

ANALYSIS OF IRRIGATION CANAL DESIGN

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Abstract: Agriculture is the source of livelihood for 95(percent) of the people in this area falls under failureregion. Farmers aresuffering huge losses due to irregular downfall and it isn't strong source of irrigation. In this design we've studied the waterproblem and the water demand of the crops and designed the alignment of a4.1 km long canal passing through the boundary of Masala, Gadhwad and Bhisewagholi townlets through which the water will go to the Irrigation. thus we will help in furnishing water to husbandry as well as water force to husbandry conditioning similar as crop gyration, crop civilization, pisciculture, Beast husbandry, Nurseries through this design " Planning and Designing Alignment of conduit for Irrigation at Bhisewagholi, Latur, Maharashtra.

Keywords: canal design, canal lining, crop study, canal alignment, water requirement.

I. Introduction

Kharif Crops	Rabi Crops
They are monsoon crops	They are non-monsoon crops
These are grown in wet and hot conditions	These crops require cold and relatively dry conditions to grow
Sowing of seeds begins in the rainy season around July	Rabi seeds are sown at the beginning of autumn in November or December

It's a raceway, which is the main raceway that transports Agriculture or irrigation water from a source to the area to be doused . They may be covered with concrete, slipup, gravestone, or a lissome membrane to save you seepage and corrosion. A conduit aligned against the limits of plowable regions a good way to deliver water for the motive of husbandry is stated to be an irrigation conduit. The irrigation has been rehearsed from the time old and so has been erecting of irrigation conduits, but isn't only since last century that conduits have been designed on more or less scientific base. The vehicle and distribution of water are an integral part of any irrigational design. Irrigation system should be erected in such a way that they use in maximum effectiveness. numerous face irrigation systems in utmost developing countries are performed at situations much below their eventuality in terms of crop productivity, water responsibility, equity and effectiveness. The effectiveness of the vehicle and distribution system, that's the transport of

water at minimal cost and with minimal water loss, basically affects the total frugality of an irrigation design.

II. Methodology

a. Geological data of village

Charts, reports and datasets of Wagholi on geomorphology, land use land cover(LULC), watershed hydrological parameter setc. Total area of Wagholi is 1168.1 Hectares as per the data available for the time 2009. Total sown/ agrarian area is 965.56 ha. About 300 ha is un-irrigated area. About 665.56 ha is irrigated area. About 2.2 ha is rinsed by conduit water. About 297.8 ha is rinsed by wells tubewells. About 90 ha is in non-agricultural use. About 22.54 ha is used endless ranges and grazing lands. About 10 ha is under eclectic tree crops. About 30 ha is lying as current free area. About 20 ha is culturable waste land. About 10 ha is lying as free land other than current fallows. About 20 ha is covered by barren

and un-cultivable land.

b. Data collection of Literature Survey

The economy of Latur district is predominantly agrarian. The major Kharif crops are, Soyabean, Tur, Urad, Moong, Maize and Jowar, while Gram is the major crop in Rabi season. Sugarcane, Groundnut and Safflower are other crops grown in the district. By use, crops fall into six categories: food crops, feed crops, fiber crops, oil crops, ornamental crops, and industrial crops.

c. Water Requirement

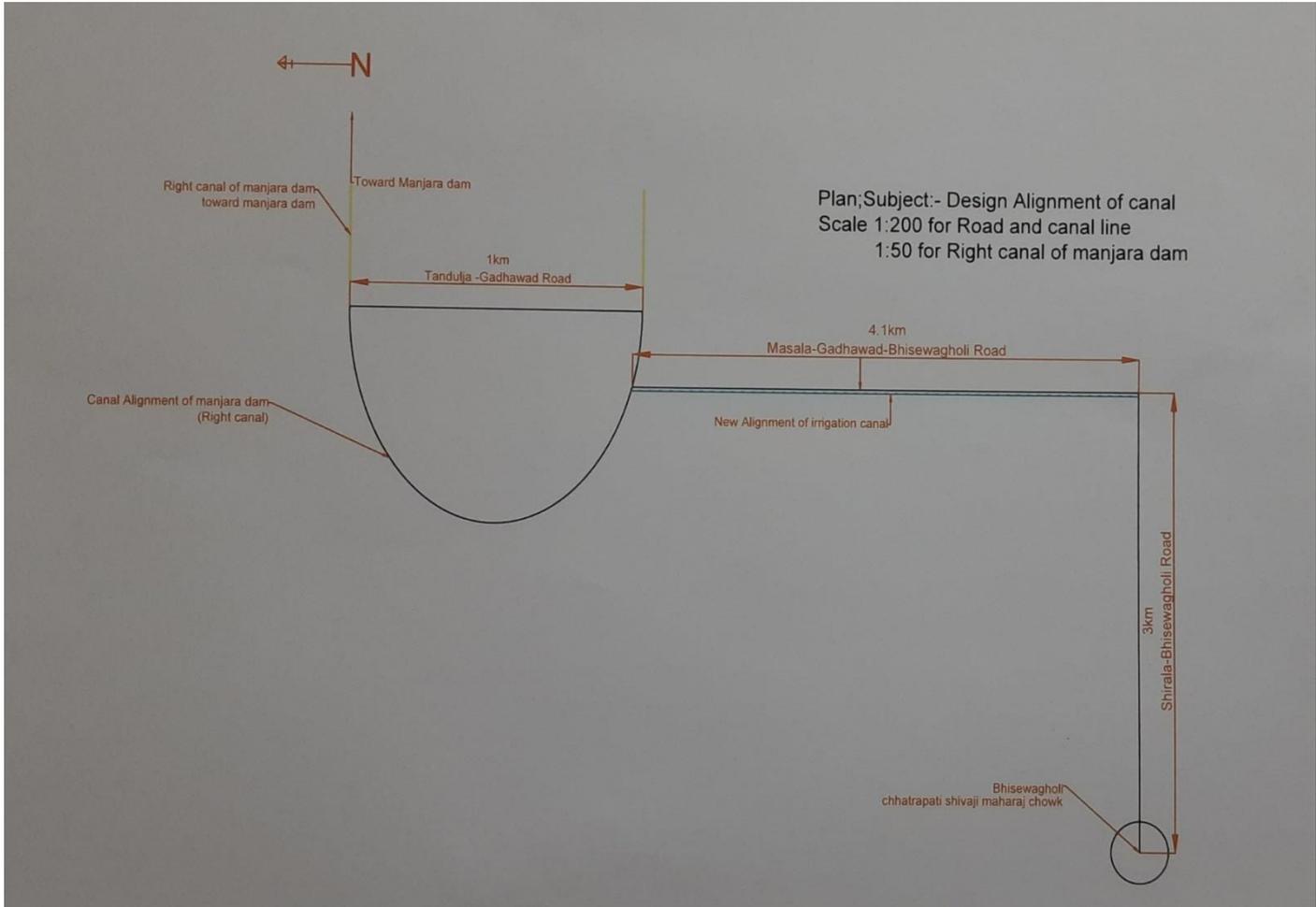
Crop	Water requirement (mm)	Crop	Water requirement (mm)
Rice	1200	Tomato	600 – 800
Wheat	450 – 650	Potato	500 – 700
Sorghum	450 – 650	Pea	350 – 500
Maize	500 – 800	Onion	350 – 550
Sugarcane	1500 – 2500	Chillies	400 – 600
Sugarbeet	550 – 750	Cabbage	380 – 500
Groundnut	500 – 700	Banana	1200 – 2200
Cotton	700 – 1300	Citrus	900 – 1200
Soybean	450 – 700	Grapes	700 – 1200
Tobacco	400 – 600	Mango	1000 – 1200
Beans	300 – 500	Turmeric	1200 – 1400

Amount of water required by a crop in its whole production period is called water requirement. The amount of water taken by crops vary considerably.

Crop	Water Requirement (mm)
Rice	900-2500
Wheat	450-650
Sorghum	450-650
Maize	500-800
Sugarcane	1500-2500
Groundnut	500-700
Cotton	700-1300
Soybean	450-700
Tobacco	400-600
Tomato	600-800
Potato	500-700

Crop	Water Requirement (mm)
Chillies	500
Sunflower	350-500
Castor	500
Bean	300-500
Cabbage	380-500
Pea	350-500
Banana	1200-2200
Citrus	900-1200
Pineapple	700-1000
Gingelly	350-400
Ragi	400-450

d. Design Alignment of canal



provide water as needed. This saves the crops from drought and helps to increase farm production.

e. Requirements of Good Lining

The canal linings should generally possess the following essential requirements.

- (1) Economy
- (2) Durability
- (3) structural stability (4) Repairability

III. Conclusion

All agricultural land in Masla Gadwad and Bhise Wagholi Shiwar will come under irrigation. Along with irrigation, poultry farming will complement agricultural activities such as animal husbandry. During monsoon, the water level in the soil will increase due to rain water. About 1500 to 2700 hectares area will come under irrigation. Along with

agriculture, this water will help as waste water. It is a branch canal and can help to raise the ground water level during monsoons. In the future, the length of this canal will increase and a lot of agricultural area will come under irrigation.

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