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SPECIAL SECTION: Ecological Distribution Conflicts in India

Discontent, Conflict, Social Resistance and Violence at Non-metallic Mining Frontiers in India

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Abstract: The twenty-first century is witnessing increased extraction of natural resources across the globe, which includes biomass, metal ores and tailings, fossil energy carriers, and industrial and construction materials. Increasing extraction of resources is largely a result of either intensification of extractive operations in existing extractive locations, or as a result of expansion of frontiers of resource extraction to new geospatial locations across the world. Amongst these, extraction of construction materials has been the highest in the last century. This article analyses conflicts surrounding such minerals which are non-metallic, low value, and extracted to a large degree by local or regional extractive agents, with a special focus on the social violence exerted in such conflicts.

Keywords: sand mining, ecological distribution conflicts, EJAtlas, extractivism, social violence

1. INTRODUCTION

In the twenty-first century, extraction of natural resources has increased all across the world. Between 1900 and 2005, total global raw material consumption—which includes biomass, metal ores and tailings, fossil energy carriers, and industrial and construction materials—saw a massive increase from 7,117 million tons to 59,474 million tons (Krausmann *et al.* 2009). Among these resource groups, extraction of construction materials witnessed the maximum increase growing by a factor of 34, closely followed by ores and industrial minerals which increased by a factor of 27 (Krausmann *et al.* 2009). This increase in extraction of construction

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minerals, such as sand and gravel, appears as a certain fact although it is true that sufficient data is not available to corroborate this for most regions of the world. Extraction of minerals related to the construction industry are of strategic importance, and likely to see further increase, specifically in the fast urbanizing and industrializing economies of the Global South across the world. This article deals with conflicts surrounding such minerals, which are non-metallic, low value, and extracted to a large degree by local or regional extractive agents.

World over the growing extraction of resources is largely a result of either intensification of extractive operations in existing extractive locations or expansion of frontiers of resource extraction to new geospatial locations. Since the 2000s, the bulk of resources are extracted in the rapidly industrializing countries such as China, India, and various countries in Latin America (Özkaynak *et al.* 2012). The growing resource extraction in these countries has led to expanding frontiers of resource extraction into physical spaces inhabited by people. This frontier expansion often directly impacts the lives of local communities through displacement. The resultant ecological degradation, further impacts their lives and livelihoods, directly or indirectly, by altering the patterns of their access to natural resources (Martinez-Alier 2002), which they are often dependent on for sustenance. As such, this expansion often results in the generation of Ecological Distribution Conflicts (EDCs) and resistance movements by affected people "in defence of communitarian livelihoods against resource extraction" (Martinez-Alier *et al.* 2014). In this article, EDCs against sand and gravel extraction in India are analyzed.

The second section of this article presents a brief look at how non-metallic minerals are linked to urbanization in India. The third section presents discussions around the most common and troubling facet of such mineral "extractivism" in India—that of social violence. It also discusses the outcomes of some of the cases of social resistance movements against such forms of "extractivism" over the past two decades. The fourth section concludes the article.

2. URBANIZATION, THE CONSTRUCTION INDUSTRY AND DEVELOPMENT MINERALS "EXTRACTIVISM"

In a previous article on environmental conflicts in India (Bisht and Gerber 2017) the main focus was on iron ore and other metallic materials. Here the focus is on so-called "development minerals", which are minerals and materials that are mined, processed, manufactured and used domestically in industries such as construction, manufacturing, and agriculture. They can

further be sub-divided into four broad categories: a) construction minerals, which include sand and gravel; b) industrial minerals (calcium, feldspar, talc, graphite, dolomite, mica etc., including ilmenite as a titanium ore); c) semi-precious minerals (opal, amythyst, garnet, etc.); and d) dimension stones (such as granite, limestone and marble). The extraction of such minerals often occurs within unclear and uncertain legal and regulatory frameworks. Further, there is often a lack of publicly available, reliable, and easily accessible geological data with regard to quantities of extraction of these commodities (Hilson 2016).

As in other newly industrializing economies, India's contribution to mineral extractivism has significantly expanded in the past few decades. Since the early 1980s, India's metabolic profile experienced sustained growth in absolute as well as per capita material consumption of natural resources (Singh *et al.* 2012). Apart from bulk minerals like iron ore and bauxite, these construction minerals, including but not limited to stone, marble, sand, granite etc, have seen increasing extraction across the country (Joy and Rao 1988; Gadgil and Guha 1994).

Development minerals are largely utilized in the construction industry, therefore, with predicted increases in urbanization, their consumption is likely to go up in the coming decades. The rural population of India increased from 298 million in 1951, to 833 million in 2011. Further, the population residing in urban areas[1] in India, as per Census records, increased from 11.4% to 30% between 1901 and 2011. By 2030, according to the UN State of the World Population (2007), India's urban population would be 40.76% of its total population.

These figures represent a massive increase in urban populations, which will require further expansion of existing infrastructure to support such a transition. Currently, India's metro-cities accommodate a large section of its population. Mumbai and Delhi, two largest cities, have populations of close to 22.1 million, and 28 million, respectively, as per the 2011 census of India. However, expansion of more cities and towns is expected in the near future, further adding to the growth of the construction industry.

Two major factors are responsible for the boom in construction activities: private construction and public expansion of urbanization. As disposable incomes have increased, it has raised the demand for private residential accommodations. This has led to an expansion of construction all across the country, particularly in the peripheral areas of large cities. Besides the

[1] https://en.wikipedia.org/wiki/Urban_area

increase in private construction activities across the country, the government of India, in order to address issues related to overcrowding and urban management has embarked upon the Smart Cities Mission. This program envisions and supports the creation of 100 "smart" cities which will serve as model areas based on integrated development plan, which is expected to have a rub-off effect on other parts of the city, and nearby cities and towns in India, among others, with the aim of reducing population burdens in the five metro cities. As a result of all these policies, there is a predicted necessary increase in construction and urbanization activities in India in the near future.

Of all the development minerals, sand and gravel are major interest being the basic ingredient of the construction industry. Sand utilized in the construction industry is usually only available in and around rivers. Other forms of sand such as desert sand cannot replace river sand in its utility for construction purposes (Rajendran 2013). This industry operates with multiple small-scale, regional and local agents, and involves a large degree of informality and often illegality in its operations. Available studies estimate that of the total number of mines producing development minerals in India, about 90% are informal. These informal mines generate close to 50% of the total output of development minerals (Chakravorty 2001).

Previous research unraveled extraction of sand, which is widespread and often carried out illegally by small-scale actors near rivers or beaches, as the cause of most ecological distribution conflicts (Bisht and Gerber 2017). The EJAtlas had reported only eight cases of sand and gravel conflicts in India as of December 2018 (out of nearly 300 environmental conflicts) but this is due to lack of coverage.

3. DISCONTENT, CONFLICT AND SOCIAL RESISTANCE AT DEVELOPMENT MINERAL FRONTIERS IN INDIA

A significant percentage of the total documented EDCs in India are related to mining of non-metallic minerals. As per a database of 100 (non-fuel) mineral conflicts in India, 67% were accounted for a variety of minerals which fall under the category of development minerals. Despite the smaller scale individual operations, sand extractivism in the past two decades has resulted in the generation of the highest numbers of EDCs in India, representing over 42% of the overall cases documented in the research conducted by Bisht and Gerber (2017).

3.1. Geographical location of conflicts

Locations of spaces of non-metallic mining differ significantly from that of metallic mining, as well as mining of fossil fuels. This is specifically true of sand mining. The primary difference between the two is that development minerals, particularly sand, are often more geographically scattered as compared to metallic or fossil fuel resources. As such, development minerals are not found to be located in spaces which can be referred to as "extreme peripheries" but are rather found to be dispersed across "core" regions including peripheries of cities, urban habitats, as well as large towns. In contrast, metallic mining is found to be largely located in rural or tribal spaces, which are geographically distant from cities, and urban establishments. Two reasons for this difference are a) the larger availability of development minerals, especially sand, such as across the length of river beds, and b) the requirement of such minerals for expansion of existing urban settlements. Such minerals also tend to be used in greater quantity at the local and regional level in comparison to metallic minerals.

3.2. Discontent and causes of conflicts

Extraction of different development minerals results in a different degree of ecological degradation depending upon scales of operations. In the case of low-value minerals, these scales can be highly variable, unlike in the case of mining of bulk minerals which are necessarily large-scale operations. For instance, sand, if extracted in small quantities for the purpose of construction of one house, or even a rural residential complex is not likely to result in a permanent or severe degradation of the river bed from where it was extracted. However, when operations are conducted in order to export river-bed sand to urban spaces for the purpose to large scale construction activities over long periods of time, this could have a severe and drastic impact on local ecosystems. These impacts are specially related to access and availability of water resources for local residents for their housing, agricultural or livelihood requirements. For instance, in the case of the Chakki riverbed in Himachal Pradesh, sand mining had resulted in the reduction of the originally 1 km wide riverbed to a 10-meter wide *nallah*, and various smaller *nallahs,* which were previously full, were completely dried up (EJAtlas 2017a).

Further, conflicts can arise out of purely ecological reasons such as conservation of water, or for the preservation of fish and amphibians which reside in certain rivers. For instance, in Gwalior district of Madhya Pradesh, illegal sand mining is rampant within the National Chambal Wildlife Sanctuary, which is home to critically endangered amphibian the *gharial*. Forest officials have been taking action against illegal sand mining in the

area which, as of 2016, had led to impounding of at least 150 trucks of illegally extracted sand (Bindra 2016).

Finally, river ecosystems are often considered sacred in many parts of India. The degradation of such sacred rivers can also result in conflicts on the basis of cultural or religious factors. This has been observed, for instance, in the case of resistance against the exploitation of river sand along the Ganga. Illegal sand mining and stone crushing along the Ganga has been a persistent issue which is of urgent importance given that the river and its tributaries support a large population downstream, which implies negative impact for a large section of the poor and agriculture-dependent downstream population. Social resistance seeking action by the state authorities has been ongoing for a long time. Unfortunately, in 2011, Swami Nigamananda Saraswati, one of the most vocal activists campaigning against the extractive operations, died after a four-month fast (Singh *et al.* 2014).

3.3. Social resistance movements

It is interesting to note that the actors involved in resistance movements against development minerals in India are significantly different from that of metal mining conflicts. Whereas metal mining conflicts often involve rural farmers or indigenous communities, anti-development mineral extractivism conflicts are led in larger numbers by urban actors. This could be due to the fact that large scale metallic mining often has large and powerful corporations, which are often privately owned, and often involve global or international capital, mining of development minerals is usually carried out by a larger number of small-scale players who run their operations at local or regional levels, and who bear significant clout in those regions.

Another feature of mining of development minerals in India is that they are prone, to a greater extent as compared to metallic mining, to illegal extraction activities. This is largely given the informal nature of the extractive activity. For instance, the previous analysis indicated that among all conflicts documented, 45% were related to illegal extraction of sand and other minerals and that 81% of the sand mining conflicts were against illegal extraction activities. The illegal nature of the activity has also resulted in the involvement of mafia as well as local authorities complicit with illegal activities to varying degrees (Singh *et al.* 2014).

Compared to resistance against metal mining, resistance to mining of development minerals is often short-lived but tends to be much more frequent given the larger numbers of sand mining cases. However, there are several cases which have lasted for over a decade. For instance, previous

research showed that 6 out of the 41 cases of sand mining were lasted 10 years, if not more. The instances of successes of local residents against such illegal sand mining are far and few between (Aware 2018).

3.4. Beach mining for minerals

Sand and gravel are mostly mined for building materials. However, in India as elsewhere, there is a growing incidence of conflicts arising from mining of beach sand. Beach sand mining is a lucrative enterprise because apart from being a source for the supply of raw materials for the construction industry, it is also a source of minerals such as ilmenite (an ore for titanium), zircon, rutile, garnet and others. One pertinent example reported in the EJAtlas (2017b) is that of beach sand mining in Tamil Nadu. In 2013, the district collector of Tuticorin, Mr. Ashish Kumar, conducted a raid on illegal sand mines, and was transferred to another post less than eight hours later. On 8 August 2013, *The Hindu* reported that the special inspection teams that conducted raids at the sand quarry of V.V. Minerals in Tuticorin district, discovered the presence of large-scale illegal sand mining along stretches at Vaipar, Vembar, Periyasamipuram beachs, and in various other stretches in Vilathikulam taluka. It be noted that V.V. Minerals is owned by entrepreneur S. Vaikundarajan, a multi-crore business-owner and one of the most powerful men in the state.The report further stated that the amount of fine required to be paid by offenders would be determined based on the final report submitted to the Collector. In the follow up report the next day, Mr. Ashish Kumar said that whereas legal mining in the region was permitted over only 4 hectares of leased land, illegal mining in the Vaipar region was being conducted over more than 30 hectares of poromboke [commons] land. The quantity of this illegally mined raw sand was 81,000 cubic meters. Over and above this, illegally mined beach sand, was measured to be over 230,000 tonnes. These are legal offences, and liable to punishment under charges of theft under the Indian Penal Code (IPC), under various Acts of the State as well as Union government, including the Tamil Nadu Public Properties Prevention of Damage and Loss Act, 1992, Illicit Mining and Minerals Act, Environmental Protection Act, 1986 and Coastal Regulation Zone notification, 2006 (The *Hindu*, 2013). As per the Collector, the raids were made on the basis of five complaints of illegal sand mining by fishermen in the months of June and July, which were based on their grievances from sea erosion and other environmental damages due to indiscriminate mining at beaches (The *Hindu*, 2013; Rajendra, 2013). Four years later, on 28 March 2017, *The Hindu* ran another story concerning illegal beach sand mining for minerals where it was reported that as per the Collector M. Ravikumar, after a raid of 15 locations, close to 30 go-downs of beach sand were sealed in Thoothukudi district. These go-downs were

found to contain vast quantities of minerals mined from beach sand such as garnet, ilmenite, zircon and rutile, which amounted to a total of 455,245 tonnes of beach minerals and 312,314 tonnes of raw beach sand. As per the report: "The searches were initiated by the district administration in the wake of the suspension of Assistant Director of Mines Krishnamohan over allegations that he had produced fake documents to facilitate the illegal export of beach minerals belonging to V.V. Mineral, a leading firm. Beach sand mining was banned by the State government in August 2013".

In conclusion, based on the EJAtlas reports on these cases in Tamil Nadu, one can see the struggle of fishermen and (some) state officers against the local firms, which, apparently illegally, engage in large scale sand mining for industrial minerals.

3.5. Social violence of extractive capital

In comparison to metal mining conflicts in India, the conflicts in development mineral extractivism, especially that of sand mining, has been quite violent. This is partly owing to the involvement of locally powerful extractive agents functioning under an un-regulated, or an ill-regulated system, and partly owing to the complicity, or direct involvement of local politically powerful people, or government agents in operations. Over the years, many reports of "accidental" deaths of activists, protesters, journalists, volunteers, civilians, and even police personnel associated with anti-sand mining campaigns or activities have come to light. Further, owing to the nexus between government actors, politicians and extractive agents, and mining mafia instances of transfers of bureaucrats, civil servants and police officers, who take or attempt to take a strong stance against sand mining, are frequent (Arasu, 2016). One of the most prominent examples of this is the case of IPS officer Durga Shakti Nagpal who was transferred from her post in 2013 due to being active in preventing illegal sand mining in the state of Uttar Pradesh (Mandhana, Wall Street Journal, 2013). There have even been deaths of several such prominent personnel associated with sand mafia. The most conservative estimates indicate that the death toll related to sand mining is likely to be in the hundreds across India (Action Aid, 2016).

Some prominent examples of such incidents include the case of murder of IPS officer Narendra Kumar (IPS) and Head Constable G. Kanakaraj. Both were crushed to death by tractors carrying illegally-mined sand which they had attempted to stop in Madhya Pradesh in 2012, and in Tamil Nadu in 2014, respectively.

Volunteers and local villagers who watch out for sand mining operations are also often targeted as has been observed in several cases. In 2013,

villagers Rajesh and Karthick were hacked to death in Tamil Nadu. The two had kept a watch on sand mining operations in their area (Rajasekaran, 2015). Several other such cases have been reported from across the country. In 2015, Sandeep Kothari, a freelance journalist for newspaper *Nayi Duniya* was found murdered in Balaghat district of Madhya Pradesh. The journalist was famous in the region, and already well known to the local police due to his active investigative work on illegal sand mining and land grabbing operations in the region. His gruesome death on 21 June 2015 had the involvement of members of the mining mafia, who strangled him and dumped him next to a railroad tract, and burned him alive. These incidents show the violence and power of sand mining mafia at local levels in India (IFEX 2015; Sharma 2015). On 6 March 2016, Narendra Kumar Sharma, a forest guard, who was attempting to stop vehicles carrying illegal sand was crushed under the loaded tractor (Bindra 2016). These are only a few documented examples of the extreme violence which is a part of sand extractivism within India.

3.6. Outcomes

A wide range of outcomes is observed in the cases of social resistance against development mineral extractivism in India. First, there are cases where mining was banned or extractive operations stopped. Second, there are cases where some form of a legal decision was taken by the Courts, which had either stopped or attempted to stop mining operations. Examples include the several cases of sand mining bans in different states across India such as Haryana, Punjab, Himachal Pradesh, Tamil Nadu as well as orders by the National Green Tribunal (NGT) or the Supreme Court of India. For instance, in the case of sand mining along the Chakki riverbed, the National Green Tribunal, in August 2013 placed a blanket ban on any mining activity without a prior environmental clearance (Jitesh 2013; Mahajan, 2014). However, despite the court rulings, in many instances, local villagers, activists, and officials residing in the region claim that illegal mining continues unabated (The Tribune, 2014). Thus, orders and bans by the NGT, the Supreme Court, the High Courts have been, to a large degree, unsuccessful in their attempts to completely halt illegal operations. However, their orders prepare the ground for their receptiveness in the prominent legislative bodies of the Government. Finally, there are cases where both official action and social resistance have been ineffective, or unable to resist or even reduce extractive activities. This is evident in the several cases of sand mining in Tamil Nadu along the Amaravathi and Cauvery rivers (EJAtlas 2017b).

4. CONCLUSIONS

Globally the accounts of "social metabolism" show that the tonnage of materials extracted for the building industry is growing. Thus, sand and gravel account for the largest volume of solid material extracted globally. These and other so-called "development minerals" differ from other forms of mineral extractivism in that they are characterized by relatively smaller scales of individual operations, often do not involve global capital, are more geographically dispersed than metals, and produce low-value bulk commodities, which are not linked to global commodity chains. However, they are of immense strategic importance, especially from the perspective of emerging and increasingly urbanizing economies of the Global South.

In India, sand has generated the largest number of conflicts compared to all other minerals. Sand and its importance for the construction industry has resulted in the consistent expansion of sand extractivism over at least the past two decades in India. Apart from the ecological destruction, harm to several species of endangered flora and fauna, and alterations in patterns of access to river beds and natural resources by local people, one striking facet of sand extractivism in India is the violence associated with the activity.

Violence is perpetrated by so-called mining mafia, which is an outcome of the nexus between local politicians and extractive agents, as well as a result of the high profits which miners make from illegal activities which creates unequal power dynamics. A broad range of actors, from activists to police officers have faced the violence of various levels from verbal and physical harassment to murder of people involved in resistance to illegal mining.

In India, sand is considered to be a minor mineral as per the MMDR (2015), and regulations surrounding sand mining are under the ambit of state governments, rather than the Central Government. There is an urgent need to restructure regulations around sand extractivism in India in order to prevent further ecological losses, as well as loss of human life.

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