

Report No. 30704

The Inspection Panel

Report and Recommendation

Pakistan: National Drainage Program Project
(Credit No. 2999-PAK)

November 17, 2004

ABBREVIATIONS AND ACRONYMS

| | |
|-------|---|
| ADB | Asian Development Bank |
| CBO | Community-Based Organization |
| DMP | Drainage Management Plan |
| DPOD | Dhoro Puran Outfall Drain |
| DSEA | Drainage Sector Environmental Assessment |
| EIA | Environmental Impact Assessment |
| EMMP | Environmental Management and Monitoring Plan |
| EMP | Environmental Management Plan |
| FLAR | Framework for Land Acquisition and Resettlement |
| FO | Farmer Organization |
| GoP | Government of Pakistan |
| GoS | Government of Sindh |
| IBIS | Indus Basin Irrigation System |
| IDA | International Development Association |
| IES | Initial Environmental Scoping |
| KPOD | Kadhan Pateji Outfall Drain |
| LBOD | Left Bank Outfall Drain |
| NDP | National Drainage Program Project |
| NGO | Non-Governmental Organization |
| NSDS | National Surface Drainage System |
| O&M | Operation and Maintenance |
| PoE | Panel of Experts |
| RAP | Resettlement Action Plan |
| RBOD | Right Bank Outfall Drain |
| RD | Reduced Distance |
| SAR | Staff Appraisal Report |
| SIDA | Sindh Irrigation and Drainage Authority |
| WAPDA | Water and Power Development Authority of Pakistan |
| WMP | Wetlands Management Plan |

The Inspection Panel
Report and Recommendation
On
Request for Inspection

PAKISTAN: National Drainage Program Project
(Credit No. 2999-PAK)

1. On September 10, 2004, the Inspection Panel received a Request for Inspection related to the Pakistan: National Drainage Program Project (the “Project”). The Request was submitted by Khadim Talpur, Mohammad Ali Shah, Mustafa Talpur, Munawar Hassan Memon, Iqbal Hyder, Mir Mohammad Buledi, and Najma Junejo on their own behalf and on behalf of “*others who live in the area known as district Badin, Sindh, Pakistan*” in the Indus River Basin.¹ On September 17, 2004, in accordance with the Resolution establishing the Inspection Panel (the “Resolution”),² the Panel notified the Executive Directors and the President of the International Development Association (IDA)³ that it had received the Request, which constituted Registration of the Request under the Panel’s *Operating Procedures*.⁴ The Panel received Bank Management’s Response to the Request on October 19, 2004 (the “Response”).⁵
2. As provided in paragraph 19 of the Resolution, the purpose of this Report is to determine the eligibility of the Requests and to make a recommendation to the Executive Directors as to whether the Panel should investigate the matters alleged in the Request.

A. The Project

3. The Request raises issues related to the Pakistan: National Drainage Program Project (NDP), in particular to the disposal of saline effluent and to the proposed construction of the National Surface Drainage System (NSDS), a northwards extension of the existing Left Bank Outfall Drain (LBOD) system in Sindh Province. The Bank states: “*A related issue for sustainability of the system is a long-term solution for disposal of drainage effluent outside the Indus Basin. The*

¹ The Request was received electronically. Prior to Registration, the Panel received a hard copy of the Request with over 2,000 original signatures.

² IDA Resolution No. 93-6, the Resolution Establishing the Inspection Panel (September 22, 1993).

³ For the purposes of this Report, the IDA is referred to as “the Bank.”

⁴ See The Inspection Panel, *Operating Procedures* (August 19, 1994), ¶17.

⁵ Bank Management Response to Request for Inspection, Pakistan: National Drainage Program Project (IDA Credit No. 2999-PAK) [hereinafter “Management Response”].

project would support the preparation of feasibility studies and detailed design for the Borrower's proposed NSDS which is intended to create a permanent disposal channel for drainage effluent via the LBOD into the Arabian Sea.”⁶

4. The National Drainage Program was launched in 1997 to address waterlogging and salinity, which are the principal threats to the sustainability of irrigated agriculture in Pakistan.⁷ Waterlogging is a phenomenon that can permanently afflict areas like wetlands, and it has economic (agricultural) and species distribution consequences. Waterlogging cuts off the oxygen supply to roots and inhibits the escape of gases, such as carbon dioxide, from the roots, which then accumulate in the soil and have a corresponding effect on the roots themselves. It may also increase risk of soil-borne fungal diseases, and in warmer climates near the sea, waterlogging can also produce increased salinity.⁸
5. The Indus Basin Irrigation System (IBIS) brought water to the basin but did not have an outlet to the sea to drain off surplus water.⁹ In other words, there was an extensive irrigation system, but no corresponding interconnected drainage network. Much of the drainage either stayed in the irrigation system itself or was disbursed into rivers and streams. The retention of surplus water caused the watertable to rise very close to the surface and to become heavily saline.¹⁰ In Sindh Province, it was estimated in 1997 that 56% of groundwater areas were moderately saline, 32.5% severely so.¹¹
6. On December 13, 1984, IDA approved a Credit of \$150 million for the LBOD Project, to address flooding and salinity problems. The central feature of the LBOD is the spinal drain, which connects the drainage network to the sea through a Tidal Link.¹² The LBOD spinal drain collects surplus drainage and distributes it through a weir to two branch drains, the Kadhan Pateji Outfall Drain (KPOD) and the Dhoro Puran Outfall Drain (DPOD). The spinal drain system was designed to direct the high salinity drainage into the KPOD and thence to the sea. The KPOD connects to the sea via a 26-mile long canal, referred to as the Tidal Link. By December 31, 1997, the closing date of the Project, some works were yet to be completed. The outstanding components were transferred to the NDP.

⁶ Staff Appraisal Report, No. 15310-PAK, dated September 25, 1997 (hereinafter “SAR”), ¶5.20.

⁷ Id, ¶1.8.

⁸ Jackson, Michael B., School of Biological Sciences, University of Bristol. “The Impact of Flooding Stress on Plants and Crops.” Available at http://www.plantstress.com/Articles/waterlogging_i/waterlog_i.htm. As stated by the International Commission on Irrigation and Drainage, “[i]n the hot and arid climate the capability rise of groundwater in areas with salty soils, carries the salts upward to the surface of the root zone. Evaporation of water leaves layers of salt at or close to surface affecting agricultural production.” International Commission on Irrigation and Drainage, *Irrigation & Drainage in the World – A Global Review*, p. 4. Available at http://www.icid.org/i_d_pakistan.pdf.

⁹ Pakistan Public Expenditure Management, Report No. 25665-PK, ¶2.5.

¹⁰ Jackson, Michael B., School of Biological Sciences, University of Bristol “The Impact of Flooding Stress on Plants and Crops,” ¶6. Available at http://www.plantstress.com/Articles/waterlogging_i/waterlog_i.htm.

¹¹ SAR, ¶1.8.

¹² Id, ¶2.5.

7. The NDP Project is partly financed under IDA Credit No. 2999-PAK. According to the Staff Appraisal Report (SAR), the objective of the Project is “*to implement the first phase of the Borrower’s and Province’s 25-year NDP which is designed to minimize saline drainable surplus, and facilitate the eventual evacuation of all saline drainable surplus from the Indus Basin to the Arabian Sea, and thereby restore environmentally-sound irrigated agriculture to Pakistan.*”¹³ The SAR describes the Project as “*a ‘high reward-high risk’ venture.*”¹⁴
8. The Project as described in the Development Credit Agreement includes; a) drainage and irrigation institutional reforms, b) drainage and irrigation research and sector planning, and c) drainage and irrigation infrastructure investment projects.¹⁵ The investment component, which is also described in Section 2, Part E of the SAR,¹⁶ includes the following sub-components: (i) off-farm drainage; (ii) on-farm drainage (only where Farmer Organizations (FOs) have been established and are willing to share the investment costs and responsibility for Operation and Maintenance (O&M) costs); (iii) rehabilitation and modernization of irrigation systems, focusing on saline groundwater areas where FOs have been established; and (iv) O&M of selected drainage and irrigation facilities through private sector performance contracts.¹⁷
9. The pipeline of investments includes completion of ongoing projects such as the LBOD and the Right Bank Outfall Drain (RBOD), construction, rehabilitation, and improvement of surface drains in five drainage circles in Punjab and two drainage circles in Sindh, and O&M performance contracts for five projects which includes the LBOD.¹⁸
10. The Project was assigned Environmental Category B based on the submission of a Drainage Sector Environmental Assessment (DSEA).¹⁹ According to the Bank no investment project would be included “*unless there is a disposal strategy for the drainage effluent.*”²⁰ Furthermore, the Bank obtained assurances from the Borrower that all investment projects would have an Initial Environmental Scoping (IES) and that full Environmental Impact Assessments (EIAs) would be prepared to IDA’s satisfaction for all those projects that the IES indicates have significant environmental impacts. “*Such projects would only be approved for funding under the project if their EIA indicates that the adverse environmental impacts would be substantially mitigated or avoided.*”²¹

¹³ Id, ¶2.1.

¹⁴ Id, ¶5.13.

¹⁵ Development Credit Agreement between the Islamic Republic of Pakistan and the International Development Association, December 16, 1997, Schedule 2 (hereinafter “Credit Agreement”).

¹⁶ SAR, ¶2.28.

¹⁷ Id, ¶2.28 – 2.33.

¹⁸ Id, ¶2.34.

¹⁹ Id, ¶4.16.

²⁰ Ibid.

²¹ Ibid.

11. The Project's Environmental Management Plan (EMP) includes design and implementation of a Wetlands Management Plan (WMP) which is to focus on critical wetland areas affected by the IBIS.²² This plan is to include mitigation measures to improve wetlands protection. Assurances were obtained that in constructing field drains, wetlands would be adequately protected.²³
12. The Bank obtained assurances that the Water and Power Development Authority of Pakistan (WAPDA) and the Provinces would carry out all land acquisition and involuntary displacement (and subsequent resettlement and rehabilitation) in accordance with an agreed Framework for Land Acquisition and Resettlement (FLAR).²⁴ The Bank required the submission of a land acquisition plan and Resettlement Action Plan (RAP) for all investment projects.²⁵ The FLAR estimated that about 9,500 acres of land would be required for the investment component.²⁶ In the SAR the Bank argues that the investment projects would reclaim around 22,430 acres of currently abandoned land, rehabilitate another estimated 162,850 acres, and provide drainage relief to over five million acres.²⁷
13. According to the Supervision Plan for the Project described in the SAR, "*IDA would decentralize an increasing proportion of its responsibility for supervision of the project to its Resident Mission in Pakistan and a World Bank Project Monitor.*"²⁸ The SAR includes a caveat that this assumes that Consultant Trust Funds are available to finance the costs of such supervisory services.²⁹ The SAR adds: "*The donors and the Borrower would jointly supervise the project. IDA supervision Missions would be held twice yearly in April and November.*"³⁰

B. Financing

14. On December 16, 1997, the International Development Association entered into a Development Credit Agreement with the Islamic Republic of Pakistan providing for a credit in an amount equivalent to SDR198,600,000³¹ for the Project. In addition to the Association's credit, the Project's financing structure includes a loan from the Asian Development Bank (ADB) and a loan from the Japan Bank for International Cooperation. According to the SAR the breakdown of the Project's financing is as follows:

²² Id, ¶4.18.

²³ Id, ¶4.19.

²⁴ Id, ¶4.15.

²⁵ Ibid.

²⁶ Ibid.

²⁷ Ibid.

²⁸ Id, ¶4.10.

²⁹ Id, FN43, p.33.

³⁰ Id, ¶4.10.

³¹ SDRs are Special Drawing Rights; SDR198,600,000 is equivalent to about US\$ 285 million.

Financing Plan
(US\$ Million)³²

| Financier | Type of Expenditure | | Total | |
|--|---------------------|---------|--------|-------|
| | Local | Foreign | Amount | % |
| Borrower and Provinces | 208.1 ³⁴ | 19.8 | 227.9 | 29.0 |
| Farmers through Farmers' Organizations | 19.5 | 12.6 | 32.1 | 4.1 |
| Asian Development Bank | 84.5 | 55.5 | 140.0 | 17.9 |
| Overseas Economic Cooperation Fund ³³ | 56.6 | 43.4 | 100.0 | 12.7 |
| International Development Association | 198.0 | 87.0 | 285.0 | 36.3 |
| Total | 566.7 | 218.3 | 785.0 | 100.0 |

Source: Staff Appraisal Report

15. The Bank approved the Project on November 4, 1997. According to the legal agreement the Project was expected to be completed by June 30, 2004.³⁵ The current closing date of the credit is December 31, 2004.

C. The Request

16. The Requesters state: *"We have suffered, or are likely to suffer, harm as a result of the World Bank's failures in the National Drainage Program Project (NDP) credit no 2999-PK, being implemented in [the] Indus Basin Irrigation System in Pakistan (...)"*³⁶ They add: *"The implementation of [the] NDP as envisaged in [the] Staff Appraisal Report, mid term review and other World Bank documents will likely cause a [sic] serious adverse impacts on our livelihood and environment on which we depend."*³⁷ They argue that there are *"several thousand people who entirely depend on local Dhands/fishing, grazing, and agriculture."*³⁸

Involuntary Resettlement and Loss of Livelihood

17. The Requesters claim that the saline effluent coming down the drainage system will cause large-scale flooding which will force them to leave their ancestral villages. They claim that such displacement *"is even not considered in project documents even though it will occur due to the consequences of [the] project outcome."*³⁹ The Requesters claim that *"[the] faulty disposal system through [the] tidal link will increase the pressure of backwater flow during the high tide*

³² SAR, p.21.

³³ The Overseas Economic Cooperation Fund (OECF) was established on March 16, 1961, to promote Japan's overseas economic cooperation by providing concessional funds for industrial development and economic stability of developing countries. On October 1, 1999, OECF merged with the Export-Import Bank of Japan (JEXIM) to form the Japan Bank for International Cooperation (JBIC).

³⁴ Includes taxes and duties (US\$103.3 million).

³⁵ Credit Agreement, Schedule 2.

³⁶ Request for Inspection (hereinafter "Request"), ¶2, p.1.

³⁷ Id, ¶12.

³⁸ Id, ¶19. *Dhand* is a Sindhi word for a shallow lake, depression, or wetland.

³⁹ Ibid.

timings.”⁴⁰ They state that since the LBOD system began operating, the clash between the downstream saline effluent flow and the incoming high tide water has caused the KPOD to overflow and inundate the surrounding agricultural land and villages. “[T]he World Bank and ADB planned another mega drainage project to connect the existing faulty disposal system of LBOD to further upstream in order to evacuate more effluents. We believe that in case of the NDP the historical custodian[s] and local communities of [the] coastal belt will be entirely wiped out due to this policy decision.”⁴¹

18. The Requesters further claim that a remodeling of the spinal drain, the KPOD, and the DPOD will be necessary to handle the extra saline effluent; that such expansion of the drains will require the acquisition of several thousand acres of land; and that the Requesters will be left with “meager resources for livelihood(...)[i]n addition to land there are several villages, which will be displaced in broadening the cross sections of [the] drains.”⁴²
19. The Requesters express the fear that their land will be acquired under the Land Acquisition Act of 1894 for the expansion of the KPOD without proper compensation and resettlement and in violation of Bank policy.⁴³ They claim that the FLAR is “quite vague and does not mention the location and quantity of land required.”⁴⁴ Nor, they state, does it give any time frame for compensation to be paid or credible economic rehabilitation of affected persons to be achieved.⁴⁵

Environmental Assessment

20. The Requesters claim that the design of the NDP Project is faulty and unsustainable because it has not taken into account the social and environmental difficulties inherent in the existing disposal route, and because it did not explore possible alternative routes.⁴⁶ They state that they have raised objections to the feasibility and sustainability of the Project, but that “[i]mplementing agencies, financiers including the World Bank, and the project consultants never listened to us.”⁴⁷
21. They further claim that the environmental assessment for the Project has ignored or underestimated items on the checklist for Bank-financed projects.⁴⁸ They contend that “[t]he effect of [the] NDP on marine resources, bio-diversity including local coastal plants, animal[s], critical habitats and protected areas will be entirely negative. The NDP has under-estimated all these critical

⁴⁰ Id, ¶21.

⁴¹ Id, ¶13.

⁴² Id, ¶20.

⁴³ Id, ¶22.

⁴⁴ Ibid.

⁴⁵ Ibid.

⁴⁶ Id, ¶14.

⁴⁷ Ibid.

⁴⁸ Id, ¶33.

components during planning. We believe that we will lose several fish species and other marine bio-diversity due to toxic effluents; also there is [a] threat to terrestrial plants. The economic costs of these bio-diversity and environmental impacts have also been completely ignored.”⁴⁹

22. The Requesters also claim that the Bank, by accepting the DSEA, violated its environmental assessment policy because the DSEA focuses only on general environmental issues of Pakistan’s drainage sector and does not deal with issues such as coastal ecology, safe disposal of saline effluent into the Arabian Sea, and protection of wetlands.⁵⁰ In addition, the Requesters state that the DSEA, prepared originally in the early 1990s, was not updated during consideration of the NDP loan in 1997, and that it “*also lacks public legitimacy because no civil society groups or affected people were consulted during the prepared [sic] of the study.*”⁵¹
23. The Requesters also claim that although the Bank’s Environmental Assessment policy clearly requires an EMP, “*after the lapse of six years there is no such EMP.*”⁵² They claim that in spite of the DSEA proposing a Wetlands Management Plan and a program of monitoring and audit, “*nothing has materialized in this regard.*”⁵³ They claim they are suffering harm because of the lack of an EMP. “*Due to these [sic] delay in the implementation of EMP of LBOD and non-formulation of EMP of NDP, we are bearing the cost of environmental degradation including reduced fish catch, loss of agriculture land and forest, loss of grazing land and degradation of Wetlands. Consequently the combined effect of all these factors is impoverishing us.*”⁵⁴

Natural Habitat

24. The Requesters state that the wetlands affected by the Project are an important natural habitat, because they are part of a migratory route for waterfowl and of nesting grounds for “*a large number of locally and globally important bird species, including some endangered species such as the Dalmatian Pelican. Two species of marine turtles inhabit the area, including [the] green turtle and the loggerhead turtle.*”⁵⁵ The Requesters claim that the wetlands, channels, and creeks “*are also a productive fishery source including several species of commercially valuable shrimp, prawns, and crabs.*”⁵⁶ The interconnected lakes known as *dhands* are the source of livelihood for forty villages of fishermen with a combined population of 12,000 to 15,000.

⁴⁹ Ibid.

⁵⁰ Id, ¶34.

⁵¹ Id, ¶35.

⁵² Id, ¶37.

⁵³ Ibid.

⁵⁴ Ibid.

⁵⁵ Id, ¶38.

⁵⁶ Ibid.

25. The Requesters assert that two of these *dhands* – the Narreri lagoon and the Jubho lagoon – are internationally recognized sites under the Ramsar Convention on Wetlands of International Importance especially as a Waterfowl Habitat⁵⁷ “because of their significance for migratory birds and other biodiversity and ecosystem values.”⁵⁸ They state that Pakistan is a party to the Ramsar Convention⁵⁹ and that the Bank is “not supposed to provide support to projects that would contravene a government’s requirements under international environmental treaties and agreements.”⁶⁰ They argue that the Project is in violation of Operational Manual Statement 2.36⁶¹ and claim that the linking of the KPOD with Shah Samado creek through the Tidal Link that was passing through these *dhands* was “entirely unsound.”⁶² This is because the construction of the Tidal Link prevented the water from the Rann of Kutch during wet years from entering the *dhands*. This decreasing water flow has reduced the areas of the *dhands*.

26. The Requesters claim that the degradation of these wetlands has already caused severe damage to the ecosystem, habitat, and fish catch.⁶³ They believe that if the NDP Project is implemented according to its present design – and if there is an inter-provincial drainage accord and more trunk drains are connected to the spinal drain of the LBOD – the *dhands* “will be the story of past and people earning their livelihood will be forcibly migrated. This will be yet another example of involuntary displacement of people that is ignored by the official documents of both government and donors.”⁶⁴

Indigenous People

27. The Requesters claim that people from the *Mallah* tribe of the coastal belt in certain villages close to the KPOD are adversely affected by the Project. Already, according to the Requesters, the existing faulty operation of the LBOD lead to the inundation of the *Mallah* villages, causing loss of livelihood and life.⁶⁵ The reduced area of the *dhands* and impaired water quality in them has affected the fish catch on which the *Mallah* communities depend for income and sustenance.⁶⁶ The Requesters assert that the Project “has not taken into account the poverty and impoverishment of the indigenous people (...). We believe that [the] proposed NDP investment will pose [a] serious threat to the lives, livelihood and rights to

⁵⁷ Ramsar Convention on Wetlands of International Importance Especially as a Waterfowl Habitat, February 2, 1971 [hereinafter “Ramsar Convention”]; available at www.ramsar.org.

⁵⁸ Request, ¶40.

⁵⁹ Pakistan ratified the Ramsar Convention on November 23, 1976.

⁶⁰ *Ibid.*

⁶¹ Request, ¶40.

⁶² *Id.*, ¶42.

⁶³ *Id.*, ¶46.

⁶⁴ *Id.*, ¶48.

⁶⁵ *Id.*, ¶50.

⁶⁶ *Id.*, ¶51.

development and culture of indigenous groups guaranteed under several international covenants.”⁶⁷

Loss of Cultural Property and Historical Monuments

28. The Requesters state that the districts of Thatta and Badin have long been a rich cultural location. They claim that “[t]he few and very important cultural [sites] in Badin which are being badly affected by KPOD and Tidal link canal include the monuments of saint Shaikh Kirhiyo Bhandari, the historical site of Roopa Mari and thari, these both sites were the important town of the dynasty of Soomra ruler in Sindh (1051 to 1351).”⁶⁸ They also declare that “the existing monuments of saints and formers rulers are quite important cultural sites.”⁶⁹ The Requesters allege that the KPOD is passing through the identified 4 km area of Roopa Mari, which was the capital of the Soomra rulers and where “[the] tomb of Dodo Soomro the last ruler of Soomra dynasty is also located.”⁷⁰ They also allege that these sites are all “in the range of KPOD and Tidal Link” and that “floods have hit these places twice in five years and there is eminent [sic] threat that [they] will lose [their] history and culture.”⁷¹ The Requesters further allege that the KPOD has “already occupied some of the area of cultural and historical importance and in case of expansion of KPOD, the remaining areas and monuments will be entirely vanished.”⁷²

Community Participation and Information Disclosure

29. The Requesters claim that the local communities and affected people of the coastal belt “have been kept entirely unaware about the plans of NDP and its environmental assessments.”⁷³ The Requesters consider that there “remains a serious lack of institutionalized mechanisms for information sharing and consultation with the affected people. The project planning process remained the business of few bureaucrats and donors and project implementation remained non-transparent and hence failed to obtain informed consent since the outset.”⁷⁴ They state that they “were entirely unaware regarding NDP until the rains of 2003,” when they were informed “that more effluents [sic] would be added in existing LBOD system.”⁷⁵ The Requesters further state that “[t]he participation of the affected people and local communities in any process of the project from planning to implementation is negligible.”⁷⁶

⁶⁷ Id, ¶52.

⁶⁸ Id, ¶53.

⁶⁹ Ibid.

⁷⁰ Id, ¶54.

⁷¹ Ibid.

⁷² Ibid.

⁷³ Id, ¶55.

⁷⁴ Ibid.

⁷⁵ Ibid.

⁷⁶ Ibid.

30. Requesters allege that local people and organizations have raised the issue with “WAPDA officials, consultants and visiting mission members from time to time (...). But both donors and government officials remained silent and nothing practically has been done to adequately respond to these concerns or to satisfactorily resolve the issues.”⁷⁷ They also state that they “expedited [their] efforts and communication with government officials and World Bank after the monsoon rains of 2003.”⁷⁸ The Requesters also refer to a letter, annexed to the Request, they sent to the World Bank Islamabad office on September 9, 2003, and another on September 11, 2003, concerning “the failure of drainage system in Badin and losses to human life and livelihood resources,”⁷⁹ stating that they received no response.
31. The Requesters state that on September 17, 2003, the affected communities organized a protest march in Badin demanding reparation for harm suffered because of the LBOD and cancellation of the Loan for the NDP Project, and that “[t]he detailed report of protest march again was communicated to Bank officials in Islamabad (...) and widely published in local and national media.”⁸⁰ They state that on December 28, 2003, they organized a protest rally in Karachi, and “the issue of drainage system failure and NDP was highlighted.”⁸¹ They also state that, on May 01, 2004, the affected coastal communities and local nongovernmental organizations (NGOs) organized a widely reported protest in the town of Badin to voice their concerns about the Project and “demanded reparation of LBOD, repair of LBOD breaches and cancellation of NDP loan.”⁸² The Requesters further state that on March 15, 2004, ten people including an eleven year old girl and two women from the Save Coast Action Committee “observed seven hours token hunger strike in front of World Bank Islamabad office to record their protest on National Drainage Program and losses occurred due to Left Bank Outfall Drainage.”⁸³
32. The Requesters allege that on December 24, 2003, they had a meeting with the Managing Director of the Sindh Irrigation and Drainage Authority (SIDA) “to communicate the viewpoint of local communities and civil society regarding the failure of LBOD and incoming issue of NDP” and that he “was quite agreeing with the reservation made by communities on extension of NDP.”⁸⁴ They also allege that further meetings with a WAPDA Chief Engineer on December 27, 2003, did not result in “any satisfactory answer.”⁸⁵ During the same month they allegedly tried to meet with staff at the World Bank Islamabad office, who “declined to meet and suggested to meet with WAPDA and other implementing

⁷⁷ Id, ¶56.

⁷⁸ Id, ¶57.

⁷⁹ Ibid.

⁸⁰ Id, ¶58.

⁸¹ Id, ¶61.

⁸² Id, ¶73.

⁸³ Id, ¶71.

⁸⁴ Id, ¶59.

⁸⁵ Id, ¶60.

agencies instead,” and also denied the Requesters access to “NDP related documents especially environmental management plan.”⁸⁶

33. The Requesters also enumerate a list of letters that were sent from several local organizations and groupings between September 2003 and May 2004 to express their concerns about the Project. The letters were allegedly sent to Federal and Provincial Government officials, World Bank officials in Islamabad and Washington DC, the Asian Development Bank, civil society groups, and the press.⁸⁷ The Requesters further state that in December, 2003 ActionAid Pakistan published its research on the “*disastrous effects of LBOD and future risks of NDP,*” which was “*widely circulated and also sent to World Bank and Asian Development Bank Islamabad offices.*”⁸⁸
34. The Requesters declare that they have raised the matters of their complaint with the Bank⁸⁹ and attempted to discuss their concerns. “*We expedited our efforts and communications with government officials and World Bank after the monsoon rains of 2003 when the proposed outfall drains brought death and widespread destruction to our communities. In the reporting of failure of drainage system Mustafa Talpur of ActionAid sent an email to several organizations including Mr. Usman Qamar of World Bank Islamabad office on September 9, 2003. The above message outlined the failure of drainage system in Badin and losses to human life and livelihood resources. Another email was sent on September 11, 2003 to World Bank officials in Islamabad. (Annex 2). No response was received.*”⁹⁰
35. In its Notice of Registration, the Panel noted that the above claims may constitute violations by the Bank of various provisions of the following operational Policies and Procedures:

| | |
|-----------|---------------------------------|
| OD 4.01 | Environmental Assessment |
| OP 4.04 | Natural Habitats |
| OD 4.20 | Indigenous People |
| OD 4.30 | Involuntary Resettlement |
| OPN 11.03 | Management of Cultural Property |
| BP 17.50 | Disclosure of Information |

D. Management Response

36. The Management Response begins by noting that many of the issues in the Request relate to the prior LBOD Stage 1 project, which closed in 1997, and asserts that the NDP will not extend the LBOD Spinal Drain any further north.⁹¹

⁸⁶ Id, ¶63.

⁸⁷ Id, ¶64 - 75.

⁸⁸ Id, ¶62.

⁸⁹ Id, ¶4, p.2.

⁹⁰ Id, ¶57.

⁹¹ Management Response, ¶6 (hereinafter “Management Response”).

Management states that the NDP Project was originally the product of a new strategy for Pakistan's water resources conceived between the Government of Pakistan (GoP) and IDA in 1994 and driven by concern over the deterioration of the drainage infrastructure and the environmental status of the Indus Basin Irrigation System.⁹² In particular, it was thought that the lack of an effective drainage system was a threat to the sustainability of agriculture in the Basin. IDA in 1992 had ceased all lending to the drainage sector pending agreement on a new strategy.⁹³

37. The NDP Project's IDA Credit 2999-PAK (US\$285 million) was approved by the Board on November 4, 1997.⁹⁴ The total estimated cost of US\$785 million was funded by several donors;⁹⁵ IDA was financing institutional reforms, a part of the investment component in all Provinces (Punjab, Sindh, Northwest Frontier, and Balochistan), all sector planning and research, technical assistance, and supervision.⁹⁶ Management states that the Project was "*deliberately 'frontloaded' with an institutional and policy reform agenda and 'backloaded' with an investment program*"⁹⁷ in order to focus on strengthening governance and transparency in the irrigation and drainage sector. Management states that "[t]he major risks emanated from the possible impact of the project on existing power relationships and alliances in rural Pakistan, as was evidenced by the strong opposition of feudal interests and parts of the irrigation bureaucracy; such opposition included thwarting civil works, damaging infrastructure and illegally removing water, and discouraging farmers from paying water charges."⁹⁸
38. Management acknowledges that implementation of the Project has proceeded more slowly than expected "*due to various reasons, including project complexity, poor coordination and leadership; an absence of reform 'champions' and, therefore, lack of commitment to, and slow launch of, institutional reforms; a lengthy subproject identification and preparation process; and lack of agreement on a drainage strategy.*"⁹⁹
39. During 2001 – 2002 a pre-feasibility study of a National Surface Drainage System (NSDS) was done, which envisaged a major drain some 1,464 kilometers in length to carry drainage effluent from Punjab to the sea.¹⁰⁰ The Bank fielded a Panel of Experts (PoE) who reviewed the study and recommended deferring the NSDS unless alternative measures proved inadequate. Such alternative measures included institutional and policy reforms, more efficient irrigation management,

⁹² Id, ¶7.

⁹³ Ibid.

⁹⁴ Id, ¶8.

⁹⁵ Id, ¶9.

⁹⁶ Id, ¶13.

⁹⁷ Id, ¶11.

⁹⁸ Ibid.

⁹⁹ Id, ¶16.

¹⁰⁰ Id, ¶21.

local stakeholder participation and local disposal solutions. The Bank and the GoP endorsed these recommendations.¹⁰¹

40. Regarding the LBOD, Management states that construction of a spinal drainage system to dispose of excess water was begun in the 1960s to address the Indus Basin's drainage problems.¹⁰² The total scheme involved a spinal drain, remodeling of the KPOD and the DPOD, and a 26-mile Tidal Link canal connecting the KPOD to an active tidal creek. A 1989 EIA brought forth concerns that the Tidal Link could have serious ecological impacts on the *dhands*.¹⁰³ Hence, the northern side of the Tidal Link was raised and a concrete weir built to protect local ecology by preventing over-drainage of the *dhands* at low tide.¹⁰⁴ Management states that in discussing the LBOD Environmental Management and Monitoring Plan (EMMP), "*the lack of a complete baseline and continuing, systematic, scientific and well coordinated monitoring and study of the [Tidal Link] area remain critical issues.*"¹⁰⁵
41. In discussing the status of the Tidal Link, Management states that almost as soon as it began operating, it experienced problems, including significant erosion, scouring, and the collapse of a 250 foot section of the weir.¹⁰⁶ All attempts to close the breached weir failed due to monsoon weather and inaccessibility of the site. Then in May, 1999 a catastrophic cyclone hit the area causing severe damage, including near total destruction of the Cholri Weir and further breaches of the Tidal Link embankment. Management points out that the lower Badin area "*is characterized by severe poverty and harsh living conditions*"¹⁰⁷ and acknowledges disruptions to livelihoods from the severe weather events. Management maintains, however, that "*it cannot be presumed that these disruptions are attributable directly to the damage to the Tidal Link and failure of the Cholri Weir.*"¹⁰⁸
42. Management states that the original intent of frontloading the NDP Project was not realized, and that the NSDS and Drainage Management Plan (DMP) studies were only initiated halfway through project implementation instead of earlier when they might have provided the chance for finding local drainage effluent disposal solutions.
43. Management assigned the NDP Project to EA Category B, rather than A, under OD 4.01. According to Management the rationale was that "*a primary objective was to address environmental issues associated with irrigation,*"¹⁰⁹ and that

¹⁰¹ Id, ¶22.

¹⁰² Id, ¶27.

¹⁰³ Id, ¶30.

¹⁰⁴ Ibid.

¹⁰⁵ Id, ¶32.

¹⁰⁶ Id, ¶34.

¹⁰⁷ Id, ¶38.

¹⁰⁸ Ibid.

¹⁰⁹ Id, ¶40.

significant environmental benefits were anticipated. Management notes that “[s]uch categorization appears to have reflected a premature (pre-EIA) balancing of possible adverse effects with positive effects, and a focus on individual infrastructure activities, without regard to their potential cumulative effects.”¹¹⁰ Management adds that it acknowledges “that it would have been more appropriate to categorize this as an EA category ‘A’ project.”¹¹¹

44. Management states that it believes the Project is in compliance with many of the requirements for OD 4.01 (Environmental Assessment), including preparation of a sectoral EA and requirements for screening subprojects.¹¹² However, Management acknowledges that no report on ex-post sampling of ongoing work has yet been prepared to ensure compliance with covenants on screening, nor has the EMP as required by the Project Agreement been implemented. Consultations conducted in the course of producing the DSEA “appear to have been few, particularly with affected groups.”¹¹³ According to Management the Project also failed to comply with the disclosure requirements for BP 17.50 (Disclosure of Operational Information) “since the DSEA was not disclosed prior to appraisal at the Infoshop and no records of disclosure in country could be located.”¹¹⁴ Management states that OP 4.04 (Natural Habitats), OD 4.20 (Indigenous Peoples), and OPN 11.03 (Cultural Property) were not applicable to the Project.¹¹⁵ It adds that because agreement with the GoP over the FLAR could not be reached, IDA did not finance any subprojects involving resettlement and therefore OD 4.30 (Involuntary Resettlement) did not apply.
45. Management states that the Bank will now take three specific actions regarding the Project: (1) assemble a PoE to review ecological, hydrological, and water quality monitoring data in the LBOD outfall area and propose a course of action; (2) conduct a diagnostic study of livelihood improvements in the area to determine the losses suffered and formulate an assistance program; (3) assist the GoP with a Country Water Resources Assistance Strategy and a Strategic Country Environmental Assessment.¹¹⁶

Environmental Assessment

46. The first set of issues analyzed in Annex 1 of the Response relates to the Requesters’ allegations concerning inadequate environmental assessment and compliance with OD 4.01 (Environmental Assessment).¹¹⁷ In response to the Requesters’ claim that the DSEA accepted by the Bank was incomplete and vague, and did not cover coastal ecology issues and wetlands degradation,

¹¹⁰ Id, ¶41.

¹¹¹ Ibid.

¹¹² Id, ¶43.

¹¹³ Ibid.

¹¹⁴ Ibid.

¹¹⁵ Id, ¶44.

¹¹⁶ Id, ¶45.

¹¹⁷ Request ¶34.

Management states that the DSEA in Volume III included studies of ecological issues in lower Sindh; that further safeguards were built into the Project's design;¹¹⁸ and that the 1989 EIA for the LBOD addressed the coastal zone issues referred to in the Request.

47. Regarding the classification of the Project as EA Category B, Management states that category "A" would have been more appropriate for the Project.¹¹⁹ As for the claim that the DSEA was not updated during consideration of the NDP loan in 1997,¹²⁰ Management responds that the DSEA was accepted by IDA as a sectoral EIA for the Project; that it was not updated because "*the primary focus of the NDP Project was sector reform and safeguards for each subproject were built into project design.*"¹²¹ There were 38 such subprojects identified in Sindh Province. Management states that initial environmental scoping was carried out for the subprojects that were actually implemented in Sindh.¹²²
48. Concerning the claim that the design of the NDP has entirely ignored exploring alternatives to the existing disposal route,¹²³ Management states that "*preparation work for the NDP project, as well as the studies supported during its implementation, sought to consider all reasonable alternatives for disposal of Indus Basin drainage effluent.*"¹²⁴ According to Management, the DSEA in Chapter 5 of the Main Report considered five alternative methods of disposal, reuse, or recycling.
49. Regarding the Requesters' claim that there is no Environmental Management Plan for the Project and no Wetlands Management Plan as envisaged in the DSEA,¹²⁵ Management responds that the design of the NDP Project included preparation of an EMP, and that a Water Sector EMP-Framework for Action was developed under the Project in February, 2002, with the detailed design for it under preparation.¹²⁶ According to Management, "[t]he Water Sector Framework also outlined a basin-wide Wetland Conservation Strategy. Development of a comprehensive Wetland Management Plan is called for."¹²⁷
50. The Requesters' claim that the extension of the existing LBOD system and construction of the NSDS poses a serious threat because of a failure to consider environmental issues at the disposal point.¹²⁸ Management responds that the NSDS pre-feasibility study, begun in late January, 2001, examined a so-called

¹¹⁸ Management Response, Annex 1, Item 1, p.17.

¹¹⁹ Id, Annex 1, Item 2, p.17.

¹²⁰ Request, ¶35.

¹²¹ Management Response, Annex 1, Item 3, p.18.

¹²² Ibid.

¹²³ Request ¶14.

¹²⁴ Management Response, Annex 1, Item 4, p.18.

¹²⁵ Request ¶37.

¹²⁶ Management Response, Annex 1, Item 5, p.19.

¹²⁷ Ibid.

¹²⁸ Id, Annex 1, Items 6, 7, p.20.

“*drainage superhighway*,” a concept rejected by the Bank’s PoE in April, 2003. Again, in September, 2004, a PoE for the Drainage Management Plan (DMP) confirmed that the drainage superhighway concept was not feasible.¹²⁹ Management states that “[t]here are no plans under the NDP project to extend the LBOD. The NDP project has not financed any expansion of the area drained into [the] LBOD.”¹³⁰ Management adds that “[t]he incremental drainage resulting from the tubewells installed under the ADB-financed components of the NDP project is controlled so that the tubewells do not operate during storm events, and therefore do not increase the peak flood flows that must pass through LBOD.”¹³¹ Management states that the GoP has accepted the recommendations of the PoE regarding the superhighway concept.¹³²

51. Regarding the Requesters’ claims about land loss and salinity, in particular about encroachment by the sea after the collapse of the Tidal Link and the Cholri Weir,¹³³ Management responds that a Bank fact-finding mission in 2001 concurred with the Government of Sindh (GoS) that the damage to the Tidal Link and the Cholri Weir was beyond repair.¹³⁴ According to Management, the mission also found that the Tidal Link was continuing to function well, but observed that salinity in the Link had increased because the more saline waters of the Rann of Kutch and the *dhands* were mingling with the Link waters. Management states that the salinity of the *dhands* “has probably changed as a consequence of the damage [from the cyclones],”¹³⁵ but that data collection along the Link will help improve understanding of the problem. Management adds that “*drainage effluents alone would not be the cause of increased salinity, if it has occurred.*”¹³⁶
52. The Requesters also claimed that the proposed drainage network will badly affect an already degraded environment in the Indus Delta because there is no fresh water available to add to the Delta and because the drainage effluent contains both saline water and toxic residues of pesticides, fertilizer, and industrial waste.¹³⁷ Management responds that “*the NDP project is being implemented in a manner that does not add to or exacerbate the environmental problems of the already degraded Indus River Delta or the coastal zone.*”¹³⁸ Management relies on the 1989 LBOD EIA to support this response. Management acknowledges that there are serious problems in the Indus Delta, and attributes them to “*the drastic change in freshwater flow and reduced sediment load reaching the Delta brought about*

¹²⁹ Id, Annex 1, Item 6, p.20.

¹³⁰ Id, Annex 1, Item 7, p.20.

¹³¹ Ibid.

¹³² Ibid.

¹³³ Request ¶24, 25, 29.

¹³⁴ Management Response, Annex 1, Item 8, p.21.

¹³⁵ Ibid.

¹³⁶ Ibid.

¹³⁷ Request ¶30.

¹³⁸ Management Response, Annex 1, Item 9, p.22.

by the development of the Indus Basin irrigation system (especially since the 1960s).”¹³⁹

53. The Requesters claim that the tidal effect prevents the drainage flow twice in every twenty-four hour period in the Tidal Link, causing the effluent to seep into the sides of the KPOD up to Reduced Distance (RD) 110 (110,000 feet)¹⁴⁰ and negatively affecting groundwater quality and human health.¹⁴¹ Management responds that the tidal effect does not prevent the flow from the KPOD to the sea.¹⁴² It states that the tidal effect and the Cholri Weir are essential hydraulic features of the Tidal Link design and adds that there is no specific information regarding groundwater quality or drinking water sources in this specific location.¹⁴³ Management states that the primary source of drinking water is freshwater from the canal system, and that the Drought Emergency Recovery Assistance program, funded from the IDA Credit, supported several drinking water supply schemes in Sindh, including one at Badin.¹⁴⁴
54. The Requesters also claim that local communities, particularly in the coastal belt, have been kept entirely unaware of the Project’s plans and environmental assessments; that the implementation process has not been transparent; and that the Project officials and donors failed to obtain the informed consent or meaningful participation of affected persons.¹⁴⁵ In response to this, Management states that “[c]onsultations were held during the project preparation phase with representative NGOs, FOs, and CBOs [Community-Based Organizations] to define the overall program and to outline the consultation and appraisal criteria and process for individual subprojects. Local consultations were carried out during preparation of subprojects.”¹⁴⁶ Annex 9 of the Response sets out in detail the places, dates, and names of NGOs and CBOs consulted. Management notes that in March, 2004 the Task Team Leader met with NGOs including the Sindh Agricultural Forum, and in September, 2004, the PoE of the DMP held stakeholder consultations in Badin and Hyderabad, which included representatives of ActionAid Pakistan.¹⁴⁷

Involuntary Resettlement

55. The Requesters claim that there are several thousand people who entirely depend on local *dhands* for fishing and on grazing and agriculture for their livelihood who will be forced to leave their ancestral villages by saline water flooding their

¹³⁹ Ibid.

¹⁴⁰ According to the Request, Reduced Distance is measured at one RD = 1000 feet.

¹⁴¹ Request ¶3:VII, p.2.

¹⁴² Management Response, Annex 1, Item 10, p.23.

¹⁴³ Ibid.

¹⁴⁴ Ibid.

¹⁴⁵ Request ¶55.

¹⁴⁶ Management Response, Annex 1, Item 11, p.23.

¹⁴⁷ Id, Annex 1, Item 11, p.24.

area.¹⁴⁸ Management responds to this claim by saying that areas of lower Sindh are indeed prone to flooding, but that flooding was greater before construction of the LBOD Stage 1 Project.¹⁴⁹ Management believes that *“the implementation of the NDP project has not and will not exacerbate flooding.”*¹⁵⁰ It emphasizes that a PoE rejected the drainage superhighway concept, so the type of flooding the Requesters fear *“will not occur as a result of disposal of drainage effluents in the lowland areas of Sindh.”*¹⁵¹

56. The Requesters also express fear that the expansion of the KPOD, the DPOD, and the Spinal Drain will drain several thousand acres causing them to lose their remaining land.¹⁵² Management responds by repeating its statement that the Bank has no plans to support the expansion of the KPOD, DPOD, or the Spinal Drain. The only works planned for the KPOD and financed by the Bank are repairs.¹⁵³ Management states that *“IDA funding has not supported any subprojects that require land acquisition or resettlement”*¹⁵⁴ because of lack of agreement on the FLAR with the GoP.

57. The Requesters claim that the FLAR is vague, does not mention location or quantity of land to be acquired, nor a time frame for compensation payments.¹⁵⁵ They also complain of the lack of a RAP, or any consultants engaged to prepare a RAP. Management responds that the FLAR was prepared in 1996, approved by the GoP, and agreed with IDA. However, WAPDA officials later objected to some of its provisions, resulting in revisions being proposed in May, 2001.¹⁵⁶ Agreement could not be reached, with the Provinces taking the position that the existing law was sufficient to provide for all the issues dealt with in the FLAR and RAPs. Because no subprojects requiring land acquisition or resettlement were to be included in any IDA-funded investment subprojects, the Bank did not pursue further discussions with the GoP on the FLAR.¹⁵⁷

58. The Requesters claim that because the KPOD and Tidal Link have blocked the flow of water to the Rann of Kutch, the vegetation south of the KPOD has declined, reducing grazing areas and forcing the migration of affected people.¹⁵⁸ They claim the area has only two villages left out of the ten that existed there before desertification when the area was green. They claim that during monsoon rains in 2003 water from the Kotri barrage and the KPOD flooded 75 villages. Management responds that this claim refers to the closed LBOD Stage 1 project,

¹⁴⁸ Request ¶19.

¹⁴⁹ Management Response, Annex 1, Item 12, p.24.

¹⁵⁰ Ibid.

¹⁵¹ Ibid.

¹⁵² Request ¶20.

¹⁵³ Management Response, Annex 1, Item 13, p.24.

¹⁵⁴ Ibid.

¹⁵⁵ Request ¶22.

¹⁵⁶ Management Response, Annex 1, Item 14, p.25.

¹⁵⁷ Ibid.

¹⁵⁸ Request ¶26.

but that ADB-supported work under the NDP project will help mitigate residual environmental effects of the LBOD.¹⁵⁹ Management adds that the 2003 monsoon storm was an extremely rare event, bringing rainfall volume larger than any on record. Various factors resulted in surface runoff four times the design capacity of the LBOD. Management acknowledges the effects of the storm and proposes to carry out a diagnostic study to determine the extent of the losses and formulate a livelihood assistance program in consultation with the GoP and GoS.¹⁶⁰

Natural Habitats

59. The Requesters claim that the wetlands of Sindh are an important part of the route of certain migratory birds; that two species of marine turtles inhabit the area; that the wetlands are an important fishery for local people; and that two of the *dhands* have been recognized as Ramsar Convention sites.¹⁶¹ They claim the Bank is not supposed to support projects that would violate international treaties, as this one does. Management responds that the NDP project has not supported projects that directly affect the two *dhands* designated under the Ramsar Convention, the Nurri and Jubho Lagoons, but notes that “[m]ore detailed assessment is required to determine if these sites are affected by the breaches in the Tidal Link Canal and the collapse of the Cholri Weir.”¹⁶²
60. The Requesters claim that the idea of linking the KPOD with the Shah Samado creek through the Tidal Link passing through the *dhands* was unsound because the Tidal Link prevented water flowing from the Rann of Kutch into the *dhands*. They allege that the 1989 EIA for the LBOD foresaw that excessive drainage by the Tidal Link would affect the *dhands*, but that no mitigating measures have been taken. Management responds that this claim refers to the closed LBOD Stage 1 project. Management states that the design combination of the Tidal Link canal and the Cholri Weir was intended to mitigate adverse effects on the *dhands*, but structural problems and a 1999 cyclone damaged the Tidal Link and the weir.¹⁶³ According to Management, this severely hampered the effect of the mitigation measures. Management points out that the 1989 EIA indicated that the additional, temporary inflow of drainage water from the KPOD would not have an adverse effect and could offset the loss of water from the Rann of Kutch in wet years.¹⁶⁴
61. The Requesters claim that degradation of the wetlands has caused severe damage to the ecosystem, habitat, and fish catch, especially some commercially important fish species.¹⁶⁵ Management responds that the Tidal Link Fact Finding Mission recommended that no repairs be done to the storm damage because it was beyond

¹⁵⁹ Management Response, Annex 1, Item 15, p.25.

¹⁶⁰ Id, Annex 1, Item 17, p.27.

¹⁶¹ Request ¶38-40.

¹⁶² Management Response, Annex 1, Item 16, p.26.

¹⁶³ Id, Annex 1, Item 18, p.27.

¹⁶⁴ Ibid.

¹⁶⁵ Request ¶46.

the limits of possible repair.¹⁶⁶ The Mission also recommended a strengthened monitoring program and more data collection and analysis.¹⁶⁷ Management adds that “[w]hile data collection coordinated by WAPDA-South has continued (...), the strengthened program of monitoring and analysis has not been undertaken as recommended, and as a result, mitigation measures have not been identified and decided.”¹⁶⁸

Indigenous Peoples

62. The Requesters claim that the coastal Mallah communities are indigenous people because they have a close attachment to ancestral territories in the area.¹⁶⁹ Management responds that the Mallah fishing community does not meet the criteria in OD 4.20 (Indigenous Peoples) as Indigenous People because they do not have an indigenous language distinct from the mainstream language in the region, they lack customary social and political institutions, and they are not identified by others as a distinct cultural group.¹⁷⁰ According to Management, the processes and procedures suggested in the SAR for social and environmental screening were followed during preparation of NDP subprojects. Management adds that “[f]urther, environmental and social screening of NDP subprojects did not identify any adverse impacts on the Mallah community.”¹⁷¹

Cultural Property

63. The Requesters claim that important cultural sites near Badin are threatened by flooding from the KPOD and the Tidal Link.¹⁷² These sites include monuments of saint Shaikh Kirhiyo Bhandari, the historical site of Roopa Mari, and the tomb of Dodo Soomro. The Requesters allege that the Project donors have not bothered to recognize the cultural and historical importance of the area and the threat posed by drainage projects. Management responds that there are no plans to expand the KPOD under the NDP project, and that “[t]he construction and normal operation of KPOD does not appear to have affected the [Dodo Soomro tomb] site, since the high water level in the KPOD design is about 1-2m below the site.”¹⁷³

Community Participation

64. The Requesters claim the Bank failed to involve local, affected people in the planning and implementation of the NDP, and refused to share information with affected communities and NGOs.¹⁷⁴ Regarding the issue of participation,

¹⁶⁶ Management Response, Annex 1, Item 19, p.28.

¹⁶⁷ Ibid.

¹⁶⁸ Ibid.

¹⁶⁹ Request, ¶49-51.

¹⁷⁰ Management Response, Annex 1, Item 20, p.28.

¹⁷¹ Id, Annex 1, Item 21, p.29.

¹⁷² Request, ¶53-54.

¹⁷³ Management Response, Annex 1, Item 22, p.29.

¹⁷⁴ Request, ¶55.

Management responds that by forming FOs, the NDP project has provided the chance for marginalized groups such as sharecroppers and farmers at canal tail ends to participate in decision-making on water allocations.¹⁷⁵ In Sindh, Management says about 200 FOs have been established, half of these having assumed legal responsibility for operation and management of the tertiary irrigation system and for collection of water charges.¹⁷⁶ Regarding the issue of disclosure of project information, Management states that the following operational documents were disclosed: (1) DSEA – disclosed in the Public Information Center in April, 1996, but no information about in-country disclosure to affected stakeholders or about subproject EAs could be found; (2) FLAR – disclosed in May, 2001 at the Infoshop, but no information on in-country disclosure is available; (3) Project Information Document – disclosed in 1994, updated in 1997. Management also states that from 2001 a periodic bulletin in the Sindhi language about the Project has been disseminated among farmers.¹⁷⁷

F. ELIGIBILITY

65. The Panel must determine whether the Request satisfies the eligibility criteria for an Inspection, as set forth in the 1993 Resolution establishing the Panel and the 1999 Clarifications, and recommend whether the matter alleged in the Request should be investigated.
66. The Panel has reviewed the Request and Management's Response. Panel Member Werner Kiene, together with the Panel's Assistant Executive Secretary Andrew Thomson, and Panel Operations Officer Serge Selwan, visited the Sindh Province and Islamabad in Pakistan from November 3-6, 2004. During their visit, the Panel team met with the Requesters, national and provincial government officials, local people in the Project area, local NGOs, and World Bank staff.
67. The Panel team started its mission by meeting Sindh provincial officials in Karachi. The Panel then undertook field visits at the Roopa Mari site, the Kadhan Pateji Outfall Drain, its intersection with the Lowari Branch Drain, Shekhani Garhi, and the villages of Moulvi Haji Ahmed Mallah and Fazal Khan Lund. The Panel met with the Requesters and Badin district officials in the town of Badin. The Panel also met with GoP officials in Islamabad. At Fazal Khan Lund the Panel team met with a group of villagers who personally experienced flooding events in the vicinity of the KPOD, some of whom reported the loss of family members, and also with a group of former fishermen near the village of Moulvi Haji Ahmed Mallah. Both groups allege that their livelihoods now depend not on agriculture or fishing but on the collection and sale of firewood, which has resulted in a substantial reduction to their incomes.

¹⁷⁵ Management Response, Annex 1, Item 23, p.30.

¹⁷⁶ Ibid.

¹⁷⁷ Id, Annex 1, Item 23, p.30, 31.

68. While visiting the Project area the Panel witnessed engineers employed by the GoS supervising earthworks on KPOD's western embankment. The senior engineer stated that the purpose of these works was to repair breaches that had occurred during last year's flood, and to increase the height of the embankment so that the drain would hold more water during the coming monsoon season. He added that similar work would be done on both sides along most of the LBOD's lower section and was being funded through NDP Project.
69. During the visit, the Panel confirmed that the Requesters and other signatories of the Request are legitimate parties under the Resolution to submit a Request for Inspection to the Inspection Panel. They reside in the Borrower's territory, live or own land in areas apparently affected by the Project (and/or represent people who do) and have common interests or concerns (Resolution paragraph 12 and paragraph 9(a) of the 1999 Clarifications).
70. The Panel notes that the Request asserts "*in substance that a serious violation by the Bank of its operational policies and procedures has or is likely to have material adverse effect upon the requesters.*" The Request asserts that the Requesters have and will suffer severe adverse effects from the Project and that such effects result from the Bank's failure to follow its operational policies and procedures.
71. The Request states, and the Requesters interviewed by the Panel reiterated, that several dozen people died in floods in the Badin area in Sindh Province, a tragedy that, according to the Requesters, is a result of faulty design of the LBOD Project and a failure in the NDP Project to address the inherited risks of the LBOD components carried over into the NDP Project, and to carry out proper environmental assessment and analysis on those and other components. The Requesters assert that the component works of the LBOD carried forward into the NDP Project will affect them in a material adverse way.
72. The Panel notes the conflicting assertions regarding the relationship between the LBOD Project and the NDP Project. On the one hand, Management states that the Requesters' concerns relate not to the NDP Project but rather to the LBOD Project, which is closed. On the other hand, the SAR approved by the Board for the NDP Project states that the Project strategy on evacuating saline drainable surplus is, *inter alia*, to "(i) use environmentally sustainable methods for disposal of saline drainage effluent (including diverting saline effluent away from freshwater lakes and rivers), and lay the groundwork for construction of a permanent trunk drainage network connected to the sea via LBOD's Spinal Drain which would be known as the NSDS (...)." ¹⁷⁸ Moreover, the SAR states that the pipeline of investment projects includes, *inter alia*, the "(i) completion of on-going projects including the LBOD Project (donor-funded including IDA and ADB) (...)." ¹⁷⁹ The SAR also states that the investment subprojects which would

¹⁷⁸ SAR, ¶2.5.

¹⁷⁹ SAR, ¶2.34.

be commenced in the first two years of project implementation “*would substantially comprise completion of the on-going LBOD project (estimated cost: US\$166 million), O&M of recently completed projects (notably LBOD - estimated cost US\$46 million), and small surface drainage schemes with short preparation period.*”¹⁸⁰ In describing the Project’s co-financing arrangements, the SAR states “*IDA would finance the rest of the donors’ share of project costs. This would include all Investment Project costs in Sindh Province, costs of remaining works under the ongoing LBOD Project, some components of the RBOD Project, and all remaining technical assistance and program coordination and supervision costs.*”¹⁸¹

73. Further, an Aide Memoire for the NDP Project Implementation Review dated July 10, 2003 carries the statement under the section entitled Infrastructure Component, “*Completed and On-going Works. Projects worth an estimated Rs. 2328 million have been completed (LBOD remaining works) and another set of projects worth Rs. 725 million is under implementation.*”¹⁸² As stated above, during its visit to the Project area the Panel team was informed that NDP funds were being used to add new infrastructure to the LBOD works, i.e. to increase the height of the KPOD embankments to handle increased water flows.
74. In the Request, the Requesters claim that the harm done to people in the Badin area of lower Sindh Province indicates that Bank Management and staff have not complied with a number of Bank policies and procedures in the design and implementation of the NDP Project and that the failure to comply has had a very significant adverse effect upon the Requesters’ rights (Resolution paragraphs 12 and 14 (a) and paragraph 9 (b) of the 1999 Clarifications).
75. The Panel is satisfied that the Request “*does assert that its subject matter has been brought to Management’s attention and that, in the Requesters’ view, Management has failed to respond adequately demonstrating that it has followed or is taking steps to follow the Bank’s policies and procedures.*” The Request claims that the Requesters raised the matters of their complaint with Bank Management, and includes evidence of prior correspondence with the Bank.
76. The Requesters state, “*We have been protesting since the inception of the project and had attempted several times to approach local implementing agencies as well as World Bank officials to discuss our concerns regarding [the] NDP. We have received no response. We request the Inspection Panel to investigation [sic] these policy violations and the harm we have suffered and make recommendations to the Board for how to resolve these harms and these policy violations, in consultation with the affected people.*”¹⁸³ The Panel received evidence showing

¹⁸⁰ SAR, ¶2.34-2.35.

¹⁸¹ SAR, ¶3.5.

¹⁸² Pakistan National Drainage Program (NDP) Project, Implementation Review: Sindh Aide Memoire, July 10, 2003.

¹⁸³ Request, ¶4.

that the Requesters wrote to Bank staff about their concerns on several occasions (Resolution paragraph 13 and paragraph 9(c) of the 1999 Clarifications). Some of them demonstrated outside the Bank's office in Islamabad to voice their complaint.

77. The Panel notes that the subject matter of the Request is not related to procurement (Resolution paragraph 14(b) and paragraph 9(d) of the 1999 Clarifications).
78. The expected closing date of the related Credit is December 31, 2004. About 76 percent of the IDA Credit had been disbursed as of the date the Request was filed. The Request therefore satisfies the requirement referred to in the Resolution paragraph 14(c) and in paragraph 9(e) of the 1999 Clarifications that the related Credit has not been closed or substantially disbursed.¹⁸⁴
79. Furthermore, the Panel has not previously made a recommendation on the subject matter of the Request. Therefore, the Request satisfies Resolution paragraph 14(d) and paragraph 9(f) of the 1999 Clarifications.
80. The Panel is satisfied that the Request meets all of the eligibility criteria provided in the 1993 Resolution and paragraph 9 of the 1999 Clarifications.

G. CONCLUSION

81. In the Panel's opinion, the contradictions in the assertions of the Requesters and Management are substantial and bear close relation to the sources and extent of the harm alleged by the Requesters. The Request and the Requesters meet the eligibility criteria set forth in the Resolution that established the Inspection Panel and the 1999 Clarifications. The Request, Management's Response, the Panel team's visit to Pakistan, and discussions with Project officials and affected persons, confirmed that the differing views on the issues raised by the Request cannot be easily reconciled and that they involve conflicting assertions and interpretations about the issues, the facts, and compliance with Bank policies and procedures.
82. The Panel believes that these important questions regarding the Bank's alleged failure to comply with its policies and procedures as well as the proximate causes of the alleged harm that can only be addressed in the context of a Panel investigation.
83. In light of the foregoing, the Panel recommends an investigation of the matters alleged in the Request for Inspection.

¹⁸⁴ The 1993 Resolution establishing the Inspection Panel provides in Note 1 that this will be deemed to be the case when at least ninety-five percent of the loan [development credit] proceeds have been disbursed.

ANNEX I

REQUEST FOR INSPECTION

To: Executive Secretary, the Inspection Panel
1818 H Street NW, Washington, DC 20433, USA

September 9, 2004

Dear Sir/Madam:

1. We Khadim Talpur, Mohammad Ali Shah, Mustafa Talpur, Munawar Hassan Memon, Iqbal Hyder, Mir Mohammad Buledi, and Najma Junejo live and/or represent others who live in the area known as district Badin, Sindh Pakistan. Our addresses are given at the end of this document.
2. We have suffered, or are likely to suffer, harm as a result of the World Bank's failures in the National Drainage Program Project (NDP) credit no 2999-PK, being implemented in Indus Basin Irrigation System in Pakistan for which credit agreement was signed on December 16, 1997 between Islamic Republic of Pakistan and International Development Association (IDA), IDA agreeing to provide \$ 285 million.
3. We have suffered or likely to suffer following material harm and losses of livelihood due to the implementation of NPD:
 - I. The disposal of the entire up country saline effluents in existing LBOD system, which is faulty, will cause flooding in future. More than 50 of our villages will be in permanent threat of flooding if the existing LBOD drains will be expanded further under NDP.
 - II. More than 30 people died due to the overflowing, breaches and sea intrusion during 2003 rains, thousands of houses were damaged and thousands of acres of agriculture crops were destroyed. This project-induced displacement is not one time; we have been made so vulnerable that in any monsoon rainy season the upcoming drainage effluents could displace us. But this type of displacement and involuntary settlement has never been considered in the project.
 - III. The NDP will require more land to expand the drains, we have already sacrificed during the construction of LBOD and less land has left with us for livelihood, expansion of drains and forceful acquisition of land will ruin our livelihood base.
 - IV. The National Surface Drainage System (NSDS), centered on the extension northwards of the LBOD as a spinal drain, is by far the major potential investment project within the NDP. We have already argued that existing disposal system through Tidal Link is not sustainable. We have already lost thousands of acres of land due to the failure of tidal link and NDP will aggravate the situation.
 - V. The alternate project options or disposal systems, which are historical natural disposal systems, have been ignored and super engineering ideas have been used against the natural flows, which is causing harm to us.
 - VI. The proposed drainage network will badly affect the already degraded environment of Indus Delta. There is no fresh water available to add to the ecological value of delta, which is essential for coastal forests and marine life. In the absence of fresh water, disposing toxic drainage effluents will destroy the remaining resources of marine fisheries and mangrove forests. The drainage effluents comprise not only the saline sub-soil water but also it accumulates along the way the residuals of pesticides, fertilizer and industrial waste.


- VII. The tidal effect restricts the drainage flow for two times in twenty-four hours this fight between drainage effluents and sea tides continues for about 4-6 hours, thus entirely blocks the drainage effluents. The standing drainage effluents seeps into both sides of KPOD up to RD. 110, negatively effects ground water quality, which is a single drinking source, thus causing severe impact on human health
- VIII. The proposed NDP will cause destruction of coastal wetlands two of them are Ramsar sites. The degradation of these important wetlands due to the failure of tidal link and choleri weir has caused severe damage to the ecosystem, habitat and fish catch. These Dhands (wetlands) provide livelihood resources to the forty villages of fishermen having a 12000-15000 population and living around these water bodies. There is no other livelihood source.
- IX. The project will badly affect the indigenous *Mallah* community; there are more than 60 villages of this community with the population of 25,000 and engaged in fishing at both sea and contiguous wetlands. The operation of LBOD has brought significant changes in the lives of these people. The two-mega shocks mentioned earlier one cyclone in 1999 and other monsoon rains during 2003 have changed the economic base of these people. In both these two tragic events the Tidal Link Canal and KPOD inundated their villages, damaged houses and some families even lost their family members.
- X. The southern part of Pakistan i.e. district Thatta and Badin have been a rich cultural location due to the vicinity of sea as well as the Indus Delta. There were several ports used for local and international trade. The few and very important cultural sites in Badin which are being badly affected by KPOD and Tidal link canal includes the monuments of saint *Shaikh Kirhiyo Bhandari*, the historical site of *Roopa Mari and thari*, these both sites were the important town of the dynasty of *Soomra* ruler in Sindh (1051 to 1351). We fear that under NDP the remaining portions of these important historical sites will be destroyed.
- XI. Local communities, and especially the affected people of coastal belt, have been kept entirely unaware about the plans of NDP and its environmental assessments. The project planning process remained the business of a few bureaucrats and donors while project implementation remained non-transparent and hence failed to obtain informed consent or meaningful participation since the inception. We were entirely unaware regarding NDP until the rains of 2003, when we were informed that more effluents would be added in existing LBOD system.


4. We believe following World Bank policies and operation procedures have not been observed:

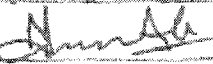
- ***Operational Directive OD 4.30 regarding Involuntary Resettlement***
- ***Operational Directive OD 4.01 Environment Assessment***
- ***Operational Policy OP 4.04, Bank Procedure BP 4.04 and Operation Policy Note No. 11.02***
- ***Operational Directive OD 4.20 regarding Indigenous People***
- ***Operational Policy OP 4.11 regarding Cultural property***
- ***Operational Manual Statement 2.36 regarding Environmental Sustainability***


We have been protesting since the inception of the project and had attempted several times to approach local implementing agencies as well as World Bank officials to discuss our concerns regarding NDP.


We have received no response. We request the Inspection Penal to investigation these policy Violations and the harm that we have suffered and make recommendations to the Board for how to resolve these harms and there policy violations. in consultations with the affected people.


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Attachments:

Background Information
Letter of Representation (Authorization from the Affectees)

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Letter of Representation (Authorization from affectees)

Acronyms

| | |
|--------|---|
| ADB | Asian Development Bank |
| BP | Band Procedure |
| CCA | Cultivable Command Area |
| CIDA | Canadian International Development Agency |
| DPOD | Dhoro Puran Outfall Drain |
| DSEA | Drainage Sector Environmental Assessment |
| Dhands | Local word used for Wetlands |
| EMP | Environmental Management Plan |
| EA | Environmental Assessment |
| EPAs | Environmental Protection Agencies |
| EIA | Environmental Impact Assessment |
| FATA | Federally Administered Tribal Areas |
| FLAR | Framework for Land Acquisition and Resettlement |
| GoP | Government of Pakistan |
| GoS | Government of Sindh |
| IDA | International Development Agency |
| IBIS | Indus Basin Irrigation System |
| JBIC | Japan Bank for International Cooperation |
| KPOD | Kadhan Pateji Outfall Drain |
| LBOD | Left Bank Outfall Drain |
| Mallah | Indigenous people engaged in fishing |
| NDP | National Drainage Program |
| NSDS | National Surface Drainage System |
| NWFP | North West Frontier Province |
| NGO | Non-Governmental Organization |
| NESPAK | National Engineering Services Pakistan |
| ODA | Overseas Development Administration |
| OD | Operational Directive |
| OP | Operational Policy |
| PIDs | Provincial Irrigation Departments |
| RBOD | Right Bank Outfall Drain |
| RAP | Resettlement Action Plan |
| RD | Reduced Distance measured, one RD=1000 feet |
| SDR | Special Drawing Rights |
| SF | Saudi Fund |
| SDC | Swiss Development Corporation |
| SAR | Staff Appraisal Report |
| TOR | Terms of Reference |
| WAPDA | Water and Power Development Authority |
| WMP | Wetland Management Plan |

National Drainage Program Project: Background and brief history

1. The National Drainage Program (NDP) is a multi million dollars program with the goal to minimize saline drainable surplus water and to facilitate evacuation of all saline drainable surpluses from the Indus basin to the Arabian Sea and thereby restoring environmentally sound irrigated agriculture in Pakistan. The project area covers the whole of the Indus River Basin located in Pakistan and small-irrigated areas in Balochistan, NWFP, FATA and Northern Areas.¹

2. The idea of national drainage program considered as an integrated and cohesive national level efforts designed with program approach with the purpose to restore the sustainability of irrigated agriculture in an environmentally sound manner by: (a) minimization of the drainable surplus; and (b) evacuation of drainable surplus from the Indus Basin to the Sea. It is assumed that all separate drainage project will be managed under NDP umbrella. The main component of the project is investment component under which several thousand kilometers of surface drains and interceptor drains will be excavated, tube wells will be installed and tile drainage facilities will be provided. Finally all the effluents generated at upstream of Indus Basin will be transported through the network of surface drains called national surface drainage system (NSDS) and connected with existing LBOD fall point in left side of Indus and RBOD on right side of Indus in order to dispose into sea.

A. Involvement of World Bank in NDP

3. The World Bank has been involved in water sector in Pakistan since early 1960's. Bank has financed several projects in both irrigation and drainage sectors in Pakistan including LBOD in 1980's and 1990's. This project seems to be the extension of LBOD at wider level. The bank approved the credit number 2999 Pak and development credit agreement was signed on December 16, 1997 between Islamic Republic of Pakistan and International Development Association (IDA). The IDA agreed to lend to the borrower, on the terms and conditions set forth an amount in various currencies to one hundred ninety-eight million six hundred thousand Special Drawing Rights (SDR 198, 600, 000), Equivalent to US \$ 285 million.² The closing date shall be December 31, 2004. Except IDA two other co-financiers Asian Development Bank and Japan Bank for International Cooperation (JBIC) are also involved in NDP and have separate loan agreements with government of Pakistan. The ADB and JBIC is planned to finance US \$ 140 and 100 millions respectively.

B. Implementation Issues

4. As of June 30, 2003 the total expenditure of all the components of NDP was Rs. 6,961.832 million against allocated Rs. 28, 494.830 million. At the end of sixth year of project only 24.4 percent of project funds have been utilized. This indicates the delay in implementation of the various components of projects especially investment component.

¹ See PC-1 Proforma (Revision-1): National Drainage Program Project, January 2004. NDP Management Organization, Lahore Pakistan.

² See Development Credit Agreement NDP between Islamic Republic of Pakistan and International Development Agency (IDA) and Staff Appraisal Report NDP.

5. The mid term review conducted by joint donor mission from March 19 to April 6, 2001 concluded that the implementation of NDP has been slowed by numerous bottlenecks and disputes, and its impact and results have been far less than anticipated.³ Similar comments were generated by JBIC position paper. According to paper NDP has almost completed its third year; implementation of the project has been considerably delayed without any substantial accomplishment due to various reasons including absence of political initiatives, differing approaches and resultant disputes among stakeholders.

6. The NDP became the target of criticism because of structural flaws and slow implementation of the project. Subsequently, a decision given in the 13th Federal Program steering Committee meeting held on May 09, 2003 required WAPDA to immediately work on the revision of the PC-1 of NDP. Revision of the NDP PC-1 is therefore undertaken as per this directive. It should be noted that the revised total cost of the PC-1 to be financed by IDA, ABD, JBIC, Gop, Provinces and beneficiaries is now reduced to Rs. 28.68 billion (US \$ 490 million) with a scheduled completion date in December 2005.⁴

7. It is obvious that during the implementation of NDP, almost all the provincial governments were remained reluctant and Balochistan even opted out. The slow progress of government agencies indicates that project was not originated within country with broader consultation. Though the problem of waterlogging and salinity are local but World Bank borrowed the solutions and suggestions from other countries, which are neither compatible to local institutional set up nor favorable in country context.

C. Link between LBOD and NDP

8. The LBOD stage-1 project was initiated in 1984. According to initial plan LBOD stage –1 project would be serving Culturable Command Area (CCA) of about 516,000 hectares and implemented over an eight years period (FY 1986-FY 1993). There were several components of the project including completion of main outfall drain, construction of bifurcation weir at the junction of the Kadhan Pateji Outfall Drain (KPOD) and the Dhoro Puran Outfall Drain (DPOD) to limit the flow of DPOD to 57 cumecs (2000 cusecs), construction of 3000 cusecs tidal link from Pateji Dhand to Shah Samdo creek.⁵

9. The Project cost estimated at early stage of appraisal was Rs. 9, 202.9 million (US \$ 635.7 million). The cost was agreed upon by 7 external co-financiers, these co-financiers were IDA; ADB; Saudi Fund for Development (SF); Canadian International Development Agency (CIDA); Overseas Development Administration (ODA-UK); Swiss Development Corporation (SDC); and the OPEC Fund for Development. The IDA and ADB remained the major donors of LBOD contributing US \$ 150.0 and \$122.0 millions respectively during appraisal estimates, however their actual disbursement differs from appraisal figures. The World Bank Credit 1532-PAK in the amount of SDR 147.6 million equivalent was approved on December 13, 1984.

³ See National Drainage Program (NDP) Project: Joint World Bank, ADB and JBIC Mid-Term Review (MTR) Mission Draft Aide-Memoire, April 10, 2001.

⁴ See page S-1 National Drainage Program Project, PC-1 Proforma Revision-1, January 2004.

⁵ See – Staff Appraisal Report (SAR), Left Bank Outfall Drainage Stage 1 Project, South Asia Projects Department Irrigation 1 Division, World Bank Report No. 5185-Pak, November 5, 1984.

10. The works of LBOD project could not finished in estimated cost and time. The works deleted from the Project were included in the National Drainage Program (NDP) launched in 1998 and co financed by ADB, the World Bank, and the Japan Bank for International Cooperation. The total cost at project completion is estimated at \$963.0 million (estimated US \$ 1021.0 million by World Bank), \$308.2 million (47%) higher than the appraisal estimate of \$654.8 million.

11. After the huge cost overrun and time lapse all the project components were not completed and it achieved partial objectives. Remaining components of the LBOD were transferred to NDP. Thus it makes direct link between the two projects, as NDP seems the extension of LBOD at national level. The project achieved many of its physical objectives as defined in the SAR and MTR Report; and will fully achieve them on completion in four years with financial support from the National Drainage Program (NDP) Project (Cr.2999-PAK).⁶ In addition the government reports also indicate that works remaining incomplete have been transferred for execution under NDP.⁷

I. Material Harm and our concerns

12. The implementation of NDP as envisaged in Staff Appraisal Report, mid term review and other World Bank documents will likely cause a serious adverse impacts on our livelihood and environment on which we depend. Significant losses have already been incurred due to ill design of LBOD. The losses of LBOD are multi-dimensional and have occurred over time and space. During the implementation phase several thousands families were displaced from main drain routes and Chotiari reservoir and have not been properly settled. There are also long term and continuous environmental and livelihood losses to coastal communities after the operation of the project.

13. There is no official record or survey to measure the losses occurred during the cyclone of 1999 and havoc of rains during 2003. The damage to Choleri weir, tidal link and KPOD is still there, when the World Bank and ADB planned another mega drainage project to connect the existing faulty disposal system of LBOD to further upstream in order to evacuate more effluents. We believe that in case of the NDP the historical custodian and local communities of coastal belt will be entirely wiped out due to this policy decision. Adding more effluents and extending these drains to provide drainage facility to entire Indus Basin Irrigation System (IBIS) without proper disposal into Arabian Sea will only add in the miseries of coastal communities. Since the key issues of NDP are related to the fall and disposal of LBOD, so these both projects will be referred in this claim. The final destination of entire effluents of NDP will transported through existing LBOD drains with the scheme of National Surface Drainage System (NSDS), so the social, environmental and livelihood issues as well as alternative project options discussed here are also relevant to both LBOD and NDP. For the technical reasons we focus our claim on NDP however the losses are interchange-able and have either occurred or most likely to hit under

⁶ See- Implementation Completion Report, LBOD Stage-1 Project, Rural Development Sector Management Unit South Asia Region World Bank Report No. 18037

⁷ LBOD Stage I Project (Cr. 1532-PAK) Implementation Completion Report Appendix B: Borrower's Report

NPD. The scope, magnitude, geographical location and policy violation are interconnected between LBOD and NDP.

A. Alternative Project Options: Ignoring our historical experiences

14. The feasibility and sustainability of entire NDP depends on the sound foundations of LBOD because it is a final disposal point of drainage effluents. The design of NDP has entirely ignored the current reality and the social and environmental problems of the existing disposal route, and never explored the alternatives. We have been suggesting an alternative since early 1980's when the LBOD was started. Based on our knowledge of historical flow routes, from the very first day when the LBOD was launched, we have been raising objections regarding its feasibility and sustainability. We rightly pointed out that the fall of KPOD was against natural disposal system and would destroy the entire coastal environment. Implementing agencies, financiers including the World Bank, and the project consultants never listened to us.

15. There was historical drainage system of runoff water through Dhoro Puran, under LBOD that link was converted into Dhoro Puran Outfall drain and huge weir was constructed to restrict the flow towards Shakoor Dhand, hence entire load of effluents was diverted to KPOD. As mentioned in the report of World Bank Fact Finding Mission⁸ that three possible options were considered for the terminus of the LBOD drain: one option was to continue to empty most of the LBOD flow through KPOD into Pateji Dhand, the second option was to empty the drain directly into the Rann of Kutch and the third was to empty the drain directly into sea through an independent canal linked directly with an active tidal creek. There were other options too, which were not properly evaluated, including disposing the effluents in Shakoor Dhand through existing Dhoro Puran, and other small waterways towards south. But the selected route was more dangerous and now it has proved that in future it will cause more damage rather than benefit.

16. The planning of NDP has never considered the problem in existing disposal system and conceived to bring more effluents in faulty system to dispose. These faults combined with seasonal (and predictable from a planning standpoint) shocks i.e. cyclone in 1999 and monsoon rains of 2003 created havoc with our lives and livelihood. There has been no recognition of our losses at policy level or compensation, because we are considered poor, powerless and voiceless. From time to time we have been pointing out the serious problem in the technical design of the LBOD system, and then in NDP, but no consideration have been given to our concerns. The donors and government, rather than focusing on the problems faced by us due to their technical mistakes, are instead planning another project in the name of NDP to add to our miseries.

17. Several documents both from government of Pakistan and World Bank indicate the extension of existing LBOD system and construction of National Surface Drainage System. As the SAR of NDP mentions, "the planners of Pakistan's IBIS and its principal donors led by IDA always knew that ultimately, the Indus Basin Irrigation System would require an outlet to the Sea. Sustainability can only be achieved in the long run by building a NSDS. Given the long lead time required for detailed planning, feasibility studies, and inter-provincial agreement on cost sharing and transportation of saline effluents from the Upper Bank of Indus to the Sea via Sindh

⁸ See- LBOD State –1 Project-Tidal Link, World Bank Fact Finding Mission. Technical Note and Recommendations.

Province, work on the NSDS is probably already overdue”.⁹ The mid term review mission in its findings and recommendations mentioned, “it was understood that projects that mobilize large quantities of salt in NWFP, Balochistan, Punjab, and areas on the right bank of the Indus in Sindh, would be undertaken during a later phase of NDP, after trunk drains (LBOD, RBOD) were extended to these provinces”. It further states that project supported National System Drainage Study has recently started¹⁰. The mid term review admits two major constraints that dramatically affect scope and pace of NDP. First, the absence of a master drainage plan and second agreement on inter-provincial drainage flows that ensure environmentally safe and sustainable disposal.

18. We believe and it is obvious after the operation of LBOD that this is not a viable and sustainable solution for the effluents disposal. However time-to-time the World Bank officials are persistent on the studies on NSDS and its justification. They have not been talking the other alternative options. We feel strongly insecure in the case of going ahead with the current option of NSDS. We have a less confidence in the inter-provincial accord because those governmental accords do not incorporate the issues of local communities. So the validity of such accord will be questionable to us. We think that the way NDP has been planned and several mission recommendations are leading towards extending current LBOD system to upstream, against our wishes. If such plans will be implemented that will be serious violation of our human rights, rights to life and livelihood and development.

B. Project Induced flooding, Displacement and involuntary settlements

Likely Losses due to NDP:

19. Though the NDP is being implemented in entire Indus Basin Irrigation System, which geographically covers whole country, but the specific location of drainage disposal has certain peculiarities. The southern part of Pakistan, where the proposed up country effluents will be disposed has a less gradient, more flat topography and bestowed with natural shallow water depressions and vegetation. There are several thousand people who entirely depend on local *Dhands*/fishing, grazing and agriculture. Keeping in mind the experience of LBOD, we can easily predict that incoming saline water will cause huge flooding and having no other option we have to leave our ancestral villages. This type of displacement is even not considered in project documents even though it will occur due to the consequences of project outcome.

20. In case of connecting existing spinal drain further upstream as proposed in NDP, will require remodeling of spinal drain, KPOD and DPOD to cater the needs of more effluents. We have a fear that in the phase of expansion of KPOD, DPOD and spinal drain several thousand acres of land will be required. We have already sacrificed for existing system and left with meager resources for livelihood, in case of expansion, we might lose remaining land. In addition to land there are several villages, which will be displaced in broadening the cross sections of drains.

⁹ See – Para 1.24 Staff Appraisal Report, National Drainage Program Project September 25, 1997 World Bank Report No. 15310-PAK

¹⁰ See- Mid Term Review Mission, Draft Mission Findings and Recommendations March-April 2001

21. The faulty disposal system through tidal link will increase the pressure of backwater flow during the high tide timings. Currently the system is just disposing the effluents of three districts i.e. Nawabshah, Sanghar and Mirpurkhas; even in this situation the high tide water significantly restricts the flow towards sea. In this fight of incoming saline effluents and high tide water the KPOD overflows and inundates the surrounding agriculture lands and villages. This is happening since the operation of LBOD system. In case of increasing the saline effluents in the system it will be permanent danger of overflowing and flooding the area during the high tide period, especially in monsoon rains. In this situation the population, agriculture land and villages up to RD. 70 of KPOD, except 42 KM area of tidal link will be affected.

The World Bank's Operational Directive OD 4.30 regarding Involuntary Resettlement, which was adopted in 1990, has been violated. In particular, project planners have ignored the following provisions:

- Development Projects that displace people involuntarily, generally give rise to severe economic, social and environmental problems: production systems are dismantled; productive assets and income source are lost.
- Involuntary resettlement should be avoided or minimized where feasible, exploring all viable alternative project designs
- Displaced persons should be (i) compensated for their losses at full replacement cost prior to the actual move; assisted with the move and supported during the transition period in the resettlement site; . . . and (iii) assisted in their efforts to improve their former living standards, income earning capacity, and production level, or at least restore them.
- Community participation in planning and implementing resettlement should be encouraged.
- Land, housing, infrastructure and other compensation should be provided to the adversely affected population, indigenous groups, ethnic minorities and pastoralists.
- The possibility of involuntary resettlement should be determined as early as possible and described in all project documents.

22. The government of Pakistan has no approved policy on resettlement and we have had very bad experience during the land acquisition and resettlement at *Chotiari* reservoir under LBOD and the affected families are still waiting for resettlement and compensation. The government of Pakistan prepared and submitted to the World Bank A Framework for Land Acquisition and Resettlement (FLAR) in 1996, which is quite vague and does not mention the location and quantity of land required¹¹. The FLAR does not give time frame of compensation payment and credible economic rehabilitation of project affectees. The government has since disowned even that halfhearted FLAR. We think that our land will be acquired under land acquisition act of 1894 for expansion of KPOD, without proper compensation and resettlement and in violation of World Bank policies. There was no resettlement Action Plan (RAP), a fact that was recognized but not corrected at the time of the mid term review of NDP in year 2001 and mentioned by the Bank mission “during the March 2000 supervision mission, it was agreed that the Pakistan

¹¹ See- Annex –3 Revised PC-1 National Drainage Program

Drainage Consultants will prepare TORs for the preparation of RAPs”, to date no TORs have been prepared, and no consultants engaged to prepare RAPs¹².

Losses already incurred due to LBOD:

23. The planned NDP project will further aggravate all the problems mentioned below. The major problem lies in the disposal system. The entire disposal system of tidal link and KPOD has been damaged and continuously causing livelihood and displacement problem for communities. Once this system will be connected with NDP drains it will just multiply the losses of local communities. The breaches in KPOD and tidal link, the blockage of flow towards sea during high tide, overflowing and inundation will increase and aggravate the existing very vulnerable conditions of the local communities. We are quite clear that it is impossible in current technical design of disposal system to carry the added effluents of NDP. The future losses will be very high. We are very poor people living around this area since centuries and will be entirely wiped out or could not survive in continuous shocks like flood and displacement. It is surprising that without resolving all the disposal issue related to LBOD and its technical flaws surfaced after operation, policy makers and donors including World Bank are engaged in extension of existing drainage system, while they are quite aware of our suffering since the operation of LBOD in 1995.

24. After the operation of LBOD system we have witnessed two severe shocks, which were aggravated by the KPOD and tidal link canal. First the cyclone, which hit this area in 1999, and severely damaged the tidal link, KPOD and *choleri* weir, which resulted in of breaches in KPOD the saline effluents flooded our villages, destroyed agriculture crops and forced thousands of people to leave their homes for couple of months. The unrestricted water of KPOD and tidal link, which was further coupled with high tide seawater, spread around and damaged our livelihood system which comprises on small/subsistence agriculture, fishing, livestock and forestry. According to experts, water of Kotri surface drains, which previously flowed through lakes into natural creeks, has been obstructed by the construction of Tidal Link; consequently this drainage water becomes stagnant and creates flooding.¹³

25. Immediately after the cyclone of 1999 Government of Sindh (GoS) constituted high-level technical committee to review the damage to the tidal link and Choleri weir. The committee’s key findings were: 56 breaches in the southern and northern embankments of the Tidal Link, severe erosion of canal banks; most of the northern embankment along with the entire berm has been eroded. At high tide water apparently flows over the banks at some of the low points or through the breached sections. In year 2002 World Bank also fielded its own fact-finding mission¹⁴. The mission also agrees with the technical committee observations mentioned above. Mission pointed out that as soon as Tidal Link began operation on June 6, 1995 it experienced significant erosion and scour problems along both banks and the bed. In some sections, almost 50 percent of the total embankment body was lost and erosion is still in progress. Both these

¹² Mid term review of NDP, World Bank

¹³ See- SZABIST center for information and research report on the cyclone 2A.

¹⁴ See – World Bank fact finding mission comprised on Sakwa Bunyasi (Mission Leader), Walter Garvery (water resources advisor, South Asia Region), Safwat Abdel-Dayem, World Bank Drainage Advisor), Ohn Myint, (Sr. irrigation engineer); and Usman Qamar (Sr. Irrigation engineer).

findings are compatible with our experience of flooding during high tide and rainy season, damaging our livelihood resources badly but both the mission were unable to suggest any solution to the breaches and damage to tidal link and its negative consequences on the livelihood of local community.

26. KPOD drain and tidal link has blocked all runoff water to move to *Runn of Kutch* and other grazing areas. This caused declining of vegetation to the south of KPOD, loss to forest species and decreased grazing areas. It impacted on the livelihood of local communities and finding no other alternative these people have migrated. Just two villages are settled now with less population in the southern side of KPOD in Rann of Kutch. While before there were about 10 villages. The area was green with several species of grass and forest trees, but when the water source has been blocked by KPOD this area desertified and could not support the life.

27. Another shock witnessed by us during monsoon rains of 2003. We are live witness of the episode that how the water of KPOD and *kotri* barrage surface drains flooded about 75 villages. The study conducted by national NGO ActionAid observed that the failure of the drainage system portrays the entire coastal strip of Sindh as a drainage bowl, destroyed tidal link indicate that saline water of LBOD, instead going into the sea, is continuously destroying the Badin District lands.¹⁵ The newspapers reported that one hundred and sixty *dehs*¹⁶ are completely under inundation, where agriculture crops standing over 200,000 acres has been destroyed and more than 200,000 villagers have been rendered homeless for couple of months. In single union council, which was worst hit by KPOD flowing water in villages, 32 people died due to drowning in drainage water. There were 14 major breaches observed in KPOD from RD 20 to RD 180. (*Annex-1 newspaper reporting on LBOD failure during 2003 rains and pictures of KPOD breaches and flooding*)

C. Environmental Damages

Likely Losses due to NDP:

28. The National Surface Drainage System (NSDS), centered on the extension northwards of the LBOD as a spinal drain, is by far the major potential investment project within the NDP. We have already argued that existing fall system through Tidal Link is not sustainable. Contrary to its purpose, the Tidal Link canal has become a permanent inflow channel to bring seawater and thus caused serious sea intrusion. During the cyclone of 1999, it was obvious that tidal link was totally a failure and it provided a well designed and permanent passage to sea tide, block the drainage effluents and cause overflowing of KPOD and small drains of *kotri* barrage surface drainage system. This phenomenon of sea intrusion has not been recognized during the planning of NDP. [However in the early estimates regarding sea intrusion the world bank fact finding mission mentioned that the Tidal influence (back water) would extend from *Shah Samdo* Creek all the way up to the Tidal Link to KPOD, but Sea water was not expected to extend farther than 12 miles upstream from tidal creek (to RD-93), just below the Dhands.¹⁷ But we have witnessed that Seawater during hide tide timing (twice in twenty- four hours) comes up to RD 70 of KPOD

¹⁵ Disastrous effects of Left Bank Outfall Drain- LBOD A mega failure, ActionAid Pakistan December 2003.

¹⁶ Deh indicates small revenue unit in Pakistan.

¹⁷ See- Para 4 World Bank fact finding mission technical note and recommendations August 05, 2002

the way up]. We have a serious threat due to the extension of LBOD without looking into the environmental issues at disposal point and sea intrusion. The same has been identified in Environmental Management Plan Frame Work Sindh Province. The plan identified two key mitigation measures that are needed to counter trend several obvious potential major negative impacts of an NDP on – a National Surface Drainage System (NSDS) guaranteeing environmentally-acceptable modes of disposal to the sea for all unwanted effluents and a Wetland Management Plan (WMP) to sustain the many ecologically important wetlands.¹⁸

29. This phenomenon of sea intrusion has already destroyed the agriculture land. The loss of topsoil due to flooding is a common and hundreds of acres of coastal land are gradually being converted into sea. Thousands of acres of our land have been encroached by sea and this process has accelerated after the collapse of tidal link and Choleri weir, we have shared these concerns during the process of participatory poverty assessment in Sindh. Hundreds of farmer families have been pushed to live under extreme poverty. In case of increasing the drainage flow; this problem of land loss will be scaled up. In addition to loss of topsoil the problem of secondary salinity will also rise. In case of overflowing, breaches in Tidal Link and KPOD the saline effluents will just spread around the agriculture land, thus add into soil salinity.

30. The proposed drainage network will badly affect the already dying environment of Indus Delta. There is no fresh water available to add the ecological value of delta, which is essential for coastal forests and marine life. In the absence of fresh water, disposing toxic drainage effluents will destroy the remaining resources of marine fisheries and very little mangrove forests. The drainage effluents comprises not only the saline sub-soil water but also it takes along the residuals of pesticides, fertilizer and also industrial waste. There is no mechanism to monitor the quality of effluents; the disposal of thousands of cusecs of untreated effluents per day will pose serious negative impacts on marine resources, on which thousands of fishermen depend.

31. There are several small drains of Kotri Barrage Surface Drainage System falling into KPOD. Before extension of KPOD these drains were just disposing in open Rann of Kutch or some in local Dhands. The backwater effects of tidal link and then KPOD also affect the sub-drains falling in KPOD. During the monsoon rains in 2003 and cyclone of 1999 all these drains started flowing backward and caused flooding in thousands of acres. These drains brought sea water in our lands and the fertility of land is being degraded.

32. The tidal effect restricts the drainage flow twice in twenty-four hours; this fight between drainage effluents and sea tides continues for about 4-6 hours, during which time the drainage effluents is backed up. The standing drainage effluents seep into both sides of KPOD up to RD. 110, negatively effects ground water quality, which is a single drinking source, thus causing severe impact on human health. These impacts have never been studied or mitigated by project authorities or the World Bank. In case of increasing quantity of drainage effluents this problem will aggravate the ground water degradation.

¹⁸ See- Environmental Management Plan Framework, Sindh Province Terms of Reference (Final Draft) Pakistan Drainage Consultants, August 2000.

We believe that following specific provision of World Bank Operational Directive OD 4.01 has been totally violated:

- Project specific environmental assessments (EAs) should normally cover (a) existing environmental baseline conditions; (b) potential environmental impacts; (c) systematic environmental comparison of alternative comparisons; (d) preventive, mitigatory, and compensatory measures, generally in the form of an environmental mitigation or management plan. (There is no environmental management plan for NDP, after four years just EMP framework was prepared)
- Para 8 of annex-D of OD 4.01 mentions, “ In addition, in view of the need for the borrower to take the views of affected groups and local NGOs into account, the Task Manager ascertains the nature of the consultations undertaken with such groups and assesses the extent to which their views have been considered.
- (In case of NDP no such consultation have been conducted for EA)
- The project was classified into “ B” category, but that was again in violation of the World Banks guideline provided in annex-E of OD 4.01. The para 5 of guideline mentions, that a full EA is required if a project is likely to have significant adverse impacts that may be sensitive, irreversible and diverse. The projects of irrigations, drainage and flood control, as well as those that have resettlement impacts, are listed in category A projects. (NDP is a large drainage projects and has sensitive, irreversible and diverse environmental impacts, and resettlement impacts.)
- The appraisal mission ensures that the mitigation plan is adequately budgeted, and determines if the EA,s recommendations are properly addressed in project design and economic analysis. (In case of NDP there is no EMP and no budgeting).

33. The checklist for EA of bank-financed projects is quite comprehensive but in NPD all key components of EA has been either ignored or under estimated. The effect of NDP on marine resources, bio-diversity including local coastal plants, animal, critical habitats and protected areas will be entirely negative. The NDP has under estimated all these critical components during planning. We believe that we will lose several fish species and other marine bio-diversity due to toxic effluents; also there is threat to terrestrial plants. The economic costs of these biodiversity and environmental impacts have also been completely ignored.

34. We believe that World Bank has seriously violated its operational directive OD 4.01 in regard of taking into consideration the serious environmental issues. The Bank accepted the Drainage Sector Environmental Assessment (DSEA) prepared by the consultant on behalf of government of Pakistan. The DSEA focuses general environmental issues of the drainage sector in Pakistan. According to the assessment total saline effluents anticipated is 10.91 Maf (13.5 Bcm), of which, 60% is planned to be disposed directly into the sea through LBOD¹⁹, but the

¹⁹ Government of Pakistan, Water and Power Development Authority and International Bank for Reconstruction and Development. Pakistan Drainage Sector Environmental Assessment - National drainage Programme, June 1993, National Engineering Services Pakistan (PVT) Limited and Mott MacDonald International Limited

assessment which was acceptable to Bank to fulfill the requirement of OD 4.01 is incomplete, vague and does not cover the issues like coastal ecology, safe disposal into Arabian Sea and environmental degradation of wetlands.

35. The DSEA was prepared in early 1990's and during that time LBOD was not operational so the technical problems of LBOD fall system was not obvious, however this study was not updated during the consideration of NPD loan in 1997; we believe that this is a violation of Bank policies. The DSEA also lacks public legitimacy because no civil society groups or affected people were consulted during the prepared of study, as reported in DSEA volume-1 only experts and officials of different government agencies were consulted in all the workshops:

“The initial scoping sessions to identify the major environmental factors related to drainage were carried out in October 1991 with representatives of the EPAs, WAPDA and other interested agencies. It was followed by a Workshop in Environmental Assessment held at Lahore, on 8-9th April 1992, at which 27 professional representatives from EPAs, PIDs.”

36. The DSEA is also failed to focus on the environmental degradation of wetlands and its impact on species, as it is very clear from the text of DSEA and reproduced as under:

“The overall impacts of changes in wetlands and their species is extremely difficult, if not impossible, to attribute to the actual drainage process. Whilst drainage certainly can and does reduce wildlife stocks at specific sites, there have been powerful pressures against the survival of many wetland species over a long period. It is not possible to say that drainage is responsible for such declines, only that it is capable of augmenting the pressures from other directions.”

37. The World Bank operational directive is very clear and elaborative on mitigation measures and OD 4.01 suggests the preparation of Environmental Management Plan. But in case of NPD after the lapse of six years there is no such EMP. In addition to EMP the DSEA also proposed Wetland Management Plan and environment monitoring and Audit but nothing has materialized in this regard. This is a clear violation of World Bank's safe guard policies. We believe that the delay in formulation of EMP leads to the environmental degradation and eliminates our trust that any such kind of plan will be formulated in and implemented. The environmental disastrous effects of LBOD have not even been mitigated. Due to these delay in the implementation of EMP of LBOD and non-formulation of EMP of NDP we are bearing the cost of environmental degradation including reduced fish catch, loss of agriculture land and forest, loss of grazing land and degradation of Wetlands. Consequently the combined effect of all these factors is impoverishing us.

D. Damage to nationally and internationally recognized Wetlands

38. The Wetlands of Sindh especially mentioned below form an important component of a major migratory route for waterfowl known as the “ Indus Flyway”. They are important wintering, nesting and staging grounds for a large number of locally and globally important bird species,

including some endangered species such as the Dalmatian Pelican. Two species of marine turtles inhabit the area, including green turtle and the loggerhead turtle. The wetlands, channels and creeks are also a productive fishery source including several species of commercially valuable shrimp, prawns and crabs. The western margin of the Rann of Kutch, where the drains enter the coastal zone, consists of a number of small, interconnected lakes called Dhands in Sindh, and a number of small lagoons. The surface area of the Dhands varies seasonally and from year to year but averages about 700 sq.km.

39. These Dhands provide livelihood resources to the forty villages of fishermen having a 12000-15000 population and living around these water bodies. There is no other livelihood source except the fishing because the saline soil does not support agriculture and even where the land is marginally good, the shortage of irrigation water limits the potential of agriculture. These fishermen are living in absolute poor conditions without any education, health and drinking water facilities.

40. Two of these Dhands have been internationally recognized as a Ramsar sites because of their significance for migratory birds and other significant biodiversity and ecosystem values. One is the *Narreri lagoon* near the outfall of the *Fuleli* drain in *Mehro Dhand*, and the other is *Jubho lagoon* located on the western side of *Mehro Dhand*. Pakistan is a signatory to the Ramsar Convention. Under the obligation of Ramsar treaty the government and donors have to ensure the wise use and conservation of wetlands defined, recognized and protected by the convention. The World Bank is not supposed to provide support to projects that would contravene a government's requirements under international environmental treaties and agreements. This project therefore violates Operational Manual Statement 2.36.

41. During the discussion of LBOD disposal system ignoring the community concerns and suggestion the option of Tidal Link canal was finally chosen. The adopted scheme included a 26-mile Tidal Link Canal running from northeast to southwest connecting KPOD to an active tidal creek, *Shah Samando Creek*. As mentioned in the fact-finding mission²⁰ "the canal would physically separate the four major Dhands in the Sindh portion of Rann of Kutch, called *Sanhro*, *Mehro*, *Cholri*, and *pateji* from Rann of Kutch. The upland drainage water of KPOD would be confined within the deep cut of the Tidal Link canal bounded at both sides by high earthen embankments. The northern side of the embankment running along Pateji and Choleri Dhands was provided with an overflow concrete-crested weir (*Choleri* weir), 1800 feet long." The purpose of the weir is clear from ADB report²¹, which mentions, "An embankment was included on the northern side of the Tidal Link, and the Choleri weir was provided to allow drainage flows from the north to escape at low tides and to permit temporary storage of drain water at high tides. Such storage would have served to attenuate peak water levels in the upstream Tidal Link and thus improve conditions for the Kotri surface drains.

42. The idea of linking the KPOD with *Shah Samado* creek through Tidal Link that was passing through these wetlands (*Dhands*) was entirely unsound. Before the implementation of LBOD, these drains were receiving water from *kotri* drains, rainfall and surface runoff in the monsoon season. The construction of Tidal Link prevented the water of Rann of Kutch during wet years to

²⁰ See- Para 3 of Technical Notes and Recommendations of World Bank Fact Finding Mission.

²¹ See-Project Completion Report on LBOD. Asian Development Bank PCR: PAK 17055 December 2002

enter into *Dhands* and the fall of *kotri* barrage surface drains into KPOD also reduced flow towards *Dhands*. The decreasing water flow to *Dhands* reduced the areas of *Dhands*. The 1989 EIA for the LBOD determined that the most important effect of the Tidal Link on the *Dhands* would be excessive drainage due to the tidal fluctuations. However no measures were taken to preserve and prevent such kind of situation.

43. The collapse of Tidal Link Canal and *Choleri* weir constructed to regulate tidewater into *Dhands* had a significant negative impact on the ecology of *Dhands*. As recognized in project completion report of LBOD by ADB, In June 1998:

“A section of the *Choleri* weir collapsed as a result of erosion in the Tidal Link. In consequence, deep channels developed into the *Dhands* from the Tidal Link. Later, in 1999, a cyclone hit the project area, seriously damaging the Tidal Link’s embankments. The damage has not affected the disposal of saline effluents from the project area into the sea, but the influence of the tide has moved more than 20 kilometers (km) upstream along the Tidal Link. The impact of these events on the *Dhands* ecology and the food chain for wintering birds is expected to be detrimental. It also adversely affects communities living along the periphery of the *Dhands*.”

44. The World Bank’s fact-finding mission also observed same situation, according to mission report, “Since the collapse of weir and cyclone breaches in the embankment, the whole water and salinity balance of Tidal Link and *Dhands* have changed. The tidal link flow is no longer confined, and is instead, intermingled with the flow to and from the *Dhands* and the Rann of Kutch at every tide cycle through the breaches along the embankment. The salinity has been increased in the Tidal Link up to RD-35”. The mission report further recognizes that:

“Since the complete destruction of the weir in 1998-99, water now flows freely in and out of the *Dhands* in response to tidal fluctuations in the canal through the opening left by the absent weir, and through major breach in the canal bank. North of the weir opening, and the large breach in the embankment observed by the mission, a network of channels has quickly formed in the *Dhands* through which a significant portion of the *Dhands* are drained at low tide twice a day. Anecdotal suggests that local people are fearful of the changes taking place. They are reported to be concerned that because water is coming from all directions waterlogging will increase, that the strong tidal influence is bringing sea water to the *Dhands*, and that the Sea, once far away, is now very close.”

45. Despite this recognition of our concerns, the Bank has not done anything to ensure that these problems are addressed or mitigated.

We believe that following specific provision of World Bank Operational Policy OP 4.04, Bank Procedure BP 4.04 and Operation Policy Note No. 11.02 which are in operation since September 1995, have been totally violated:

- The Bank promotes and supports natural habitat conservation and improved land use by financing projects designed to integrate into national and regional development the conservation of natural habitat and the maintenance of ecological functions. Furthermore, the Bank promotes the rehabilitation of degraded natural habitats.
- The Bank does not support projects that, in the Bank's opinion, involve the significant conversion or degradation of critical natural habitats.
- In projects with natural habitat components, project preparation, appraisal, and supervision arrangements include appropriate environmental expertise to ensure adequate design and implementation of mitigation measures.
- Natural habitat components of a project are linked as appropriate to the schedule of implementation for the project. The costs of conservation of any compensatory natural habitats are included in the project's financing.
- There are two principle justifications for wildland management. First, wildlands serve to maintain biological diversity and second wildlands provide environmental services important to society. In addition, certain wildlands are essential for maintaining the livelihood of tribal peoples.
- Based upon these criteria, projects with following aspects should normally contain wildland components:
 - Agriculture and Livestock projects involving: Wildland clearing, wetland elimination. Wetlands such as ponds, marshes, swamps, flood plain forests, estuaries, and mangroves) can be eliminated inadvertently through water diversions upstream or deliberately through drainage, diking or filling.

46. The degradation of these important wetlands has caused severe damage to the ecosystem, habitat and fish catch. Although both the technical committee of the Government of Sindh and World Bank fact-finding mission recognized these issues after the 1999 cyclone, no measure was taken to prevent or mitigate the situation. Under the section of "risk" the fact finding mission mentions that " the first major risk is that the outcome anticipated by the Technical Committee, i.e. that the Tidal Link stabilizes and functions adequately but the uncontrolled connection between the canal and *Dhands* remains, results in substantial and irreversible damage to the ecosystem, habitat and fishery in the *Dhands*. The large diurnal fluctuations in *Dhand* water level may change conditions in the *Dhands* sufficiently to cause severe degradation to the ecosystem and loss of biodiversity and key qualities of the waterfowl habitat. The changes in biodiversity and habitat noted above could adversely affect the fishery reducing yields particularly of commercially important species".

47. During 2003 heavy rains the situation of *Dhands* and Tidal Link canal again worsened. Though in theory there would be an environmental management plan, but physically nothing has been done to conserve these nationally and internationally recognized wetlands. The

environmental management and monitoring plan for *Chotiari* reservoir, Nara canal and Tidal Link prepared by Sir M MacDonald and Partners Limited in association with NESPAK and Associated Consulting Engineering (Pvt.) limited does not even identify the importance of wetland and risk due to Tidal link canal²². This important document prepared by national and international consultants failed to note the risks related to key wetlands. Currently the areas of Dhands have been reduced and water quality has degraded. In consequence the fish catch has declined and the numbers of migratory birds have reduced significantly.

48. The NDP is entirely blind regarding this aspect of coastal ecology. We believe that with the implementation of NDP as per design, and if there is a inter-provincial drainage accord and trunk drains are being connected to the spinal drain of LBOD and bringing more effluents without taking any serious measure to preserve the ecology of *Dhands*, these highly important wetlands will be the story of past and people earning their livelihood will be forcibly migrated. This will be yet another example of involuntary displacement of people that is ignored by the official documents of both government and donors.

E. Indigenous People

49. The majority of coastal communities belong to *Mallah*, who from their forefathers are engaged in fishing. These groups of people are classified indigenous people, because they have close attachment to ancestral territories and natural resources in this area especially the shallow water bodies and wetland. These people are more marginalized and vulnerable to policy shocks such as degradation of their livelihood resources. Since having no asset base, the social and economic status of *Mallah* tribe of coastal belt is a major obstacle to access the productive resources. Living in and around the water bodies, far from the towns and lack of social amenities, these people have distinct identity, which is different from dominant society. There are more than 60 villages of this community with the population of 25,000 and engaged in fishing at both sea and contiguous wetlands. Some affected villages are very near to KPOD, Tidal Link canal and other are at some distance.

50. The operation of LBOD has brought significant changes in the lives of these people. The two-mega shocks mentioned earlier one cyclone in 1999 and other monsoon rains during 2003 have changed the economic base of these people. Both these shocks were interconnected with the operation of LBOD and aggravated by the overflowing and breaches in KPOD and Tidal Link. In both these two tragic events the Tidal Link Canal and KPOD inundated their villages, damaged houses and some families even lost their family members. The women and kids were the most affected groups during both events, as they cannot move quickly. In addition they lost their means of earning i.e. boats, and nets. These people could not manage to rebuilt their damaged house and buy the lost boats and nets. Already poor, these communities were pushed into further absolute poverty.

51. These communities have also witnessed eroding livelihood base after the operation of LBOD. The fish catch of shrimps, for example, has reduced significantly. In addition the reduced

²² See- Environmental Management and Monitoring Plan Chotiari Reservoir, Nara Canal and Tidal Link, Left Bank Outfall Drain Stage 1 Project, October 1995, Sir M MacDonald and Partners Limited in association with National Engineering Services Pakistan (Private) Limited and Associated Consulting Engineers (Private) limited.

area of *Dhands* and water quality have badly affected not only the fish catch but also several other aquatic plants, which were used both for commercial purpose and household use. This gradual decrease in livelihood resources affected overall health and well being of *Mallah* community and we have observed that these people have lost rather than gained from this huge project.

52. The NDP has not taken into account the poverty and impoverishment of indigenous people and is also unable to anticipate the negative effect of proposed NDP interventions on the already miserable conditions of these poor fishermen. We believe that proposed NDP investment will pose serious threat to the lives, livelihood and rights to development and culture of indigenous groups guaranteed under several international covenants. The project will inequitably distribute the costs and benefits. The marginalized and vulnerable group of indigenous communities as usual will be looser in this game. Again the worst affected will be women due to gender inequality in society.

We believe that following specific provision of World Bank Operational Directive OD 4.20 which is operation since 1 991, have been totally violated:

- The directive provides policy guidance to (a) ensure that indigenous people benefit from development project, and (b) avoid or mitigate potentially adverse effects on indigenous people caused by Bank-assisted activities.
- The bank's broad objective towards indigenous people, as for all the people in its member countries, is to ensure that the development process fosters full respect for their dignity, human rights, and cultural uniqueness. More specifically, the objective at the center of this directive is to ensure that indigenous peoples do not suffer adverse effects during the development process, particularly from Bank-financed projects.
- In many cases, proper protection of the rights of indigenous people will require the implementation of special project components that may lie outside the primary project's objectives. These components can include activities related to health and nutrition, productive infrastructure, linguistic and cultural preservation, entitlement to natural resources, and education.

F. Loss to Rich Cultural Property and Historical Monuments

53. The southern part of Pakistan i.e. district Thatta and Badin have long been a rich cultural location due to the vicinity of sea as well as the Indus Delta. There were several ports used for local and international trade. The few and very important cultural sides in Badin which are being badly affected by KPOD and Tidal link canal includes the monuments of saint *Shaikh Kirhiyo Bhandari*, the historical site of *Roopa Mari* and *thari*, these both sites were the important town of the dynasty of *Soomra* ruler in Sindh (1051 to 1351). Some of these archeological sites have been explored and other has been just identified by several historians and archeologists. Unfortunately, due to the neglect of cultural and historical and livelihood factors, the rich history of this area has not been fully understood. But the existing monuments of saints and formers rulers are quite important cultural sites.

54. The KPOD is just passing through the identified 4 km area of *Roopa Mari*, where the *soomra* rulers have their capital. The tomb of *Dodo Soomro* the last ruler of *Soomra* dynasty is also located there. All these cultural and historical sites are in the range of KPOD and Tidal Link flooding. The floods have hit these places twice in five years and there is eminent threat that we will lose our history and culture. In addition the current passage of KPOD has already occupied some of the area of cultural and historical importance and in case of expansion of KPOD, the remaining areas and monuments will be entirely vanished. In both the projects neither

We believe that following specific provision of World Bank Operational Policy OP 4.11, which is effective from August 1999 on cultural property, have been totally violated:

- The Bank normally declines to finance projects that will significantly damage non-replicable cultural property, and will assist only those projects that are sited or designed so as to prevent such damage.
- The Bank will assist in the protection and enhancement of cultural properties encounter in Bank- financed projects, rather than leaving that protection to chance. In some cases, the project is best relocated in order that sites and structures can be preserved, studied and restored intact in situ.
- This policy pertains to any project in which Bank is involved, irrespective of whether the Bank is itself financing the part of the project that may affect cultural property.
- The management of cultural property of a county is the responsibility of the government. Before proceeding with a project, however, with prima facie entails the risk of damaging cultural property, Bank staff must (1) determine what is known about the cultural property aspect of the proposed project site. The government attention should be drawn specifically to that aspect and appropriate agencies, NGOs or university departments should be consulted.

government nor donors have even bother to recognize the cultural and historical importance of this area and the threat to those places due to drainage projects.

G. Community Participation and Information Disclosure

55. Local communities, and especially the affected people of coastal belt, have been kept entirely unaware about the plans of NDP and its environmental assessments. There remains a serious lack of institutionalized mechanisms for information sharing and consultation with the affected people. The project planning process remained the business of few bureaucrats and donors and project implementation remained non-transparent and hence failed to obtain informed consent since the outset. We were entirely unaware regarding NDP until the rains of 2003 and we were informed that more effluents would be added in existing LBOD system. Event the NGOs involved in advocacy campaign with the World Bank have been refused vital information with regard to completion report of LBOD and feasibility studies of NDP. The participation of the affected people and local communities in any process of the project from planning to implementation is negligible.

The failure to involve local people especially marginalized indigenous groups who are worst affected by LBOD in the planning and implementation in NDP, the refusal to share information with affected communities and interested NGOs, and the failure to ensure that the voices and concerns of affected people are heard and considered in the context of environmental assessment, disposal of drainage effluents, conservation of wetlands and long term involuntary displacement is a violation of bank policies regarding involuntary resettlement, environmental assessment and indigenous peoples. Few of the project related document produced in English, which we cannot read was made available in the offices of WAPDA and other department and was also hard to access by us.

III. Steps Taken to Convey Concerns to the Bank and other Relevant Authorities

56. In connection of NDP, we came to know very late that now the disastrous LBOD drains are being extended without our consent and addressing the concerns. The local people from the area including *Faqir Natho Lund*, *Bahadur Khan Lund* and *journalist Allah Bachayo Jamali* were raising the issue with WAPDA officials, consultants and visiting mission members from time to time. The local branch of Sindh *Abadgar* Board (a organization of farmers) and the Sindh chamber of Agriculture officials were raising the concerns regarding the fall of LBOD and NDP at various forums time to time. But both donors and government officials remained silent and nothing practically has been done to adequately respond to these concerns or to satisfactorily resolve the issues.

57. We expedited our efforts and communication with government officials and World Bank after the monsoon rains of 2003 when the proposed outfall drains brought death and widespread destruction to our communities. In the reporting of failure of drainage system Mustafa Talpur of ActionAid sent an email to several organizations including Mr. Usman Qamar of World Bank Islamabad office on September 9, 2003. The above message outlined the failure of drainage system in Badin and losses to human life and livelihood resources. Another email was sent on September 11, 2003 to World Bank officials in Islamabad. **(Annex-2). No response was received.**

58. The affected communities organized a protest march on September 17, 2003 in Badin town in which they demanded the reparation of LBOD losses and cancellation of NDP loan. The detailed report of protest march again was communicated to Bank officials in Islamabad by Mustafa talpur and widely published in local and national media. **(Annex-3)**

59. On December 24, 2003 Mustafa Talpur of ActionAid has a meeting with Mr. Rafique Safi managing director Sindh Irrigation and Drainage Authority to communicate the viewpoint of local communities and civil society regarding the failure of LBOD and incoming issue of NDP. Mr. Safi was quite agreeing with the reservation made by communities on extension of NDP.

60. On December 27, 2003 Mustafa Talpur has a meeting with Mr. Abdul Rehman Laghari Chief Engineer WAPDA south to discuss the issue related to the disposal of effluents through Tidal Link, failure of system and NDP. He could not get any satisfactory answer from WAPDA official.

61. On December 28, 2003 the affectees of LBOD/NDP organized a protest rally in Karachi and widely supported by affectees of other projects including affectees of Manchar Lake, Chotirai

reservoir, RBOD and Indus Delta. Again the issue of drainage system failure and NDP was highlighted in the rally. The rally was widely reported in media (**Annex-4**)

62. In December ActionAid Pakistan published its research on disastrous effects of LBOD and future risks of NDP. The report was widely circulated and also sent to World Bank and Asian Development Bank Islamabad offices.

63. In December 2003 Mustafa Talpur phoned Mr. Usman Qamar senior irrigation engineer in World Bank Islamabad office to set appointment to discuss the concerns of NDP, but Mr. Qamar declined to meet and suggested to meet with WAPDA and other implementing agencies instead. Mr. Talpur also requested him for NDP related documents especially environmental management plan, but he denied having such a document.

64. During the Period of September 2003 to December 2003 the Save Coast Action Committee sent letters regarding the concerns of NDP/LBOD to more than 50 related government officials, donors and civil society groups including President and Prime Minister of Pakistan, World Bank Country Director, Chairman WAPDA, Chief Secretary Sindh, Chief Minister of Sindh, Irrigation and Power Department and Federal departments. (**Copy of letter is reproduced in annex-5**)

65. The Save Coast Action Committee organized a press conference at Press Club Hyderabad on December 11, 2003 in which they highlighted the issue related to the fall system of LBOD. Media reporting is given in **Annex-6**

66. On January 01, 2004 the District Nazim, Taluka Nazim and four Nazims including Union Council Bhugra Memon, Badin 3, Badin 2 and Seerani district Badin sent a letter regarding the concerns related to LBOD/NDP under the subject of "Save Badin from the devastation of LBOD and help in rehabilitation of Affectees to President of Pakistan, Federal Minister for Water and Power, Chairman Planning Commission of Pakistan, Governor of the province of Sindh and chairman WAPDA. (**Annex-7**)

67. On January 30, 2004 Mustafa Talpur wrote an email to Mr. Fred Roche of Asian Development Bank with Copies to World Bank officials, requesting him for environmental management plan of LBOD/NDP. But he never gave a satisfactory reply. (**Correspondence is reproduced in Annex-8**)

68. On February 09, 2004 four civil society groups wrote an email to Mr. John Wall country Director World Bank Pakistan seeking appointment to discuss the issues related to NDP. But no response was received from Mr. Wall. (**Annex-9**)

69. On February 09, 2004 four civil society groups sent same email to Mr. Manuel Contijoch, World Bank Task Team leader of NDP for requesting a meeting when he is in Pakistan to discuss the issues related to NDP. But no response was received from Mr. Contijoch and he never bother to contact the communities and civil society groups when he visited Pakistan later.

70. On February 12, 2002 another email was sent to Mr. Manuel Contijoch, Task Team leader of NDP with its copies to John Wall Country Director World Bank Islamabad office, Usman Qamar

Senior Irrigation Specialist Islamabad office, Praful C. Patel regional vice president and Senior Advisor (South Asian Environment and Social) requesting them for considering the community concerns on NDP. But no replies have been received so far. **(Annex-10)**

71. On March 15, 2004 Ten people including a 11 years old girls and two women of Save Coast Action Committee, observed seven hours token hunger strike in front of World Bank Islamabad office to record their protest on National Drainage Program and losses occurred due to Left Bank Outfall Drainage. They handed over the demand letter to World Bank officials **(Annex-11)** and same letter was also sent by mail to the World Bank President James W. Wolfhenson and Vice President for South Asia Praful C. Patel. The event was widely published in national English and Urdu newspapers and communicated to World Bank officials, but there was no response. **(Annex-12)**

72. On April 20, 2004 Mustafa Talpur and Khadim Hussain of ActionAid Islamabad had a meeting with Mr. Roche and Suhail Sober Khan of Asian Development Bank, in which the issues related to NDP, was discussed in detail. Mr. Roche admired the role of NGOs in highlighting the community and environmental issues of mega projects and he was of the view that ADB is not interested in investing the mega water projects.

73. On May 01, 2004 the affected coastal communities and local NGOs organized a huge protest rally in Badin town and demanded reparation of LBOD, repair of LBOD breaches and cancellation of NDP loan. Local members of Sindh Assembly attended the rally. Again the rally was widely reported in local newspapers. **(Annex-13)**

74. On May 15, 2004 Taluka Nazim Badin wrote a letter to the President of Pakistan with copies to chief minister of Sindh, Federal minister for Water and Power, Country Director World Bank and Director General Pakistan Environment Protection Council under the subject of “Permanent solution of LBOD disposal system in district Badin and rehabilitation of 2003 affectees”. **(Annex-14)**

75. In May 2004 district Nazim Badin wrote a letter to the Commander of Five Corps of Pakistan army under the subject of “Permanent Solution of LBOD disposal system in district Badin and Rehabilitation of 2003 affectees”.

IV. Summary and Demands

76. The main idea of NDP is to construct a network of surface and sub-surface drainage system in entire Indus Basin Irrigation System. The effluents consisting of saline water, runoff water, and agriculture residuals would be transported through the network of surface drains to dispose into Arabian Sea. On the left side of Indus River this upcountry network will be connected to existing LBOD system and on the right bank to connect with on-going RBOD network. We are unhappy with the entire concept of NDP in which it is proposed to construct National Surface Drainage System because it is seriously flawed and will destroy the coastal ecology, the environment and our livelihood resources. We believe that the NDP if implemented as designed will encroach our fundamental rights including right of living and development. The effluents disposed through NDP constructed drains will degrade already dying wetlands, aggravate the

problem of sea intrusion & loss of agriculture land, will cause mass migration of coastal communities, will be permanent threat of flooding and destroying villages and crops, will further impoverish indigenous population of *mallah* and *cause* loss to cultural heritage.

77. Since the construction and operation of LBOD, we have been raising our concerns with relevant authorities, but nothing has been done to address our concern. After the operation of LBOD several environmental, social and technical issues have been surfaced, but without looking the drawbacks of already constructed system or mitigating existing problems and flaws, donors have financed another project to expand the current drainage system which will only exacerbate the harm suffered by local communities. We have tried our best to engage with local authorities and World Bank officials to discuss our concerns with them. But we have not got any positive response from them. From time to time we have been engaged in peaceful protest in order to protect our historical rights and entitlements. But all our peaceful efforts of engagement and protest have yielded nothing.

78. We are requesting the inspection panel to review and respond this inspection request submitted under the Inspection Procedure of World Bank. Our major demand is that the project be put on hold until it is brought into compliance with World Bank policies and clear link is established that there will be no social, environmental and livelihood losses in future. We have following specific demands:

- The World Bank must require and assist the borrowers-the government of Pakistan and the Sindh government-to bring the project into Compliance with the terms of the indigenous/tribal people's policy, the environmental assessment policy and involuntary resettlement.
- An independent and participatory social, cultural and environmental impact assessment should be carried out at the coastal areas including wetlands
- The full investigation of livelihood losses due to degradation of Wetlands and loss of life, livestock, and of agriculture land due to sea intrusion should be carried out and affected people must be compensated for such losses.
- Full independent technical study for the alterative option of disposal system.
- The calculation of losses occurred due to failure of LBOD and full reparation of the affected communities.
- Independent and transparent study with the full participation of local coastal communities to determine the possible future risks, losses and problems if the existing disposal routes will be used.

Based on the foregoing, the claimants hereby request that the World Bank Inspection Panel undertake an independent investigation into the policy violations in this project and recommend, in consultation with affected people, measures for bringing it into compliance and for correcting the harm that has been caused by policy violations.

ANNEX II

MANAGEMENT RESPONSE

**BANK MANAGEMENT RESPONSE TO
REQUEST FOR INSPECTION PANEL REVIEW OF THE
PAKISTAN NATIONAL DRAINAGE PROGRAM PROJECT (Credit No. 2999)**

Management has reviewed the Request for Inspection of the Pakistan National Drainage Program Project (Credit No. 2999), received by the Inspection Panel on September 10, 2004 and registered on September 17, 2004 (RQ04/5). Management has prepared the following response.

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ABBREVIATIONS AND ACRONYMS

| | |
|---------|--|
| amsl | above mean sea level |
| ADB | Asian Development Bank |
| AWB | Area Water Board |
| BP | Bank Procedure |
| CBO | Community-Based Organization |
| CCA | Cultivable Command Area |
| CIDA | Canadian International Development Agency |
| DERA | Drought Emergency Recovery Assistance |
| DfID | Department for International Development (United Kingdom) |
| DMP | Drainage Master Plan |
| DPOD | Dhoro Puran Outfall Drain |
| DSEA | Drainage Sector Environmental Assessment |
| EA | Environmental Assessment |
| EIA | Environmental Impact Assessment |
| EMP | Environmental Management Plan |
| EMMP | Environmental Management and Monitoring Plan of the LBOD Stage 1 Project |
| EPA | Environmental Protection Agency |
| FESS | Fordwar Eastern Sadiqia South |
| FGW | Fresh Groundwater |
| FIDC | Federal Irrigation and Drainage Cell |
| FLAR | Framework for Land Acquisition and Resettlement |
| FO | Farmer Organizations |
| GoP | Government of Pakistan |
| GoS | Government of Sindh |
| IDA | International Development Association |
| IES | Initial Environmental Scoping |
| IPN | Inspection Panel |
| IsDB | Islamic Development Bank |
| IWASRI | International Waterlogging and Salinity Research Institute |
| JBIC | Japan Bank for International Cooperation |
| KPOD | Kadhan Pateji Outfall Drain |
| LBOD | Left Bank Outfall Drain |
| NDP | National Drainage Program |
| NGO | Non-Governmental Organization |
| NIO | National Institute of Oceanography |
| NSDS | National Surface Drainage System |
| NWFP | North West Frontier Province |
| OD | Operational Directive |
| ODA | Overseas Development Administration |
| OFWM-PB | On Farm Water Management - Punjab Agriculture Department |
| O&M | Operation and Maintenance |
| OP | Operational Policy |
| OPEC | Organization of Petroleum Exporting Countries |
| PAP | Project Affected Person |

| | |
|-------|--|
| P&D | Planning and Development Division, Government of Punjab |
| PDC | Pakistan Drainage Consultants |
| PIC | Public Information Center |
| PIDA | Provincial Irrigation and Drainage Authority |
| PID | Project Information Document |
| PIDs | Provincial Irrigation Departments |
| PoE | Panel of Experts |
| ppt | parts per thousand |
| PSR | Project Status Report |
| QACU | Quality Assurance and Compliance Unit |
| RAP | Resettlement Action Plan |
| RBOD | Right Bank Outfall Drain |
| RD | Reduced Distance measured, one RD=1000 feet |
| SAR | Staff Appraisal Report |
| SAR | South Asia Region |
| SASAR | South Asia Agriculture and Rural Development Unit (WB) |
| SCARP | Salinity Control and Reclamation Projects |
| SDC | Swiss Development Corporation |
| SGW | Saline Groundwater |
| SEPA | Sindh Environmental Protection Agency |
| SFD | Saudi Fund for Development |
| SIDA | Sindh Irrigation and Drainage Authority |
| SMO | SCARP Monitoring Organization of WAPDA |
| TOR | Terms of Reference |
| WAPDA | Water and Power Development Authority |
| WECS | WAPDA Environmental Cell (South) |
| WMED | Watercourse Monitoring and Evaluation Directorate of WAPDA |
| WMP | Wetland Management Plan |

| English Units | | UNITS | | |
|-------------------------|-------|---------------------|------------------------|-----------------------|
| | | Metric Units | | |
| 1 inch | (in) | 25.4 | millimeter | (mm) |
| 1 foot | (ft) | 30.5 | centimeter | (cm) |
| 1 mile | (mi) | 1.609 | kilometer | (km) |
| 1 acre | (ac) | 0.405 | hectare | (ha) |
| 1 million acre | (Ma) | 0.405 | million hectare | (Mha) |
| 1 acre foot | (af) | 1,233.5 | cubic meter | (m ³) |
| 1 million acre foot | (Maf) | 1,233.5 | million cubic meter | (Mm ³) |
| | | 1.234 | billion cubic meter | (BCM) |
| 1 cubic foot per second | (cfs) | 28.5 | litre per second | (l/s) |
| | | 0.0285 | cubic meter per second | (m ³ /sec) |
| 1 foot per second | (fps) | 0.305 | meter per second | (m/s) |

I. INTRODUCTION

1. On September 17, 2004, the Inspection Panel registered a Request for Inspection, IPN Request RQ04/5 (hereafter referred to as “the Request”), concerning the Pakistan National Drainage Program (NDP) Project partly financed (Credit No. 2999) by the International Development Association (IDA).

2. **Structure of the Text.** The document contains the following sections: Section II provides information on the Request. Section III presents the background of the project, including the history of the drainage crisis in Pakistan and earlier projects. The section also contains a description of project status and evolution. Section IV discusses issues of particular relevance to the Request, including the Left Bank Outfall Drain, the Tidal Link and Cholri Weir, and NDP project issues. Section V recommends actions, and Section VI concludes the main text. Annex 1 presents the Requestors’ claims, together with Management’s detailed responses, in table format. Eight other annexes provide background and other pertinent information.

II. THE REQUEST

3. The Request for Inspection was submitted by Khadim Talpur, Mohammad Ali Shah, Mustafa Talpur, Munawar Hassan Memon, Iqbal Hyder, Mir Mohammad Buledi, and Najma Junejo on their own behalf and on behalf of over 2,000 others who live in the area known as district Badin, Sindh, Pakistan (hereafter referred to as the “Requesters”).

4. Attached to the Request are:

- Attachment 1 – Pictures and media reporting of failure of Left Bank Outfall Drain (LBOD) during 2003 rains;
- Attachment 2 – Article circulated on email on failure of LBOD during 2003 monsoon rains;
- Attachment 3 – Reporting and media coverage of Affectees Rally in Badin Town;
- Attachment 4 – Media coverage of Karachi Rally;
- Attachment 5 – Letter sent by Save Coast Action Committee during Sept. 2003 to Dec. 2004;
- Attachment 6 – Media Reporting of Rally and Press conference by Save Coast Action Committee;
- Attachment 7 – Letter of District and Taluka Nazims sent to President of Pakistan;

Pakistan

- Attachment 8 – Email correspondence with the Asian Development Bank (ADB);
- Attachment 9 – Email correspondence with World Bank Country Director;
- Attachment 10 – Email correspondence with NDP Task Team Leader;
- Attachment 11 – Hunger strike demand letter for cancellation of NDP loan;
- Attachment 12 – Media Reporting of Hunger Strike;
- Attachment 13 – Pictures and media reporting of May 2004 rally in Badin, Sindh, Pakistan;
- Attachment 14 – Letter of Taluka Nazim Badin Sindh Pakistan to President of Pakistan;
- Map of LBOD Area;
- Map of proposed national drainage network in upper Indus Basin; and
- Map of proposed drainage network in lower Indus Basin.

No further materials were received by Management in support of the Request.

5. The Requesters claim that the Bank has failed to observe or has otherwise violated various provisions of its own operational Policies and Procedures, including:

- OD 4.01 Environmental Assessment (October 1991);
- OP 4.04 Natural Habitats (September 1995);
- OD 4.20 Indigenous People (September 1991);
- OD 4.30 Involuntary Resettlement (June 1990); and
- OPN 11.03 Management of Cultural Property (September 1986).

III. PROJECT BACKGROUND

6. Many of the issues raised in the Request relate to the prior LBOD Stage 1 Project, which closed in 1997. The Requesters claim that the LBOD system is faulty and they have incurred losses because of its poor design. They also voice concerns that the NDP project would extend the system to serve the entire Indus Basin, adding more effluents from the upper basin, through a National Surface Drainage System (NSDS). Management wishes to note that the LBOD Stage 1 Project was closed in 1997 and NDP will not extend the LBOD Spinal Drain further north. Although the NDP project as originally con-

ceived in the 1997 Staff Appraisal Report (SAR) was to have laid the groundwork for the NSDS, the concept was subsequently rejected as a result of extensive studies and reviews (see Annex 1, Items 6 and 7). Issues relating to the LBOD Stage 1 Project and the NDP project are further elaborated in Section IV and the chronology of the two projects is provided in Annex 2.

7. **The Project.** The NDP project originated as a result of the new strategy for water resources development formulated by the GoP and IDA in 1994 (Pakistan Irrigation and Drainage: Issues and Options, March 1994) and other recommendations, including the Borrower's Water Sector Investment Planning Study, the Eighth Five-Year Plan (1993-1998) and lessons of experience from projects in Pakistan and the reform experience in Mexico, Turkey, Chile and elsewhere. The GoP and IDA commissioned a Drainage Sector Environmental Assessment (DSEA), which was completed in 1993, in response to the deterioration of drainage and environmental status of the Indus Basin Irrigation System. The lack of an effective drainage system for the Indus Basin Irrigation System was considered a principal threat to the sustainability of agriculture in the Basin (see Annex 3 on the history of the drainage crisis in Pakistan). In 1992, IDA had stopped all new lending to the sector pending formulation and agreement with the GoP on a new strategy. As part of the new direction, IDA and the GoP closed eight projects between FY92 and FY94 and restructured a number of others. The Bank meeting on the Initial Executive Project Summary for the NDP project was held in January 1994 and the project was prepared over a period of almost four years. The project's complexity is dictated by its challenging context—the irrigation system of Pakistan is one of the largest integrated irrigation networks in the world. See Map 1.

8. The IDA Credit 2999-PAK for USD 285 million for the NDP project was approved by the Board of Executive Directors on November 4, 1997. Two legal agreements pertain to the project: the Development Credit Agreement between the Islamic Republic of Pakistan and IDA, and the Project Agreement among the Pakistan Water and Power Development Authority (WAPDA), the Provinces of Punjab, Sindh, North West Frontier and Balochistan and IDA, both signed on December 16, 1997. The project became effective on February 25, 1998. It is being implemented by WAPDA and the Provinces of Punjab, Sindh, North West Frontier, and Balochistan on behalf of the Government of Pakistan (GoP).

9. **Project Financing.** The NDP project's estimated cost was USD 785 million, of which USD 525 million was provided by several donors. IDA contributed USD 285 million; the ADB provided USD 140 million; and the Overseas Economic Cooperation Fund (OECF), later renamed to Japan Bank for International Cooperation (JBIC), provided USD 100 million. Farmers, through Farmer Organizations (FOs), were to contribute USD 32.1 million and GoP and the Provinces the balance of USD 227.9 million. Loan Agreements with ADB and OECF were signed on December 6, 1996 and March 31, 1997, respectively. Both these donors are participating in the project on the basis of parallel financing.

10. **Project Objectives.** The NDP project is supporting a six and one-half year time slice of GoP's 25-year national irrigation and drainage program. It spans all four Prov-

inces of Pakistan, with a total irrigated area of 18 million ha. The objective of the Project, as noted in the SAR, is to improve the efficiency of the irrigation and drainage system in Pakistan, and ensure its sustainability, by: (a) establishing an appropriate policy environment and institutional framework, and strengthening the capacity of sector institutions (to carry out the first phase of policy and institutional reforms in the water sector); (b) improving sector policies and planning; (c) strengthening the technical foundations of and knowledge base on irrigation and drainage; and (d) improving the irrigation and drainage infrastructure network. While the NDP project originally contemplated a solution such as the NSDS (see Map 2), the results of the pre-feasibility studies and reviews by two Panels of Experts (PoEs) have led to the preference for solutions other than the “drainage super-highway” concept in favor of local disposal options (see Annex 1, Items 6 and 7).

11. The NDP project, which marked a new concept in project design, was deliberately “frontloaded” with an institutional and policy reform agenda and “backloaded” with an investment program. Management sought to focus the dialogue on strengthening governance and transparency in the management of irrigation and drainage affairs—increasing community participation, strengthening environmental planning and management and improving water use efficiency. The institutional reforms were seen as critical to improving water management and therefore addressing problems of waterlogging and salinization. From the outset, it was seen as a complex intervention with a number of risks. The major risks emanated from the possible impact of the project on existing power relationships and alliances in rural Pakistan, as was evidenced by the strong opposition of feudal interests and parts of the irrigation bureaucracy, such opposition included thwarting civil works, damaging infrastructure and illegally removing water, and discouraging farmers from paying water charges.

12. **Project Components.** The NDP project has four components:

- *Sector Planning and Research* (USD 25.7 million) providing capacity building and technical assistance for: (a) policy-oriented studies in irrigation and drainage; (b) sector planning studies; and (c) research, including major research programs, and small grants programs;
- *Institutional Reforms* (USD 57.7 million) calling for institutional reforms to WAPDA’s Water Wing, focusing on strategic reorientation, streamlining and restructuring, and capacity building and training. An institutional program is aimed at decentralizing Provincial Irrigation Departments (PIDs) and converting them to Provincial Irrigation and Drainage Authorities (PIDAs), and establishing pilot Area Water Boards (AWBs) and FOs;
- *Investment* (USD 683.1 million) designed to improve drainage and water management infrastructure and protect wetlands. Subprojects are focused on rehabilitation, construction and improvement of on- and off-farm drainage; rehabilitation and modernization of irrigation systems; and operation and maintenance through performance-based contracts awarded to the private sector, including completion of some carry over projects from LBOD Stage I; and

- *Program Coordination and Supervision* (USD 18.5 million) which supports overall program coordination and monitoring, comprising the Federal Project Steering Committee, which is chaired by the Secretary of the Ministry of Water and Power of the Borrower; the Federal Irrigation and Drainage Cell (FIDC) in the Ministry of Water and Power; and WAPDA and Provincial NDP Coordination Cells.

13. **Financing Arrangements.** According to the understanding among the NDP donors, IDA is financing institutional reforms, a part of the investment component in all Provinces, all sector planning and research, technical assistance, and coordination and supervision costs. ADB is providing parallel financing for the major part of the investments in Balochistan and NWFP, some in Sindh and environmental management monitoring and evaluation. JBIC is providing parallel financing for most of the investment projects in Punjab and training and capacity building.

14. **Project Supervision.** Since it became effective in February 1998, the NDP project has been intensively supervised by a combination of headquarters and field staff and consultants. Task management was based in the field from January 2000 to August 2003; the co-task team leader has always been located in Islamabad. In addition to regular interactions with the Borrower and implementing agencies, there have been ten full supervision missions (see Annex 4). Supervision required above average costs because of the range of expertise required and the intensity of the effort, given the complexity of the project. Except for FY02, NDP project supervision costs were a factor of 2-3 times the norm in the South Asia region (see Table 1 below):

Table 1. Comparative Supervision Costs NDP, SASAR, SAR (USD 000)

| | FY98 | FY99 | FY00 | FY01 | FY02 | FY03 | FY04 |
|-------|------|------|------|------|------|------|------|
| NDP | 237 | 285 | 389 | 269 | 96 | 372 | 177 |
| SASAR | 97 | 108 | 131 | 94 | 69 | 131 | 70 |
| SAR | 79 | 110 | 135 | 87 | 60 | 79 | 63 |

15. **Project Status.** As of September 28, 2004, USD 206.5 million (72 percent of the original Credit amount) were disbursed. Bank Management and GoP have agreed that NDP will be closed on December 31, 2004, the original closing date. All ongoing IDA supported subprojects are expected to be substantially completed by that time. JBIC has agreed to a two-year extension to allow completion of a large canal remodeling subproject it is supporting in Punjab. ADB is also considering extension up to December 2006, subject to improved performance on institutional reforms and satisfactory monitoring arrangements.

16. **Project Evolution.** Project implementation proceeded more slowly than expected due to various reasons, including project complexity, poor coordination and leadership; an absence of reform “champions” and, therefore, lack of commitment to, and slow launch of, institutional reforms; a lengthy subproject identification and preparation process; and lack of agreement on a drainage strategy. The Mid-Term Review (MTR) process was conducted jointly with the ADB and JBIC. The February-April 2000 MTR mission

(also the Bank's fifth supervision mission) concluded that further review was needed. Hence, the MTR continued in March-April 2001 and resulted in recommendations for restructuring. By the second stage of the MTR, it was evident that the project as originally designed was overly ambitious and unlikely to meet its target and objectives. Figure 1 shows the relationship of the long-term vision of GoP to use of land and water resources.

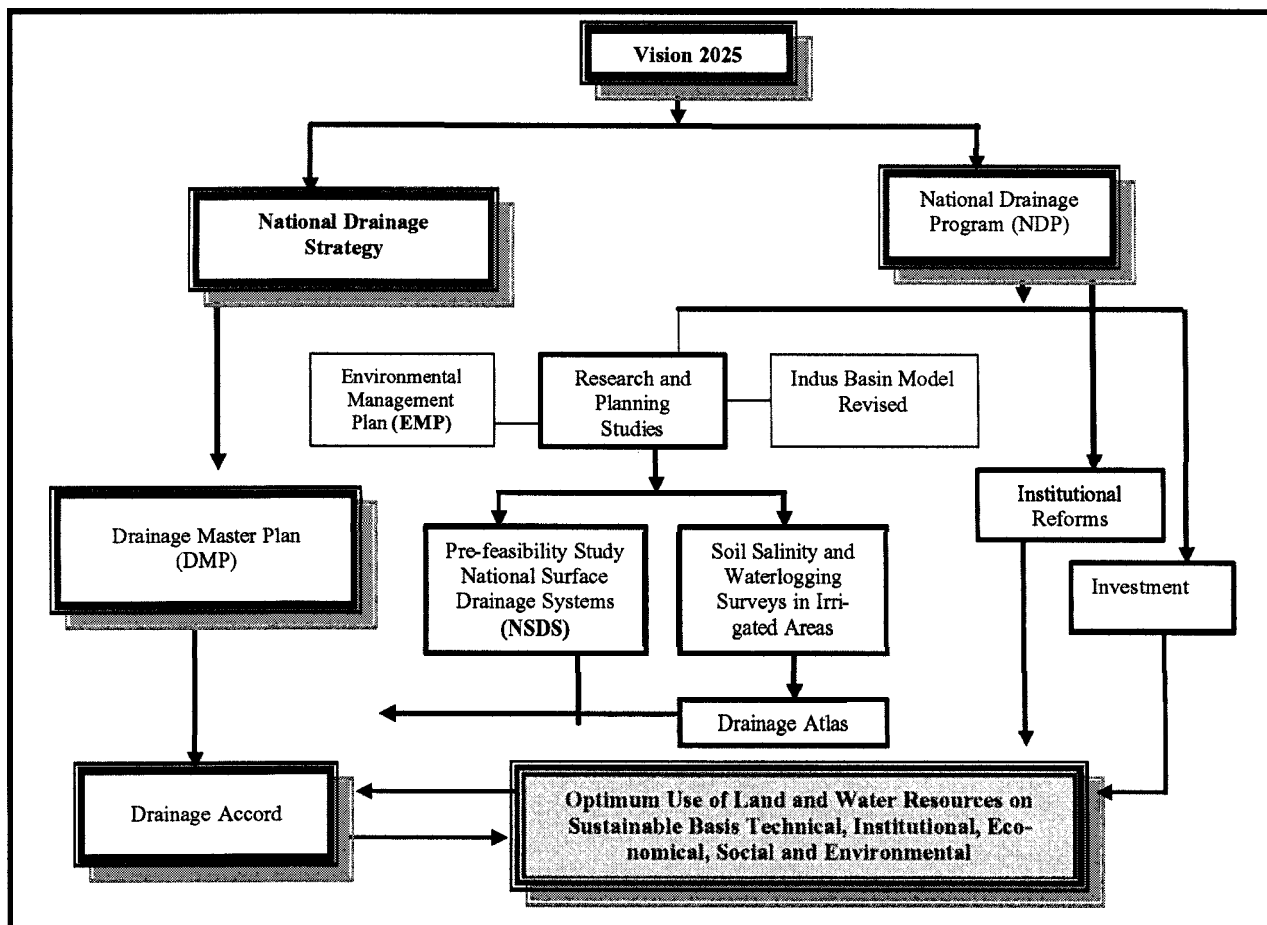


Figure 1. Relationship between the Vision of GoP and Use of Land and Water Resources (Source: Mid Term Review Report NDP, 2001)

17. **Review by Special Committee Appointed by the President of Pakistan.** Following a change of government in October 1999, the GoP subjected all externally assisted projects, including the NDP, to a detailed review. Shortly after the second MTR mission, in June 2001, the President appointed a Special Committee (the Junejo Committee) headed by the Federal Minister for Food, Agriculture and Livestock to carry out an in-depth review of NDP. The project was put "on-hold" until completion of the review. The deliberations of this Committee culminated in a report entitled "Report of the Special Committee on the Review of the National Drainage Program," (February 2002).

18. The key recommendations of the Report were that NDP implementation should be revived with full momentum according to the restructured program proposed by the Special Committee; a Drainage Master Plan (DMP) be prepared within nine months; a Drainage Accord reached amongst the Provinces at the earliest; institutional reforms implemented strictly in their entirety and spirit; consultancy costs reduced; coordination among water and agriculture improved; the scope and size of investment component made commensurate with implementation capacity and remaining time period in the life of the project. In summary, the project objectives were endorsed, but the project cost was reduced from PRs 31.4 billion (USD 785 million equivalent at appraisal) to PRs 25 billion (USD 428.2 million equivalent) due to the elapsed time. The Report's recommendations were approved by the President in August 2002.

19. The MTR completion mission (Joint Donor Review) was carried out in October-November 2002 to identify expected outcomes—given the review of the Special Committee—and identify a program that could be implemented in the remaining two years of the project.

20. **Reallocation of USD 100 million for Drought Emergency Recovery Assistance (DERA).** Beginning in 2000, Pakistan was faced with a major drought, including severe water shortages in the major rivers and reservoirs that had a significant impact on agriculture and the overall economy. In April 2001, the GoP approached the Bank for emergency recovery assistance to mitigate the drought impacts. In response, the Bank agreed to allow use of funds from two ongoing projects, one of which was NDP, in which utilization of funds had been very slow. An amendment to the NDP legal agreements was approved by the Board of Executive Directors in July 2001 to create new categories to support the DERA components, and an amount of USD 100 million was allocated to these categories.¹ ADB also reallocated (USD 77.25 million) from its NDP loan to its drought recovery projects and two other irrigation projects.

21. **National Surface Drainage System (NSDS).** As called for in the NDP SAR, a pre-feasibility study of an NSDS was carried out from January 2001 to November 2002. This study envisaged a major drain, 1,464 km long, to carry drainage effluent from Punjab to the sea at an estimated cost of USD 575 million. The Bank fielded an independent PoE to review the Report and advise the Government. The PoE recommended that the proposed NSDS be deferred and that it be considered only if alternative approaches and measures—such as institutional and policy reforms, more efficient irrigation management, local stakeholder participation and management, and local drainage effluent disposal solutions—were not found adequate by themselves. The PoE, in its Draft Final Report of April 2003 (see Annex 5) also advised that further studies be carried out and their results incorporated in a proposed DMP for Pakistan.

¹ The funds allocated to DERA have been fully utilized or committed. The drought is continuing and its severity has once again increased. Severe water shortages are expected during the 2004-2005 winter crop season. GoP requested, and the Bank has approved, a further allocation of USD 35 million to the DERA categories.

22. **Implications of NSDS PoE Recommendations.** The PoE recommendations were endorsed by the Bank and the GoP. One implication of this was that the NDP investments in drainage would continue to be confined to: (a) rehabilitation of the existing system (essentially deferred maintenance and repairs) without increasing the drainage area;² and (b) investments to reduce the drainable surplus through improved water management, improvement of watercourses, channel lining, and institutional reforms, including greater farmer participation. See Annex 6 and Map 3.

23. **Drainage Master Plan (DMP).** The objectives of the DMP being prepared under the NDP project are to: (a) encourage and sustain increased agricultural production and improve agricultural productivity; (b) alleviate poverty and improve quality of life; (c) ensure equitable sharing of benefits accruing from investments and as far as possible target these benefits towards the disadvantaged; (d) encourage beneficiary participation in project formulation and construction, as well as in Operation and Maintenance (O&M); (e) reduce O&M liability of government to a minimum level; (f) minimize and mitigate adverse environmental impacts; and (g) improve the knowledge base of the planners, designers, executors and operators of projects. A draft of the DMP was completed in August 2004. At the request of the GoP, the Bank convened a PoE in September 2004 to review the draft DMP. The DMP PoE confirmed the finding of the earlier PoE that had reviewed the NSDS and rejected the concept of extending the LBOD or constructing major trans-basin drains.

24. **Project Outcomes.** While the NDP project did not bring about an increase in the area benefiting from new drainage capacity and facilities, it has had several positive outcomes. First, it helped to clear the backlog of deferred maintenance of the existing system (some parts of the irrigation and drainage system had had virtually no maintenance for several years). Second, although the institutional reforms component had a mixed performance, the need for the reforms was endorsed at the highest level of the GoP and the Provinces. Third, it was instrumental in the completion of key policy and sector studies that have paved the way for introduction of a National Water Policy and a drainage sector strategy for the country. Fourth, the project improved the knowledge base by providing funding for institutions and individual researchers and contributing international experience through study tours and use of international panels of experts. Fifth, the NDP project promoted farmer participation in the operation and maintenance of the irrigation system. Finally, the NDP project provided a forum for the discussion of long term options for the sustainable development of the Indus River Basin, and as a consequence, has raised awareness of the importance of sound environmental planning and management.

25. **Project Rating.** The project is currently rated as unsatisfactory overall, principally because of the *Institutional Reforms* component.

² The only exception is a battery of tubewells that would provide vertical drainage in the Mirpurkhaas area supported by ADB. These tubewells would be operated in situations where waterlogging reaches “disaster levels”— (0-150 cms from the surface).

- The *Sector Planning and Research* component is satisfactory: seven important policy studies have been completed and some seventeen sector studies are completed or about to be completed (see Annex 7). Similarly, the research component has performed satisfactorily;
- The *Institutional Reforms* component has had mixed performance. While Sindh has made substantial progress in mobilizing farmers in the pilot areas and in forming new institutions, progress in the other Provinces has remained slow. In Sindh, three AWBs were established, as were over 200 FOs, of which half have obtained operational autonomy (responsibility for O&M, authority to collect water charges). In Punjab, the proposed pilot AWB is not yet operational and while over 340 Nehri Panchayats (similar to FOs) have been established, only about 20 FOs are expected to be granted operational autonomy in the near future. In NWFP, one AWB and 20 FOs have been established. Balochistan withdrew from NDP after the MTR but rejoined in 2003;
- The *Investment* component was scaled down for various reasons, including lack of agreement within Provinces on a core portfolio of subprojects to be supported under NDP; inability to comply with the Framework for Land Acquisition and Resettlement (FLAR); and lack of an environmentally safe outfall for disposal of drainage effluent; and
- *Safeguard policy* compliance was first rated in December 1999 (Project Status Report – PSR, December 1999). Compliance with both the EA and Involuntary Resettlement policies was rated satisfactory. The rating for Involuntary Resettlement changed to unsatisfactory in 2001 due to continued disagreement with the GoP over the FLAR (PSR, December 2001). Based on subproject screening, the rating for compliance with the EA policy has remained satisfactory.

IV. SPECIAL ISSUES

26. The Request concerns three broad areas: losses the Requesters claim to have incurred due to poor design of the now-closed LBOD Stage 1 Project; impacts from the damage to the bunds of the Tidal Link and failure of the weir; and various issues with regard to NDP project implementation. Therefore, this section reviews issues related to LBOD as well as some broader issues of relevance to the NDP project. Another major concern of the Requesters, the extension of LBOD to the north, is no longer a part of the NDP project (see paras 21-23 and Annex 1, Item 7). Management's responses to specific claims are provided in Annex 1.

LEFT BANK OUTFALL DRAIN

27. In the early 1960s, the GoP started construction of a spinal drain system discharging to the Arabian Sea to dispose of the excess water of the lowland areas and reduce

flooding problems. A principal objective of the LBOD Stage 1 Project was to address the Indus Basin's drainage problems. The project was approved by the Board of Executive Directors in December 1984,³ it was implemented from September 1985 to December 1997, when it closed (after 4 years of extension).

28. Carrying the LBOD drainage, consisting of baseflow and stormwater, across the coastal zone to the Arabian Sea was considered important for several reasons. First, the drainage outflow from the system could not be emptied into the Shakoor Dhand and Rann of Kutch because these are international wetlands shared by India and Pakistan. Second, while the salinity of the drainage outflow is quite moderate compared to the Rann of Kutch, it was likely to contain a number of agricultural chemicals, nutrients, and industrial and domestic pollutants, and hence could not simply be disposed of in such a valuable wetland without possible risk to its important environmental values. Third, it was believed at the time that a sustainable direct outlet to the sea would need to be developed.

29. The adopted scheme for disposal of effluents included: (a) completion of the Spinal Drain (started in the 1960s and funded until then largely from GoP resources); (b) remodeling of the Kadhan Pateji Outfall Drain (KPOD) and the Dhoro Puran Outfall Drain (DPOD); and (c) a 26-mile Tidal Link canal, running from northeast to southwest across the Rann of Kutch and connecting KPOD to an active tidal creek, Shah Samando Creek. The canal physically separated the four major dhands⁴ (Sanhro, Mehro, Cholri, and Pateji) in the Sindh portion of the Rann of Kutch, from the rest of the Rann of Kutch. See Map 2.

30. As early as 1989, during preparation of the Environmental Impact Assessment (EIA) for LBOD Stage I, there were animated discussions among planners and civil society about the approach to effluent disposal. The 1989 EIA evaluated ecological impacts on the tidal creek, the coastal zone and the dhands. Exposing the dhands to the tidal fluctuations in the Tidal Link canal could have caused potentially serious ecological impacts. Therefore, the northern side of the Tidal Link canal was raised along the Pateji and Cholri Dhands and an overflow concrete-crested weir (Cholri Weir), 1,800 feet long, was constructed to protect the aquatic and marine ecology of the adjoining areas and to evacuate saline drainage water of the LBOD to the sea. The top of the weir was fixed at +4.5 feet above mean sea level (amsl) to prevent over-drainage of the dhands at low tide, and to allow the temporary flow of canal water into the dhands to attenuate water levels in the canal at high tide.

31. The LBOD was beneficial to Sindh agriculture and to the livelihoods of millions of people (see Annex 3). Among these benefits were increased agricultural productivity

³ The LBOD Stage I Project was financed by eight donors: for a total sum of USD 430 million (rounded) as follows: ADB (USD 169 million); IDA (USD 141 million); SFD (USD 43 million); ODA/DfID (USD 33 million); CIDA (USD 12 million); SDC (USD 10 million); OPEC Fund (USD 9 million); IsDB (USD 9 million); SDC/DfID/CIDA Trust Fund for M&E (USD 5 million). The Tidal Link component was funded by the SFD.

⁴ *Dhand* is the Sindhi word for the shallow lakes, depressions and wetlands commonly found in this region.

on more than half a million hectares (1.27 million acres); revival and expansion of agro-industries including rice milling, oil and flour mills, sugar factories and cotton ginning facilities; and greatly improved flood management in Sindh. All works under LBOD Stage I were completed except certain contracts pertaining to the remodeling of the Nara Canal, commissioning of the Jamrao Canal and some electrification works, which were carried over to the IDA-financed portion of the NDP project. None of these works pertain to the Requesters' claims.

32. **Status of the LBOD Environmental Management and Monitoring Plan (EMMP).** In 1997, the first series of baseline studies was carried out, covering avifauna, fisheries, water quality, and comparative land use. In 1998, an update of the 1995 EMMP was prepared for the LBOD Stage 1 Project, including the Tidal Link area, under ADB financing. The key mitigation measures identified in the 1989 EIA for the Tidal Link were incorporated in its design, but the lack of a complete baseline and continuing, systematic, scientific and well coordinated monitoring and study of the area remain critical issues. Apart from ongoing bathymetric and hydrographic surveys of the Tidal Link canal by the National Institute of Oceanography (NIO) and water table and salinity monitoring by WAPDA's SCARP Monitoring Organization (SMO), no further studies have been carried out, and no ecological monitoring, analysis or management of the situation in the area is taking place. More recently, based on its August 2004 mission, ADB has indicated that it is taking steps to ensure implementation of the LBOD EMMP, including a Stakeholder Consultation Workshop and implementation of monitoring activities.

33. An important consequence of the failure to implement the LBOD EMMP is the lack of public awareness of the need to sustainably manage both the fishery and the ecosystem of the dhands. Community mobilization and the creation of local mechanisms to sustainably manage the dhand ecosystem resources in collaboration with local authorities should be a central element of renewed efforts to implement a revised LBOD EMMP.

TIDAL LINK AND CHOLRI WEIR

34. **Damage to the Tidal Link and Cholri Weir.** Almost as soon as the Tidal Link began operating in June 1995 it experienced significant erosion and scour problems. In June 1998, undermining and erosion caused a 250 foot section of the weir to collapse. Many attempts were made to close the breached weir section, but all failed due to monsoon weather and the remoteness of the site. At the end of October 1998 the federal and provincial authorities and the consultants who visited the breach site jointly decided to stop further remedial works after the length of the breach in the weir had increased to 450 feet from the southern end. On May 21, 1999 a catastrophic tropical cyclone hit the Tidal Link area causing severe damage, which included the near total destruction of the Cholri Weir, and further breaches of both sides of the Tidal Link embankment in 56 places. Since the collapse of the weir and the cyclone breaches in the embankment, the water and salinity balance of the Tidal Link and the dhands have changed. The Tidal Link flow is no longer confined; instead, it is now intermingled with the flow to and from the dhands and the Rann of Kutch at every tide cycle. Details on the history of the Tidal Link are provided in Annex 8.

35. **Response of the Government and the Bank to the Damages.** In March 2001, the Bank fielded a Tidal Link Fact Finding Mission. The mission concurred with the view of the High-Level Technical Review Committee convened by the Government of Sindh (GoS) in May 2000 that, despite the damage, the Tidal Link was continuing to function (i.e., to discharge LBOD effluent to the sea with good gradient) and the ongoing channel evolution should stabilize sometime in the future, in a path that would generally follow the current alignment. It also agreed with the recommendations of the committee that no repair or remedial work should be undertaken for either the Tidal Link or the Cholri Weir until further monitoring provided a basis for formulating mitigation measures. The Bank Fact Finding Mission placed particular emphasis on the critical need to strengthen and expand the monitoring and study of the ongoing physical and morphological changes in the Tidal Link canal and the dhands, and of the environmental and socio-economic conditions in the dhands and their surrounding areas.

36. The PoE engaged to review the NSDS also considered the findings and recommendations of the Committee and the Fact Finding Mission. It agreed with the recommendations as given by the Bank Fact Finding Mission. The monitoring that is being done at present shows that after seven years without maintenance dredging, the discharge capacity has not been significantly reduced. However, from time to time maintenance dredging may be required to maintain the hydraulic performance of the drain outfall.

37. In a meeting chaired by the President of Pakistan on August 20, 2004 in Karachi, the Engineer in Chief of the Pakistan Army presented the findings of a review carried out on the July 2003 floods in Thatta and Badin Districts of Sindh. The review recognized the benefits that LBOD has provided to the Province as well as the need to address its limitations in order to enhance its performance. For example, it was recommended that the GoS, in consultation with and with technical support from WAPDA, analyze additional flood mitigation measures to prevent damage from future unusual storms.

38. The lower Badin area is characterized by severe poverty and harsh living conditions. Management acknowledges the disruption in livelihoods experienced during the extreme weather events in 1999 and 2003 (see Annex 1, Item 20). However, given the difficult circumstances of the lower Badin area, it cannot be presumed that these disruptions are attributable directly to the damage to the Tidal Link and failure of the Cholri Weir. The Fact Finding Mission acknowledged the environmental and social risks of these events and the Bank is supporting a diagnostic study to determine to what extent they have affected livelihoods (see para 45 and Annex 1, Item 17).

NDP PROJECT ISSUES

39. **NDP Implementation Delays.** Three aspects of NDP implementation were weak. First, the original intent to frontload implementation of major planning studies, such as the NSDS, was not realized. The DMP, while not specifically mentioned in the SAR, was seen as part of the NSDS study (Back-to-Office Report, July 10, 1995). Both the NSDS and DMP studies were initiated more than halfway through the project implementation period. If the studies had come earlier, they would have provided opportunities to focus on finding local drainage effluent disposal solutions, which was being emphasized in the

planning and implementation of subprojects. Second, the environmental management and planning studies that were upfront covenants in the ADB loan did not begin for four years and hence the ability of the project to benefit from the findings was reduced. Third, the institutional development component did not make much progress in Punjab, NWFP and Balochistan Provinces, although significant progress was made in Sindh.

40. **Project EA Categorization.** Environmental Data Sheets were prepared in April 1993, May 1995 and March 1997. In each case, the project was designated as Category B under OD 4.01. The rationale for assigning the NDP project to Category B was that a primary objective was to address environmental issues associated with irrigation. Significant, beneficial environmental effects were anticipated, i.e., the project would address problems such as waterlogging and salinity and mitigate the effects of sedimentation, soil erosion and water contamination. Capacity building to strengthen environmental assessment and monitoring was contemplated; investment subprojects would conform to environmental criteria and Resettlement Action Plans (RAPs) were to be prepared. The 1995 Data Sheet noted that ADB had prepared a detailed Environmental Report to update the DSEA and apply it to the more specific designs of NDP, but this document could not be located.

41. During the 1990s, the Asia environment department (combining what are now the East and South Asia environment units) of the Bank placed some relatively large projects in Category B (“the big Bs”). Such categorization appears to have reflected a premature (pre-EIA) balancing of possible adverse effects with positive effects, and a focus on individual infrastructure activities, without regard to their potential cumulative effects. Thus, a Category B for the NDP project was consistent with the Region’s practice at the time—it had potential environmental benefits and the investments were individually small- to medium-sized subprojects that had not yet been designed but would be subject to environmental and social screening. Management acknowledges that it would have been more appropriate to categorize this as an EA Category “A” project.

42. This practice of “big B” categorization has ceased. The creation of the Quality Assurance and Compliance Unit (QACU) in 2000 with its mandate to pursue quality and Bankwide consistency in the application of safeguard policies, examination of the portfolio by QACU and regular discussions among the anchor and Regions about safeguards have significantly improved the understanding of how projects should be categorized. In particular, there is now recognition of the need to consider potential regional and cumulative effects, the overall size of investment components and the use of the Category A designation as appropriate to projects with major risks.

43. **Compliance with Bank Safeguard Policies.** Management believes that the NDP project is in compliance with many of the requirements of OD 4.01 (Environmental Assessment), including preparation of a sectoral EA and requirements for screening of subprojects in a sector investment loan. Independent consultants to WAPDA, Pakistan Drainage Consultants (PDC), carried out environmental scoping and screening, social assessment and economic analysis for subprojects other than O&M. Subprojects were dropped or their design modified to ensure compliance with environmental and social requirements and guidelines. A Bank consultant further reviewed subproject appraisal re-

ports and conducted site supervision of ongoing works. Nevertheless, no report has yet been prepared on ex-post sampling, as required in the April 2000 MTR, to ensure compliance with the EA policy or the covenants concerning screening in the Project Agreement. Implementation of an Environmental Management Plan (EMP), required by the Project Agreement to cover the cumulative basin-wide environmental aspects and implications of the project as a whole, has not yet been achieved. Consultations on the DSEA appear to have been few, particularly with affected groups. With respect to disclosure of the EA (see Annex 1, Item 23), the NDP project was not in compliance with BP 17.50, Disclosure of Operational Information, since the DSEA was not disclosed prior to appraisal at the Infoshop and no records of disclosure in country could be located.

44. According to the PSR, OP 4.04 (Natural Habitats), OD 4.20 (Indigenous Peoples), and OPN 11.03 (Cultural Property) were not applicable. Natural habitats and cultural property issues were to have been taken into account in Initial Environment Scoping (IES) for investment subprojects as appropriate. As explained in Annex 1, Item 20, OD 4.20 on Indigenous Peoples does not apply to the Mallah community. With respect to OD 4.30 on Involuntary Resettlement (see Annex 1, Item 14), the FLAR was agreed to during negotiations but objections were subsequently raised by the GoP and agreement could not be reached. Therefore, no subprojects involving resettlement were financed by IDA.

V. RECOMMENDED ACTIONS

45. While a poverty-targeted intervention is certainly needed in the lower Badin area, Management believes that the NDP project is not the right instrument for this and further, that implementation of the NDP project has not worsened the plight of the people living near the dhands. The National Rural Support Program, with resources from the Pakistan Poverty Alleviation Fund (PPAF), has been active in Badin District for the last three years and has completed approximately 50 community infrastructure projects that have included watercourse linings, hand pumps and link roads, all aimed at improving livelihoods. The GoS High-Level Technical Committee (see Annex 2) reviewed the environmental and social effects of the cyclone damages to the Tidal Link and Cholri Weir and outlined a series of physical and other livelihood interventions targeting the population in areas prone to flooding in lower Badin. Taking into account the findings of the High-Level Technical Committee, the Bank will implement the following actions:

- Assemble a PoE to review the ecological, hydrological and water quality monitoring data in the LBOD outfall area and propose a course of action. This course of action would be developed within the next three to six months;
- Carry out a diagnostic study focused on livelihood improvements in the area, in consultation with GoP, GoS and the affected population, to determine the extent and severity of losses incurred and, in discussion with the district authorities in Badin, formulate a livelihood assistance program, taking into consideration the ongoing programs in the area. The diagnostic study will examine the relationships between economic, social and vulnerability concerns, and

natural resource management in the area, including the Mallah fishing community. This approach would be developed within the next three months; and

- Assist the GoP with a Country Water Resources Assistance Strategy (scheduled to be completed in June 2005) and Strategic Country Environmental Assessment, and work with the GoP, ADB and other partners in supporting environmental capacity building and management support for the water sector, building appropriate elements into the next Country Assistance Strategy, which is also scheduled for completion in June 2005.

46. Based on the findings and recommendations of the diagnostic study, the formulation of a livelihood program will take cognizance of other ongoing and proposed Bank-assisted activities, which also provide opportunities to address the three inter-linked concerns of poverty, environmental degradation and security from natural disasters. The Bank will urge the GoP and GoS to:

- Further target resources to the lower Badin area, from the PPAF, which is already supporting poverty alleviation activities in the district; and
- Improve the knowledge base and analytical capacity and consultation mechanism, through the proposed Water Sector Improvement Project (WSIP) currently under preparation, to support preparation of a water development and management plan for the Kotri sub-basin area, with stakeholder participation. This approach would also help implement recommendations of the Tidal Link Fact Finding Mission concerning a better knowledge base for assessing impacts and designing mitigation measures for the damage to the LBOD infrastructure.

VI. MANAGEMENT'S RESPONSE

47. The Requesters' claims, accompanied by Management's detailed responses, are provided in Annex 1.

48. Management believes that the Bank has made efforts to work with the GoP, ADB and JBIC to realize the objectives of an extremely large and complex Project. The Bank intends to pursue issues raised in the Request concerning Sindh Province with the Borrower so that the Requesters' concerns are addressed. Management believes that the Requesters' rights and interests are not, nor will be, directly and adversely affected by the manner in which the Bank has implemented its policies and procedures in the NDP project.

ANNEX 1
CLAIMS AND RESPONSES

| No. | Claim/Issue | Para no | Response |
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| Management wishes to clarify that many of the claims in the Request relate to the LBOD Stage 1 Project, which was closed in December 1997. However, as relevant, information on the issues and historical context is provided in the response. | | | |
| Environmental Assessment - OD 4.01 | | | |
| 1. | <p>Environmental Assessment. The Bank accepted the Drainage Sector Environmental Assessment (DSEA) prepared by the consultant on behalf of government of Pakistan. The DSEA focuses general environmental issues of the drainage sector in Pakistan. According to the assessment total saline effluents anticipated is 10.91 Maf (13.5 Bcm), of which, 60% is planned to be disposed directly into the sea through LBOD, but the assessment which was acceptable to Bank to fulfill the requirement of OD 4.01 is incomplete, vague and does not cover the issues like coastal ecology, safe disposal into Arabian Sea and environmental degradation of wetlands.</p> | 34 | <p>The DSEA (1993) was accepted by the Bank because it provides a strategic overview of the environmental issues of the drainage sector in line with the scope of the NDP project. It includes the following volumes:</p> <ul style="list-style-type: none"> • Volume I - Drainage Sector Environmental Assessment; • Volume II - Concept Framework for National Drainage Programme; • Volume III – Supplementary reports, including studies of issues specific to lower Sindh, comprised of: (a) Forestry; (b) Fisheries Sector; (c) Birds of the Wetlands of Pakistan; (d) Environmental Engineering Aspects (Assimilative Capacity of Drains); and (e) Role Framework for Institutions and Guidelines for Action (including Reference to Social Aspects); and • Volume IV – Water, Soil and Agriculture. <p>Further safeguards were built into the design of the NDP project. IESs were carried out for all subprojects except O&M. Full EIAs were to be prepared for subprojects whose IES indicated significant environmental impacts. Requirements for social assessments and the application of the FLAR were also agreed (SAR, paras 4.13, 4.15 and 4.16, Annex 1, Annex 7 and the SAR Implementation Volume). During the April 2000 MTR the subproject review and approval process was clarified such that IDA would need to review on a prior basis the first two subprojects in an investment category, regardless of cost, and thereafter, those that involved land acquisition/involuntary resettlement, cost over USD 5 million, or that were technically complex and worth review by a PoE, e.g., with major environmental issues.</p> <p>The 1989 LBOD EIA addressed the coastal zone issues referenced by the Requesters. Additional information on this is found in Items 5, 7 and 9.</p> <p>Analysis of alternatives during preparation of the draft DMP (currently under review by the Government and a PoE) concludes that there will be a substantial reduction in estimated drainage surplus (from 875 m³/sec to 33 m³/sec). See also Item 12.</p> |
| 2. | <p>EA Category. The project was classified into "B" category, but that was again in violation of the World Bank's guideline provided in annex-E of OD 4.01. The para 5 of guideline mentions, that a full EA is required if a project is likely to have significant adverse impacts that may be sensitive, irreversible and diverse. The projects of irrigations, drainage and flood control, as well as those that have</p> | Box on 4.01 | <p>The principal objective of the NDP project was sector reform, It was designed as a program in which subprojects were identified and prepared on a three-year rolling plan, with environmental and social screening of individual subprojects, as indicated in Item 1, consistent with the requirements for sector investment loans. Nevertheless, Management acknowledges that it would have been more appropriate to categorize this as an EA Category "A" project.</p> |

| No. | Claim/Issue | Para no | Response |
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| | resettlement impacts, are listed in category A projects. (NDP is a large drainage projects and has sensitive, irreversible and diverse environmental impacts, and resettlement impacts.) | | |
| 3. | <p>Updating of EA. The DSEA was prepared in early 1990's and during that time LBOD was not operational so the technical problems of LBOD fall system was not obvious, however this study was not updated during the consideration of NDP loan in 1997; we believe that this is a violation of Bank policies. The DSEA also lacks public legitimacy because no civil society groups or affected people were consulted during the prepared of study.</p> | 35 | <p>In January 1996, the Borrower formally submitted, and IDA accepted, the 1993 DSEA as a sectoral EIA for the project. It was not updated as such, because the primary focus of the NDP project was sector reform and safeguards for each subproject were built into project design. These safeguards called for investment-specific environmental and social assessments to be prepared in a current timeframe. Substantial studies and research have supported updating of environmental information to complement the original DSEA.</p> <p>Environmental issues were addressed in the Second Preappraisal Mission, during which a limited IES was conducted jointly with the ADB to address key technical and institutional issues (Back to Office Report, July 6, 1995). The results were reviewed and recommendations developed by environmental specialists in WAPDA, major Pakistani environmental NGOs, ADB, and IDA.</p> <p>With respect to consultation, the IES was discussed at public meetings conducted by the NDP Program Manager and Provincial Cells in Punjab (Lahore), Sindh (Hyderabad), NWFP (Peshawar), and Balochistan (Quetta) in October 1995 (as described in the Environmental Management section of the SAR Implementation Volume). A widely attended Project Launch Workshop was also organized at the beginning of the project (January 1998).</p> <p>There were 38 subprojects identified in Sindh, of which 10 have been completed, 15 are under implementation and 13 were dropped or not implemented. Other than those for which screening was not applicable (e.g., surveys, and O&M contracts) and two subprojects that were carried over from the LBOD Stage 1 Project, IES was undertaken for the subprojects that were implemented in Sindh (see Annex 6).</p> <p>See Item 23 with regard to disclosure.</p> |
| 4. | <p>Alternatives. The feasibility and sustainability of entire NDP depends on the sound foundations of LBOD because it is a final disposal point of drainage effluents. The design of NDP has entirely ignored the current reality and the social and environmental problems of the existing disposal route, and never explored the alternatives. We have been suggesting an alternative since early 1980's when the LBOD was started... Implementing agencies, financiers including the World Bank, and the project consultants never listened to us. We believe and it is obvious after the</p> | 14-18 | <p>Management is of the view that preparation work for the NDP project, as well as the studies supported during its implementation, sought to consider all reasonable alternatives for disposal of Indus Basin drainage effluent.</p> <p>The DSEA (1993) considered the following alternatives (Chapter 5 of the DSEA Main Report):</p> <ol style="list-style-type: none"> Re-use of the tubewell drainage effluent from fresh groundwater (FGW) areas directly or after mixing with canal water. Recycling of the saline drainage effluent by disposal in nearby canals or rivers, keeping mixed water quality within permissible limits for re-use downstream. Disposal into lakes for temporary or permanent storage. Disposal in evaporation ponds. Disposal in the sea through a carrier drainage system (the LBOD). <p>See also DSEA Chapter 7, where surface, tile, tubewell and</p> |

| No. | Claim/Issue | Para no | Response |
|-----|--|-----------------|--|
| | <p>operation of LBOD that this is not a viable and sustainable solution for the effluents disposal. However time-to-time the World Bank officials are persistent on the studies on NSDS and its justification. They have not been talking the other alternative options... We think that the way NDP has been planned and several mission recommendations are leading towards extending current LBOD system to upstream, against our wishes.</p> | | <p>biological alternatives for drainage are discussed, along with the "no-disposal" option.</p> <p>To explore these options further, the NDP project included provision for feasibility studies of the NSDS and related studies (see Annex 7). Item 6 provides further details regarding the NSDS.</p> <p>Contrary to the Requesters' supposition, there are no plans under the NDP project to extend the LBOD (see Item 7). Management also notes that none of the NDP project investments result in additional surface drainage load on the existing LBOD system.</p> |
| 5. | <p>Mitigation and Monitoring. The World Bank operational directive is very clear and elaborative on mitigation measures and OD 4.01 suggests the preparation of Environmental Management Plan. But in case of NDP after the lapse of six years there is no such EMP. In addition to EMP the DSEA also proposed Wetland Management Plan and environment monitoring and Audit but nothing has materialized in this regard. This is a clear violation of World Bank's safe guard policies. We believe that the delay in formulation of EMP leads to the environmental degradation and eliminates our trust that any such kind of plan will be formulated in and implemented. The environmental disastrous effects of LBOD have not even been mitigated. Due to these delay in the implementation of EMP of LBOD and non-formulation of EMP of NDP we are bearing the cost of environmental degradation including reduced fish catch, loss of agriculture land and forest, loss of grazing land and degradation of Wetlands. Consequently the combined effect of all these factors is impoverishing us.</p> <p>The appraisal mission ensures that the mitigation plan is adequately budgeted, and determines if the EA's recommendations are properly addressed in project design and economic analysis. (In case of NDP there is no EMP and no budgeting).</p> | 37, Box on 4.01 | <p>The design of the NDP project foresaw preparation under the project of an EMP, as described in the SAR and Implementation Volume (Section 11, Environmental Management). The NDP project is supporting various elements of environmental management. A Water Sector EMP – Framework for Action was developed under the NDP project in February 2002. Detailed design of the Water Sector EMP is under preparation. The Water Sector Framework also outlined a basin-wide Wetland Conservation Strategy. Development of a comprehensive Wetland Management Plan is called for. Separately, a Wetlands Action Plan has been developed by WWF in August 2000.</p> <p>With respect to the Requesters' claim that effects of LBOD have not been mitigated, the LBOD Stage 1 Project incorporated into its design the mitigation measures identified in the 1989 EIA to protect the wetlands. These were configuration of a Tidal Link canal to convey the effluents past the wetlands to the sea and construction of a weir to regulate the tidal influence and maintain an appropriate water balance in the wetlands. The first series of baseline studies under the EMMP for the LBOD Stage 1 Project was prepared in 1997 (see Item 16), but full implementation of the LBOD EMMP was delayed as a result of difficulties in institutional coordination. More recently, ADB has indicated in its September 2004 Aide-Memoire steps to ensure implementation of the LBOD EMMP, including a Stakeholder Consultation Workshop and the implementation of monitoring activities.</p> <p>Regarding livelihood issues, see Item 17.</p> |

| No. | Claim/Issue | Para no | Response |
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| 6. | <p>NSDS. Several documents both from government of Pakistan and World Bank indicate the extension of existing LBOD system and construction of National Surface Drainage System....The mid term review admits two major constraints that dramatically affect scope and pace of NDP. First, the absence of a master drainage plans and second agreement on inter-provincial drainage flows that ensure environmentally safe and sustainable disposal.</p> | 17 | <p>Examining the feasibility of an NSDS was among the agreed actions of the SAR (Annex 7). The NSDS pre-feasibility study, which did not begin until late January 2001, examined a "drainage superhighway."</p> <p>In mid-2002, the GoP requested that the Bank provide an independent PoE to review the NSDS. The Panel found (see Annex 5, Executive Summary of the PoE Report, April 2003) that the "drainage superhighway" concept was not feasible.</p> <p>During the same time period, and following the second NDP MTR (April 2001), the GoP recognized the importance of developing a DMP and National Drainage Accord. The International Waterlogging and Salinity Research Institute (IWASRI) began preparation of the DMP in March 2002.</p> <p>In September 2004, a PoE for the DMP carried out a review of the interim findings of the DMP studies, and made recommendations on the next steps for the DMP planning process. It also confirmed that the "drainage superhighway" concept was not feasible.</p> <p>Further studies of drainage and water management are being pursued through the DMP. For example, the PoE has developed terms of reference (TORs) for water management plans for Kotri Basin and trained local technicians in how to develop drainage plans. As part of the DMP, state of the art DRAINFRAME methodology will be used as a pilot to analyze two major basins – Kotri in Sindh and Chaj in Punjab.</p> |
| 7. | <p>Extension of LBOD. We have a serious threat due to the extension of LBOD without looking into the environmental issues at disposal point and sea intrusion. The same has been identified in Environmental Management Plan Frame Work Sindh Province. The plan identified two key mitigation measures that are needed to counter trend several obvious potential major negative impacts of an NDP on – a National Surface Drainage System (NSDS) guaranteeing environmentally-acceptable modes of disposal to the sea for all unwanted effluents and a Wetland Management Plan (WMP) to sustain the many ecologically important wetlands.</p> | 28 | <p>There are no plans under the NDP project to extend the LBOD. The NDP project has not financed any expansion of the area drained into LBOD. The incremental drainage resulting from the tubewells installed under the ADB-financed components of the NDP project is controlled so that the tubewells do not operate during storm events, and therefore do not increase the peak flood flows that must pass through LBOD. Moreover, as noted above, the "drainage superhighway" option has been rejected by two independent PoEs composed of local and international experts. The PoE recommendations were accepted by the government.</p> <p>The 1989 LBOD EIA addressed the environmental issues of the disposal point, as described in Item 9. Extensive field studies of avifauna in the Tidal Link and adjoining areas and a fisheries survey of the dhands in Badin, were completed in 1997 (see Item 16).</p> <p>In addition, many studies and competitive research grants (see Annex 7) have been financed under the NDP project to improve the knowledge base on environmental and drainage issues in the Indus Basin.</p> |
| 8. | <p>Land Loss and Salinity. This phenomenon of sea intrusion has already destroyed the agriculture land. The loss of topsoil due to flooding is a common and hundreds of acres of coastal land are gradually being converted into sea. Thousands of acres of our land have been encroached by</p> | 29 | <p>Lower Sindh is an extremely flat delta region, prone to intense monsoon storms that produce high rates of excess rainfall and extensive shallow flooding. Cyclones raise the sea level, further impeding drainage. Because of the low drainage capacity of this area, the naturally recurrent seasonal flooding tends to persist for long periods, adversely impacting health and livelihoods in the area. Limited isolated erosion is occasionally associated with this flooding.</p> |

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| | <p>sea and this process has accelerated after the collapse of Tidal Link and Cholri weir, we have shared these concerns during the process of participatory poverty assessment in Sindh. Hundreds of farmer families have been pushed to live under extreme poverty. In case of increasing the drainage flow; this problem of land loss will be scaled up. In addition to loss of topsoil the problem of secondary salinity will also rise. In case of overflowing, breaches in Tidal Link and KPOD the saline effluents will just spread around the agriculture land, thus add into soil salinity.</p> | | <p>The objective of the LBOD Stage 1 Project was not only to dispose of drainage effluent to the sea, but also to improve the disposal of excess rainfall and runoff, thereby reducing inundation and land loss. As noted in Item 7, investments under the NDP project have not increased excess rainfall, runoff, or peak flood flows, and therefore have not exacerbated flooding nor led to increased land loss due to erosion.</p> <p>In June 1998, a section of the Cholri Weir on the Tidal Link collapsed. Several attempts to repair it failed because of continuing erosion. In May 1999, a cyclone hit coastal areas of Sindh; the banks of the Tidal Link were damaged at numerous locations and the Cholri Weir was further damaged.</p> <p>The 2001 Bank Tidal Link Fact Finding Mission (see Annex 8) concurred with the judgment of the GoS's High-Level Technical Committee that the damages done by the 1999 cyclone to the Tidal Link and the Cholri Weir were beyond repair. The mission also indicated that the Tidal Link was continuing to discharge drainage effluent to the sea with good gradient, but observed as well that salinity had increased in the Tidal Link up to RD-35¹ (the dhands are at roughly RD-93) as a consequence of the comingling of the much more saline waters of the Rann of Kutch and the dhands with the Tidal Link flow. The mission strongly recommended that monitoring of water levels and bed levels in the Tidal Link, and environmental conditions including salinity, be continued to help determine trends.</p> <p>The salinity of the dhands has probably changed as a consequence of the damage, but that has not yet been ascertained empirically. Data collection now being carried out at five points along the Tidal Link will help to improve the understating of the changes that are occurring. However, drainage effluents alone would not be the cause of increased secondary salinity, if it has occurred.</p> <p>In July 2003, most parts of Sindh, particularly the southern districts, received very intense and heavy rains and the resulting flooding by surface runoff was far greater than the LBOD was designed to handle. After the 2003 floods and resulting damage, the GoP requested the Bank for assistance under the NDP project for emergency repairs to the LBOD system. The Bank approved the use of NDP funds for emergency repairs to KPOD (the drain connecting to the Tidal Link Canal at the end of the LBOD Spinal Drain), although many of these were ultimately undertaken directly by the GoP on an emergency basis.</p> <p>Regarding livelihood issues, see Item 17.</p> |

¹ Where a canal starts the point is usually marked as RD 00. Going downstream on a canal, the RDs increase. The point where a drain ends or its outfall point is marked as RD 00. Moving upstream on a drain, the RD values increase (opposite to that of canals). Negative RD values occur in measuring distance beyond the end point or outfall point of a drain. In the LBOD drainage complex, the Tidal Link starts where KPOD ends. Treating the Tidal Link as a continuation of the KPOD drain, its RDs start with a negative value, which keeps increasing until the point where it meets the sea.

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| 9. | <p>Ecological Effects. The proposed drainage network will badly affect the already degraded environment of Indus Delta. There is no fresh water available to add to the ecological value of delta, which is essential for coastal forests and marine life. In the absence of fresh water, disposing toxic drainage effluents will destroy the remaining resources of marine fisheries and mangrove forests. The drainage effluents comprise not only the saline sub-soil water but also it accumulates along the way the residuals of pesticides, fertilizer and industrial waste.</p> | 30 | <p>Management believes that the NDP project is being implemented in a manner that does not add to or exacerbate the environmental problems of the already degraded Indus River Delta or the coastal zone. Moreover, the LBOD will not be extended under the NDP project.</p> <p>The 1989 LBOD EIA examined the potential impact of the LBOD outfall on the coastal environment, and found that:</p> <ul style="list-style-type: none"> ● The mangroves near Shah Samando Creek (the outlet of the Tidal Link Canal) were in poor condition, and the LBOD discharge would not be likely to have any effect on the them; ● The discharge would mix rapidly with creek water, which is of higher salinity, and would not be likely to affect creek salinity significantly; but, ● The discharge of pesticides and other effluents through LBOD appeared to be a potentially serious hazard. <p>In 2002, under the auspices of the NDP project, the Sindh Environmental Protection Agency (SEPA) monitored water quality in various water bodies in Sindh, including the Indus River, various lakes, drains and the Tidal Link. The principal pollution found was human waste in the canals and drains (Pilot Water Quality Monitoring Program in Sindh, November 2002, SEPA). In the Sindh On-Farm Water Management Project, a pest management plan incorporates both monitoring and measures to reduce pesticide use.</p> <p>The ADB is leading the development of a regulatory framework to better manage disposal of domestic and industrial effluents in selected pilot drains (Satokatia in Punjab, Pinyari Canal in Sindh, Budni Nullah in NWFP and Habib Drain in Balochistan). This includes the establishment of a database management and information system at federal and provincial levels, initiation of wetland management activities, and a training program for environmental staff.</p> <p>Quite independent of the NDP project, there are serious problems in the Indus River Delta. The ecological impacts of the drastic change in freshwater flow and reduced sediment load reaching the Delta brought about by the development of the Indus Basin irrigation system (especially since the 1960s) are the subject of intense interest and debate in Pakistan. The Delta is affected by the process of coastal erosion aggravated by the change in flow regime and the loss in sediment due to the development of Pakistan's irrigation system—the largest contiguous irrigation system in the world—built over a period of more than a century. Pakistan's National Oceanographic Institute has calculated that the original sediment deposit was in the order of 400 million tons a year but currently it is only about 35 million tons a year.</p> <p>The dispute among the Provinces is over the nature of the damage and costs caused by the changes in the hydrologic regime of the Indus River and the amount of minimum freshwater flow that should be "allocated" below Kotri, the last diversion structure on the Indus, to mitigate this damage. In an effort to resolve this dispute and mitigate the damage, the GoP is in the process of commissioning three studies. Two of these studies would examine the ecology and salinity of the Indus River Delta</p> |

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| | | | and the minimum environmental flow requirements below Kotri Barrage. The third study would look at the downstream environmental impact of the eastern tributaries of the Indus river, whose waters were allocated to India under the 1960 Indus Waters Treaty between India and Pakistan. The Bank has agreed to finance, from another ongoing project, a PoE to review the findings and recommendations of these studies once they have been completed – expected by April 2005. |
| 10. | Water Quality. The tidal effect restricts the drainage flow for two times in twenty-four hours this fight between drainage effluents and sea tides continues for about 4-6 hours, thus entirely blocks the drainage effluents. The standing drainage effluents seep into both sides of KPOD up to RD 110, negatively effects ground water quality, which is a single drinking source, thus causing severe impact on human health. | 32 | <p>The tidal effect and the Cholri Weir were essential hydraulic features of the Tidal Link design which, under the LBOD Stage 1 Project, had the specific aim of mitigating drainage and tidal environmental impacts on the dhands. The tidal effect does not prevent flow from KPOD to the sea.</p> <p>No specific information has been found regarding groundwater quality or drinking water sources in this specific location (either side of KPOD up to RD 110).</p> <p>In general, most groundwater in the region is saline. The primary source of drinking water is usually the freshwater from the canal system. Besides direct use of canal water for drinking, hand pumps are used along canal banks to tap water seeping from canals. In areas served by non-perennial canals, water is stored in ponds for later use.</p> <p>Under the ongoing DERA, for which funds from the NDP Credit were allocated in 2001, drinking water supply schemes have been supported in several areas of Sindh, including the district of Badin where KPOD is located.</p> |
| 11. | <p>Consultation. Local communities, and especially the affected people of coastal belt, have been kept entirely unaware about the plans of NDP and its environmental assessments. The project planning process remained the business of a few bureaucrats and donors while project implementation remained non-transparent and hence failed to obtain informed consent or meaningful participation since the inception. We were entirely unaware regarding NDP until the rains of 2003, when we were informed that more effluents would be added in existing LBOD system.</p> <p>Para 8 of annex-D of OD 4.01 mentions, "In addition, in view of the need for the borrower to take the views of affected groups and local NGOs into account, the Task Manager ascertains the nature of the consultations undertaken with such groups and assesses the extent to which their views have been considered." (In case of NDP no such consultation has been</p> | Box on 4.01 | <p>During preparation of the DSEA, government stakeholders participated in a scoping session that was held in October 1991. This was followed by a workshop on EA held at Lahore on April 8-9, 1992, at which 27 professional representatives took part. A second round of workshops was held in Lahore and Karachi in September/October 1992 (DSEA, Main Report, Volume I).</p> <p>Given that NDP was a national program, the project was a vehicle to bring together concerned government agencies and NGOs/CBOs in all Provinces for open and transparent discussions. Consultations were held during the project preparation phase with representative NGOs, FOs and CBOs to define the overall program and to outline the consultation and appraisal criteria and process for individual subprojects. Local consultations were carried out during preparation of subprojects. See Annex 9 for additional detail.</p> <p>During 1997-1998, the NDP project facilitated engagement with NGOs throughout the country, and helped to put in place a partnership framework. This was used as a basis to invite the Pakistan NGO Federation to nominate representatives to the Coordination Cells and the Provincial Steering Committees.</p> <p>In Sindh, the list of NGOs/intermediaries included Dharti Dost, Oxfam, Strengthening Participatory Organization (SPO); Sindh Agricultural and Forestry Workers Organization (SAFWCO); IIMI (now IWMI-International Water Management Institute; Worldwide Fund For Nature (WWF); Trust For Voluntary Organizations (TVO); Non-Government Organization Resource Center</p> |

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| | conducted for EA). | | <p>(NGORC); Sindh Ngo Forum (SINGOF); International Union for the Conservation of Nature (IUCN); Sindh Goth Sudhar Sangath (SGSS), Water Users Federations, Thar Rural Development Program and others.</p> <p>A briefing note with basic information on the NDP project was translated and shared with participants in advance of the meetings, which were open and included media representatives.</p> <p>The Bank team also visited local communities in Badin and other areas. The team met with local community groups and farmers and obtained feedback. The team also interacted with local intermediary organizations in the field and invited them to join on these visits.</p> <p>In March 2004, the Task Team Leader had a meeting with the Forum for Conflict Resolution and the Sindh Agricultural Forum. More recently, in September 2004, the PoE of the DMP held stakeholder consultations in Badin and Hyderabad, which representatives of ActionAid attended. They also participated in the final workshop in Islamabad with the GoP and representatives of the Provinces.</p> |
| Involuntary Resettlement | | | |
| 12. | <p>Flooding Potential. Though the NDP is being implemented in entire Indus Basin Irrigation System, which geographically covers whole country, but the specific location of drainage disposal has certain peculiarities. The southern part of Pakistan, where the proposed up country effluents will be disposed has a less gradient, more flat topography and bestowed with natural shallow water depressions and vegetation. There are several thousand people who entirely depend on local dhands/fishing, grazing and agriculture. Keeping in mind the experience of LBOD, we can easily predict that incoming saline water will cause huge flooding and having no other option we have to leave our ancestral villages. This type of displacement is even not considered in project documents even though it will occur due to the consequences of project outcome.</p> | 19 | <p>Areas of lower Sindh are always prone to flooding. Indeed, the extent and duration of flooding were greater prior to construction of works under the LBOD Stage 1 Project.</p> <p>Management believes that the implementation of the NDP project has not and will not exacerbate flooding. As explained in the response to Item 7, the IDA-financed subprojects have been limited to repair and rehabilitation of existing drains and there is no plan to finance any new drains.</p> <p>The PoE that convened to review the NSDS pre-feasibility study rejected the option of disposal of the entire Indus Basin drainage effluent through a "drainage superhighway" to the sea. Therefore, the type of flooding feared by the Requesters will not occur as a result of disposal of drainage effluents in the lowland areas of Sindh. The disposal strategy recommended by both PoEs (for the NSDS pre-feasibility study and the DMP) relies primarily on local disposal options, such as evaporation ponds, saline agriculture, improved irrigation practices and basin management.</p> <p>Livelihood issues are addressed in Item 17.</p> |
| 13. | <p>Land Acquisition. We have a fear that in the phase of expansion of KPOD, DPOD and spinal drain several thousand acres of land will be required. We have already sacrificed for existing system and left with meager resources for livelihood, in case of expansion, we might lose remain-</p> | 20 | <p>The Bank has no plans to support expansion of KPOD, DPOD or the Spinal Drain. Under NDP Bank supported activities, the only works proposed for KPOD are repairs.</p> <p>IDA funding has not supported any subprojects that require land acquisition or resettlement. Subprojects that would have needed land acquisition were excluded because of lack of agreement on the FLAR and the implementing agency's capacity to apply it. See also Item 14.</p> |

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| | ing land. | | |
| 14. | <p>Resettlement Framework. The government of Pakistan prepared and submitted to the World Bank A Framework for Land Acquisition and Resettlement (FLAR) in 1996, which is quite vague and does not mention the location and quantity of land required. The FLAR does not give time frame of compensation payment and credible economic rehabilitation of project affectees. The government has since disowned even that half-hearted FLAR. We think that our land will be acquired under land acquisition act of 1894 for expansion of KPOD, without proper compensation and resettlement and in violation of World Bank policies. There was no resettlement Action Plan (RAP), a fact that was recognized but not corrected at the time of the mid term review of NDP in year 2001 and mentioned by the Bank mission "during the March 2000 supervision mission, it was agreed that the Pakistan Drainage Consultants will prepare TORs for the preparation of RAPs", to date no TORs have been prepared, and no consultants engaged to prepare RAPs.</p> | 22 | <p>The FLAR that was agreed by IDA and the GoP laid out the legal, institutional and implementation framework to guide compensation for assets lost, resettlement and rehabilitation involving project affected persons (PAPs) adversely affected by any subprojects under NDP. The FLAR required detailed field investigations including census, inventory of affected assets and preparation of appropriate RAPs or mitigation plans for subprojects that require land acquisition. Details on PAPs and entitlements were not included in the FLAR because these were to be included in subproject RAPs.</p> <p>The FLAR was originally prepared in January 1996 and after much discussion was officially approved by the GoP and agreed with IDA, as noted in the SAR. However, during the Project Launch Workshop, in January 1998, WAPDA project directors raised objections to a number of provisions of the framework. Following further discussions with project officials during the April 2001 MTR (see Annex 7 of the Aide-Memoire), revisions to the FLAR were proposed in May 2001. However, no agreement was reached; the position of the Provinces was that: "Law of the land is comprehensive and takes care of all the concerns involved in RAP/FLAR." In view of the decision to include only those subprojects that do not involve land acquisition and resettlement in the IDA financed investment component, further discussions with the GoP on the FLAR were not pursued.</p> <p>TORs for engagement of RAP consultants and RAPs were not prepared because the subprojects did not involve land acquisition. With regard to the Requesters' specific concerns, there is no land acquisition involved in the repairs and rehabilitation of the KPOD.</p> |
| 15. | <p>Losses Incurred. KPOD drain and Tidal Link has blocked all runoff water to move to Rann of Kutch and other grazing areas. This caused declining of vegetation to the south of KPOD, loss to forest species and decreased grazing areas. It impacted on the livelihood of local communities and finding no other alternative these people have migrated. Just two villages are settled now with less population in the southern side of KPOD in Rann of Kutch. While before there were about 10 villages. The area was green with several species of gross and forest trees, but when the water source has been blocked by KPOD this area deserted and could not support the life.</p> <p>Another shock witnessed by us during monsoon rains of 2003. We are</p> | 23-27 | <p>While this claim refers to the closed LBOD Stage 1 Project, Management is of the view that the ongoing work supported by ADB under the NDP project to support and strengthen implementation of the LBOD EMMP will help to mitigate residual environmental and social impacts of the LBOD system.</p> <p>Stormwater runoff occurs on both the left and right banks of LBOD (and south side of KPOD). Runoff on the left bank of LBOD spreads in the areas on the left bank (including grazing areas). The runoff also goes through the DPOD to the Shakoor Dhand and thence to the Rann of Kutch. Also, whenever the flow in LBOD exceeds 2,000 cubic feet per second, stormwater flows, including those generated on the right bank, go into the DPOD and onwards to Shakoor Dhand.</p> <p>Assessments carried out by the GoS and WAPDA after the 2003 monsoon storm concluded that this was an extremely rare event. The volume of rainfall associated with this storm, which caused extensive flooding, was larger than that of any other storm on record. The extremely heavy rainfall in both the upper and lower basins, accompanied by farmers breaching embankments to drain their fields and by a high tide, resulted in surface runoff that was four times the design capacity of the LBOD drain-</p> |

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| | <p>live witness of the episode that how the water of KPOD and Kotri barrage surface drains flooded about 75 villages. The study conducted by national NGO ActionAid observed that the failure of the drainage system portrays the entire coastal strip of Sindh as a drainage bowl, destroyed Tidal Link indicate that saline water of LBOD, instead going into the sea, is continuously destroying the Badin District lands. The newspapers reported that one hundred and sixty dehs (indicates a small revenue unit in Pakistan) are completely under inundation, where agriculture crops standing over 200,000 acres has been destroyed and more than 200,000 villagers have been rendered homeless for couple of months. In single union council, which was worst hit by KPOD flowing water in villages, 32 people died due to drowning in drainage water. There were 14 major breaches observed in KPOD from RD 20 to RD 180.</p> | | <p>age system. The existing drainage system, including LBOD and the drains improved under the NDP project, was overwhelmed by the unusual magnitude of the storm.</p> <p>Management acknowledges the effects of the monsoon rains of 2003 on the community. See also Item 17.</p> |
| Natural Habitats – OP 4.04 | | | |
| 16. | <p>Ramsar Sites. The Wetlands of Sindh especially mentioned below form an important component of a major migratory route for waterfowl known as the "Indus Flyway." They are important wintering, nesting and staging grounds for a large number of locally and globally important bird species... Two species of marine turtles inhabit the area... The wetlands, channels and creeks are also a productive fishery source... The western margin of the Rann of Kutch, where the drains enter the coastal zone, consists of a number of small, interconnected lakes called dhands in Sindh...</p> <p>Two of these dhands have been internationally recognized as a Ramsar sites because of their significance for migratory birds and other significant biodiversity and ecosystem values... Under the obligation of Ramsar treaty the government and donors have to ensure the wise use and conservation</p> | 38, 40 | <p>The NDP project has not supported investments that directly affected the two dhands designated as Ramsar sites or any other sensitive wetland areas.</p> <p>Nurri (2,540 ha) and Jubho (700 ha) Lagoons were designated as Ramsar sites in October 2001, about four years after the NDP project was approved. According to their Ramsar listings, which confirm their importance for migratory waterbirds, neither site is explicitly protected under any environmental legislation, nor have management plans been prepared. More detailed assessment is required to determine if these sites are affected by the breaches in the Tidal Link Canal and the collapse of the Cholri Weir. The Rann of Kutch was also designated as a Ramsar site in November 2002.</p> <p>Long before these sites were given Ramsar status, and before the NDP project was initiated, the environmental importance of these sites was recognized, and the design chosen for the Tidal Link connecting KPOD to the sea incorporated measures for their protection and conservation. In addition, the LBOD EMMP proposed that extensive studies and monitoring be carried out to ensure their sustainable management.</p> <p>In 1997, the first series of baseline studies was carried out as part of implementation of the LBOD EMMP. These studies included avifauna (Zoological Survey Department, 1997), fisheries (University of Sindh, Jamshoro, 1997), and comparative land use (Mott MacDonald Limited, 1998). Because of a dispute between</p> |

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| | of wetlands defined, recognized and protected by the convention The World Bank is not supposed to provide support to projects that would contravene a government's requirements under international environmental treaties and agreements. | | <p>the GoS and WAPDA, work on implementation of the LBOD EMMP was stalled and is only now being re-initiated with ADB support under the NDP project.</p> <p>NDP project design recognized the importance of wetlands (SAR, Section 4.19) and included a process of environmental screening and assessment to take into consideration impacts on natural habitats (see Item 1). The NDP project also called for development of a Wetland Management Plan, intended to establish measures to improve wetlands protection.</p> |
| 17. | Livelihoods. These dhands (wetlands) provide livelihood resources to the forty villages of fishermen having a 12000-15000 population and living around these water bodies. There is no other livelihood source. | 39 | <p>The 2001 Tidal Link Fact Finding Mission summarized the physical and socio-economic conditions of the dhands area based in part on the available 1997 studies and concluded that socio-economic conditions in the area are very poor.</p> <p>While a poverty-targeted intervention is needed in this area, Management believes that the NDP project is not the right instrument for this and further, that implementation of the NDP project has not worsened the plight of the people living near the dhands. The National Rural Support Program, with resources from the PPAF, has been active in Badin District for the last three years and has completed approximately 50 community infrastructure projects that have included watercourse linings, hand pumps and link roads, all aimed at improving livelihoods. Recognizing the extraordinary circumstances of the 2003 floods, in consultation with the GoP and GoS, Management proposes to carry out a diagnostic study to determine the extent and severity of losses incurred and, in discussion with the district authorities in Badin, formulate a livelihood assistance program, taking into consideration the ongoing programs in the area.</p> |
| 18. | Tidal Link Canal. The idea of linking the KPOD with Shah Samando creek through Tidal Link that was passing through these wetlands (dhands) was entirely unsound. Before the implementation of LBOD, these drains were receiving water from Kotri drains, rainfall and surface runoff in the monsoon season. The construction of Tidal Link prevented the water of Rann of Kutch during wet years to enter into dhands and the fall of Kotri barrage surface drains into KPOD also reduced flow towards dhands. The decreasing water flow to dhands reduced the areas of dhands. The 1989 EIA for the LBOD determined that the most important effect of the Tidal Link on the dhands would be excessive drainage due to the tidal fluctuations. However no measures were taken to preserve and prevent such kind of situation. | 42 | <p>This claim refers to the closed LBOD Stage 1 Project.</p> <p>The 1989 LBOD EIA determined that the most important effect of the Tidal Link on the dhands would be excessive drainage due to tidal fluctuations, if no measures to mitigate this effect were taken.</p> <p>The design combination of the Tidal Link Canal and the Cholri Weir was intended to mitigate these adverse effects. However, a series of structural problems, compounded by the 1999 cyclone, damaged the Tidal Link Canal and rendered the Cholri Weir inoperable, severely limiting the efficacy of these mitigation measures. The Tidal Link Fact Finding Mission reviewed the current status of the Tidal Link canal and the weir as well as implementation of the physical and environmental monitoring programs. The mission stated that "the uncertainty about the future outcome of the active channel processes in the Tidal Link, the cost and viability of various rehabilitation options, and the environmental risks associated with the conditions developing in the dhands strongly indicates the need for an effective monitoring program that would help to understand the trends and help to define feasible and sustainable mitigation measures."</p> <p>The 1989 LBOD EIA also determined that additional, temporary inflow of drainage water from KPOD, which occurs at high tide when backwater raises the water level in KPOD, would not have an adverse effect. This inflow could also offset the loss of</p> |

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| | | | <p>water from the Rann of Kutch in wet years, further stabilizing the water balance in the dhands.</p> <p>With regard to recommended actions, see paras 45-46 of the main text.</p> |
| 19. | <p>Damage to the Ecosystem. The degradation of these important wetlands has caused severe damage to the ecosystem, habitat and fish catch. Although both the technical committee of the Government of Sindh and World Bank fact-finding mission recognized these issues after the 1999 cyclone, no measure was taken to prevent or mitigate the situation. Under the section of "risk" the fact finding mission mentions that "the first major risk is that the outcome anticipated by the Technical Committee, i.e. that the Tidal Link stabilizes and functions adequately but the uncontrolled connection between the canal and dhands remains, results in substantial and irreversible damage to the ecosystem, habitat and fishery in the dhands. The large diurnal fluctuations in dhand water level may change conditions in the dhands sufficiently to cause severe degradation to the ecosystem and loss of biodiversity and key qualities of the waterfowl habitat. The changes in biodiversity and habitat noted above could adversely affect the fishery reducing yields particularly of commercially important species."</p> | 46 | <p>The recommendations of the Tidal Link Fact Finding Mission (see Annex 8) were that no repairs be undertaken (as also recommended by the GoS's High-Level Technical Committee) because the damage was beyond the limits of possible repair, and the channel was continuing to actively evolve. The mission also recommended a renewed and strengthened monitoring program with increased emphasis on data analysis (see also Item 8).</p> <p>While data collection coordinated by WAPDA-South has continued (see Memorandum of Understanding between SMO-WAPDA and National Institute of Oceanography, March 1999), the strengthened program of monitoring and analysis has not been undertaken as recommended, and as a result, mitigation measures have not been identified and decided.</p> <p>Because the LBOD EMMP is in the early stages of implementation, it will take some time before solid data becomes available with which one could assess the specific changes taking place in the dhands. Anecdotal evidence, including the movement of the fishermen from the dhands to the Tidal Link channel, suggests there have been changes in the composition and yield of the fishery, but there is no systematic data on which to understand the changes and formulate mitigation measures.</p> |
| Indigenous Peoples – OD 4.20 | | | |
| 20. | <p>Mallah. The majority of coastal communities belong to Mallah, who from their forefathers are engaged in fishing. These groups of people are classified indigenous people, because they have close attachment to ancestral territories and natural resources in this area... There are more than 60 villages of this community with the population of 25,000 and engaged in fishing at both sea and contiguous wetlands... The operation of LBOD has brought significant changes in the lives of these people. The two-mega shocks mentioned earlier one cyclone in 1999 and other monsoon rains dur-</p> | 49-51 | <p>The Mallah in Sindh were originally involved with guiding people at sea; the word Mallah in Sindhi derives from this activity. They are longtime, Sindhi-speaking Muslim inhabitants of the Province. Their principal occupation is fishing although some have also moved into agriculture. The fishing community is considered to form part of the mainstream in Sindh by a majority of the Province's population. The GoP does not have a classification for Indigenous Peoples.</p> <p>The Mallah fishing community does not meet the criteria specified in the Bank's OD 4.20 for classification as Indigenous People because it: (a) does not have an indigenous language distinct from the mainstream language of the region; (b) lacks customary social and political institutions; and (c) is not identified by others as a distinct cultural group.</p> <p>The lives and livelihoods of the Mallah fishing community were not disrupted in 1999 and 2003 by the LBOD and Tidal Link.</p> |

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| | <p>ing 2003 have changed the economic base of these people. Both these shocks were interconnected with the operation of LBOD and aggravated by the overflowing and breaches in KPOD and Tidal Link. In both these two tragic events the Tidal Link Canal and KPOD inundated their villages, damaged houses and some families even lost their family members...Already poor, these communities were pushed into further absolute poverty.</p> | | <p>These facilities were overwhelmed by two storms of very great magnitude, and the flooding that occurred during these extreme events would likely have been worse had the LBOD and the Tidal Link not been in place. However, no studies have been undertaken to date to determine impacts on this community that might stem from the changed water regime of the dhands.</p> |
| 21. | <p>Poverty Impacts. The NDP has not taken into account the poverty and impoverishment of indigenous people and is also unable to anticipate the negative effect of proposed NDP interventions on the already miserable conditions of these poor fishermen. We believe that proposed NDP investment will pose serious threat to the lives, livelihood and rights to development and culture of indigenous groups guaranteed under several international covenants. The project will inequitably distribute the costs and benefits. The marginalized and vulnerable group of indigenous communities as usual will be looser in this game. Again the worst affected will be women due to gender inequality in society.</p> | 52 | <p>The NDP project has been implemented under diligent procedures for social and environmental assessment and screening for each subproject. There are no "proposed NDP investments" that extend the LBOD, materially change conditions in the KPOD or Tidal Link areas, or otherwise threaten people's lives or livelihoods.</p> <p>The SAR (Section 4.13, Annex 1 and Annex 7) and subsequent implementation guidelines require social assessment and screening of each subproject under the NDP project. The vulnerable groups to be identified in social assessments for subprojects include low income groups (small farmers) women and the lowest one third in the income range (including landless and tenants). All social and economic groups that are disadvantaged are thus encompassed. The checklists and assessments at the subproject level aim to ensure that potential adverse impacts are mitigated and that proposed interventions maximize project benefits, including employment creation, for identified vulnerable groups.</p> <p>The process and procedures suggested for social and environmental screening were followed during preparation of the NDP subprojects. Since these subprojects mainly consisted of rehabilitation and improvement of existing infrastructure, detailed social assessment was not considered necessary. The NDP project has not supported interventions in the dhands or the Tidal Link. Further, environmental and social screening of NDP subprojects did not identify any adverse impacts on the Mallah community.</p> |
| Cultural Property – OPN 11.03 | | | |
| 22. | <p>Historic and Religious Sites. The southern part of Pakistan i.e. district Thatta and Badin have long been a rich cultural location due to the vicinity of sea as well as the Indus Delta. There were several ports used for local and international trade. The few and very important cultural sites in Badin which are being badly affected by KPOD and Tidal Link Canal includes the monuments of saint Shaikh Kirhiyo Bhandari, the historical site of Roopa Mari and Thari....</p> | 53-54 | <p>There are no plans to expand the KPOD under the NDP project.</p> <p>Roopa Mari is located about 2 to 3 km north of RD 10 of KPOD. The site includes the tomb of Dodo Soomro, the last ruler of the Soomra dynasty. The tomb is located on relatively higher ground. The building over the grave has been rebuilt at least three times, first in the 11th century, then in the 19th century and most recently in 1998. The construction and normal operation of KPOD does not appear to have affected the site, since the high water level in the KPOD design is about 1-2 m below the site. In the 2003 rains, however, the area was flooded (see Items 8 and 13).</p> <p>The monument of Saint Shaikh Kirhiyo Bhandari is located on the eastern edge of Pateji Dhandh near the tail of Mirwah Canal.</p> |

| No. | Claim/Issue | Para no | Response |
|-----|--|--------------------------|---|
| | <p>The KPOD is just passing through the identified 4 km area of Roopa Mari, where the Soomra rulers have their capital. The tomb of Dodo Soomro the last ruler of Soomra dynasty is also located there. All these cultural and historical sites are in the range of KPOD and Tidal Link flooding. The floods have hit these places twice in five years and there is eminent threat that we will lose our history and culture. In addition the current passage of KPOD has already occupied some of the area of cultural and historical importance and in case of expansion of KPOD, the remaining areas and monuments will be entirely vanished. In both the projects neither government nor donors have even bother to recognize the cultural and historical importance of this area and the threat to those places due to drainage projects.</p> | | <p>It lies on the outskirts of Roopa Mari about 3 km north of RD 5 of KPOD. This tomb was also rebuilt several times and the present building was built about 20 to 25 years ago. The Pateji Dhandh at this location has receded from the site.</p> <p>The Tharri site is located 10-15 Km north of KPOD near Sirani Drain.</p> <p>During a site visit by a Bank consultant in early October 2004, no recent damage was observed. According to available information, the Archaeology Department has not classified these sites to date and no excavations have been undertaken at any of them.</p> |
| | <p>Community Participation and Information Disclosure – 4.01, 4.20, 4.30</p> | | |
| 23. | <p>Community Participation and Information Disclosure. The failure to involve local people especially marginalized indigenous groups who are worst affected by LBOD in the planning and implementation in NDP, the refusal to share information with affected communities and interested NGOs, and the failure to ensure that the voices and concerns of affected people are heard and considered in the context of environmental assessment, disposal of drainage effluents, conservation of wetlands and long term involuntary displacement is a violation of bank policies regarding involuntary resettlement, environmental assessment and indigenous peoples. Few of the project related document produced in English, which we cannot read was made available in the offices of WAPDA and other department and was also hard to access by us.</p> | <p>Box after para 55</p> | <p><i>Participation.</i> Through the formation of FOs, the NDP project has provided opportunities to marginalized groups, such as sharecroppers and farmers at the tail end of the system, to participate in decision-making on water allocations among farmers. A review of several subproject feasibility reports indicates that stakeholder views were taken into account in subproject design.</p> <p>All on-farm investments (tertiary irrigation channel improvements and subprojects for improvement of distributary canals) were/are being implemented through farmer participation. Water distribution, particularly the rotation schedules during times of water shortage, is prepared in consultation with FO representatives. In Sindh, about 200 FOs have been established, of which about half have taken on legal responsibility for operation and management of the tertiary irrigation system and for collection of water charges. With the aim of participatory decision making, the Chairman of the AWB is elected by the members, who include small farmers and farmers from the tail end of the distributary canal. Furthermore, in Sindh, an apex body called the Farmers Organization Council was established in 2001, to represent FOs.</p> <p><i>Disclosure.</i> The status of disclosure on NDP project documents is as follows:</p> <p>(a) DSEA (June 1993) – was accepted by the Bank as the EIA for the NDP project in January 1996 and, according to the Infoshop (then Public Information Center or PIC) was submitted and disclosed in April 1996. This disclosure took place af-</p> |

| No. | Claim/Issue | Para no | Response |
|-----|--|---------|--|
| | | | <p>ter the October 1995 appraisal and was not in accordance with BP 17.50, para 13 for Category B IDA projects with a separate EA. No information could be located about in-country disclosure of the DSEA to affected stakeholders or about subproject EAs or Project Feasibility Studies.</p> <p>(b) FLAR (January 1996) – was disclosed in May 2001 at the Infoshop. There was no requirement for the resettlement document to be disclosed prior to appraisal under OD 4.30. No information on in-country disclosure to affected stakeholders could be located.</p> <p>(c) PID – was disclosed in October 1994 and subsequently updated. The January 1997 PID processed by the PIC in the week ending February 7, 1997, contained, as required, an annex describing the EA, in accordance with BP 17.50, as did an earlier PID disclosed in the Infoshop in October 1995, prior to appraisal.</p> <p>Prior to Board approval of the project, the only document located that was translated into local languages was a briefing document (see Item 11). From 2001, a periodic bulletin on the NDP project has been disseminated in Sindhi to farmers and other stakeholders.</p> <p>Consultations were carried out in meetings with local communities of the subproject areas during field visits for subproject preparation. The social and environmental screening reports were not disclosed. None of the subprojects warranted a full EIA; therefore disclosure was not undertaken.</p> |
| 24. | <p>Communication with the Bank and Other Authorities We have tried our best to engage with local authorities and World Bank officials to discuss our concerns with them. But we have not got any positive response from them. From time to time we have been engaged in peaceful protest in order to protect our historical rights and entitlements. But all our peaceful efforts of engagement and protest have yielded nothing</p> | 56-75 | <p>Management is unaware of the Requesters' communications with the "local authorities" (GoP or the NDP project implementing agencies) on the issues raised in the Request. Various communications between the Requesters and Bank staff are summarized below:</p> <ul style="list-style-type: none"> • <u>July 29, 2003</u>. The Requesters asked Bank staff by e-mail for certain documents and for a meeting. • <u>August 5, 2003</u>. Bank staff responded by e-mail and supplied electronic links to documents, and offered to supply hard copies. Electronic and hard copies of requested documents were also subsequently hand-delivered to Requesters. • <u>August 5, 2003</u>. The Requesters acknowledged by e-mail receipt of documents. • <u>September 9 and 11, 2003</u>. The Requesters sent emails to several organizations, including the Bank Islamabad office, reporting failure of the drainage system. • <u>September 17, 2003</u>. The affected communities organized a protest march in Badin. A detailed report was communicated to Bank officials in Islamabad and widely published in local and national media. It was not felt that a response was required. • <u>December 2003</u>. The Requesters telephoned the senior irrigation engineer in the Bank Islamabad office requesting a meeting to discuss their concerns. During the telephone conversation Bank staff suggested meeting the Requester jointly with concerned government and implementing agencies of the NDP project but this was not agreeable to him. The Requester also |

| No. | Claim/Issue | Para no | Response |
|-----|-------------|---------|--|
| | | | <p>asked for NDP related documents, including the EMP. The Requester was informed that ADB was assisting WAPDA to prepare a Water Sector Environmental Management Framework and that this was still under preparation.</p> <ul style="list-style-type: none"> • <u>February 9 and 12, 2004</u>. Four civil society groups wrote emails to the Country Director and to the Task Team Leader seeking appointments to discuss issues related to the NDP project. Another email was sent to the Task Team Leader with copies to the Country Director, Senior Irrigation Specialist - Islamabad office, Regional Vice President and Senior Advisor requesting them to consider community concerns on the NDP project. • <u>February 13, 2004</u>. Bank staff responded indicating that the Country Director was away and suggested meeting with sector staff. A specific date was proposed. • <u>February 16, 2004</u>. The Requesters indicated inability to meet on proposed date and suggested an alternative later date. The alternative date was not feasible for Bank staff. There was no further follow up. • <u>March 15, 2004</u>. A daylong sit-in demonstration by about 10 persons was made in front of the Bank's Islamabad Office, demanding reparations for communities affected by the July 2003 rains and suspension of all upstream drainage works under the NDP project. Four Bank staff met with the demonstrators and listened to their grievances. The demonstrators also delivered a letter dated March 15, 2004, addressed to the Country Director. • <u>March 15, 2004</u>. The Requesters sent an email to a large number of people, including Bank staff, informing them about the aforementioned demonstration. • <u>March 18, 2004</u>. Bank staff responded to the Requesters, indicating that Bank staff had agreed to meet in the past and remained willing to meet at an agreed time. • <u>March 22, 2004</u>. The Requesters responded to Bank staff and asked for a meeting between the Bank staff and a delegation of three to four persons in the first week of April 2004. The suggested date was not feasible as concerned staff were unavailable. There was no further follow up. • <u>March 30, 2004</u>. The Requesters asked for a meeting with a visiting mission. However, the meeting did not take place as the mission did not visit Islamabad. • <u>September/October 2004</u>. The PoE of the DMP had consultations and workshops with NGOs in Sindh, and will include concerns raised in the PoE final report. |

ANNEX 2 CHRONOLOGY OF KEY EVENTS

| LBOD | | NDP | |
|----------------|---|---------------------|--|
| December 1984 | Board Approved LBOD Stage 1 | | |
| February 1989 | EIA for LBOD Stage-1 (including Tidal Link) | | |
| September 1991 | Tidal Link and overflow weir (Cholri weir) implementation begun | | |
| | | June 1993 | DSEA |
| March 1993 | Environment, Supporting Report #10, Mid-Term Review, LBOD Stage-1 Project | | |
| | | January 1994 | Initial Executive Project Summary for the NDP Project |
| | | June 1994 | Preparation of NDP Project begins |
| November 1994 | Interim Environmental Report, LBOD Stage-1 | | |
| 1995 | Draft EMMP for the LBOD – Stage 1 Project | | |
| June 1995 | Tidal Link operational | | |
| | | July 1995 | Second Preappraisal Mission, during which a limited Initial Environmental Scoping (IES) was conducted jointly with the ADB |
| | | October 1995 | Appraisal of NDP Project |
| 1995-1996 | Erosion and scour of Tidal Link bed and both banks observed. Remedial works along embankment undertaken by WAPDA O&M (South), but bank sloughing, bed and bank erosion continued; differential settlement of upstream face of Cholri Weir detected beginning in 1995, remedial works undertaken and completed by end 1996 | | |
| | | April 1996 | Disclosure of DSEA at Bank Infoshop |
| | | January 1997 | PIDAs Ordinances and Acts |
| | | November 1997 | Board Approved NDP Project |
| December 1997 | LBOD Stage 1 project closed | | |
| | | February 1998 | NDP Project Effectiveness |
| April 1998 | Update of 1995 EMMP for the LBOD – Stage 1 Project including the Tidal Link area | | |
| June 1998 | 250 feet of Cholri Weir section length collapsed. Attempts to close the breached weir section failed | | |
| June 1998 | Implementation Completion Report for LBOD Stage 1 Project | | |
| October 1998 | Federal and provincial authorities stop further remedial works after breach in Cholri Weir increased to 450 feet length | | |
| May 1999 | Catastrophic tropical cyclone caused severe damage, including almost complete destruction of Cholri Weir, and breaches of both Tidal Link embankments in 56 places | | |
| | | February-April 2000 | Review/MTR Mission for NDP Project with Aide-Memoire in April 2000 |

Pakistan

| LBOD | | NDP | |
|---------------|---|-------------------------|--|
| May 2000 | GoS High-Level Technical Committee on Cyclone damages to Tidal Link/Cholri Weir with report made in October 2000 | | |
| December 2000 | GoS second High-Level Technical Committee to review environmental and social effects of damages to Tidal Link/Cholri Weir | | |
| | | January 2001 | Pre-feasibility study begins for NSDS |
| March 2001 | World Bank Tidal Link Fact Finding Mission on Cyclone damages to Tidal Link/Cholri Weir | | |
| | | March-April 2001 | Joint World Bank, ADB and JBIC MTR Mission for NDP Project |
| | | June 2001 | Special Committee appointed by the President of Pakistan to make recommendations to restructure NDP (Junejo Committee) - NDP project put "on-hold" during review |
| | | July 2001 | Funds allocated from NDP project for DERA |
| October 2001 | Report of second High-Level Technical Committee (received by the Bank in June 2002) | | |
| | | February 2002 | Water Sector EMP – Framework for NDP; Report of Junejo Committee |
| | | March 2002 | Preparation of DMP begins |
| | | Mid 2002 | GoP requests NSDS Panel of Experts |
| | | August 2002 | Report of Junejo Committee approved by President of Pakistan; NDP project taken "off-hold" shortly thereafter |
| | | October 2002 | Approval of Sindh Water Management Ordinance -- Sindh revised the SIDA Act of 1997 |
| | | October - November 2002 | MTR Completion Joint Donor Review |
| | | April 2003 | NSDS Panel of Experts Report |
| July 2003 | Very heavy flooding due to abnormally high rainfall during monsoon | | |
| August 2004 | Meeting to review Recommendations of the Chief Corps of Engineers on LBOD Performance after July 2003 floods – chaired by President of Pakistan | | |
| | | September 2004 | DMP Panel of Experts Mission to review August 2004 Draft DMP study |
| | | September 2004 | Request to Inspection Panel |

ANNEX 3 HISTORY OF THE DRAINAGE CRISIS IN PAKISTAN

1. The continuous and expanding use of Indus water for irrigation (from storage or direct river diversions) has significantly altered the hydrological balance of the Indus Basin. The lack of drainage solutions has reduced the productivity of land and the long term sustainability of the system. Seepage losses from irrigation canals, distributaries and minor water courses and deep percolation from irrigated lands have resulted in a gradual rising of the groundwater table, bringing with it critical problems of waterlogging and salinity over a vast area. Waterlogging is widespread throughout Punjab and Sindh provinces, where most of the country's food and fiber crops are produced. The twin problems of waterlogging and salinity are most severe in Sindh Province (Lower Indus Plain), where more than half of the waterlogged and salinity affected areas are located. In the early 1900s, the water table was more than 15 meters (m) below the surface throughout the Indus Plain. However, by 1978 (when the Indus Basin Salinity Survey was completed), the water table in 46 percent of the Basin was within 3 m and 22 percent within 1.5 m of the surface and the situation has deteriorated since then. According to GoP's definition, severely waterlogged (or "disaster areas") are defined as those areas that have water tables shallower than 1.5 m below the surface. Irrigated agriculture is only marginally viable at this level of water table, especially when combined with excessive salinity. A comprehensive survey conducted in 1961 estimated that about 40,000 ha of land were being lost annually to agricultural production due to waterlogging and/or salinity. Of late, waterlogging problems have been reduced because of: a four-year drought; vertical drainage from tubewells (see below); better operation and maintenance of drainage systems; better water distribution, because of farmer participation and closing of unauthorized direct outlets from main and branch canals that are intended as carrier channels and not for distribution of irrigation water. See Map 2.

2. The need for drainage and salinity control in the Indus Basin became major issues beginning in the 1950s; by the early 1960s, the GoP had initiated a series of salinity control and reclamation projects (SCARP) with government tubewell installations for drainage and supplemental irrigation in usable fresh groundwater (FGW) areas. To date, about 12,000 such tubewells have been installed, covering about 35 percent of Pakistan's cultivable command area (CCA). Approximately 90 percent of these wells are located in Punjab, and most of the remaining wells are in Sindh. The tubewells have partly alleviated waterlogging and salinity in these areas, but a large portion of the CCA, especially in Sindh, continues to need drainage relief. While the SCARP experience demonstrated that tubewells do provide significant drainage relief, their operation and maintenance (O&M) has been deficient due to technical, financial, and managerial problems. Currently, the principal need is to address the drainage problem in saline groundwater (SGW) areas and to improve the efficiency of tubewells. With the support of several donors, Pakistan has made substantial efforts to reduce waterlogging problems through SCARP and the LBOD system. Farmers have installed 700,000 private tubewells in FGW areas where canal service is insufficient. This reduced waterlogging problems, particularly in Punjab Province, where most private tubewells are installed. In Sindh,

however, where most irrigated land is located in SGW areas, problems have increased. There, the need for surface drainage systems and better water distribution are fundamental to improving agricultural production.

3. **Impact of the Drainage Crisis on Sindh Province.** In Sindh, irrigation canals were extended and improved during the late 1800s and by 1910, the irrigated area had reached a peak of 1.4 million ha. Sukkur Barrage, completed in 1932, increased the annual cultivated area to 2.37 million ha. The completion of Ghulam Mohammed (now Kotri) Barrage (1955), and Gudu Barrage (1962) brought the rest of Sindh's irrigation system under barrage control. The total CCA under the three Sindh barrages now totals 5.5 million ha. The additional irrigation water supplied by these barrages has resulted in a rapid rise of groundwater levels.

4. Sindh Province is the repository for the plain's drainage waters. Approximately 3.2 million ha, more than 50 percent of Sindh's total irrigated area, has severe waterlogging and/or salinity problems. Sindh's drainage problems are aggravated by the nearly level terrain (the slope southwards towards the Rann of Kutch ranges from 1 in 15,000 to 1 in 20,000). The little natural surface drainage that exists is impeded by roads and irrigation bunds and canals. Effective drainage and improved water management are urgently needed in severely affected areas to arrest further land deterioration in the province, which comprises about 25 percent of Pakistan's total irrigated area.

5. There are a number of important environmental and social issues associated with the water sector in Pakistan, exacerbated by population growth, development needs and infrastructure development. The coastal Sindh area that is the spatial focus of the Request is subject to environmental risks, precarious livelihoods and vulnerability to natural disasters. The key environmental and social issues include access to freshwater for livelihoods, increased tidal fluctuations in affected wetlands, conservation of protected areas (including Ramsar sites), surface and groundwater quality, sustainable groundwater management, sustainable use of fisheries and integrated coastal zone management. These are regional development challenges and are beyond the scope of the NDP project.

6. **Recurrent Risks of Flooding in Lower Sindh.** Although average annual rainfall is low, southern parts of Sindh, particularly the coastal areas, are prone to intense rainfall and cyclone events, with rainfall amounts in excess of the average annual rainfall occurring in a span of a few days. As previously noted, the terrain is generally flat, with an average slope of 0.014 percent southeastwards, away from the course of Indus River, which flows on a ridge higher than the adjoining areas and thus does not act as a natural drain. Natural drainage is ill-defined and to a large extent, blocked by roads and irrigation bunds and channels. Since 1959, at least fourteen heavy rainfall events (with at least three of them accompanied by cyclones) have been recorded.¹ Due to the flat topography and lack of natural drainage, such events result in severe local flooding on average about once in three years, leading to loss of life and damage to property and crops.

¹ During the past 45 years unusually heavy rains were recorded in 1959, 1961, 1962, 1964, 1967, 1970, 1973, 1976, 1979, 1985, 1994, 1999, 2003 and 2004. In 1999, 2003 and 2004 the rains were accompanied by cyclones.

7. The low density of drainage channels (1 m/ha in comparison to an international average of 35-50 m/ha; in the Netherlands, 100 m/ha) and their generally inadequate capacity coupled with poor O&M of existing drains, poor management of the canal system and breaches or “escapes” from canals during storm events further exacerbate the flooding problem. Canal systems are very long—in some cases several hundred kilometers. During storm events, even though action is taken to stop further water diversions from the barrages, the water already present in the long channels has to be discharged in drains, since irrigation becomes unnecessary. This increases the flooding problem.

8. In addition to acts of nature and inadequate O&M, the diversion of Indus water for irrigation has drastically reduced the amount of sediment that used to reach the Delta and coastal areas, thus exposing these areas to sea intrusion. The DMP PoE summarized this issue as follows in its preliminary report:

“A special problem concerns the coastal erosion at various places along the coastal zone. There are several reasons for this erosion. First of all, due to the construction of the barrages in the Indus River the sediment supply to the coastal area reportedly has gone down from about 400 million tons per year to about 35 million tons per year. In addition there may be other reasons like: storm surges, currents induced by the tidal fluctuations, the rise of the mean sea level and the disappearance of mangroves... The impression exists that a new equilibrium is developing. However, additional coastal erosion will have to be expected, at least in the forthcoming decades. Measures can be considered to counteract such erosion.”

ANNEX 4 SUPERVISION CHRONOLOGY

| Date of Visits | Key Members of the Team |
|--|--|
| March 16 to 25, 1998 1 st Supervision mission | <ul style="list-style-type: none"> • Task Team Leader/Financial Management • Financial Analyst • Irrigation Engineer • Project Analyst • Procurement Specialist • Disbursement Officer • NGO Specialist |
| August 3 to 18, 1998 2 nd Supervision mission | <ul style="list-style-type: none"> • Task Team Leader/Financial Management • Irrigation Engineer • Resettlement Engineer • Procurement Specialist • Project Analyst |
| February 22 to March 4, 1999 3 rd Supervision mission | <ul style="list-style-type: none"> • Task Team Leader/Financial Management • Irrigation Engineer • M&E Economist • Operations Analyst • Procurement Specialist • Disbursement Officer • Social Development |
| May 17 to June 24, 1999 4 th Supervision mission | <ul style="list-style-type: none"> • Task Team Leader/Financial Management • Agriculture Economist • Project Analyst • Procurement Specialist |
| February 28 to April 7, 2000 5 th Supervision mission (Joint WB/ADB/JBIC MTR-I mission) | <ul style="list-style-type: none"> • Task Team Leader/Agriculture Economist • Irrigation Engineer • Disbursement Analyst • Procurement Specialist • Financial Management Specialist • Social Development • Project Implementation (ADB) • Program Officer (ADB) • Project Implementation (JBIC) |
| March 19 to April 6, 2001 (Joint WB/ADB/JBIC MTR-II mission) | <ul style="list-style-type: none"> • Task Team Leader/Agriculture Economist • Irrigation Engineer • Disbursement Analyst • Procurement Specialist • Financial Management Specialist • Social Development • Project Implementation (ADB) • Program Officer (ADB) • Project Implementation (JBIC) |
| June 18 to July 8, 2001 Follow up mission on Institutional Reforms | <ul style="list-style-type: none"> • Institutional Development Specialist |

| Date of Visits | Key Members of the Team |
|--|--|
| October 30 to November 15, 2002 (Joint WB/ADB/JBIC MTR-III mission) ¹ | <ul style="list-style-type: none"> • Task Team Leader/Agriculture Economist • Irrigation Engineer • Disbursement Analyst • Procurement Specialist • Financial Management Specialist • Social Development • Project Implementation (ADB) • Program Officer (ADB) • Project Implementation (JBIC) |
| May 11 to June 13, 2003 Implementation Review mission | <ul style="list-style-type: none"> • Task Team Leader/Agriculture Economist • Irrigation Engineer • Environmental Specialist • Financial Management Specialist • Drainage Advisor • Water Resources Advisor • Agriculturist • Administrative Client Support |
| November 29, 2003 to December 6, 2003 Implementation Review mission (Procurement) | <ul style="list-style-type: none"> • Task Team Leader • Irrigation Engineer • Procurement - Regional • Procurement Advisor - SAS • Financial Management Specialist • Lawyer (Consultant) |
| March 28 to April 7, 2004 Implementation Review mission | <ul style="list-style-type: none"> • Task Team Leader • Irrigation Engineer • Rural Development Specialist • Drainage Advisor • Water Resources Advisor |
| June 26, 2004 to July 4, 2004 Implementation Review mission | <ul style="list-style-type: none"> • Task Team Leader • Irrigation Engineer • Irrigation Advisor • Water Resources Specialist - FAO • Irrigation Consultant • Irrigation Consultant |

¹ On June 29, 2001, the President of Pakistan appointed a Special Committee headed by the Federal Minister for Food, Agriculture and Livestock to review the NDP Project in light of the MTR recommendations. This review culminated in a report entitled, "Report of the Special Committee on the Review of NDP" dated February 2002, which was ultimately approved by the President on August 27, 2002. While the review was in progress and until the Special Committee's recommendations were approved by the President, the NDP project was put "on-hold".

ANNEX 5
NSDS PRE-FEASIBILITY STUDY
PANEL OF EXPERTS
DRAFT FINAL EXECUTIVE SUMMARY
APRIL 2003

I General

I.1. The sector planning studies component of the World Bank assisted National Drainage Program (NDP), includes a study on the need of a National Surface Drainage System (NSDS). The objective of the system is to remove brackish and relatively saline, unacceptable drainage water, primarily originating in Punjab province, but from the other provinces as well. It envisages an interconnected system of outfall drains traversing the entire Indus Basin and passing through Sindh province to the Arabian Sea. A Pre-feasibility study of the NSDS has recently been completed in draft, covering technical, economic and environmental aspects.

I.2 The objective of the World Bank - Netherlands Water Partnership Program (BNWP) supported mission of a Panel of International and National Experts (PoE) in drainage, water and environmental management was to carry out a careful review of the Pre-feasibility study of the NSDS before proceeding to the next phase of preparing a feasibility report. Based on the TOR for the Panel the following was to be delivered: an initial discussion note, a draft executive summary on the findings and recommendations, as well as a first draft of the TOR for the Feasibility study on the NSDS and a final report on the outcome of the Panel's reviews and discussions, including recommendations for taking the NSDS Pre-feasibility study forward. This Task was implemented during October and November 2002. Based on the comments by the government services the draft review report has been revised and in February 2003 it was send as well to the government services. Additional comments have been received which have resulted in a draft final version that was submitted in April 2003 for approval to the World Bank.

I.3 The NSDS drains as proposed will have a total length of about 910 mi (1,464 km), their ultimate capacity will be 2,004 cusec ($57 \text{ m}^3/\text{s}$) and the area served by them 2.1 Ma (847,000 ha). The estimated construction costs are 33 billion Rs (575 million US\$) with lining of certain sections of the drains and 24 billion Rs (415 million US\$) without lining. Although the NSDS Pre-feasibility study includes a discussion of the drainage problems in the areas of the Left Bank Outfall Drain (LBOD), the Right Bank Outfall Drain (RBOD) and Kotri, the Panel has focussed on the proposed NSDS drains as it was concluded that the drainage plans for the other areas have already been prepared and that those plans have no relationship with the NSDS drains.

I.4 In this report the Panel presents in brief several examples (USA, Murray Darling, Nile, Yellow River, etc.) of large-scale river systems where drainage and salinity problems occur that show similarities with the problems in the Indus Basin. In most of the cases solutions have been found in a combination of measures, in some cases with an

outfall drain of moderate dimensions. These examples show that in almost none of these cases a large outfall drain as proposed in the draft Pre-feasibility report has been made and generally the drainage water is discharged into the river. Although no river system is identical it shows that the decision on the construction of an outfall drain needs a careful analysis.

II Findings

II.1 Drainage of agricultural land is intended to support the required increase in food production and sustainable rural development in Pakistan. Farmers, as well as the country benefit from improved productivity resulting from improved salinity and waterlogging control. It is important to view improved water management and adequate application of non-water inputs as a part of the solution to any waterlogging and salinity problem. In light of this the Pre-feasibility study of the NSDS will have to be positioned in relation to several policy papers, ongoing projects and accords, like: Water Sector Strategy, Medium Term Investment Plan, National Drainage Strategy (NDS), National Drainage Program (NDP), Master Drainage Plan (MDP), Water Apportionment Accord (WAA) and the envisaged Drainage Accord. In addition there are various related documents of multilateral donors. The Panel finds that especially the relation with other projects under the NDP and with the MDP has to be taken into account in formulating follow-up activities after the completion of the Pre-feasibility study of the NSDS.

II.2 The Panel would have expected that a study at pre-feasibility level would present a clear overview of the problems to be solved, the current institutional and policy arrangements and that the alternative options to solve these problems would have been presented in a balanced way with their respective advantages and disadvantages. The present study has a very strong focus on the NSDS, which is to a certain extent presented in more detail than would be expected in a pre-feasibility study, while alternative options have only been slightly touched upon.

II.3 Although an impressive amount of data has been compiled in the draft Pre-feasibility report, the Panel found it difficult to assess the hydrological conditions, which may be relevant for a decision on the NSDS. By comparing the draft Pre-feasibility report with information from other sources the Panel gets the strong impression that at least for the medium term future, local solutions can be found to cope with the saline drainage water. Even if it has impact on the aquifers, we speak about the development of a problem in a distant future. In fact no clear evidence has been provided about a widespread accumulation of salts in the root zone in Punjab. The Panel also believes that the widespread concern with salt accumulation in the Indus Basin due to the net import with about 24 Mt of salt per year exaggerates the threat of increasing salinity, as much more salt is already stored in the groundwater system. For example, an approximate calculation indicates that the current water supplies in the Punjab increase the salt storage in the upper 300 feet (100 m) of the sediment under the irrigated area by only 0.1% per year. In addition it is of importance that under the present practices a significant part of the annual salt load, about 28.2 Mt, is mobilised from the aquifer in the Basin. This amount could be reduced. Notwithstanding this, however, implementation of certain parts of the NSDS could be considered at an earlier stage when they offer a cost effective and environmentally acceptable solution.

II.4 Within the framework of the NDP several studies are being executed and several measures are being taken that may result in a significant reduction of waterlogging. Several of these measures will also result in a reduction of salinization in the basin, a reduction of the drainable surplus and increased water use efficiency. Some planned measures - such as increased water storage and additional drainage infrastructure - if not carefully dealt with may result in an increase in salinization and the drainable surplus. Measures that are being considered as part of the NDP include:

- institutional and policy reforms including water allocation and entitlement systems at Basin, Provincial Command Area and farmer levels, increased stakeholder participation, introduction of cost recovery systems and transferable water entitlements;
- ongoing projects for the lining of irrigation canals;
- introduction of modern water saving irrigation methods;
- groundwater recharge strategies using rainfall as a resource;
- rehabilitation/remodelling of existing drains and sub-drains;
- construction of new drains in all the provinces to consolidate the existing drainage systems;
- replacement/rehabilitation of saline ground water tubewells/tile drains;
- improved On-Farm Water Management (OFWM) practices.

In general these measures will have their effect on the application of more adequate amounts of irrigation water to the crops and as a result of this a reduction in the drainage surplus. This makes the short term need for an NSDS very questionable.

II.5 The study does not differentiate between the disposal of polluted water and of saline drainage water. In the Panel's opinion these problems would have to be treated quite differently. The pollution problem, which is basically caused by municipal and

industrial wastewater that is being disposed into the drains, or enters trans-boundary through certain rivers, is to a certain extent an acute problem. This problem would have to be solved locally and not by disposing the wastewater to the sea. The best final solution would be to treat this wastewater at the source. The Panel understands that such solutions may take a long time and that intermediate mitigation measures at local level will be needed.

II.6 A principal question is whether surplus saline drainage water is best accommodated locally, disposed through the Indus River, disposed through the NSDS, or some combination. In light of this it has to be realised that even when the NSDS will be constructed, a significant part of the surplus drainage water will still flow to the Indus River. This situation will occur primarily during the Kharif season when this surplus flow to the river has its lowest salinity. There are strong reservations from the downstream provinces to disposal in the Indus River because of the use of the Indus water for drinking water and irrigation. Meanwhile, Punjab has technical and economical reservations towards the construction of the NSDS at short term. This presumably demonstrates doubts about the immediate need for salt disposal, which will make adequate sharing of cost and responsibility to maintain and operate the NSDS difficult. In the opinion of the Panel, focus would therefore, for the time being, have to be on local solutions, maybe eventually in combination with the NSDS. It is understood by the Panel that there are certain problems with the present disposal in evaporation ponds. Such problems can be analysed and proper solutions for the short and medium term can be formulated. With respect to the development of local solutions it will also be of importance that agreement is reached on an acceptable water quality at the inlet points from the Indus River, especially at Guddu, Sukkur and Kotri.

II.7 The level of design detail for the NSDS is quite adequate for a pre-feasibility study. Although additional design can be left for the feasibility phase, recommendations made in the pre-feasibility phase may influence how future design proceeds. Therefore the following design issues need to be mentioned:

- *siphons* - instead of the multiple box culvert design concept, the use of pipes may be advisable;
- *cross-drainage* - the type of cross-drainage structure would have to be selected based on safety and environmental concerns, as well as intersection of hydraulic grade lines;
- *seepage into adjacent irrigation canals* - in some areas, the NSDS drain is higher than nearby irrigation canals. Seepage and possible spills from NSDS present a threat that would have to be addressed;
- *bottom width to depth ratio* - the proposed ratio of drain bottom width to depth is quite large for many sections of the NSDS. A deeper, narrower section may be preferable.

II.8 In order to restore the Tidal Link drain, embankments, which are heavily damaged, would need to be redesigned as dikes that can withstand severe waves and weather. This option is most probably not feasible. The Panel therefore shares the recommendations as given by the Fact Finding Mission that studied in 2001 the Tidal

Link problems. The monitoring that is being done at present shows that after seven years without maintenance dredging the cross section of the Tidal Link has not been significantly reduced and that its discharge capacity has been relatively well maintained. However, one may expect that from time to time maintenance dredging may be required to maintain the hydraulic performance of the drain outfall. This doesn't necessarily mean that the channel has to be exactly maintained, while development of some meandering may be expected. The maintenance dredging would have to focus on maintaining the discharge capacity. By depositing the dredged spoil at appropriate locations berms can be formed that could create desired barriers to cross flows. The cost of such an activity is significantly lower than the cost of reconstructing permanent dikes.

II.9 During the mission there have been quite some discussions on the estimation of the construction costs and resulting operation and maintenance (O&M) costs as presented in the draft Pre-feasibility report. It is understood that the NSDS Consultant has applied the present day unit prices. The range of costs included in the analysis is, however, not entirely clear. Costs related to protection of the environment and for resettlement of displaced families that are presently farming 37,800 acres in the proposed alignment of the NSDS appear to have not been included in the cost estimates. The cost for O&M is estimated at 1.5% of the construction costs, which is understood to be a standard practice in Pakistan. The Panel is convinced that for a drain that is subject to sediment disposal from upstream drains and runs for a long stretch - about 300 miles (485 km) through the desert this estimate is too low. Based on the work done the NSDS Consultant would have to be able to submit his professional judgement for a realistic level of O&M costs and to include these costs in the cost benefit analysis and the economic analysis. Other items with respect to O&M that will have to be taken into account are the institutional arrangements and the sharing of the costs. Although these items do not necessarily have to be sorted out during the pre-feasibility phase, they will be of significant importance during the feasibility and subsequent phases. This is especially true because the NSDS will be constructed in two provinces that will have quite different benefits from the NSDS.

II.10 The Environmental Assessment (EA) is of adequate detail for the pre-feasibility phase and provides a review of some of the environmental assets, values, needs and risks. It is important that these challenges and opportunities are adopted in subsequent developments of the study proposal. The NSDS Consultant appears to have considered issues such as the impact of some schemes on river salinity. It would be useful to see an overall summation of this and of opportunities for additional disposal via the river system. Further consideration and specification of farm chemicals (and other pollutant) loads and possible risk of eutrophication in drains, and receiving water bodies, including wetlands and the outfall in the Arabian Sea, is required in future phases of project development. Also other water quality issues need to be listed. The risk to health and hygiene of polluted surface water in open drains would have to be specified and its management addressed in future work.

III Recommendations

Recommendations on the finalisation of the Pre-feasibility study

III.1 The Panel recommends that the NSDS Consultant be requested to take the following issues into account in the finalisation of the draft Pre-feasibility report:

- presentation of the alternative options as already identified by the Consultant in such a level of detail, both from the point of view of effects and from the point of view of costs, that they can be compared with the NSDS;
- an assessment whether in view of the recent droughts the analysis of the waterlogging and salinity hazard and the estimates of the drainable surplus are realistic. Expected future developments would also have to be taken into account;
- compilation of recent data (quality and quantity) on the river pollution and identification of the main contaminating sources (municipal and industry);
- effects of disposal to the Indus River on the salinity content at Gudu, Sukkur and Kotri barrage;
- submission of professional judgment for a realistic level of O&M cost and include this cost in the cost benefit analysis and the economic analysis;
- to take into account the issues on engineering aspects as raised in item II.7;
- identification of knowledge gaps.

Recommendations on the future steps

III.2 In the opinion of the Panel, the MDP that is now under preparation is the obvious vehicle where alternative options for the future needs of agricultural drainage as an integrated component of water management in Pakistan would have to be presented and compared. Based on such a masterplan the government would have to formulate its future policy. The Panel strongly recommends broadening the scope of the MDP and to allocate sufficient time for the preparation of it. The MDP would also have to include a qualitative and quantitative analysis of the impact of the NDP on the waterlogging conditions in the Indus Basin. In the preparation of the masterplan effective use can be made of the results of ongoing work under the NDP. As far as the NSDS is concerned the Pre-feasibility study has generated sufficient information at masterplan level. For the alternative solutions existing reports have to be analysed and more in depth studies will have to be done in order to make a well-balanced masterplan. The broadened scope of the masterplan would not necessarily have to result in delays in preparation and implementation of measures that are required in the short term. The measures presented under item III.3 and III.4 can be developed in parallel to the development of the masterplan.

Recommendations on the Terms of Reference for further studies and programmes

III.3 In light of the above mentioned findings and recommendations the Panel recommends to postpone the formulation of a Feasibility study on the NSDS. Such a study can better be done at a later phase when the need for the NSDS has become clearer, if and when it is evident that alternative approaches - such as institutional and policy

reforms, more efficient irrigation, more effective drainage systems, local stakeholder participation and management - are not adequate by themselves. Instead the Panel proposes the following pre-feasibility studies:

- effects of lining of watercourses and minors and on-farm water saving measures, especially in Punjab province with special reference to the effect on water saving, reduction of pumping of saline groundwater and development of salinity in the aquifers;
- measures that can be taken to counteract the present problems with evaporation ponds;
- optimal measures to guarantee the drainage function of the LBOD and the protection of the environment of the coastal areas that may be influenced by the drainage water.

The Panel realises that parts of these studies have already been done, or are at present being studied. Therefore it will be of importance to investigate what is already available. The Panel proposes that the pre-feasibility studies to the extent that they still have to be done will be done under the umbrella of the MDP. Draft TORs for these pre-feasibility studies are presented in this report.

III.4 In order to acquire adequate data on the water and salt conditions and to enable the making of sound prognosis on the impact of proposed developments, the Panel recommends to initiate a Nationwide monitoring program in combination with the development of a river salinity model for the Indus Basin. This program would have to focus on the salinity in surface and groundwater, with special reference to the use of the water for various purposes and the long-term development of salinity in the aquifers. In addition it would have to:

- focus on the identification of irrigation and drainage needs for waterlogging and/or salinity control in the root zone within the command areas in relation to crop types, targeted yield levels and sustainable use of the resource base (land and soil);
- compare the salt balance of the Indus Basin with the balance as presented in the Drainage Sector Environmental Assessment (DSEA) study of 1993 and identify the breakdown of this basin per command/catchment area.

Under the NDP many activities are already being undertaken, or in preparation that as a whole can support such a program. In addition there is a great need for an analysis and impact of discharging saline drainage water containing municipal and industrial waste and possibly residues of fertilizers and pesticides in receiving water bodies (including Indus River and the Arabian Sea).

Table I Summary of issues and recommended actions

| Issues | Recommended actions |
|--|---|
| 1. Drainage is required to support food production in Pakistan. | 1. It is important to take into account the objectives and development activities of the NDP and the MDP in formulating follow-up activities. |
| 2. The NSDS Report has a strong focus on a single project. | 2. Reformat the NSDS draft Pre-feasibility report to provide a more balanced review of alternatives to resolve the Indus Basin saline drainage problem. |
| 3. The National saline drainage and waterlogging problem can be largely dealt with through local solutions for the medium term. | 3. Utilize the MDP to focus on local solutions, as far as possible, and continue studies necessary to resolve the saline drainage problem. |
| 4. Other measures being taken through the NDP will influence the amount of drainage surplus. | 4. Encourage continuation of institutional and policy reforms and increased stakeholder participation in the O&M of irrigation and drainage systems. |
| 5. There is a need to more fully develop the assessment of municipal and industrial wastewater discharges. | 5. Continue the development of a comprehensive database showing the quantity, quality and location of municipal and industrial wastewater discharges into drains, streams and rivers carrying saline agricultural drainage water. |
| 6. There are strong reservations among stakeholders regarding the immediate implementation of the NSDS. | 6. Postpone development of a Feasibility study for the NSDS. Make a better assessment of the saline effluent to be disposed of with future outlook of expected changes. Assess the effect of local measures. Encourage dialogue for building consensus among provinces about strategic development. |
| 7. Some of the engineering design parameters for the NSDS have been questioned. | 7. Review the engineering design parameters described in the NSDS draft Pre-feasibility report. |
| 8. There is a need to rethink the concept of the Tidal Link | 8. Discuss more thoroughly the design and operation of the Tidal Link. Meanwhile, consider periodic maintenance by dredging. |
| 9. The factors used to estimate the cost of O&M in the draft Pre-feasibility report for the NSDS appear to under estimate the long-term O&M costs. The economic analysis does not include all project costs | 9. Re-evaluate the factors used to estimate cost of O&M for the NSDS. Include resettlement and environment management costs in the economic analysis. |
| 10. There is a need to do additional environmental evaluation prior to the construction of additional facilities to place saline drainage water from the Punjab province in the Indus River and/or the Arabian Sea | 10. Initiate, to the extent necessary, environmental studies and develop a comprehensive river salinity model to determine the impact of discharging saline drainage water, both with and without municipal and industrial waste and possibly residues of fertilizers and pesticides, into the Indus River and/or the Arabian Sea. |
| 11. There is a need to focus on irrigation and drainage needs for salinity control in the root zone for different soils and crops. | 11. Initiate a study to establish better and more reliable mathematical relationships between such parameters as the depth of irrigation application, its salt content, soil permeability, depth of leached soil, salt content of leached soil and that of leaching water at various depths besides salinity of drained water, in order to better understand the level of sustainability of irrigated agriculture in the Indus Valley on a long-term basis. |

ANNEX 6
NDP SUBPROJECTS APPRAISED, COMPLETED OR UNDER IMPLEMENTATION IN SINDH

STATUS OF PREPARATION OF APPRAISAL REPORTS IN SINDH PROVINCE¹

| No. | Province / Name of Sub-project | AR Cost PRs. Million | Screening Report ² Prepared | Appraisal Report (AR) Prepared | IES as Part of AR | Funding Agency | Remarks |
|-----|---|-------------------------|--|--------------------------------------|-------------------------|-------------------|------------------------------------|
| 1 | Fuleli Guni Outfall Drain System | 179 | Sep-98 | May-00 | Yes | WB | Under implementation |
| 2 | West Kadhan Patiji Outfall Drain System | 24 | Mar-99 | Nov-99 | Yes | WB | Completed |
| 3 | East Kadhan Patiji Outfall Drain System | 31 | Mar-99 | Nov-99 | Yes | WB | Completed |
| 4 | Ahmed Rajo Outfall Drain System | 10 | Mar-99 | Jun-99 | Yes | WB | Completed |
| 5 | Leghari Outfall Drain System | 30 | Mar-99 | Jul-99 | Yes | WB | Completed |
| 6 | Phalkara-Jajheja Surface Drainage Scheme in Matli | 1,015 | Feb-99 | Mar-99 | Yes | WB | Dropped due to unfavorable outfall |
| 7 | Pumping Stations and Drainage System-Ghotki Feeder in Ghotki Division | 34 | Aug-98 | Feb-99 | Yes | WB | Under implementation |
| 8 | Ghar/Khairpur Nathan Shah/Mehar and Sunhari Systems in North Dadu | 91 | | | | WB | Dropped |
| 9 | Larkana South/Larkana North/Nusrat/Naudero/Shahdadkot in Larkana Drainage Division | 65 | Nov-00 | Jun-01 | Yes | WB | Not Implemented |
| 10 | Lakhi/Shikarpur/hyder Chandio and Zakaria Drainage Systems and Sindh Wah Pumping Station | 176 | Nov-00 | Jul-01 | Yes | WB | Not Implemented |
| 11 | Karo Naro Drain in Ghotki Division | 93 | May-99 | Jan-00 | Yes | WB | Under implementation |
| 12 | Drains of Lowari Drainage System | 37 | Aug-98 | Mar-99 | Yes | WB | Completed |
| 13 | Tando Bago Branch Surface Drainage System | 42 | Aug-98 | Jan-01 | Yes | WB | Under implementation |
| 14 | Drains of Ochito, Jamsakro and Ghorabari Outfall of Thatta Drainage Division | 161 | Nov-98 | Oct-00 | Yes | WB | Under implementation |
| 15 | Nagan Dhoru, Jati and Karo Gungro Outfall Drains of Sujawal Drainage Division, including Surface Drainage Systems | 292 | Jan-99 | Nov-00 | Yes | WB | Under implementation |
| 16 | Dewan System in Tando Md. Khan Area | 6 | Jan-99 | Jun-99 | Yes | WB | Completed |
| 17 | Kotri Barrage Surface Drainage Phase I, Part II, Stage III | 290 | | | | WB | Dropped |
| 18 | Thatta II sub-drains | 52 | Jul-00 | Apr-01 | Yes | WB | Under implementation |
| 19 | LBOD Branch Drainage System | 120 | Sep-00 | May-01 | Yes | WB | Not Implemented |

¹ This list of subprojects groups together various related contracts shown in Map 3 that are associated with particular subprojects. Equipment and materials related to electrification works are not listed here, as they did not require screening or appraisal reports. For subprojects involving O&M performance contracts, de-silting of canals, improvement of watercourses (very small tertiary farm level irrigation channels), monitoring studies, condition surveys, procurement of equipment, and contracts carried forward from LBOD, appraisal reports and IES were not required. For some subprojects that were dropped or have not yet been taken up for implementation, the columns are left blank.

² Screening Report = Initial subproject identification report.

| No. | Province / Name of Sub-project | AR Cost PRs. Million | Screening Report Prepared | Appraisal Report (AR) Prepared | IES as Part of AR | Funding Agency | Remarks |
|-----|--|-------------------------|---------------------------------|--------------------------------------|-------------------------|-------------------|-----------------------------------|
| 20 | Rehabilitation/ Replacement of Tubewells in Khairpur SCARP | 180 | Apr-01 | Sep-01 | | WB | Not Implemented |
| 21 | Condition Surveys of various parts of Sindh's Irrigation and Drainage System | 9 | | | | WB | Completed |
| | O&M for Sindh Irrigation & Drainage Authority | 0 | | | | | |
| 22 | O&M of Surface Drainage System in Sanghar | 37 | N.A. | N.A. | N.A. | WB | Under implementation |
| 23 | O&M of Sub-Surface Drainage Wells in Sanghar (SSD99-S) | 54 | N.A. | N.A. | N.A. | WB | Under implementation |
| 24 | O&M of Sanghar Scavenger Wells & Mir. Tile Drains (SSD99-M2) | 35 | N.A. | N.A. | N.A. | WB | Completed |
| 25 | O&M of Nawabshah Scavenger Wells and Interceptor (SSD99-N2) | 32 | N.A. | N.A. | N.A. | WB | Completed |
| 26 | O&M of Surface Drainage System in Nawabshah (SD99-N) | 45 | N.A. | N.A. | N.A. | WB | Under implementation |
| 27 | O&M of Surface Drainage System in Mirpurkhas (SD99-M) | 29 | N.A. | N.A. | N.A. | WB | Under implementation |
| 28 | O&M of Sub-Surface Drainage Wells in Nawabshah (SSD99-N) | 38 | N.A. | N.A. | N.A. | WB | Under implementation |
| 29 | O&M of Sub-Surface Drainage Wells in Mirpurkhas (SSD99-M) | 32 | N.A. | N.A. | N.A. | WB | Under implementation |
| 30 | Modernization of Selected Canal Commands Selected canals of Rorhi, Dadu and Lower Nara | 221 | Aug-01 | | | WB | Dropped |
| | Other Drainage Schemes | | | | | | |
| 31 | Small Surface Drainage Scheme between Phull and Daulatpur | 81 | Aug-98 | Feb-99 | Yes | WB | Not Implemented |
| 32 | Small Surface Drainage Scheme - Mirzapur and Dhoda | 37 | Jul-98 | Sep-98 | Yes | WB | Dropped due to social problems |
| | LBOD Remaining Works | | | | | | |
| 33 | Sanghar Interceptor Drains (S30.ND6) | Not | Feb-99 | | | ADB | Dropped due to absence of FOs |
| 34 | Mirpurkhas Tile Drains (T40.ND5) | 593 | Feb-03 | | | ADB | Dropped due to absence of FOs |
| 35 | Mirpurkhas Drainage Tubewells, including 444 disposal channels and one contract for 202 tubewells (ongoing), and one contract for 242 tubewells (completed) | 378 | | | | ADB | Under implementation |
| 36 | Nara Canal Remodelling, including Ranto Canal, West Branch Regulator, and Twin Jamrao Canal Commissioning | 1,645 | | | | WB | Completed |

| No. | Province / Name of Sub-project | AR Cost PRs. Million | Screening Report Prepared | Appraisal Report (AR) Prepared | IES as Part of AR | Funding Agency | Remarks |
|-------------|-------------------------------------|----------------------|---------------------------|--------------------------------|-------------------|----------------|-------------------|
| OFWM | | | | | | | |
| 37 | Lining of Distributaries and Minors | 177 | Nov-02 | Apr-03 | No | WB | Under implemented |
| 38 | Bio drainage | 80 | Oct/02 | Jan-03 | No | WB | Not Implemented |
| | | 6,457 | 26 | 23 | | | |

SUMMARY

| Subproject | Completed | Under Implementation | Dropped | Not Implemented | Total |
|---------------------------------|-----------|----------------------|----------|-----------------|-----------|
| Drainage Rehabilitation | 7 | 7 | 3 | 4 | 21 |
| O&M Performance Contracts | 2 | 6 | | | 8 |
| Modernization of Canal Commands | | | 1 | | 1 |
| Other Drainage Works | | | 1 | 1 | 2 |
| LBOD Remaining Works | 1 | 1 | 2 | | 4 |
| OFWM Works | | 1 | | 1 | 2 |
| Total | 10 | 15 | 7 | 6 | 38 |

ANNEX 7 STUDIES COMPLETED UNDER NDP

POLICY STUDIES

| Name of Study | Executing Agency | Start Date dd/mo/yr | Remarks |
|---|---------------------------------------|---------------------|--|
| National Water Policy | Federal Coordination Cell ACE-Halcrow | 23/12/99 | These studies are being under taken by Federal Coordination Cell, Islamabad. |
| Water Rights in Selected Canal Command | | 22/03/04 | |
| Gypsum Pricing Marketing And Distribution | | | |
| Promoting Private Investment in Drainage | | | |
| Exploitation and Regulation of Fresh Ground Water | | | |
| Revenue Options and prospects of WAPDA Water Wing | | | |
| Efficacy of Past Drainage Investment | | | |

SECTOR PLANNING STUDIES

| Sr. No | Name of Study | Executing Agency | Start/ Completion dd/mo/yr | Remarks |
|--------|--|-------------------|---|---|
| 1 | Physical Monitoring of Drainage- IV Project Faisalabad | SMO (WAPDA) | 8/2/99 31/12/00 | Study completed in December 2002. |
| 2 | Land Leveling under PAPs of Fordwar Eastern Sadiqia South (FESS) Project | OFWM-PB AGR DEPT. | 30/9/00 30/06/02 | Only 640 acres out of 7000 acres have been leveled. Study has been concluded on 30.6.2002, because of certain limitations. |
| 3 | Monitoring of Land & Water Conditions of FESS Project | SMO (WAPDA) | 30/09/00 30/06/03 | Study completed in April, 2003. Final Data Report published. |
| 4 | Institutionalized Environmental Monitoring of Land and Water Conditions | SMO (WAPDA) | 21/11/98 31/12/04 (Extended) | <ul style="list-style-type: none"> • Depth to Watertable maps on GIS basis have been completed upto June 2003 and work on October 2003 in progress. • One year extension has been granted to cover additional activities. |
| 5 | Soil Salinity Surveys of Irrigated Areas | SMO (WAPDA) | 01/03/01 31/11/04 (Extended) | <ul style="list-style-type: none"> • The survey of 41.3 million acres has been completed. • Data analysis and Initial Report has been prepared 80%. • Final Reports of 9 Canal Commands have been completed. • Initial Draft Reports of 18 Canal Commands out of 40 are under completion. • 39 Canal Command have been digitized & 20 maps of canal command areas completed |
| 6 | Reactivation of IBMR in context of NDP | P&D DIV. (WAPDA) | 05/01/01 30/09/04 | <ul style="list-style-type: none"> • The progress is hindered due to non-hiring of Modeling Specialists. Possible modification/up-gradation of the IBMR is being carried out by the CAD itself. • The establishment of Water Resources Database Management System is being arranged by DG (IS). The general information about Indus basin Model & water resource data has been placed on WAPDA Water Wing web site www.pakistan.com under the sub head of Water Resource Planning. • Final Report is under preparation. The study will be ended in September 2004. |
| 7 | National Surface Drainage System | Federal Cell | 26/01/01 | These studies have been completed by Federal |

Pakistan

| Sr. No | Name of Study | Executing Agency | Start/ Completion dd/mo/yr | Remarks |
|--------|--|---------------------------|--|---|
| 8 | Balochistan Effluent Disposal | Indus Ass. & Louis Berger | 26/11/02 | Coordination Cell, Islamabad. |
| 9 | Flood protection & Drainage of Peshawar Valley | | | |
| 10 | Preparation of Drainage Master Plan (DMP) | P&D (WAPDA) | 01/03/02 31/12/04 | <ul style="list-style-type: none"> Comments on Draft Interim Report received from the Provinces and Bank and have been incorporated. After reviewing the DMP Report by the Local Panel of Expert, first draft has been issued to the Stake Holders and Bank. The International Panel of Experts will review first Draft in September 2004 |
| 11 | Physical Monitoring of LBOD Stage-I Project | SMO (WAPDA) | 14/01/99 31/12/04 (Extend) | Draft Final Report under preparation. |
| 12 | Improving Drainage Execution & Evaluation of Canal Lining in FESS: a) Improving the Performance of Surface Drainage Through Monitoring and Evaluation at FESS Project. b) Prioritize Drainage Needs for FESS Project Phase-II by Groundwater Modeling. Performance Evaluation of Different Types of Canal Linings in FESS Project (Post Lining Monitoring and Evaluation). Watercourse Lining Plus | (IWASRI WAPDA) | 21/09/00 30/06/03 01/07/03 31/12/03 | <p>Study concluded during July 2002 due to continuous dry spell. Final Report published.</p> <p>Final Report published.</p> <p>Study extended to incorporate additional study on water course lining plus as recommended by the Panel of Experts on NSDS. Draft Interim report has been submitted and Final Report is under process.</p> |
| 13 | Agro-Economic Monitoring of FESS Project a) Post-Construction Agro-Economic Monitoring and Evaluation (AEME) of FESS Irrigation and Drainage Project. b) Impact Monitoring of Economic Rehabilitation Measures for Project Affected Persons (PAPs) of FESS Project. | WMED (WAPDA) | 30/9/00 30,12/03 | <p>Final Report is under finalization.</p> <p>Final Report published.</p> |
| 1 | Preparation of NDP Phase-II | | | Special Committee recommended to carryout in the end of Phase-I. |
| 2 | Environmental/Sea intrusion below Kotri | | | The study will be carried out under FIDC, Ministry of Water & Power. |
| 3 | Impact Monitoring Evaluation | WAPDA | | Special Committee has recommended to be continued in NDP Phase-II. |
| 4 | Tidal Link as Outfall Drain for NSDS | | | Six firms are requested to submit proposal. M/s Barqab, WAPDA only responded. Bank has been informed and requested to defer the study till the finalization of DMP. |

ANNEX 8
LEFT BANK OUTFALL DRAIN STAGE 1 PROJECT – TIDAL LINK
WORLD BANK FACT FINDING MISSION

TECHNICAL NOTE AND RECOMMENDATIONS

BACKGROUND

The Left Bank Outfall Drain Project and the Purpose of the Tidal Link

1. The Left Bank Outfall Drain (LBOD) is intended to drain saline ground and surface water, and storm runoff, from 1.27 million acres of irrigated land in the four districts of Sindh Province to alleviate water logging and salinity. LBOD collects excess irrigation water, saline seepage, pumped saline groundwater, rainfall runoff and industrial and municipal wastewater¹. At its terminus near the coastal zone, the LBOD empties into two existing and smaller drains, DPOD and KPOD.² These latter two drains empty into two natural, shallow lakes, *Shakoor Dhand* and *Pateji Dhand* respectively. These dhands are two of the numerous shallow lakes and depressions that form the larger wetland known as the *Rann of Kutch*. The Rann of Kutch lies in both India and Pakistan. At the completion of the LBOD Stage 1 project, disposal of the expected large volume of saline drainage water³ into this nationally and internationally important wetland became a major concern.

2. Three possible options were considered for the terminus of the LBOD drain: one option was to continue to empty most of the LBOD flow through KPOD into Pateji Dhand, which is connected to the Rann of Kutch in wet years or during high water; the second option was to empty the drain directly into the Rann of Kutch where it would find its way to the sea; and the third was to empty the drain directly into the sea through an independent canal linked directly with an active tidal creek. The first two options were dropped partly because the Rann of Kutch is an international wetland and partly because of the potential adverse impact on Pateji Dhand and the small dhands connected to it. The third option, which utilizes a direct, independent link canal to the sea, *The Tidal Link*, was finally chosen.

3. The adopted scheme included the construction of a 26 mile Tidal Link canal running from northeast to southwest across the Rann of Kutch connecting KPOD to an active tidal creek, *Shah Samando Creek*. The canal would physically separate the four major dhands in the Sindh portion of the Rann of Kutch, called *Sanhro*, *Mehro*, *Cholri*, and *Pateji*, from the Rann of Kutch. The upland drainage water of KPOD would be

¹ The drains are commonly used to dispose of untreated municipal and industrial wastewater even though is not consistent with Pakistan Environmental Law.

² *Kadhan Pateji* Outfall Drain (KPOD), originally one of the main drains for the area irrigated from the Kotri Barrage on the Indus. Its outfall was into Pateji Dhand. *Dhoro Pura* Outfall Drain (DPOD), a small stream emptying into the Shakoor Dhand, was excavated to carry stormwater from LBOD.

³ The design discharge from LBOD is 4440cfs. DPOD will carry 2000cfs of stormwater, and the balance of baseflow (1240cfs) and stormwater (2200cfs) will be carried by KPOD.

confined within the deep cut of the Tidal Link Canal bounded at both sides by high earthen embankments. The top of the embankment was fixed at 20 feet above mean sea level (amsl) to avoid overtopping from both sides since water levels in both the Pateji and Cholri Dhands and Rann of Kutch sometimes exceed +8.0 to +10.0 amsl.

4. The tidal influence (backwater) would extend from Shah Samando Creek all the way up the Tidal Link to KPOD, but sea water was not expected to extend farther than 12 miles upstream from the tidal creek (to RD -93), just below the Dhands. The northern side of the embankment running along Pateji and Cholri Dhands was provided with an overflow concrete-crested weir (Cholri Weir), 1800 feet long. The top of weir was fixed at +4.5 feet amsl to prevent over-drainage of the Dhands at low tide, and to allow temporary flow of canal water into the Dhands to attenuate water levels in the canal at high tide.

Cost and Financing of the Tidal Link

5. The implementation of the Tidal Link canal and the overflow weir was started in September 1991 using an ICB contract for construction, and an international consulting firm for the design and construction supervision. The construction of the Tidal Link and Cholri Weir was completed on time. The total cost of construction was about PRs 800 million, funded in part by the Saudi Fund for Development.

Objectives of the Bank Mission

6. The Bank fielded a fact finding mission during the period March 12-17, 2001. The objective of the mission was to understand the technical details and process of the failure and the damages to the Tidal Link, to understand the possible technical, environmental and social consequences, and to suggest to the Government of Sindh further steps to be taken. The GOS Additional Chief Secretary⁴ had constituted a high level Technical Review Committee of senior technical experts in May, 2000. The Committee made its report to GOS in October, 2000 [19]⁵. The mission visited the tidal link site, listened to the views of various Government and Non-Government Officials including members of the Committee (Attachment 1), and reviewed the various reports (Attachment 2) including the Technical Committee's report.

POST COMPLETION OPERATING EXPERIENCE OF THE TIDAL LINK

Initial Operating Experience

7. Almost as soon as the Tidal Link began operating on June 6, 1995 it experienced significant erosion and scour problems along both banks and the bed. In some sections, almost 50 percent of the total embankment body was lost with erosion still in progress. The remedial works along the embankment were undertaken by WAPDA O&M (South), but the bank sloughing, bed and bank erosion continued. Meanwhile, differential

⁴ Vide notification No. WR(W/W)5(P&D)79/69

⁵ The number in the brackets refers to the list of documents consulted by the mission given in Attachment 2

settlement of the upstream face of the Cholri Weir was detected beginning in 1995 and remedial works were undertaken and completed by the end of 1996.

Damage to the Tidal Link and Cholri Weir in 1998 & 1999

8. Undermining and erosion caused 250 feet of the weir section length to collapse on June 24, 1998. Many attempts were made to close the breached weir section, but all failed due to monsoon weather and the remoteness of the site. By the end of October 1998 the federal and provincial authorities and the consultants who visited the breach site jointly decided to stop further remedial works after the breach in the Weir had increased to 450 feet length from the southern end [16]. On May 21, 1999 a catastrophic tropical cyclone hit the Tidal Link area causing severe damage, including the almost complete destruction of the Cholri Weir, and breaches of both Tidal Link embankments in 56 places.

Function and Impact of the Tidal Link

9. The primary objective of the Tidal Link was to evacuate the saline drainage water of LBOD to the sea. The objective had been achieved before the occurrence of the June 1998 weir collapse and May 1999 cyclone breaches. A substantial net outflow from the KPOD and Dhands to the sea was observed with an average rate of 1000 cubic feet per sec (cfs). The net outflow in the Tidal Link was accompanied by a sharp reduction in salinity in the Dhands (by about half[8]).

10. Since the collapse of weir and the cyclone breaches in the embankment, the whole water and salinity balance of the Tidal Link and the Dhands have changed. The tidal link flow is no longer confined, and is instead, now intermingled with the flow to and from the Dhands and the Rann of Kutch at every tide cycle through the breaches along the embankments. The salinity has been increased in the Tidal link up to RD -35. This has become especially pronounced in the last one and a half years because of the severe drought that has significantly decreased drainage flow from KPOD.

REPORT OF THE GOVERNMENT OF SINDH (GOS) TECHNICAL COMMITTEE TO REVIEW DAMAGES TO THE TIDAL LINK AND CHOLRI WEIR

The Recommendations of the Technical Committee

11. The high-level Technical Committee reviewed available project documents and monitoring data and made extensive field inspection. Among the Committee's key findings and observations are: 56 breaches in the southern and northern embankments of the Tidal Link, severe erosion of the canal banks; evidence of scour of the canal bed, and a considerable part of the berm on top of the embankments had been washed away; most of the northern embankment along with the entire berm has been eroded; the section of the channel has been widened considerably at a couple of places; the water level in the Dhands has been lowered and drained by the Link; the water was flowing within the Tidal Link during the low tide when the Committee visited the site. At high tide, the water apparently flows over the banks at some of the low points or through the breached sections.

12. The judgment of the Committee was that the Tidal Link is continuing to function and the ongoing channel evolution would stabilize sometime in the future with a section that would generally follow the current alignment. However, in light of the uncertainties concerning the factors governing the ongoing changes within the Tidal Link, and the uncertain viability of conventional options, the Committee made the following recommendations in their May, 2000 [19] report:

- No repair should be carried out in Tidal Link as damages done by cyclone are beyond the repair limit;
- Any remedial work for Cholri Weir is also not recommended;
- The Tidal Link is discharging its fluid into the Sea with good gradient;
- Continue monitoring of water levels in Tidal Link and KPOD for at least one year; and
- Carry out a survey of the bed levels in the Tidal Link.

13. As this Committee's report covered mainly the technical aspects of the failure, a second committee was constituted in December 2000, to assess the environmental and social consequences of the failure. This second Committee is still continuing its work.

General Comments on the Recommendations of the GOS Technical Committee

14. The mission held discussions with the Committee members and other Pakistani officials and NGOs (Attachment 1) after thorough examination of the situation, including a site visit and review of the existing documentation (Attachment 2). Considerable damage occurred to the berms and embankments of the Tidal Link. Direct connections between the Link and the Dhands have developed in several places after the northern embankment had been completely eroded. The downstream part of the Weir was breached completely and has turned into a wide opening to the Dhands where a similar drainage channel has also been formed. Water during high tide freely enters the Dhands through these openings. Wide and deep drainage channels have been created in the bed of the Dhands by the water freely drained from the Dhands at low tide.

15. The mission generally agrees with the conclusions and recommendations of the GOS Technical Committee regarding the Tidal Link and Cholri Weir. The no-action recommendation of the committee is justified not only because the damage is beyond repair by conventional methods, but also because the scour of the channel bed and erosion of the embankments are still active under the influence of the uncontrolled tidal flow through the tidal link and flow to and from Rann of Kutch and the Dhands. These conditions will render any attempt to repair the damages following conventional methods useless. Moreover, repair or replacement of the Cholri Weir is also meaningless because tidal and drainage water will continue to enter and leave the Dhands freely through the gaps in the breached embankments.

16. However, with respect to the Committee's recommendation concerning modification of the LBOD-DPOD weir to increase disposal of saline drainage water

through DPOD into Shakoor Dhand, the mission is of the opinion that such a decision should be deferred until a complete technical and environmental assessment is made on the basis of the proposed comprehensive monitoring program.

Comments on the Risks

17. LBOD drainage water is still flowing through the tidal link to Shah Samando creek with a noticeable velocity in the downstream direction during low tide. Thus there is no immediate or short-term danger of impeding the disposal of drainage water from the LBOD to the sea. However, it should be noted that drainage flows have been generally low because the Project is not yet fully developed and the drought conditions have prevailed over the past two years. Hence, the Tidal Link has not yet had to operate at full capacity in its present damaged condition.

18. The analysis of the longitudinal profile and cross sections taken along the Tidal Link at different periods covering before and after the cyclone damages indicates that in the long run the Tidal Link can evolve into a natural tidal creek. But it is very uncertain when and how that would happen. The superimposition of cross sections taken at different locations in 1997 and 2000 shows [15, 20] that there is a trend of localized scour and deposition of sediments at several sections of the tidal link. It is expected that the straight man-made Tidal Link may turn gradually into a more stable but meandering channel within a very wide and shallow section.

19. There could also be a more pronounced back up of the drainage flow as sedimentation progresses, resulting in a damping effect to the overall fall of the groundwater table in the LBOD area, particularly around its downstream reaches.

20. Due to the ongoing active channel processes, there is scouring and deposition of the sediments. Meanwhile, due to the active channel processes in the Tidal Link, the water is heavily laden with suspended sediments of brown color apparently a result from continuing bank erosion and bed scour.

21. The uncertainty about the future outcome of the active channel processes in the Tidal Link, the cost and viability of various rehabilitation options, and the environmental risks associated with the conditions developing in the Dhands strongly indicate the need for an effective monitoring program that would help to understand the trends and help to define feasible and sustainable mitigation measures.

Monitoring: Past, Present and Future

22. Shortly after commissioning the Tidal Link, physical monitoring was carried out by WAPDA during 1996 to assess the erosion situation in the berms and channel of the drain, and to identify necessary remedial measures. Longitudinal profiles and cross sections published in 1997 [9] provide a base line of the early erosion as well as analysis of the water balance, water salinity and morphology of the tidal link. A bed level survey of the tidal link and the KPOD downstream reach was carried out by the National Institute of Oceanography (NIO) in September 1998 [15] according to an agreed TOR with Directorate O&M, WAPDA (South).

23. The current monitoring and survey have been carried out by WAPDA's Scarp Monitoring Organization (SMO) for the water table and salinity while the National Institute of Oceanography has been carrying out bathymetric and hydrographic survey in the Tidal Link. A memorandum of understanding between SMO-WAPDA and NIO signed in March 1999 included a TOR for NIO to conduct comprehensive hydraulic monitoring of the Tidal Link under the NDP Drainage-I (IDA Credit 2999 Pak) for the period 1999-2003. The TOR initially covered the area including the Tidal Link Drain, the Dhands, the tidal mud flats, parts of Shah Samando Creek and adjacent areas. After the May 1999 tropical cyclone, which struck the entire area, the TOR was revised based on a proposal by NIO in September 1999 to account for the morphological changes caused by the storm. The revised TOR excluded the monitoring of any site downstream RD-125 including the Shah Samando Creek and the tidal mud flats. The first Annual report (1999-2000) of LBOD-I Physical monitoring was published in December 2000 by WAPDA [20].

24. The monitoring program as it is being implemented is not strictly complying with either TOR in terms of the specified sites or the frequency of measurements apparently due problems of site accessibility. Extensive discussions with the NIO Monitoring Team Leader and his associates confirmed the need to continue monitoring through the downstream reach of the Link, to comply with the TOR and to identify trends in physical and morphological changes within the monitored area. Future measurements must build on the base line information available from previous monitoring and surveys. It should also continue to track the sediment transport through the Shah Samando Creek that could be detrimental to the performance of the drainage function of the Tidal link if the huge sediment load is depositing somewhere near the mouth of the link to the creek. Year-round monitoring of surface water in the Dhands, particularly near the outlets of Karo and Fuleli drains, is equally important to ensure the effectiveness of the drainage from this part of Kotri system.

ENVIRONMENTAL SITUATION IN THE TIDAL LINK AREA

Environment setting of the Tidal Link

25. A broad and complex coastal zone lies between the terminus of LBOD and the Arabian Sea. Three distinct zones can be identified:

- the Rann of Kutch, a vast, highly saline wetland, that also includes large open bodies of saline water, salt pans in shallow depressions, land covered by a layer of crystalline salt, and numerous small, often interconnected saline lakes;
- a broad, extensive mud flat, that is temporarily covered by a thin layer of saline and silt laden water at high tide, particularly during the monsoon season; and
- a series of tidal creeks along the coast connecting the mud flats and wetlands with the sea.

26. The Rann of Kutch, which extends across the border between Pakistan and India includes a perennial, large and shallow body of water weakly connected by tidal creeks to the sea. Mangroves, which are generally limited in extent, specie diversity and productivity (because of the persistent high salinity), are found in places on the margins of the Rann of Kutch and among the tidal creeks. The land along the margins and extending some distance upland of this wetland is very saline, and the vegetation is very sparse to absent.

27. The wetlands of Sindh especially those east of the Indus River form an important component of a major migratory route for waterfowl known as the "Indus Flyway" [10]. They are important wintering, nesting and staging grounds for a large number of locally and globally⁶ important bird species (55-70% of all waterfowl found in Pakistan winter in Sindh), including some endangered species such as the Dalmatian Pelican. Two species of marine turtles inhabit the area, including the green turtle (frequently seen in KPOD and Tidal Link canal) and the loggerhead turtle. The wetlands, channels and creeks are also a productive fishery including several species of commercially valuable shrimp, prawns and crabs.

28. The western margin of the Rann of Kutch, where the drains enter the coastal zone, consists of a number of small, interconnected lakes called Dhands in Sindh, and a number of small lagoons some of which are dry during the late dry season or during drought periods. The surface area of the dhands varies seasonally and from year to year but averages about 700 sq. km. At low water levels, flow between the Dhands is limited and sometimes prevented by low ridges, but at high water particularly during the monsoon season or a wet year, they form a shallow, large and continuous wetland with the Rann of Kutch. The Dhands are generally oligotrophic⁷, with highly variable salinity (depending on stormwater and drain inflows), ranging from 15ppt to over 45ppt depending on the amount of mixing with drainage inflows whose salinity is generally less than 10ppt (principally from the Kotri drainage system). The Dhands and the surrounding lands, which are also saline, are nearly devoid of vegetation (except along the margins that are consistently fresh as, for example near a drain outfall). Biodiversity is nevertheless high with numerous specie of fish, crustaceans and mollusks that constitute a very productive fishery including several varieties of prawns, and high quality water fowl habitat.

29. Nearly all the villages near the Dhands depend on the fishery since the saline soils in the upland areas surrounding the Dhands support almost no agriculture except where water from the Kotri Barrage is available for irrigation. There are about 30 small fishing villages around the four Dhands and Sirani Drain (which enters directly into KPOD) [11]. Only one of the villages, *Karo Ghangro* located on Sanhro Dhand, is a permanent settlement of about 250-300 huts. The remaining villages are temporary, occupied seasonally when fishing in the immediate vicinity is good. In total there are about 5-6000 people, but the number varies year to year [11]. The socio-economic condition of these

⁶ The concentration of 22,500 Great White Pelican in Lake *Jabho* in Badin District in the winter of 1989 was the largest number ever recorded in Asia. In that same year 47,000 Greater Flamingo were observed in the Rann of Kutch, Pakistan. The breeding colony of Greater Flamingo in the Rann of Kutch is estimated to comprise over half the total world population and the largest assemblage anywhere in the world.

⁷ Except possibly in small areas where circulation is extremely limited

people is very poor: average incomes are about 6-800 PRs/month; there are no drinking water supply or health facilities; morbidity is high; education facilities are poor and participation rates are low [11].

30. Ramsar⁸ status has been officially requested by the Government of Pakistan for two areas near to where the drains enter the coastal zone. One is the *Narr-ri* Lagoon (2540 ha) near the outfall of the *Fuleli* drain in *Mehro* Dhand⁹, and the other is the *Jubho* Lagoon (700 ha) located on the western side of *Mehro* Dhand. If these sites are accepted (expected in 6-9 months), the surrounding Dhands will be designated as a Protected Area. Under the current regulations for Protected Areas in Pakistan, a management plan would then be prepared for this area by the GOS Department of Wildlife Conservation, and the use of this area regulated (not necessarily prevented).

Disposal of the Drainage Outflow

31. Carrying the LBOD baseflow and stormwater across the coastal zone to the Arabian Sea was considered important for several reasons:

- the drainage outflow from the system could not be emptied in the Rann of Kutch because it is an international wetland shared by India and Pakistan
- while the salinity of the drainage outflow is quite moderate compared to the Rann of Kutch it would likely contain a number of agricultural chemicals, nutrients, and industrial and domestic pollutants, and hence could not simply be disposed of in such a valuable wetland without possible risk to its important environmental values
- the left bank drainage system in Sindh is the first stage of an as yet undefined but necessary national drainage system for the left bank of the Indus river. Hence, an even greater volume of saline drainage and storm flow would have to be disposed of in the future, and a feasible and sustainable direct outlet to the sea developed

Specific Measures To Protect the Dhands

32. Before implementation of the LBOD project, the highly variable water balance in the four Dhands consisted of the relatively small Kotri drains that discharged directly into *Sanhro*, *Mehro* and *Pateji* Dhands, seepage, rainfall and surface runoff in the monsoon season, evaporation, and inflow to or outflow from the Rann of Kutch¹⁰. The drain inflow, evaporation and flow to or from the Rann of Kutch are thought to be predominant, but with the construction of the Tidal Link, flow from the Rann of Kutch in

⁸ The Ramsar Convention is an international treaty which came into force in Pakistan in November 1976. The main obligation of the government under the treaty is to ensure the wise use and conservation of wetlands defined in the convention as "an area of marsh, fen, peat land or water whether natural or artificial, permanent or temporary, with water that is static or flowing fresh, brackish, or salt including areas of marine water the depth of which at low tide does not exceed six meters".

⁹ The *Karo* drain, which is much smaller than *Fuleli* in terms of flow (in an average year, 4.5 mcf/d versus 45.8 mcf/d from the latter in the monsoon season), discharges into the adjacent *Sanhro* Dhand.

¹⁰ Even at high water levels in the Rann of Kutch inflow to the Dhands is restricted by the generally northwest to southwest sloping topography

wet years would be prevented, and drain inflow reduced by directly connecting the largest drain, KPOD, to the Tidal Link canal. There appeared to be two key concerns that required mitigation:

- first, permanent separation from the Rann of Kutch, and elimination of the KPOD drain inflow, could lead to one of two scenarios, both with possibly adverse consequences: (i) if these two flows dominate the water balance, then such a change could cause a significant long term decrease in the normal surface area of the Dhands resulting in adverse impacts on both the fishery and waterfowl habitat; or (ii) if stormwater inflows and the remaining Kotri drains dominate the water balance, then such a change could result in the long-term increase in Dhand water levels increasing water logging and salinity intrusion in the surrounding lands and impairing the effectiveness of the drains;
- second, if the Dhands are left intentionally open to the canal (uncontrolled), the large tidal water level fluctuations in the canal would cause large diurnal water level fluctuations in the Dhands (the surface area of the Dhands would vary by an estimated 70% [12]). This effect would be enhanced if the head differences between the canal and the Dhands caused a network of drainage channels to develop within the Dhands. Water levels in the Dhands normally vary seasonally and from year to year but generally within a limited range of 1 to 2ft.

33. The 1989 EIA for the Left Bank Outfall Drain Project – Stage 1 determined that the most important effect of the Tidal Link on the Dhands would be excessive drainage due to the tidal fluctuations. Moreover, it was determined that additional, temporary inflow of drainage water from KPOD would not have an adverse effect and could offset the loss of water from the Rann of Kutch in wet years further stabilizing the water balance in the Dhands. It is important to note however, that at that point in time there was little or no data on the present and future kinds and levels of pollutants (pesticides, heavy metals, etc.) and nutrients that would be in the water flowing into the Dhands from the Tidal Link, nor what the biological and limnological fate of these substances would be (for example how much would be retained in the Dhands, would they be concentrated in the food chain, etc.).

Current Situation At the Cholri Weir

34. Since the complete destruction of the weir in 1998-99, water now flows freely in and out of the Dhands in response to tidal fluctuations in the canal through the opening left by the absent weir, and through a major breach in the canal bank. North of the weir opening, and the large breach in the embankment observed by the mission, a network of channels has quickly formed in the Dhands through which a significant portion of the Dhands are drained at low tide twice a day. The network of channels forming in the Dhands has the appearance of a typical tidal creek and appears to be progressing (deepening and extending) into the Dhands.

35. Anecdotal evidence suggests that local people are fearful of the changes taking place. They are reported to be concerned that because water is coming from all directions

waterlogging will increase, that the strong tidal influence is bringing sea water to the Dhands, and that the sea, once far away, is now very close.

Environment and Social Risks and Issues

36. GOS has appointed a second high level Committee to assess the environmental consequences of the Tidal Link damage, but it has not yet completed its review and made its report. The failure to implement the project EMP, which placed particular emphasis on monitoring and study of the area, makes it very difficult to evaluate impacts and assess risks. Nevertheless, it seems clear that there are several important long term risks that stem from the present situation and the course of action recommended to the Government of Sindh by the Technical Committee (paragraphs 11-13).

37. The first major risk is that the outcome anticipated by the Technical Committee, i.e. that the Tidal Link stabilizes and functions adequately but the uncontrolled connection between the canal and the Dhands remains, results in substantial and irreversible damage to the ecosystem, habitat and fishery in the Dhands. The large diurnal fluctuations in Dhand water level may change conditions in the Dhands sufficiently to cause severe degradation to the ecosystem and loss of biodiversity and key qualities of the waterfowl habitat. The great extent of the Rann of Kutch wetland may be sufficient to provide alternative habitat for breeding, feeding and resting by key waterfowl species, but it is not known if there is sufficient equivalent habitat elsewhere in the wetland, nor how the waterfowl will respond.

38. The changes in biodiversity and habitat noted above could adversely affect the fishery reducing yields particularly of commercially important species. Hence the second major risk is the loss of livelihood by the poor fishermen who depend on the Dhand fishery, and farmers whose lands could be adversely affected by high water levels in the Dhands (either temporary or persistent). Fishermen have been heavily fishing the canal since its completion, but there has not been any systematic monitoring of yields in the canal, and presently in the Dhands, in comparison to before project conditions.

39. Just as systematic and scientific monitoring is needed to observe and understand the evolution of the Tidal Link channel and its effectiveness and functioning, similar and perhaps more extensive monitoring and study is needed to understand, anticipate and respond to ecological changes occurring now and in the future in the Dhands.

Status of Implementation of the EMMP

40. In 1998, an update of the 1995 Environmental Management and Monitoring Plan (EMMP) was prepared for the LBOD – Stage 1 Project including the Tidal Link area [12]. The key mitigation measures identified in the 1989 EIA [2] for the Tidal Link were incorporated in its design – but the critical issue concerning future management of the Tidal Link and the surrounding impacted communities and wetlands was (and still is) the lack of a complete baseline and continuing, systematic, scientific and well coordinated monitoring and study of the area. As issues were identified in project planning and design, the lack of an adequate knowledge base to understand this dynamic system and its

response to various interventions and changes, and to support decision making in the future, became clear. In 1997 the first series of baseline studies were carried out covering, avifauna [10], fisheries [11], water quality [20], and comparative land use [13].

41. The 1998 EMMP update outlined a comprehensive program of baseline surveys and studies covering the social setting and economy of affected people, fisheries (biology, productivity, techniques), water quality and limnology, and ornithology. These studies were to continue for the foreseeable future at appropriate intervals to be determined as the knowledge base developed and needs and priorities were identified. The development of an institutional framework for this program with specific responsibilities assigned to different agencies who possessed the experience and qualifications to do the work, was rightly seen as critical to its success. A newly organized Environmental Cell (WECS) was established at WAPDA (South) to coordinate and lead the work.

42. However, from 1998 to the present a variety of disagreements between WAPDA and the Government of Sindh over who would lead and be responsible for the overall program including related elements of the National Drainage Program (NDP, financing of drainage activities in Sindh shifted to this project when LBOD-Stage 1 closed), has essentially prevented any further action on implementation of the EMMP program. No follow-up surveys and studies have been carried out since 1977 to complete the baseline, nor has an institutional framework to implement and coordinate the continuing environmental monitoring program been put in place.

FRAMEWORK FOR ACTION

Institutional Arrangements

43. The performance of the Tidal Link as the major outlet of drainage water from the Indus Left Bank to the open sea and its impact on the coastal wetlands is of strategic national and provincial interest.

44. The monitoring program should be continued as enormous amounts of past data and institutional memory have been invested in these organizations. However, the mission noticed that the analysis part of the monitoring task is weak. There is no permanent institution to constantly following up the analysis of the collected monitoring data of both organizations in an integrated manner, and to make the necessary interpretation of the ongoing phenomena. The mission therefore suggests that a core scientific group comprising multidisciplinary specialists should be formed solely for the purpose, and assigned the task. This core group will function as a counterpart body to any international and local panel of expert. Before thinking of engaging a Panel of Experts the core scientific team should accomplish the task of consolidating the existing date and information.

45. Two priority actions are urgently needed to address the environmental risks:

- (i) Those elements of the program of social and environmental monitoring, surveys and studies initially outlined in the 1998 EMMP that are most

relevant to the Tidal Link impact areas should be reviewed, updated and converted into a series of TORs and the revised program launched on an urgent basis;

(ii) Equally important, and perhaps more difficult, is for the Government of Sindh to establish a clear and stable institutional framework for the management and coordination of the program. As noted earlier it is not sufficient to arrange to contract for isolated data collection and surveys. The adopted approach should:

- provide an effective institutional mechanism to not only coordinate activities by different organizations and specialists, but also to ensure that data are compiled, analyzed, interpreted in an integrated manner, trends identified, and the program adjusted accordingly;
- ensure that all the concerned and capable organizations in Sindh are appropriately involved. It should be noted, for example, that the key agency responsible for management of these valuable wetland resources (the Department of Wildlife Conservation) is not a member of the GOS Committee to review the environmental situation in the Tidal Link area;
- provide an effective mechanism, and appropriate incentives, to share and disseminate data and information. Modern information management tools such as computers, GIS and other information technology hardware and software are now widely available in Pakistan. GOS should give this issues priority attention – timely sharing of data and coordination of activities is perhaps the least expensive way to expand knowledge.

46. Within Sindh, and certainly within Pakistan, there are a sufficient number of specialists with appropriate experience and advanced training to do the required work. Additional training to fill gaps can be mobilized quickly. Many experienced specialists can be found within the specialist agencies, institutes and universities, and NGOs. What is needed is an institutional framework to mobilize and coordinate this capacity, and leadership.

47. The physically complex and environmentally sensitive coastal zone should be of special interest to the scientific community in Pakistan. Scientists from universities and research institutes should have the opportunity to develop more understanding of the area characteristics and the changes happening due to the construction of the Tidal Link. This approach would provide better vision and innovative solutions to mitigate adverse effects and sustain safe flow of drainage effluent to the sea. The research sub component of NDP provides appropriate window for engaging the scientific community in the future Tidal Link monitoring and studies.

48. An important consequence of the failure to implement the EMMP is the lack of public awareness of the need to sustainably manage both the fishery and the ecosystem of

the Dhands. Over-fishing, poaching, and disruption of habitat were highlighted in a number of studies done in 1997 [10, 11]. When these unsustainable practices are combined with the present threats caused by the damages to the Tidal Link, the risk of an irreversible loss is magnified. WWF indicated to the mission that there are good examples in Pakistan of successful efforts to mobilize stakeholders and communities and their adoption of new practices to sustainably manage their local natural resources and ecosystems. Community mobilization and the creation of local mechanisms to sustainably manage the Dhand ecosystem resources in collaboration with local authorities should be a central element of the implementation of the new EMMP. Enlisting local communities to participate in the monitoring program (both the physical and environmental monitoring programs) would significantly enhance such a program.

49. The record in Pakistan and in Sindh in regard to sharing data and information, and coordination of activities among different agencies even when they are working on the same general problem is not encouraging. Neither is the awareness or capacity of government organizations to work with local communities and stakeholders to achieve sustainable development objectives. The economic, social and environmental issues and risks in the Tidal Link area are of strategic importance to Sindh. A major effort should therefore be undertaken to overcome these past problems, simply because the risks are so high.

Panel of Experts (PoE)

50. Once such a comprehensive technical, environmental and social report is ready (one based not only on compilation of data but on analysis and interpretation), a high level Panel of Experts (PoE) could be engaged in the future phase of monitoring and studies on annual basis. The PoE formed from local and international experts could start by reviewing the state of developments up to the moment and recommending necessary adjustments to the program and the various TOR for monitoring including those for environmental monitoring, if necessary. The PoE would continue its annual reviews each time an annual monitoring report(s) is/are prepared. The Panel of expert will be in a position to see the appropriate course of actions leading to definite conclusions and recommendations appropriate to deal with the findings of this program.

PERSONS WITH WHOM THE MISSION HELD DISCUSSIONS

Meeting at the Secretariat, GOS, Karachi (03/12/2001)

1. Mr. Khadim Ali Memon Additional Secretary, IPD, Government of Sindh
2. Mr. Tariq Masood General Manager, National Drainage Program, WAPDA
3. Dr. Izhar Ul Haq General Manager, Tarbela Dam, WAPDA
4. Mr. Riasat Ali Chief Engineer Central Design Office (W) WAPDA
5. Mr. Mahboob A. Ansari Conservator, Wildlife Department, GOS
6. Mr. Syed Rajhib Abbass Shah Chief Engineer (W) South, WAPDA
7. Mr. Mohamad Izhar Khan Chief Engineer, Kotri Barrage, WAPDA
8. Dr. Salam Memon Provincial Coordinator, NDP, P&D
9. Mr. P.S. Rajani Chief (W&P), P&D
10. Mr. Faizullah Khatri, Senior Engineer, P&D
11. Mr. Rehan Hyder Assistant Director, NDP P&D
12. Mr. H. Ali Din Mohammad ACC, P&D

Meeting at Hyderabad Field Visit (03/14/2001)

1. Mr. Syed Nasim Hender Director General, EPA, GOS
2. Mr. Tariq Masood General Manager, National Drainage Program, WAPDA
3. Dr. Izhar Ul Haq General Manager, Tarbela Dam, WAPDA
4. Mr. Riasat Ali Chief Engineer CDO (W) WAPDA
5. Mr. Mahboob A. Ansari Conservator, Wildlife Department, GOS
6. Mr. Syed Rajhib Abbass Shah Chief Engineer (W) South, WAPDA
7. Muhammad Yasin Shaikh Director, SCARP Monitoring (South) WAPDA
8. Mr. Nazi Hussain Moghul Superintending Engineer, LSDC, Kotri Barrage Region,
9. Dr. Ahmad Hadi Shaikh Planning Engineer, PDC, GOS
10. Mr. Rehan Hyder Assistant Director, NDP P&D
11. Mr. Saeed Akhtar Baloch ASSH Conservator, Wildlife, GOS
12. Mr. Akbar Ali Khatain Environmental Officer, LBOD, WAPDA
13. Mr. Abdul Khalifer Memon Member Cholri Weir Community, Badin

Meeting at NIO, Karachi (03/15/2001)

14. Mr. S.H. Niaz Rizvi Team Leader, Tidal Link Monitoring Team, NIO

Meeting at Department of Wildlife Conservation, GOS, Karachi, 3/16/2001

15. Mr. Mahboob Alam Ansari, Conservator of Wildlife
16. Mr. Abdul Munaf Kaimkhani, Assistant Conservator of Wildlife
17. Mr. Saeed Akhtar Baloch Assistant Conservator of Wildlife

Meeting at IUCN, Karachi, 3/17/2001

17. Mrs. Nargis Alavi, Head, Karachi Office, IUCN
18. Mr. M.Tahir Qureshi, Director, Coastal Ecosystems Unit, IUCN
19. Mr. Ahmad Saeed, Deputy Programme Director, IUCN
20. Mr. Syed Ali Hasnain, Project Manager, WWF
21. Mrs. Rahat Jabeen, Wetland Conservation Officer, WWF

Attachment 2

Documents Consulted

1. Left Bank Outfall Drain Stage I Project Preparation, annex 12, Outfall System and Tidal Link, Sir M MacDonald and Partners Limited and Associates, January 1984.
2. LBOD Stage I Project, Environmental Impact Assessment of the Outfall Drains, Mott MacDonald Limited, February 1989
3. Tidal Link Mathematical Model, Modelling Effects of Dhand-Tidal Link Weir, Summary of Results of 1990 Modelling
4. Environment, Supporting Report 10, Mid Term Review, Left Bank Outfall Drain Stage 1 Project, Sir M MacDonald & Partners Ltd, March 1993
5. Drainage Sector Environment Assessment, National Drainage Program, Main Report Vol 2 – Conceptual Framework. Mott MacDonald, June 1993
6. The Performance of The Drainage systems of the Left Bank of the River Indus During the 1994 Monsoon, Album of Photographs, Sir M MacDonald and Partners Limited and Associates, October 1994.
7. Interim Environmental Report, Left Bank Outfall Drain Stage 1 Project, Mott MacDonald, November 1994
8. Presentation to the Minister for Water and Power, Left Bank Outfall Drain Stage 1 Project, WAPDA Integrated Management Organization, Hyderabad, January 1997
9. Morphology of the Tidal Link Post 1996 Monsoon, Left Bank Outfall Drain Stage-I Project, Sir M MacDonald and Partners Limited and Associates, May 1997
10. Survey of the Avifauna of Tidal Link and Adjoining Areas, Zoological Survey Department, May-December 1997
11. Fisheries Survey of Chotiari Reservoir (Sanghar) and Tidal Link Lakes (Badin). University of Sindh, Jamshoro. December 1997
12. Environmental Management and Monitoring Plan, Left Bank Outfall Drain Stage 1 Project, Sir M MacDonald and Partners *et al.* April 1998
13. Comparative Land Use Assessment Pre and Post Construction, Left Bank Outfall Drain Stage 1 Project (Study ENV/1), Mott MacDonald Limited, April 1998
14. Implementation Completion Report, Left Bank Outfall Drain Stage 1 Project, World Bank Credit 1532-PAK, June, 1998
15. Bed level Survey of LBOD Tidal Link & KPOD Up to RD+26 by Echosounding, Final Report, National Institute of Oceanography, October 1998.
16. A review of Erosion Problems in Tidal Link/Breach in Cholri Weir Structure and proposals for rehabilitation, by specialist Group, MM Pakistan (Pvt) Ltd., February 1999.

Pakistan

17. Memorandum of Understanding between SCARPs Monitoring Organization WAPDA and National Institute of Oceanography for Hydraulic Monitoring of Tidal Link, LBOD Under National Drainage Programme-I, March 1999.
18. Report on aspects of Environment & Social Issues after damages to Cholri Weir in June 1998 & Tidal Link during May 1999 Cyclone – Source Unknown
19. Committee Report on Damages to Cholri Weir in June 1998 and Tidal Link During May 1999 Cyclone to the Additional Chief Secretary, Government of Sindh, Chief Engineer and Project Director (South) WAPDA, October, 2000
20. Physical Monitoring Left Bank Out Fall Drain Stage I Project Under National Drainage Programme, (Two Volumes), SCARPs Monitoring (South) WAPDA, Hyderabad, December 2000.
21. Project Completion Report, Left Bank Outfall Drain Project (ADB Loan No. 700-PAK), January 2001

ANNEX 9 CONSULTATIONS

| No. | Place & Date of Consultation / Discussion | Name(s) of NGOs, CBOs, Civil Society Group | Reference |
|-----|---|--|--|
| 1. | July 5-28, 1994 On-farm Drainage Pilot Project in D G Khan | <ul style="list-style-type: none"> Discussions with Drainage Beneficiary Groups | Aide-Memoire, Third Preparation Mission (July 5-28, 1994) |
| 2. | Nov. 13-Dec. 22, 1994 | <ul style="list-style-type: none"> Discussions with NGOs, farmers and private sector held Field visits to project sites in Punjab, Sindh and NWFP | Aide-Memoire, Pre-Appraisal Mission (November 13-December 22, 1994) |
| 3. | June 28, 1995 Islamabad | <ul style="list-style-type: none"> Representative 8 NGOs including National Rural Support Program (NRSP) and Balochistan Rural Support Program (BRSP), Sindh Rural Support Corporation (SRSC), International Union for the Conservation of Nature (IUCN) and NGO Resource Center, supporting rural and community development efforts that cover Pakistan's four provinces. Discussion on IES with various stakeholders including representative NGOs Field discussion with farmers and meeting with local consultants and social organizers working in farming communities. | Aide-Memoire, Second Pre-Appraisal / Joint Mission WB, ADB & OECF (June 22-July 28, 1995), and BTO report dated July 6, 1995 with a list of 8 participating NGOs |
| 4. | Nov. 13-25, 1995 Lahore, Islamabad & Karachi | <ul style="list-style-type: none"> In Lahore about 20 NGOs were represented and agreed to plan and develop their association with the project in consultation with PIDA. In Sindh meeting was held with several NGOs concerned with environmental issues and having a local presence in and around the LBOD area including Pakistan Institute for Environmental Development Action Research (PIEDAR), Leadership for Environment and Development (LEAD), Sindh Agricultural and Forestry Workers Organization (SAFWCO), IIMI (now IWMI-International Water Management Institute), Sustainable Development Policy Institute (SDPI). Discussions were also held with other organizations including Sungi Development Foundation (SUNG), Strengthening Participatory Organization (SPO) and Green Press to discuss possible partnership with the project. Meeting with IUCN in Islamabad. | Mission Note by NGO Specialist, SDV to the Task Team Leader |
| 5. | June 26, August 15, 1997 Islamabad | <ul style="list-style-type: none"> Consultation meetings by the NGO Specialist during July 2-August 10, 1997 with NGOs, CBOs, Media representatives, local communities and farmers in all the provinces and Islamabad. NGO network meetings were held in all provinces and in Islamabad. The meetings were arranged by the Regional / Provincial Networks and the NDP team was invited for a discussion. 20-30 NGO and CBO representatives attended the meeting in each province and 12 in Islamabad. A briefing note giving basic information on the project was prepared by the Mission and shared with the media and NGOs. This was also translated by NGO networks into the national and local languages and | AM Pre-Board Review Mission and supervision for the Nara Canal AWB Pilot Project BTOR by the NGO Specialist, SDV, dated September 22, 1997. |

| No. | Place & Date of Consultation / Discussion | Name(s) of NGOs, CBOs, Civil Society Group | Reference |
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| | | distributed widely among the members. This note formed the basis of discussion at NGO network meetings. The roles and responsibilities of different partner agencies, including NGOs, were discussed in detail. | |
| 6. | January 7-8, 1998 Lahore | <ul style="list-style-type: none"> • Participation by Punjab NGO Coordination Council (PNCC); Aurat Foundation Balochistan NGO Federation (BNGOF); Sindh NGO Federation (SNGOF); Sarhad NGO Ittehad (SNI) Aurat Foundation; and Coalition of Rawalpindi and Islamabad NGOs (CORIN) | Aide-Memoire, Project Launch Mission, January 6-8, 1998. |
| 7. | March 23-April 10, 1998 | <ul style="list-style-type: none"> • Meeting with NGO network representatives (March 23-24) in Lahore. Subjects for discussion included IEC, social and environmental assessment, social mobilization and partnership with NGOs. • In Hyderabad, Mirpurkhas, and Sanghar: Meeting with Water Users Associations and Federations, and a meeting with Sindh NGOs Federation. • Meetings with NGOs focused on the role and expectations from NGOs in NDP Project, concerns in terms of NDP's effects on environment degradation in Sindh province, RBOD, and drainage of water from other provinces. The session also discussed the need and worked out a structure within the NGO network for coordination with NDP. | BTOR dated May 11, 1998 from NGO Specialist |
| 8. | Nov. 24-26-1998 Islamabad, Peshawar, Lahore, Hyderabad, Mirpurkhas, Sanghar, Nawab Shah and Karachi | <ul style="list-style-type: none"> • Meeting with representatives of Punjab, Sindh, and Pakistan NGO Forum, and the Sindh NDP NGO Forum, and their local partners. • NGO network representatives to the Provincial Steering Committees participated in a special session. The representatives from PNF, Punjab; and Sindh felt that they had a very critical role to play and offered serious policy input and social mobilization support. • NDP NGO Forum Sindh organized a meeting with the mission in Hyderabad and, as a next step, agreed to clearly define its own role, help guide the participation of Sindh NGO network representatives on the Steering Committee, offered support for social assessment and social mobilization; and offered to share the database on NGOs. • At this time, nomination of NGOs for membership of NDP Provincial Steering Committees had been received from NGO federations in all provinces. | Aide Memoire, Thematic Supervision Mission, Nov. 23-Dec. 10, 1998 |
| 9. | Feb, 22-March 5, 1999 Lahore | <ul style="list-style-type: none"> • Presentation by PDC. • Presentation by NGOs: Nominee of Pakistan NGO Forum focused on the role of NGOs; • General Manager NRSP presented NRSP's proposal for participation in NDP; • Social Coordinator FESS described the experience of FESS; and • Director OFWM presented their experience. | Note on Operationalizing Social Mobilization and other related aspects of NDP February 28, 1999 |
| 10. | May 17-June 24, 1999 Sindh, Punjab and NWFP | <ul style="list-style-type: none"> • Ruhuki Farmers' organization in Sindh, • Field visits and meetings with prospective FO farmers in Kohat, Hangu, Swat (NWFP) and found strong demand from farmers to manage water in their communities. • Visited potential project sites and farmers in | Aide-Memoire, Fourth IDA Supervision Mission, May 17-June 24, 1999 |

| No. | Place & Date of Consultation / Discussion | Name(s) of NGOs, CBOs, Civil Society Group | Reference |
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| | | Muzzafagarn, Kot Adu, and D.G.Khan (Punjab) | |
| 11. | March 19-April 6, 2001 NWFP | <ul style="list-style-type: none"> • ADB Mission Note dated March 31, 2001): NWFP agreed to carry out information campaign and for social mobilization | AM Joint WB, ADB & JBIC MTR Mission |
| 12. | September 2004 Badln, Hyderabad & Islamabad | <ul style="list-style-type: none"> • Representatives of various NGOs including ActionAid. ActionAid was the only NGO participating during the discussions with the Bank and the GOP agencies in Islamabad. | Panel of Experts meeting on MDP |

