

Gone with the Sand: River Sand Mining (RSM) and Gendered Livelihood Struggles in a Village in Sri Lanka

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Abstract— This article uses the concept of political ecology to understand the conflict arising out of RSM in the village and tries to locate gender and livelihood changes as central elements. Influenced by the foregoing discussion. The article views gender as an important aspect in the political ecology of RSM as the livelihood impact of RSM are different on men and women. The article adopts the view of ‘displacement in place’ to show how RSM has negatively affected the livelihoods of the interviewed villagers who have not physically moved outside the village, but engaged in local, trans local and temporary global migration based livelihoods.

Keywords—River sand mining, gender, livelihood, displacement, political ecology

I. INTRODUCTION

Sri Lanka’s river systems have given employment opportunities for thousands of people; they have provided hydropower, raw materials for the booming construction industry and they are also attractive sites for the tourism industry. However, during the last two decades the increase in the extraction of river sand for the expanding construction industry has created socio, economic, political, infrastructural and ecological challenges. The introduction of neoliberal economic policies since 1977, the 2004 Indian Ocean tsunami and post-war reconstruction activities created a pressure on the demand for river sand. The artisanal mode of RSM was not sufficient to meet the needs of rising local demands. This resulted in the sharp increase of sand prices as supply of river sand became limited. The situation attracted many people to invest in heavy machinery to cater to the increasing demand for river sand. Considering the severe damage caused to the environment due to the unprecedented increase in sand mining, the government started to regulate the activity through acts, laws and policies. Despite these actions, illegal RSM continues even in environmentally fragile rivers and challenges the livelihoods of the rural poor who live near or downstream from RSM operations. Based on a fieldwork conducted in a village located in the mid-stream of MahaOya, in the district of Kurunegala in Sri Lanka, this study aims to first, understand the impacts of RSM on the livelihoods of villagers. Next, it focuses on gendered individual responses by highlighting how men and women strategize their livelihoods in different ways. Finally, it describes the collective actions taken by villagers to respond to extensive RSM. The paper

concludes, that RSM is increasingly threatening the livelihoods of the villagers, though a few villagers have benefitted out of it. It uses the concept of political ecology to understand the conflict arising out of RSM in the village and tries to locate gender and livelihood changes as central elements. This paper also benefitted from the concept of ‘displacement in place’ to show how people while living in the same place, without actually being physically displaced.

A. RSM in the study context

Illegal and unregulated RSM have received considerable media attention during the last decade in Sri Lanka. Over exploitation of river, sand has threatened the ecosystem, making the livelihoods of the poor people vulnerable. It has also affected the infrastructure, such as roads, bridges and irrigation canals were affected due to the transportation of sand. Although RSM has been taking place for a long time and consequent environmental and socio economic impacts of RSM were observed, until the mid-1990s, the issue was not considered as serious (Ratnayake 2008). The demand for river sand in the construction industry started to increase due to post-war reconstruction, post-tsunami reconstruction, government housing projects and overall infrastructural development in the country. The increase in income levels of the people together with the changes in their housing needs have created a rise in the construction of houses which in turn has resulted in the increase in the demand for river sand.

According to Gunaratne (2010) the construction industry, which employs large number of rural people consume 95% of the sand. In order to regulate the illegal and unregulated mining, transport and processing of mineral resources the Geological Survey and Mines Bureau (GSMB) was established in 1993, under the Mines and Mineral Act No 33 in 1992. The GSMB’s core task included curbing illegal mining. Apart from this, several other legal frameworks are in place to curb illegal RSM.

B. Methodology

This study is based on qualitative interviews conducted with five men and three women whose livelihoods have been affected due to RSM activities in the village. Informal discussions were held with villagers, from different age cohorts to understand the history and the current situation of

RSM in the village. An in-depth interview was also held with the village priest attached to the village temple on RSM activities in the village. The priest was working very closely with an activist youth group, working on social and environmental issues in the village. The leader of the activist group was contacted through the priest and an informal discussion

TABLE I

Respo ndent no	Sex	Age	Previous work	Current work	Reasons for doing the present work/not employed
1	M	56	Vegetable farmer	Labourer in sand mining	Better income
2	M	40	Vegetable farmer	Truck driver in sand mining	Better income and free time
3	F	68	Helping in the family paddy field	Unemploy ed	Husband and sons are labourers
4	M	49	Paddy farmer	Labourer in road construction	No profit from paddy, parents are taking care of the paddy land
5	F	50	Basket weaver	Middle east migrant returnee	Better income, no raw materials for making baskets
6	M	58	Paddy labourer in the village	Paddy labourer in another district	Paddy is not being cultivated in the land he worked
7	M	61	Fisher	Fisher	Continuing fishing, but less income from fishing
8	F	39	Vegetable farmer	Vegetable trader	Cannot plant in home garden due to lack of water and poor quality soil
9	F	57	Vegetable farmer	Unemploy ed	
10	F	37	Supported family paddy cultivation	Garment factory worker	Paddy cultivation was abandoned

Field study: 2019

The literature review (includes only articles published in English indicates that RSM has been researched more from an environmental impact perspective focusing on ecological destruction, ecosystem disruption and physical changes to rivers (Dissanayake and Rupasinghe 1996, Piyadasa 2011). However, the focus on socio economic impacts were limited or under explored, except some works done by activists (Athukorale 1996, 2008).

C. Study Village

The study village is located in the district of Kurunegala along the MahaOya River. Due to the political sensitiveness of the issue, the name of the village is anonymized. The following map (1) shows the location of the district of Kurunegala and MahaOya. According to the Department of Census and Statistics (2017), the population of the district was 813,352 in which 48.3% are males and 51.7% females. The district is predominantly rural. According to employment by sectors, 29% is engaged in agriculture, 33.6% is engaged in industrial activities and 37.4% is engaged in the service sector. Except in the sector of agriculture, men outnumber women. In terms of departure for foreign employment, the district ranks third in the island. Most of the migrant workers departing to work in the Middle Eastern countries as housemaids, drivers, hotel workers and cleaners are increasing. The percentage of households living in poverty in the district is 2.3% (Department of Census and Statistics 2017). However, huge internal variations could be observed within the district in terms of poverty and inequality.

According to the climatic zone classification of Sri Lanka, the district of Kurunegala falls into both wet and dry zones. The dry zone consists of 95000 hectares while the wet zone accounts only for 17,500 hectares. In terms of rainfall, the district receives the highest rainfall from October to November and from April to May. Mid-January and Mid-March have a dry spell. Again a longer dry spell prevails from June to September. In the district the land area under inland water resources account for 4 %. The study village is located along the River MahaOya which is identified as a perennial river. The MahaOya River contains a drainage area of 1,510 Square kilometers (Weerasinghe 2008).

The study village has historically been dependent on the Mahaoya for its agriculture, fisheries and also for its household water needs. The villagers also benefitted from trees and grass on the river bed for their food needs and livelihood needs, currently most of which have disappeared. The older villagers had a good knowledge of changes taking place in their village and how those changes have affected the villagers. According to some old villagers, in the past, the RSM activities in the village have traditionally been carried out using traditional methods. The activity was under taken by the local villagers to serve the local construction needs. However, the villagers said that during the last two decades, the demand for local construction needs increased in the village due to a shift in the living standard of the people. According to them, the demand for construction materials increased after women's migration to Middle Eastern countries to work as housemaids. As a consequence, RSM operations on the river bed of Mahaoya in the village increased.

MAP 1 Location of Kurunegala and MahaOya



Source: Nimali Piyatissa, Department of Geography, University of Peradeniya

D. Findings

Fishing

Respondent number 7, aged 61 continues fishing although profits have decreased. Earlier the villagers were involved in fishing for home consumption only. Many villagers who were involved in fishing echoed that, fish resources have declined in the river, since the increase of sand mining. Today most of them buy their fish in the nearby town. Respondent number 7 said:

Before, I used to catch 6- 7 kilograms of fish daily and I sold them to buy my food and spend on other family needs. There were a lot of fish in the river and within a couple of hours I was able to catch 6-7 kilograms. Now I have to spend a lot of time on fishing and on some days, I hardly get anything.

According to other villagers who have been also involved in fishing 10-15 years ago, fish resources decreased due to sand mining. During the field visit, the villagers showed the places where they fish earlier. Now these places have become polluted due to mud which has contaminated the water making the survival of fish difficult. The villagers who depended on fish for their daily consumption said, that as the fish price is high outside the village, many of them could not afford to buy fish.

Seasonally employed paddy labourer

Respondent six aged 58 worked as a paddy cultivation labourer in the village. However, for the last five years he has been working as a seasonal paddy cultivation labourer in a nearby district. He worriedly expressed.

Although many regulations are there to control sand mining, the problem is they are not implemented properly. Many villagers have lost their agricultural land due to lack of water.

RSM in the village has brought the water table low and increased salinity too. This has made several people to shift from paddy cultivation and other types of livelihoods.

Un-employment

A 68 year old female, who is not engaged in any income earning activities at present and who had worked in her husband's paddy land said:

Not only, paddy cultivation everything else has gone. We can't even have a chili plant in our home garden. I can see that many women are not working. They supported their husband's or son's paddy fields earlier. Some men who lost their land are working as labourers and some women who worked on the land are now not engaged in any income earning activities. Women who are not working in the paddy field had got new jobs. They walk miles to get water for drinking. The miners have destroyed our beautiful village.

This story points out an important change taking place as a consequence of RSM. In the village, RSM has increased the width of the river. This is connected to erosion and river bed instability. As a result, villagers who had land closer to riverbeds have lost their agricultural plots. Some of the land owners have become labourers or they have become unemployed. The situation has also affected many women in the village, who were engaged in family based agricultural activities.

The above statement also points out the gender dimension of reducing access to productive resources and impacts of it. Women in the village were concerned about the environment. During the informal discussion, it was expressed that, they had to dig their wells deeper and many wells in the village have already dried up. Many of them have been using the river water for agriculture, washing and drinking purposes. The increasing depth of the river and lowering water levels of their wells have made their daily tasks difficult. They also mentioned the taste of water in their wells have changed due to salinity. Rinaldi et al (2005) have also noted that ground water availability and quality of water could happen due to the lowering of river water levels. They also point out this could affect availability of water for agriculture and other purposes, hence resulting in economic losses.

Labourer in sand mining

Respondent number 1, who is 56, currently works as a labourer in sand mining in the village. He was involved in vegetable farming in the village before he started to work as a labourer in sand mining in the village. When asked, why he was working as a labourer, he expressed:

I know what I am doing is not supported by my villagers. But I don't have any other options. When, machines were used by licenced sand miners, who came to the village from out side, I was the one who organized a group of youth to protest. We fought with the police and politicians. Nothing happened. I lost my vegetable garden due to the mining. It became impossible to cultivate vegetables. Then I worked as a labourer in a hardware shop for a low wage. As my wife got ill, I came back to the village. Finally, I decided to work in the river. I am just doing this work for my family's well-being. If the villagers don't have jobs in sand mining, many families in this village would starve.

Of all the respondents, those who were directly connected to sand mining, supported sand mining in the river as they mainly thought of the economic dimensions of the benefits. Similar to respondent 1, people from the village are employed as labourers, truck drivers and security guards in mining locations. As the village, does not have any other income earning activities, some villagers do not have any other options, other than working in the mining industry that is increasingly threatening their environment and livelihood sustainability in agriculture.

Middle East migrant worker

The village started to grasp the opportunities provided by the globalized labour market, since late 1990s. Now there are many migrant workers who are working in the Middle Eastern countries in various unskilled and semi-skilled jobs. Respondent number 5, aged 50 lived very closer to the extraction site. She lost her land and house due to extraction. With tears in her eyes, she said:

When I was a child, my mother and grandmother went to the river and cut the grass to weave, mats and baskets. It is through them I learnt to weave baskets. I sold them in the pola (weekend market) outside the village. However, from the day sand mining machines came to our village, everything started to change. We lost our garden, we lost the riverbank which provided us the grass, we lost our house due to cracks created by mining.....everything is gone with the sand.

Mining is taking place at different depths along the river. This has affected the river ecosystem, making a decrease in fish and riparian resources, that villagers have depended on for their food and livelihoods. During the interviews, the women mentioned that coconut are an important cultivation in the district. The coconut trees planted closer to the river now have been uprooted. Coconut is an essential ingredient in Sri Lankan cooking. Losing coconut trees would not only result in lacking food security but also losing their livelihoods.

Adding to the above, the villagers also highlighted the issues of, loss of land, cracks in houses and other building, damages to roads and bridges. These issues were raised mainly by the activist youth group members of the village. According to them, although roads and a bridge were constructed in the village in 2000, now most of the roads in the village are in very poor condition due to sand transporting trucks entering the village. The activist group leader said that although a notice has been displayed at the entrance to the bridge, prohibiting the entry of heavy vehicles, the truck drivers have used the bridge. Now no vehicles can enter the bridge, as it is broken. The activist group leader expressed in a complaining tone:

We have been fighting for our villagers rights. We were supported by some voluntary organizations. But, we cannot fight with powerful politicians who are behind this.

Athukorala (2008) an activist voicing against RSM and its various impacts, pointed out example from DeduruOya-which suffered major ecological losses-, highlight the active role played by the affected communities and especially women in fighting against RSM. According to Athukorala the affected communities had sought the intervention of religious and community leaders. Although similar, protests had been organized by the young activists in the village, RSM continues to take place in the village.

Vegetable farmer to vegetable trader

Respondent number 8, aged 39 had her own vegetable garden. Her husband went missing during the last civil war in 2009. She does not have anyone to support the family income. Her mother lives with her and looks after the children while she is away doing vegetable trading. She expressed:

I have been engaged in vegetable trading for the last five years. We had a vegetable garden. But due to sand mining in the river, we could not have good products. Many people in the village have given up vegetable cultivation. I decided to do vegetable trading after my husband went missing. But during that time, my mother did not allow me as I was young and could easily be subjected to village gossip. But now I have three school going children. I have to feed them and support their education. Therefore, I decided to engage in vegetable trading outside the market in the town.

Not all the women affected by RSM and lost their livelihoods could move outside the village to find another income earning activity. With reference to the above story, though married as a young woman, the respondent's mobility was controlled by her mother. Her mobility was shaped by existing gendered expectation of the village related to women's movement for work outside the village.

Collective actions

The village chief priest expressed his concern over the already fragile unity among villagers. The chief monk of the village temple said that as sand mining is not regulated in the

village resulted in corruption and illegal mining. He has been living in the village since he was born. The 60 years old priest expressed:

Earlier, sand mining was done mainly by villagers on a small-scale. But now a few powerful people control the industry with the support of politicians. It is like a mafia. Although villagers protested and made complaints nothing happened. Now this group is giving employment for the villagers too. Many villagers who cannot find other work are employed as labourers. So it is difficult to control illegal mining.

Chief Priest of the village

The above view was certified by a 58 year old male, paddy cultivation labourer who works in another district.

When we were engaged in paddy cultivation we shared our labour during planting and harvesting seasons. We worked in other villagers' paddy land voluntarily, whenever there was a need to share labour. Now people are not doing any work without payment. Not all of us can go out for work. Besides, our village is divided. One group supports sand mining and the other does not.

The above stories reflect that RSM in the village has caused sever damages to the previously existed social capital of the village. People are divided in the lines of political affiliations. For some, villagers the political patronage has given them an opportunity for a new, high-income earning livelihood while it has not been so for many others. Those who were involved in RSM in the village were apparently affluent. They have good houses, vehicles and their children were studying outside the village in big schools. They also have invested in other businesses. On the other hand, majority of the people who lived closer to the riverbanks have lost their private lands that were used by them for agriculture for a long time. They have become impoverished and vulnerable. They are seeking employment in economic sectors that are not strong. The division in the village has hampered the collective actions against RSM.

E. Discussion

The stories of the villagers revealed that considerable changes have occurred in the areas of livelihood, the infrastructure and the e due to unregulated and illegal RSM in the village. The informal discussions with the villagers and subsequently the individual interviews highlighted that among the most important issues were the losses and changes in their livelihoods. These changes have located them in different socio economic positions in the village. In the village, RSM has led to poor groundwater recharge. Farmers who were dependent on paddy and vegetable cultivation had to seek alternative livelihoods. While seeking other types of livelihoods was comparatively less difficult for men, seeking a livelihood outside the village has been not been easy for women. Apart from this, the decreasing water table in the river and wells, have made women's daily household work

much more time consuming. Today, according to villagers, both for household consumption and agriculture, women had to spend more time on drawing water. They have to walk a long distance to get water. Some of them travel by foot to get water from non-sand mining areas. Wells located closer to the riverbank also have dried up. During the dry season, the situation becomes worse and women's time spent on drawing water doubles, preventing them from fully engaging in income earning activities.

It is also important to note, like noted in table (1), women who worked in paddy cultivation and vegetable farming have become unemployed as they or their families had to abandon agriculture due to RSM. Before extensive RSM started many of the villagers had used their plot of land to cultivate paddy or vegetables. They had also benefitted from plants in the riverbed and through fishing. The damages caused to land, river and the riverbed have not only altered the livelihoods of many villagers, it has also put the village food security of risk. The villagers had been able to fulfil their protein requirements through the fish they caught. Some of them were able to sell the fish in the nearby town. However, now fishing, agriculture or other livelihoods activities such as basket weaving have almost become impossible. For many of the interviewed women accessing markets and public services have also become difficult due to their extra burden of work and poor road conditions.

The stories, informal discussions, key informant interviews and field observations, all revealed that agriculture based livelihoods no longer dominate the village economy. While a few people who were involved in agriculture remain in the village, the livelihoods of most of the villagers are linked to economies outside the village at local or regional level or at the global level. Having said that, this research does not exclusively claim that villagers decision to seek outside the village is only connected to RSM. However, during the field visit it became evident that among those who left the village to seek employment outside, majority were those who lived mainly closer to the riverbank, who had lost their homes, wells and agricultural lands.

The study also reveals that due to RSM in the village a new form of 'displacement in place' is taking place in the village that goes unnoticed in the academic and policy circles. In Sri Lanka, although various forms of displacement (war, development and natural disaster induced) have received considerable research and policy attention during the last three to four decades, the livelihood losses taking place in the context of 'displacement in place' (Vaz- Jones 2018) has not received any attention at all. The study reveals that, people's loss of livelihood and relationship with the river could be overlooked if planners and policy makers adopt a conventional view of displacement. In the Sri Lankan context although several types of displacements (natural disaster related, war related and development related) have taken place throughout its history, displacement in policy documents have been confined only to the physical displacement.

RSM in the village has created different social and economic groups within the village. This division according to villagers have a strong political element. They said that, before mechanized RSM started in their village, many of them were engaged in agricultural activities for their livelihoods. Their social networks were very strong and through such networks, they received reciprocal help in labour, transport and marketing their agricultural products. The increasing RSM activities have resulted in losing the social networks that formerly existed. Unity in the village has been almost torn apart as some villagers have sought their livelihoods in RSM in the absence of other viable livelihood in the village.

II.CONCLUSIONS

This study shows that RSM has generally altered the livelihoods of the villagers. These changes have brought positive and negative impacts on the livelihoods of the villagers. The study also reveals that, responding to challenges created by RSM is gendered due to existing village norms and individual circumstances at household levels. As RSM is politically controlled, villagers continue to face threats of ecosystem and livelihood losses. In the context of the study village, it is obvious that RSM cannot be completely stopped. However, the government, along with the villagers and the miners should identify new strategies, actions and policies to encourage sustainable RSM, without causing any more damages to the ecosystem. It is also important to consider that, taking into account the damages already created by RSM in the village, the government must take measures to introduce alternative livelihoods for affected people, as alternative livelihoods are not always accessible for men and women equally. It was important to note the rising youth activism on this issue. Therefore, the government has to provide safe spaces for youth participation in handling these issues, as they are one of the core stakeholders in their village.

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REFERENCES

- [1]. Abrahams, D., & Carr, E. R. (2017). Understanding the connections between climate change and conflict: contributions from geography and political ecology. *Current Climate Change Reports*, 3(4), 233-242.
- [2]. Athukorala, K. (1996). The need for gender analysis in strategic planning for effective water management in Sri Lanka. *International Journal of Water Resources Development*, 12(4), 447-460.
- [3]. Athukorala, K., & Navaratne, C. M. (2008, July). Shifting sands in Sri Lanka—mobilizing and networking for collective action by river sand mining affected communities. In *The 12th Biennial Conference of the International Association for the Study of Commons*, Cheltenham, UK (Vol. 1418). http://iasc2008.glos.ac.uk/conference%20papers/papers/A/Athukorala_214701.pdf (Accessed 12.12.2018)
- [4]. Blaikie, P.M. and Brookfield, H., editors 1987: Land degradation and society. London and New York: Methuen.

- [5]. Department of Census and Statistics (2017) Poverty Indicators, Ministry of National Policies and Economic Affairs, Sri Lanka
- [6]. Dissanayake, C. B., & Rupasinghe, M. S. (1996). Environmental impact of mining, erosion and sedimentation in Sri Lanka. *International journal of environmental studies*, 51(1), 35-50.
- [7]. Elmhirst, R. (2011). Introducing new feminist political ecologies. *Geoforum*, 42(2), 129-132.
- [8]. Großmann, K., & Haug, M. (2018). Gender and environmental change: recent debates and new perspectives in anthropological research. *Antropologia*, 5(1 NS), 7-21.
- [9]. Gunaratne, L.H.P. (2010) Policy options for sustainable river sand mining in Sri Lanka. Research Report No.2010-RR7. Economy and Environment Programme for South East Asia, Singapore.
- [10]. Gunaratne, L. H. P. (2015). Policy options for sustainable river sand mining in Sri Lanka. In *Cost-Benefit Studies of Natural Resource Management in Southeast Asia* (pp. 201-223). Springer, Singapore.
- [11]. Pereira, K., & Ratnayake, R. (2013). *Water Integrity in Action: Curbing Illegal San Mining in Sri Lanka*. Berlin, Germany: Water Integrity Network.
- [12]. Piyadasa, R. U. (2011). River sand mining and associated environmental problems in Sri Lanka. *IA HS-AISH Publication*, 349, 148-153.
- [13]. Ratnayake, R.(2008) River Sand Mining – Boon or Bane? A synopsis of a series of national, provincial and local level dialogues on unregulated/illicit river sand mining, Sri Lanka Water Partnership
- [14]. Resurrección, B. P. (2017). From ‘women, environment, and development’ to feminist political ecology. *Routledge handbook of gender and environment*, 71.
- [15]. Rinaldi, M., Wyżga, B. & Surian, N., 2005. Sediment mining in alluvial channels: physical effects and management perspectives. *River Research and Applications*, Volume 21, pp. 805-828.
- [16]. Rocheleau, D. E. (1995). Gender and biodiversity: A feminist political ecology perspective. *IDS bulletin*, 26(1), 9-16.
- [17]. Rocheleau, D., Thomas-Slayter, B., & Wangari, E. (2013). *Feminist political ecology: Global issues and local experience*. Routledge.
- [18]. Rodríguez-Labajos, B., & Martínez-Alier, J. (2015). Political ecology of water conflicts. *Wiley Interdisciplinary Reviews: Water*, 2(5), 537-558.
- [19]. Vandergeest, P., Idahosa, P., & Pablo, S. Bose.(2007). Introduction. *Development's Displacements: Ecologies, Economies, and Cultures at Risk*, 3-32.
- [20]. Vaz-Jones, L. (2018). Struggles over land, livelihood, and future possibilities: Reframing displacement through feminist political ecology. *Signs: Journal of Women in Culture and Society*, 43(3), 711-735.
- [21]. Walker, P. A. (2005). Political ecology: where is the ecology?. *Progress in human geography*, 29(1), 73-82.
- [22]. Weerasinghe S.M. (2008). North-Western Province Biodiversity and Conservation Action Plan, The Biodiversity Secretariat, Ministry of Environment and Natural Resources, Sri Lanka.