

# Groundwater Depletion in Papagani Catchment

*Illegal and excessive sand mining in the riverbed of the Papagani catchment area in Karnataka has led to the depletion of groundwater levels and environmental degradation in the villages on the banks of the river in both Andhra Pradesh and Karnataka.*

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Illegal sand mining from the Papagani river catchment area in Kolar district, Karnataka, has been going on for six to seven years. Initially, the Karnataka government gave sand mining rights to some contractors, but due to increased illegal and excessive mining, it has led to environmental degradation and problems for the people by the depletion of groundwater levels in the villages situated on the river banks. Moreover, as these villages are situated in the border between Andhra Pradesh and Karnataka, both the states are affected by this problem.

In this article the selected study areas are Pedda Tippa Samudram (PTM) mandal of Chittoor district and Tanakal mandal of Anantapur district in Andhra Pradesh and Bagepalli block of Kolar district in Karnataka. Among the total 50 villages, some of the predominantly affected villages are: (1) Kuntapalli; (2) Yerrupalli; (3) Darwalapally; (4) Chinnabayapally; (5) Guntipally; (6) Bali Reddy Palli; (7) Chenraypalli; (8) Chinnapally; (9) Ramapuram; (10) Yenudala; (11) Anantapuram; (12) Chimanerpu; (13) Jammukanapalli; (14) Kottudam; (15) TSadum; (16) Chelur; (17) Puttapparthi; and (18) Rekulakuntapalli.

## Sand Mining Procedure in AP

A district level technical committee comprising a river inspector, a member of the groundwater and geology and mines department, inspected the rivers in the district and submitted its report to the administrative authority, i.e., the district collector, district panchayat officer, joint collector, etc. Based on this feasibility study, an area is auctioned off for sand mining.

It was observed that sand mining has occurred in a haphazard, irregular and unscientific manner. The quarrying has created water stagnation in the riverbed, impaired the natural flow of water which has had a grave impact on agricultural production because of inadequate water for irrigation. The usage of huge machinery like poclaines for the removal of sand has caused riverbed erosion, collapse of banks, damage to infrastructure like bridges and transmission lines, trees on the bed and the banks and problems in the drinking water systems. Moreover, in all these selected areas, the contractors have exceeded the area allotted to them and mined more than the permissible depth. This has resulted in deepening of the riverbed, widening of the river, damage to civil structures like drinking water schemes, culverts and bridges, depletion of groundwater table and degradation of groundwater quality.

## Current Status

The wells and bore wells are dry and groundwater has been severely depleted in Tanakal mandal and PTM mandal. *Case study of Sudhakar Reddy:* Sudhakar Reddy is a farmer who belongs to Anantapur village, PTM mandal, Chittoor district. He has an open well and a sand bore in the riverbed. His open well (located about 100m from the bank) yielded good water till 1997. But things started changing with the onset of sand mining and today the open well is completely dry. Reddy recalls that the water level in the well was equal to the water in the sand bed before sand mining began. Sand retains water and helps recharge wells. Apparently there is no institutional mechanism to support the farmers' cause and they are unable to resist the contractors.

The farmers of Andhra Pradesh feel that the depletion of groundwater levels is mainly to be attributed to the sand mining from the riverbed. At present, however, the mining has been temporarily halted. The government of Andhra Pradesh has also taken measures to control the activity by seizing vehicles that have been ferrying sand from the riverbed. Revenue and police officials have been given instructions to take appropriate action against illegal mining.

There are 72 protected water supply schemes in the PTM mandal, out of which 15 had already dried up. Seventy five hand bores have also run dry and only 25 bores out of a total of 316 have any water. About 500 sand wells/filter points have been affected resulting in heavy losses to farmers on both sides of the river. Each filter point normally irrigates about two ha which means that the total loss stands at 1,000 ha worth of crops. A single crop loss at Rs 5,000 per hectare totals Rs 25 lakh and if the area is double cropped, the annual loss is Rs 50 lakh.

## Highest and Lowest Points

Sand mining was at its peak between August and October 2004. The agitation led by the local leaders resulted in a temporary lull; the case was taken to court and the judicial authority promptly slammed a stay order on account of declining water levels. But the contractors' lobby managed to get the stay vacated because the panchayat secretary certified that mining was not responsible for the decrease in availability of drinking water; and the revenue officials too agreed and mining took on a frenzied hue. While official figures quote that 1,000 lorry loads of sand are lifted daily from Chelur, the locals claim that closer to twice that amount finds its way to Bangalore. The media have certainly done their bit to highlight the problem and, in one instance, were even mauled by miners for their trouble.

## Table: Chronology of Events

1995:	There was lots of water in the river; groundwater levels were satisfactory.
1997:	Government of Karnataka allotted sand mining rights to contractors.
2000:	More areas auctioned for sand mining.
2003:	Farmers and local politicians protested.
2003:	Some farmers leased their land for sand mining.
2004:	More water problems due to over exploitation of sand by illegal methods.

The government claims that it has been generous with mining leases because floodwaters have been entering the fields and causing sand-casting problems. The area that is mined is supposed to be earmarked on the basis of the depth of the sand bed and condition of the embankment. However, there is no monitoring and the riverbed is dug three to 10 times the depth mentioned on the licence. Often the sand is deposited on private lands. To get the farmers on their side contractors sublet a part of the tank bed area to them. These farmers, in turn, lease their land to contractors with the short-term goal of earning quick money. The farmers in Karnataka feel that if they have not made most of the opportunity, the profits would go to their counterparts across the border. Also, some local farmers felt that the activity provided them alternate employment in the lean season, as rainfall has been scanty resulting in declining agricultural activity in the last five-seven years.

### **Scope for Dialogue**

The government of Karnataka should exercise prudence when it comes to leasing out the riverbed for mining activities. The government should demarcate areas clearly and monitor mining through a suitable institutional mechanism. Also, since two states are involved in the conflict, an interstate coordination committee made up of district collectors and revenue and police officials should be set up to protect people's interests.

Any exploitation of resource calls for a tempered scientific approach. This will not only ensure good revenue to the government, but will also be in harmony with nature. Sand mining in private lands must be halted forthwith and people should be educated on the ill-effects of over exploitation of a natural resource. The NGOs and community-based organisations can play an important role in spreading the message. Lastly, switching to artificial sand like robosand ([www.robosand.com](http://www.robosand.com)) may reduce the pressure on river sand. Jana Jagrithi, a local NGO in Anantapur district, works mainly on water resources management and conservation with people's participation. Their involvement in the conflict has been in trying to build awareness in the community about the consequences of over exploitation of the resource. **EPW**

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