

Water-wise Development for Tigray: Commentary

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Tigray, Ethiopia

Except for the western, and some parts of the southern zones, the remaining part of Tigray is generally water-scarce. The relatively small amount of annual rainfall, characterized by a great deal of seasonal and annual variability has caused a general scarcity of water. Due to the virtually treeless topography the rate of rainwater infiltration is much lower than the rate of runoff. Even the small quantity of water that is retained in the soil is lost during the dry season by evaporation and high-speed wind. On top of this, recurring drought denies the land even the small quantity of annual rainfall, wrecking havoc to rural as well as urban livelihoods. The miserable life of the people in this Region has come cumulatively as result of several centuries of imprudent land use practices, countless and devastating internal and external wars, and neglect. The fact that Tigray is the cradle of ancient Abyssinian civilization; and that it is geopolitically positioned close to the zone of international political rivalries; and that it served as a corridor to and from Ethiopia and the outside world, the land and the land based-resources had to endure a lot of pressure for centuries. Although millions have remained tenaciously in their degraded hills with unbelievable adaptive capacity, hundreds of thousands have moved out far and wide in search of better life.

For a very long time in the past the Region was considered to be worthless. Policy makers and planners, who focused on economic growth as an approach to development, could not see the feasibility of investment in that Region. After such approaches to development lost favor among policy makers globally as well as in Ethiopia, the social aspect of development, that is, the people rather than profit-centered development started to find itself in development policy documents, there was every reason to pay attention to economically disadvantaged areas. A global shift in the development paradigm has been taking place, with a new focus on poverty alleviation, the provision of basic services, creation of employment opportunities, ensuring food security, and bringing about sustainable development in general. In Ethiopia, this coincided with the creation of a favorable polity for the implementation of the new line of thinking in development. However, it is not enough to have favorable policies that provide for the allocation of technical, financial and human resources aimed at the development of formerly disadvantaged areas. The development programmes that emanate from the policies must take the physical, historical, cultural, economic and political peculiarities of the Regions. If sustainable development in Tigray is to be ensured, the peculiarities of the Region have to be considered very seriously, so that development plans can be designed appropriately. The experiences of other countries or Regions from abroad could be helpful; but direct copy of blue-prints of rural as well as urban development plans is not worthwhile.

The most glaring peculiarity of Tigray is the scarcity of water for human as well as for environmental use. Development efforts that do not put this problem at the core of their planning cannot at all bring about sustainable development. If rural as well as urban development plans are based on the assumptions that “there will be water somehow from somewhere”, they are undoubtedly doomed to failure. The development plans in Tigray may not have brought water to the center; but it does not mean that they are totally water-blind. There are plenty of evidences that the importance of water has been recognized. The widespread bunding of hill-slopes for in-situ rainwater harvesting, the planting of prickly-pear cactus as a part of the drought-resistant landscaping (xeriscaping) are some of the actions taken to increase the water holding capacity of the environment.

Although many farmers have started using water-saving devices in irrigation, like drip-irrigation maximizing the crop per drop ratio, the use of water-wasting methods of irrigation, like flooding, are still common. The types of crops grown and the types of animals reared are those that need plenty of water. The way water is used in the urban areas of Tigray is almost the same as it is in Addis Ababa or Bahir Dar. The water use habits, the kinds of flush-toilets and bathing facilities,

the kinds of plants in the gardens, the types of industrial and service technologies are not different from those in the relatively water-abundant areas.

The rising demand for water in the urban areas for household use, manufacturing and services is being met by the business as usual (BAU) approach to water resource management. The BAU approach is a less future-oriented and unsustainable approach in water management. The outright response to the increased demand for water is the increased mining of underground water. I did not have the chance to see the Master Plan for Mekele, but from the reports made by some Regional authorities and other media I have realized that the BAU is still considered to be the only way to meet the rising demand for water. Arrangements have already been made with international companies /consultants to explore ways of extracting new sources. One should not be a hydrologist to understand the threat of depletion of underground water in a region, which receives a mean annual rainfall not exceeding 400 to 800 millimeters in the normal years. If the underground water aquifers are not recharged as fast as they are extracted, the general hydrological balance of the Region could be severely damaged leading to irreversible desertification.

One alternative to the BAU is to view water as an economic good and maximize the efficiency of use. Demand-side management of water resources is a more sustainable option to use water. It tries to meet demand without increasing supply. This is done by maximizing the efficiency of use of the existing water supply. Economic measures such as differential water pricing for different seasons (dry months) and peak-hour uses can be applied. In addition to the economic measures taken to discourage extravagant use of water technical solutions can also be applied: controlling pressure, fitting water-saving toilet-flushes or using dry toilets, and automatic-shutoff faucets.

The adoption of Water Demand Management (WDM) is a higher-level water management solution for all areas in general and for water scarce regions in particular. However, it can only be taken as a short-term solution. The long-term solution to the mismatch between water demand and availability is a new paradigm that has come to be referred as Values and Lifestyles Scenario (VAL) or Water Soft Path (WSP). Water Soft Path is a future oriented approach. It is an approach, which ensures the sustainable relationship between water and development. Water soft path goes further than the efficiency of water use and focuses on the water use habits and water management institutions. The basic question underlying the new paradigm for water resource management is, “why should we use water?” in contrast to “how should we use water?” (Basic question of demand-side management). It asks the question: Is it not possible to follow a “water-less” path to development? (Water-less could have two meanings here: it could mean development without water and development with less water). It is hard to imagine development without water; although there could be some aspects of development, which may not need water. Some kinds of manufacturing processes, for instance, may not need water all. However, it is possible to have development with less water. It is a matter of choosing the right approaches and technologies, which are appropriate to the prevailing water scarcity of the region. There is a need for an overhaul of attitudes of the public and policy makers of the Region, towards water. It requires **RETHINKING** the use of water.

At the core of the soft path approach is the need for ecological sustainability. Sustainable development can never be realized without a sustainable environment. Sustainable environment cannot exist without adequate water for ecosystem functions. This line of thinking is particularly true in water-scarce areas, like Tigray Region, where the lion’s share of the water resource is taken for household use and other economic activities, leaving little for the environment. This is a matter of choosing between a path to development, which flourishes today and fades tomorrow,

or a path to development which flourishes all the time. The former is painful in the long-term and the latter is painful only in the short-term. If we put it in a metaphor, it is like choosing between slaying or tending the gold-egg laying goose. Similar to the gold-egg laying goose, the environment can provide us with vital services (supplying us with water to our needs) only when we care for it. If we kill the goose to get all the gold-eggs at once and if we extract too much water from the environment there will be no more gold-eggs afterwards and no water for tomorrow.

By using less water and also by not using water when we don't need to, enough water can be spared for the environment. The environment like the bank can save the water and supply us back for a very long period of time. The options for sustaining the ecosystem through the soft path approach are to adopt drought-resistant landscaping (xeriscaping):. Selective breeding of plants that need less water to establish and no water afterwards. The widespread use of rainwater harvesting is another strategy, which can ensure a sustainable water-future for sustainable development. Another important principle of soft path is the use of differing quality of water for different end uses. There is no reason why potable (fit for drinking) water should be used for irrigation or gardening, for washing floors or cars, and flushing toilets. Water can be reused, for instance, from washing to toilets. Wastewater can be recycled and used indefinitely. Town and cities can be designed in such a way that they have buildings of all kinds (residential, industrial and service providing) fitted with facilities for roof-water harvesting and storage; water reuse pipelines, and indoor water recycling.

Farming systems in Tigray should be transformed in as such a way that saving water or minimizing water use should be the guiding principle. Water-intensive agriculture, involving crops and animals having high values per drop of water, should be adopted. Large livestock like cattle consume huge quantities of water. Cattle take on the average about 25 liters of water per day, whereas sheep and goats need only 5 liters per day. Small livestock like sheep, goats, bee, poultry, etc. are more feasible options. Land use for the Region should be planned in such a way that areas should be selected for intensive agriculture, leaving the rest for environmental restoration. Intra-region population resettlements should be done, in which the farming populations can be concentrated in selected areas where intensive agriculture can be practiced. The land-tenure system should favor cooperativization, which enables efficient use of resources. Water-blind cultural values and habits of water use should be made to whither away with persistent educational campaigns. The school curricula in the Region must include water resource management issues at every grade level. Alongside the efforts made to change the attitudes of the present generation of water users, the educational system must make sure that the future generation of water users is well conscious of the value of sustainable water management for sustainable development. There is no doubt that the people and the officials of the Region would like to see sustainable development in Tigray. The future begins now. Development planning principles should not be based on forecasting. There is still another water soft path principle: BACKCASTING. Planning has to be done from the future, The conventional planning principle based on forecasting has to change in favor of backcasting. Backcasting requires starting from future to plan for the future. It is a scenario-building process with regards to water demand and supply of the future: What Tigray is expected to be 50 or so years into the future; What urbanization in Tigray would look like 50 or so years into the future and its water requirements; What level agriculture in Tigray is expected to achieve 50 or so years into the future and its water requirements; What changes lifestyles of the people will have 50 or so years into the future and their water requirements, etc. After building the scenario, planning can be undertaken: Design urban growth (housing, manufacturing and service provision) and agriculture systems (types of crops and animals) in such a way that the AMOUNT OF WATER TO BE USED 50 OR SO YEARS LATER WILL NOT BE MUCH GREATER THAN TODAY'S.

In conclusion, the development of Tigray should go off the beaten track. Every place has its own peculiarities that should be taken into serious consideration if sustainable economic and social development is to be ensured. Water is should be the central issue in any development planning for Tigray.

TIGRAY SHOULD BE A WATER-THRIFTY CIVILIZATION.

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