

Environmental Justice and Participation for Communities in Southern India

Cassandra Szabo, Masters Candidate
The University of Winnipeg, Masters of Development Practice
Cassandra.ja.szabo@gmail.com
1-204-805-5871
91 Wilmot Place, Wpg, MB.

India has experienced significant economic and industrial growth in the last two decades, with India now often referred to as an economic powerhouse. Despite this growth, and perhaps also partly because of it India has suffered consequences and worsening of social, environmental, and political challenges¹. Some of the issues that this has brought about in the country are slow economic reforms, poverty, extreme inequality, poor education outcomes, poor health care and poor health indicators, and poorly prescribed policy solutions². Accompanying the issues related to fast and substantial growth is that many of the industries contributing to the economy were and still are reliant on finite natural resources, and with eagerness to increase Gross Domestic Product there were compromises made in terms of the environment³. A few of the key issues impacting the country today as a result of development are pollution of air, land, and water, land degradation, loss of biodiversity, and a host of other issues that are ripple effects from these⁴. These environmental issues have not gone unnoticed as it is occurring in many places all over the world, with institutions such as the United Nations implementing Millennium Development Goals (MDG) and now Sustainable Development Goals (SDG), with SDGs paying specific attention to promoting growth in a sustainable responsible way⁵. However, as witnessed with the MDG's even having a large influential international organization such as the United Nations prescribe goals, this does not always translate to action. Thus leading to this research project being developed. The aim is to understand how India is approaching environmental justice and environmentalism, and if the approach is successfully representing the voices of all levels of individuals in the country. Specifically, many of the environmental concerns are taking place in rural areas where the most marginalized individuals are located, thus further highlighting the need for appropriate systems and policies.

The methodology required to get an accurate depiction of the reality on the ground would require literature reviews but most importantly visiting those impacted and enabling them to share their story. The main research question is to understand how certain judicial bodies in India are promoting environmental justice for the countries citizens, particularly the most vulnerable or rural, and a qualitative methodology was required in able to get this nuanced and layered information. The process for this round of data collection began in December of 2017,

¹ Bhattacharya, Subhrendu, *Some key issues and challenges facing India: Perspectives on policy and action*. (The Journal for Decision Makers, 2015). <http://journals.sagepub.com/doi/pdf/10.1177/0256090915593832>

² Ibid., 209.

³ Garud, Parimal, *Incorporation of global environmental norms into Indian legal systems: Social and economic challenges, with special reference to ship-breaking*. (Elsevier Ltd, 2012). https://ac-els-cdn-com.libproxy.uwinnipeg.ca/S1877042812007616/1-s2.0-S1877042812007616-main.pdf?_tid=88ce8332-66a5-462c-83c7-6535a81c25fb&acdnat=1531944855_1dd3e9afa3001721367b2a8b2ea80074

⁴ Yadav, Alok, *An Empirical Study on Environmental Issues in India*. (Global Journal of Management and Business Studies, 2013). https://www.ripublication.com/gjmbs_spl/gjmbsv3n9_03.pdf

⁵ United Nations, *Sustainable Development Goals*. (2015). <https://sustainabledevelopment.un.org/?menu=1300>

with a core team of 5 from the University of Winnipeg looking at potential areas for case studies that have been impacted by an environmental issue. This process involved researching cases in the National Green Tribunal database; The National Green Tribunal was the main avenue used to locate environmental cases in India.

The NGT was established in 2010 under the National Green Tribunal act with the main mission of resolving cases related to environmental protection⁶. The central government created the National Green Tribunal Act to provide a specialized forum for effective and fast disposal of cases related to environmental protection, conservation of forests and for seeking damages caused to people or property because of violation of environmental laws or conditions specified when granting environmental clearances⁷. Following the establishment of the law and the judicial body a main bench was created in Dehli, with regional benches in the southern, central, eastern, and western zones of the country. The NGT has the power to hear all civil cases relating to environmental issues and questions that are linked to the implementation of laws listed in schedule 1 of the act which include: The water (prevention and control of pollution act) 1974 & 1977, the forest (conservation act) 1980, the air (prevention and control of pollution act) 1981, the environment (protection act) 1986, the public liability insurance act 1991, and the biological diversity act 2002⁸. Thus any violations relating to any of these acts or laws can be raised before the NGT. The process for filing an application with NGT follows a linear process of filling out the NGT application form, which asks for basic info and a timeline of the issue and steps that have already been taken by the applicant to try to remedy the situation. Claims for compensation can also be made and such claims would involve various issues of damage to health, property or the environment⁹. While in theory the NGT seems like a clear solution to potential and ongoing environmental concerns for the country, the effectiveness and success of the court is still in question, which points to the importance of examining it and the outcomes. Upon finding the NGT database the next step was to then find cases that would enable a case study, this meant that the cases needed to be in a region that involved rural or marginalized individuals, and it meant that the case should involve a substantial environmental impact. This process is where the case study for this specific piece of the project came from. Following that literature, news articles, or website documents about the case were gathered to gain as much background as possible.

When reaching India, the method used to collect and do the research was participatory rapid appraisal (PRA), as the main data collection period was short, this was the method that would garner the best results while still giving the appropriate power to those stakeholders involved in the research. Participatory rapid appraisal, or rapid appraisal has a multitude of uses and techniques. PRA is a known tool to gather information in relation to various socio-economic issues, work with the community, and hopefully turn the information gathered into action. The methods are quick, low cost, and can vary on a continuum from very informal to very formal¹⁰. PRA is said to be a type of research that utilizes a systems perspective, meaning that the research and appraisal should be done based on what the participants in the system believe to

⁶ The National Green Tribunal. <http://www.greentribunal.gov.in>

⁷ Bhargav, Praveen, *Everything you need to know about The National Green Tribunal*. (Conservation India (N,d)). <http://www.conservationindia.org/resources/ngt>

⁸ Ibid.,

⁹ Ibid.,

¹⁰ Lazenbatte, Ann, McMurray, Frances. *Using participatory rapid appraisal as a tool to assess women's psychosocial health needs in Northern Ireland* (Bradford, Health Education, 2004). <https://search-proquest-com.libproxy.uwinnipeg.ca/docview/214700431?accountid=15067>

be the critical elements, their relative importance and how they relate to one another¹¹. In using this type of an approach it would ensure that the voices of those impacted by environmental issues in India would be heard and the bias and voice of the researcher would be limited. Semi-structured interviews are a key PRA method and were also crucial in this research. After reviewing the literature various topics and questions were included in an interview script to be following during interviews with participants. The selection of participants was not done randomly, rather by non-probability sampling, meaning that all individuals did not have the same chance of being selected. Non-probability was chosen for a variety of reasons. One important reason was due to the sensitivity of the topic, some individuals in the community may feel worried about backlash for talking about the case study, thus only community members that were willing and able to engage were contacted. Additionally, non-probability was chosen because of the timeline because it was short and there were a few specific participants with core engagement in the process that needed to be contacted. The fundamental information was held by key informants in the village and thus those participants were of necessity and contacted first, then a snowballing effect took place from there in which they recommended other community members. In addition to one-on-one interviews focus groups were utilized, as well as direct observation in the means of photo taking and documenting field observations. Once the data collection was completed analysis began in which patterns were looked for within the various interviews, focus, groups and other methods.

Central to the research and to ensuring the voices of the participants is the concept of Environmental Justice. This concept is essentially used as a guiding framework for all questions, interviews, and lines of inquiry in this project. The main tenant of environmental justice is to ensure all individuals have equal ability to remain safe from environmental hazards¹². For this research it was determined that there are a few essential aspects of environmental justice that should guide the questions and discussions. These pillars are equity in the distribution of the risks associated with the environment, recognizing the differences within the communities affected, and the degree to which those individuals impacted are able to participate in the political processes involved in environmental policy, or as Scholsberg refers to them; recognition, distribution, and participation¹³. This case study focused on these pillars plus an aspect of restorative justice, seeing as remediation of the environment and community is also important. The case study in this paper had specific objectives to understand the overall process the villagers went through in engaging with the NGT and the roles of other local state and civil organizations in this, leading to the participation pillar of environmental justice. Then to understand how the NGT decision impacted different levels of the community, such as women verses men, fishers verses other laborers, seeking to fill in the concept of distributional justice. Then to also understand the degree to which the court acknowledged the differences within the community, leading to the recognitional pillar of justice. Lastly, in terms of restorative justice it was of interest to understand any environmental remediation that took place and if there was any conflict mediation between the parties of the case.

This specific case study is focused on one environmental issue in general, the case that was found on the NGT website was in relation to a village in southern India raising concerns about sandbar removal and sand removal in general, with the larger context being sand mining issues.

¹¹ Beebe, James, *Basic Concepts and Techniques of Rapid Appraisal*. (Human Organization, 1995).

http://www.parkdatabase.org/files/documents/1995_basic_concepts_and_techniques_for_rapid_appraisal_2.pdf

¹² Schlosberg, David, *Reconceiving Environmental Justice: Global Movements and Political Theories*. (Environmental Politics, 2004). <https://www-tandfonline-com.uwinnipeg.idm.oclc.org/doi/full/10.1080/0964401042000229025>

¹³ Ibid.,

Sand mining is a phenomenon that has been taking place for many years now, but due to the vast increase in construction needs the industry is growing as are the environmental impacts. Sand and gravel are used extensively in construction, and in preparation of concrete for each tone of cement the sand mining industry needs about seven times as much sand and gravel¹⁴. In 2012 the worlds use of compounds for concrete was around 30 billion tones, enough concrete to build a 27 meter-high and wide wall around the equator¹⁵. Sand and gravel are mined world-wide, and make up the largest amount of solid material extracted globally, and the highest volume of raw material used on earth besides water¹⁶. The amount of sand in demand has increased exponentially in the last few decades due to rapid economic growth in parts of Asia, for example cement demanded by China has increased 430% in 20 years and use in the rest of the world has increased 60%¹⁷.

Sand was previously most often extracted from quarries and river beds, but there has been a shift in mining to marine and coastal areas due to the declined availability of inland resources. Sand is a finite resource and is quickly and dramatically being depleted, while there are deserts of sand in some countries- this sand is not suitable for construction as the wind erosion process forms round grains that do not bind well. The most desirable sand is one that comes from riverbeds as the processing is easier; marine sand also has significant processing due to the salt. If the salt is not thoroughly washed from it then a structure may collapse after a few decades due to corrosion¹⁸. The impacts of sand mining are very extensive and create many ripple effects. The main noticeable effects of sand mining include: biodiversity impacts, land loss, hydrological function issues, water supply issues, damage to infrastructure, climate impacts, and increased vulnerability to extreme weather events. In addition to the vast environmental issues there are significant socio-economic and political issues surrounding sand mining¹⁹.

Marine sand mining has a significant impact on seabed flora and fauna, dredging and extraction of sand in these water ways destroys organisms, habitats and ecosystems, and long-term recovery can only happen when original sediment composition is restored²⁰. Erosion occurs when there is direct removal of sand from water areas such as beaches and riverbeds, and as a result of near shore mining. Erosion also occurs indirectly because mining has reduced sediment delivery from rivers to coastal areas, leading to accelerated beach erosion²¹. There are not only environmental impacts to sand mining as mentioned, there are many economic and livelihood impacts as well, due to the loss of biodiversity fish populations suffer and thus individuals that depend on that for their livelihood will also suffer, the ripple effects from this are tremendous because then that individual may be forced to relocated or change work, thus affecting a large group of the population in that area being mined²².

In India the situation in relation to sand mining is quite extreme, due to the demand and inflated price of sand there has become a black market for the resource. There are no true official numbers for the state of this but it is estimated in the year 2015-2016 that there was over

¹⁴ *The Mining of Sand a Non-Renewable Resource*. (Green Facts, 2018). <https://www.greenfacts.org/en/sand-extraction/1-2/index.htm>

¹⁵ Ibid.,

¹⁶ Ibid.,

¹⁷ Ibid.,

¹⁸ Ibid.,

¹⁹ Ibid.,

²⁰ Ibid.,

²¹ Ibid.,

²² Ibid.,

19,000 cases reported of illegal sand mining²³. Under the Mines and Minerals (Development and Regulation act) 1957, mining of minor minerals such as sand is to be regulated by the states, but after activists brought attention to the dangers of so called “small” scale sand mining, the Union Ministry of Environment Forest and Climate Change (MoEFCC) issued sustainable sand mining management guidelines in 2016, and in the same year it amended the Environment Impact Assessment to make environmental clearance necessary for small scale sand mining²⁴. In addition, a District-level Expert Appraisal Committee (DEAC) as well as a District Environment Impact Assessment Authority (DEIAA) was created to assess the environmental impact of mines²⁵. However, despite these new norms and regulations the illegal sand mining market is still very prevalent, and the shortage of sand will likely only further increase this illegal activity.

Adding another element to the turmoil of sand mining in India is the “sand mafia” that this illegal mining has enabled. When discussing the sand mafia, it is in relation to the entirety of people, organizations and businesses that profit from the activity of sand mining. There are the local laborers, the small scale capitalists who own trucks and earthmovers, and actual mobsters who in some regions of the country organize the miners and employ enforcers to stop anyone getting in their way. Then there are the suppliers who act as middlemen between the mafia and the real estate developers or large companies, the police and officials are also sometimes involved in this taking bribes from the mafia²⁶. The other side of the equation is that the workers involved in sand mining in India have to deal with quite dangerous working conditions. In contrast to large scale dredging, often the type of sand mining happening in India is where workers dive up to 15 feet to fill baskets with sand and then dump it into a rowboat. These divers try to make staircases to bring the baskets up with, but they then risk falling and choking underwater, additionally much of the work is done in the evening making it more dangerous.²⁷ In one sand mining scenario local villagers were trying to stop sand miners in the region of Jatpura in Uttar Pradesh, when they were shot at by those doing the mining, two men died and another was shot at but was not injured²⁸. Conflict often surrounds the activities of sand mining, and this also often spurs protests which again can lead to more conflict and risk to local villagers²⁹. Villagers are actively trying to stop sand mining due to the extreme negative consequences, and are using any avenue available to them, protests, local governments, and the NGT.

The NGT deals with cases related to sand mining and the related effects of it, and the case in this study involved members from the affected community creating an application to the NGT. The applicants are from a village called Baikady; Baikady village is located in Udupi Tehsil of Udupi district in Karnataka, India. It is situated 13km away from Udupi, which is both district & sub-district headquarters of Baikady village. The total geographical area of the village is 358.37 hectares. Baikady has a total population of 3,449 peoples. There are about 869 houses in Baikady village. Udupi is the nearest town to Baikady which is approximately 13km away³⁰. Among the population of Baikady 1663 (48%) are male and 1786 (52%) are female. 92% of the

²³ Kukreti, Ishan. *How will India address illegal sand mining without any data?* (Down to Earth, 2017).

<https://www.downtoearth.org.in/news/flouted-with-impunity-58736>

²⁴ Ibid.,

²⁵ Ibid.,

²⁶ Romig, Rollo. *How to Steal a River*. (The New York Times, 2017).

<https://www.nytimes.com/2017/03/01/magazine/sand-mining-india-how-to-steal-a-river.html>

²⁷ Ibid.,

²⁸ *Villagers pay tragic price as Indian building boom drives demand for sand*. (The Guardian, N,d).

<http://coastalcare.org>

²⁹ Ibid.,

³⁰ Indian Village directory. <https://villageinfo.in/karnataka/udupi/udupi/baikady.html>

whole population are from general caste, 7% are from schedule caste and 1% are schedule tribes. There are 869 households in the village and an average 4 persons live in every family³¹

The applicants whom are native to Baikady village have lived on the banks of the Swarna river for some time and have deep knowledge of the ecological history of the area. They filed in 2010 asking that environmental clearance not be given to get a sand mining permit to permit the removal of sand from the sandbars of the rivers in the Udupi district. The individuals living here depend on these banks for fishing and lime collection, and other livelihood activities. However, contracts were granted with restrictions – but the villagers report the restrictions are not being followed. Then the case turned into a discussion/disagreement between parties on sand mining verses removal of sandbars. It was determined that removal of sand bars could be permitted but mining of sand not- but there was still disagreement as to where and what sand bars are and what constitutes as permissible for removal. The court determined that the removal of sand bars was in fact being done illegally for various reasons, such as how the sand bars were determined, methods of removal, and not including important stakeholders in the decision, thus all sand removal from 2016-2017 was banned from the region. It was decided that the state of Karnataka be in charge of the ultimate decision on issuing permits for sand removal³².

This case is interesting in terms of socio-economic implications as well as environmental issues, first the state of Karnataka seems to have a stake in the removal and processing of sand as it creates growth of buildings and construction companies, so this may be why some of the permits were granted to remove sand, but there still needs to be regulations and compliances in relation to how sand is removed. Secondly, there are economic implications for the members of the village, some of them rely on the waters for fishing and livelihood activities, some of them are even working removing sand bars in a manual fashion for their own local construction needs, so some village members may be very strongly against the removal, but some may be supportive of it if it is conducted in a traditional manual fashion. One part of the case mentions that large sand bars may hinder fishing boats from properly accessing fishing areas, so in fact removal of sand bars may be very important. However, the sand that is being removed has not been done according to traditional methods. It was noted that³³;

Due to excessive sand mining, fish breeding and nesting of birds in the area have totally stopped. The natural filtration of salt water has stopped and as a result village wells and ponds have now become salty and unsafe to use for irrigation or for consumption. There is systematic erosion taking place in banks of the river, due to increase in depth of the river by removal of sand. The fish breeding has completely stopped due to indiscriminate sand exploration, which has seriously affected the income and availability of the food to the villagers. Even though, the very object of removal of sandbars is to remove accumulated sand, if it obstructs navigation of fishing boats and public water transportation, the sand extraction has to be carried out by the local communities by traditional method. There was no complaint from the local communities regarding any sandbar obstructing navigation. Thus the permission granted to remove sandbars is based on imaginary circumstances. Further, just to comply with the requirement of involving traditional communities, a sham association of sand boat workers was created to grant permission to extract sand³⁴.

³¹ Ibid.,

³² National Green Tribunal. Application no.111 of 2016 (SZ) and M.A Nos. 133, 136, 138 of 2016. (2017).

³³ Ibid.,

³⁴ Ibid., p.4.

This quote exemplifies some of the extensive environmental concerns that the villagers noted as a result of the sand mining and sand removal taking place.

Additionally, this topic is quite sensitive in terms of regional politics and there are political implications for how the state handles the resource of sand; the recent elections lobbied on various elements of sand mining, with some parties saying they will encourage it and some saying they will advocate for the communities being impacted by sand mining. The state has a say and a stake in the extraction of sand, so this further adds to the complications³⁵. In terms of the bodies involved there are multiple jurisdictions and organizations involved, and even more so with the inclusion of the sand mafia cases, in which the supreme court and the criminal courts becomes involved. As it stands the involved parties are the Sand monitoring committee, State Level Environmental Impact, Department of Environment and Ecology, Coastal Zone Management authority, Department of mines and geology, Ministry of environment, and the National Green Tribunal. In addition to this there are many acts referenced, for example the constitution of India as well as the environmental protection act³⁶.

This information was gathered by reading the NGT court case document, however the reality on the ground would likely be much different thus the importance of conducting interviews and first hand testimonies. The data collection began with the Udupi District offices to ask how the sandbars were identified and the difference between sand bar removal and sand mining. Upon interviewing the Department of Mines and Geology, they explained that the process of identifying a sandbar is done via satellite image and GPS co-ordinates, and then permits will be issued for that sandbar to be removed. Following this there is a seven-member committee that will meet and asses whether or not the individual that has applied to remove that sandbar is eligible to remove it³⁷. The office officials said that no removal of sand takes place unless it was a determined sandbar removal and had gone through the seven-member committee, and that no sand mining was taking place in the region³⁸.

Following discussion with the office official's interviews and focus groups took place with members of the impacted village. In this focus group the format was semi-structured and the villagers told the story of how sand mining has impacted them. Sand mining began in the region about 10-12 years ago, and at first the effects were not felt, then the villagers started noticing things. They noticed that the fish were not there during their natural breeding, they noticed that they could not collect clams anymore, they noticed coconut trees falling into the river, and they noticed the water levels getting very deep³⁹. The villagers explained how they tried to contact their local government, the Gram Panchayat, and how when no action took place after that they then went to the deputy commissioner of Udupi, and then held protests and still there was no immediate action taking place. This is when they decided to try the NGT system, they originally found one external lawyer but they feel this lawyer was paid off by the sand mafia. Then they found a lawyer that was native to the village and this lawyer took on the case for a marginal fee. One of the main villagers involved in this process said they had 8 warrants out for their arrest for disturbing the peace and that there were some times they needed to flee the village because the sand mafia was looking for them⁴⁰. The villagers took immense risk in going against the sand mafia and were quite brave to do so. The NGT decision ruled in favor of the villagers and

³⁵ Why Sand Mining is a Poll Issue in Mangaluru? (Youtube, 2018). <https://www.youtube.com/watch?v=RHj0z5ts17s>

³⁶ National Green Tribunal, 2017.

³⁷ Department of Mines and Geology Udupi. (Cassandra Szabo, June 28 2018), Udupi, Karnataka, India.

³⁸ Ibid.,

³⁹ Interview with villager, (Cassandra Szabo, July 13, 2018), Udupi, Karnataka, India.

⁴⁰ Ibid.,

banned all sandbar removal and all sand mining, however the villagers say the sand miners are still removing sand and that there is little monitoring to ensure that the sand miners are complying⁴¹. Despite the fact that some sand mining is still occurring the villagers mention that they have already witnessed some of the fish returning to the waters, but that the erosion is still occurring, and there are still no clams to collect⁴². The lawyer involved in the case came to the village and got the stories of the villagers and represented their case to the NGT, the villagers did not go to the case hearings but they felt that the lawyer advocated for them well seeing as he was from the area and shared the passion for keeping the village healthy⁴³.

This example of environmental justice shows the importance of having avenues for public engagement in the court and political systems. Without this option of the the NGT the villagers would have had to keep hoping their protests and calls for help to the government would be answered one day, but with the NGT they were able to voice their concerns and be actively engaged in what is happening to their community. This is crucial seeing as the need for concrete and sand will likely only increase due to how fast India is growing, meaning that these issues will continue to come up for communities, and it is crucial that the public is able to not only be engaged in these decisions but have a powerful voice, this is what the NGT enabled. While the NGT did not focus on environmental remediation, and the monitoring seems to be lacking, what the court did allow was engagement of the villagers in decisions that are greatly impacting their lives, the NGT gave a voice to those whose voices were largely being ignored. The NGT is not a fool proof solution to environmental justice or sustainable development but it is a step in the right direction, and without giving voices to those who are impacted by development, sustainable development will never truly happen, thus taking lessons from cases such as this is imperative.

⁴¹ Ibid.,

⁴² Ibid.,

⁴³ Ibid.,

References Cited

- Beebe, James. *Basic Concepts and Techniques of Rapid Appraisal*. Human Organization, 1995. http://www.parkdatabase.org/files/documents/1995_basic_concepts_and_techniques_f_rapid_appraisal_2.pdf
- Bhattacharya, Subhrendu. *Some key issues and challenges facing India: Perspectives on policy and action*. The Journal for Decision Makers, 2015. <http://journals.sagepub.com/doi/pdf/10.1177/0256090915593832>
- Bhargav, Praveen. *Everything you need to know about The National Green Tribunal*. Conservation India, N.d. <http://www.conservationindia.org/resources/ngt>
- Department of Mines and Geology Udupi. (Cassandra Szabo, June 28 2018), Udupi, Karnataka, India.
- Garud, Parimal. *Incorporation of global environmental norms into Indian legal systems: Social and economic challenges, with special reference to ship-breaking*. Elsevier Ltd, 2012. https://acels-cdn-com.libproxy.uwinnipeg.ca/S1877042812007616/1-s2.0-S1877042812007616-main.pdf?tid=88ce8332-66a5-462c-83c76535a81c25fb&acdnat=1531944855_1dd3e9afa3001721367b2a8b2ea80074
- Indian Village directory. <https://villageinfo.in/karnataka/udupi/udupi/baikady.html>
- Interview with villager, (Cassandra Szabo, July 13, 2018), Udupi, Karnataka, India.
- Kukreti, Ishan. *How will India address illegal sand mining without any data?* Down to Earth, 2017. <https://www.downtoearth.org.in/news/flouted-with-impunity-58736>
- Lazenbatte, Ann, McMurray, Frances. *Using participatory rapid appraisal as a tool to assess women's psychosocial health needs in Northern Ireland*. Bradford: Health Education, 2004. <https://search-proquest.com.libproxy.uwinnipeg.ca/docview/214700431?accountid=15067>
- National Green Tribunal. Application no.111 of 2016 (SZ) and M.A Nos. 133, 136, 138 of 2016, 2017.
- Romig, Rollo. *How to Steal a River*. The New York Times, 2017. <https://www.nytimes.com/2017/03/01/magazine/sand-mining-india-how-to-steal-a-river.html>
- Schlosberg, David. *Reconceiving Environmental Justice: Global Movements and Political Theories*. Environmental Politics, 2004. <https://www-tandfonline.com.uwinnipeg.idm.oclc.org/doi/full/10.1080/0964401042000229025>
- The Mining of Sand a Non-Renewable Resource*. Green Facts, 2018. <https://www.greenfacts.org/en/sand-extraction/l-2/index.htm>
- The National Green Tribunal. <http://www.greentribunal.gov.in>
- United Nations. *Sustainable Development Goals*, 2015. <https://sustainabledevelopment.un.org/?menu=1300>¹
- Villagers pay tragic price as Indian building boom drives demand for sand*. The Guardian, N.d. <http://coastalcare.org>
- Why Sand Mining is a Poll Issue in Mangaluru?* Youtube, 2018. <https://www.youtube.com/watch?v=RHj0z5tsI7s>
- Yadav, Alok. *An Empirical Study on Environmental Issues in India*. Global Journal of Management and Business Studies, 2013. https://www.ripublication.com/gjmb_spl/gjmb_sv3n9_03.pdf