

# CANAL FROM GUDDU WORKS TO NAGARPARKER

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## Comments.

The name of the Project is "Canal from Guddu Head Works to Nagarparker" but the scheme as prepared does not have canal up to proposed destination or its near abbots. The canal runs from Guddu along the alignment of old bed of the Raini to a storage site on the border of Sukkur and Khairpur districts. If this canal had been taken further East in Sukkur district, it could have served more area of the Desert. As proposed the canal flows through the old bed of Rainee, which it-self was old bed of Hakra, it flows through cutting or below surrounding area. This basic mistake not only reduces the utility of the proposed canal in Sukkur district but also reduces its utility on the downstream side too.

Khairpur District had already been surveyed by Cottor of Geological Survey in 1918/19 to 1921/22 for salt its lakes and the report was published in 1932 by Geological Survey of India. He located some 2,000 major lakes and many more minor ones in the Khairpur district. The purpose of proposed canal was to fill as many lakes as possible, so as to enhance natural fodder and grasses as well be a source of water for human and cattle. This purpose had been defeated by the proposed alignment of the canal.

It is difficult to have a canal in the shifting sands of the desert districts with two embankments, because sand from the right bank embankment will blow back in to the canal and choke it up. This aspect had not been taken in to consideration while planning the project.

The canal as proposed runs is approximately 20-24 miles east of the present Nara canal and as it enters the Sanghar district, the alignment is reduced to a distance of 15 miles from the present canal. Once it enters Ummer Kot and Mithi Districts it further runs closer to the irrigated area and is only around 6-12 miles from it. The proposed storage to Mithi is approximately is 3 miles from the irrigated area. If this was the aim, the storage could be created at much a lower cost by taking water from the irrigated area of, the Sukkur Barrage or future Sehwan Barrage instead of bringing a canal from Guddu Barrage at enormous cost. It is said that the canal is along the alignment of water transmission lines to Chachro, Mithi and Diplo. Their own map shows that Chachro is 25 miles from the nearest point on the canal. Mithi is 25 miles from the storage and Diplo 30 miles. Water will be pumped through pipe lines to these cities, claimed to be on its alignment.

SAZDA (Sindh Arid Zone Development Authority) and their Consultant have not taken in to account the very fact that this canal is meant to take only surplus water for the use of humans and animals in the desert area. The Consultants have kept irrigation as the main objective, without considering the fitness of the soils of the area for the purpose.

Our paragraph-wise comments are as under:

**Paragraph 10.5.**

The proposed canal is to be lined and provided with conduits and aqueducts, in its reach of kms 171-498 in Khairpur, Sanghar and Thar districts. It is certain that the moving sand dunes will fill the canal up.

**Paragraph 10.7.**

The area is categorised as sand dunes, flats and depressions. Consultants have not examined in details, if flats and depressions are fit for agriculture purposes. The depressions in desert area are highly saline as is locally known and are also impervious. Quality of soils of flats is not known but could be fit or unfit for raising crops, depending on salt content.

**Paragraph 10.9.**

The reports accepts the evidence of soil classification officer before Sindh Agriculture Commission, 1953, which is essentially incorrect, as these were not examined in details then. The fact is that soils of desert have under-gone similar soil formation processes like those of the Indus alluvium but because those rivers which formed these soils, are non-existent now, the officer gave such a wrong impression. Had adequate soil sampling been done, this statement could easily have been negated by the Consultants.

**Paragraph 10.10.**

The surface composition of the soil as has been given, is based on Gazetteer of Sindh (West Pakistan) 1968, written in 1956-57 and probably is based on the information of limited soil sampling in Nagarparker Taluka. For a project as large as this, extensive soil classification was necessary. It is well known that on the top of the dunes there is coarse or medium sized sand of 3-4 feet thickness and at the bottom is alluvium. Many times it is impervious as it contains large percentage of clay. The example quoted in the paragraph probably belongs to Nagarparker in Mithi District, where high percentage of sand is met with and not the other areas.

**Paragraph 10.11.**

It is stated that most of the surface material has been deposited by the Indus in the past. The information hither collected shows that the Indus never flowed through the desert. It is the Luni, the Sarsuti and the Drishadvati and many other rivers of Pleistocene which flowed through the area. These studies have been done in Rajasthan (India) and SAZDA should have not been missed by them.

### **Paragraph 10.12.**

Soil samples are reported to have been collected from top 6-12 inches. It is not known why soil sampling from 1-6 inches had not been done. Soil sampling up to a depth of 5 feet, essential for Agriculture purpose, has been omitted.

### **Paragraph 10.24 - 10.38 Climate.**

The Meteorological Department was collecting data of climate of desert area until 1963. This information would apply even this day for the desert areas with a small variation. It is well known that 30 years from 1915-1945 were the warmest years of this century and from 1945 onwards it is cooler world-wide. The data for rainfall should have been worked on those lines to give more appropriate picture. The data for Sukkur and Chore do not represent the desert area at all.

### **Paragraph 10.39 - 10.49 Agriculture.**

The Nara region Kharif and Rabi acreage can not be taken as a representative for the area because the cultivation in Nara region is on the Eastern Nara a perennial canal, whereas water in the proposed canal would be available of maximum 62 days in July and August. This water can not be used for Rabi crops, the planting of which starts late after October 15. The only crops that can be grown on it will be short season fodder crops i.e., bajra, jawar and maize for fodder. Grown for grains, their yield will be depressed to below subsistence level.

### **Paragraph 12.2.**

The canal is considered to have a limited capacity of 10,000 cusec. Since the purpose of the canal is to have it meander to fill depressions, the proposed capacity is inadequate.

### **Paragraph 12.5.**

It is proposed to irrigate 71,432 acres at 100% intensity from the two storages. The soil in areas adjoining to storage have not been examined for the suitability of growing crops. The permeability of the soils has not been examined. It is just possible that the soil may be very porous and seepage factor may be very high. It is also possible that the soil may compact and prone to water logging as has happened in case of Bakhara canal in India, adjoining to our desert districts and having most probably similar soils, as process of building these soils was the same.

### **Paragraph 12.6.**

It is claimed that storage at Km-498 will serve 277,000 people and 638,000 animals. Most of hum and cattle population is located within a distance of 80-90 miles or 130-150 kms from this storage. How could this water reach the beneficiaries within an area of almost 20,000 square kilometres. If they mean to use pipe-lines, how can they supply water all over the area or en-route. If cattle has to walk 10 miles a day to watering point, they cannot gain any weight or produce milk.

### **Table 13.3.**

This table gives figures of surplus discharge at Guddu and the frequencies. The surplus indicates that canal can have much higher capacity, than assured agriculture. Surplus water can be spread in the desert area to allow natural grasses to come up. Such a canal need not have sophisticated systems, but for the sole purpose of spreading water like rain water flooding area and depression for later use. It is a technique for soil and water conservation, which may be used for different objectives.

### **Paragraph 13.3.**

Allowances for seepage factor have not been taken into account. Any type of irrigation from the Indus water containing 150 ppm salts would need an allowance of additional water for taking these salts down the soil to water table. This factor could only be known by taking adequate samples of soils from lower depths. This has not been taken in to consideration.

### **In Table 13.3.**

There is an emphasis on growing castor from July-October. Castor has same growing season as cotton, and if planted late in July, yield will be suppressed and its may not give an economic returns. They have them-selves given the season of 120 days for this crop in table paragraph 13.37. In the table 13.5 they have given its water requirement of 747.84 mm, out of which more than 40% in the months of June and September. There will be no water in June and September and how could they raise a commercial crop. The food crops would also give economic returns, only when water is applied in

September thus the yields of all proposed crops will be suppressed to the limit of achieving sustainable crop.

**Paragraph 13.5.2 - 13.5.3.**

Consultants have admitted the non-availability of suitable maps and have done the survey of a strip having the width of 2 kms at contour intervals of 10 feet. Agriculture Department has experience of On Farm Water Management and consider contours of 1 feet interval with spot levels as the only workable arrangement for canals. One foot contour means 250 contour lines from Guddu to end of Kotri Barrage command. Instead they have used only 25 contours. The design therefore will be totally inaccurate and unworkable. This was a factor SAZDA should have considered to start with. Such contour survey is permissible only in hilly country with high peaks for high level dam sites, and will serve absolutely no purpose of any canal or command of the adjoining lands by gravity flow. The job needs to be re-done.

**Paragraph 13.6.4 and 13.6.5.**

The Agriculture Department will be interested in detail of soil profile to the depth of 60 inches and their detailed analysis at some standard laboratory. The analysis should include macro and micro ingredients to come to a reasonable understanding of soils.

**Paragraph 13.6.6.**

The statement given here, contradicts their earlier stand of paragraph 10.10. They have reported that soils seemed to belong to the Indus alluvium of excellent quality. Agriculture Department is interested in details, along with details in previous paragraphs.

**Paragraph 13.7.7.**

It had already been stated that the area has shifting sand dunes and that being so, the embankments on the right bank will be blown into the

**Paragraph 13.7.23.**

Estimated culturable area has been worked out as 60%. This is a doubtful figure. As sand dunes occupy large percentage of an area and the valleys in between are saline in most cases. The area should have been sample surveyed at many points to work out the exact culturable command area.

**Paragraph 13.7.25.**

One of the benefits of the project as claimed by Consultants is, the recharge of ground water. Agriculture Department experience is other-wise. Though on the top of the soil, there is sand, down below is there is silt and clay for many meters and there is no sand to store water under the ground. SAZDA has done numerous drillings like Agriculture Department for ground water exploration. The Agriculture Department is interested is knowing, such sites where Consultant, have found sandy strata to store ground water underneath.

### **Annexure-1-Sheet-1.**

The among the socio-economic benefits of the project as given is, an additional area to be brought under cultivation. The area to be added is so small and so risky, in view of supply of water for only 62 days a year, that it will not attract settlement of new families. They will not be settled in real term and will be compelled to leave the area for at least 8 month a year, assuming that they return one month earlier to prepare seed-bed and stay one more month after canal closure, to harvest the crop.

### **Annexure-1-Sheet-2.**

They yield shown for various crops are not based on 62 days supply of water and desert soils lackaging fertility of the Indus plains and availability of water for full season. The cost benefit ratio and Internal Rate of Return will therefore not be achievable.

### **CONCLUSION.**

Scheme needs to be re-cost in view of above remarks.