

# Water Dilemma : A Case Study Of Birbhum District, West Bengal

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**Abstract:** *Despite an agro economic zone transformation of land utilization status in Shibpur mouza of Bolpur-Sriniketan CD block of Birbhum district due to water deficit issue is a big blow for the economy and survivals as well. Agricultural land acquisition for industrial development by the state Government to assure financial security for the farmers suffering from water crisis to promote cultivation was quite alluring proposal. However in spite of principal irrigation source canal does not have the monopoly over the area and pond is another source of water, but pond does not have that level of dependability and acceptance as an auxiliary source to the farmers. However this study is concern to derive that why pond has lost its acceptance to the farmers despite the constrain in development of other means of irrigation.*

**Key Word:** *Water crisis, irrigation constraint economic transformation.*

**Introduction:** The potential of irrigation mechanism is actually evaluated on the basis of water availability as and when it is required. Abundance of rain cannot assure abundant production. Periodicity of water supply according to the crop requirement can only ensure good cropping. And it is very obvious fact that monsoon predominating regions acutely suffer from that uncertainty of rain water. Irrigation therefore becomes mandatory part to promote cultivation. Selection of proper irrigation mechanisms according to the water conservation in nature is important factor to maintain the compatibility in quantity and timing of water availability as per necessity. Fulfilment of both the above mentioned criteria (quantity and timing) depends on (1) types of the water conservations in nature, (2) distance of farm from the sources of water, (3) types of irrigation mechanisms to access the water sources and (4) influences of external anthropogenic factors.

**Methodology:** The purposive mode of sample mouzas to generate symbolic representation of amid tank/pond irrigation over the study area has been followed through obtaining and module broad set of census data (1991 and 2001). The following

steps have been followed to select the sample mouzas.

**First,** the proportion of irrigated area to total agricultural area and proportion of pond/tank irrigated area to total irrigation area is calculated for each mouza of 1991 and 2000 decades.

**Secondly,** observing the nature of calculated numerical figures over the concerning decades seventeen parameters are set. These are:

- 1) Totally irrigated area – but tank irrigation proportion decreasing.
- 2) Significant decadal increase in total irrigation- but tank/pond irrigation decrease in both the decades.
- 3) Proportion of total irrigated area and contribution of tank/pond irrigation remaining unchanged in both the decades.
- 4) Decrease in total irrigated area leading to total absence of tank irrigated area.
- 5) Increase in total irrigated area - introduction of tank/pond irrigation area.
- 6) Irrigation area remaining unchanged – tank/pond irrigation proportion decreased.
- 7) Irrigation area remaining unchanged – tank/pond irrigated area increased.
- 8) Total irrigated area decreased but significant increase / new introduction of pond/tank irrigated area. And so on.
- 9) Insignificant increase in total irrigated area - tank/pond irrigation proportion increased.
- 10) Tank irrigation contribution is 100% as total irrigated area during both the decades. And so on

All the mouzas are distributed into different groups on the basis of these parameters accordingly to get a comparative module on the basis of which the previous and present irrigation and pond/tank irrigation status of the mouzas can be evaluated.

**Thirdly**, comparing the decadal variation of percent figures the absolute values have been referred back. After evaluation these calculated figures are compared with raw data of absolute values to confirm that both the values satisfactorily follow the same parametric rule, the final mouza have been selected.

**Finally**, the selected mouzas are again qualitatively categorized according to their decadal trend, such as,

- 1) Significantly reversal
- 2) Insignificantly reversal
- 3) Significant continuation
- 4) Insignificant continuation

Individually each selected mouza contains unique characteristic which in turn implies the present irrigation status of the CD blocks. Thus the selected mouzas possess both the common and extreme characteristics which encompass the respective CD blocks as a whole.

**Discussion:** Shibpur mouza is flanked by Bolpur–Illambazar road and NH2B with approximately 121 hectares of agro land. In 2001 75% land procurement phenomena for the purpose of industrialization was a big bash for near about 300 reliant of that uninhabited mouza. The arbitrary transformation of lands under the Govt. initiative took place due to various reasons that sequentially segregated farmers based on their own demands and necessities.

However the area has near about 122 hectares of agro land and approximately 50% of the land is literally unirrigated. Remaining land is under canal domain. Water from South Kopai Canal is highly intermittent even during rainy season. Operational difficulties and technical discoordination are prominent reasons behind such situation. However remaining part of the year the canal becomes defunct as the river (Kopai River) is non perennial.

Fluctuating ground water table due to topographical undulation has restricted the development of tube wells system. Sharp variation in water table within negligible distance creates confusion to determine the depth of water level for the drilling of Tube wells. Moreover geological formation has also denigrated the expansion of this means of irrigation. Areal rock strata indulges prominent gap in water extraction and refilling ratio. However due lack of sub surface water conservation STW (shallow tube well) system is also forbidden.

However there are three ponds in this mouza at semi derelict condition. And none of them is actually in use for irrigation. It is a good source of rain water harvesting. The technical intricacy of this means of irrigation is lesser than the other sources. As an auxiliary irrigation source pond has

that potential to support the cropping due to irregularity in canal water supply and rainwater as well. But their number and spatial distribution are not sufficient enough to support the cultivation. As pond covers micro command area therefore both the criteria (number and spatial distribution) are equally important. But due to land mitigation problem farmers are not convinced to promote new pond digging. With less than one hectare of land ownership it is not so convenient for them to accept additional land lessening.

On an average a single pond irrigates 3.5 to 4.5 hectare of land. Therefore with enhancing the cushion area of the existing ponds additional land can be irrigated. But these age old receptacles are not maintained properly through re-excavation work under MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act). After 2001 the mouza had started to treat isolated due to vulnerable economic and political condition and for very reasons no such development works has taken place under the scheme that has also decay the employment possibilities.

However the very fact is, the river characteristics and the ground water condition of the mouza do not allow the monopoly of any single source of irrigation. Due to technical limitations of different sources water scarcity problem has become quite acute. So the farmers were not able to get the benefit of good cropping despite the predominance of fertile older alluvium soil. This constrain persuaded majority of farmers to give up their land ownership. Schedule of works, proposal of cash benefit and commitment of employment collectively worked to motivate farmers to take such decision. But no such progress in work has taken place in last fourteen years. The financial condition of farmers has degraded significantly and unemployment has become so acute.

**Acknowledgement:** This work is done under the supervision of Prof. Sumantra Mukherjee, Dept. of Geography Visva-Bharoti University for Ph.D work. And the cooperation of Raipur-Supur Gram Panchayat is also acknowledgeable.

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***Semi Derilict Condition of Pond at The Periphery of Agro Land***



***A Portion of Occupied Agricultural Land***

