



United Nations
Educational, Scientific and
Cultural Organization

Natural Sciences

UNESCO - PACADE NEWSLETTER



No. 10

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Syed Muhammad Ali Gardezi, Federal Secretary, M/o Climate Change, Dr. Iftikhar Ahmad, Chairman PARC, Dr. Kozue Kay Negata, Country Director (UNESCO), Dr. M. H. Soomro, Chairman PSF, Dr. Ghulam Akbar, WWFP, Dr. M. Azeem, DG NARC, Dr. A.W. Jasra (ICIMOD) and other speakers, addressing on World Environment Day 2013 at NARC, Islamabad.



UNITED NATIONS EDUCATIONAL, SCIENTIFIC & CULTURAL ORGANIZATION
PAKISTAN ASSOCIATION FOR CONTINUING & ADULT EDUCATION

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Editor's Note

Unesco is generally known to be working for education and culture. There are however, many other fields like communication and information as well social and natural sciences in which it is actively engaged.

This issue contains UNESCO Islamabad's activities and contributions with regard to Natural Sciences with particular reference to environment and water management. It has also taken steps to facilitate policy coordination and institutional capacity building in such matters as natural disaster management and risk reduction.

Its interventions have helped the inclusion of Ziarat Juniper Forest in Balochistan and Lal Suhanra in Punjab in its world network of Biosphere Reserves.

Other initiatives include a project in Islamabad Federal Territory to harvest rainwater for recharging the underground water table. The Newsletter further refers to programmes undertaken with regard to ICT in Education.

May one look forward to UNESCO providing support for popularizing science education to encourage scientific outlook and interventions in the educational institutions and the society at large.

The last few pages contain a brief account of some of the recent PACADE activities. These focus mostly on plans for the future.

Readers are requested to send their feedback and suggestions for making these Newsletters more informative and useful.

INAYATULLAH

UNESCO Natural Sciences

UNESCO Islamabad is supporting the development of Pakistan's Science, Technology and Innovation system by facilitating policy coordination, institutional capacity building and project assistance. It is engaged in creating a knowledge-network for better integration and sharing of capacities between different facets of economy and society. UNESCO is consistently advocating the pre-eminence of innovation, renewable energy, environmental protection, disaster risk reduction, water resource management and the promotion of science education as the pivot for an inclusive, enlightened and prosperous society.

Keeping in view the need to mainstream emerging trends in addressing the country's present and future challenges, UNESCO is extending technical support for the institutionalization of Disaster Risk Management, gender equality and human rights into the country's education system. This would help improve national, provincial and district capacities to assess and manage risks, while benefitting vulnerable populations by improved institutional mechanisms in disaster response and reduction.

In the aftermath of recurrent floods (2010, 2011), Pakistan needed an immediate upgrade in its analysis and forecasting capabilities, especially along the Indus river to predict and assess the likely extent of damages. In order to reduce the human and socioeconomic impact of floods in the country and to improve their ecological benefits for agriculture and storage, UNESCO with financial assistance from government of Japan supported major upgrades to the country's flood response system. It has worked to improve the detection and planning capabilities by providing the Tide Guide and modeling software to bring innovation in existing system. Given that, nearly all the headwater of Indus river's main tributaries originate in neighboring countries, an essential component of UNESCO's programme has been the development of both international and local platforms for timely sharing of trans-boundary hydro-meteorological data and observations.

Likewise, UNESCO Intergovernmental Oceanographic Commission played a crucial role in establishing Pakistan's Tsunami Early Warning System and the response capacity for other ocean-related hazards. Capacity building of relevant stakeholders such as Pakistan Meteorological Department (PMD), helped establish institutional arrangements for coastal hazards in the country. It also strengthened community and local-level risk reduction arrangements, at four high-risk localities of Sindh and Balochistan. The intervention also developed Tsunami and sea level Early Warning System for swift determining of location and magnitude of earthquakes and their potential impact radius along the country's Coastline. UNESCO Science sector is leading the Knowledge Management and Flood Management groups, as well as integrated management of water resources to prepare a water sector strategy, including the action and investment plan. This is part of the assigned role, after the 2010 floods, as UN representative within the Friends of Democratic Pakistan (FODP) -Water Sector Task Force. The strategy took into account all aspects of water resources and its critical relevance to agriculture, sustainable development and disaster prevention. It lays the conceptual framework for the establishment of UNESCO Category-II center on water management in the country, in addition to the capacity development of human resource for improving water productivity and the management of impacts of climate change on water resources.

UNESCO is also galvanizing the institutional support for the implementation of Madrid Action Plan in Pakistan, so that biodiversity and natural resources could be protected and play their role in bringing sustainability to local communities. This intervention allowed the inclusion of Juniper Forest Ecosystem of Ziarat into UNESCO's World Network of Biosphere Reserves (WNBR). It is the second such declared site after the Lal Suhanra biosphere reserve in Pakistan.

Through such programmes UNESCO intends to establish preeminence of natural sciences in societal development; by strengthening the country's policy, processes and institutions. UNESCO promotes social innovation, sustainable development, environmental protection and disaster management for the sustenance and efficient utilization of the country's limited resources. It also strengthens the local and traditional knowledge network by structuring the applicability of such knowledge resources in addressing the local needs, along with bridging the gap between industry and university to set up market-driven predisposition and skill development.

Syed Muhammad Raza Shah

is working as National Professional Officer (Natural Sciences) and looking after the Science Sector of UNESCO Islamabad Office



Farida Yasmin

is working as the Programme Assistant in Science Sector in UNESCO Islamabad Office

Asma Younas is working as Research Associate Watershed in the UNESCO's Project: Strategic Strengthening of Flood Early Warning and Management Capacity of Pakistan



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is working as the Knowledge Platform Specialist in the UNESCO's Project Strategic Strengthening of Flood Early Warning and Management Capacity of Pakistan

Scientific Name: Rhincodontypus

Common Name: Whale Shark



The Whale Shark (*Rhincodontypus*) is the biggest fish in the world. It is a rare species and declared vulnerable by International Union for Conservation of Nature, as its population is decreasing at an alarming rate. It is called whale shark because of its size and feeding habits, but is not a mammal like whales.

UNESCO with its partner Pakistan Science Foundation (PSF) inaugurated one of the largest found whale shark specimens at Pakistan Museum of Natural History (PMNH). The specimen is believed to be unique in the world due to its size (40 feet), weight (16 tones) and boasts of being the biggest specimen of fish ever to be captured and stuffed. On 6th Feb, 2012, this specimen of Whale Shark was seen alive but motionless by local fishermen in the Gora Bari area of Arabian Sea. It was brought to Karachi Fish Harbor the next day, but died in shallow waters. Later, PMNH took possession of the specimen from Karachi Fish Harbor Authority, Marine Fisheries Department and museum facility in Islamabad. Since then the specimen had been under the process of preservation and research and after the completion of stuffing process. It went open for public on 23rd July, 2013.

Some of the salient features of this specimen are: Age 50 years, liver weighed 800 kg, weight of stomach was about 600 kg, the ovary had a weight of 120 kg containing around 500 eggs. This specie of whale shark is found in tropical and warm oceans, lives in open seas and is found in coastal areas of South Africa, Western Australia, India, Pakistan, Indonesia, Philippines, Mozambique and Tanzanian. Although typically seen offshore, it has been found closer to land, entering lagoons or coral islands and near the mouths of estuaries and rivers. It is capable of diving to depths of appx. 1,286 meters and is migratory in nature. Although whale sharks have very large mouths, as filter feeders they feed mainly on plankton, krill, fish eggs and crabs.



The Whale Shark Exhibit in the Museum

Mr. Qian Tang, Assistant Director General (Education), UNESCO, Paris inaugurated the exhibit in the Pakistan Museum of Natural History on 23rd July, 2013. Mr. Tang said, "Museums play an important role for popularization of science and science education and I believe Pakistan Natural Science History Museum is doing a wonderful job for educating masses here in Pakistan".

For details contact Dr. Rafique on rafique59@yahoo.com (from PMNH)

Ziarat Juniper Forest declared as Biosphere Reserve

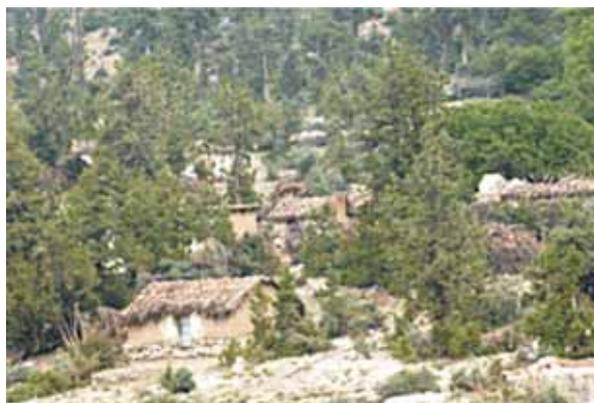
Believed to be the second largest Juniper forest of its kind in the world, Juniper Forest of Ziarat in Balochistan has been declared as the World Network of Biosphere Reserves by International Coordinating Council (ICC) of the Man and Biosphere (MAB) Programme. This is second site in the country as earlier in 1977 Lal Suhanra Biosphere Reserve declared, in Cholistan Desert near Bhawalpur in Southern Punjab. Juniper tree species of Ziarat have a global significance because of their old age and slow



growth rate. The species find their place in the list of the oldest living trees on earth. Believed to be the second largest Juniper forest of its kind in the world, this Biosphere reserve of Ziarat is habitat to the largest Juniper patch of juniper forest in Pakistan. Though no dendrological study has yet been conducted, the age of a mature tree, according to an estimate exceeds 4000 to 5000 years old. This ecosystem is a habitat of many important endangered wildlife species including Suleiman Markhor, Urial, Black Bear, Wolf, Afghan Pica and several species of migratory birds. In addition, the forest is rich in medicinal plants. 50 percent of the plants are of medicinal value and are being traditionally used by the local communities.

The MAB Programme promotes interdisciplinary research agenda and capacity building with an aim to highlight ecological, social and economic costs of biodiversity loss and proposes ways to reduce it. The World Natural Biosphere Reserves (WNBR) currently counts 610 biosphere reserves in 117 countries world-wide.

UNESCO Islamabad Office has been working closely with IUCN Pakistan and in this several small initiatives are planned to implement the management plan for the sustainable development in the area. For awareness in the masses a small documentary on the Ziarat Juniper Biosphere Reserve was also been developed.



Flood Early Warning System in Pakistan

In July 2010, Pakistan experienced massive floods due to unprecedented monsoon rain, in regions of Khyber Pukhtunkhwa, Sindh, Punjab and Balochistan. It submerged vast surroundings of Indus River Basin, plunging one-fifth of the Pakistan's total landmass. Colossal devastation brought the total human death toll of 1,985, with 2,946 injured. It inundated approximately 20 million people, with over 100,000 square kilometers area, including over 2.1 million hectares of cultivated land. Roads, bridges and railway network being the mainstay of communication link between different parts of country, were severely compromised, besides damaging 1.6 million houses. Overall damage had been estimated to be \$8 billion (5.8% of Pakistan's GDP (2010)).

The intensity and scope of such devastation highlighted the limitations of existing policymaking structure; lag in national response/contingency plans and institutional capacities; in particular the flood forecasting and early warning systems. To counter the socio-economic impact of floods, the Integrated Flood Analysis System (IFAS) is deployed at Flood Forecasting Division (FFD) Pakistan under the UNESCO's "Strategic Strengthening of Flood Early Warning and Management Capacity of Pakistan" Project. This system is developed by International Centre for Water Hazard and Risk Management (ICHARM), a Category-2 institute of UNESCO in Tsukuba, Japan.

Integrated Flood Analysis System (IFAS) is a concise flood-runoff analysis tool developed for effective and efficient flood forecasting in developing countries. It provides interface for satellite and ground-based rainfall data, as well as GIS functions to create river channel networks. The system estimates parameters for a default runoff analysis engine to display output results. Global data relevant to flood analysis can be used to create runoff analysis model and estimate parameters for the river basin, including elevation within the catchment area and the catchment boundary. GSMAP (Global Satellite Mapping of Precipitation) uses microwaves to provide hourly rainfall data for the catchments.



A flooded village of Punjab, source: www.newspakistan.pk

IFAS has been customized according to the characteristics of Indus river catchment. With the help of this system UNESCO has strengthened the flood forecasting capability of Pakistan Meteorological Department. Validation of IFAS is being conducted during the current Monsoon season (2013), which will eventually help tune the system according to local conditions.

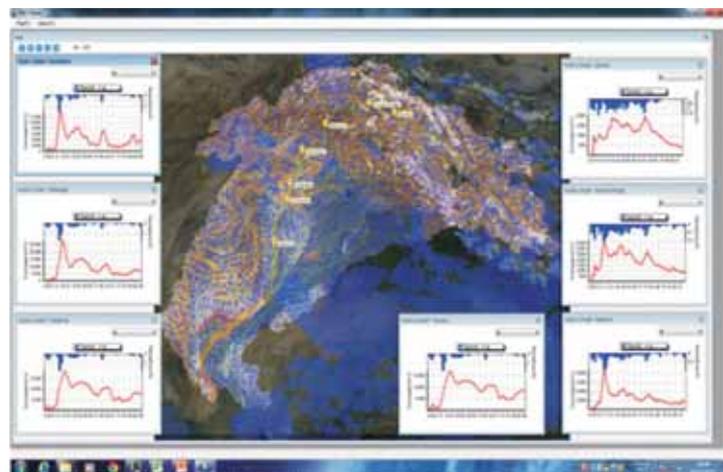
During 2010 floods, Pakistan had no framework to timely share the critical hydro-meteorological data between different flood management agencies. Pakistan Integrated Flood Alert and Management Information System (PIFMIS) is a complementary system that addresses capacity deficits at Provincial and District levels. It strengthens the overall institutional coordination in national response, which had been lacking due to limitations of technical capacities such as, dissemination of early warning, disaster preparedness measures, emergency response and structural disaster mitigation civil works.

Main theme of Pakistan Integrated Flood Management System (PIFMIS) is the hydro-meteorological data entry, analysis and display of information and to serve multiple purposes ranging from: flood alert, flood control and management, knowledge base for policy and decision making i.e. water supply for irrigation use, industrial and municipal use, hydropower generation etc.

This system intends to provide a common platform for all stakeholders of flood management including Pakistan Meteorological Department (PMD), Pakistan Space and Upper Atmosphere Research Commission (SUPARCO), Indus River System Authority (IRSA), Federal Flood Commission (FFC), Water and Power Development Authority (WAPDA), Indus Water Commissioner (IWC) and many others. All of the aforementioned organizations play vital role in flood forecasting and management and the system will enhance their inter-organizational

coordination by sharing precipitation, stage and discharge data in near real-time. Such a system would serve to strengthen Pakistan's flood forecasting capacities, along with providing the basis for robust and coordinated actions, in the face of future emergencies and disasters.

As part of the continuation of technical dialogue under UNESCO's Flagship Project 'Strategic Strengthening of Flood Warning and Management Capacity of Pakistan', UNESCO Islamabad in association with Pakistan Water Partnership (PWP) organized a two-day International Conference titled 'Regulation of Hydraulic Structures for Flood Management' on 28-29 June 2013. The conference was aimed at assessing and validating Standard Operating Procedures (SOPs) of the country's major reservoirs especially Tarbela dam. This assessment was made on the background of Pakistan's recent chain of events such as droughts (1997-2002), and floods (2010-2012) that proved beyond any doubts that this region is going through the impacts of climate change/global warming. The two-day conference tried to address these issues and to come up with integrated adaptation plan is a timely intervention.



Integrated Flood Analysis System in action



Screen shot of the PIFMIS

Pictures from International Conference on Water for Life and Development



Mr. Ahsan Iqbal, Federal Minister of Planning and Development delivering inaugural speech



Dr. Shahbaz Khan Deputy Director and Senior Programme Specialist in Environment Water Sciences, Jakarta delivering speech on the project activities.



Mr. Akira Kono , Charge d'Affaires & interim Ambassador of Japan

Importance of Rainwater Harvesting System in the Arid Region Like Pakistan

The biggest challenge of the 21st century is to overcome the expanding water shortage. Millions of people do not have access to clean water for domestic purposes. In many parts of the country conventional available water is either absent, polluted or too expensive.

In Pakistan, currently over 65% of population is considered to have access to safe drinking water while the inadequate water supply results in high incidence of water related diseases, increasing morbidity and mortality rates, besides posing major threat to the survival and development of children. The majority of the population of Pakistan is exposed to the hazard of unsafe and polluted drinking water, according to Economic Survey (2010-11). Pakistan is the sixth largest country in the world by population. This increase in population will have direct impact on the water sector for meeting the domestic, industrial and agricultural needs. Pakistan has now essentially exhausted its available water resources and is on the verge of becoming a water deficit country.

Of the total annual water resources available to Pakistan, approximately 6 percent is used by the domestic and industrial sector of which 30 to 40 percent gets wasted and the remaining 94 percent is used for irrigation purposes. The per capita water availability has dropped from 5600 cubic meter in 1952 to 1000 cubic meter in 2012. The quality of ground water and surface water is low and is further deteriorating because of unchecked disposal of untreated municipal and industrial wastewater and excessive use of fertilizers and insecticides. The need for water saving is because of the following factors:

- Surface water is inadequate to meet our demand
- To detention ground water decline
- To conserve surface water runoff during monsoon
- To reduce soil erosion
- Due to rapid urbanization recharging of ground water has reduced.



Pakistan is in physical water scarcity zone in world map

SNIPPET

Aristotle could have avoided the mistake of thinking that women have fewer teeth than men by the simple device of asking Mrs. Aristotle to open her mouth.

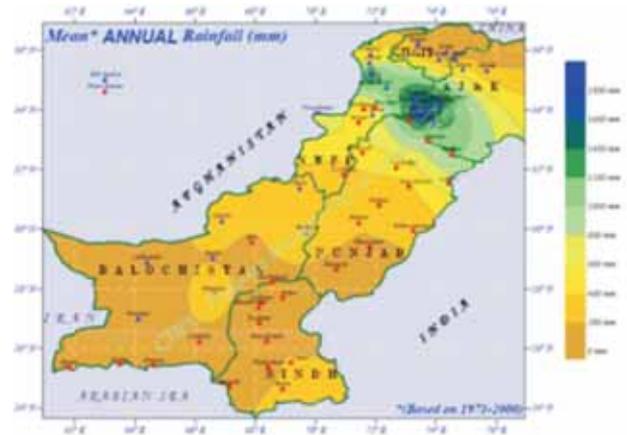
Bertrand Russell

■ **Use of Harvested Rain Water:**

The quality of rainwater used for domestic supply is of vital importance because, in most cases, it is used for drinking. Rainwater does not always meet drinking water standards especially with respect to bacteriological water quality. However, just because water quality does not meet some arbitrary national or international standards, it does not automatically mean that the water is harmful to drink. Compared with most unprotected traditional water resources, drinking rainwater from well-maintained roof catchments is usually safe, even if it is untreated. The official policy of the Australian Government towards the question "Is rainwater safe to drink?" is as follows: "Providing the rainwater is clear, has little taste or smell and is from a well-maintained system, it is probably safe and unlikely to cause any illness for most users". For immuno-compromised persons, however, it is recommended that rainwater is disinfected through boiling prior to consumption.

■ **Potential Areas for Rainwater Harvesting in Pakistan:**

Islamabad, Murree, kotli, Kakul, Garhi Duppta, Muzafarabad, Balakot, Lahore Sialkot Jehlum, Faisalabad, Mianwali, Sargodha, Drosh, Dir, Saidu Sharif, Risalpur, Peshawar, Cherat, Kohat etc. These area are receiving rainfall from 1800mm to 400mm annually are suitable for rain water harvesting to fulfill their domestic water needs and also for agriculture by drip irrigation after recycling of waste water.



■ **Rooftop Rainwater Harvesting System in Islamabad:**

Keeping in view water scarcity across the country, UNESCO has launched a project in Islamabad Capital Territory to use rainwater for horticulture and other purposes. The federal capital has become the first city of the country to have a rainwater harvesting facility to re-charge the underground water table. The Pilot Rainwater Harvesting Project has been initiated at the Islamabad College for Girls F- 6/2.

For details contact Dr. Zahid Hussain on zhs99pp@hotmail.com (Counsaltant UNESCO Science)

S N I P P E T

In science the credit goes to the man who convinces the world, not to the man to whom the idea first occurs.

Sir William Osler

World Environment Day 2013

World Environment day is celebrated throughout the world including Pakistan on 5th June 2013. The theme for this year's celebrations was THINK. EAT. SAVE - REDUCE YOUR FOODPRINT. The theme was very important for food deficit countries of the world as the idea is to minimize the food wastage. The Ministry of Climate Change, the Pakistan Agricultural Research Council (PARC), the International Centre for Integrated Mountain Development (ICIMOD) celebrated the World Environment Day in collaboration with WWF-Pakistan, Pakistan Water Partnership, United Nations Educational Scientific and Cultural Organization (UNESCO) and Pakistan Science Foundation at the National Agriculture Research Centre (NARC), Islamabad. The celebrations/events/activities included tableau by school students, competition for minimum wastage in food consumption and environmental quiz. Mr. Syed Muhammad Ali Gardezi, Secretary, Ministry of Climate Change, was the chief guest at inaugural ceremony of the WED 2013 celebrations. Dr. Iftikhar Ahmad, Chairman, Pakistan Agricultural Research Council, Dr. Manzoor Hussain Soomro, Chairman, Pakistan Science Foundation, Dr. Kozue Kay Nagata, Country Director, UNESCO, Dr. Ghulam Akbar, Senior Director Operations, WWF-Pakistan, Dr. Pervaiz Amir, Chairman, Pakistan Water Partnership and Dr. Abdul Wahid Jasra, Country Representative, ICIMOD addressed on the occasion. About 400 persons including students, teachers and scientists attended the event.



Syed Muhammad Ali Gardezi, Federal Secretary, M/o Climate Change, Dr. Iftikhar Ahmad, Chairman PARC, Dr. Kozue Kay Negata, Country Director (UNESCO), Dr. M. H. Soomro, Chairman PSF, Dr. Ghulam Akbar, WWFP, Dr. M. Azeem, DG NARC, Dr. A.W. Jasra (ICIMOD) and other speakers, addressing on World Environment Day 2013 at NARC, Islamabad.

Mapping Natural Resources for the Next Generation

History reveals gradual development in the field of mapping and surveying. Human beings have been developing and using maps for more than 5,000 years. Early maps were carved on stones or painted on walls. These maps were mainly used for the strategic planning during war. Over the past few centuries advancement in the engineering and computer technology have bought a boom in the mapping technologies. Today, not only government agencies but private organizations and even individuals are using Geographic Information System (GIS), Remote Sensing, WebGIS etc for planning and monitoring of social, commercial and environmental purposes.

Conservation is all about place, as most of the research requires the use of data linked to geographic space. The need of the geographic data varies according to the nature of studies employed. Even a very basic research report contains geographic coordinates and a map of the study area. GIS enables the conservationists to plan, present, monitor and predict the nature conservation activities and projects. It is indeed a very significant system for resolving simple to complex issues related to forest, water management, climate change etc. It would not be wrong to say that mapping plays an integral part in successfully addressing today's conservation challenges.

Globally, GIS, satellite images and spatial tools and techniques are being used widely for the mapping, monitoring, modeling and prediction of natural resources. Forest mapping, monitoring, modeling and prediction are considered to one of the important aspect while conserving the existing forest of planning plantation activities. There are numerous qualities of satellite images and various tools and technologies are available in the market which provides solutions according to the need. Highest earth observation satellite is World View II which provides details of ground features of half of a meter and can be effectively used for micro-level forest mapping and monitoring.

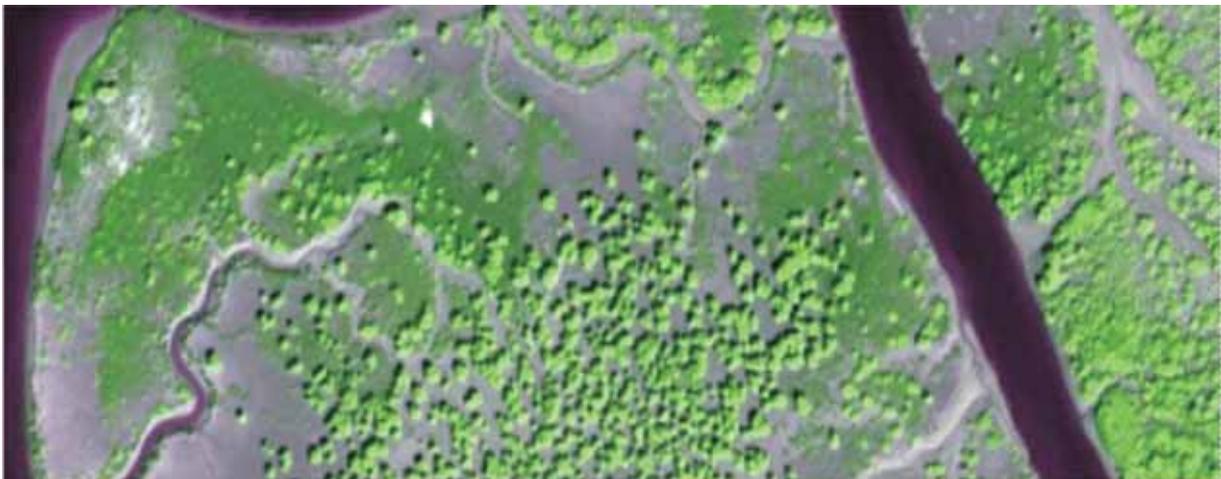


Figure: World View II Image of Mangroves Forest, Indus Delta, Pakistan

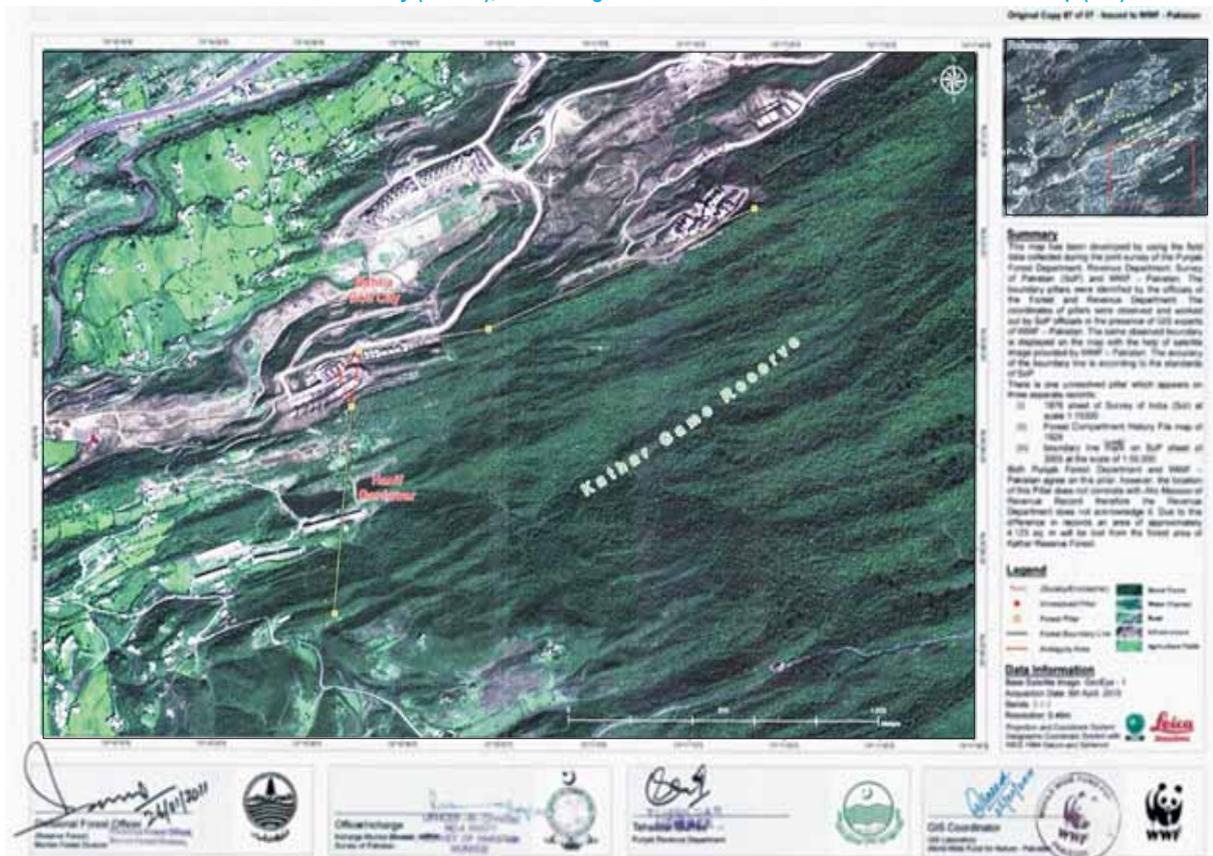
One of the recent examples of the usage of high quality image is the support that World Wide Fund for Nature - Pakistan (WWF) has been providing to the Lahore High Court under the *Suo Moto* Action against the illegal encroachments in the forest lands of Murree, the only hill station of Punjab. Over the past few decades, land mafia and the encroachers have made disastrous impact on the coastal green gold.



Figure: Temporal images from Google Earth highlighting the conversion of forest land to the settlements

The main objective of the Project was to delineate the legal forest boundaries through conducting joint field surveys with the Punjab Forest Department, Punjab Revenue Department, Survey of Pakistan and WWF - Pakistan. To draw the forest boundary on map, Google Earth imagery, GeoEye data, Total Station, Differential Global Positioning System, forest history files, latha maps, historic and current topographic maps were used. The final maps have been endorsed by the stakeholders and submitted to the Court with the ambition to get the orders of forest land retrieval from the encroachers and then restore the land with the indigenous (natural) forests of the area.

Murree Reserve Forest Boundary (Kathar), Lahore High Court Suo Motu Writ Petition No. 1813/2010 - Map (A-3)



For details contact Urooj Saeed on usaheed@wwf.org.pk (from WWF)

What is biodiversity and why it is important for us?

Biodiversity Crisis

Conservation agencies and individual experts agree that the loss of biodiversity - the variety of animals, plants, and their habitats as well as their genes - on which so much of human life depends, is another major crisis in the making. It is estimated that the current rate of species extinction is between 1,000 and 10,000 times higher than it would be naturally. The main drivers of this loss are the conversion of vital natural areas to agriculture and urban development, introduction of invasive alien species, over-exploitation of natural resources including water and soil, and harvesting of wild plants and animals at unsustainable levels.

Why we need biodiversity?

The rewards that human beings reap from biodiversity extend well beyond from it being source of raw material, to the fundamental food, water and energy security that makes biodiversity an integral part of human progress and civilizations. This reality is illustrated in the recent history of impoverished human communities of Upper Swat and Chitral region. Poor management of the high alpine pastures, through overgrazing and unsustainable logging, severely impaired the capacity of hillside catchments to control the run-off during heavy rains (demonstrated in 2010 floods).

Following are some of the proximal and long-term consequences of the ensuing biodiversity crisis:

- Escape and subsequent proliferation of exotic fish species into the river systems, such as Mozambique Tilapia (*Oreochromis mossambicus*);
- The spread of ruderals and invasive exotic plants such as Kariba Weed (*Salvinia molesta*) and Common Water Hyacinth (*Eichhornia crassipes*) into wetlands;
- Spread of fish parasites such as the Isopod, *Alitropus typus*, from relatively isolated, controllable, localities into the general drainage system;
- Reduced survival options of impoverished people resulting in an unsustainable use of wetlands resources such as Cattails and Rushes (*Typha* spp.) and the Common Reed (*Phragmites australis*);

Origin of the term Biodiversity

According to the record, the term Biological Diversity was first used as recently as 1968 by conservation biologist Raymond Dasmann in a non-technical, pro-conservation book entitled *A Different Kind of Country*. At first the expression only appeared sporadically in print but by the 1980s, it was in widespread use and featured prominently in science and the formulation of environmental policy. The eminent biologist, Dr Thomas Lovejoy, is credited with actually introducing the term to the scientific community in his foreword to the book *Conservation Biology*. Dr. Lovejoy and many of his contemporaries in the field of conservation biology began to advocate the use of the term "biological diversity" in print and publications. Subsequently, the expression has been globally adopted and is routinely used by biologists, environmentalists, conservation conscious citizens and politicians, alike. Source: Wikipedia

What is Biodiversity?

Biological Diversity or Biodiversity, for short, is simply a common noun that is used to describe the entire spectrum of living organisms on Earth, including all living ecosystems, species and genomes, without any qualifications or conditions.

Biodiversity is generally acknowledged as the foundation of life on Earth and, as such, it is essential for the long-term survival of the ecosystems that supply human beings and all other life forms with the prerequisites for life. Source: Wikipedia

- Entrapment of blind Indus River dolphins (*Platanista gangetica minor*) in isolated, shrinking water bodies in natural drainage and irrigation canals and dhands;
- Destruction of marsh crocodile (*Crocodylus palustris*) nests and nesting habitat on sandy river banks and other wetland margins;
- Exposure of freshwater turtle species such the Ganges Soft-shelled Turtle (*Aspideretes gangeticus*) and the Striped Narrow-headed Softshell Turtle (*Chitra chitra*) to unsustainable, illegal hunting for the export market;
- Dispersal of petrochemicals, plant poisons and other hazardous chemicals in floodwater;
- Escalation in feral dog (*Canis familiaris*) populations due to the availability of carrion;
- Freshwater drowning of mangrove plantations in lagoons or estuaries, principally the White Mangrove (*Avicennia marina*);
- Destruction of fish ponds and cages for fish rearing;
- Bleaching of Hard Corals (*Goniopora* spp.) in the vicinity of the Indus Delta following exposure to freshwater and high silt loads;
- Destabilisation of talus slopes resulting in landslides in sensitive areas such as stream bed breeding sites of fish like the Himalayan Mahasher (*Tor putitora*);
- Destruction and loss of habitat of specific wetlands dependant species such as the Hog Deer (*Axis porcinus*); and inevitably.
- Loss of control of the wildlife conservation authorities over human encroachment into protected areas such as national parks with concomitant unsustainable extraction of natural resources like: fuel-wood, structural timber and other forest products.

Sadly, the frequency and intensity of natural disasters such as the 2010 floods in Swat and Chitral are on the increase; accelerated by human population growth and subsequent exploitation of resources. It is clear that it will take nothing short of a paradigm shift in the thinking of environmental researchers, planners and managers to arrest and reverse the negative trends of the seemingly escalating biodiversity crisis.



Biodiversity is an insurance policy for the world's poorest communities - The village to which these three boys belong suffers from recurrent heating energy crises due to unsustainable use of the Holly Oak (*Quercus ilex*) forest in Chitral Gol National Park.

Photo:
Shadmeena Khanum

For details contact Richard Garstang on garstang@aol.com (Consultant UNESCO-Science)

PACADE Committees Meetings

Two Special Meetings of the Chairmen of PACADE Planning and Project Committees were held in August, in which future plans were discussed. A sub-committee consisting of Dr. Mohsin and Mr. Eric Messay was set up to pursue the proposal for establishing a non-formal basic education study unit in Forman Christian College University, Lahore.

Mr. Inayatullah informed that he had earlier initiated the setting up of a Non Formal Basic Education section in the Punjab University Institute of Education. He said that he would take up the matter with the Vice Chancellor in the near future.

Maj. Gen.(R) M. Saleem Khan, Chairman PACADE Planning Committee, offered high school run by the Mughalpura Society to host the planned meeting on World Teacher Day on 5th October. His proposal was accepted. It was also decided to organize more activities on this occasion at the Quaid-e-Azam Library.

Mr. Inayatullah informed the members about his meeting with the Chairman Planning and Development Board, Government of the Punjab. Later he had met Dr. Parvez Ahmad Khan, Secretary of Literacy and Non Formal Basic Education (NFBE). In these meetings, he drew attention to the short time left to achieve the Education for All (EFA) targets by 2015. Planning and Development Board Chairman Mr. Irfan Ali agreed to hold a meeting in this connection with PACADE and the concerned departments sometimes in October, in which Punjab government has planned to achieve the Dakar EFA Goals and the educational components of the Millennium Development Goals MDGs would be reviewed.

Mr. Waseem Asghar, Provincial Coordinator National Commission for Human Development (NCHD) in Punjab was invited to brief the PACADE members about the NCHD Literacy programmes in the Punjab province. He agreed to review the Planned Commission activities on the basis of monitoring reports, after a month or so. Mr. Inayatullah emphasized the need for a close coordination between NCHD and the Punjab Literacy and NFBE Department.

In the monthly meeting, the Civic Forum (assisted by PACADE) discussed the issue of the sale and use of spurious medicine in Pakistan.



The Chairman Mr. Inayatullah welcomed Ms. Fauzia Malik media's specialist. She promised to submit proposals for PACADE's involvement with some of the TV channels for promoting the cause of literacy.

It was also agreed that PACADE will celebrate the International Literacy Day on 8th September in collaboration with UNESCO and the Quaid-e-Azam Library, in a befitting manner.

Two functional literacy projects for village women were examined and approved by the planning committee.

Mr. Inayatullah visited Urdu Science Board and discussed with the Director General of the Board the need for popularization of Science Education with Mr. Iqbal Nabi Nadeem. The director General agreed to hold a preparatory workshop in cooperation with PACADE and the Director General Libraries Department at the Quaid-e-Azam Library, Lahore. Ms. Nasira Yousaf Coordinator PACADE also participated in the discussions.



Mr. Iqbal Nabi Nadeem DG Urdu Science Board



Mr. Inayatullah holding a meeting with DG Urdu Science

PICTURES

PACADE, planning and Civic Forum Meetings



UN PAKISTAN PROGRAMME AND EFA

INAYATULLAH

On July 18, senior representative of the One UN team and agencies in Pakistan unveiled the United Nations Programme (OPII) for the next 5 years (2013-17) along with details for the Punjab Province. The meeting was held in Lahore with scores of stakeholders including representatives of the Punjab government departments, universities and civil society.

The previous programme titled "One UN Programme" was launched in the year 2009 for a span of 4 years.

For Nation's readers here are the salient points of the OPII.

While the "Vision" relates to (a) support human development on the basis of national priorities and (b) to provide humanitarian assistance when necessary, the Programming Principles are listed as:

1. Human rights-based approach
2. Gender equality
3. Environmental sustainability
4. Results-based management
5. Capacity development

18 UN Agencies will be involved in the Programme which will extend to 9 administrative areas of Pakistan. There will be 20 Outcome level Results and 54 point Output Results. The amount required for this programme has been estimated at \$ 1.87 billion. The programme will consist of 6 Strategic Priority Areas (SPAs). [These are: SPA 1: Vulnerable and marginalized populations have equitable access to and use of quality services. SPA 2: Inclusive economic growth through the development of sustainable livelihoods. SPA 3: Increased national resilience to disasters, crises and external shocks. SPA 4: Strengthened governance and social cohesion. SPA 5: Gender equality and social justice. SPA 6: Food and nutrition security for the most vulnerable groups.](#)

The six SPAs for Punjab too are spelt out. These are: SPA 1: Social Sector development vital for growth; Slow progress on MDGs; Social disparities; Low social sector expenditure; UN comparative advantage of social development SPA 2: High level of poverty; Energy crisis; Lack of women's development; poor economic development; UN comparative advantage of institutional development; SPA 3: High vulnerability to climate change; Frequent incidence of natural disasters; 2005 Earthquake: 73000 killed, 3.4 m homeless; 20 m affected in 2010 flood; 9.7m affected in 2011 floods; SPA 4: Governance deficit; Rule of law/public security; Civilian rule and decentralization an opportunity; UN comparative advantage of working with devolved structures; SPA 5: Fundamental inequalities and social exclusion; Demand for resources to address in equalities; Inequitable access to rights and resources; Need of targeted actions for gender mainstreaming; SPA 6: Chronic and acute malnutrition; Food insecurity; Stagnation of nutrition indicators; Slow progress on MDGs; Added value of global knowledge and experience

Aside from a very brief statement on lessons learnt from Programme I, little was available about the character and achievements of the previous UN activities. It was only to be expected that highlights of the results of the plans and projects of the previous programme were presented and some sort of a cost-benefit assessment attempted. This, however, was not done. This was necessary as it is important that Pakistanis know how money earmarked by UN for the welfare of Pakistanis and development of the country was actually used. It was all the more necessary in view of the known criticism of improper use of the foreign funds provided to Pakistan and how fund-providing agencies

usually, in various ways, (including appointments of foreign consultants) take away a considerable part of the allocations. Further Pakistanis do need to know as to what indeed was the net impact of the contributions received for the projects planned and executed.

On page 3 of the UN booklet distributed at the meeting, there was a statement that there "has been a decline in completion/survival to grade 5 during the past 5 years" and also a negative trend in the Girls Survival Rate to Grade 5. Further that" there has been a significant increase in dropouts from schools during the last 5 years-the dropout rate was 63% among boys and 77% among girls". Considering other fairly authentic government and (ASER) statistics, these figures do not appear to be quite correct (I pointed out this at the meeting). The question is why this deterioration in a crucial field? Why was it that priority was not given in the UN Programme I and special efforts not made to strengthen the primary school system. Again there is very little in the next Programme about the urgency of spreading literacy in the country. Pakistan remains at the lowest rung of the international literacy ladder. About 60 million Pakistanis are (in this day and age) utterly illiterate. The Global Monitoring Reports On Dakar EFA Goals, year after year, have been signaling the imperative of speeding up efforts and scaling up programmes for the removal of illiteracy in Pakistan. The UN Programme does refer to the use of "mobile phone technology for rural female literacy and non - formal education teachers", in the Punjab. While such an expensive and maverick approach may do some good, it at best is a drop in the bucket. Almost 40 million women in Pakistan today cannot read and write. The irony of it is that there does exist a government-approved National Plan of Action for achieving the EFA targets. Only a fraction of the number of Literacy Centres planned for the province have been opened in the Punjab. The position in the other three provinces is much worse. Balochistan and Sindh have hardly any provincial government adult literacy centres.

It is unfortunate that we on the one hand see the Secretary General United Nations launching (late last year) a world-wide campaign for "Education First" to which brave Malala referred while delivering her historic address at the UN General Assembly on July 12, and on the other find that the One UN Programme for Pakistan accords literacy a low priority. It is intriguing to find that Education as such, per se, is not one of the 6 strategic priorities of the programme. It lies submerged in SPA I under the generalized title: "Vulnerable and marginalized populations equitable access to and use of quality services". Even Malala's spirited appeal has not evoked the realization for accelerating the rapid spread of literacy in Pakistan. Of course more than the UN Agencies in Pakistan, it is the government at the Centre and the provinces who are responsible for the continuing sorry state of affairs. Before concluding this column, it would be unrealistic not to acknowledge the valiant endeavors made by UNESCO to keep the literacy issue alive in Pakistan. It certainly can and would be doing much more if its current inadequate budget is reasonably enhanced.

S N I P P E T

All science is concerned with the relationship of cause and effect. Each scientific discovery increases man's ability to predict the consequences of his actions and thus his ability to control future events.

Laurence J. Peter

PRESS CLIPPINGS

All roads to school

By Waqar Gillani

The government seems to have finally realised that enhancing enrolment in schools, especially at primary and secondary levels, is a key national issue. Also, that literacy is one of the main objectives of MDGs.

According to UNESCO, Pakistan is still a long way from getting to the universal primary enrolment. As indicated by the primary Net

Enrolment Rate (NER), over 35 per cent of the population of 5-9 years of age is not going to school. With a 19.5 million population of 5-9 years old, this means that about 7 million children, aged 5-9, are out of the education system. Pakistan comes off second in the global ranking of out-of-school children with 57.3 per cent in the 3-5 age bracket not enrolled in any school in the rural areas and 65.5 per cent mothers being in the illiterate category.

The schools' net enrolment at the primary level in Pakistan was at 74.06 in 2010. More than 17 million children who qualify as primary school students are not enrolled in any institution. The NER for Pakistan as a whole in 2010-11 is 56 per cent. The girls have a lower enrolment rate than the boys. According to the targets under the National Policy on Education (1998-2010) for the primary level, enrolment of the children of age group of 5-9 is 90 per cent. But during the last five years, it has not been implemented effectively and efficiently due to various factors such as a rapid population growth, lack of political will, military regimes and poor management of resources.

"A few of the major reasons for students not going to school are: poverty, location of schools, and lack of incentives," says Inayatullah, former chairman of Pakistan Literacy Commission and currently head of Pakistan Association for Continuing and Adult Education (PACADE). any institution.



Photos by Rahat Dar

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"A few of the major reasons for students not going to school are: poverty, location of schools, and lack of incentives," says Inayatullah, former chairman of Pakistan Literacy Commission and currently head of Pakistan Association for Continuing and Adult Education (PACADE).

He gives the example of Sri Lanka where the students get meals during school time which helps to increase enrolment. "The bigger challenge is not to bring children to schools but to retain them," he adds. A major development is addition of Article 25(A), in the Constitution which makes it

obligatory on the state to provide education to all boys and girls in the age bracket of 5 to 16 years. The centre and the Sindh governments have enacted the required legislation, while the remaining three provinces have yet to pass such a law. Yet, no steps have been taken for its implementation. On the other hand, the districts at the bottom are Rajanpur (34 per cent) in Punjab, Thatta (36 per cent) in Sindh, Kohistan (22 per cent) in KPK, and "The Punjab government's target of 100 per cent enrolment of children in schools is designed to be

achieved over the next five years as the emergency enrolment campaign has been launched and incentives including meals, stipend, etc mapped," says Abd-ul-Jabbar Shaheen, Secretary Education (schools). The new KPK government has also decided to initiate an enrolment drive to increase the number of children in schools. Sindh has set a target of the NER up to 55 per cent by 2012. It had NER at 50 per cent in 2011. In Balochistan, out of the total enrolment at the primary stage in the last couple of years, 9.441 million (56 per cent) were boys and 7.543 million (44 per cent) were girls. A three-year comparison of enrolment at the primary level shows little progress in terms of increasing the number of children in schools. "The only incentive, in my view, for sending children to schools is giving quality education. Parents, whether they are poor or rich, definitely realise the importance of imparting education to their children," says Abbas Rashid, a senior educationist. "The governments need to set standards and improve the public sector with a strong political will and set up effective monitoring mechanisms at the local level to ensure quality. vaqargillani@gmail.com

THE NEWS INTERNATIONAL

Wretched condition of KP schools

THIS is with reference to the story 'Khyber-Pakhtunkhwa govt to wage jihad against illiteracy: Imran Khan' (Sept 10). I will try to explain the magnitude of the problem the education sector faces as I have been visiting government schools in the Swat district for a documentary. It is heartwrenching and pitiful. There are 600 students and only four teachers in the Government Girls Degree College Barikot and 200 students and only two teachers in the Girls Primary School Mera Mai. These are just a few examples and are reflective of the situation prevalent in the area. A humanitarian organisation has provided around 1,000 computers in 53 government schools but for the last two years, they have not even been switched on even once as there is no computer course in the district's curriculum. Talk to the teachers there and you will see that they feel that the whole system is resting on a flawed educational structure. The principal in most institutions is completely powerless. They cannot run the schools and hold teachers responsible for their poor performance. There are no teacher training programmes, in fact, as mentioned previously, there are no teachers at all. I can go on with stories of students working after school to provide for their homes and at the same time, holding on to their dreams of becoming engineers, doctors and teachers. I hope Imran Khan gets out of Peshawar and visits these schools to see what is happening in Khyber Pakhtunkhwa.

ALI ASHRAF Islamabad DAILY DAWN

A Word about PACADE

PACADE is a national NGO for Literacy and Continuing Education in Pakistan. It was established in 1984. It is a registered society and has its head office at Lahore with representation in Peshawar, Karachi, Quetta and Islamabad. It is affiliated with ASPBAE (Asia and Pacific Bureau of Adult Education) and ICAE (International Council of Adult Education). It is a member of LANGOS (Lahore Association of NGOs) and has been linked to CIVICUS (The World Alliance for Citizens).

PACADE has held a number of conferences, seminars and workshops for the promotion of adult and continuing education in Pakistan. Mention may in particular be made of the South Asian Conference held in 1987 on the subject of Continuing Education - Key to Effective Living. It has held meetings on law and the citizen, health, education, environment issues and networking. Seminars and workshops on literacy methodologies, functional literacy, community involvement, monitoring, post-literacy and joy of learning have also been held in Lahore, Peshawar, Karachi and Islamabad.

PACADE has made more than 6000 village women literate. It has run Female Literacy Centers in villages near Lahore primarily to test literacy methodologies. PACADE has been particularly keen to highlight and propagate the cause of Female Literacy. It also has had a programme for research on literacy and continuing education including a Journal published for a number of years, another magazine of and for newly literate women has also published a number of books. PACADE has of late been working in the field of Gender and has organized a number of workshops to sensitize elementary teachers in 36 districts of the Punjab. More such workshops are on the cards.

One of PACADE's major roles is to build strong professional links with the government, international organizations and NGOs for the promotion of EFA. In this connection it remains in touch with the central and provincial governments in Pakistan, National Commission for Human Development, Education Foundation, Universities and international agencies including UNESCO, UNDP, UNICEF, Asian Development Bank, and NGOs. As a partner organization with UNESCO, it has besides other tasks, helped prepare the national strategy for the Implementation of EFA National Plan of Action in Pakistan. Some of PACADE's significant contributions include helping organize Media Forums for EFA as well as the start of a Parliamentary Forum for Literacy. Mention may be made of The Literacy Forum consisting of leading literacy NGOs - an idea pioneered by PACADE and organizing the first ever National Literacy Review Roundtables in collaboration with UNESCO and NCHD. PACADE closely works with UNESCO and produces the UNESCO-PACADE Newsletter.

PACADE President was the first Chairman of the National Commission for Literacy and Mass Education. He also held the office of Federal Secretary and Ambassador. He has been involved with environment education and was invited by the World Bank (EDI) to participate in a number of environment related workshops in India and Nepal.

He has been actively participating in the UNESCO, ICAE, ASPBAE and CIVICUS conferences held in Beijing, Hamburg, Melbourne, Dacca, Buenos Aries, Cairo, Beirut, Delhi, Colombo, Bangkok and other places. He was invited to the UN World Conference of NGOs in New York where the proposals for the following UN Millennium Summit were formulated in the year 2000. In his capacity as a newspaper columnist, he has been writing for the promotion of literacy and education helping UNESCO Islamabad to involve the media and the parliamentarians in literacy. He has contributed more than two dozen articles on the state of literacy in Pakistan. He was chosen to write the Research paper on Adult Literacy in Asia and Pacific for the prestigious International Handbook (A publication of the Asia-Pacific Educational Research Association). He edited the first ever publication on Continuing Education in Pakistan.



A Teachers Training Class at PACADE Office

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