

Shifting Sands: How Rural Women in India Took Mining into their Own Hands

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At dawn women miners gather at allocated sites along riverbanks in India's coastal Andhra Pradesh state to oversee the process of dredging, loading and shipping sand. Credit: Stella Paul/IPS

GUNTUR, India, Aug 24 2015 (IPS) - Thirty-seven-year-old Kode Sujatha stands in front of a hut with a palm-thatched roof, surrounded by a group of men shouting angrily and jostling one another for a spot at the front of the crowd.

Each of the boatmen, who carry sand mined from a nearby river to the shore every day, wants to be paid before the others.

Sujatha stares hard at them, holds up a piece of paper and says, "If you have a printed receipt of payment, come, stand in the queue. We will pay one by one. Shouting will not help you."

This hard talk and show of nerves is a recurring part of the workday for Sujatha, a farm labourer-turned sand miner in Undavalli, a village situated on the banks of the Krishna River that flows through the coastal Guntur District of the southeastern Indian state of Andhra Pradesh.

She is one of the 18 women who run the Undavalli Mutually Aided Cooperative Society, an all-women's collective in charge of dredging, mining, loading and selling sand.

Dealing with a few angry boatmen is not the last of her problems. Powerful 'sand mafias' that operate throughout the state are another force to be reckoned with, as are the lurking threats of environmental degradation and poverty in this largely rural state.

But Sujatha is determined to make this enterprise work. Overseeing the sustainable extraction and transportation of sand in this village has been her ticket to a decent wage and a degree of decision-making power over her own life.

She also knows that having women like her in charge of this operation is the best chance of avoiding the environmental catastrophes associated with unregulated sand mining, such as depletion of groundwater sources, erosion of river beds, increased flooding and a loss of biodiversity.



*Rural women who have taken over sand mining operations in the southeastern Indian state of Andhra Pradesh are learning to use computers for the first time.
Credit: Stella Paul/IPS*

'Rarer than one thinks'

Hard as it may be to fathom, sand is increasingly becoming a rare commodity as a result of the massive scale of its extraction and consumption worldwide.

In a 2014 report entitled 'Sand: rarer than one thinks', the United Nations Environment Programme (UNEP) [revealed](#) that sand and gravel (called aggregates) account for the largest share of the roughly 59 billion tonnes of material mined annually across the globe.

Combined aggregate use globally, including 29.5 billion tonnes of sand used annually in the production of cement for concrete, and the 180 million tonnes of sand guzzled by other industries every year, exceeds 40 billion tonnes per annum – twice the yearly amount of sediment carried by all the rivers of the world, according to the UNEP.

The most severe environmental consequences of the world's insatiable appetite for sand include loss of land through river and coastal erosion resulting in the heightened risk of floods, especially around heavily mined areas; depletion of the world's water tables; and a reduction in sediment supply.

Transporting aggregates is also a hugely carbon-heavy process, while the production of a single tonne of cement using sand and gravel releases 0.9 tonnes of carbon dioxide into the atmosphere.

[Estimates](#) from the Carbon Dioxide Information Analysis Center (CDIAC) suggest that the year 2010 saw 1.65 billion tonnes of carbon dioxide emissions from cement production – nearly five percent of total greenhouse gas emissions that year.

In India, a decades-long construction boom has driven a rapid increase in demand for sand, particularly in cement and concrete production.

The country currently boasts the third largest construction industry in the world, and huge sand mining operations, many of them unlawful or unregulated, are stripping the natural carpets of major riverbeds, deepening rivers and widening their mouths, and contaminating ground water sources.

Thus sand mining is contributing to India's twin problems of flooding and water scarcity.

A grassroots solution to a global problem

For many years a quiet grassroots movement around the country had unwittingly been laying the foundation of what is now an entrenched network capable of fighting illicit mining: women-led self-help groups (SHGs) that have come together over a period of decades to pool their meager savings and generate interest-free micro loans to jump-start small businesses.

In Andhra Pradesh alone, an estimated 850,000 SHGs involving over 10.2 million poor, rural women have generated over 19 billion rupees (287 million dollars) in savings over the past decade.

Solomon Arokiyaraj, chief executive officer of the state-run Society for Elimination of Rural Poverty (SERP) tells IPS that SHGs' proven track record of community finance and business management made them ideal partners in larger government schemes to both crack down on unsustainable natural resource extraction and alleviate rural poverty.

According to Arokiyaraj, women are now running 300 different mining sites (called 'reaches') across this state of 49 million people. A team comprising 10 or 12 people, who previously earned less than a dollar a day, runs each site on behalf of the government.

Venketeshwara Rao, a government official in Guntur District who oversees the project, tells IPS that the women of Undavalli village are licensed to operate within an eight-hectare area identified by federal environment authorities as part of de-siltation efforts around the reservoir.

At dawn every day the women gather at mining sites and at six am the mechanized dredging begins. Extracted sand is stockpiled on boats and then shifted to a fleet of waiting trucks, while excess water is pumped back into the river

"It takes three hours for the dredger to fill a boat. Each of the boats can carry 10 cubic meters of sand, enough to fill 20 large trucks," Mallehwari Yepuri, a sand miner, tells IPS.

By Rao's estimation, the women-led groups in the eight sand reaches in Guntur District alone have sold over a million cubic meters of sand since November 2014, amounting to some 70 million rupees (over a million dollars).

Prior to taking over management of the mines, the women had earned, on average, just under a dollar each a day as farm labourers. Now every woman miner takes home six dollars a day, and their respective cooperatives receive five rupees (0.07 dollars) for every cubic meter of sand mined under their leadership – a total of about 70,000 rupees (a thousand dollars) every year.



These illegal sand mining boats in India's populous Andhra Pradesh state are becoming a rare sight after women's self-groups took over mining operations last year. Credit: Stella Paul

Laws and loopholes

Blessed with two major river systems, the Krishna and the Godavari, Andhra Pradesh boasts a stunning range of biodiversity, from the unique flora and fauna found on the coastal mountain range of the Eastern Ghats to the tremendously fertile plains formed in the rivers' basins.

But its biggest asset has also been a curse, and has long attracted the gaze of major players in the sand mining industry – many of them operating outside the ambit of the law.

Considered a 'minor' mineral, sand falls outside of the jurisdiction of the federal government, which limits its authority to the extraction and sale of 'major' minerals like coal, iron and copper.

Numerous Indian laws – from a February 2012 Supreme Court order to an August 2013 ruling by the National Green Tribunal, a federal environment conservation agency – have banned river sand mining without the necessary permit.

These orders notwithstanding, media reports have consistently drawn attention to the extraction activities of organised syndicates referred to as the 'sand mafia', allegedly responsible for removing truckloads of sand for a nifty profit from Andhra Pradesh and elsewhere.

Many have reportedly mined without any government permission; others have systematically exceeded the volume specified, or encroached on areas outside the scope of their permits.

In April 2015, Andhra Pradesh Finance Minister Yanamala Ramakrishnudu told the local press that illicit sand miners had robbed the state of 10 billion rupees (150 million dollars) in the past 10 years.

Even with ample evidence on the destructive environmental impacts of sand mining, including a [report](#) by the Geological Survey of India warning against damages to in-stream flora and fauna and devastation of vegetative cover, the state government has been either unable or unwilling to curb the practice.

It was not until 2014, following an outcry by the federal government's own mining ministry about the "menace" of illegal sand extraction, that Andhra Pradesh cancelled all licenses issued under the 2002 Water, Land and Tree Act and handed power over to the women's self-help groups.

SHGs, meanwhile, are under strict orders to ensure that mining happens only in those areas where massive silt-deposits are causing environmental stress, including over-sedimentation resulting in a reduction of the river's holding capacity.

There are about 40 reservoirs in the state, some over a century old, which hold massive build-ups of sand. Undavalli village falls within one of these reservoirs – the Prakasam barrage, built in 1855, over the Krishna River – where sedimentation has been increasing at the rate of 0.5 percent to 0.9 percent every year, according to officials from the state's irrigation department.

Still, licenses are not granted indefinitely – their duration fluctuates between two and 12 months, depending on the extent of sedimentation and the specific ecology of the area.

The work is not without its challenges. Women are learning how to digitize their operations (with some using computers for the first time), keep their proceeds safe and vigilantly monitor environmental degradation, all under the threat of reprisals from the sand mafia.

Add to this a full working day in 40-degrees-Celsius heat with little shade and no security and you have a task that not many would voluntarily sign up for; yet, few are complaining.

"When I worked in the farm, I was just another labourer," Yepuri Mani of the Undavalli mining group tells IPS. "I was almost invisible. Here, I am showing others what to do. I am in charge. People see my work and they also see me. It is a great feeling."

Putting women in charge is not a magic bullet for the ills of sand mining: the move does not tackle the looming issue of unsustainable global demand for sand that is driving major environmental destruction in India, and elsewhere in the world.

But having rural women at the helm of a hitherto male-dominated industry is certainly a major first step towards a more sustainable, grassroots-based economic model of carefully managing a limited and vital natural resource.

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