Hiware Bazar

Crisis to opportunity

Residents of Hiware Bazar, a village in Maharashtra's Ahmednagar district, have not forgotten their long journey from a water scarce village to a surplus one. "Eking out a life from the village was practically unthinkable in 1970s-80s as water scarcity and land degradation made agriculture redundant," says Popatrao Pawar, the *Sarpanch* of the village. Pawar's parents sent him to another village for pursuing study for the same reasons. Now, everybody boasts the village's magical water conservation works that have resulted in extraordinary rise in local income.

At an average each of the village resident earns almost double of the country's average earning of top 10 percent of rural population. In the last 15 years the average income has gone up by 20 times. The forest here is well preserved; the fields are green and the residents happy. Living in the rain shadow area with less than 400 mm of rainfall per annum has its blessings, only when you know how to manage water.

Hiware Bazar defied law of drought

Hiware Bazar faced acute water crisis and severe land degradation during the 1970s. The village's traditional water storage systems were in ruins. People migrated in hordes due to constant crop failures in face of drought. From an important trade centre under the Maratha rulers, the village fell into economic ruin after the 1972 drought, one of the worst in the 20th century. In 1989-90, hardly 12 percent of the cultivable lands could be cultivated. Village's wells used to have water during the rainy season only.

In the 1980s, however, the youth of Hiware Bazar began to think about turning the wheel back into prosperity. The elections to local Panchayats in 1989 provided the right occasion. In search for a candidate who is acceptable to all factions of the village, the village youth invited Pawar to be the candidate. Pawar won unopposed. From here started the village's tryst with destiny. Pawar, inspired by the social activist Anna Hazare, took up water conservation works.

Many mutinies in Hiware Bazar

The village adopted an integrated model of development with water conservation as the core. In 1993, the District Social Forestry Department helped Pawar in regenerating the completely degraded 70 ha of village forest, the catchments for the village wells. With local labour donation, the *Panchayat* constructed 420,000 contour trenches around the hills to conserve rainwater and recharging the groundwater. Residents took up massive plantation and forest regeneration activities. Immediately after the monsoon, many adjacent wells collected enough water to increase the irrigation areas from 20 ha to 70 ha the same year. "The village was just getting a bit of life back," remembers Pawar. In 1994, the Maharashtra Government brought Hiware Bazar under the *Adarsh Gaon Yojana* (AGY), a scheme to replicate the success story of Ralegaon Siddhi scripted by Anna Hazare.

Water Balance Sheet — 2006
From scarcity to surplus

Hiware Bazar had surplus water in 2006 after 15 years of extensive water conservation. The village's latest water balance sheet shows that the surplus was nearly 50 percent of total available water. This demonstrates that scarcity *per se* is not the problem, but the management of water resources is the constraint.

Source of water	*Quantity of water in crore litres*
Runoff from rainfall	549.00
Potential water available	536.29
Water lost	
Water as runoff	54.59
Water lost as water vapour	187.70
Water available	
Stored surface water	26.81
Water that percolates into the earth	53.63
Groundwater from water harvesting structures	52.67
Sub-soil water as moisture or groundwater	160.89
TOTAL water available	**294.00**
Water demand in the village	
Drinking water (humans and animals)	3.39
Irrigation	133.38
Additional/peripheral farming activities	10.73
TOTAL demand	**147.50**
Surplus water	**146.50**

Cropping intensity in Hiware Bazar

Land use	*1996-97*	*1998-99*	*2002-03*
Gross cropped area (ha)	821	1,007	1,125
Net cropped area (ha)	723	730	748
Multiple cropped area (ha)	99	276	377
Cropping intensity	**1.140**	**1.380**	**1.500**

Source: Talathi (village accountant) records

The village adopted five principles: ban on felling of trees, ban on free grazing, family planning, ban on liquor and voluntary labour participation. It formed a voluntary organisation of its own – *Yashwant Krishi Gram and Panlot Vikas Sanstha* (Yashwant Agriculture Village and Watershed Development Trust) – to implement development works under the AGY. "Village and the government should be partners in development; but village must be in the driver's seat," explains Pawar. The village's strong and participatory institutional set up facilitated the initiatives. The *Gram Sabha* (village council) is the nodal institution that decides everything starting from identifying the site for a water harvesting structure to sharing of water and types of crops to be taken up with consensus.

During 1995-2005, the village invested all its development money on water conservation, both in recharging the groundwater as well as creating surface storage system. It laid a tight trap to catch rainwater. The 70 ha of forestation helped in treating the catchments for most of the wells, 414 ha of contour bunding stopped runoff and saved farms from silting up and around 660 water harvesting structures of various types captured rainwater.

Since 2004, Hiware Bazar has been doing its annual water budgeting. Every year it measures its total water availability, estimate uses and then prescribe water uses through the *Gram Sabha*. The decisions of the *Gram Sabha* on water uses are binding on everybody.

Money rains

Hiware Bazar is now reaping economic harvests of water conservation. Grass production has gone up from 100 metric tonnes in 2000 to 1000 metric tonnes in 2004. This resulted in increased milk production from mere 150 litres per day during mid-1990s to 2200 litres per day now. The number of wells has increased from 97 to 217. Land under irrigation has gone up from 120 ha in 1999 to 260 ha in 2006.

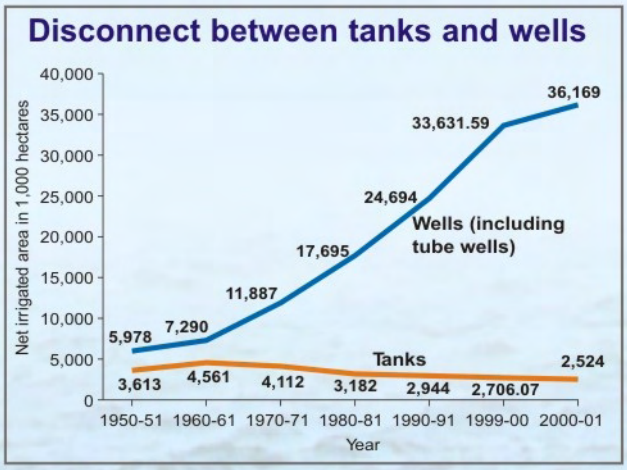
In 2006 the income from agriculture alone was Rs. 247,84,000. This means a per capita agriculture income of Rs. 1652/month. This is almost double of Rs. 890/month income level for India's top earning 10 percent of rural population in 2004-05. As per 1992 below poverty line household survey, 168 families out of 226 were below poverty line (BPL). There are now only three BPL families.

Hiware Bazar's message to India

Village and the government should be partners in development; but village must be in the driver's seat

Hiware Bazar, in many ways, symbolizes the problem of water management in the country. It also emerges as an example of how to fix the problem. The current water crisis in India is not about scarcity *per se*. As Hiware Bazar experience shows, it is about the management of water resources so that the infrastructure is capable of reaching out to poor people. A careful understanding of the initiative makes it evident that water management is not about technology, but about the manner of control and governance of the resource. It is about deepening democracy so that communities can be involved in the governance of the resource.

Three-fourths of the irrigated area in the country use groundwater. Groundwater structures – dug wells, shallow and deep tube wells – have increased from 4 million in 1951 to 19 million now. Thus, there are as many decision makers, who constitute the irrigation entrepreneurs of the country. Hiware Bazar is an example of how to manage these multiple decision makers.



But even as groundwater has overtaken the surface water systems in terms of the acreage irrigated, what is of particular concern is that minor irrigation systems – tanks, ponds and all other community-based and decentralised water harvesting systems have simultaneously declined in importance. These systems played a critical role in the recharge of groundwater as they stored the monsoon rainwater, which then recharged underground aquifers. According to official estimates, poor maintenance, siltation and in particular, the complete disregard for the protection of the catchment areas of the tanks had meant that the area irrigated by tanks has declined from 3.6 million ha in the 1950s to as little as 2.5 million ha by 2000. During the same period, the area irrigated by wells – groundwater – surged from as little as 6 million ha to 36 million ha and more, out of a total irrigated area of 53 million ha.

This means that the ability of rural people to benefit from decentralised water structures has not only declined, but also it has seriously compromised the sustainability of groundwater irrigation. In the last decade, this loss of water bodies has continued. While the 2nd Minor Irrigation Census, conducted in the mid-1980s, counted 750,000 tanks and other surface water bodies, the next census enumerated only 556,000 such structures. This meant that there was even less recharge possibilities and groundwater extraction has thus become more unsustainable.

The simple fact is that the country has not learnt how it will build and maintain decentralised water systems, which in turn require decentralised governance. It is equally clear that technology choices and approaches for water management need change. Currently drinking water programmes fail because they plan for the pipe and not the water source. It is here that India must learn from Hiware Bazar, how people learnt to live both with the scarcity as well as the excesses of water.