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## CONSULTATIVE WORKSHOP ON KEENJHAR LAKE

2 February, 2010 Karachi



Indus for All Programme, WWF - Pakistan  
in collaboration with the Livestock and Fisheries Department, Govt of Sindh



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## **1. Background & Overview**

If one imagines a lake with deep blue waters, it is Keenjhar Lake in district Thatta. It is the largest perennial freshwater lake in Pakistan with extensive reed-beds and blooming lotus, particularly in the shallow western and northern parts. Keenjhar Lake supports diverse flora and fauna, and is an important breeding, staging and wintering area for a wide variety of waterfowl. The lake is a wildlife sanctuary and a Ramsar site.

Keenjhar Lake is formed by the union of two lakes, namely Sonehri and Keenjhar, through the construction of a bund on their eastern side. Originally these lakes came into existence when the river Indus changed its course. The purpose of the bund was to enhance the storage capacity of the Lake. Rains fed torrents from the surrounding hills were also the source of water to Keenjhar Lake. The area had been an estuary of the Sakro branch of the Indus River for a long time. This is evident from the fossilised life scattered over the area, which has attracted the interest of palaeontologists and life scientists alike.

The socio-economic assessment 2007 conducted by the Indus for All Programme WWF- Pakistan indicated that the main source of livelihood for the people of Keenjhar is fishing, agriculture and livestock, but due to depletion of these resources, many people are switched over to stone mining and stone crushing. There are 39 villages around the Lake out of which 26 villages are small, 9 villages are medium and four large villages having population of 50,000.

Different clans living around the Lake include Bhambro, Dhaprani, Matchi, Hilaya, Gandhro, Brohi, Mirbhar, Dharas, Khaskheli, Barch, Jhako and Mallah. Common language spoken is Sindhi. Barahvi language is also spoken in a few localities. Majority of the population is Muslim. The Hindu community also exists in the area with main castes of Madhwari and Thawarani. The main casts/tribes present are Palari, Shora, Kapai, Gandara, Hilaya, Turk, Katiyar, Khaskheli and Sarki etc.

The Lake is endowed with a rich wealth of natural resources comprising mainly 55 species of fish, 263 species of aquatic and terrestrial plants, 51 species of birds and almost 98 species of large and small mammals. Surrounding areas of Keenjhar Lake provide ideal habitat for almost 23 species of reptiles and amphibians. The richness of fauna, flora, historical significance and the ancient culture makes this area unique. The fisheries resources have been the main source of livelihood for the dependant communities. Fish populations have declined in the lake in recent years, mainly due to non-observance of conservation measures; diversion of freshwater through the bypass canal during monsoon season when fish juveniles are abundant in river water; unsustainable exploitation; juvenile fishing; pollution; eutrophication and introduction of alien invasive species of fish and plants.

### **1.1 Pollution**

Like many other wetlands in Sindh, Keenjhar Lake's freshwater ecosystem is under threat due to increased industrial and domestic effluent discharge through the Kalri-Baghar Feeder (KB Feeder) canal which carries contaminants from Kotri urban and Industrial area. There are a number of industries in Kotri which dump their effluents into the KB Feeder — these chemicals combined with the sewage discharged by the town end up in Keenjhar Lake. From there, this water is then supplied to Karachi (900 cusecs per day) to Karachi) cosmopolitan for drinking purposes..

Seasonal streams (hill torrents) also carry untreated effluents from the Nooriabad Industrial Area and wash over pesticides from surrounding agricultural fields to the Lake. The varied types of pollution have led to eutrophication of the lake which is obvious from the excessive growth of heavy algal blooms on one hand and the excessive vegetation on the other.

Realising the ecological, social and economic significance of this important fresh water body and the nature of threats posed to its existence, the Indus for All Programme, WWF Pakistan is striving to promote sustainable natural resource use coupled with improved livelihoods of the local communities at Keenjhar Lake. Local communities have a role to play in increasing fish stocks, especially of commercially important species upon which their livelihoods depends such as Rohu/Dambro, Dhai, Thaila and Morakha. The Programme strives to address various anthropogenic threats including: the introduction of exotic species (such as Tilapia and hyacinth etc) that have had adverse impact on the lake's ecosystem and determined to address these through variety of interventions such as stocking of fish seed, balanced supply of freshwater and, improvement of water quality that has been affected by draining of industrial wastes in the lake over the past few years.

As discussed earlier, the main thrust of Indus for All Programme is to improve livelihoods of communities in priority areas for biodiversity conservation. These communities are faced with the issues of poverty and diminishing livelihood resources. In this regard, the Programme in consultation with communities has developed site specific Strategic Plans combining both Livelihood Development and Natural Resource Management Plans. These plans aim to improve the economic status of the beneficiary communities either through improving the management of natural resource, improving existing livelihoods, or providing alternatives and identifying and prioritizing target communities for the implementation of designed interventions. The Livelihood Plans are comprised of four key sectors including agriculture and livestock, fisheries, gender and cross-cutting themes. The Programme has started implementing the Livelihood Development Plans with the support of key stakeholders. Pollution is one of the key issues which is closely associated with the quality of water, fisheries and biodiversity. If the increasing pollution is not addressed on an urgent basis it is bound to affect the delicate balance of ecological and social fabric of the Keenjhar area. With this scenario in view, the Indus for All Programme in collaboration with key stakeholders has organised a seminar to discuss the pollution and management issues of Keenjhar Lake to find out ways to address these before it gets too late.

### ***1.2 Seminar objectives***

Following were the objectives of the seminar (see Annex 1 for the workshop's agenda)

- To identify types and sources of pollution.
- To suggest remedial measures with environmental perspective.
- To suggest appropriate ways and means of controlling pollution.
- To suggest mechanism for improved coordination between various organizations

## **2. Proceedings – Session-I**

The Indus for All Programme in collaboration with the Livestock & Fisheries Department, Government of Sindh organised a consultative workshop to mark International Wetlands Day. The workshop was attended by senior officials from the Sindh Government including the Secretary Fisheries and Livestock, Secretary Forests and Wildlife, Secretary Environment and a number of representatives from various government and non-government organisations. The workshop was presided over by the Additional Chief Secretary of the Planning and Development Department (P&DD), Government of Sindh.

### ***2.1 Opening Remarks***

After recitation from the Holy Quran, the workshop kicked off with opening remarks by Dr. Ghulam Akbar, Regional Director of WWF-Pakistan. He emphasised the fact that climate change is a reality for Pakistan. This is manifest given the current drought conditions prevalent in the country. Within the Indus Delta, as a site of specific geographical focus, the impacts of climate change are exacerbated by inadequate freshwater flows downstream of Kotri Barrage. Sufficient and sustainable flows are required in the Indus River system to sustain and protect the wetlands of Pakistan in general and those of Sindh, in particular. Of particular importance to the Karachi cosmopolitan is the Keenjhar Lake. Keenjhar Lake is sole source of drinking and domestic use water for Karachi as almost 95% water requirements are met from Keenjhar Lake. This lake is also a Ramsar Site and a Wildlife Sanctuary.

The primary function of the workshop was to deliberate on the management of Keenjhar Lake and to arrive at a consensus whereby various government and non-government agencies present at Keenjhar lake in one form or the other can effectively coordinate to address the growing environmental and economic problems. Dr. Ghulam Akbar concluded his remarks by saying that “one must not forget that Sindh being situated in the low riparian zone is subject to various environmental hazards emerging from water contamination. Wetlands of Sindh are entirely dependent on water flow of River Indus. Gradual decrease in river water particularly downstream Sukkur has posed grave threats because of increasing levels of pollutants from various sources. Realising gravity of this problem, there is a serious need that a Wetland Management Body should be established in Sindh to cater maintenance and upkeep of important wetlands. He added that at Keenjhar alone, there are almost a dozen government and non-government organisation are working but in isolation without any coordination. Hence, government needs to establish a coordination mechanism at Keenjhar not only to halt the wastage of resources due to duplication of efforts but also to mitigate complex environmental issues. Dr. Akbar also suggested that Karachi Water & Sewage Board is earning substantial revenue from water fee but this organisation is not contributing in the maintenance and rehabilitation of Keenjhar Lake.

### ***2.2 An overview of Keenjhar Lake: challenges and opportunities***

The session was followed by a presentation by Dr. Altaf Abro, the Coordinator of the Indus Ecoregion Programme. The title of his presentation was ‘An Overview of Keenjhar Lake’ whereby he highlighted the ecological, social and economic dimensions of Keenjhar Lake. He also discussed some of the dominant issues affecting the ecology and sustainability of Keenjhar Lake.

### ***2.3 Keenjhar Lake: causes of decline***

The Secretary Livestock and Fisheries, Dr. Laeeq Memon, followed with a presentation and discussed the causes of Keenjhar Lake’s decline. The presentation deliberated over the reasons for the rise in

water pollution in Keenjhar Lake. He went on to identify the people and specifically, the industries, responsible for dumping untreated effluents in Keenjhar Lake. He highlighted the inadequacy of the settling pools and treatment facilities in place and emphasised the principle of “the polluter should pay”. The Secretary Fisheries and Livestock also presented the possibility of constructing a filtration plant at Keenjhar Lake, which would help ameliorate the water pollution problem. He concluded his presentation and responded to some questions concerning nature of the filtration plant, its treatment facilities and the availability of resources for such plant.

#### ***2.4 Environment & Alternate Energy Department: A Perspective***

In his remarks, the Secretary Environment and Alternate Energy Department Mr. Mir Hussain Ali reiterated the importance of wetlands and particularly the significance of Keenjhar Lake as a site of ecological and economic importance, in addition to being an important tourism site. However, Keenjhar Lake suffers from lack of ownership and management, he said. Giving an example of this mismanagement, he pointed out that no coordinating focal point has been appointed for managing Keenjhar Lake. He spoke in detail about the problems associated with pollution at Keenjhar Lake.

Industrial estates are responsible for a great deal of the untreated industrial effluence that is carried to Keenjhar Lake through the KB Feeder. The Environment Department, Government of Sindh, has filed a case in the High Court to address these issues. The stakeholders have been called and reprimanded, however there have been no on-ground changes.

The Secretary Environment, while speaking on prospective management plan for Keenjhar Lake, stated clearly that a dedicated authority with the clear hierarchy is needed to address the issues of wetland management. The proposed authority would be answerable to the appropriate department. Referring to it as the ‘Wetland Management Authority’ he pointed out that it would require supportive legislation. He mentioned that the department of Environment and Alternate Energy has developed a PC-1 for the treatment plan at Kotri. There were a string of opportunities in the past to install a treatment facility under the PSDP allocated by the federal government. However, these opportunities have been missed.

Pinpointing polluting industries, the Secretary Environment and Alternate Energy said that a survey had been conducted by the Department. According to the survey only 29 industries are polluting agents, while the remainder are within parameters. The identified polluting industries will be tried before an Environmental Tribunal in the next 8-10 weeks.

Paradoxically, while concluding, the Secretary criticised the weakness of the Environmental Protection Agency, the agency responsible for organising the Environmental Tribunals. He stated that it lacks the capacity, the will and suffers from a range of organisational problems, which have all impacted its ability to enforce and implement environmental protection laws and regulations and monitor projects with potentially environmentally hazardous impacts. It is clear that changes need to be made within the organisation.

### **3. Proceedings – Session-II**

#### ***3.1 Findings: Study on Microbial and Toxic Contaminants on Human and Aquatic Life***

The Indus for All Programme Coordinator, Mr. Nasir Ali Panhwar, invited Dr. Shaikh Ejaz Rasool of the Microbiology Department at the Karachi University to present his findings on the water quality at Keenjhar Lake. Dr. Rasool described in detail the objectives and design of the study, in addition to the study process which was sponsored by the Scientific Committee of WWF-Pakistan. Conducted over a period of two years, the study compared the water quality at Keenjhar Lake and Haleji Lake. In particular, he described the chemical composition of the water at the two wetlands, the relative percentages of the different chemicals and the impact of a given quantity of chemical on human beings after consumption.

The presentation demonstrated that except for Iron, Copper and Arsenic all the other chemicals were within the parameters described by the World Health Organisation (WHO). However, he pointed out that both lakes carried excessive bacterial loads, which were significantly higher than the recommended load.

#### ***3.2 Discussion-I***

While discussing the results of the presentation, the (then) Additional Chief Secretary, Mr. Munawar Opel, P&DD asked the Programme's Coordinator Natural Resource Management, Mr. Rab Nawaz, about the Ramsar Convention. He also inquired as to how sites are classified and how many of these are in Sindh.

The Coordinator Natural Resources Management responded by providing a brief description of the Ramsar Convention. He explained that sites selected under the Ramsar Convention on the basis of ecosystem health and a variety of other indicators including its value as payment for environmental services. Once approved, the Ramsar site is notified by the government. In this instance, the Government of Sindh had notified Keenjhar Lake, among others, as a protected wetland under the Ramsar Convention. Furthermore, sites that are notified as Ramsar do not hold this designation in perpetuity. Rather the classification of a site is retained only on the basis of its sustainability and the ecological health of the wetland. If a wetland is deemed environmentally unhealthy then it will be stripped off from its Ramsar designation and will require de-notification. The loss of a Ramsar designation should be seen as a sign of mismanagement of a particular wetland, and should also be viewed as a question mark on the capacity of the state to maintain and protect valuable wetlands.

##### **3.2.1 Kotri Association of Trade & Industries: A Perspective**

Following this brief discussion, Mr. Tauqeer Tariq, member of the Kotri Association of Industries, sought to make a few comments on behalf of the Association to the forum. He stated firmly that members of the Association agree that the National Environmental Quality Standards (NEQS) should be met. He also stated that the Association and its members are in close contact with the Environment and Alternate Energy Department and are keeping track of units involved in dumping untreated industrial waste. Recently, a joint inspection of the Kotri site was organised. Members of the inspection team included representatives from the EPA, the DCO and members of the Kotri Association of Industries. The inspection team collected water samples for testing, which is being analysed.

An interesting point made by Mr. Tariq was the recognition of the fact that industrial estates too are committed to reducing industrial emissions and waste since this has a significant impact on their exports. He quoted that export is currently at 45% and declining, which he attributed to problematic social audits, Environmental Impact Assessments (EIA) and impact of polluted water on products. In order to improve export performance, the Association agreed that a combined treatment plant is essential. However a single independent industry cannot afford to install a treatment plant. The Association is willing to engage in a partnership with the Government of Sindh to address the issue of water contamination. In the interim, while the plans for a treatment are being discussed and a decision is being made, the Kotri industrial estates may pump an estimated 3 cusecs (25%) of waste water in a local baran nadi (stream) off the road from Thatta. High temperatures will evaporate the water at a fast rate thereby relieving some of the pressure off the settling ponds.

### **3.3 Discussion-II**

The plenary discussion following the expert presentations was moderated by Indus for All's Programme Coordinator but was led by Secretary Fisheries and Livestock. Dr. Memon launched the discussion by emphasising that the PC-1 developed by the Fisheries Department for the construction of a treatment plant should be examined by a technical expert. The proposed plant should meet the exact needs of the area in terms of pollution treatment. While the oxidation ponds were initially a good idea, he continued, they have not resolved the situation to any appreciable extent. In fact, their existence may have exacerbated the problem by concentrating the pollutants in a localised area. During the process of designing the PC-1 and researching how best to meet the needs of the area, the Fisheries department came across 'lake restoration technology' designed and installed by Pak-Oasis Technology. A possible partnership between the two is under discussion.

Mr. Fazal Nizamani, Senior Chief Water & Drainage, P&D Department, following the point made by the Secretary Fisheries and Livestock, added that any treatment plant would require an assessment of the polluting industries. Moreover, primary treatment at source is essential since that is where heavy metals should be segregated. He added weight to his argument by providing an example of the Rhine River system, which was rehabilitated using some of the same techniques. The organic and inorganic load should be separated at the source rather than at the point where the effluence is deposited.

Reverting to the issue of the treatment facility, Mr. P.S. Rajani Sr. Chief Environment of P&DD revealed that the Karachi Sewerage and Water Board proposed a PC-1 for a combined treatment plant. The proposal developed by Usmani and Company is under assessment. According to the proposal the plan will be divided into different sections to deal with the quantity and type of load being carried in for treatment.

Mr. Abdul Waheed Shaikh, who participated in the workshop as a representative of the Secretary Industries, discussed that the development of infrastructure at S.I.T.E and the support to industries was contingent on the clause that there would be no untreated dumping. However, this clause has been violated continually because of a lack of focus on the issue. He claimed that the initial development of the oxidation plant was done in consultation with Mehran University. However, a PC-1 for a combined treatment plant has also been prepared, which will be floated in the Planning and Development Department for review. Taking the initiative to explain the 'lake restoration technology' under discussion, Mr. Irshad Hussain, General Manager Pak-Oasis Technology, highlighted that the treatment of industrial waste, sewerage water and agricultural runoff was being conducted in

collaboration with a French company. With regard to the treatment facility at Keenjhar, there were two options. The first required a separation of sewerage and effluence at the source and the waste water combined subsequently. The second required the use of 'acti-flow' process of treating effluence in which effluence was treated immediately and was a more economically viable option. He went on to explain that the combined effluence is easier to treat once metals and biological loads are separated. Referring participants to the plant installed by the company at Burj Dubai, he claimed that approximately 40 million gallons of untreated waste water were treated daily and the plant itself was completed in 6 months. Looking ahead to other polluted wetlands, he claimed that there was a possibility of treating Manchar Lake and the proposal for this could be presented at a later stage.

Addressing the mechanics of a public-private partnership, the Regional Director Indus for All Programme asked Mr. Hussain the nature of the cost-sharing considering the expense of constructing a combined treatment plant. Mr. Hussain stated clearly, that government would have to subsidise or contribute financially in order to make a treatment plant viable. The more economically feasible option in this case would be point pollution treatment.

The General Manager (Research and Development) of the Sindh Irrigation and Development Authority (SIDA), Dr. Mumtaz Suhag also contributed to the discussion by adding another pollutant – silt and sediment in addition to the pollutants discussed during the plenary. He offered a solution by way of constructing a silt ejector where the water from the Kalri Baghar Feeder enters Keenjhar Lake. The Irrigation and Power Department in association with SIDA only manages four canals at Keenjhar Lake and has no focus on environmental issues. It is, therefore, essential that an environment wing is established within the irrigation and power department.

The Government of Sindh intends to work on this issue in a collaborative manner, was the point made by Mr. Khalid Shaikh, Director Public-Private Partnership Unit within the Finance Department. He added that a business plan regarding a treatment plant, provided its viability, would be supported by the Public-Private Partnership Unit.

Members of the Forum of Environmental Journalists Pakistan were also in attendance. A member of the forum affiliated with KTN News, Mr. Mohsin Babbar, asked a few questions, which while unrelated to the immediate discussion, were of interest to the participants. He asked for more information regarding the government's plan to abandon the Right Bank Outfall Drainage project (RBOD3) and instead install treatment plants upstream. More specifically, he expressed interest in whether any feasibility studies had been conducted prior to installing such expensive facilities. SIDA's General Manager responded that it would be both expensive and unsustainable to install a treatment plant for agricultural runoff. A better option would be to create treatment ponds and release the water during the monsoons. He clarified his position by stating that the real issue that required a solution was not agricultural runoff but rather increasing salinisation.

### **3.4 Concluding Remarks**

Concluding the plenary session, which would lead to the endorsement of recommendations proposed by the workshop, the (then) Additional Chief Secretary (Development) P&DD commented that a high power committee has been constituted by the federal government to address the protection of significant wetlands such as Chotiari Wetlands Complex, Keenjhar Lake, Manchar Lake and Haleji Lake, to name a few. Members of the committee included Chairman of Water and Power Development Authority (WAPDA), member WAPDA, Additional Chief Secretary (Development) P&DD, and Senior Chief P&DD among others. In addition to discussing the protection of wetlands, the committee would

also discuss the construction of small dams to address water shortage issues, promote environmental protection via legislation, and take stringent note of the implementation of remedial measures in light of environmental degradation, as well as support programs geared towards building the capacity of local populations. At present, there is a plan to establish 29 reverse osmosis units in Badin District and approximately 24 such units in District Thatta. A PC-1 has been forwarded to the federal government for approval.

Taking into consideration the comments by other participants, the Additional Chief Secretary supported the idea of creating a wetland management authority by the P&DD with other stakeholders. For the time being, however, the District Coordination Officer (DCO) Thatta would act as the coordinating officer to systematise efforts across various government departments and agencies to preserve Keenjhar and Haleji Lakes. He also floated the possibility of holding monthly review meetings with all stakeholders to assess the status and needs of these wetlands.

Capitalising on the momentum generated by the plenary discussion and the Additional Chief Secretary's encouraging remarks, the Regional Director Indus for All presented a series of recommendations for endorsement, which would serve as the management and needs based road-map of Keenjhar Lake. The recommendations endorsed by the workshop participants are listed on the following page.

#### **4. Recommendations**

The participants of the “Consultative Workshop on Keenjhar Lake” jointly organized by the Indus for All Programme-WWF Pakistan and Sindh Livestock & Fisheries Department recommended the following actions for implementation by the respective departments and non-governmental organisations:

1. Government of Sindh should notify Keenjhar Coordination Committee for the better management of Keenjhar Lake. Proposed Committee should comprise the following:
  - Secretary, Livestock & Fisheries Department
  - Secretary Irrigation & Power Department
  - Secretary, Environment & Alternate Energy Department
  - Secretary Industries Department
  - Conservator Sindh Wildlife Department
  - Public Private Partnership Unit, Finance Department
  - DCO Thatta
  - Kotri SITE Association
  - KWSB
  - WWF Pakistan
  - UNDP- GEF/ SGP
  - Friends of Indus Forum
2. The Government of Sindh should set up an endowment fund for the rehabilitation and up keep of Keenjhar Lake.
3. KWSB should contribute at least 1% income from water collection fee for the improvement of Keenjhar Lake.
4. Kotri SITE Association should also preferably contribute into endowment fund under Corporate Social Responsibility.
5. The Kotri SITE Association should install treatment plants for treatment of industrial effluent.
6. The Public-Private Partnership Unit should develop Keenjhar Resort in accordance with the rules and regulations of Wildlife Sanctuary that demands such construction at least three kilometers away (outside of buffer zone).
7. Install nets at the inlet and outlet of the Lake to stop the release of fish seed.

**Consultative Workshop on Keenjhar Lake  
2 February 2010  
Indus for All Programme and Livestock & Fisheries Department**

**Schedule**

<b>Time</b>	<b>Activity</b>	<b>By</b>
1000 – 1030	Arrival & registration of guest	
1030 – 1035	Recitation of verses from The Holy Qur'an	
1035 – 1040	Welcome remarks	Dr. Ghulam Akbar, Regional Director, WWF-Pakistan
1040 – 1050	An Overview of Keenjhar Lake (Challenges and Opportunities)	Dr. Altaf Abro, Manager WWF-P, Sindh Programme
1050 – 1100	Keenjhar Lake: Causes of Decline	Dr. Laiq Ahmed Memon, Secretary, Livestock & Fisheries Department
1100 – 1110	Presentation on "Findings of study on microbial & toxic contaminants on human & aquatic life"	Prof. Dr. Sheikh Ajaz Rasool Department of Microbiology, University of Karachi
1110 – 1125	Tea Break	
1125 – 1135	Perspective of Environment & Alternative Energy Department	Mr. Mir Hussain Ali, Secretary E&AE Department
1135 – 1145	Sindh Industries Departments' views	Mr. Ali Ahmad Lund, Secretary Industries Department
1145 – 1155	Role of District Government Thatta	Mr. Manzoor Ali Shaikh, DCO Thatta
1155 – 1205	Kotri Association of Trade & Industries' point of view	Representative of KATI
1205 – 1215	Interventions by UNDP – GEF Small Grants Programme	Mr. Masood Lohar, National Coordinator, UNDP-SGP
1215 – 1300	Q&A / Discussion by participants	
1300 – 1315	Recommendations/Call for Action	Dr. Ghulam Akbar, Regional Director, WWF-Pakistan
1315 – 1325	Concluding Remarks by Chair	
1325 – 1330	Vote of Thanks	Dr Ghulam Akbar, Regional Director, WWF Pakistan
Lunch		

**Annexure-II**

<b>S #</b>	<b>Name</b>	<b>Designation</b>	<b>Department</b>
01	Ms. Humera Shafique	Ph. D Scholar (Microbiology)	University of Karachi
02	Dr. Sh. Aijaz Rasool	Professor	University of Karachi
03	Tauqir Tariq	Chairman	KATI
04	Mohammad Jaffar	V. Chairman	KATI
05	Mushtaque Ali Memon	Secretary	Forest & Wildlife Dept.
06	Waheed Ahmed	Director General Fisheries	Livestock & Fisheries Dept.
07	Zahid Hussain Jalbani	Site Manager	WWF
08	Dr. Shahid Amjad	Professor	University of Karachi
09	Dr. Mumtaz Suhag	GM (R&D)	SIDA
10	Fazal Ahmed Nizamani	Senior Chief (W&D)	P&D Department
11	Javeed A. Abro	Assistant Director	PPP Unit Finance Dept.
12	P. S Rajani	Senior Chief (Envi)	P&D Department
13	Mir Hussain Ali	Secretary	Environment & Energy Dept.
14	Mazhar Manzoor	Manager	KATI
15	Ali Mohammad Palijo	Dy. Managing Director	KW&SB
16	Khalid M Sheikh	Director	PPP Unit Finance Dept.
17	Ghulam Mustafa	Director Fisheries Inland	Livestock & Fisheries Dept.
18	Irshad Hussain	GM Pak Oasis	Pak OASIS
19	Khahi Baloch	V. Chairman	KATI
20	G. N Mughal	Resident Editor	The Frontier Post
21	Mazhar Ali Shah	Additional Secretary	IP Department GoS
22	Dr. Bakhshal Lashari	Professor	MUET Jamshoro
23	Abdul Waheed	Chief Engineer	S.I.T.E
24	Saleem Sheikh	Reporter/ Associate Producer	Daily Dawn
25	Dr. Aijaz Ahmed	D. D. G	WWF
26	Zarghon Shah	Reporter	GEO
27	Faisal Raza Khan	Reporter	Dawn News
28	Mohsin Babbar	Journalist	KTN News
29	M. Aftab Zahoor	Journalist	Env. Journalist Forum
30	Sohail Khan	Staff Reporter	Daily Ausaf
31	Jamshed Bukhari	Reporter	Jang
32	Dr. Ghulam Akbar	Director	WWF
33.	Nasir Ali Panhwar	Program Coordinator	Indus for All Programme- WWF
34.	Dr Altaf Abro	Manager Conservation	WWF Sindh
35.	Rab Nawaz	NRM Coordinator	Indus for All Programme- WWF
36.	Zafar Khan	Manager Communications	Indus for All Programme- WWF
37.	Shahzadi Tunio	Programme Sociologist	Indus for All Programme- WWF
38.	Shahid Panhwar	Manager M&E	Indus for All Programme- WWF
39.	Khadija Zaheer	Manager Policy	Indus for All Programme- WWF
40.	Jamal Shoro	Policy Analyst	Indus for All Programme- WWF

### **Our Mission**

WWF - Pakistan aims to conserve nature and ecological processes by:

- Preserving genetic, species and ecosystem diversity
- Ensuring that the use of renewable natural resources is sustainable, both now and in the longer term
- Promoting actions to reduce pollution and the wasteful exploitation and consumption of resources and energy

### **Vision of the Indus Ecoregion Programme**

"Mankind coexists with nature in complete harmony and biodiversity flourishes in its respective habitat"

### **Indus For All Programme, WWF - Pakistan**

#### **Programme Management Unit (PMU)**

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### **Programme Implementation Units (PIU)**

#### **Chotiari Wetlands Complex**

House # 129/2, Housing Society,  
Near Government Boys High School,  
Nawabshah Road, District Sanghar, Sindh.  
Tel: 0235-542837, Fax: 0235-542791

#### **Keenjhar Lake**

House # B/112,  
Hashimabad Society Makli,  
District Thatta, Sindh.  
Tel: 0298-772318, 772319, 610426.

#### **Keti Bunder**

Keti Bunder Town, P.O. Keti Bunder  
via P.O. Mirpur Sakro,  
District Thatta, Sindh.  
Tel: 0298-607685, 620291

#### **Pai Forest**

House # A-3, M.U.C.E.T Employees  
Co-operative Housing Society,  
District Nawabshah, Sindh.  
Tel: 0244-366364, Fax: 0244-282496