

Water: A Review of Tripura

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Overview

Scarcity of water in hilly parts of Tripura, covers almost two-third of total geography of the state is nothing different than rest of the hilly states of the country. Large-scale deforestation and degradation of vegetation cover in hillocks resulted massive soil erosion and rise of river bed too that paves the way to drain out plenty of water to Bangladesh. Average rainfall of Tripura does not varied much over the decade but due to rise of river bed, water storing capacity of all 10 perennial rivers shrink down substantially, which caused flash flood. Literary Tripura originated from the concept of Land of Water - Twi which water and Para implies land and indigenous population (about 32 percent) call Tripura as Twipra. Despite having 2200 mm rainfall annually over 10,491 sqkm area every year hill people are suffering from water crisis and water borne diseases are claimed 113 lives in past four years.

Water unreached

The latest statistics shows, as many as 330 habitations of Tripura are still uncovered for purified potable water sources. Obviously, these locations are always prone to the spread of water-borne of diseases and ever year at least two outbreaks of seasonal gastro infections – pre monsoon and post monsoon are reported over the decades. Although the administration has taken steps to contain the intensity of the diseases by introducing mobile health check up vans in vulnerable location and supply of water by tankers; yet safe and good health care facilities are still absent in more than 1276 distant locations of Tripura.

Technical report of Drinking Water and Sanitation, Govt of Tripura contemplated that ground water table in more than 60 percent of the uncovered locations are below traceable limit because of physiographical structure where only sustainable supply of water will be piped line that to also very expensive. Annual average per capita water availability in Tripura is assumed is 35000 liters

against national availability of 18000 liters but uneven distribution of water among the citizens and distribution loss resulted crisis during dry spell and flash flood in low-lying catchments of rivers in monsoon.

Traditionally, hill living people are not acquainted with smart changing life-style and habits that also emerged sometimes challenging to ensure them piped water. To retain the water flow from deep tube-well sources created in down the hillocks to the hill (about 300-1000 metres), GI pipes are used but it carries some amount of iron contains and definitely, taste of this water is found different from stream water or water harness from well. The villagers are not accepting the deviation from their century old life-style. The experience says, the tribal women demands either to supply them sweet water at the top otherwise, they will continue to consume the stream or unhealthy water from open mud well. In few cases, they have prevented the drinking water supply officials who wanted to supply water in the habitation in northern and eastern part of Tripura.

Management initiatives & lacks

To cope up with the situation of acute drinking water crisis, government has been arranging for supply of water by mobile tankers to help out distressed people. In last summer 186 hamlets are suffering from drinking water shortage and 55 tankers had supplied water to the affected localities. Eruption of enteric disease and diarrhea are most common during dry spell in remote tribal localities. Drinking of contaminated water from the streams due to drying up of regular water sources have led to diseases resulting in casualties every year. Unfortunately, lack of tube-wells for potable water in over 200 primary schools is causing immense sufferings to hundreds of kids and staffs. The students, teachers and other staffs of these government institutions have to take pains every school day to walk to adjacent areas in search of water. Apart from 105 primary schools without any tube-wells, severe water crisis prevails in another 114 as the existing tube-wells at those schools are out of order for long.

Students of the Mohalchhara Government Primary School under Sadar sub-division, established in 1961 said that they often have to risk their lives as they cross the main road in search of a tube-well for potable water. Kamita Chakma of 5th standard student of the school said even for minor washing they have to cross the busy road. Not only this school, are almost 70 percent school toilets almost unusable due to lack of water and students mainly girls suffer most during school hours.

Unfortunately, about 28 lakh odd people are living in rural areas out of a total 38 lakh population but most of the planning of water is largely for roughly about 10 lakh urban populations. And 80 percent of the water sources of these urban pockets are river. The rivers of Tripura originate from hill ranges and flows down to Bangladesh after traversing through narrow valleys. In addition to that there are numerous tributaries which pour water into the river. The Rivers are flashy and meandering in nature. Almost 70% of the catchments lie in hills and as such bed slopes are very steep and the velocity of flood discharges is also high. Traditional Jhum cultivation, extensive deforestation aggravates the flood intensity/ damages. Un-usual erosion of banks also creates tremendous problems to protect the towns, villages and other permanent structures and borderlands on the riverbanks. As the river flows through narrow valleys, there is also little scope to construct embankments on both the banks leaving away adequate waterway. There is also little scope for taking up flood control reservoir project due to constraints in shifting & rehabilitation of people - mostly tribal.

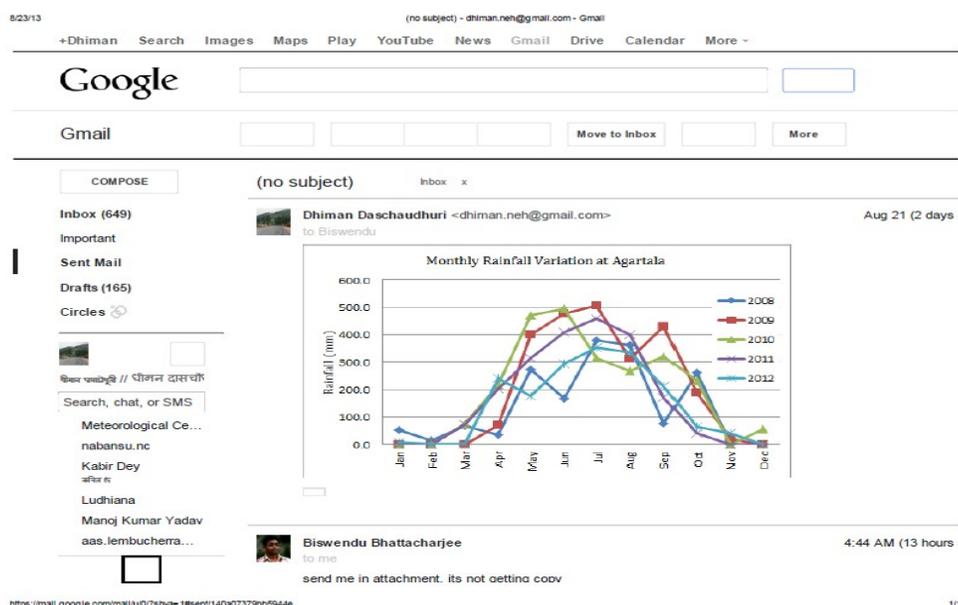
Woes of rivers

A study carried out so far indicate aggradations/degradation of riverbeds in certain reaches, but they do not confirm the common belief of a general rise in river beds. Silting at places the river emerges from the hills into the plains, at convex bends and near their outfall into another river or lake or sea, is a natural phenomenon. Accordingly, rivers exhibit a tendency to braid/meander/form deltas. Various committees appointed to look into this problem have not

recommended desilting/dredging of the rivers as a remedial measure. Selective desilting/dredging at outfalls/confluences or local reaches can, however, be adopted as a measure to tackle the problem locally. Watershed management measures such as developing the vegetative cover i.e. afforestation and conservation of soil cover in conjunction with structural works like check dams, detention basins etc serve as an effective measure in controlling the suddenness of the runoff.

Reality of Water

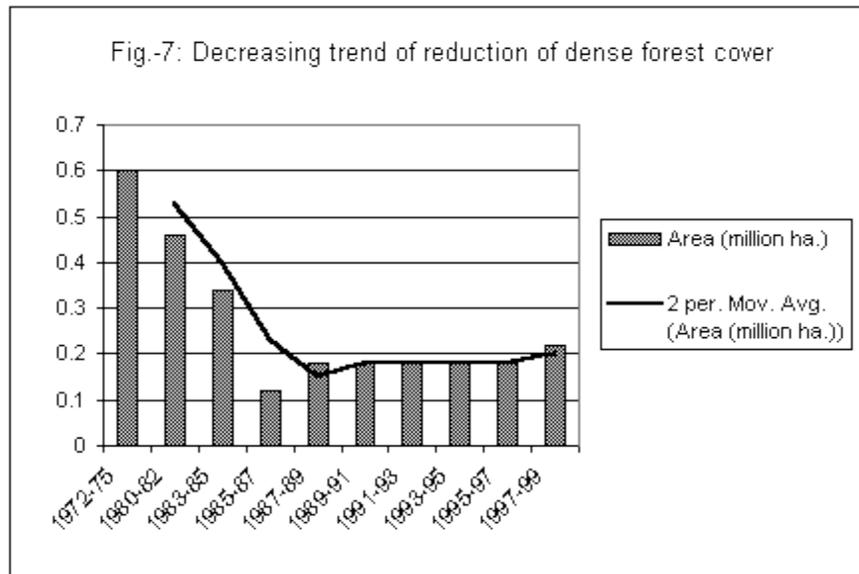
The record says, Tripura receives plenty of monsoon rainfall but a maximum amount is flown down to Bangladesh due to storage capacity. The state as a whole received about 2300 mm rainfall annually, of which 90 percent occurred in six months i.e. from April to September. Quantitatively, out of 7, 61,600 hectare metre of water waste in annual runoff, 81 percent flow during monsoon and rest 19 percent during non-monsoon period. In total runoff, 36 percent is only available in ten major river systems and 55 percent of them can be utilized (*source: An appraisal of water resources in the context of annual precipitation in India by M Datta, NP Singh and D Daschoudhuri*).



It means, in spite of abandoned rain, only 1, 50,797 ha-m of rain water is usable. But Regional Meteorological Centre data says, situation got changed across entire Northeast in 2013 with the rainfall departure from normal ranged between 38 and 77 per cent across the region since 1st June. Till August 23, 2013. Assam is reeling under 27 per cent deficient rainfall, having received only 805.8 mm against the normal 1098.6 mm. Arunachal Pradesh received 717.4mm rainfall against the normal 1159.9mm, which is 38% deficient. While Manipur is reeling under a dry spell with rainfall deficiency reaching 77 per cent, Meghalaya experienced 62 per cent less rainfall. Likewise, Nagaland and Mizoram recorded 48 per cent deficit rainfall and Tripura is deficient by 31 per cent this year till August 23.

Blames forest

Water issue in any hill state can't be justified unless look at the status of forest and forestry activities. Natural forest and trees of Tripura are now transformed into a bid of cash crop cultivation like rubber. Besides, timber forest like teak and shal has been replaced with Garjan, cotton trees, Udal tree, Rangi and chamal. History says Garjan is basically a part of evergreen vegetation and sometimes associated with Shal trees of moist deciduous forest, the dominant species in entire eastern hill stretch of Tripura covering Khowai, Muturi, Talatalikona, Chailengta, Deo, Dharamanagar, Jalaya and close by blocks. However, over past two decades entire traditional forest which allows vegetation to grow has been replaced mostly with teak and rubber that destroyed entire vegetation cover on top soil though increased the canopy. On the other, 6292 Sqkm of total recorded forest has been reduced to 5745 Sqkm (54.78%) over past three decades. Forest Survey of India Report claims, between 1972-75 and 1997-99 dense forest cover shows a reduction of area from 0.60 million hectares to 0.22 million hectares.



At the same time, encroachment of forest land has shown an alarming trend since 1980; while an estimated 16,210 families have reportedly encroached upon forest land measuring 5305.30 hectares till 1980. But the number of forest dwelling population rose by another 27005 families by 1991 occupying 8620.40 hectares of additional forest land. And till 1991 about 43,215 families occupied 13,925.71 hectares of while 8190.84 hectares fall under reserved forest. In 1997 forest department report says another 580 Sqkm area of a total 6292 sqkm of forest land has been occupied further. The largest loss to the forestry sector is reported when the state government with zeal enforced the Forest Rights Act in Tripura. The state is pioneer in distributing land rights to about 1.76 lakh hectare of land to 19000 odd forest dwelling families under FRA in past three years without specifying the activity on the land. It is also alleged that more than 70 % of these families are not the traditional forest dwellers which is a must as per the provisions of the Act. Apart from this folly the so called development projects undertaken by government for construction of roads and increasing accessibility in remote and green areas appeared to be detrimental to the forest conservation. Moreover, the character of forest has been changed rapidly because of planting of massive rubber over past a decade. According to Rubber Board of India, Tripura has potential of rubber cultivation over 76637 ha of land but so far 61082

ha of land are already under cultivation. . And Tripura is producing 37000 MT latex per annum but it has the capacity to consume only 2548 MT of rubber. The changing phase of forestry ecosystem has made a serious difference in cropping pattern, pattern in rain fall change of much seasonal cycles which is threatening the state and its people who have become vulnerable due to the ominous effect.

Contamination

Altogether 2931 habitations of Tripura are identified having excess of fluoride, Nitrate, Iron and Arsenic in the report of Northeastern Regional Institute of Water and Land Management (NERIWLM). Tripura has recorded second quality affected water sources in the region with 28181 habitations. The water sources gradually getting dry or lowering of the ground water table besides, systems working below rated capacity due to poor operation and maintenance increase in population resulting in lower per capita availability and slippage have also taken place due to seasonal shortage of water. NERIWLM attributed a multi-prong strategy to tackle the water quality problems has been evolved and for Nitrate preventive measures like reduction in the use of chemical fertilizers and controlling leaching of sewage pollution coupled with surface water harvesting techniques have to be adopted. The problems pertaining to Iron, salinity and multiple causes have to be tackled through local solutions based on surface water harvesting /in-situ dilution / recharge techniques and there are element of sustainability inbuilt into the project report along with a provision for a monitoring well/system for observing variations in quantity and quality as a result of dilution due to rainwater harvesting.