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Draught Year Management at 2008 in the Karun and Bahmanshir Rivers to Control the Fresh Water Reserving and Sea Water Biologic Impacts

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Abstract
Draught year 2008 is scheduled to manage the Karun fresh water by the composite earth dam construction with distance 8'500m from TB (Three Branch). In addition, sanitary water will be pumped from the end of Mared channel into Khorramshahr pump station through steel pipeline and submerge siphon. In this condition, Mared pump station will be transferred the Karun fresh water into Bahmanshir River more than 60 cubic meters per second. The normal discharge of Karun River in the wet year is 240 cubic meters per second. It appears 3/4 discharge discounting. Bahmanshir needs to prevent against the sea water advancing through 35 cubic meters per second fresh water flow. Remain flow current 25 cubic meter per second will be served by irrigational areas in the banks of the Bahmanshir River. In normal years, discharge current is more than 75 cubic meters per second. It appears 3/4 reduction and loss in agricultural productions. Solutions methods will be defined to increase the water level at upstream of Karun river by the three temporary dams which could be constructed from Ahvaz to Khorramshahr with the Karun River length 120km.

Keywords
Karun River, Bahmanshir, Mared, Draught year

1. Introduction

Both the Karun and Bahmanshir Rivers locate in the NW of the Persian Gulf region. Karun River will be separated near the Khorramshahr city into the Three Branch that will be named TB. Main branch is named Karun River and the second is the Bahmanshir River and the third will be famous the Haffar Branch. Bahmanshir River is influenced through Haffar and Persian Gulf salty tide water. The length of Karun from Ahwaz to TB is measured more than 120km. Also, distance of Haffar will be 3km and Bahmanshir River will determine 70km. Mean discharges of Rivers are set in the Tables 1 to 2.

Table 1: Lengths Indicate from the Three Branches (TB) to Ahvaz, to Persian Gulf and Haffar

Location	TB to Ahvaz	TB to PG	TB to Haffar	TB to Mared
Distance (km)	120	70	3	10

Table 2: Normal Discharge of Rivers

River	Karun	Bahmanshir	Haffar	Mared
Q (CMS)	300	100	200	60
Flood (CMS)	3'000	500	2'500	120

The KWPA (Kuzsetan Water and Power Authority) scenario will define with below steps that could be produced the numerous problems for fresh water and agricultural area.

- Tide water forces are needed to raise the water level of Karun River in the Mared pump station that is not considered through earth dam construction.
- Composite earth dam is unstable from lateral loads.
- Level of water decreases from design level +1.00m into +0.00m that will be necessary for pump station operation. Levels below +0.00 could be transferred the mud and river bed into the entrance hall of pump column.
- Submerge pumps are infected the heavy muddy liquid. The Mared channel bed level is -3.50m at the intersection with Karun River and will decreases to -5.50m near the Mared pump station.
- West area 10'000 HEC of Karun River may be destroyed by earth dam construction. It will raise the politic relation in the Khorramshahr area.
- Mino Island 5'000 HEC will be prohibited to irrigate through KWPA scenario. It is belonged to the delay of project that executer cannot be able to manage the project timetable.

2. Draught Effects

Figures 1 to 2 will demonstrate the withdraw behavior of river that will be produced through dry year and not allowed water sharing in the original upstream of Karun River. Due to legal affair, upstream cities couldn't be allowed to deviates the water from the branches head and springs in the Karun basin. This is influenced the social and health monitoring of downstream populations.

Figure 1: Draught Effects near the Bridge 7th in the Karun River, Ahvaz, Khuzestan

Figure 2: Karun Withdraws and will Appears the New Islands near the Bridge 5th, Ahvaz

3. Composite Earth Dam Sheet Pile

This design was scheduled in the first of April 2008 that must be controlled the fresh water impacts.

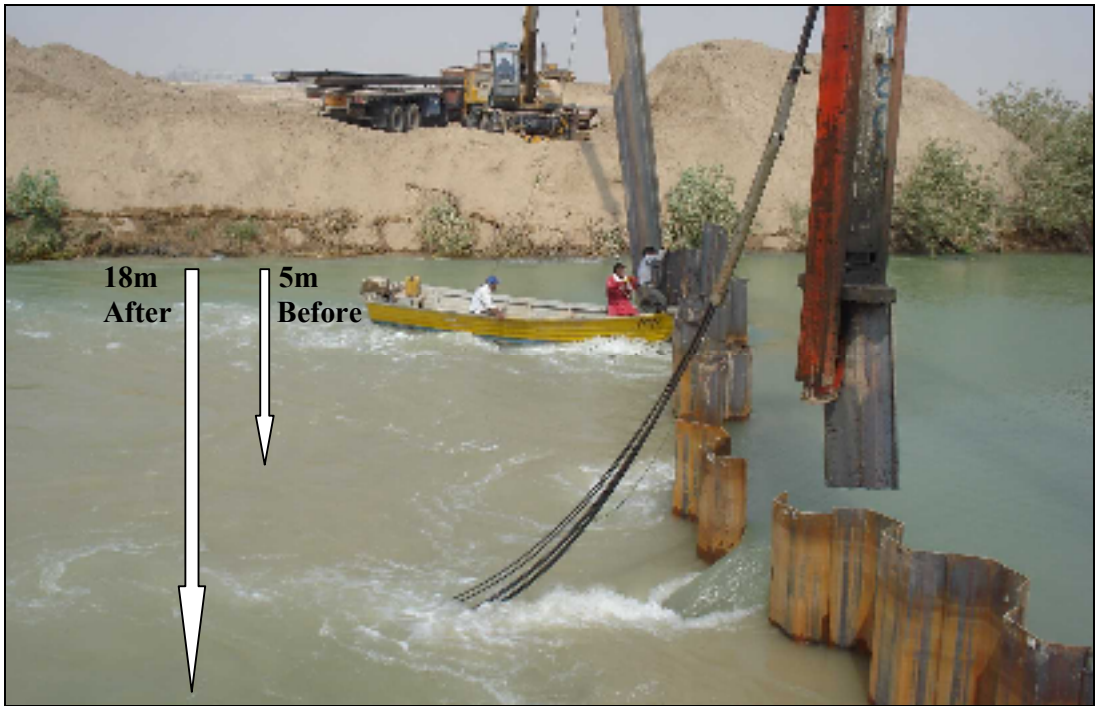

Figure 3: Depth before the Sheet Piling was measured 5m and Increased to 18m during the Piling

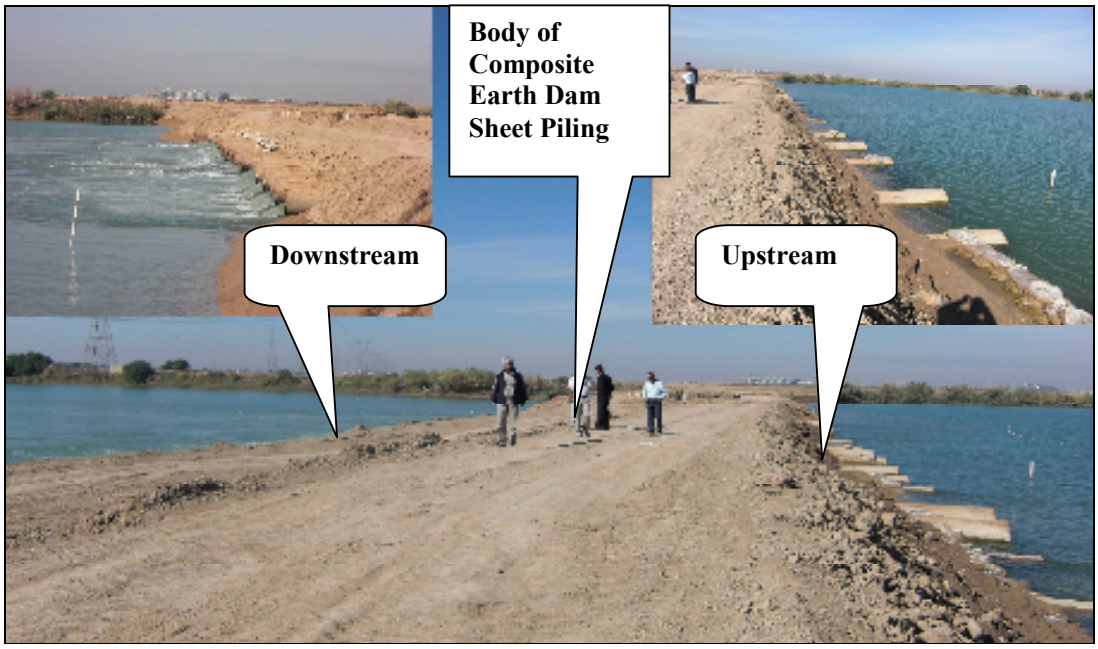

Figure 4: Earth Dam Sheet Piling Makes the Different Water Level more than +1.00m

4. Waste Water into the Karun River

All waste water is opened to discharge into the river that will cause the numerous effects in the health monitoring and biologic impacts. Waste flow was infected by extra pollution and primary insanitary.

Figure 5: Discharge of Urban Waste Water into Karun River, Near the Bridge 5th

Figure 6: Hospital Sewages Adds into the Karun River without Prior Notice

5. Design Innovation to Reduce Drought Impact

Karun River could be barred to increase the water level from Ahvaz to TB with 120km distances. Steel pipe piles will drive in the River width and horizontal walls will be installed to prevent the water tidal forces through steel pipes. Figures 7 to 8 will describe the schematic design of original innovation layout.

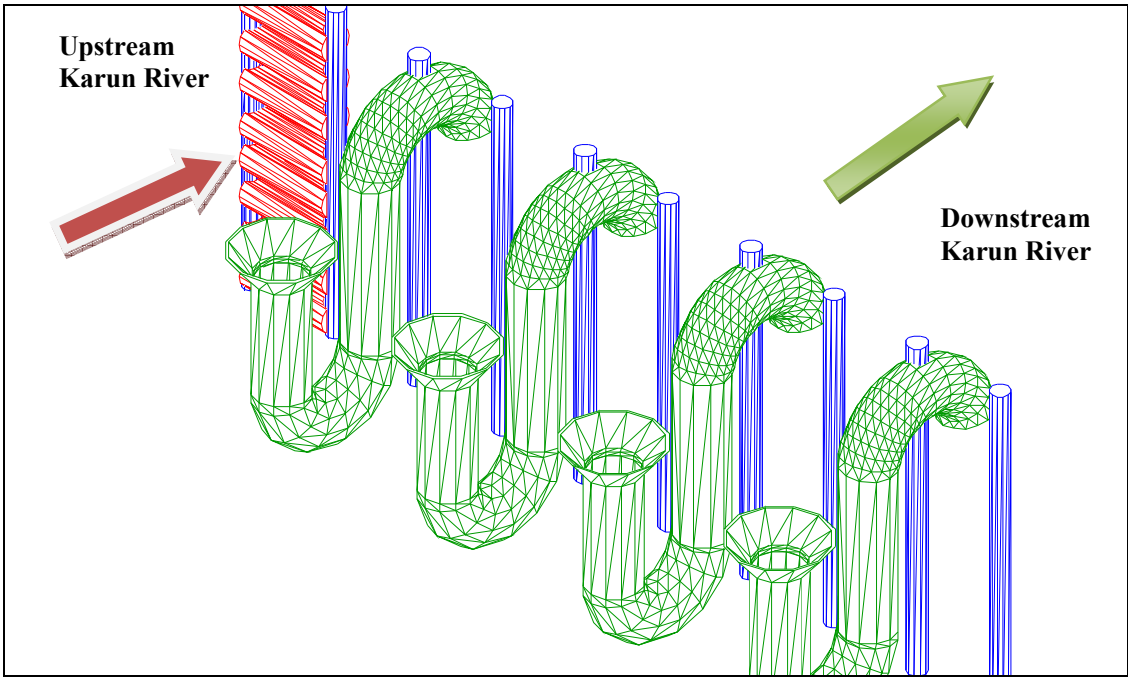

Figure 7: Suggestion Design for Karun River Modifications

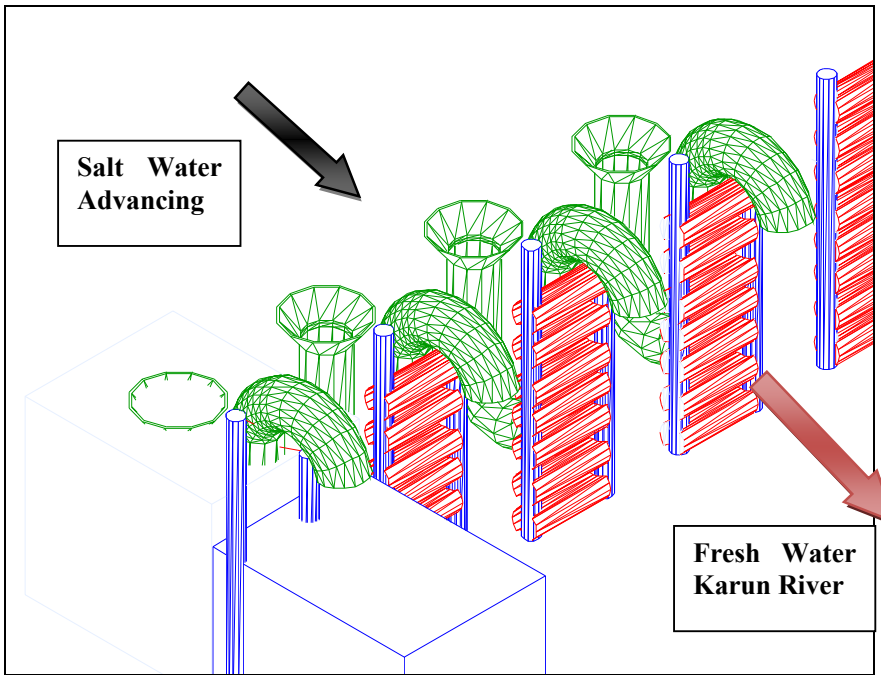

Figure 8: Suggestion Design for Karun River and Circulation of Water in Pipes

6. Conclusion

Fresh water in the original mountains was stolen to divert into the central part of Iran and deserts. In this condition discharge will be decreased to supply the environmental needs, human inquiries and agricultural requirements. Poor design in the year 2008 cannot be satisfied to prohibit the advancing the salt water into the palm farms which may be destroyed the fruit of years 2008 and 2009.

Also, innovation design may be solved the draught problems to increase water level through the three flat dams. Deflection height is 12m and it is needed to increase 4m water level by each flat dam. New design could be circuited to active the current water from upstream into downstream through (A. Turk 2008) pipe innovation design. Sewage and sediment current in the bed and fresh water moves through the pipe sections with airing processing automatically.

7. References

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