The seminar met the expectations of participants. It was found that with increasing poverty, the family enters into a process of accelerated disintegration with serious consequences due to inadequate family supervision. Parents weigh more heavily on the process of socialization of their children quickly and attach other models and ethical standards generally offered by publicizing issues that augment violence, crime and immorality.

Under the framework of promotion of peace, justice and the human rights and consolidation of the rule of law, ISESCO prepared a guide, mostly related to the Maghreb countries. Through this guide, ISESCO strived to diffuse information on the social problems which block peace and social harmony. This document has indeed the ambition to be a source of reference for the Member States in setting educational programs on the culture of peace, like social dialogue and policy. In addition, it identifies the social and human main issues which block the development of peace and tranquility in the world (particularly in the Maghreb) and presents the strategic directions necessary to the safeguard of dignity and human solidarity.

ISESCO also published the study on critical social security problems causing conflicts in Islamic societies to provide its readers with a simplified overview of the impact of conflicts on social security in Member States. It describes the diversity of conflicts and insecurity (economic, social and political) with a special focus on Iraq, Afghanistan and Yemen. The study also highlights the welfare, health and well-being for the population at large and potentially vulnerable segments of society such as children, the elderly, the sick and the unemployed. Moreover, as social security is a fundamental human need over a very wide range of human activities and situations, the study also provides for the Islamic concept of social security through Zakat, the first institution of social security in Islam.
Poverty Alleviation

- Expert Meeting on poverty eradication in Central Asian region, Baku, Azerbaijan, 21st-23rd May 2012, with the participation of five experts from Kazakhstan, Tajikistan, Turkmenistan, Uzbekistan, Kyrgyzstan, and ten from Azerbaijan.

- National Workshop on Management of Micro-projects and Financing Research, Khartoum, the Sudan, 9th-12th April 2012, in cooperation with Munazamat Al-Dawa Al-Islamiya (ODI), for the benefit of a large number of micro-finance institutions.


- Supporting the activities of NGOs in tackling critical social problems in the Member States, ISESCO Headquarters, Rabat, March 2012.

- Project of training session in Tailoring and Model (Niger).

- Project of Electrification of class and installation of a line of Internet in Regional Secondary School in BAFATA (Guinea Bissau).

- Workshop for the benefit of 50 young graduates on the Job without Entrepreneurship and Techniques of Identification of Income-generating Activities (Burkina Faso).

- Project of making a living: Reduction of income poverty of rural women (Bangladesh).

Analysis and Evaluation Results

In the fight against poverty, especially extreme poverty, which has always exacerbated social and human problems, ISESCO exerts efforts to address the social and human problems as well as plagues caused by poverty, such as AIDS, drug trafficking, drug abuse, violence, child abuse, etc. Specific projects and awareness-raising campaigns are launched to improve consistency in the achievement of the desired objectives. Problems that represent a real threat are highlighted and implementation mechanisms improved through the organization of forums, seminars, conferences and other similar events. Support for these issues is mobilized through cooperation with national and regional institutions and networks, as well as UN agencies. In addition, special attention is paid to women and youth associations and organizations to alleviate their suffering.

The regional meeting of experts on "Eradi-
cation of Poverty in Central Asia", held in Azerbaijan, provided an opportunity to exchange experiences and to identify areas of collaboration in the areas of poverty alleviation and treatment of major social problems. In order to ensure more effective efforts towards mitigation of poverty, ISESCO, during the national training workshop on "micro-management and fund raising" in the Sudan, proposed simplified solutions to solve administrative issues and financial arrangements for the proper management of micro-projects. The workshop, which was attended by a large number of micro-finance institutions, discussed the best practices and methodologies applied both in the development of micro-finance research and good management.

Health and other social services play a central role in alleviating the suffering of poverty-stricken people and improving their standard of living. ISESCO has made considerable efforts in the context of its action plans in order to improve health services. During 2012, the national training workshop in collaboration with the national focal point on the theme "social marketing techniques to
fight against HIV/AIDS”, organized by ISESCO in Guinea, contributed to improving awareness and knowledge on the prevention of HIV/AIDS through social marketing programs, social acceptability and commercial accessibility affordable for people with low income and high-risk groups. The effectiveness of such programs in various economic, political and cultural environments gave rise to a lively debate to know what is exactly social marketing and what should be the role of programs in the context of the public health system. Clarification of the concept of social marketing and its key role in the current and ongoing prevention and slowing the spread of HIV/AIDS were also part of this training workshop. The training aimed to update technical knowledge of facilitators, associations and civil society organizations in Guinea to be involved in social marketing and fight against HIV/AIDS. The training on social marketing programs proved powerful and cost-effective in controlling the spread of HIV/AIDS.

ISESCO also worked, under this axis, with non-governmental organizations active in the field of social and human sciences to strengthen their capacities in combating various social issues of vital concern like drug trafficking, disease, violence, delinquency, pollution, and other problems of underprivileged population, handicapped and destitute people. During the reported period, ISESCO continued to support NGOs to enhance their capacities to combat poverty. The workshop for youth graduates on (Jobs without Entrepreneurship and Techniques of Identification of Income-generating Activities) provided technical assistance to youth associations working in the field of economic development and job creation. The workshop introduced unemployed graduate associations to the methodological approach to identify, formulate and implement income-generating activities (IGA). The development of economic activities generating income is expected to act as a key to revive rural areas as it triggered a dynamic process of development for the concerned communities and also served as a means of stimulating motivation and the integration of populations in development projects.
Ethics of Science and Technology

- Strengthening database of ISESCO Ethical Web portal, ISESCO Headquarters, Rabat, Morocco, April 2012, launched on the occasion of the 30th anniversary of ISESCO.
- Second Meeting of ISESCO Bio-ethical Committee, Amman, Jordan, 22nd-23rd May 2012, with the participation of experts from Morocco, Tunisia, Egypt, Lebanon, Jordan, Pakistan, Iraq and Oman.

Analysis and Evaluation Results

Safeguarding the features and distinct characteristics of our societies and protecting them from various threats and distortion factors is one of the prime objectives of ISESCO. Since its inception, ISESCO has focused on analyzing and evaluating the ethical dimensions of latest developments in science and technology in the light of Islamic thought and value system. The Islamic Body on Ethics of Science and Technology (IBEST) was created to safeguard the features and distinct characteristics of the Islamic civilization and protecting it from the ethical challenges arising from advances and innovations in science and technology. The programmes launched under this axis, during the Three-Year Action Plan 2010-2012 assisted in observing and analyzing new scientific developments from Islamic and Sharia point of view, enabling ISESCO to provide guidance and develop consensus among the Member States on ethical issues. The "Islamic World Ethical Network" launched under IBEST by ISESCO earlier this year as a part of celebration of the 30th Anniversary of ISESCO, served as a means of communication between scientists, researchers and physicians in order to allow for fast interaction in the field of ethics. The Islamic Ethical Network provided continuous information about ethics in general and the point of view of Islam on specific questions related to ethics in all fields of research and medical practice, thus facilitating dissemination of information, raising awareness on various important and sensitive ethical issues from Islamic and Sharia perspective among the Member States. The Network contains useful information, ethical network groups, publications, training courses in ethics, list of popular ethical journals of the Member States with the web address, as well as all international issues concerning ethics of science and technology among others features. The establishment of such a portal was long demanded by ethic experts and it is expected that various discussion forums under the Network will help enhance exchange of opinion and development of consensus among Member States on ethical issues of vital concern.

ISESCO conducted the second meeting for ISESCO Ethical Committees in Member States in Beirut, Lebanon, to discuss up-to-date legislation for debatable bioethical issues such as stem cells and human genome. Participants discussed in detail activities by each country in the field of bioethics. All participants shared knowledge on current bio-ethical issues and legislation in Member States. The meeting also provided hands-on training in the IBEST website launched by ISESCO. The meeting’s recommendations focused on enriching IBEST web site and encourage all users in Member States to participate in the bioethical Forum hosted by this website. Participants also recommended the publishing of an Arabic dictionary of bioethics.
Field of Action 3.7
STRENGTHENING FOUNDATION OF SCIENTIFIC RESEARCH

3.7.1 Research Policy and Technologies Support

- Strengthening the Islamic World Science Net (IWSN) (www.icpsr.org.ma), ISESCO headquarters, Rabat, Morocco: throughout the year; universities, national institutes and centres for scientific and/or technical research. COMSATS.

- International conference on E-Gov as a postulate of good governance (ISESCO headquarters, Rabat, Morocco: 6 June 2012), attended by 150 participants from among Moroccan administration senior officials, directors of e-government agencies in some reference countries, international experts and Morocco Telecom ParisTech Alumni Association (ATAM).

- Support for the international conference on celebrating the 800th anniversary of the famous Iranian scholar and physician, Hakim Ghotbuddin Shirazi, in Shiraz, Iran, on 19-20 December 2012. Health Policy Research Center, Shiraz University of Medical Sciences.

Analysis and Evaluation Results

ISESCO attaches great importance to strengthening capacities in the field of scientific and technological research in order to step up Member States' efforts in these areas and, consequently, contribute to their socio-economic development. Under this axis, ISESCO Centre for Promotion of Scientific Research (ICPSR), in close cooperation with the Commission for Science and Technology for Sustainable Development in the South (COMSATS), has exerted constant and sustained efforts to promote online networking of scientific institutes, researchers, engineers and faculties. Databases of research and development institutes, science academies, universities and experts are regularly updated. Information about ISESCO-COMSATS joint activities (conferences, workshops ...) for the year 2012 are made available to researchers in order to involve those interested in this area. In addition, ICPSR, in a bid to facilitate information retrieval and sharing of experiences and expertise among researchers, while contributing to international efforts, continues to post the new electronic version of "ISESCO Journal of Science and Technology" online for free access. Moreover, to facilitate access to the conditions for awarding COMSTEC-ISSCO Research Grants to young researchers, grant application forms, in the three languages, are also available online. Similarly, the announcement for submission of nominations for ISESCO Prizes in Basic Sciences and Technology 2012 as well as nomination forms were also posted on this portal to expand eligibility opportunities to a greater number of high-level researchers who have demonstrated outstanding creativity and innovation.

If we take into account the large number of exchanges and emails received in response to data and information on the portal, it would be quite justified to consider this collaborative and interactive virtual network...
Activities of ISESCO Centre for Promotion of Scientific Research

as an effective instrument, fully playing its role as an engine and facilitator and creating synergies within the scientific community for the development of the Muslim world.

With a view to enhancing ICPSR portal (http://www.icpsr.org.ma) and making it more adapted to the recent technological advancements and the new programming tools/environments, the ICPSR considered updating its website to promote exchange of information, scientific experiences and expertise among researchers, professors, engineers and students.

In fact, in order to remain interactive and meet the increasing needs of internet users, every website or portal has to regularly adapt to new technological trends. Therefore, discussions and consultations were held in December 2012, between ISESCO and COMSATS, in order to come up with propositions to meet the new quality criteria to revamp the website.

After evaluating the website, the following recommendations were put forward for 2013: developing a new graphical user interface; reactivating the different thematic groups, while requiring more reactivity from the coordinators and members of each group; creating a new presentation of the heading that gives online access to ISESCO Journal of Science and Technology; so that indexing agencies, such as Google Scholar, Scopus and ISIS, would index it in such a way as to make it more visible and widely read; and updating the information featured in the portal’s other windows, and adding the French and English translation of that content.

For decades, the civil society has enormously contributed to effectively and efficiently addressing issues of the moment. As part of its policy of openness to all segments of the society, ISESCO has supported the initiative of the Telecom ParisTech Alumni Association (ATAM) to hold, at its headquarters, one-day conference on “E-GOV as a postulate of good governance”. Indeed, ISESCO has celebrated its 30th anniversary in May 2012, and has undertaken on this occasion to accelerate the implementation of the programs that are in line with Member States’ priorities, particularly with regard to the implementation of the guidelines of the World Summit on the Information Society (Tunis, 2005) as well as its "Strategy for the Development of Information and Communication Technologies in the Muslim World" which was adopted in 2007. This international conference is an important part of this ongoing process. ISESCO has noted with satisfaction that some Member States have opted for e-governance as a tool for modernizing their public services to advance democracy and achieve progress for all. Thanks to simplified administrative procedures which enabled their citizens and businesses to save time and energy and reduce costs, the six Gulf monarchies, Malaysia and Kazakhstan were ranked by the United Nations E-Government Survey among the top 50 countries in the world having achieved tremendous progress in online service delivery. Being keen on bolstering the efforts of other Member States to achieve a rapid transition to this new form of governance, ISESCO invites them to strengthen relations between the administration and citizens through the automation of public services. This move will promote more accessibility, transparency, effectiveness and fairness in these countries with a real impact on their daily life. Therefore, ISESCO encourages Member States to take into account the main recommendations of this conference, namely: placing the E-Gov program as a national priority; investing in accessibility, particularly for structurally disadvantaged population (rural poverty and illiteracy); and prioritizing and focusing on large projects with high value/good access/high probability of success.
This conference brought together 150 participants, including senior officials of the Moroccan administration, directors of e-government agencies in Saudi Arabia, Slovenia and Mexico, as well as experts from prestigious institutions and international organizations.

Moreover, the Health Policy Research Center (HPRC) at Shiraz University of Medical Sciences, in the Islamic Republic of Iran, requested support from UNESCO to celebrate the 800th birthday of the prominent Iranian scholar and physician, Hakim Ghotbuddin Shirazi. Considering the important role played by UNESCO in publicizing the Islamic civilization and countering stereotypes about Islam and Muslims, a favorable reply was given to the organization of this important conference.

In fact, among the results UNESCO expects from these events is redressing the image of Islam and Muslims by reminding that seeking knowledge is encouraged by Islam, for Allah has addressed people in several verses by the term “Ô people who are endowed with intelligence/knowledge”. In fact, the intellectual activity prospered by Muslims, especially between the 7th and 15th centuries. This prosperity led to several discoveries in mathematics, astronomy, physics, chemistry and medicine. Also, considering that 30 to 40% of the Muslim population is made up of youth under 25 years, UNESCO works in a pedagogical way to encourage those youth to take interest and actively engage in the promotion of scientific research, through claiming this heritage passed down to them by Muslim scholars, in order to bring back progress to the Member States. Also, these efforts are aimed at establishing a fruitful cooperation with the rest of the world to build an information society, founded on mutual respect, dialogue and peace.

30 articles and 50 papers on the biography of the prominent Iranian physician, Hakim Ghotbuddin, were selected from among 200 to be presented in this conference. The speakers were from Pakistan, Tajikistan, Iraq and Iran.

3.7.2

Scientific Research Facilities
- Publishing "UNESCO Journal of Science and Technology", vol. 8, No 13, UNESCO headquarters, Rabat, Morocco: May 2012, researchers from scientific and technological research institutions.
- National workshop on “Repairing and maintaining engineering equipment in universities, research institutes and small industries”: High Institute of Technological Studies (Isset), Nabeul, Tunisia, 10-14 December 2012; 30 professors from 5 Tunisian high institutes. COMSATS
- Publishing UNESCO Journal of Science and Technology, vol. 8, n° 14, UNESCO

Analysis and Evaluation Results
In accordance with its mandate, the ICPSR publishes the multidisciplinary scientific journal "UNESCO Journal of Science and Technology” twice a year. With a peer-review committee commissioned to select quality articles that are based on a sound research methodology, this journal seeks to improve knowledge across different disciplines with a view to spreading and exchanging high-level scientific and technical knowledge. Posting this journal online, via the ICPSR website, increases the visibility of the authors and the impact of their articles. UNESCO is receiving an increasing number
Activities of ISESCO Centre for Promotion of Scientific Research

of scientific research articles. This requires considerable efforts on the part of the ICPSR to continue to support science researchers from Member States while maintaining the publication of this journal. Articles published in the first issue of this year came from Algeria, Bangladesh, Iran, India, Malaysia, Mali, Sudan and Tunisia. Topics covered included renewable energy and its use in agriculture, bioremediation of arable lands in Africa, quality control in the pharmaceutical industry, etc... Through this journal, the ICPSR seeks to promote dissemination of scientific research findings among scientists of the Islamic world as well as those of the international scientific community. The ultimate goal is to boost exchange and transfer of indigenous knowledge and enhance scientific research of Member States at the international level, while promoting North-South interaction.

Maintaining scientific equipment in science faculties, research centers or industrial units is essential for advancing research and boosting productivity. The importance of the scientific equipment then requires highly qualified personnel to quickly repair them and boost their efficiency.

Significant investments are made by the Member States to acquire scientific equipment; however, training personnel in maintaining and repairing that equipment is often delayed or neglected either because of the unavailability of specialized trainers or because the cost is estimated to be too elevated. Therefore, a large number of these pricey equipment are unused in case of failure.

To overcome this situation, ISESCO, in collaboration with COMSATS, has organized since 2004, a series of national training workshops on repairing and maintaining scientific equipment in the Member States. The main objective of these workshops is to provide the participants with a practical training to enhance their competences to repair and maintain scientific equipment in an autonomous way.

So far, these workshops have benefited 180 engineers and technicians; which has helped to dispense with third-party costly maintenance and repairing services.

Considering the success of the previous editions, ISESCO and COMSATS, in collaboration with the Tunisian National Commission, co-organized a workshop on this theme to help the Tunisian research laboratories surmount their maintenance and repairing problems. The workshop, which was held at the Institut Supérieur des Etudes Technologiques -ISET- (the High Institute of Technological Studies) in the Tunisian city of Nabeul, benefited 30 professors, representing 5 cities.

The workshop, which was supervised by two Pakistani experts from Pakistan Council of Scientific and Industrial Research (PCSIR), along with one Tunisian expert, included 10 technical, theoretical and practical classes, during which several disciplines were touched upon. The visit to the different laboratories of the ISET allowed for repairing some equipment and diagnosing some other defective machines by the experts, who proposed solutions to overcome such problems locally; and therefore, reduce the cost of reparation. The immediate impact of this workshop was the reparation of 22 scientific machines for educational purposes.

At the close, the participants expressed their total satisfaction at the workshop, which could achieve a major part of its objectives. They also underlined the importance of the South-South experience exchange (the professionalism of the Pakistani experts was very much appreciated), and invited ISESCO and COMSATS to hold more workshops of this kind in the other laboratories of ISET in Tunisia. The global impact of this workshop, at the national level, was enhancing the competences of scientists and technologists.
In order to synergize the different means of the scientific community to achieve sustainable development in the Member States, the ICPSR published in November 2012, the 14th edition of ISESCO Journal of Science and Technology. The articles published in the Journal were sent from different countries, and tackled different subjects, namely renewable energies, electrical systems and telecommunication systems, biology, mechanical engineering, ICTs, the environment and agriculture.

ISESCO receives encouragements to continue the publication of this Journal, which is aimed at disseminating quality research papers; and hence, contributing to sharing the scientific and technical knowledge among researchers, teachers and students.

3.7.3
Synergizing Scientific and Technological Research

- Continued support for the research project on "Differentiation of Mesenchymal Stem Cells from Placental Blood towards Vascular Endothelial Cells: the Clinical Application for the Regeneration of the Damaged Renal Tubules Following Renal Failure in Man" (Pasteur Institute in Casablanca, Morocco: January-June 2012), with the participation of researchers from Member States.
- Continued support for the research project on "Testing anti-diabetic activity of certain plant extracts in northern Pakistan" (Quaid-i-Azam University, Islamabad, Pakistan: January-September 2012), with the participation of researchers from Member States.
- Continued support for the research project on "Differentiation of Mesenchymal Stem Cells towards a Hepatic Cell Using MicroRNA in the Hepatic Differentiation" (National Institute of Genetic Engineering and Biotechnology, Tehran, Iran: January-April 2012), with the participation of researchers from Member States.
- Research grant for the project on "Development of Multiband Antenna Array for Studies of Seismo-ionospheric Coupling" (Institute of Space Science, Kebangsaan University, Bangi, Selangor, Malaysia: throughout the year 2012), researchers from Member States. COMSTECH.
- Research grant for the project on "Production of a DNA chip to detect deafness-causing mutations in the Mediterranean countries of North Africa" (Centre of Biotechnology of Sfax, Tunisia: throughout the year 2012), researchers from Member States. COMSTECH.
- Research grant for the project on "Discovery of Specific Inhibiting Reductase Plasmodium falciparum Enol-ACP from Sudanese Medicinal Plants: towards Antimalarial Medicines Development" (Medicinal and Aromatic Plants Research Institute, National Center for Research, Sudan: throughout the year 2012), researchers from Member States. COMSTECH.
- Research grant for the project on "Soil and water contamination by pesticide residues in the cotton-producing area of Notsé" (Faculty of Science, University of Lomé, Togo: throughout the year 2012), researchers from Member States. COMSTECH.
- ISESCO Prizes in Basic Sciences and Technology (ISESCO headquarters, Rabat, Morocco: September 2012); six winners from the following countries:
Activities of ISESCO Centre for Promotion of Scientific Research

Azerbaijan, Jordan, Pakistan, Kazakhstan, Malaysia and Morocco.

- Support for the 17th edition of the Razi for Research in Medical Sciences, Tehran, Iran: 17 January 2012, specialists and researchers in medical sciences and the Ministry of Health and Medical Education.

- Support for the 6th edition of Farabi International Festival, Tehran, Iran, 27 October 2012; researchers in Islamic sciences and humanities; Ministry of Science, Research and Technology.

Analysis and Evaluation Results

Scientific research is one of the strategic sectors that ISESCO is promoting, for it is a valuable source of growth and development, job creation and wealth generation. It also contributes substantially to stability and social cohesion as a result of improved standards of living for citizens. According to recent statistics, the youth account for 30% of the population of the Islamic world. Accordingly, promoting the youth’s participation in scientific and technical research should be one of Member States’ strategic priorities to achieve the Millennium Development Goals (MDGs) by 2015. That’s why ISESCO, via the ICPSR, continues to allocate grants for scientific research in partnership with the Standing Committee for Scientific and Technological Cooperation (COMSTECH) to increase the number of benefiting researchers and to contribute to building Muslim knowledge-based societies. In this regard, seven grants were distributed to young researchers (men and women under 40), and five others will be awarded by the end of 2012. These research grants are awarded in the fields of nanotechnology, agricultural biotechnology, engineering, biological sciences, medicinal plants, applied sciences and ICT’s. The US$ 10,000 worth research grant is awarded for projects of two-year duration having great potential for innovation with expected scientific, technical or economic impact.

The recipients of these grants are required to submit bi-annual reports accounting for the progress of their works as well as a final synthesis report whose electronic version will be made available for all researchers on ICPSR website.

Guided by a vision based on encouraging the scientific community whose works respond to national priorities or whose impact on socio-economic development is quite evident, ISESCO has developed mechanisms to assess and reward the efforts of science researchers. In this connection, "ISESCO Prizes in Science and Technology 2012" which are awarded in five (5) categories of basic sciences and technology are part of a series of initiatives aimed at encouraging excellence. The nominations for these awards were announced both through ISESCO’s portals and by sending e-mails, letters or faxes to all National Commissions of Member States. However, only 88 nominations from 14 Member States were received, despite several reminders (in 2010, 105 nominations were received from 22 countries). The nominations were examined by a panel of external experts based on the following criteria: scientific production, innovation and development; scientific supervision; and scientific responsibility and international openness. An ad hoc committee of ISESCO chaired by the Deputy Director General studied this list and proposed six winners whose nomination was approved by the Director General, namely Pr. Shibli Rida (Jordan) in biology; Pr. Maharramov Abel (Azerbaijan) in chemistry; Prof. Esimov Begen in geology; Prof. Hayat Tasawar in mathematics; Prof. Hoummada Abdeslam (Morocco) in physics; and Prof. Uda Hashim (Malaysia) in technology. ISESCO has been awarding these prizes every two years since 1997, at a ceremony held during the Islamic Conference
of Ministers of Higher Education and Scientific Research. The winners receive a financial award worth US$ 5,000, a gold medal, a certificate of merit with their names as well as a round trip air ticket to the venue of the ceremony. These awards also bring international visibility and recognition to the winners.

The Razi Prize has been awarded by the "National Research Center for Medical Sciences of Iran (NRCMSI)" since 1995. This distinction, which is aimed at encouraging innovation and research in medical sciences, is dedicated to researchers, universities, research centers, innovative business incubators relating to scientific research, NGOs supporting medical research and/or scientific journals. The awards are presented at an official ceremony named the Razi Festival, after the name of the famous Muslim physician of the late 9th century and early 10th century, in recognition of the important role he played and which served, for centuries, as a reference in medical universities across the world (especially in Europe). Razi was also a physicist, a philosopher, a scholar and one of the founders of modern chemistry.

Through the names of such prominent figures of the Islamic golden age as Mohammad Zakaria Razi, UNESCO gives a constant reminder that humanity as a whole has benefited from their discoveries and/or inventions, particularly in the realm of medical sciences. It also reminds those who are trying to tarnish the image of Islam and Muslims, of the enlightenment age in the Muslim world and its significant contribution to all fields of knowledge which paved the way for considerable advances towards improved well-being. Moreover, these prizes provide researchers of the Islamic world with a much stronger incentive to innovate and produce in the medical field, following in the path of their illustrious ancestors. Therefore, such prizes enhance the standing of researchers and boost the spirit of competition among them to stimulate excellence and creativity.

The 17th edition of this festival was held under the chairmanship of Dr. Mahmoud Ahmadinejad, President of the Islamic Republic of Iran, in the presence of the Vice President for Science and Technology, the Minister of Health and Medical Education, as well as a host of politicians and academics. This event, which encourages the Iranian medical elite to redouble efforts to offer humanity the best breakthroughs in life and health sciences, also aims to promote national scientific competencies to counter brain drain.

It is worth mentioning that 43 researchers out of 825 nominees were awarded prizes. UNESCO presented them with a certificate of merit, and six young winners received a symbolic financial reward worth US$500 each. These prizes were awarded in the following disciplines: invention, clinical research, surgery, basic science research, internal medicine, nutrition, paramedical and rehabilitation research.

As for the 6th edition of Farabi International Festival, UNESCO responded favorably, as it did in the previous years, to the support request made by the Iranian Ministry of Science, Research and Technology.

This Festival is organized every year in collaboration with national and international scientific organizations, to promote the human sciences and Islamic studies, encourage researchers to develop research in applied sciences while incorporating the endogenous knowledge, and pay tribute to the best young researchers. Iranian and non-Iranian researchers alike, whose works tackle subjects related to the Islamic civilization and the Iranian culture, and who propose innovative solutions to the problems of our time, in a way that respects the Islamic values and principles, are all invited to apply for the awards the Festival gives.
A total of 2998 research papers were submitted (2686 by Iranians and 312 by non-Iranians) in the 12 categories of: Arts and Aesthetics; Economy, Management and Accounting; Education Sciences; Psychology; Behavioral Sciences and Physical Education; Fiqh, Usul Al Fiqh, Quranic Sciences and Hadith; History, Geography and Archaeology; Library Science and Information Technology; Studies on the Islamic Revolution and Imam Khomeini; Language and Literature; Law; Philosophy, Theology, Ethics, Religion and Mysticism; Political Sciences, International Relations and Regional Studies; Social Sciences and Communication. 43 winners (40 Iranians and 3 non-Iranians) were selected by a scientific council made up of eminent professors and experts in human and Islamic sciences. Awards and certificates of merit were distributed to the winners during a ceremony held for the occasion. The ceremony was attended by HE Dr Ahmadinejad, the President of the Islamic Republic of Iran, the Iranian Minister of Science, Research and Technology, as well as a host of political personalities and professors.

It is worth mentioning that the Farabi International Festival contributes to the promotion of human sciences and Islamic studies, in order to provide alternatives to foster peace and security in today’s world, characterized by continuous change, through promoting knowledge. Considering the success of the previous editions, a call for application to the Festival’s 7th edition was launched through the website http://www.farabiaward.ir/en/ and via email.
Islamic Educational, Scientific and Cultural Organization (ISESCO)

ISESCO’s Report on Activities implemented in the Fields of Science, Technology and Innovation
January – December 2013
Achievement Record

Sector-specific Priority One:

Reinforcing Scientific and Technological Capacities for the Achievement of Development

Scientific and technological capacities provide the competitive edge needed for success in competitive global economy. During 2013, 47 activities were accomplished under this priority. A holistic but catalytic approach was adopted which included exploitation of matrix (or matrices), where multiple perspectives were taken towards achievements of success. 17 Programmes contributed towards integrating vibrant science policies and improving science systems, science governance and good practices. Involvement of Parliamentarians helped to muster resources and support towards enabling policies and legal frameworks for promoting STI. Results achieved in improving governance and management of science parks and incubators, as an economic and technological component capable to foster knowledge-based economies, promoted entrepreneurship and enabled more cohesion and viable partnership between researchers and business community to work for mutual benefits. Strengthening of national systems of innovation helped to align various important components of economy toward overall achievement of innovations. Empowering women and building of confidence in young scientists and researchers also contributed towards overall achievement. Popularization of science was carried out through training of young journalists, reporters, and broadcasters and organization of scientific camp. ISESCO set off active cooperation and collaboration with international scientific players, and made more visibility at international level.

13 programmes were executed to integrate new and cross-cutting technologies and entrepreneurship to contribute towards economic gains. Technology Foresight instrument helped sharing of ideas on synergies and networking among innovation institutions and identified the set of futuristic technologies. Technology road mapping was used as a consensus building process. Programmes in agricultural and food technologies helped in protection of agricultural systems and introduction of specialized techniques. Introducing new trends in Biotechnology projected tremendous promise it holds for Member State as a frontline technology crucial for socio-economic development. Nano-Science and Nanotechnology programmes introduced integrated approaches for absorption of nanotechnologies, defining vital actions and research priorities, as well as exposing opportunities and the state of the art achievements. Focus on Ethics on science and technology raised awareness and reaching general consensus on various important and sensitive
ethical issues from Islamic and Sharia point of views.

17 programmes were executive towards enculturation of quality in higher education. Milestone progress was achieved towards strengthening the knowledge-based economy. Report on knowledge economy introduced new model of development, roadmap for the Knowledge-based economy and addressed unemployment. **Enculturation of Quality in science education** was achieved through further fortifying knowledge on Inquiry-Based Science Education, introducing micro-science experiments for schools, and fortifying skills on new electronic delivery methods and display techniques. Endeavors were made to upgrade the system of higher education, through improving university governance and linking its outputs to the national requirements to job markets. **Graduate employment and employability** was pursued through supporting the development and reforming of systems and processes that facilitate the transfer of real work skills, as well as sharing of best practices in terms of career guidance market/employment links. **Pan-Islamic research and education network (PIREN)** adopted plan to improve connectivity among researchers and education networks in Member States.
Axis 3.1: 
RE-INNOVATING SCIENCE POLICIES 
AND GOVERNANCE

Expected Outcome 3.1.1:
Re-innovating Member States’ Scientific and Technological Policies and Activate National, Regional and International Mechanisms with a view to Managing them for Development Purposes

Achievements:

• Training Workshop on Supporting National System of Innovation Surveys and Reviews, Abidjan, Côte d’Ivoire, 15th-17th April 2013; organized in collaboration with the African Observatory for Science Technology and Innovation (AOSTI), benefitted by more than 40 participants from various national institutions and concerned ministries.

• Promotion of Woman Science Chairs Programme, Islamabad, Pakistan, 20th August 2013; Prof. Dr. Bushra Mirza from Quaid-e-Azam University, Islamabad, Pakistan was nominated for Women Science Chair, which was launched in a ceremony attended by academic and student community.

• Regional Seminar on “Governance and Management of Science Parks in MENA Region”, Casablanca, Morocco, 4th-6th November 2013; organized in cooperation with the European Investment Bank and the Mundiapolis University in Casablanca, participated by more than 50 experts and managers of science parks from MENA Region as well as from United Kingdom, France, Poland, Turkey, Luxembourg and Italy.

• Science & Technology Innovation Training Programme for High Level Policy Makers, Seoul, South Korea, 11th-15th November 2013; organized in cooperation with Korea Institute of Science & Technology Evaluation & Planning (KISTEP) and the International Science with Technology and Innovation Centre (ISTIC) for South-South Cooperation, participated by 24 high level policy makers from Brazil, Burkina Faso, Costa Rica, Ecuador, Indonesia, Iran, Jamaica, Kazakhstan, Lao PDR, Malawi, Malaysia, Trinidad and Tobago, Uganda, Uzbekistan and Vietnam.

• Regional Forum on “Role of Parliamentarians in Helping to Develop Enabling Policies and Legal Frameworks for Promoting STI”, Abidjan, Côte d’Ivoire,
3rd-5th December 2013, in cooperation with UNESCO and the African Observatory of Science, Technology and Innovation (AOSTI), with the participation of parliamentarians from selected ECOWAS countries (Côte d’Ivoire, Burkina Faso, Benin, Togo, Guinea, Mali) and about 40 scientists, technologists and innovation experts.

- National Seminar on “the Role of Business Incubators in Socio-economic Development”, Niamey, Republic of Niger, 23rd-25th December 2013; benefited by 30 participants from academia, government officials and local enterprises.

Expected Outcome 3.1.2:
Enhancing University-Industry Interaction

Achievements:

- Sixth International Arab Conference for Information Technology—a Way to Keep A abreast of Developments and Innovation, ISESCO Headquarters, Morocco, 29th-31st October 2013; organized in collaboration with the Arab Organization for Industrial Development and Mining (AIDMO), Qatar Fund of Scientific Research, and the Moroccan Ministry of Industry, Trade and Investment and the Digital Economy, attended by 300 participants and experts from officials in the public and private sectors, universities, colleges, chambers of commerce and industry, unions, Arab and international organizations.

- Representing ISESCO in Regional and International Scientific Events and conducting collaboration meetings with joint partners:
  - First Conference of Marine and Ocean Sciences and Technologies, Khoramshar, Iran, 23rd-24th January 2013;
  - Launching the Saudi Arabia Water Centre of Excellence, Al Madinah Al Munawwarah, Saudi Arabia, 22nd March 2013;
  - Second International Conference on Women’s Health, Shiraz, Iran, 1st-2nd May 2013;
  - The International Conference on E-Learning in the Field of Medical Sciences, Shiraz, Iran, 23rd-25th October 2013;
  - Food Day Conference “Sustainable Food System for Food Security and Nutrition”, Mashhad, Iran, 14th October 2013;
  - Fourth Session of the Islamic Conference of Health Ministers, Jakarta, Indonesia, 22nd-24th October 2013;
  - 5th International Conference on Intellectual Management, Zanjan, Iran, 11th September 2013;

- Regional Workshop for Young Journalist for Enhancing Skills in Scientific Reporting, Sana’a, Yemen, 12th-14th May 2013; organized in cooperation with the Yemen National Commission for ISESCO, benefitted by 43 young journalists from Yemen, Bahrain, Egypt, the Sudan, Oman, Jordan and Lebanon.
Axis 3.2:
REINFORCING TECHNOLOGY CAPACITIES

Expected Outcome 3.2.1:
Building up Member States’ Technology Capacities in New Technologies and Innovation

Achievements:

- Award of prizes and medal to talented Science students, Tehran, Iran, 6th February 2013; ISESCO awarded three prizes to young researchers and technologists during the Khwarizmi International Award (KIA), organized by the Iranian Research Organization for Science and Technology (IROST).

- Regional Workshop on Technology Forecasting, Jakarta, Indonesia, 19th-21st November 2013; organized in cooperation with the World Association of Industrial and Technological Research Organizations (WAITRO) and the Ministry of Religious Affairs, Republic of Indonesia, attended by 35 technology foresight and road mapping specialists and scientists from Malaysia, Indonesia, Morocco, Egypt, Pakistan and Nigeria.

- Capacity Building of National Systems for Research and Development (R & D) and Innovation in Chad, N’Djamena, Chad, 24th-27th June 2013; conducted in collaboration with the Ministry of Higher Education, Chad, benefitted by 25 participants from ministries involved in science, technology and innovation (science, research, industry, agriculture, health, commerce, environment etc.).

- National Workshop on Reinforcing Scientific and Technological Capacities, Ramallah, Palestine, 26th-28th December 2013.

Expected Outcome 3.2.2:
Stepping up Member States’ Efforts in Benefiting from New Technology Applications in Development

Achievements:

- International Workshop on “Establishment of Globally important Agricultural Heritage System Programme in Member States, Sewa, Egypt, 14th-17th January 2013;

- International Conference on Sustainable Water Use for Securing Food Production in the Mediterranean Region under Changing Climate, Agadir, Morocco, 10th-15th March 2013; organized in cooperation with the Hassan II Institute of Agronomy and Veterinary Medicine and the European Commission, attended by 200 participants and 75 invited speakers and experts from Europe, Asia and Islamic countries.
• Coordination Meeting between ISESCO and FAO on implementation of GIAHS project, Rome, Italy, 2nd–4th May 2013; called jointly by FAO and ISESCO, attended by all stakeholders involved in implementation of the ISESCO-FAO GHIAS project.

• International Symposium on Food Security and Sustainable Development: Challenges of Agricultural Research, Tunis, Tunisia, 26th–28th November 2013; organized in collaboration with the National Institute of Agricultural Research (INRAT), FAO Regional Office in Tunisia, and International Centre for Agricultural Research in the Dry Areas (ICARDA), attended by 70 experts from Morocco, Algeria, Libya, Jordan, Egypt, and from different International Research Centres from Italy, USA, Belgium, Canada and Australia.

• International Conference on “New Trends in Biotechnology”, Selangor, Malaysia, 12th-13th December 2013; in cooperation with the Malaysian Biotechnology Information Center and Monash University in Selangor, Malaysia, attended by 66 biotechnologists from Malaysia, Egypt, Morocco, Iran, Tunisia, Kuwait and Indonesia.

• International Workshop on Nanotechnology & Nano-biotechnology Innovative Applications for Sustainable Green Economy and Climate Change Mitigation, Serpong, Indonesia, 16th-18th December 2013, in cooperation with the Commission on Science and Technology for Sustainable Development in the South (COMSATS), and the National Nuclear Energy Agency (BATAN) of Indonesia, attended by 65 participants from scientific and academic circles in Indonesia and 30 experts from Australia, Bangladesh, China, Egypt, Indonesia, Iran, Japan, Malaysia, Morocco, Pakistan, and Saudi Arabia.

• Nanotechnology On Line Training Programmes for the benefit of student and young researchers, ISESCO Headquarters, May 2013; the training course was launched on Nanotechnology website to allow benefit by all.

Expected Outcome 3.2.3:

Reinvigorating the Role of the Islamic Body on Ethics of Science and Technology (IBEEST)

Achievements:

• Regional Preparatory Meeting on the Bioethical Issues for consideration of IBEST, Amman, Jordan, 30th June-2nd July 2013, attended by bioethical specialists from Egypt, Morocco, Tunisia, Jordan, Sudan, Palestine, Libya, Kuwait and Oman.

• Strengthening the Web Portal on Ethics of Science and Technology, ISESCO Headquarters, July 2013; a forum was created on the portal for ethical experts to discuss and debate ethical issue on regular basis.
Axis 3.3:
ENCULTURATION OF QUALITY IN SCIENCE EDUCATION

Expected Outcome 3.3.1:
Enhancing National Policies to Ensure Quality in Science Education

Achievements:


- National Consultation Workshop on ISESCO-CMI Knowledge-based Economy Report: Knowledge Economy and Innovation, a New Model for Development for Tunisia”, Tunis, Tunisia, 12th April 2013; organized in cooperation with CMI, hosted by the Tunisian Union of Commerce, Industry and Crafts (UTICA), attended by about 75 participants.


- Organization of “Open Day on Knowledge Economy”, Banjul, the Gambia, 14th May 2013, benefitted by about 50 participants.

- High Level Conference on Dissemination of the Knowledge Economy Report Results “Transforming Arab Economies: Travelling the Knowledge and Innovation Road”, ISESCO’s Headquarters, Rabat, Morocco, 4th-5th June 2013; organized in cooperation with the World Bank and the European Investment Bank through the CMI platform, participated by 150 high level policymakers, academics, private sector and civil society from across the Arab world including Algeria, Djibouti, Egypt, Iraq, Libya, Lebanon, Jordan, Mauritania, Morocco, Oman, Saudi Arabia, Tunisia, UAE, and from France and Pakistan as well as presentations of the African Development Bank, British Council, EIB, EU, FAO, FEMISE, GIZ,
IEMED (Spain), IMF, IOM, Islamic Development Bank, UNDP, UNIDO etc.

- National Camp of Excellence for Young Girls in Science and Mathematics, Ouagadougou, Burkina Faso, 26th August-1st September 2013, organized by ISESCO for the benefit of 60 young girls.

- Second Vice Chancellors Forum, Islamabad, Pakistan, 24th-29th September 2013; organized by COMSATS Institute of Information Technology (CIIT) in collaboration with ISESCO Higher Education Commission (HEC) of Pakistan; Ministry of Science and Technology (MoST), Government of Pakistan; and the Federation of the Universities of the Islamic World (FUIW), attended by more than 130 Vice Chancellors /Rectors/Presidents of universities and higher education institutions from the Islamic World as well as the academic institutions from Afghanistan, Bangladesh, Brunei Darussalam, Cameroon, Comoros, Egypt, Guinea, Indonesia, Iran, Jordan, Kyrgyzstan, Libya, Lebanon, Malaysia, Morocco, Nigeria, Pakistan, Palestine, Sudan, Syria, Tajikistan, Tunisia, Turkey, Uganda, UK and Yemen, and Government officials from Oman and Saudi Arabia.

- Organization of “Open Day on Knowledge Economy”, Islamabad, Pakistan 1st October 2013; organized by Pakistan Council for Science and Technology, attended by 200 participants.

- Organization of “Open Day on Knowledge Economy”, Sharjah, United Arab Emirates, November 2013; for the benefit of about 80 participants.

Expected Outcome 3.3.2:

Following up Implementation of the “Key Performance Indicators” Document to Improve the Quality of University Education and Align its Systems with International Standards

Achievements:

- Regional Training workshop on Microscience Experiments in the basic sciences, Niamey, Niger, 3rd-5th January 2013 organized in collaboration with the Guri Vie Meilleure Foundation, founded by the First Lady of Niger and UNESCO, benefitted by 31 science teachers from various regions of Niger.

- International Roundtable Programme and Training Workshop on Inquiry based Science Education (IBSE) for Science Educators from African Countries, Khartoum, the Sudan, 14th-18th April 2013; organized in cooperation with the Future University, ISTIC and TWAS, attended by 20 experts, science educators from USA, France, Malaysia, and African Countries.

- Regional Conference on Graduate Employment and Employability in the MENA Region, ISESCO Headquarters, 12th-14th March 2013; organized in collaboration with the British Council, the African Development Bank and the Ministry of Higher Education, Scientific Research and Executive Training of Morocco, attended by more than 100 participants and experts from Egypt, Indonesia, Lebanon, Libya, Morocco, Palestine, Pakistan, Tunisia and Yemen.

- Workshop for Science Teachers on the Use of New Electronic Delivery Methods and Display Techniques, Manama, Bah-
rain, 20th-22nd October, 2013; attended by 14 participants from Bahrain, Oman and Qatar.

- **ISESCO-COMSATS-INIT International Workshop on Internet Security: Enhancing Information Exchange Safeguards**, Nabeul, Tunisia. 9th-13th December 2013; organized in cooperation with the Commission on Science and Technology for Sustainable Development (COMSATS) and the Inter Islamic Network on Information Technology (INIT), participated by 35 ICT’s experts from Iran, Saudi Arabia, Sudan, Oman, Pakistan, Morocco, Tunisia and Algeria.

- **Second Meeting of Country Coordinators for the Establishment of Pan-Islamic Research and Education Network (PIREN)**, Amman, Jordan, 26th-28th March 2013; attended by experts from Tunisia, Egypt, Morocco, Palestine, Jordan and Pakistan.
Achievement Record

Sector-specific Priority Two:
Preserving the Biosphere

ISESCO follows the Islamic approach calling for maintaining man’s dignity and fulfilling lieutenancy on earth through good and constructive actions integrating values and pursuing welfare of present and future generations. Drawing on its strong sense of environmental responsibility, ISESCO during 2013, implemented 21 activities aiming at preservation of nature, protection of environment, which responded to sustainable development concerns, and promoted international solidarity to help Member States achieve their development and prosperity of their peoples.

Capacities were build up on protection and sustainable exploitation of environment and natural resources, through imparting new knowledge and skills on remote sensing, spatial tool and earth observation systems to make vital contribution towards the various issues that arise in environment, land use, exploitation of natural resources and prevention against natural disasters. 6 Programmes on conservation of energy and promotion of renewable sources of energy also met with successes. Policy makers, academics and professionals engaged in programmes are expected to take concrete action for promotion of sustainable technology such as solar energy, wind, biomass, fuel cell and hydrogen. Presentation of renewable energy technologies options in the light of various obstacles hindering the access to energy services for communities in rural and remote areas will also help in developing clean energy systems and eco-efficient services. 7 Programmes on water Management contributed to embrace economically sound, socially acceptable and environmentally viable integrated management of water resources. Water Networks integrated into a well organized cluster will give opportunity to extract and disseminate shared knowledge, lessons learnt and experience. Policy dialogue with major groups provided practical mechanisms for overcoming known future challenges in water sector. Vision and actions on trans-boundary water cooperation are expect to contribute towards solving disputes on waters, improve the knowledge base and capacity building in trans-boundary water resources management. Programmes were also implemented to build better capacities in management of oceans resources. ISESCO provided background on sea level rise impacts and developed skills on new methods and tools for coastal vulnerability assessment, to understand predicted vulnerability of the region, define gaps in knowledge and capacities, and presented options to address such gaps in the region.

Understanding and capacity building in relation to Green Economy was promoted through 8 programmes aiming at the assessment of the opportunities, challenges and risks associated with this concept and the ways of materializing it. ISESCO focused on the key issues of concern in the
green economy and presented investment projects that could be applied in the field of green economy to create job opportunities for youth and promotion of ecotourism. In order to address the Impact of Climate Change, ISESCO identified constraints and conflicts, prioritized the critical ones, explored and validated different scenarios to better reflect on the set climate change resilience framework and assess the current project situation. Culture of safety and resilience to disaster risks was promoted through improving skills on disaster risk reduction management, good governance and advocating disaster risk management measures in national development planning process. Focus was placed on partnership, continuous training, improving the capacities for effective emergency intervention and sensitizing the general public for better preparation.
Axis 3.4:
CONSERVATION AND SUSTAINABLE UTILIZATION OF NATURAL RESOURCES

Expected Outcome 3.4.1:
Improving Conservation, Management and Utilization of Biodiversity and Natural Resources

Achievements:
• Scientific Workshop on “Integration and Exploitation of Data on Earth Observation in the Management of Sustainable Development Projects”, Conakry, Guinea, 25th-28th April 2013; organized in cooperation with the African Regional Centre for Science and Space Technologies (CRASTE-LF), attended by 80 participants working in the field of environment, agriculture, water resources, higher education, national research centers and universities.

• Regional Conference on the Role of Earth Observation in Economic Development in Central Africa “Space Sciences and Technologies in the 21st century: Challenges, Constraints and Perspectives”, Yaoundé, Cameroon, 11th-14th November 2013; organized in cooperation with the African Regional Center for Space Sciences and Technologies in French Language (CRAS-LF) and the National Committee for Sciences and Technologies (CNDT) in Cameroon, participated by 53 engineers and experts from Cameroon, Gabon and Congo.

Expected Outcome 3.4.2:
Supporting Member States’ Efforts in Using New and Renewable Energy and Building Specialized Capacities

Achievements:
• World Renewable Energy Congress-Mediterranean Green Energy Forum 2013 (MGEF-13), Fez, Kingdom of Morocco, 16th-20th June 2013; organized in cooperation with the World Renewable Energy Network (WREN), Knowledge Engineering Systems International (KES) and Laboratoire des Sciences de l’Information et des Systèmes (LSIS) Marseilles, France, hosted by the University Sidi Mohamed Ben Abdellah in Fez, attended by 119 scientists, technologists and researchers in renewable energies from different countries.

• 6th Asian School on Renewable Energy: Advanced Micropower Systems, Puri Pujangga, UKM Bangi, Selangor, Malaysia, 1st-5th July 2013; organized in cooperation with UNESCO and the Turkish International Cooperation and Develop-
ment Agency (TIKA), hosted by the Solar Energy Solar Institute-Universiti Kebangsaan Malaysia, attended by participants from Azerbaijan, Bangladesh, Brunei Darussalam, Kazakhstan, Kyrgyzstan, Malaysia, Maldives and Pakistan.

- **International Seminar on Renewable Energy and Sustainable Development in the Developing Countries**, Brighton, United Kingdom, 25th-31st August 2013; organized in cooperation with the World Renewable Energy Network (WREN), attended by 18 experts in Renewable Energy from Iran, Malaysia, Iraq, Morocco, Emirates, Indonesia, Algeria, Bahrain, Oman and Europe.


- **International Seminar and Experts Meeting on “Waste to Energy, Renewable Energy and Building for sustainable Environment”**, Manama, Bahrain, 24th-28th November 2013; organized in cooperation with the World Renewable Energy Network (WREN), attended by 25 participants from Bahrain and 16 experts from United Kingdom, Italy, Portugal, India, Pakistan, Sudan, Iraq, Egypt, Indonesia, Malaysia, Palestine and Yemen.

- **African Annual Solar Energy Summer School**, Dakar, Senegal, 9th-13th December 2013; organized in cooperation with UNESCO and the Turkish International Cooperation and Development Agency (TIKA), hosted by the International Center for Training and Research in Solar Energy (CIFRES) at the Polytechnic School, University of Dakar, attended by 21 participants from Togo, Benin, Cameroon, Senegal, Côte d’Ivoire, Madagascar, Mauritania, Democratic Republic of Congo, Republic of Congo and Niger.

**Expected Outcome 3.4.3:**

**Enhancing National Capacities for Rational Utilization of Water and Marine Resources**

**Achievements:**

- **Regional Workshop on Water Resource Management in the Arab Countries**, Tunis, Tunisia, 27th-28th May 2013, in cooperation with UNESCO Cairo Office and ALECSO, with 30 participants including water experts, policy makers and water authorities from Lebanon, Jordan, Egypt, Oman, Yemen, the Sudan and Morocco.


- **Regional Workshop on “Regional Knowledge Networking on Systemic Approaches to Water Resources Management Projects”**, Amman, Jordan, 7th-9th October 2013; organized in cooperation with the
International Union for Conservation of Nature (IUCN), benefitted by 20 participants from Lebanon, Jordan, Swiss, France, Egypt, Palestine, Morocco

- Regional meeting for the Arab IHP National Committees on Arab Trans-boundary Water Cooperation: Visions, Challenges and Actions, ISESCO’s Headquarters, Rabat, Morocco, 9th-10th October 2013, in cooperation with UNESCO Cairo Office, attended by 20 participants including water experts, local representatives of international organizations dealing with the issue of water management and national IHP committee’s representatives from Egypt, the Sudan, Jordan, Oman, Lebanon, Libya, Algeria and Morocco.

- National Workshop on Integrated Management of Water Resources in Iraq, Baghdad, Iraq 19th-21st September 2013, with the participation of 25 experts and decision makers in Iraq.


- Regional Workshop on the Impacts of Sea level rise and Coastal Ecosystem Based Adaptations, Jeddah, Kingdom of Saudi Arabia, 6th-8th January 2014; organized in collaboration with PERSGA and UNEP, attended by 25 participants from Egypt, KSA, Jordan, Djibouti, Yemen, Sudan, Bahrain and United Arab Emirates.
Axis 3.5: MITIGATING ENVIRONMENT RISK AND DISASTER MANAGEMENT

Expected Outcome 3.5.1: Stepping up Member States’ Efforts in Facilitating Transition to Green Economy

Achievements:
• 12th Annual Arab Environment Conference, Hurghada, Egypt, 12th-14th May 2013; ISESCO joined the Arab Union for Youth and Environment in organization, attended by 112 participants including university professors and experts in the field of environment and climate change, water management from Egypt, Jordan, Saudi Arabia, the Sudan, Kuwait, Qatar, Palestine, Lebanon and Somalia.

Expected Outcome 3.5.2: Enhancing Joint Islamic Environmental Action to Develop National Policies for Protecting the Environment, Addressing the Impact of Climate Change and Benefiting from Adaptation Funds

Achievements:
• Regional workshop on “Institutional Change Processes & Lessons Learnt for Climate Change Resilience”, Marrakesh, Morocco, 27th-29th April 2013; attended by 30 participants from Palestine, Lebanon, Morocco, Egypt and Jordan.

• Workshop on Planning Actions against Climate Change Effects and Elaboration of a National Policy for Disaster Management, Nouakchott, Mauritania, 6th-8th May 2013; attended by concerned institutes and government authorities.

• Study for Elaboration of a National Policy for Disaster Management for Mauritania and Planning Actions against Climate Change Effects, ISESCO Headquarters, Rabat, November 2013.

Expected Outcome 3.5.3: Mitigating disaster risk and damage and improve Member States’ management capacities

Achievements:
• Regional Workshop on “Strengthening Synergies between the Governance of Disaster Risk Reduction and Climate Change Adaptation”, Sharm El Sheikh, Egypt, 25th-28th February 2013; organized in collaboration with the International Union for Conservation of Nature (IUCN), ROWA, attended by 43 participants from Member States in the MENA Region.

• Second Experts’ Meeting on Natural Disasters Management and Impacts’ Reduction, Moroni, Comoros, 25th-28th November 2013, attended by 20 experts from the Comoros and the sub-region.
Achievement Record

Sector-specific Priority Three:
Harnessing Human and Social Sciences for Fostering Social Peace

ISESCO enhances social cohesion and promotes values of brotherhood for solving conflicts and building peace in the society. ISESCO during 2013, executed 18 programmes which paid attention to build peaceful societies, enhance respect for human rights, care for women and youth role and solve conflicts and address social menaces.

3 research performances in social and human sciences were improved through grants so as to better examine, analyze and understand new behavioural patterns, social and cultural trends, and economic transformations, in addressing societal issues. ISESCO also analyzed the status of research in social and human sciences in African region, its use in information and human knowledge system and the direction it should take to solve emerging problems. In-depth analysis of social and human problems impeding peace and tranquility in general were conducted and various solutions and strategies were proposed for government and policy makers to take appropriate decision to ensure peace. Improving knowledge on innovative policy and successful actions contributed towards improving the performance of the centres of social services to help achieve the goals of sustainable development.

2 women empowerment programmes were implemented as part of ISESCO’s efforts to empower women towards an economically stable and socially cohesive society, and toning down all forms of discrimination against women projecting their civil, social and economic rights. Women in rural areas were supported through awareness-raising on education, health, women rights and entrepreneurship. Tools and techniques suitable to match well with nature of community helped in empowering of rural young girls. Emancipation measures for challenges like violence against women, high health risks, discrimination, lack of resources and remedies were suggested to local authorities. The role of youth in social development was promoted through 2 activities aiming at their greater involvement and acknowledging their vision of priorities in social development process. Key issues affecting young people lives were addressed, especially through provision of opportunities for improving skills and career development.

ISESCO implemented 9 programmes for alleviation poverty eradication which contributed towards ameliorating quality of life, protection from diseases and tackling crucial social problems. Working with non-government organizations helped to relieve miseries of impoverished and marginalized populations. Support for vital projects addressed the real needs of the poor commu-
nities, tackled important problems and alleviated suffering of the poor families. New insights and modalities of microfinancing were projected which assisted strengthening income-generating micro-projects. Opportunities to exchange the best practices on microfinance helped better understanding of financial aspects of business models, the best practices in regulation and supervision, funding of microfinance portfolios and distribution channels for micro-credit and other financial services.

2 activities were implemented by ISESCO as part of its efforts to invigorate national strategies and programmes for health, advance good governance mechanisms for health services and contributed towards malnutrition and prevention of communicable and non-communicable diseases. Latest techniques and knowledge on the prevention of infectious diseases, good hygiene practices and epidemiological surveillance fortified national health programmes for prevention of diseases and infections. Improved information of the educational community created rapid response mechanisms to address major threats to health in schools and addressing the determinants of school health factors, particularly the harmful factors related to lifestyle and health.
Axis 3.6:
ENHANCING SOCIAL COHESION

Expected Outcome 3.6.1:
Improving Understanding of Social Patterns and Economic Transformations, and to Promote Human Rights Including Women’s Rights

Achievements:

• Regional Youth Forum on Fostering the Role of Youth in Social Development, Lome, Togo, 22nd-25th April 2013; organized in collaboration with the Ministry of Youth, Vocational Training and Employment, Togo, attended by 43 young activists and leaders from various associations, organizations and youth councils from Benin, Burkina Faso, Côte d’Ivoire, Mali, Niger and Togo.


• Awarding ISESCO Research Grant in Social and Human Sciences, ISESCO’s Headquarters, November 2013; the following research projects were supported:
  - Research Project entitled “Developing technical guides fight against land degradation and its social effects in West Africa”.
  - Research Project entitled “Social mobility Arabic: socio-communicative approach”.
  - Research Project entitled “Beekeeping and its contribution in the fight against the impoverishment of farmers in the Central Region in Togo”.
  - Research Project entitled “Impacts of uncontrolled settlement in rural areas in Mauritania”.
  - Research Project entitled “Development of a catalog of the pioneer women (mothers of independence) in West Africa”.

• Four One-Day Workshops on “Empowering Young Girls through Education, Health and Economic Development in Rural Areas”, Rawalpindi, Chakwal, Haripur and Rawalakot, Pakistan, 23rd-26th December 2013; organized in collaboration with the Nation Resource Development Organization (NRDO), benefitted by 160 Pakistani young girls from colleges of rural areas.
Expected Outcome 3.6.2:

Highlighting the Contribution of Islamic Civilization to the Development of Human Sciences and Knowledge with a view to Providing Correct Information about Islam and Muslims

Achievements:

- Sub-Regional seminar on “Empowering Women Towards an Economically Stable and Socially Cohesive Society”, Yaoundé, Cameroon, 23rd-25th April 2013; participated by 40 participants and experts from Togo, Burkina-Faso and Cameroon.
Axis 3.7:
AMELIORATING THE QUALITY OF LIFE

Expected Outcome 3.7.1:
Ameliorating Life quality through Implementation of Poverty Eradication and Health Prevention Policies and Programmes

Achievements:

- National Training Workshop on Apiculture Techniques and Production of Natural Honey for the Benefit of Unemployed Rural Youth, Kara, Togo, 26th-29th August 2013, benefited 40 unemployed youth from different rural communities in the central region of Togo.

- Sub-regional Symposium on Environmental Challenges and their Impacts on Development and Healthcare in the Arab Region, Rabat, Morocco, 13th-14th December 2014, in cooperation with the Islamic Organization for Medical Sciences (IOMS), the Faculty of Medicine and Pharmacy of the University Mohamed V in Rabat and the Moroccan Association for Sanitary Communication, attended by 25 health and environment experts from Algeria, Mauritania, Morocco, Oman and Palestine.

- Supporting the Activities of NGOs in Tackling Critical Social Problems of Youth in the Member States, ISESCO’s Headquarters, April-August 2013; ISESCO extended support to following three non-governmental organizations operating in the field of improvement of quality of life of populations:
  - Supported NGO FADAMA, in Niger in implementation of the project entitled “Training workshop for gardeners producers in rural communities of Magaria, Dantchiao, Bandee and Sassoumbroum”, Niger, April, 2013;
  - Supported NGO Association for Pisciculture and Cattle Development (APCD), in Bangladesh in implementation of the project entitled “National training workshop for rural women on the techniques of sewing and embroidery”, Bangladesh, June, 2013;
  - Supported NGO Cooperative Des Transformateur Des Produits Agricols du Togo (COTPAT) in implementation of the project entitled “National training workshop on capacity building for 50 women processors of agricultural products on the management of micro-enterprises and micro-credit”, Togo, September, 2013;

- Regional Seminar on “Strengthening the Capacity of Stakeholders in Microfinance”, Cotonou, Benin, 24th- 26th September 2013; attended by 40 government officials and representatives of the micro finance sector including
development banks, credit union, cooperatives as well as microfinance specialists

- **Regional Workshop on Strengthening National Policies Disease Control in West Africa**, Ouagadougou, Burkina Faso, 24th-27th June 2013, supported the University of Ouagadougou, participated by 26 health experts, doctors, State nurses, health programmes managers from Burkina Faso, Côte d’Ivoire, Mali, Niger, Senegal and Togo.

- **National Workshop on Techniques for Prevention of Communicable Diseases in Needy Areas**, Islamabad, Pakistan, 26th-28th December 2013; supported by the Pakistan National Commission for UNESCO and attended by 36 participants and 8 medical doctors and health workers.
Achievement Record

Sector-specific Priority One: Promotion of Innovative Scientific Research

Under the sector-specific priority pertaining to the promotion of innovative scientific research, nine (9) expected outcomes were fulfilled, divided over two action lines: promotion of scientific publications that meet quality standards, and optimal use of scientific research output.

Two activities were carried out to fulfill the expected outcomes of the first action line, namely improving the quality of “ISESCO Journal of Science and Technology” and updating the www.icpsr.org.ma portal dedicated to the Islamic scientific community. The first of these activities pertained to the publication of two issues of the ICPSR Journal, with ISESCO covering the costs and services needed to enhance its quality and academic standing. The journal promotes research and innovation as part of its drive to advance knowledge in S&T at universities and research centers in the Islamic world. On the other hand, the portal provides a platform for knowledge and experience sharing and online networking of the scientific community as a medium of facilitating international collaboration (South-South and North-South).

With regard to the allocation of more research fellowships to young women and men in identified priority areas of scientific research and the awarding of prizes in encouragement of excellence and innovation, ISESCO granted eight scholarships to researchers from Member States to help them carry out their research projects in favorable conditions. Similarly, and in partnership with the Iranian Ministry of Health and Medical Education, 34 graduates and 20 institutions working in the medical field were honored at the “Razi Festival of Research in Medical Sciences”.

Under the second action line, and to fulfill the expected outcome that underscores the need to improve the alignment of academia with industry, enrich the database of scientists in the Islamic world and organize training workshops/meetings to raise awareness about intellectual property rights, ISESCO managed to bring these three (3) goals to fruition. It organized a regional experts’ meeting for Arab countries on “Creativity and Innovation: Guarantors of Industrial Competitiveness” in cooperation with AIDMO, the Public Authority for Industry (PAI, Kuwait) and ESCWA. The various papers presented during this meeting highlighted the decisive role that creativity and innovation play as engines of sustainable and competitive economy. For the benefit of the Asia region countries, ISESCO organized a workshop in Pakistan on the theme “National Innovation and the Intellectual Property System”, in cooperation with the
COMSATS, CIIT and INIT. Once again, the participants emphasized the importance of alignment and interaction between universities, research institutions, businesses and governments to stimulate growth and wealth creation while protecting intellectual property.

To translate the last expected outcome of the second action line into reality, i.e. the organization of capacity-building workshops focused on the repair and maintenance of equipment of scientific laboratories at a rate of one workshop per year and with a significant participation of women and youth, the Centre fulfilled two accomplishments. There was a workshop on “engineering equipment repair and maintenance at universities and research centers and small-scale industrial businesses”, organized in cooperation with the COMSATS and at the request of the IRCC in Khartoum. The workshop benefited 36 engineers from 10 Sudanese public and private institutions. Also, ISESCO participated in the First WSIS+10 Review Meeting “Towards Knowledge Societies for Peace and Sustainable Development”, held at UNESCO’s headquarters and organized jointly with the ITU, UNDP and UNCTAD. The goal of the WSIS+10 Review Meeting was to monitor new trends in ICT and anticipate the future needs of Member States.
Expected Outcome 3.8.1:
Improving the quality of ISESCO Journal of Science and Technology (its indexation) and updating the www.icpsr.org.ma portal dedicated to the Muslim scientific community

Achievements:
- Publication of “ISESCO Journal of Science and Technology”, Vol. 9, No. 15, ISESCO headquarters, Rabat, Morocco, May 2013. The journal was distributed to authors and researchers from scientific and technical institutions in Member States.
- Publication of “ISESCO Journal of Science and Technology”, Vol. 9, No. 16, ISESCO headquarters, Rabat, Morocco, November 2013. The journal was distributed to authors and researchers from scientific and technical institutions in Member States.
- Consolidation and updating of the Islamic World’s scientific network portal (www.icpsr.org.ma), ISESCO headquarters, Rabat, Morocco, throughout 2013. The activity benefited universities and national scientific and/or technical research institutes in Member States. It was organized in collaboration with the COMSATS (Commission on Science and Technology for Sustainable Development in the South).

Expected Outcome 3.8.2:
Granting more research scholarships to young women and men in priority scientific research areas

- Support was extended to 8 scientific research projects in the fields of nanotechnology, agricultural biotechnology, medical biotechnology, engineering sciences, medicinal plants, etc, ISESCO headquarters, Rabat, Morocco. The support actions took place throughout 2013 and benefitted eight young researchers from Azerbaijan, Jordan, Iran, Pakistan, Togo, Tunisia and Malaysia.

Expected Outcome 3.8.3:
Rewarding excellence and innovation in science

- Support was extended to the “18th Razi Festival of Research in Medical Sciences”, held in Tehran, Iran, on 14 January 2013. The festival benefited specialists and researchers in medical sciences and was organized in cooperation with the Iranian Ministry of Health and Medical Education.
Action line 3.9:

OPTIMIZING THE USE OF SCIENTIFIC RESEARCH OUTPUTS

Expected Outcome 3.9.1:
Improving alignment of academia with industry

• A regional experts’ meeting on “Creativity and Innovation: Guarantors of Industrial Competitiveness”, Kuwait, 11-12 November 2013. The meeting, organized in cooperation with AIDMO, PAI and ESCWA for the benefit of Arab States, was attended by a large number of officials, scientists and entrepreneurs from the following developing countries: Jordan, United Arab Emirates, Algeria, Saudi Arabia, the Sudan, Palestine, Qatar, Kuwait, Lebanon, Egypt, Morocco and Mauritania, representing government agencies, universities and the industrial sector.

Expected Outcome 3.9.3:
Organizing training workshops/meetings on sensitization to intellectual property rights

• A three-day regional workshop was held in Islamabad, Pakistan, on “National Innovation and Intellectual Property Systems”, on 7-9 October 2013. The event, organized jointly with the COMSATS, INIT and CIIT for the benefit of Member States in the Asia Region, was attended by 70 experts and representatives of international organizations from the following countries: Bangladesh, China, Iran, Kazakhstan, Malaysia, Nepal, Pakistan, South Korea, Sri Lanka, United States and Switzerland.

Expected Outcome 3.9.4:
Organizing one training workshop per year on the maintenance and repair of scientific laboratory equipment, with the participation of women and the youth

• A national training workshop on “Maintenance and Repair of Engineering Equipment at Universities, Research Institutes and Small Industries” was held at the Industrial Research and Consultancy Centre (IRCC) in Khartoum, the Sudan, on 18-22 August 2013. The workshop, organized jointly with COMSATS, benefited 36 engineers from 10 Sudanese public and private institutions.

• Participation in science and technology meetings: First WSIS +10 Review “Towards Knowledge Societies for Peace and Sustainable Development”, UNESCO headquarters, Paris, France, 25-27 February 2013, organized for UN Member States by UNESCO in collaboration with the ITU, UNDP and UNCTAD.
Islamic Educational, Scientific and Cultural Organization
(ISESCO)

ISEESCO’s Report on Activities implemented in the Fields of Science, Technology and Innovation
January – September 2014
Achievement Record

Sector-specific Priority One:

Reinforcing Scientific and Technological Capacities for the Achievement of Development

Science and Technology are, at the same time, icons and engines of progress and prosperity for a nation. In order to create the right ecosystem for development of science and technology, under the Action Plan 2014, 49 activities were accomplished. 25 Programmes contributed towards reinvigorating science technology and innovation policies and improving science governance and good practices. Experts were called to develop an innovation scoreboard for the MENA region. For mobilization of necessary political will towards introducing enabling policies and legal frameworks STI Parliamentary Forum was conducted for the Arab region. To foster culture of innovation and entrepreneurship and transformation into an innovation-driven economy, a series of 12 workshops were conducted which contributed towards strengthening university-industry partnership and expedited the process of digitalization. Programmes on governance and management of science and technological parks (STP) promoted entrepreneurship and enabled more cohesion and viable partnership between researchers and business community to work for mutual benefits. Women Science Chair, established earlier, implemented programmes to consolidate women role and create conducive environment for them in pursuance of their professional career to enable them to play their essential role in building knowledge society. ISESCO also launched the International Academy of Young Scientists to provide them a firm foundation to voice their opinion, contribute towards promotion of science and technology and creation of a better world. International collaboration in science and technology was also pursued keenly through active participation in additional 20 scientific events held by joint partners at international level.

11 programmes were executed to develop capacities in emerging technologies to come in front line to innovate and gain socio-economic benefits out of innovation and knowledge. Basic technology adoption training for young grass root leaders in remote areas helped in creation of employment opportunities, and contributed towards improving agriculture production. Role of technology foresight in research and technology development was projected, through introducing opportunities and challenges for researchers, adaptable best practices in future technology, linking technology needs to technology acquisition and presenting successful case studies. Young researches and technologists were encouraged through award of prizes and were equipped with skills,
competence and knowledge to better commence their careers in their institutions and industries. Applications of biotechnologies and genetic engineering in agriculture as well as in the field of health were introduced. Similarly, under the Strategy for promotion of Nanotechnology in Islamic countries, various new developments and research were presented to encourage governments to accord priority to promotion of nanotechnology in national planning, promote research and its application. Arab Network for Intellectual Property Rights was launched during 2014, to help to enforce intellectual property rights, an important element to protect innovations, and commercialize inventions, allowing individual scientists and institutions to profit from their creative activities.

14 programmes were executed to strengthen the higher education sector. ISESCO called the 7th Session of Islamic Conference of Ministers of Higher Education and Scientific Research (ICMHESR-7), which launched the TAFAHUM programme for mobility of students, researchers and faculty among the Member States, and also approved the establishment of Collaborative Efforts for Commercialization and Entrepreneurship Education. The High level Quality and Accreditation Experts Committee continued to follow up the implementation of “Key Performance Indicators” and introduced measures to enhance quality of higher education to improve performances of universities. Endeavors were made to upgrade the system of higher education, through improving university governance and linking its outputs to the national requirements to job markets. Graduate employability was pursued through enhancing graduates’ abilities, specialist knowledge, personal and practical skills and aptitudes in varying combinations. Open days on Knowledge economy as well as other programmes facilitated successful economic transformation towards knowledge economy through activating growth models based on knowledge and innovation, as well as making progress on sectoral and spatial diversification. Attention was devoted to the four founding pillars of the knowledge economy i.e. ICT, good governance, innovation and higher education. Connectivity among the national and regional education and research networks was strengthened under the Pan-Islamic Research and Education Network (PIREN).
Action Line 3.1:
RENOVATION AND GOVERNANCE
OF SCIENCE POLICIES

Expected Outcome 3.1.1: Re-innovating Member States’ Scientific and Technological Policies and Activate National, Regional and International Mechanisms with a view to managing them for Development Purposes

Achievements:

- **ISESCO-ISTIC Training Workshop on Science, Technology and Innovation (STI) Policy Development**: Kuala Lumpur, Malaysia, 8-15 September, 2014; organized in collaboration with the International Science, Technology and Innovation Centre (ISTIC) for South-South Cooperation, Ministry of Science Technology and Innovation, Malaysia participated by about 30 participants from G-77 Member countries.

- **Promotion of Woman Science Chairs Programme-Workshop on “Women, Sciences and Technologies”**: Algiers, Algeria, 15-16 June 2014; organized in collaboration with ISESCO Woman Science Chair, in the University of Sciences and Technology Houari Boumediene (USTHB) in Algiers, attended by about 50 women scientists and researchers.

- **First Meeting of Young Scientists for Launching Youth Science Academy and Encouraging Youth and Women Participation in Science**: Khartoum, the Sudan, 27-28 April 2014; organized in collaboration with the Future University, Khartoum Sudan, the Third World Academy of Sciences (TWAS), Sudanese Academy of Sciences, participated by 25 young scientists from Sudan, Jordan, Oman, Egypt, Turkey, Senegal, Pakistan, Bangladesh, Iran, Tunisia and Morocco.

- **Regional Seminar on Science and Technology Parks (STP): “Creating the Right Ecosystem for Knowledge Valorisation, A Case Study of ODTÜ Teknokent”**: Ankara, Turkey, 16-18 June 2014; organized in collaboration with the European Investment Bank (EIB) through the Marseille Centre for Mediterranean Integration (CMI), the UN-ESCWA Technology Centre, and ODTU Teknokent STP, participated by the Turkish innovation actors and European experts from the International Association of Science Parks (IASP) and the European Investment Fund (EIF), attended by managers of STP and universities from Bahrain, Egypt, Iraq, Jordan, Lebanon, Libya, Morocco, Oman, Palestine, and Tunisia and others high level experts from Europe.

- **Regional Experts’ meeting on “Developing an Innovation Scoreboard for the MENA Region”**: Cairo, Egypt, 19-20 November, 2014; organized in cooperation with the European Investment Bank, in coordi-
nation with the Centre for Mediterranean Integration (CMI), the UN-ESCWA Technology Centre (ETC) and the League of Arab States, attended by officials in charge of National Innovation Systems institutions such as national chambers of industry and commerce, industrial associations, national councils for science and technology, ministries of planning, science and technology, and industry as well as statistical offices.

- Second Ministerial Forum of Science, Technology and innovation in Africa, ISESCO Headquarters, 14-17 October 2014; organized by the African Development Bank (ADB) in cooperation with the Moroccan and Finnish governments and in partnership with ISESCO, UNESCO, the African Union and a number of international and regional organizations. The Forum was attended by ministers, senior officials, heads of university institutions and research centres, and a host of researchers, experts and university teachers from African countries.

- 17th University-Industry-Government partnerships Congress for National Development, Tehran, Iran, 11-12 March 2014; organized in cooperation with the Iranian Society for Advancement of Industry Academia Collaboration (SIAC), attended by Iranian Government officials from Ministries of Science, Research and Technology, Industry, Mine and Trade, Health and Medical Education, Petroleum, some NGO’s and specialists.

- 18th Annual ASPA International Conference: Innovation & Commercialization Opportunities in the Conceptual Age, Shiraz, Iran, 16-17 October 2014; jointly organized by ISESCO and Fars Science and Technology Park (FSTP), and attended by more than 400 participants from 50 countries.

- Arab Forum on Strengthening the Role of Parliamentarian Committees in Promoting Science, Technology and Innovation, Sharjah, UAE, 19-20 December 2014; jointly organized by ISESCO, ALECSO, UNESCO, ESCWA and the Arab Association for Science and Technology in Sharjah alongside the 2nd Session of the Arab Forum for Scientific Research and Sustainable Development, attended by experts from the United Arab Emirates, Saudi Arabia, Oman, Kuwait, Yemen, Iraq, Jordan, Lebanon, Palestine, Egypt, Sudan and Bahrain Tunisia, Libya, Morocco, Algeria, Somalia, Mauritania, Japan, America, Canada, Greece, France, Italy, the Netherlands, Britain, Ireland, Germany.

- Regional Symposium on Strengthening Women in Science and Technology, Algiers, Algeria, 24-25 December 2014; organized by ISESCO’s Women Science Chair, hosted by the University of Science and Technology in Algiers, Algeria, attended by eminent women scientists from different institutions and provinces in Algeria and from Tunisia, Morocco, Egypt, Lebanon, Côte d’Ivoire and Comoros.

Expected Outcome 3.1.2: Enhancing University-Industry Interaction

Achievements:

- Forum on “Scientific Thematic Groups for Strengthening University-Industry Partnership”; Karachi, Pakistan, May-December 2014; organized in collaboration with Pakistan Council for Science and Technology and Distinguished Innovation, Collaboration and Entrepreneurship (DICE), with eleven one-day workshops in various universities of Pakistan, which spans over several months to train more
than 6,000 students on entrepreneurship and business models through the following workshops:

a. **Workshop on Start-up Today: Enterprise Tomorrow**, Quetta, Pakistan, 5 May 2014; organized at Baluchistan University of Information Technology, Engineering & Management Sciences (BUITEMS) and University of Baluchistan.

b. **Workshop on Start-up Today: Enterprise Tomorrow**, Sukkur, Pakistan, 8 May 2014; organized at Sukkur Institute of Business Administration.

c. **Workshop on Start-up Today: Enterprise Tomorrow**, Faisalabad, Pakistan, 12 May 2014; organized at University of Agriculture, Faisalabad.

d. **Workshop on Start-up Today: Enterprise Tomorrow**, Lahore, Pakistan, 13 May 2014; organized at University of Management and Technology (UMT).

e. **Workshop on Start-up Today: Enterprise Tomorrow**, Sargodha, Pakistan, 14 May 2014; organized at University of Sargodha.

f. **Workshops on Start-up Today: EnterPrise Tomorrow**, Islamabad, Pakistan, 19 May 2014; organized at three Universities in Islamabad: Air University, COMSATS and Riphah University.

g. **Workshop on Start-up Today: Enterprise Tomorrow**, Swabi, Pakistan, 20 May 2014; organized at Ghulam Ishaq Khan Institute of Engineering Sciences and Technology.

h. **Workshop on Start-up Today: Enterprise Tomorrow**, Karachi, Pakistan, 24 May 2014; organized at Institute of Business Administration (IBA), City Campus.

i. **Workshop on Start-up Today: Enterprise Tomorrow**, Peshawar, Pakistan, 26 May 2014; organized at University of Engineering and Technology (UET).

j. **Workshop on Start-up Today: Enterprise Tomorrow**, Chakdara, Pakistan, 27 May 2014; organized at University of Malakand.

k. **Workshop on Start-up Today: Enterprise Tomorrow**, Karachi, Pakistan, 3 June 2014; organized at NED University of Engineering and Technology.

• **The Second International Conference on Entrepreneurship (SICE);** Tehran, Iran 23-24 February 2014; organized in collaboration with the University of Tehran, 35 distinguished international entrepreneurship professors and scholars and more than 400 national entrepreneurship scholars and practitioners participated in the Conference.

• **ISESCO-ISTIC Training Workshop on Preparing R&D Proposal and Technopreneurship for CIS Countries,** 13-17 October 2014, Astana, Republic of Kazakhstan; organized in collaboration with the International Science, Technology and Innovation Centre (ISTIC) for South-South Cooperation, Kazakhstan National Centre of Science and Technology Evaluation (NCSTE), Islamic Development Bank (IDB) and Malaysia Technology Development Corporation (MTDC), attended by 26 participants from Azerbaijan, Bangladesh, Burkina Faso, Egypt, Indonesia, Kuwait, Kyrgyzstan, Malaysia, Pakistan, Russia and Uzbekistan.

• Representing ISESCO in Regional and International Scientific Events and conducting collaboration meeting with joint partners:
- **Deauville Partnership Investment Conference**, Rabat, Kingdom of Morocco, 5 March 2014; organized by the Islamic Development Bank (IDB), in association with the Moroccan Investment Development Agency, attended by government Ministers and high-level business representatives from across the Deauville Partnership countries (G8 members, Saudi Arabia, Qatar, Kuwait, UAE and Turkey) along with representatives of international financial institutions.

- **Health and Environment day**, ABOUDD, Rabat, Kingdom of Morocco, 15 March 2014; organized by the Moroccan ministries of Health and Education; nearly 500 people: students, families and professors attended to this event.

- **Health System Reform in the Maghreb**, Rabat, Kingdom of Morocco, 25-26 March 2014; organized by the Maghreb Arab Union and the Moroccan Ministry of Health, attended by representative and scholars from the five countries, as well as from WHO, IDB and other international organizations.

- **Third International Conference on the Use of Space Technologies in Water Resources Management**, Skhirat, Kingdom of Morocco, 1-4 April, 2014; organized by the Royal Center for Space Remote Sensing in Rabat, the European space agency, Inter Islamic Network on Space science and technology and other concerned organizations, participated by more than one hundred experts.

- **17th Meeting of COMSATS Coordinating Council**, Tehran, Iran, 19-20 May 2014; organized by the Iranian Research Organization for Science and Technology (IROST), and attended by heads of 18 COMSATS Centers of Excellence from Bangladesh, China, Colombia, Nigeria, Pakistan, Senegal, Sri Lanka, Tanzania and Tunisia as well as representatives from UNESCO and TWAS.

- **The Second Arab Water Conference and the Sixth meeting of the Arab Ministers Council of Water**, Doha, State of Qatar, 27-29 May 2014; organized by the Arab League and the Qatari Agency for Water and Electricity KAHRAMA, attended by the Arab ministers of water and more than 200 representatives of national and international organizations.

- **2nd Edition of the Academic Consortium Day**, Rabat, Morocco, 6 June 2014; organized by the International University of Rabat, participated by more than 20 academic partners from USA and Europe in order to present its annual activities report and future partnerships.

- **Workshop on “Alignment and Implementation of National Action Programmes with UNCCD 10 Years Strategy” in the Arab Region**, Dubai, United Arab Emirates, 18-20 June; organized by the League of Arab States and Food and Agriculture Organization FAO, attended by 73 participants from Arab and African countries, and representatives of national focal points of UNCCD, and of the Arab Center for the Studies of Arid Zones and Dry Lands (ACSAD), the United Nations Convention to Combat Desertification (UNCCD), the United Nations Economic and Social Commission for Western Asia (UN-ESCWA), the Desert Research Center (DRC), the
January - December 2014

Global Environment Fund (GEF), the Global Mechanism (GM), the United Nations Food & Agricultural Organization (FAO), the Council of Arab Ministers Responsible for the Environment (CAMRE), the International Union for Conservation of Nature (IUCN) and UNESCO.

- Enactus Regional and Moroccan National Competition as a Judge, Casablanca, Morocco, 8 July, 2014; participated by 36 national competitions around the world, the Moroccan national competition gathered hundreds of students from high level Moroccan business school and universities.

- UNEP Ten-Year Framework of Programme Experts Meeting on Sustainable Lifestyles and Education, Paris, France, 9-10 July; organized by UNESCO and attended by international organizations from UN agencies and institutions.


- Twenty-First Session of the International Bioethics Committee (IBC) and Intergovernmental Bio-ethics Committee (IGBC), Paris, France, 9-10 September 2014; organized by UNESCO and attended by 36 experts from Member States.

- The 15th Meeting of the Arab Group on the follow-up of International Environmental Conventions Related to Desertification and Biodiversity, Cairo, Egypt, 14-16 September 2014; organized by the Arab League of Arab States, participated by experts from the Arab region.

- The Seventh Arab Environmental Meeting on the Coastal Environment, Sharm El Cheikh, Egypt, 24-26 September 2014; organized in collaboration with the Arab Federation for Youth and Environment (AFFYE) and the League of Arab States (LAS), attended by more than 100 youth who benefited from lectures delivered by 20 international and Egyptian experts.

- Roundtable on the “Neighborhood Policy and the Mediterranean Youth: The key role of Training and Mobility”, Rome, Italy, 30 September-1 October 2014; organized by UNIMED and the Embassy of France in Italy, and attended by specialists and decision-makers in Europe and the South Shore of the Mediterranean.

- Joint Meeting of the Arab Group on Environment and Sustainable Development Indicators and the Arab Group on environmental information Network, Cairo, Egypt, 12-16 October 2014, organized by the League of Arab States, participated by experts from Arab region in the field of environment.

- First Annual Conference of the Moroccan Association for Health Communication, organized by the Faculty of medicine and Pharmacy-University Mohammed V, Rabat, 18 October 2014, on the theme of “Teaching health sciences in any language”; organized by the Institute for Studies and Research in Arabization and the Moroccan Ministry of Higher Education, Scientific Research and Staff Training.
- Annual Meeting of Center for Mediterranean Integration (CMI), Marseille, France, 8-9 December, 2014; gathered high-level decision makers from Mediterranean countries, experts and researchers as well as the youth of the Mediterranean region.

- Meeting of the Heads of OIC Affiliated Organizations for the Preparation of the OIC Summit on Science and Technology, Islamabad, Islamic Republic of Pakistan, 24-26 December 2014; organized by COMSTECH, and attended by representatives from OIC organizations and experts from the Member States.
Action Line 3.2:

REINFORCING TECHNOLOGY CAPACITIES

Expected Outcome 3.2.1: Building up Member States’ Technology Capacities in New Technologies and Innovation

Achievements:

- WAITRO-ISESCO Research Fellowship Programme 2014: Training Programme on Joining Technology and Inspection, Shah Alam, Malaysia; 19 May to 27 June 2014; organized in cooperation with the World Association of Industrial and Technological Research Organizations (WAITRO), attended by 8 young scientists from Jordan, Egypt, Iraq, Nigeria, Uganda, Yemen, Thailand and Sri Lanka, selected from 40 applications from twelve 12 countries from Asia, Africa and the Middle East.

- Regional Workshop on “Technology Fore- sight for ISESCO Member States”, Amman, Jordan, 13th-15th May 2014; organized in cooperation with Jordanian Royal Scientific Society, attended by 25 technology specialists from Jordan, Sudan, Egypt, Lebanon, Nigeria, Malaysia and Palestine.

- Basic Technology Adoption Training for Young Grass Root Leaders in Remote Areas, Nunukan/ Sumatra/ Kalimantan, Indonesia, May-September 2014; organized in cooperation with the World Association of Industrial and Technological Research Organizations (WAITRO), trained students and Communities around the Natural Environment School/Islamic Boarding School in West Java.

- Award of Prizes and Medal to Talented Science Students, Tehran, Islamic Republic of Iran, 6 February 2014; ISESCO awarded three prizes to young researchers and technologists during the Khwarizmi International Award (KIA), organized by the Iranian Research Organization for Science and Technology (IROST).

- Meeting on Launching of the Arab Network for Intellectual Property Rights, ISESCO Headquarters, Rabat, Morocco, 29-30 October 2014; organized in cooperation with ALECSO, attended by representatives of patent offices in the Arab countries and a number of universities and research and industrial centres.

Expected Outcome 3.2.2: Stepping up Member States’ Efforts in Benefiting from New Technology Applications in Development

Achievements:

- The 1 National Scientific Workshop “Biotechnology in Agriculture Sector; Bishkek, Kyrgyzstan, 8-9 September, 2014; organized in cooperation with Biotechnology Institute of the National Academy of Sciences, Bishkek, Kyrgyzstan, 30 biotechnologists from, Russia, Kazakhstan and Kyrgyzstan participated in the workshop.
• **International Workshop on New Trends in Genetic Diagnosis of Intellectual Disability**; Rabat, Kingdom of Morocco, 16-17 September 2014; organized in cooperation with Moroccan Foundation for Advanced Science, Innovation and Research (MASCIR), Allama Iqbal Medical College and Jinnah Hospital Lahore (AIMC&JH), Genetic and Epigenetic Networks in Cognitive Dysfunction (GENCODYS), 50 scientists from Jordan, Tunis, Egypt, Sudan, Oman, Lebanon and Morocco participated in the workshop.

• **Nanotechnology on Line Training Programmes for the Benefit of Student and Young Researchers**, ISESCO Headquarters, November 2014; the training course was launched on Nanotechnology website and is available to all free of cost.

• **Fourth International Conference on Nanotechnology: Nanotechnology Potential for Islamic Countries**, Cairo, Egypt, 8-9 December 2014; organized in cooperation with COMSATS and the Egyptian National Research Centre, attended by more than 300 participants from Pakistan, Bangladesh, Saudi Arabia, Jordan, Egypt, Malaysia, speakers delivered 36 lectures.

---

**Expected Outcome 3.2.3: Reinvigorating the Role of the Islamic Body on Ethics of Science and Technology (IBEST)**

**Achievements:**

• **Strengthening the Web Portal on Ethics of Science and Technology**, ISESCO Headquarters, July 2014; a discussion Forum was created on the portal for ethical experts to discuss and debate ethical issue on regular basis.

• **Support to the Arab Network for Ethical Environment**, Tunis, Tunisia, 11-12 December 2014; organized in collaboration with ALECSO, attended by 10 participants from Tunis, Egypt, and Morocco.
Action Line 3.3:

ENCULTURATION OF QUALITY IN SCIENCE EDUCATION

Expected Outcome 3.3.1: Enhancing National Policies to Ensure Quality in Science Education

Achievements:

- Organization of “Open Day on Knowledge Economy-Key Role of the Knowledge in Economy”, Kampala, Uganda, 31 March 2014; organized in cooperation with the Uganda National Commission for UNESCO, the open day gathered audience of all concern from throughout the Knowledge world including professors, researchers, academics, students, think tanks, high level policy makers’ representatives from the media.

- Producing a Documentary on University Governance and Knowledge Economy in MENA Region: “Innovative Success Stories in MENA Region, the Case of the International University of Rabat (IUR), August/September 2014, organized in collaboration with the World Bank through the Center for Mediterranean Integration, the project described all of the four founding pillars of the knowledge economy (ICT, good governance, innovation and higher education).

- Seventh Meeting of the Consultative Council for the Implementation of the Strategy for Science, Technology and Innovation in Islamic Countries, ISESCO Headquarters, 9-10 October 2014, organized by ISESCO and attended by the following Member States: UAE, Tunisia, Kuwait, Kazakhstan, Malaysia, Guinea-Bissau, Chad, Senegal, Sudan and Morocco, in addition to OIC, COMSTECH and IDB.

- International Workshop on Applications of ICT in Education, Healthcare and Agriculture, Islamabad, Pakistan, 14-16 December 2014; organized in cooperation with COMSATS and INIT, attended by 50 Participants from Pakistan, Egypt, Jordan, Senegal, Sudan, Bangladesh, Morocco.

- 7th Session of Islamic Conference of Ministers of Higher Education and Scientific Research (ICMHESR-7), ISESCO Headquarters, 18-19 December 2014, organized by ISESCO in cooperation with the Moroccan Ministry of Higher Education, Scientific Research and Staff Training, and attended by Ministers of Higher Education and Scientific Research from Member States in addition to international and regional organizations.

- Organization of “Open Day on Knowledge Economy: Exploring Possibilities in a Network Society”, Bandar Seri Begawan, Brunei Darussalam, 25 November 2014; organized in cooperation Universiti Brunei Darussalam’s School of Business and Economics (SBE), Sultan Omar ‘Ali Saifuddien Centre for Islamic Studies (SOASCIS) and Institute of Asian Studies (IAS), and gathered higher education officials, students and academics from Brunei Darussalam.
• Organization of a “Conference on Knowledge Economy”, Beirut, Lebanon, 22 October 2014; organized at the Lebanese University in cooperation with The Lebanese National Commission for UNESCO, the Lebanese University and the National Council for Scientific Research.

Expected Outcome 3.3.2: Following up Implementation of the “Key Performance Indicators” Document to Improve the Quality of University Education and Align its Systems with International Standards

Achievements:

• High level Quality and Accreditation Experts Meeting to Follow up Implementation of Key Performance Indicators, Jeddah, Kingdom of Saudi Arabia, 6-7 May 2014; organized in collaboration with the Ministry of Higher Education, Kingdom of Saudi Arabia, attended by representatives of the following Member States: Jordan, Indonesia, Uganda, Pakistan, Bangladesh, Saudi Arabia, Senegal, Lebanon, Maldives, Nigeria, in addition to OIC, IDB, COMSTECH, SESRIC and Islamic University of Technology of Bangladesh.

• Regional Seminar on Universities Governance in MENA Region, Rabat, Morocco, 4-5 February 2014; organized in collaboration with the British Council, the African Development Bank CMI and the Ministry of Higher Education, Scientific Research and Executive Training of Morocco, attended by more than 100 participants and experts from the Mediterranean region.

• Third Meeting of Country Coordinators for the Establishment of Pan-Islamic Research and Education Network (PIREN), Islamabad, Pakistan, 27-28 August 2014, organized in collaboration with the Higher Education Commission of Pakistan, attended by experts from Lebanon, Tunisia, Malaysia, Jordan and Pakistan.

• Regional Workshop on Promoting Climate Change and Energy Management Education for Secondary School Teachers and Education Managers, 2-4 December 2014, Dhaka, Bangladesh, organized in cooperation with the Bangladesh National commission for UNESCO. The workshop was attended by 26 participants who discussed the means to build regional cooperation in climate change and energy management education among secondary level schools, communities and local administration.

• 2nd International Conference of Research Journals Editors of Islamic Countries, Shiraz, Iran, 1-2 December 2014; jointly organized by ISESCO and Islamic World Science Citation Center (ISC), attended by Chief Editors and representatives from, Turkey, Iraq, Syria, Pakistan, Iran and Malaysia.

• Workshop on “Internet Security: Enhancing Safeguard Measures for the Member States”, Dar es Salaam, Tanzania, 19-23 October 2014, organized in collaboration with the Commission on Science and Technology for Sustainable Development in the South (COMSATS), the Inter Islamic Network on Information Technology (INIT) and the Tanzania Commission for Science and Technology (COMSTECH). The workshop was attended by Expert researchers from Nigeria, Morocco, Egypt, Pakistan, UAE, Saudi Arabia, Oman, Iran, Malaysia, Uganda, Tunisia, Senegal and Jordan.
Achievement Record

Sector-specific Priority Two:
Preserving the Biosphere

Being conscious that the environment and environmental resources constitute a common property as well as a prerequisite for sustainable development, ISESCO, under the framework of priority for preserving the biosphere and following the teachings of Islam, implemented 21 programmes towards improving human ecological harmony, maintaining and preservation of environment.

To improve conservation, management and sustainable utilization of natural resources, training was provided in vital ecological areas adopting a natural ecosystem approach. Since dry lands present unique challenges for sustainable management which are not generally well reflected in policy and development planning, Al Hima traditional approach, which governed range land resources in the Arabian Peninsula for 1400 years, was promoted as a natural resource management and conservation tool for the sustainable management and conservation of vast areas of west Asia dry lands.

4 Programmes on conservation of energy and promotion of renewable energy were implemented in pursuance of the Strategy for Energy Efficiency and Promotion of Clean and Renewable Energy in the Islamic countries. The Thirteenth World Renewable Energy Congress which attracted 800 policy makers, academics and professionals in the area of renewable energy from all regions of the world, highlighted the role of renewable energy in the service of mankind. 5 Programmes were implemented in pursuance of the Strategy for Integrated Management of Water Resources and preservation of marine environment. Since good governance of water resources and services have profound impacts on people’s livelihood opportunities, a specialized training was organized on water governance tools and methodology. Training was also provided on the efficient use of water resources through introducing sustainable water technologies. During 2014, coastal eco-system was paid added attention. Training was provided to better understand the impacts of sea level rise and coastal ecosystem based adaptations. New methods and tools for coastal vulnerability assessment were provided to predicted vulnerability of the region, define gaps in knowledge and capacities. Arab Congress on Coastal Environment reviewed the status of marine and coastal ecosystems in the Arab world and provided platform for more efficient and broader collaboration between policy makers and other stakeholders.

Capacities building programmes in space sciences and remote sensing technologies were carried out to advance knowledge and better understanding of ecological transitions. Efforts were made to promote dissemination of earth observation data for the benefit of
decision makers. Regional Conference on “the Use of Earth Observation to Benefit Economic Development in West Africa also presented various methodologies for the benefit of the West African Member States. Under the context of green economy adopted by UNCSD Rio+20, ISESCO discussed various green economy measures and presented appropriate programmes on green economy to benefit from clean development mechanism and Adaptation fund.

7 programmes were implemented in accordance with the executive work plan for the Implementation of the Strategy for Disaster Risk Reduction and Management in Islamic Countries to mitigate disaster risk and damage as well as to improve Member States’ management capacities for disasters. Training sessions were conducted to develop skills on disaster risk reduction management and good governance. ISESCO support the Arab Network for Disaster Risk Reduction in collaboration with other sister organizations to assess natural disasters risks and their impacts in the Arab Member States. ISESCO also advocated disaster risk management measures in national development planning process and assisted in developing national strategies for natural disaster risk mitigation of the Member States.
Action Line 3.4:

CONSERVATION AND SUSTAINABLE UTILIZATION OF NATURAL RESOURCES

Expected Outcome 3.4.1: Improving Conservation, Management and Utilization of Biodiversity and Natural Resources

Achievements:

- Workshop on Ecosystem as a Natural Ecosystem Approach “West Asia Dryland Restoration: Al Hima Promise”, Amman, Jordan, 5-6 May 2014; organized under the High Patronage of HRH the prince Hassan Bin Talal in cooperation with International Union for Conservation of Nature IUCN, GIZ, attended by 80 participants.

Expected Outcome 3.4.2: Supporting Member States’ Efforts in Using New and Renewable Energy and Building Specialized Capacities

Achievements:

- 13th World Renewable Energy Congress WREC XIII—Renewable Energy in the Service of Mankind, University of Kingston, London, United Kingdom, 3-8 August 2014; organized in cooperation with the World Renewable Energy Network (WREN), 18 other organizations sponsored, and 550 delegates, experts invited speakers from 95 countries participated.

- 7th Asian Solar Energy School on Renewable Energy, Bangi, Selangor, Malaysia, 16-20 June 2014; organized in cooperation with UNESCO and SERI at the UKM university, attended by 50 participants from 11 Asian countries.

- Regional Workshop on Climate Change Mainstreaming Capacity Building for Water Resources Management Strategies and Action Plans Formulation, Sharm El Cheikh, Egypt, 16-18 November 2014; organized in partnership with UNESCO-Cairo, GIZ, Oman Ministry of Water and ALECSO, attended by 26 participants from 8 Arab countries.

- Regional Workshop on Sustainable Energy and Water Resource Management for Food Security in the Arab Middle East, Beirut, Lebanon, 12-13 December 2014; organized in cooperation with Arab Academy of Sciences (AAS) and World Renewable energy Network (WREN), attended by 30 experts from the Arab member States and abroad.

- International Seminar on Renewable Energy and Sustainable Development in the Developing Countries, Brighton, United Kingdom, 7-13 December 2014; organized in cooperation with World Renewable Energy Network (WREN), and attended by 34 participants and speakers from Member States, Europe, United States of America and United Kingdom.
Expected Outcome 3.4.3: Enhancing National Capacities for Rational Utilization of Water and Marine Resources

Achievements:

- **Regional Workshop on the Impacts of Sea Level Rise and Coastal Ecosystem Based Adaptations**: Jeddah, Kingdom of Saudi Arabia 6-8 January 2014; organized in collaboration with PERSGA and UNEP, attended by 25 keynote experts from Egypt, KSA, Jordan, Djibouti, Yemen, Sudan, Bahrain and United Arab Emirates.

- **Workshop on Water Governance-Tools and Methodology**: Amman, Jordan, 16-17 April 2014; organized in cooperation with International Union for Conservation of Nature (IUCN), attended by 40 participants.

- **Seventh Arab Congress on Coastal Environment**: Sharm El Sheikh, Egypt, 24-26 September 2014; organized with the Arab Federation for Youth and Environment AFFYE, PERSGA and LAS, opening was inaugurated at the HQ of the League of Arab States in Cairo, conference conducted in Sharm El Sheikh, 100 young people and 20 keynote speakers attended the conference.

- **Training Workshop on Sustainable Water Technologies**: Ramallah, Palestine, 20-21 October 2014; organized in partnership with IUCN-ROWA and the Palestinian Hydrology Group, attended by 38 participants.
Action Line 3.5:
MITIGATING ENVIRONMENT RISKS
AND DISASTER MANAGEMENT

Expected Outcome 3.5.1: Stepping up Member States’ Efforts in Facilitating Transition to Green Economy
Achievements:

- Regional Conference on “the Use of Earth Observation to Benefit from Economic Development in West Africa”, Abidjan, Côte d’Ivoire, 3-6 March 2014; organized in collaboration with the African Regional Centre for Science and Space CRAST-LF hosted by the University of Abidjan, attended by 30 participants coming from nine countries i.e. Benin, Côte d’Ivoire, Niger, Mauritania, Mali, Guinea-Conakry, Senegal, Nigeria and Togo in the field of environment, agriculture, water resources, higher education from national research centers and universities.

Expected Outcome 3.5.2: Enhancing Joint Islamic Environmental Action to Develop National Policies for Protecting the Environment, Addressing the Impact of Climate Change and Benefiting from Adaptation Funds
Achievements:

- Regional Workshop on Flash Flood Management and Flood Related Disaster Mitigation in Urban Areas, Dhaka, Bangladesh, 26-28 August 2014; organized in collaboration with Bangladesh National Commission for UNESCO, attended by 24 experts, policymakers, and development partners, 2 international, 15 from Dhaka and 7 from other cities of Bangladesh.

- National Workshop on “Green Economy and appropriate Programmes to benefit from CDM and adaptation fund”, Sharjah, UAE, 24-25 November 2014; organized within the framework of celebrating Sharjah as a Capital of Islamic Culture of the Arab Region for the year 2014, gathered a number of experts from university and research institutions, government institutions, chambers of commerce and industry, municipalities, and the private sector, from various cities in the UAE.

- Forum on Technological Capacity Building in the Field of Modern Technologies in the Arab countries, Amman, Jordan, 15-16 December 2014, organized under the patronage of His Royal Highness Prince El Hassan bin Talal at the Headquarters of the Chamber in Amman, in collaboration between ISESCO, the Arab Industrial Development and Mining Organization (AIDMO), Amman Chamber of Industry and the ESCWA Technology Centre, attended by representatives of a number of universities, institutes and Research and Development centres, in addition to institutions and industrial companies working in the field of bio-technology and nano-advanced materials, as well as Arab and
international R&D and Innovation investment banks.


- International Conference on “Development of Cooperation in the Aral Sea Basin to Mitigate Consequences of Environmental Catastrophe”, Urgench, Uzbekistan, 26-29 October 2014; held at the administrative Center of Uzbekistan’s Khorezm Province; organized by the International Fund for Saving of the Aral Sea (IFAS) and ISESCO, attended by environmental scientists, representatives of the UN, World Health Organization (WHO) and international financial institutions.

**Expected Outcome 3.5.3: Mitigating disaster risk and damage and improve Member States’ management capacities**

**Achievements:**

- National Workshop on Management and Mitigating Natural Disaster’s Risk and Damage, Conakry, Guinea, 26-28 May 2014; organized with the Guinean National Commission for Education, Science and Culture, attended by 20 participants from different institutions and ministries in Guinea.

- National Workshop to Validate the National Strategy for Management and Mitigating Natural Disaster’s Risk and Damage, Nouakchott, Mauritania, 23-24 September 2014; organized in collaboration with the Mauritania National Commission for Education, Science and Culture, attended by 30 experts and representatives of different institutions and ministries in Mauritania.


- Support to the Arab Network for Disaster Risk Reduction and “Regional Workshop on Natural Disasters and their Impacts in the Arab Countries”, ALECSO Headquarters, Tunis, Tunisia, 8-9 December 2014; organized in partnership with ALECSO, and attended by experts from Egypt, Jordan, Tunisia, Morocco, Sudan and Yemen.

- Study of the “Project of National Strategy for Natural Disasters Risks Mitigation in Mauritania in the Post-CAH 2015 context”, validated by the workshop held in Nouakchott, Mauritania, on 23-24 September 2014; conducted with the Mauritanian National Commission for ISESCO and the Ministry of Environment in Mauritania.
ISESCO, in pursuit of the spirit of the Islamic teachings, implemented 18 programmes to enhance social cohesion and peace as well as to ameliorate the quality of life.

Research grants were extended to the social and human science institutions, universities and research centres to understand, analyse social issues of critical importance facing their communities. Efforts to foster social peace were continued in 2014 specially through focusing on the role of religious leaders in promoting social peace and values of brotherhood. ISESCO adopted a holistic approach under these activities addressing challenges threatening peace and promoting values to develop more conscious and cognizant societies, which respect human rights and values and live in conformity with each other. Training was conducted on techniques of popular consultation mechanisms and prevention of conflicts.

Efforts were made to promote women participation in all sectors eliminating all forms of discrimination against them and creating an environment that stimulates participation of women in the overall development process. Women in rural areas were supported through awareness-raising on education, health, women rights and entrepreneurship. 15 income generating projects were launched to provide means of financial support for poor and widow women. Since, in rural areas, women play a significant role in agriculture production and contribute in economic activities, special training sessions were organized for women leaders on animal production and agriculture, which presented best practices that benefit women. The trainings covered segments in the production, disposal, preservation, processing and marketing of agricultural products. Youth Participation in the national development process was promoted through their greater involvement and acknowledging their vision of priorities in social development process. Their positive and energetic role in society was encouraged through addressing key issues affecting them and imparting skills in career advancement to enhance their confidence in society.

11 programmes were implemented towards ameliorating the quality of Life. In this regard efforts were made to alleviate poverty through launching capacity building measures in Islamic microfinance and strengthening the capacity of stakeholders in microfinance. New insights and modalities of micro financing were projected which assisted strengthening income-generating micro-projects. Opportunities to exchange the best practices on microfinance allowed better
understanding of financial aspects of business models, the best practices in regulation and supervision, funding of microfinance portfolios and distribution channels for microcredit and other financial services. Charity work was promoted through introducing latest techniques and their application in charity work. Since agriculture is backbone of economy of rural areas and provides subsistence, the best examples of agriculture in the Muslim history were highlighted and training was conducted on mechanisms to improve food security.

7 programmes were implemented to improve health standards and social services which directly impacted on ameliorating the quality of life. Congress was conducted to focus on the role of media in improving health of people. Health road map, latest techniques and knowledge on the prevention of infectious diseases, good hygiene practices and epidemiological surveillance fortified national health programmes for prevention of diseases and infections. Training was provided to enhance cultural approach in the fight against Hemorrhagic Fever and Ebola Virus. Mental health and well being was promoted through counselling with religious and spiritual approach. ISESCO strived to invigorate national strategies and programmes in the field of control of communicable diseases and introduced good governance mechanisms for health services. ISESCO also focused attention to strengthen national policies in the prevention of AIDS and conducted training for the benefit of radio journalists on medical aspects of AIDS, its causes, and its modes of transmission and gravity.
Action Line 3.6:
ENHANCING SOCIAL COHESION

Expected Outcome 3.6.1: Improving Understanding of Social Patterns and Economic Transformations, and to Promote Human Rights Including Women’s Rights

Achievements:

- Awarding ISESCO Research Grant in Social and Human Sciences. ISESCO Headquarters, September 2014 Member States (Mauritania, Togo, Senegal, Pakistan, and Guinea).
  a. Research Project entitled “Beekeeping and its contribution in the fight against the impoverishment of farmers in the Central Region in Togo”.
  b. Research Project entitled “Impacts of uncontrolled settlement in rural areas in Mauritania”.
  c. Research Project entitled “Development of a catalog of the pioneer women (mothers of independence) in West Africa”.
  d. Research Project entitled “Governance of water services in Urban Areas: A Sociology study”, Guinea,

- National Workshop on Techniques of Popular Consultation Mechanisms and Prevention of Conflicts, Kurdufan, Sudan, 17-19 July 2014; organized in collaboration with Munazzamat Al-Dawa Al-Islamiya, attended by 50 local government technical staff and planners representing all regions in the Sudan.

- Women Economic Empowerment Project (MENA) on Rural Technology, Islamabad, Pakistan, April-September 2014; launched in cooperation with the World Association of Industrial and Technological Research Organizations (WAITRO), conducted by Nation Resource Development Organization, 60 widows from various provinces benefited from the project.

- National Training Workshop on Youth Participation in the National Development Process, Koudougou, Burkina Faso, 20-21 November 2014; organized in collaboration with the National Commission, attended by 22 actors working for the promotion of youth, including leaders of associations and government officials.

Expected Outcome 3.6.2: Highlighting the Contribution of Islamic Civilization to the Development of Human Sciences and Knowledge with a view to Providing Correct Information about Islam and Muslims

Achievements:

- Preparing and Publication of a Study on the Contribution of Muslims Towards Social Development and Peace; ISESCO Headquarters, June 2014; prepared in col-
collaboration with Munazzamat Al-Dawa Al-Islamiya.

- National Workshop on the Role of Religious Leaders in Promoting Social Peace; Bamako, Mali, 19-22 May 2014; organized in collaboration with Munazzamat Al-Dawa Al-Islamiya, the Supreme Islamic Council of Religious Leaders of Mali and the Malian National Commission for ISESCO, attended by 50 participants of whom 40 came from Bamako and 10 from other regions.

- Regional Symposium on the Agriculture in the Muslim History, Alexandria, Egypt, 24-26 November 2014; organized in collaboration with the World Islamic Call Society (WICS) and the library of Alexandria, attended by 16 rural development experts, agronomists, historians, academics from Algeria, Egypt, Lebanon, Sudan, Palestine and Tunisia.
Expected Outcome 3.7.1: Ameliorating Life quality through Implementation of Poverty Eradication and Health Prevention Policies and Programmes

Achievements:

- Regional Seminar on Capacity Building in Islamic Micro finance”; Abidjan, Côte d’Ivoire, 1-3 April 2014; organized in cooperation with the Ministry of Higher Education and Scientific Research and Raouda Finance Côte d’Ivoire, attended by 40 participants and experts from Côte d’Ivoire, Mali, Burkina-Faso, Niger and Senegal.

- National Seminar on “Strengthening the Capacity of Stakeholders in Microfinance”, Cotonou, Benin, 28-30 April 2014; organized in collaboration with the Benin National Commission and the micro finance consulting office HGA Conseil & Associé, designed for the benefit of more than 40 Benin government officials and representatives of the Micro finance Sector (Banks, Development banks, credit unions, cooperatives) as well as Benin microfinance specialists.

- National Workshop on Mechanisms to Improve Food Security and Subsisting. Nouakchott, Mauritania, 21-23 April 2014; organized in collaboration with Munazzamat Al-Dawa Al-Islamiya Disaster Management Institutes in Mauritania, attended by 20 participants from five different regions of Mauritania.

- Regional Workshop on the Medical Aspects of AIDS (its Causes, and its Modes of Transmission and Gravity) for the Benefit of Radio journalists, Casablanca, Morocco, 26-28 June 2014; organized in collaboration with the Islamic Organization for Medical Sciences Researchers and Medical Institutions, attended by 23 participants (14 from Morocco, and 12 from Egypt, Mauritania, Algeria, Tunisia, Sudan, Iraq, Somalia and Lebanon).

- National Congress on the Media’s Role in Improving Health of People, Shiraz, Islamic Republic of Iran, 7 August 2014; organized by the Health Policy Research Centre (HPRC), in cooperation with ISESCO, Shiraz University of Medical Sciences, and United Nations’ International Children Emergency Fund (UNICEF), attended by 150 authorities, researchers, representatives and specialists from universities and also reporters from news agencies and centres related to media and health domain.

- Regional Workshop on Strengthening National policies in the Field of Control of Communicable Diseases, Kampala, Uganda, September 2014; organized in collaboration with the Munazzamat Al-Dawa Al-Islamiya, Health Ministries and
Departments in African Member States, 30 participants representing Uganda, Burundi, Rwanda, Kenya, Sudan, and Congo attended.

- **National Workshop on TQM Techniques and their Application in Charity Work**, Kuwait City, State of Kuwait, 20-22 October 2014; organized by ISESCO, in partnership with the Kuwait-based International Islamic Charitable Foundation, attended by 35 charitable and humanitarian actors as well as officials in charge of development programmes in the Kuwait city region.

- **National Training Workshop for Women Leaders on Animal Production and Agriculture**, Dhaka, Bangladesh, 29-31 December 2014; organized by ISESCO in collaboration with the International Islamic Charitable Organization and Bangladesh National Commission for ISESCO, benefited 30 women leaders working in the field of poverty eradication and leaders of women’s organizations in Dhaka and different regions of Bangladesh.

- **National Workshop on the Role of the Cultural Approach in the Fight Against Hemorrhagic Fever and Ebola Virus**, Conakry, Guinea, 12th December 2014, organized in collaboration with the National Commission of ISESCO in Guinea, attended by national government officials working in the health domain.

- **International Congress on Health Road Map of Iran**, Shiraz, Iran, 26-27 November 2014, held at the Convention Center of Shiraz University of Medical Sciences, organized by ISESCO in collaboration with the Health Policy Research Center (HPRC); attended by many authorities, university researchers, and keynote speakers from Iran, Canada, Korea and England.

- **International Conference on “Promoting Mental Health and Well Being Through Counselling with Religious and Spiritual Approaches”**, Tehran, Iran, 14-15 December 2014; organized in collaboration with the Iranian Counselling Association (ICA) at the Islamic Azad University, attended by government officials and more than 200 participants from academia and professional world including professors, practitioners and students, as well as over 30 keynote speakers from Iran and abroad.
Achievement Record  
Sector-specific Priority:  
Promoting Innovative Scientific Research

Within the “Innovative Scientific Research Promotion” sector-specific priority, nine (9) achievements were accomplished in two main focus areas: namely, *promotion of scientific publications meeting quality standards and valorisation of scientific research results.*

In 2014, ISESCO Centre for Promotion of Scientific Research (ICPSR) accomplished five (5) *achievements* within the *first action line* which largely attained the expected *outcome* thereof. “ISESCO Journal of Science and Technology”, published by the ICPSR, featured in its two recent issues high-profile articles authored by researchers and teachers from different Member States. These papers were meant to share and optimise the impact of research papers in fields such as renewable energy, the environment, agriculture, ICT, pharmaceutical industries, biological sciences and mechanical engineering, thereby contributing to the Muslim world’s sustainable development. In this connection, the ICPSR portal (www.icpsr.org.ma) was adjusted to best meet the needs of users.

In addition, in furtherance of its objective of indigenous capacity-building for Member States in science and technology, the Centre granted seven (7) *research scholarships* to three (3) young women and four (4) young men to conduct research in priority science areas. It also paid tribute to twenty-seven (27) Iranian graduates and awarded six (6) incentive prizes for excellence and innovation in medicine, on the occasion of the 19th Razi Research Festival on Medical Sciences (Teheran, Iran). Last but not least, six (6) researchers from Member States won ISESCO’s 2014 prizes for science and technology during a special ceremony at the 7th Islamic Conference of the Ministers of Higher Education and Scientific Research.

Under the second action line, four (4) achievements were successfully reached through aligning academic research and industry initiatives, conducting awareness-raising workshops on Intellectual Property Rights (IPR) along with training workshops on maintenance and repair of scientific labs equipment, at a rate of one workshop each year, with the significant participation of women and the youth. Also, the Centre participated in the “2nd Ministerial Forum on Science, Technology and Innovation in Africa”, in a bid to encourage and reward creative solutions with best digital content (namely mobile phones applications) produced by Africans to fulfil Africa’s specific needs. In the same vein, the ICPSR jointly organised with COMSATS and INIT a workshop on “national systems of innovation and intellectual property” for the African region. In this activity, convened at ISESCO headquarters
(Rabat, Morocco), the focus was on boosting interaction between universities, research institutions, companies, and governments, in order to stimulate growth and create wealth while protecting intellectual property.

Being aware that the success of scientific research depends largely on well-maintained equipment, the Centre and COMSATS jointly organised a national workshop on the “repair and maintenance of engineering equipment in universities, research institutes and small-scale industries”, which benefited more than 60 engineers, teachers and technicians from different Iranian cities who were exposed latest advancements in this area.

Furthermore, ISESCO took part in the (WSIS+10) high-level event, held at the ITU headquarters in Geneva to assess the overall implementation of the commitments undertaken by WSIS in 2015. A “WSIS+10 Statement on Implementation of WSIS Results” and the “WSIS+10 Vision for WSIS Beyond 2015” were adopted to build an inclusive information society.
Action Line 3.8: 
PROMOTING SCIENTIFIC PUBLICATIONS
MEETING QUALITY STANDARDS

Expected outcome 3.8.1: Upgrading ISESCO Journal of Science and Technology and adjusting ICPSR website (www.icpsr.or.ma) for Muslim world scientific community

- Publication of “ISESCO Journal of Science and Technology” Vol. 10, No. 17, ISESCO headquarters in Rabat, Morocco, May 2014. The Journal was distributed to writers and researchers in Member States’ scientific and technical institutions.

- Publication of “ISESCO Journal of Science and Technology” Vol. 10, No. 18, ISESCO headquarters in Rabat, Morocco, May 2014. The Journal was distributed to writers and researchers in member states’ scientific and technical institutions.

- Strengthening and updating the ICPSR website (www.icpsr.org.ma), ISESCO headquarters in Rabat, Morocco, throughout the whole year, for the benefit of universities and national centres of scientific and/or technical research in Member States, in cooperation with the Commission on Science and Technology for Sustainable Development in the South (COMSATS).

Expected outcome 3.8.2: Granting more research scholarships for the youth in priority science areas

- Support was sustained, for the second consecutive year, for 8 scientific research projects in nanotechnology, agricultural and health biotechnology, engineering sciences, medicinal plants, biological and applied sciences (ISESCO headquarters in Rabat, Morocco), in the interest of 8 young researchers from Azerbaijan, Jordan, Iran, Pakistan, Togo, Tunisia, and Malaysia.

- Support was provided for 1 new scientific project (in modelling and simulation) presented in 2014 by a team of researchers from the Nigerian Mathematics Research Centre, with the aim to control the effects of air and water pollution through mathematical models (impact of pollutants on human health, agriculture, biodiversity, environmental risks and ecosystem imbalances). The support activity took place at ISESCO headquarters in Rabat, Morocco, in cooperation with COMSATS.

Expected outcome 3.8.3: Granting incentive prizes for excellence and innovation in science

- Support for the “19th Razi Research Festival on Medical Sciences”, which took place in Shahid Beheshti University, Teheran, Iran, on 13 January 2014, in cooperation with the Iranian Ministry of Health and Medical Education. Twenty-seven (27) specialists and researchers were selected (among 634 candidates) to benefit from the support.
• Awarding ISESCO Prize for Fundamental Sciences (biology, chemistry, geology, mathematics, physics and technology) to six (6) researchers from: Iran (Dr Seyed Massoud Houshand), Malaysia (Dr Mahiran Basri), Iraq (Dr Ali Ismail Abdulla Al-Jaboury), Tunisia (Dr Ihsen Yengui), Palestine (Dr Hala Jarallah El-Khozondar) and Egypt (Dr Aboul-Ella Otify Hassanein). The award ceremony was held at ISESCO headquarters, Rabat, Morocco, in November 2014.
Action Line 3.9:

VALORISATION OF SCIENTIFIC RESEARCH OUTCOME

Expected outcome 3.9.1: Fostering the link between universities and industries
- During the “2nd Ministerial Forum on Science, Technology and Innovation in Africa”, held in Rabat, Morocco, on 14-17 October 2014, eight (8) African winners (Uganda, Tunisia, South Africa, Ghana, Nigeria, Kenya, Egypt and Morocco) were selected (among 91 candidates) for the social impact of their innovative mobile applications in Africa (e-learning and science, e-culture and tourism, e-media and journalism, and other such fields). The Forum was organised by the African Development Bank in cooperation with many international organisations including ISESCO, and in partnership with the World Summit Award (WSA African content Award 2014).

Expected outcome 3.9.3: Conducting Intellectual Property Right awareness-raising training workshops/meetings
- A three-day regional workshop on “national systems of innovation and intellectual property in the African region” was held at ISESCO headquarters in Rabat, Morocco, on 25-27 November 2014, with the participation of 20 experts, representatives of international organisations and the private sector (Uganda, Benin, Togo, Senegal, Guinea, Côte d’Ivoire, Niger, Tanzania, Ghana, Morocco, Pakistan, China, South Korea and the United States). It was organised jointly with COMSATS and the Inter-Islamic Network on Information Technologies (INIT) for the benefit of African Member States.

Expected outcome 3.9.4: Organising training workshops on repair and maintenance of scientific lab equipment (one workshop each year) with significant participation of women and young people
- A national workshop on “Repair and maintenance of engineering equipment in universities, research institutes and small-scale industries” was held in Teheran, Iran, from 28 September to 2 October 2014, for the benefit of more than sixty (60) engineers, teachers and technicians from different Iranian institutes. The workshop was supervised by 2 Pakistani experts from the Pakistan Council of Scientific and Industrial Research (PCSIR, Karachi) and was organised in association with COMSATS and the Iranian Research Organization for Science and Technology (IROST).

- Participation in the (WSIS+10) high-level event, which is an extended version of the WSIS Forum. The event was held at the headquarters of the International Telecommunications Union (ITU) in Geneva, Switzerland, on 10-13 June 2014. More than 1600 participants, including a
hundred of ministers and leaders from 140 countries, gathered to study, discuss, and coordinate efforts for the implementation of the overall results of WSIS (2003-2005) for beyond 2015, the target date for achieving MDGs. The WSIS+10 was organised and coordinated by the ITU in close partnership with UN agencies, particularly UNESCO, UNCTAD and UNDP, for the benefit of the peoples of the world.

- Participation in the “Maghreb Digital Learning and Education Innovation Conference”, which was organised by the British Council in Tunis, Tunisia, on 08-10 December 2014, for the benefit of the Maghreb countries (Tunisia, Algeria, Libya, and Morocco).
Islamic Educational, Scientific and Cultural Organization (ISESCO)

ISESCO’s Report on Activities implemented in the Fields of Science, Technology and Innovation
January – December 2015
Achievement Record

Sector-specific Priority One:

Reinforcing Scientific and Technological Capacities for the Achievement of Development

Scientific and technological capacity building for development is one of the key objectives of the Directorate of Science and Technology. In this context, ISESCO Science and Technology Action Plan is made to build capacities in all areas of science and technology, utilizing all feasible resources and means, solely as well as in collaboration, engagement and interaction with the international community. More than 16 programmes were executed towards integrated vibrant science policies and improving science systems, science governance and good practices. These activities helped in the formulation of Science, Technology and Innovation (STI) policies in Member States.

Special efforts were made to draw the attention of higher authorities towards the promotion of science and technology to enhance its role for sustainable socio-economic development and to establish strong and dedicated institutional framework for S&T and Innovation to meet challenges of global competition. The efforts were focused on the initiation and strengthening the National Innovation system to support Scientific Capacity Building and Partnership among public and private national stakeholders, legislators, media and civil society to enable the application of scientific knowledge and results to achieve viable economic development. ISESCO also provided a platform for parliamentary scientific forums for better governance of science and technology systems by promoting dialogue among decision makers, parliamentarians, scientists and other stakeholders. The ultimate achievement is to develop concepts and sensitize policy makers about the ways through which they deal with science, technology and innovation policy. After such activities, Parliamentarians’ involvement in STI processes is becoming very significant. In addition, women empowerment by enhancing their role in STI is also gaining momentum.

Technopreneurship is another important area of action which is being strengthened by ISESCO in Member States.

ICTs are basically information-handling tools—a varied set of goods, applications and services that are used to produce, store, process, distribute and exchange information. These different tools are now able to work together, and can be combined to form our networked world with a massive infrastructure of interconnected telephone services, standardized computing hardware, the Internet and Media which reach to every corner of the globe. The role of ICT, Internet security and digital divide have been explored through various scientific applications for Agriculture,
Education and Health. International workshops were conducted to maximize the involvement of various specialists in the ICT, including even those having disabilities and people from the field of Mathematics.

New Technologies, such as nanotechnology, introduced the state of the art innovations that help the society. The role of nanomaterials’ applications in environment has been highlighted in International Workshops that gather the high level experts. New approaches for environmental protection have been explored and discussed in International Workshops focused on Sustainable Nanotechnology Solutions for a clean environment, water resources, food supply, health, mineral resources, green manufacturing, climate change, and biodiversity. Nanotechnology-based energy solutions in terms of their interdependence with other sustainable target areas such as water, habitat, transportation, and climate change are crucial for the development and progress of Member States.

To encourage collaboration among Islamic Countries for scientific research and knowledge, Pan Islamic Research and Education Network (PIREN) has been adopted by ISESCO since 2012. The main objective of PIREN is to connect local researchers and education networks to improve connectivity among research and education communities between Islamic Countries and enhance exchange and cooperation between the researchers and educationists.

The Islamic Body on Ethics of Science and Technology was established by ISESCO to analyze thoroughly the ethical risks involved by scientific and technological progress, with a view to preserving and protecting the identity of our Member States and to provide a mean of communication between scientists, researchers and physicians in order to allow fast interaction on issues of prime importance in the field of ethics. Web Portal of the Islamic Body on Ethics of Science and Technology (IBEST) is launched to enforce this objective and enhance interactions among the national committees on ethics of science and technology to interact with each other and contribute through exchange of viewpoints on ethical issues prevailing at international level as well as problems addressed by international committees. The ultimate aim is to develop consensus among the Member States on all ethical issues. Focus on Ethics of science and technology raised awareness among doctors and researchers in the field of teaching Ethics and Bio-Ethics.
Action Line 1:

Re-innovating Science Policies and Governance

Expected Outcome 3.1.1:

Re-innovating Member States’ scientific and technological policies and activate national, regional and international mechanisms with a view to managing them for development purposes

Achievements:

- **International Forum on Harnessing Women Talent in Science and Technology**, 26th-27th May 2015, Kuala Lumpur, Malaysia was organized with International Science, Technology and Innovation for South-South Cooperation under the auspices of UNESCO (ISTIC) and Malaysian Ministry of Science, Technology and Innovation (MOSTI). Over 150 Participants attended from Malaysia, Sudan, South Korea, Thailand, Nigeria and Argentina.

- **International Workshop on “Structured STI Policy Dialogue for Enhanced Practicality Towards Policies Implementation”,** held in, Amman, Hashemite Kingdom of Jordan from 28th to 31st of July 2015. The workshop was organized in cooperation with UNESCO Cairo, and attended by 15 participants from Egypt, Mauritania, Morocco, Palestine, Sudan, Tunisia and Yemen. The workshop was supervised by 2 International experts from the Netherlands and the United Kingdom.

- **ISESCO-ISTIC Training Workshop on Science, Technology and Innovation (STI) Policy Development, 17th-24th August 2015,** Kuala Lumpur, Malaysia; organized with International Science, Technology and Innovation for South-South Cooperation under the auspices of UNESCO (ISTIC) and Malaysian Ministry of Science, Technology and Innovation (MOSTI) and Islamic Development Bank (IDB).

- **“ISESCO-ISTIC Training Workshop on Technopreneurship for Countries in the South”, 5th-9th October 2015,** Kuala Lumpur, Malaysia organized in collaboration with International Science, Technology and Innovation for South-South Cooperation under the auspices of UNESCO (ISTIC) and Malaysian Technology Development Corporation (MTD) with 26 participants from 17 countries: Bangladesh, Egypt, Indonesia, Nigeria, Pakistan, Turkey, Sudan, Oman, Cameroon, Malaysia, Japan, China, Sri Lanka, Vietnam and South Africa.

- **Forum of the African Parliamentarian for Science, Technology and Innovation-Strengthening the Role in National Planning Process,** held in Budapest, Republic of Hungary from 4th-7th November
Activity Report

Science and Technology Directorate

2015. This Forum was organized during the World Science Forum in Cooperation with UNESCO Paris, where more than 500 high level participants attended mainly from Uganda, Jordan, Senegal, Mauritania, Morocco, Pakistan, Tunisia, Egypt, Palestine, Benin, Algeria, Saudi Arabia, Sultanate of Oman, Sudan, Malaysia and Iran.
Action Line 2:
Reinforcing Technology Capacities

Expected Outcome 3.1.2:
Building up Member States’ technology capacities in new technologies and innovation

Achievements:


- Seventh Arab International Conference on Information Technologies, held in Rabat, Kingdom of Morocco, May 19th-21st, 2015 and was jointly organized with the Arab Industrial Development and Mining Organization (AIDMO), Ministry of Industry, Trade, Investment and Digital Economy of Morocco, the Islamic Development Bank Group and Microsoft Corporation in Morocco. The Conference was attended by more than 120 participants from Ministries of Industry, Information Technology and Communications, officials operating in the public and private sector in Arab States, as well as experts specialized in the areas of IT from Member States.

- Regional Workshops for Introducing and Launching Globally Important Agricultural Heritage Systems Programme (GIAHS) in Member States, organized by ISESCO and FAO in Nouakchott, Islamic Republic of Mauritania from 10th-11th June 2015. Participants from Morocco, Algeria, and Tunisia were invited to share their experiences with national partners in Mauritania and with African member states (Senegal, Mali and Cameroon). The National Steering GIAHS Committee in Mauritania was established during the meeting, the ToR / Mandate programme and activities were approved.

- Regional Workshop for Benefit of Doctors Researchers in the Field of Teaching Ethics and Bio-Ethics, was held from 5th-7th October 2015, Amman, Hashemite Kingdom Kingdom of Jordan, in cooperation with IOMS. 19 participants from Egypt, Oman, Palestine, Sudan and Jordan attended the workshop.

- 2nd International Workshop on Applications of ICTs in Education, Health & Agriculture, November 23rd-25th, 2015,
Rabat, Kingdom of Morocco in cooperation with COMSATS and NPT. Participants from Senegal, Egypt, Iran, Gambia, Uganda, Jordan, Palestine, Pakistan and Morocco attended the workshop.

- **Workshop on Nanotechnology for Environmental Applications**, 20th-22nd December, Jeddah, Kingdom of Saudi Arabia, organized in cooperation with King Abdulaziz University (KAU) in Jeddah-KSA, Faculty of Meteorology Environment and Arid Land Agriculture, as local organizer. It was attended by participants from Malaysia, Pakistan, Bangladesh, Egypt, Italy, USA and KSA.

- **Initiation and Development of Web Mapping Geo-Portals for the Pooling and Sharing of Geospatial Information**, held in Rabat, Kingdom of Morocco and organized with cooperation of CRASTE-LF for the benefits of Member States. The web portal and open data related to Earth Observations was translated from English to French and Arabic and was launched in December 2015, it aims to share the platforms and geospatial information that have been developed. It has the objective of promoting techniques (Earth Observation), networking and encouraging sharing of geospatial data via open geo portals. This web portal is available for the benefit of society and the environment in Member States.
Action Line 3:

Enculturation of Quality in Science Education

Expected Outcome 3.3.1:
Enhancing national policies to ensure quality in science education

Achievements:

• Workshop on “Internet Security” Enhancing Safeguard Measures for the Member States, 14th-18th September, 2015, Ankara, Republic of Turkey. This Workshop was organized by the Islamic Educational, Scientific and Cultural Organization (ISESCO) in cooperation with the Commission on Science and Technology for Sustainable Development in the South (COMSATS), the Inter Islamic Network on Information Technology and the Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRIC). 25 participants attended the workshop from Brunei Darussalam, Jordan, Morocco, Mauritania, Maldives, Nigeria, Sudan and Tanzania.

• Regional Symposium on Digital Divide and Challenges in the Islamic World, 7th-9th December was held in Muscat, Sultanate of Oman. 31 participants from Bahrain, Qatar, Kuwait, Emirates and Oman attended the symposium.

• Fourth Meeting of Country Coordinators for the Establishment of Pan-Islamic Research and Education Network (PIREN), was held from 9th-10th December 2015, Casablanca, Kingdom of Morocco. The participants from Jordan, Egypt, Pakistan, Tunisia, Sudan, Lebanon, Somalia, Mauritania and Morocco contributed.

• International Conference on “Mathematical Modeling”, was held in December 27th-28th, 2015, in Abuja, Federal Republic of Nigeria. This Conference was organized by the Islamic Educational, Scientific and Cultural Organization (ISESCO) in cooperation with the Commission on Science and Technology for Sustainable Development in the South (COMSATS) and the National Mathematical Centre in Abuja, Nigeria. More than 50 participants attended the Conference from Nigeria, Pakistan, Bangladesh, Jordan and Senegal.
Achievement Record

Sector-specific Priority Two:

Preserving the Biosphere

The Biosphere is very fragile and a harmonic balance between global ecological systems and their interaction is imperative for its sustenance. Ever burgeoning human population and their needs are putting more pressure on the earth’s natural resources. These natural resources are dwindling at a very fast pace and the need to preserve them was never greater than now. ISESCO under the frame of priority for preserving the biosphere and following the Islamic teachings, implemented many programs for sustainable Natural Resource Management, Biodiversity Conservation, Climate Change Impacts, Marine Ecology, and Desertification and Arid Lands.

These activities were carried out with a holistic vision to cover all important parts of Biosphere. Conservation of biodiversity and its sustainable management is getting momentum every day. The latest tools and techniques are becoming more effective in the process of developing strategy and its effective management. The Globally Important Agricultural Heritage System (GIAHS) addresses unique challenges of biodiversity conservation. A forum on GIAHS was organized and attended by members from 14 countries. The experts from CBD, UNESCO and FAO discussed various tools of Conservation. In pursuance of the Strategy for Integrated Management of Water Resources and Preservation of Marine Environment activity was implemented. Principles, Legislation and Policies on Ecosystem Management for Marine Livelihood was a focussed national activity. Under this approach the local stakeholders like policy makers, scientists, politicians and senior administrators and end users were involved. A comprehensive discussion was generated with recommendations to be carried out at national level for improving the governance structure of fragile ecosystem.

The 6th Islamic Conference of Environment Ministers was one of the most important activities under the Sectoral Priorities. In this conference a number of strategies were prepared or upgraded viz. The Strategy for the water Resources Management in the Islamic World, Environmental Governance for Sustainable Development in the Islamic World, General Framework of the Islamic Agenda for Sustainable Development.

The Climate Change is a reality and is having serious consequences in the form of desertification and floods. The preparedness for these upcoming challenges is always a priority. Activities on desertification and its impacts in increasing arid conditions were addressed.
CRTEAN and ISESCO held an expert meeting for the Mediterranean region. 15 experts participated in the meeting and a comprehensive strategic dialogue was carried out. Application of GIS and Remote sensing for managing water scarcity in semi-arid regions was another comprehensive activity carried out during the year.

Green Economy is a sort of resilient economy that provides a better quality of life for all within the ecological limits of the planet. One can say that it results in improved human well being and social equity, while significantly reducing environmental risks and ecological scarcities. It is low carbon, resource efficient, and socially inclusive in its nature and character. The term green economy was first coined in “Blueprint for a Green Economy” in 1989. Later on, in the backdrop of the financial crisis and global recession, UNEP followed the idea of “green stimulus packages” and identified specific areas where large scale public investment could kick start a Green Economy. There is thus inspiration for several governments all over the world to implement significant ‘green stimulus’ packages as part of their economic recovery efforts. Under this action plan a case study was carried out in Morocco. This would provide a baseline to extend the results for Islamic Countries. The final report of the study was presented in front of local experts from Ministries and subject specialists from within the country. The study is providing a number of venues for future actions.

The increasing population and use of new and more energy based equipments are increasing the demand for energy every day. The Industrial development is another source of high energy demand. Hence, there is a pressure on more energy production using fossil fuels and other traditional methods.

The Member States are in a very serious need of energy, hence jumping on to traditional means of energy are not environment friendly and at the same time are very expensive. Now, the world is waking up for clean and renewable energy. ISESCO in its drive for supporting the Member States has high priority on energy conservation and use of renewable clean energy. In this effort, a number of Summer Schools on Renewable Energy have been organized so far. The need for energy conservation, its efficient utilization and putting more focus on renewable resources always gathered popularity and is becoming a leadership activity. In pursuance of the Strategy for Energy Efficiency and Promotion of Clean and Renewable Energy with Islamic Countries, collaborative activities with WREN were carried out. The focus revolves around creating mechanisms of green architecture and energy saving systems plus renewable resources of energy.
Action Line 4:
Conservation and Sustainable Utilization of Natural Resources

Expected Outcome 3.4.1:
Improving conservation, management and utilization of biodiversity and natural resources

Achievements:

- ISESCO-WREN Seminar on Renewable Energy, Manama, Kingdom of Bahrain, 15th-18th February 2015; organized in cooperation with the World Renewable Energy Network (WREN), and the University of Bahrain. The seminar was attended by about 100 participants from ISESCO Member States and also by speakers and participants from outside Member States like Italy, USA and India.

- Scientific and Cultural Forum on “Coastal Pollution”, supervised by the GS Abboud Group, in collaboration with the ministries of Environment, Education and Health, Rabat, 28th February 2015.

- Expert Meeting on Desertification in the Mediterranean Region, was held in Nouakchott, Islamic Republic of Mauritania, 24th-25th March, 2015. The meeting was organized by the Islamic Educational, Scientific and Cultural Organization (ISESCO) in cooperation with the Regional Centre for Remote Sensing of North Africa States (CRTEAN) and in collaboration with the Ministry of Environment in Mauritania. The meeting was attended by 15 experts from Algeria, Egypt, Lebanon, Libya, Mauritania, Morocco, Sudan and UAE.

- Participation to the “First Meeting of the National Focal Points for OIC Water Vision”, Istanbul, Republic of Turkey, 3rd-5th June 2015.

- Participation to the North African Consultation Meeting to Discuss the African Natural Resources Center (ANRC) Strategy (2015-2020)”, founded by the African Development Bank Group, Rabat 11th June 2015.


- Updating the “General Framework of the Islamic Agenda for Sustainable Development”, Study document for the Islamic Executive Bureau for the Environment,
June 2015, ISESCO Headquarters, adopted in the ICEM, October 2015.

- Participation to the Drafting Team at the International “Experts Meeting” on Islamic Declaration on Global Climate Change, Istanbul, Republic of Turkey, 15th-16th August 2015.

- Participation to the International “Experts Meeting” on Islamic Declaration on Global Climate Change, Republic of Istanbul, Turkey, 17th-18th August 2015. Jointly organized by IFEES, WRO, OIC and Greenfaith.

- Forum on Water Scarcity and Governance in Semi Arid Areas, Hurghada, Arab Republic of Egypt, 23rd-26th November 2015. Organized in Cooperation with the Regional Centre for Remote Sensing of North Africa States (CRTEAN), the Arab Water Council and the National Authority for Remote Sensing and Space Sciences in Egypt. It was attended by 30 participants from Mauritania, Morocco, Libya, Sudan and Egypt.

- International Forum for Awareness Raising on Conservation of Biodiversity and GIAHS Concept, Rome, Italy from 14th to 15th December 2015. The Forum was organised by Islamic Educational, Scientific and Cultural Organization (ISESCO) in cooperation with the Food and Agriculture Organisation (FAO) of the United Nations, the Convention of Biological Diversity (CBD), UNESCO and Bioversity International Institute. More than 70 participants attended the Forum from different regions mainly from Algeria, Bangladesh, China, Chile, Tunisia, Mauritania, UAE, Egypt, Sultanate of Oman, Morocco, Indonesia, France, Italy, Canada, and Japan.

- National Workshop on “Mainstreaming Ecosystem Approach and Co-management Principles in Legislations and Policies for Living Marine Resources and Livelihoods Alternative Options for Coastal Communities”, Port Sudan, Republic of the Sudan; 14th-16th December 2015, organized in cooperation with PERSGA, GEF, and World Bank and was attended by 25 participants nominated by the Sudan National Commission.

- Follow-up of the Transfer to ISESCO of the KSA Prize for Environmental Management in the Islamic World, with the PME staff, in Jeddah, Kingdom of Saudi Arabia, and Meeting on the establishment of the KSA Prize for Environmental Management in the Islamic World with the PME, in Jeddah 20th-21st December 2015.

- Meeting and Follow-up of the Establishment of the Islamic Academy for Sustainable Development with the Moroccan Ministry, Rabat, Kingdom of Morocco.
Action Line 5:  
Mitigating Environment Risks and Disaster Management

Expected Outcome 3.5.1:  
Stepping up Member States’ efforts in facilitating transition to green economy

Achievements:

- Conference on “Climate Change in Morocco: Sharing Knowledge and Networks”, in the Framework of the Preparation of COP 21, with the North Africa Office of the Foundation Heinrich Böll Stiftung (Berlin), Rabat, Kingdom of Morocco, 10th February 2015.


- Workshop “For a Sustainable Management of Beaches and Coastline”, with “Mohamed VI Foundation for Environmental Protection” aiming sensitization and information of different local partners in the field of environmental management on the coastal areas, Rabat 21st May 2015.

- Eighth Asian Summer School of Renewable Energy, Kuala Lumpur, Malaysia, 1st-5th June 2015, organized in cooperation with UNESCO and Solar Energy research Institute, UKM in Malaysia. It was attended by 20 participants from Indonesia, Bangladesh, Brunei, Laos, Myanmar, Thailand, Philippines, Pakistan and Malaysia.

- Regional Seminar on Using New Technologies for Assessing Disaster of Floods and its Prediction, Khartoum, Sudan, 2nd-4th June 2015. The Seminar was organised by the Islamic Educational, Scientific and Cultural Organization (ISESCO) in cooperation with the Regional Centre for Remote Sensing of North Africa States (CRTEAN) and the Arab Industrial Development and Mining Organization (AIDMO). More than 50 participants attended from Algeria, Sudan, Lebanon, Egypt, Libya, Tunisia, Mauritania, Morocco, and Iraq.

- Participation to the Committee for Arab Action Plan to Promote the Role of Education in Sustainable Development, Cairo, Arab Republic of Egypt, 26th-28th July 2015.
• International Conference on Green Building Technology, Architecture and Environment, Florence, Italy, 26th-28th August 2015, organized in cooperation with WREN. It was attended by participants from Egypt, KSA, Jordan, Morocco, Iraq, Malaysia, Pakistan, Iran, Sudan, USA and Italy.

• Participation to the Maghreb Forum on Health Education, organized by the Moroccan Association for Health Communication, Casablanca, Kingdom of Morocco, 24th October 2015.

• Evaluation of the Status of Green Economy in Islamic Countries and Preparation of a Study on the Subject. The global study and deep analysis of the Moroccan experience case study was prepared by the Mediterranean Company for Intelligence and Strategic Studies (CMAIS) in collaboration with the Ministry of Environment in Morocco. It was presented in an expert meeting at the HQ of ISESCO, Rabat, 17th December 2015; attended by 30 experts, researchers, academicians and stakeholders from public and private sector in Morocco.

• Islamic Declaration on Sustainable Development, document prepared for the 6th ICEM and brought by PME to COP 21 in Paris, Republic of December 2015.
Achievement Record

Sector-specific Priority Three:

Harnessing Human and Social Sciences for Fostering Social Peace

Many of the objectives set forth under the sector-specific priority on harnessing human and social sciences for fostering peace in Member States, and the integration of information and communication technologies in all aspects of life were achieved. In 2015, ISESCO made 11 achievements designed to assimilate some rapidly changing social patterns and economic transformations that affect the social order in Muslim societies, and direct attention to building peaceful societies, improving the quality of life for the population and promoting social cohesion in the Member States.

Under the first action line and in a bid to achieve the expected outcome of improving understanding of new behavioral patterns and social and economic transformations, and promoting human rights including women’s rights, 3 achievements were made to promote policies and programmes on social and human sciences at the national, regional and international levels, and enhance the monitoring of social and economic transformations, while analyzing and using them in addressing societal issues and promoting social cohesion.

ISESCO made an achievement for the empowerment of rural women as part of its efforts to strengthen women’s capacities to build an economically stable and socially cohesive society, reduce all forms of discrimination against women and highlight their civil, social and economic rights. Support has been extended to women in rural areas through raising awareness about the importance of education, health, women’s rights and entrepreneurship. The tools and techniques sensitive to the specificity of the community helped support the empowerment of rural women. Measures were proposed to local authorities for addressing such challenges as violence against women, severe health risks, discrimination and lack of resources. Sustained efforts were also made to invigorate the role of women’s economic empowerment in developing small and medium enterprises (SMEs) which contribute to social development through an achievement aimed at promoting their participation and recognizing their view on the priorities of social development. In addition, emphasis was placed on the study of major issues that affect the lives of women entrepreneurs, particularly through providing opportunities to improve skills and career development.

In the same vein, and seeking to achieve the expected outcome of ameliorating the
quality of life through the implementation of policies and programmes on poverty eradication and hygiene, ISESCO accomplished six achievements for poverty alleviation through activating capacity-building measures in Islamic microfinance and strengthening the capacities of those working in this area. New insights and methods of microfinance were also projected to promote small income-generating projects. Opportunities to exchange the best practices on microfinance helped improve understanding of the financial aspects of business models; regulation, supervision and funding of microfinance portfolios; distribution channels for microcredit and other financial services.

Moreover, attention was given to craft industries and methods of their marketing for the benefit of needy families through adopting the latest technologies and applications in this area.

Two achievements were made to address the challenges associated with child abuse and protection. In this regard, a national workshop was held on “street children: between homelessness and exploitation”, and another activity was organized on efforts towards the reunification of children without family support and their reintegration into society.

ISESCO accomplished two achievements as part of its efforts to improve health standards and social services which have a direct impact on ameliorating the quality of life. In this regard, a medical convoy was organized to combat eye diseases for the benefit of children and the elderly; a training session was held on the latest techniques and knowledge on the prevention of infectious diseases, good hygiene practices and epidemiological surveillance in order to promote school health programmes for the prevention of HIV, sexually transmitted diseases (STD) and infections. These activities have made it possible to improve the information provided by the educational authorities to bring about a rapid response to major risks to health in schools and determine the components of school health, particularly the harmful factors to the living style and health.
Expected Outcome 3.6.1: Improving understanding of social patterns and economic transformations, and to promote human rights including women’s rights

Achievements:

- National Empowerment Workshop on Women Business Management, 21st-24th December, Abidjan, Republic of Côte d’Ivoire, in collaboration with the Ministry of Solidarity, Family, Women and Children, and ISESCO National Correspondent in Côte d’Ivoire, and with the participation of 31 national activists of women’s associations and organizations working in the field of women’s empowerment, social welfare and fight against poverty.

- National Workshop for Strengthening Rural Women’s Capabilities on the Techniques for the Management of Income-Generating Activities, Conakry, Republic of Guinea, 26th-28th October 2015, in collaboration with ISESCO National Correspondent in Guinea, and with the participation of 40 women from women’s associations operating in the field of strengthening women’s capacities and the fight against poverty in Guinea.

- Regional Symposium on the Digital Divide and Requirements to Cope with it in the Muslim World, Muscat, Sultanate of Oman, 7th-9th December 2015, in collaboration with the Omani National Commission for Education, Culture and Science, and with the participation of 33 experts from the Sultanate of Oman, the State of Kuwait, the United Arab Emirates, the Kingdom of Bahrain and the State of Qatar.

- Fifth International Scientific Conference on Information and Communication Technology and Accessibility of People with Disabilities, Marrakech, Kingdom of Morocco, 21st-23rd December 2015, in cooperation with the Arab League Educational, Cultural and Scientific Organization (ALECSO), and with the attendance of more than 100 ICT experts, researchers and civil society organizations from the Arab, Islamic and European countries.
Action Line 7:
Ameliorating the Quality of Life

Expected Outcome 3.7.1:
Ameliorating life quality through implementation of poverty eradication and health prevention policies and programmes

Achievements:

- National Symposium on Efforts Towards Reuniting Children Without Family Support and Reintegrating them into Society, Niamey, Republic of Niger, 27th-30th April 2015, in collaboration with Munazzamat al-Da’wa al-Islamiia, the Niger Islamic Council, the Ministry of Social Affairs and the Niger National Commission for UNESCO and ISESCO, and with the participation of 33 religious scholars, including 26 from Niamey, the capital, and 7 from the other cities and urban centres in Niger.

- National Workshop on Craft Industries Methods of their Marketing for the Benefit of Needy Families, Bissau, Republic of Guinea-Bissau, 8th-10th June 2015, in collaboration with Munazzamat al-Da’wa al-Islamiia and ISESCO National Correspondent in Guinea-Bissau, and with the participation of 25 craftsmen from poor families, including 20 from the capital, Bissau, and 5 from the other cities and urban centers in Guinea Bissau.

- Medical Convoy to Combat Trachoma, Khartoum, Republic of the Sudan, 26th-28th October 2015, in collaboration with Munazzamat al-Da’wa al-Islamiia, for the benefit of a large number of children and elderly people suffering from eye diseases in the outskirts of Khartoum.

- National Workshop on Street Children: Between Homelessness and Exploitation, Freetown, Republic of Sierra Leone, November 2015, in cooperation with Munazzamat al-Da’wa al-Islamiia, and with the participation of 30 executives from the various relevant ministries and civil society organizations in Sierra Leone (the event was initially due to take place in November 2015, but due to unforeseen circumstances, Sierra Leone National Commission for UNESCO postponed this activity until 18th-20th February 2016).

- National Symposium on the Social and Solidarity Economy and its Role in Promoting Extended Families, Khartoum, Republic of the Sudan, 7th-8th December 2015, in collaboration with Munazzamat al-Da’wa al-Islamiia, and with the participation of more than 80 people belonging to national and non-governmental institutions interested in family issues and social affair as well as private sector bodies.

- National Symposium on Building the Capacities of Staff Working in Islamic Microfinance, Conakry, Republic of Guinea, 14th-16th December 2015, in collaboration
with ISESCO National Correspondent in Guinea, and with the participation of 25 executives from banks and microfinance cooperatives, including 20 from the capital, Conakry, and 5 from the other cities and urban centers in Guinea.

- **Support Extended to the Ministry of Higher Education and Scientific Research of Mali to organize a Virtual Training Session for Members of the AIDS/HIV Unit Within Educational Institutions, Bamako, Republic of Mali, June through December 2015, in cooperation with the National Commission for UNESCO in Mali, benefiting four Members of the AIDS/HIV Unit within educational institutions in Mali.**
Achievement Record

Sector-specific Priority:

Promotion of Innovative Scientific Research

Under the sector-specific priority pertaining to the promotion of innovative scientific research, six (6) expected outcomes were fulfilled, divided over two action lines: promotion of scientific publications that meet quality standards, and optimal use of scientific research output.

During 2015, ISESCO Center for Promotion of Scientific Research (ICPSR) made three (3) achievements under the first action line, which helped, to a large extent, achieve the expected results of this action line. In this regard, two issues of “ISESCO Journal of Science and Technology” were published, featuring quality articles by researchers and teachers from different Member States. The results of research in areas such as renewable energy, the environment, agriculture, ICT, pharmaceuticals, life sciences and mechanical engineering were thus shared and valued in order to contribute to sustainable development in the Islamic world. Furthermore, the www.icpsr.org.ma portal dedicated to the scientific community was upgraded to meet users’ new needs.

On the other hand, pursuing its objective of developing endogenous capacity in science and technology in Member States, the Center allocated 9 research grants to three young women and six young men from the Member States in priority areas of scientific research.

Under the second action line, and to fulfill the expected outcome that underscores the need to improve the alignment of academia with industry and organize training workshops/meetings to raise awareness about intellectual property rights and capacity-building workshops focused on the repair and maintenance of equipment of scientific laboratories at a rate of one workshop per year and with a significant participation of women and youth, the Center fulfilled three (3) accomplishments successfully.

The Center participated in the World Summit Award Mobile (WSA-mobile), a global meeting of the digital industry and the mobile industry to select and promote the best digital applications with real socio-economic impact. It also organized a workshop on “National Innovation and Intellectual Property Systems in the Arab Region”, in Tunis, jointly by the Commission on Science and Technology for countries of the South (COMSATS) and the Inter Islamic Network on Information Technology (INIT). Participants focused on the interaction between universities, research institutions, businesses and governments to stimulate growth and wealth creation, while protecting intellectual property. The pace of research also depends largely on well-maintained scientific equipment. Accordingly, the Center and COMSATS
jointly organized a national workshop on “Repair and maintenance of engineering equipment in universities, research institutes and small-scale industries”, which benefited more than 30 engineers, teachers and technicians from different Omani cities who were exposed to the latest advancements in this area.
Action Line 3.8:

PROMOTING SCIENTIFIC PUBLICATIONS
MEETING QUALITY STANDARDS

Expected outcome 3.8.1: Upgrading ISESCO Journal of Science and Technology and adjusting ICPSR website (www.icpsr.or.ma) for Muslim world scientific community

- Publication of "ISESCO Journal of Science and Technology" Vol. 11, No. 19, ISESCO headquarters in Rabat, Morocco, May 2015. The Journal was distributed to writers and researchers in Member States’ scientific and technical institutions.

- Publication of "ISESCO Journal of Science and Technology" Vol. 11, No. 20, ISESCO headquarters in Rabat, Morocco, November 2015. The Journal was distributed to writers and researchers in Member States’ scientific and technical institutions.

- Strengthening and updating the ICPSR website (www.icpsr.org.ma), ISESCO headquarters in Rabat, Morocco, throughout the whole year, for the benefit of universities and national centres of scientific and/or technical research in Member States, in cooperation with the Commission on Science and Technology for Sustainable Development in the South (COMSATS).

Expected outcome 3.8.2: Granting more research scholarships for the youth in priority science areas

- Support was sustained for 9 scientific research projects in nanotechnology, agricultural and health biotechnology, engineering sciences, medicinal plants, etc, ISESCO headquarters in Rabat, Morocco, throughout 2015, for the benefit of 9 young researchers from the Comoros, Morocco, Bangladesh, Pakistan, Egypt, Tunisia, Brunei Darussalam, Côte d’Ivoire and Malaysia.
Action Line 3.9:
Valorisation of Scientific Research Outcome

Expected outcome 3.9.1: Fostering the link between universities and industries
- The World Summit Award Mobile (WSA-mobile), Abu Dhabi, United Arab Emirates, 1-3 February 2015; eight (8) Champions for 2015 were selected from among the 40 finalists (mobile application designers and developers) based on their innovative mobile applications (mobile apps) with socio-cultural or economic impact at the national, regional or international level. A Grand Jury, composed of international experts, awarded various prizes to the eight winners who distinguished themselves through outstanding contributions in the following categories: m-Government & Participation; m-Environment & Health; m-Learning & Education; m-Entertainment & Lifestyle; m-Tourism & Culture; m-Media & News; m-Business & Commerce; and m-Inclusion & Empowerment. Organized by the International Center for New Media (ICNM), and several international organizations, including ISESCO, in partnership with Distance Learning and Training (DLT), and hosted by the Abu Dhabi Systems and Information Centre (ADSIC).

Expected outcome 3.9.3: Organizing training workshops/meetings on sensitization to intellectual property rights
- A three-day regional workshop on “National Innovation and Intellectual Property Systems”, Tunis, Tunisia, 5-7 October 2015; with the participation of 18 experts and representatives of international organizations and the private sector from the following countries: Jordan, Tunisia, Oman, the Sudan, Palestine, Lebanon, Egypt, Morocco, Malaysia, Pakistan and China; organized jointly with the COMSATS and the Inter-Islamic Network of Information Technology (INIT); for the benefit of Arab Member States.

Expected outcome 3.9.4: Organising training workshops on repair and maintenance of scientific lab equipment (one workshop each year) with significant participation of women and young people
- A national workshop on “Repair and maintenance of engineering equipment in universities, research institutes and small-scale industries”, Faculty of Applied Sciences, Rustaq, Oman, 23-27 August 2015, for the benefit of thirty (30) engineers, teachers and technicians from different Omani institutes supervised by two Pakistani experts from the “Pakistan Council of Scientific and Industrial Research” (PCSIR, Karachi); organized jointly with the COMSATS and the Omani National Commission for Education, Science and Culture.