

Role of Trees in Landfill Management of Mineral prone area, Khalari Block of Jharkhand

Vikrant Kumar Ravi¹ & Ashok Kumar Nag^{2*}

¹School of Management Studies, Dr. Shyama Prasad Mukherjee University, Ranchi, Jharkhand, India

²University Department of Botany, Dr. Shyama Prasad Mukherjee University, Ranchi, Jharkhand, India

Received : 28th July, 2022 ; Accepted : 28th August, 2022

ABSTRACT

Planting of trees in the landfill containment sites is a great opportunity rather than to just leave the place and treat it as grassland without implementation of any plans for rehabilitation of that leftover mining site in Khalari Block of Jharkhand. The leftover mine also promotes illegal mining resulting in Law & order situation. It also possesses threat to life as the illegal minings are fatal and sometimes lead to accidents and loss of life. Planting trees, especially native trees in those areas not only restabilizes the environment it further increases the carbon sink of that area and increases the oxygen content in air, will also help in stabilizing land, mitigate pollution and also prevent evaporation of moisture from dirt and most importantly restabilizing the local minerals of the soil in that particular area. Thus, we can say that it also helps us to fight climate change along with improving soil and watersheds and simultaneously cleaning the air and water. However, little research has been carried out and knowledge of the long-term growth of trees on landfill containment sites is rudimentary. It is proposed in this paper that with adequate planning and appropriate management regimes, successful native tree planting and afforestation could be undertaken at relatively low cost in order to rehabilitate the areas of Khalari, Jharkhand. In the present research paper 37 Trees have been enlisted along with their Botanical Name and Family which are Native of Khalari Block and can be instrumental in Landfill Management.

Key Words - Land fill containment site, Carbon Sink, Stabilizing land, Afforestation

***Corresponding author** : nagashok193@rediffmail.com

INTRODUCTION

Landfill management refers to the processes involved in the planning, design, operation, closure and post closure of landfill sites otherwise known as waste treatment and disposal facilities. The most common landfill is disposal of Municipal Solid waste but in Khalari Block, the leftover mines are none other than coal mines belonging to Central Coalfields Limited. (Crook,1992).

MATERIALS & METHODS

There are 14 villages that fall in Khalari block with a total population of 20,010 of which 10,351 are

males while 9,659 are females as per report released by Census India 2011.(USEPA)

Population of Children with age of 0-6 is 2750 which is 13.74 % of total population of Khalari (CT). In Khalari Census Town, Female Sex Ratio is of 933 against state average of 948. Moreover, Child Sex Ratio in Khalari is around 866 compared to Jharkhand state average of 948. Literacy rate of Khalari city is 75.58 % higher than state average of 66.41 %. In Khalari, Male literacy is around 83.45 % while female literacy rate is 67.24 %. Khalari block

has total administration over 3,800 houses to which it supplies basic amenities like water and sewerage and build roads.(Census Population, 2022)

Table 1 – Village wise population of Khalari Block, Ranchi, Jharkhand.

Sl. No	Villages of Khelari	Population
1	Babhne	1,457
2	Dondu	1,023
3	Duli	573
4	Harhu	515
5	Hesalang	2,505
6	Hoyar	1,842
7	Kedal	411
8	Konka	1,540
9	Lapra	3,559
10	Mahuliya	51
11	Manatu	360
12	Mayapur	1,761
13	Nawadih	1,594
14	Tumang	4,678

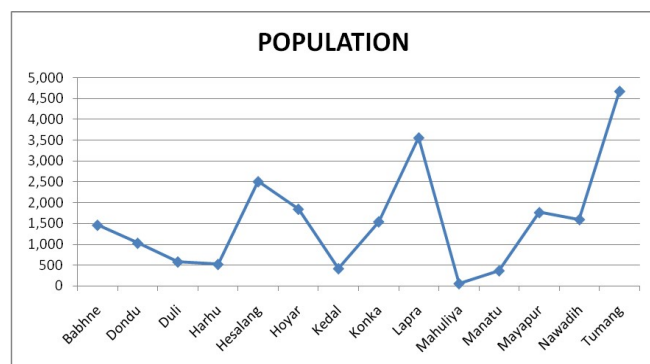


Fig. 1- Graphical Representation of Village wise population of Khalari Block, Ranchi, Jharkhand.

Out of total population, 6,139 were engaged in work or business activity. Of this 4,845 were males while 1,294 were females. Of total 6139 working population, 64.36 % were engaged in Main Work while 35.64 % of total workers were engaged in Marginal Work.(F. E. D., Jharkhand)

A sample survey was done in 5 nearby villages, from where it was understood that Coal Mining is the major source of job growth at Khalari, but the leftover mines cause more damage to the environment rather than creation of the job.

OBSERVATIONS

The place has seen a loss of biodiversity, precisely habitat loss and fragmentation - When people cut down trees, which are the major strength of the areas create a vast gap in space, fill a wetland, plough grassland or burn a forest, the natural habitat of a species is changed or destroyed. (F. E. D., Jharkhand). These changes can kill or force out many plants, animals, and microorganisms, as well as disrupt complex interactions among the species.

Non-filling of the leftover mines has resulted in abandoned lands with great depths which results in Water logging and further illegal mining promoted by the local coal Mafia. Sometimes this also leads to accidental fire that is frequent in the Khalari coal mines posing threat to a population living on that patch of land.(Wikipedia)

RESULTS & DISCUSSIONS

Given below is the list of Trees and the parts that are used for different purposes which can be used for economical use but due to mining and deforestation these trees have lost their significance which can regained if we start planting trees these trees in the Landfill areas.

Table 2 - Native Trees found in Khalari Block, Ranchi, Jharkhand and parts used

Sl. No	Trees Local Name	Botanical Name	Parts used
1	Kanout	<i>Kickxia ramosissima</i>	Roots
2	Aloe	<i>Aloe vera</i> (L.) Brum F	Whole Plant
3	Kochila	<i>Strychnos nuxvomica</i>	Leaf
4	Gokhura Kanta	<i>Tribulus terrestris</i> L.	Whole Plant
5	Semal	<i>Bombax ceiba</i> L.	Bark
6	Palash	<i>Butea monosperma</i>	Bark
7	Brahmi	<i>Bacopa monnieri</i>	Leaf
8	Karanj	<i>Pongamia pinnata</i>	Bark, Extract Oil
9	Neem	<i>Azadiracta indica</i>	Bark, Extract Oil
10	Dhatura	<i>Datura stramonium</i>	Whole Plant
11	Aak	<i>Calotropis procera</i>	Latex
12	Haridra	<i>Curcuma longa</i>	Leaf

Along with the above mentioned important economical trees, given below is the list of native trees found in the Khalari region, few of them have almost become extinct.

Table 2- Trees found in the Khalari region

Sl. No	Local name	Scientific Name
1	Babul	<i>Acacia arabica</i>
2	Khair	<i>Acacia catechu</i>
3	Karam	<i>Adina cordifolia</i>
4	Bel	<i>Aegle marmelos</i>
5	Shisham	<i>Dalbergia sissoo</i>
6	Sal/Sakhua	<i>Shorea robusta</i>
7	Karanj	<i>Pongamia glabra</i>
8	Neem	<i>Azadirachta indica</i>
9	Pipal	<i>Ficus religiosa</i>
10	Koelar	<i>Bauhinia purpurea</i>
11	Mahua	<i>Madhuca latifolia</i>
12	Palas	<i>Butea frondosa</i>
13	Galgal	<i>Cochlospermum gossypium</i>
14	Amla	<i>Emblica officinalis</i>
15	Mango	<i>Mangifera indica</i>
16	Imli/Jojo	<i>Tamarindus indica</i>
17	Kathul	<i>Bauhinia retusa</i>
18	Gamhar	<i>Gmelina arborea</i>
19	Arjun	<i>Terminalia arjuna</i>
20	Patdhaman	<i>Grewia asiatica</i>
21	Medh	<i>Litsea sebifer</i>
22	Rohan	<i>Mallotus philippinensis</i>
23	Bakain	<i>Melia azedarach</i>
24	Champa	<i>Michelia champaca</i>
25	Guri/Gurikaram	<i>Mitragyna parviflora</i>
26	Ach	<i>Morinda tinctoria</i>
27	Tut	<i>Morus spp.</i>
28	Piurar	<i>Randia uliginosa</i>
29	Jotsingh	<i>Rubia cordifolia</i>
30	Ritha	<i>Sapindus Mukorossi</i>
31	Kusum	<i>Schleichera oleosa</i>
32	Ghato	<i>Schrebera swenioides</i>
33	Bhelwa	<i>Semecarpus anacardium</i>
34	Rohena	<i>Soymida febrifuga</i>
35	Amra	<i>Spondias Mangifera</i>
36	Keonjhi	<i>Sterculia urens</i>
37	Pader	<i>Stereospermum suaveolens</i>

These trees if planted in a planned manner in the Landfill sites will lead to clean up farm waste, heavy metals and sewage among other waste products. Planting trees, especially native trees in these areas not only restabilizes the environment it further increases the carbon sink of that area and increases the oxygen content in air, also helps in stabilizing land, mitigate pollution and also prevent evaporation of moisture from dirt and most importantly restabilizing the local minerals of the soil in that particular area. Thus, we can say that it also helps us to fight climate change along with improving soil and watersheds and simultaneously cleaning the air and water.

CONCLUSION

From the above discussion, we can arrive at the conclusion that Trees are plant group that can have the greatest influence on overall design of the vegetation, rehabilitation, preserving and increasing biodiversity of khalari and surrounding areas. Considerations for selecting trees include root depths, size, irrigation requirements, competition with other vegetation, and debris. Tree planting on completed landfill containment sites is a viable alternative to agricultural grassland, which is currently the most common after-use.

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