

Disaster Unleashed by Mirani Dam

Naseer Memon

Cyclone Yemyin hit Balochista coast on the night falling between 26-27th June and left deep scars of disaster on villages of Kech District. Unusual rainfall resulted deluge in Nihing and Kech rivers, which cause backflow in several kilometers course. The worst hit areas included union councils Nasirabad, Nodiz and Kosh Kalat. According to a report of Red Cross, the first two union councils lost hundred percent houses whereas the third one lost about 75 percent houses. The figures of completely demolished houses are 2742 in Nasirabad, 2949 in Nodiz and 996 in Kosh Kalat. Several thousand people were rendered homeless and are currently passing difficult days in makeshift camps. These affectees do not solely blame nature for their plight; they count Mirani Dam as a major responsible man-made element for this unprecedented devastation. These union councils give a completely deserted look and only few traces of buried villages are visible, where villagers are seen excavating piles of debris to find whatever remains they can recover. They were lucky enough to save their souls. Some of them remained marooned for several hours before rescue reached.

Kech River has its catchment are in Balochistan, whereas the Nihing River brings torrential water from Iran. At the point of their confluence they merge into Dasht River which debouches into Arabian Sea near Jiwani. Dasht River is a non-perennial river depending on rain flows of catchment area spread over 21000 sq.kms. These rivers turned violent after colliding with Mirani dam reservoir on the fateful night of 27th June. Local communities blame WAPDA and its consultants for the recent disaster and they consider Mirani Dam as the single largest cause of this scale of disaster.

Mirani Dam: Mirani Dam is constructed on Dasht River at 7 kms downstream of the point of confluence of Nihing and Kech Rivers. Construction work commenced on 8th July 2002 under WAPDA's Vision-2025 as part of its Water Resource Development Program for the country. The project remained a high profile activity due to the highest level of political involvement from the day one. It was reciprocated with strong opposition by nationalist parties of Balochistan and the local communities. According to the PC-1, the estimated cost of the project was 5.81 billion rupees. Total storage capacity of the dam is 302,000 Acre Feet, which includes a dead level of 150,000 Acre Feet, leaving usable water of 152,000 Acre Feet. Total height of the dam is 127 ft from ground. Top width of the dam wall is 35 feet and it has a 600 feet wide spillway, which can allow a flow of 384,000 cusecs. The major objective of the dam is told as irrigating 33,000 acres of land in Dasht area. General Musharaf inaugurated this much trumpeted harbinger of prosperity on 16th November 2006; about eight months before it confirmed that the apprehensions of local communities were not wrong.

Role of Mirani Dam in the Disaster: Kech district received unprecedented rain as cyclone Yemyin landed on the Balochistan coast on 26th June. Both Nihing and Kech rivers received heavy inflows from numerous tributaries. Flash flood poured huge flows into Dasht River, which could not drain freely due to the Mirani Dam structure. Capacity full reservoir refused to absorb more inflow and the two rivers pounded back in all directions. Backflows brought unpredicted flash floods in the villages all around and inundated dozens of villages as far as 35 kilo meters from the confluence point. Several small torrents contributing to Kech River also started flowing back

hence the whole area came under flood sheet from all directions. According to NESPAK (consultant firm of WAPDA, responsible for dam construction and operation currently) flood water touched the level of 271.44 feet above mean sea level, leaving only three feet to overtop the dam wall. At one stage WAPDA engineers considered using fuse plug to break Spillway to allow more flow but the option was avoided since it involved risk of bursting the dam body, which would have multiplied disaster manifold. WADPA claims that had there not been Mirani dam, flood would have brought far more disaster in downstream areas. However local communities do not subscribe to this claim. In absence of dam body flood would have made uninterrupted flow through the downstream areas, where low lying villages had already shifted to perched areas after the heavy flood of 1998. Dam body filled with water caused a major blockade in the free flow of Dasht as a result of which reverse flow in torrential rivers brought disaster in vast areas.

The disaster also proved that over ruling local wisdom and relying solely on text book engineering would always result in losses. Failure of Left Bank Outfall Drain in Sindh had already proved this hypothesis. At the time of construction of Mirani dam, WAPDA claimed that flood surpassing 244 feet above mean sea level (ASML) at dam site has a rare possibility of once in 200 years. However local communities and some Irrigation Department officials stressed that WAPDA should raise this limit to 264 ft ASML and resettle people coming under this flood level. However WAPDA remained adamant and did not compensate and relocate villages above 244 ft ASML. The flood caused severe damage in areas even above 264 ft ASML.

According to some reports when feasibility of the dam was prepared in 1956, its height was proposed as 80 ft as against 127 ft now. Local communities are of the opinion that 80 ft was a safe height for the dam. They also claim that WADPA was requested to provide at least 1200 ft wide spillway to manage unpredictably high flash floods but they refused this proposition. Interestingly now consultants of WAPDA have proposed construction of an other 600 ft long spillway on the right side of the dam body, which is proposed to operate at 255 ft ASML. All these facts prove that the concerns and suggestions of the local communities were valid and not considering them was a big mistake on part of decision makers.

Local communities and Irrigation Department officials are also unaware of any Environmental Impact Assessment of the project. No one ever witnessed any public hearing which is mandatory for any EIA required under Pakistan Environmental Protection Act-1997. Interestingly WAPDA's construction consultants are also unaware of any EIA stipulations of the project. Had there been any EIA, local communities would have formally registered their concerns and suggestions. It seems that this vital part of the project has either been ignored or conducted without stakeholder consultation, rendering it completely ineffective. Likewise PC-1 of the project has also been made a confidential document and even responsible officials of local Irrigation Department-which has to takeover the project on completion-assert that they have no access to PC-1 of the project. Dam site is a high security area where even future operators of the dam, Irrigation Department people have no access. This indicates that that stakeholder participation has been completely avoided in the project design, planning and execution. This has become typical of public sector projects, which causes often serious design mistakes in the project resulting in waste of resources and loss of lives of local communities. Unfortunately our planning wizards have never considered common folk's wisdom and termed their concerns as anti-development conspiracies.

How the recent flood has affected the dam, is not yet public knowledge. However WAPDA consultants are content that the dam structure has survived the huge flood and therefore it is a successful engineering structure. Yet they are silent on the level of silt that the flood would have brought along. In the track of backflow of Keck River and its tributaries, one to two feet thick clay cakes are visible. This deposition indicates heavy silting in the dam that might have reduced the dam's life by few years. According to WAPDA consultants the dam is designed to last for 50 years. Local communities claim that since the dam is actually constructed to provide water to the industrial and residential areas of the emerging port city of Gwadar, therefore government might consider raising the dam height in future to compensate the reservoir loss due to silting. They apprehend that any such experiment would inundate more villages at the fringes of the water body and future floods may bring even bigger disaster if the dam level is raised at any later stage.

The experience of Mirani Dam has proved that the dams are highly risky engineering structures. Dam designs and operational safety features are highly dependent on accuracy of the history of floods in its catchment. But the fast changing climatic patterns have made the nature even more unpredictable thus made dam structures more vulnerable in front of nature twists. In recent years climate change has started manifesting its impacts in various ways. Tsunami, cyclones, hurricanes and floods are becoming more rampant and it would be better to explore other safer options to achieve the objectives connected with dams. Mirani dam episode also raises a concern that if a small dam (Kalabagh dam would have 20 times more storage than Mirani dam) can prompt such disaster, what would be the scale of disaster if any mishap occurs with big dams. Water conservation, power generation and land development are appreciable objectives but they are all meant for citizens development and therefore no risky means should be adopted to achieve these objectives if human beings have to face bigger risks and pay higher prices.