Original Research Article

Birsa Harit Gram Yojana: Fostering Rural Employment Through Afforestation and Sustainable Development

ABSTRACT

In recent years, there has been a growing awareness of environmental concerns and the necessity for sustainable development. The Birsa Harit Gram Yojana (BHGY), a flagship initiative launched by the Government of Jharkhand, seeks to promote rural development through environmental conservation. Drawing inspiration from the vision of tribal freedom fighter Birsa Munda, the scheme aims to revitalize rural landscapes, enhance livelihood opportunities, and promote sustainable growth. This article provides a detailed analysis of BHGY in Jharkhand, exploring its objectives, implementation strategies, impact on environmental sustainability and its role in generating employment. Based on government reports and academic research, the article emphasizes the importance of BHGY as a transformative initiative in rural development within Jharkhand. The Birsa Harit Gram Yojana serves as a powerful tool for poverty alleviation, enabling farmers to diversify their crops without shouldering the full investment burden. This approach helps stabilize farm incomes and mitigate the decline in land productivity. The findings indicate that current strategies are successfully boosting agricultural productivity, supporting rural communities, and advancing environmental sustainability. Furthermore, coordinated efforts in agriculture, rural development, and conservation have led to positive outcomes in terms of beneficiary reach, land utilization and environmental preservation. Insights from these findings can inform future planning and resource allocation to further enhance sustainability and program outcomes.

Keywords: Birsa Harit Gram Yojana; Employment Generation; Jharkhand; Rural Development; Sustainable Development

1. INTRODUCTION

Jharkhand, carved out of Bihar in the year 2000, has a predominantly rural landscape characterized by dense forests, fertile plains and tribal dominated regions. The state boasts as rich legacy of tribal heritage with indigenous communities as the Santhal, Munda and Oraon forming the cultural bedrock of Jharkhand. However, despite its natural wealth and cultural heritage, it grapples with a myriad of challenges that hinder its progress. The rampant deforestation driven by mining and industrial activities has led to ecological imbalance and loss of biodiversity in the state. Moreover, the agrarian economy of Jharkhand faces challenges such as low agricultural productivity, lack of irrigation facilities, and vulnerability to climate change induced shocks. Additionally high levels of poverty, unemployment and social inequality persist in rural areas, particularly among tribal communities.

One of the key aspects of sustainable development is ensuring a balance between economic growth and environmental conservation. The Birsa Harit Gram Yojana is a significant step towards achieving this balance. By promoting afforestation and sustainable development in rural areas, the initiative not only contributes to environmental conservation but also fosters rural employment opportunities [4-6].

Afforestation, the practice of planting trees in areas where there were no trees before, plays a crucial role in mitigating climate change, preserving biodiversity, and improving the overall quality of the environment. The Birsa Harit Gram Yojana aims to leverage afforestation as a means to create sustainable livelihoods for rural communities. Through the implementation of this initiative, not only will the environmental benefits be realized, but rural communities will also have the opportunity to

engage in activities such as tree planting, nurturing, and maintenance, which will provide them with a source of income and contribute to the overall development of their communities. The Birsa Harit Gram Yojana recognizes the importance of involving local communities in the afforestation process. The approach of involving local communities ensures that the benefits of afforestation are not only environmental but also socio-economic [7,8].

The Birsa Harit Gram Yojana launched by the Government of Jharkhand in 2020 aims to confront the array of challenges hindering sustainable development in the state. It aims to empower rural communities by addressing issues like deforestation, declining agricultural productivity, poverty and limited rural employment opportunities [9,10]. The BHGY embodies the spirit of sustainable development and community empowerment. It seeks to rejuvenate rural landscapes, enhance livelihood opportunities and promote environmental sustainability across the state. It focuses on harnessing the innate potential of rural communities and preserving the ecological wealth of Jharkhand.

BHGY was conceptualized with a set of overarching objectives aimed at transforming rural landscapes and improving the well-being of rural communities in Jharkhand. The key objectives of BHGY are as follows:

i. *Afforestation and Reforestation*: The scheme aims to enhance green cover and biodiversity through extensive afforestation and reforestation efforts. This objective is particularly crucial for dealing with increasing environmental degradation and climate change. By planting trees and restoring degraded forests, the scheme aims to alleviate the adverse effects of deforestation, soil erosion and loss of biodiversity. The scheme involves the plantation of native tree species including fruit-bearing trees, medicinal plants and species with high ecological value. These plantations benefit the environment and offers economic opportunities for rural communities through sustainable forest management practices such as agroforestry and non-timber forest produce collection.
ii. *Watershed Management*: The scheme implements measures for watershed management, aimed at conserving water resources which prevents soil erosion and improves agricultural productivity in rural areas. Watershed Management involves the implementation of various techniques such as contour trenching, check dams and soil conservation measures to enhance water retention and soil fertility. The scheme focuses on identifying and prioritizing critical watersheds, implementing soil and water conservation measures, promoting rainwater harvesting and enhancing community participation in water resource management.
iii. *Sustainable Agriculture*: The scheme emphasizes to promote sustainable agriculture practices for enhancing food security, improving livelihoods and conserving natural resources in rural areas. The scheme encourages the farmers to adopt climate-resilient crop varieties, practice water efficient irrigation techniques and use organic manures and biofertilizers to reduce their dependence on synthetic inputs and promote soil health. The farmers are also provided with capacity building programs and extension services to impart knowledge and skills in sustainable agriculture practices.
iv. *Livelihood Generation*: The scheme recognizes the importance of economic empowerment in alleviating poverty and promoting inclusive growth in rural communities. It aims to generate employment through various activities such as afforestation, watershed management, sustainable agriculture, agro-processing and eco-tourism. The scheme focuses on skill development, entrepreneurship promotion and value addition in agriculture and allied sectors to create diverse and sustainable livelihood options for rural communities.
v. *Empowerment of Local Communities*: The scheme aims to empower local communities by promoting their active participation in project planning, implementation and monitoring processes. The development of community-based organization, self-help groups and village-level institutions guarantee the fair distribution of gains from the scheme and facilitate effective governance. Additionally, the focus is given to the empowerment of women and marginalized groups through targeted interventions such as gender-sensitive capacity-building programs and affirmative action measures.

A wide range of strategies are used for guiding the BHGY implementation in Jharkhand with the objective of accomplishing its goals in an efficient and long-lasting approach. These strategies include technology adoption, capacity building, stakeholder involvement and program design. The strategies for the implementation of BHGY are:

i. Institutional Framework: One of the key elements of the scheme is the establishment of a strong institutional framework at different government levels. This framework includes dedicated institution at the state, district and block levels to oversee program implementation, coordination and monitoring. These institutional structures serve as platforms for inter-departmental collaboration, stakeholder engagement and participatory decision-making to foster teamwork and coherence. They facilitate the mobilization of resources, the dissemination of information and the monitoring and evaluation of program outcomes ensuring transparency, accountability and efficiency in the delivery of program.

ii. Community Participation: Active involvement of local communities, particularly tribal groups are essential to ensure the relevance, ownership and sustainability of BHGY interventions and also to harness the knowledge, skills and resources of rural communities in achieving program objectives. The scheme adopts a participatory approach to project planning, implementation and monitoring wherein local communities are actively engaged in identifying their needs, setting priorities and designing appropriate interventions. The capacity building programs and awareness campaigns are conducted to empower the local communities with the knowledge and skills needed to actively participate in the program.

iii. Capacity building: Capacity building targets a wide range of beneficiaries including government officials, frontline workers, community leaders and rural entrepreneurs to ensure that they are equipped with the necessary tools and competencies to effectively implement the program. The capacity building programs covers thematic areas such as environmental conservation, sustainable agriculture, watershed management, livelihood promotion and community development.

iv. Technology Adoption: The adoption of modern technologies is utilized across various stages of program delivery, including planning, monitoring, evaluation and knowledge dissemination to facilitate informed decision-making and optimize resource utilization. Remote sensing, geographic information systems (GIS) and satellite imagery are used for mapping and spatial analysis of natural resources, land use patterns and environmental changes in project area which helps in identifying priority areas for intervention, monitoring the progress of the schemes' activities and assessing the impact of program interventions on the ground. The mobile applications and digital platforms are leveraged for data collection, real-time monitoring and reporting of program outcomes which enables the field workers and community volunteers to capture information on project activities, beneficiary profiles and resource utilization for facilitating timely feedback, corrective action and performance tracking.

v. Convergence with Other Programs: The scheme is designed to complement and converge with other government schemes and initiatives related to rural development, agriculture, water management and tribal welfare to maximize impact and optimize resource utilization. It collaborates with various departments and agencies to leverage their expertise, resources and networks for the successful implementation of program activities.

1.1 Literature Review

The study examines the Birsa Harit Gram Yojana initiative under the Mahatma Gandhi National Rural Employment Guarantee Scheme in Jharkhand, focusing on creating sustainable income for tribal households through horticulture. The pilot projects have demonstrated positive results, improving the economic and social status of participating families. However, the study also identifies several challenges such as government indifference, lack of awareness about the scheme, delayed payments and scalability issues. It emphasizes the importance of sustainable income generation and the potential role of horticulture in enhancing Jharkhand's economy. Furthermore, the study includes references related to empowerment, smallholder farming, agricultural statistics and rural employment guarantee schemes in various states of the country. These references cover topics like women empowerment, socio-economic development, the effectiveness of government programs in improving rural livelihoods (Shankar, P et al., 2021).

The Birsa Harit Gram Yojana mango plantation initiative offers a sustainable way to stabilize agricultural livelihoods by enabling farmers to invest in their land. Mango plantations are highly labor intensive making them suitable for employment generation under MGNREGA. The successful implementation of the scheme depends on the strict adherence to the standard operating procedures including quality control during raw material procurement and customized irrigation and spraying schedules based on soil types to reduce plant mortality (Nair, N., 2023).

1.2 Objectives of the Study

The present study has been undertaken with the following objectives:

- To evaluate the progress of BHGY in Jharkhand state.
- To calculate the number of fruit trees planted under the scheme.
- To compute the area of land cultivated under the scheme.

2. RESEARCH METHODOLOGY

The exploratory study is based on the secondary data published in the Economic Survey Report of Jharkhand for the year 2022-23. The data has been calculated by Ranking Method.

3. RESULTS AND DISCUSSION

Table 1. District-wise Progress under Birsa Harit Gram Yojana (BHGY)

District	Total Beneficiary		Total Area in acres		Total number of fruit trees planted		Total Beneficiary (Cumulative)	Total Area in acres (Cumulative)	Total number of fruit trees planted (Cumulative)
	FY 2021-22	FY 2022-23	FY 2021-22	FY 2022-23	FY 2021-22	FY 2022-23			
Bokaro	902	993	825	922	92344	103264	1895	1747	195608
Chatra	794	765	765	750	85680	83944	1559	1515	169624
Deoghar	1217	1352	1217	1209	136304	135408	2569	2426	271712
Dhanbad	668	601	492	358	55104	40096	1269	850	95200
Dumka	948	1038	949	1000	106232	112000	1986	1949	218232
East Singhbhum	822	753	671	572	75917	64075	1575	1244	139272
Garhwa	696	969	696	852	77952	95424	1665	1548	173376
Giridih	1455	1393	1348	1277	150920	142997	2848	2624	293917
Godda	663	589	660	530	73948	59304	1252	1190	133252
Gumla	3285	2626	2459	2272	275408	254464	5911	4731	529872
Hazaribagh	738	800	660	637	73864	71288	1538	1296	145152
Jamtara	800	619	768	502	86016	56168	1419	1270	142184
Khunti	198	217	140	180	1569	20262	4150	3211	359578

	0	0	1	9	57	1			
Koderma	349	778	307	746	34384	83552	1127	1053	117936
Latehar	561	713	509	614	57008	68712	1274	1123	125720
Lohardaga	540	740	481	682	53872	76328	1280	1163	130200
Pakur	564	658	478	524	53840	58688	1222	1002	112168
Palamu	723	901	723	899	80976	100688	1624	1622	181664
Ramgarh	790	879	616	650	68992	72800	1669	1266	141792
Ranchi	1849	1652	1609	1391	180172	155792	3501	3000	335964
Sahebganj	400	388	387	296	43344	33096	788	683	76440
Saraikela-Kharsawan	560	545	558	460	62534	51554	1105	1019	114088
Simdega	1081	1488	1065	1335	119224	149520	2569	2400	268744
West Singhbhum	1169	1321	1006	1067	112644	119504	2490	2073	232148
Total	**23544**	**24731**	**20647.82**	**21350.78**	**2312556**	**2391287**	**48285**	**41998.60**	**4703843**

Source: Department of Rural Development, Government of Jharkhand

Table 1 depicts the following findings:

- There was a total of 23,544 beneficiaries across all districts in FY 2021-22 which increased to 24,731 beneficiaries in FY 2022-23. This indicates a growth in the number of individuals benefiting from the Birsa Harit Gram Yojana initiative.
- The total area utilized was 20,647.82 acres in FY 2021-22 which increased slightly to 21,350.78 acres in FY 2022-23. This shows an ongoing effort in the utilization of land for the purpose of agricultural expansion and afforestation.
- A total of 23,12,556 fruit trees were planted across all districts in FY 2021-22 which rose to 23,91,287. This increase shows a consistent effort in tree plantation initiatives which contributes to environmental sustainability and enhance local agriculture.

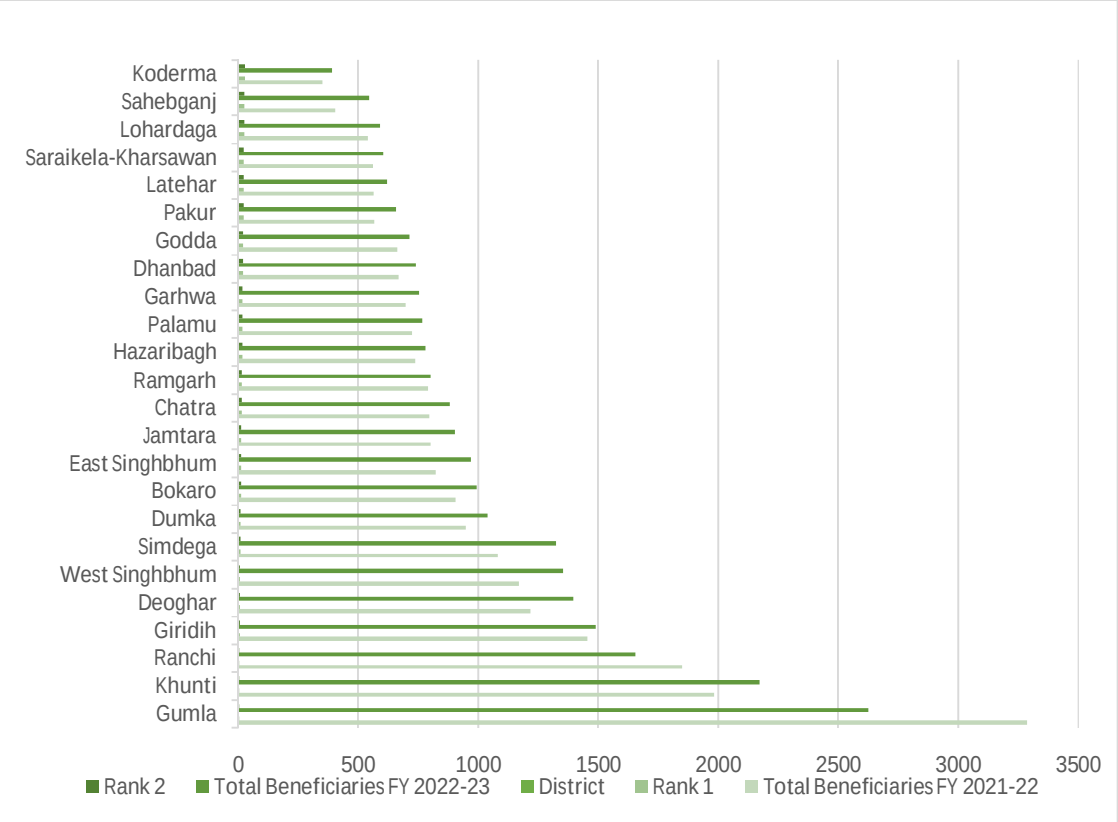
3.1. Computation of Ranks

Table 2. Year-wise Ranking of Total Beneficiaries

District	Total Beneficiaries FY 2021-22	Rank	District	Total Beneficiaries FY 2022-23	Rank
Gumla	3285	1	Gumla	2626	1
Khunti	1980	2	Khunti	2170	2
Ranchi	1849	3	Ranchi	1652	3
Giridih	1455	4	Simdega	1488	4
Deoghar	1217	5	Giridih	1393	5
West Singhbhum	1169	6	Deoghar	1352	6
Simdega	1081	7	West Singhbhum	1321	7
Dumka	948	8	Dumka	1038	8
Bokaro	902	9	Bokaro	993	9
East Singhbhum	822	10	Garhwa	969	10
Jamtara	800	11	Palamu	901	11
Chatra	794	12	Ramgarh	879	12
Ramgarh	790	13	Hazaribagh	800	13
Hazaribagh	738	14	Koderma	778	14
Palamu	723	15	Chatra	765	15
Garhwa	696	16	East Singhbhum	753	16
Dhanbad	668	17	Lohardaga	740	17
Godda	663	18	Latehar	713	18
Pakur	564	19	Pakur	658	19
Latehar	561	20	Jamtara	619	20
Saraikela-Kharsawan	560	21	Dhanbad	601	21
Lohardaga	540	22	Godda	589	22
Sahebganj	400	23	Saraikela-Kharsawan	545	23
Koderma	349	24	Sahebganj	388	24

Source: Author's Computed

Figure 1. Comparison of Total Beneficiaries by District



Source: Author's Computed

Figure 1 depicts the following findings over the two fiscal years:

- Gumla, Khunti and Ranchi remained the top three districts in both years, though only Khunti saw an increase in beneficiaries.
- Simdega and Garhwa showed notable improvements in rank and the number of beneficiaries.
- Giridih, Deoghar and West Singhbhum showed slight fluctuations in the number of beneficiaries but remain relatively stable in their rankings.

Table 3. Year-wise Ranking of Total Area (in acres)

District	Total Area FY 2021-22	Rank	District	Total Area FY 2022-23	Rank
Gumla	2459	1	Gumla	2272	1
Ranchi	1609	2	Khunti	1809	2
Khunti	1401	3	Ranchi	1391	3
Giridih	1348	4	Simdega	1335	4
Deoghar	1217	5	Giridih	1277	5
Simdega	1065	6	Deoghar	1209	6
West Singhbhum	1006	7	West Singhbhum	1067	7
Dumka	949	8	Dumka	1000	8

Bokaro	825	9	Bokaro	18	922	9
Jamtara	768	10			899	10
Chatra	765	11	Garhwa		852	11
Palamu	723	12	Chatra		750	12
Garhwa	696	13	Koderma		746	13
East Singhbhum	671	14	Lohardaga		682	14
Godda	660	15	Ramgarh		650	15
Hazaribagh	660	15	Hazaribagh		637	16
Ramgarh	616	17	Latehar		614	17
Saraikela-Kharsawan	558	18	East Singhbhum		572	18
Latehar	509	19	Godda		530	19
Dhanbad	492	20	Pakur		524	20
Lohardaga	481	21	Jamtara		502	21
Pakur	478	22	Saraikela-Kharsawan		460	22
Sahebganj	387	23	Dhanbad		358	23
Koderma	307	24	Sahebganj		296	24

Source: Author's Computed

Table 3 depicts the following key findings:

- Gumla retained its top position in both fiscal years, although the total area decreased slightly from 2459 acres to 2272 acres.
- Ranchi was ranked 2nd in FY 2021-200 but dropped to 3rd in FY 2022-23 with a reduction in total area from 1609 acres to 1391 acres.
- Khunti showed an improvement moving from 3rd place to 2nd with an increase in total area from 1401 acres to 1809 acres.
- Khunti and Simdega showed improvements in both rank and total area.
- Districts such as Ranchi, Dhanbad, Saraikela-Kharsawan and Chatra experienced reductions in total area leading to drops in their rankings.
- Sahebganj remained at the bottom in both years with a decrease in area from 387 acres to 296 acres.

Table 4. Year-wise Ranking of Total Numbers of Trees Planted

District	FY 2021-22	Rank	District	FY 2022-23	Rank
Gumla	275408	1	Gumla	254464	1
Ranchi	180172	2	Khunti	202621	2
Khunti	156957	3	Ranchi	155792	3
Giridih	150920	4	Simdega	149520	4
Deoghar	136304	5	Giridih	142997	5
Simdega	119224	6	Deoghar	135408	6
West Singhbhum	112644	7	West Singhbhum	119504	7
Dumka	106232	8	Dumka	112000	8
Bokaro	92344	9	Bokaro	103264	9
Jamtara	86016	10	Palamu	100688	10
Chatra	85680	11	Garhwa	95424	11
Palamu	80976	12	Chatra	83944	12
Garhwa	77952	13	Koderma	83552	13
East Singhbhum	75917	14	Lohardaga	76328	14
Godda	73948	15	Ramgarh	72800	15
Hazaribagh	73864	16	Hazaribagh	71288	16
Ramgarh	68992	17	Latehar	68712	17
Saraikela-Kharsawan	62534	18	East Singhbhum	64075	18
Latehar	57008	19	Godda	59304	19
Dhanbad	55104	20	Pakur	58688	20
Lohardaga	53872	21	Jamtara	56168	21
Pakur	53840	22	Saraikela-Kharsawan	51554	22
Sahebganj	43344	23	Dhanbad	40096	23
Koderma	34384	24	Sahebganj	33096	24

Source: Author's Computed

Table 4 depicts the following:

- Gumla retained its top position in both years although the total number of fruits trees planted decreased slightly from 2,75,408 to 2,54,464.
- Ranchi was ranked 2nd in FY 2021-22 but dropped to 3rd in FY 2022-23 with a reduction in the number of fruit trees planted from 1,80,12 to 1,55,792.
- Khunti showed a significant improvement moving from 3rd to 2nd rank with an increase in the number of fruit trees planted from 1,56,957 to 2,02,621.
- Simdega, Palamu, Garhwa, Koderma, Pakur and Lohardaga improved its ranking with an increase in the number of fruit trees planted.

- Jamtara, Saraikela-Kharsawan and Dhanbad saw a decrease in the number of fruit trees planted.
- Sahebganj remained at the bottom in both years with a decrease in the number of fruit trees planted from 43,344 to 33,096.

Table 5. Year-wise Comparison of BHGY

	FY 2021-22	**FY 2022-23**	**Total (Cumulative)**	**Increase in Numbers**	**Percentage increase**
Total Beneficiary	23544	24731	48285	1187	5.04%
Total Area in Acres	20647.82	21350.78	41998.60	702.96	3.40%
Total Number of fruit trees planted	2312556	2391287	4703843	78731	3.40%

Source: Author's Computed

Table 5 depicts the following:

- There is 5.04% increase in the number of beneficiaries adding 1,187 new beneficiaries in FY 2022-23.
- The area under cultivation increased by 702.96 acres which is 3.40% rise from the previous year.
- The number of fruit trees planted grew by 78,731 in numbers which is 3.40% increase.

4. CONCLUSION

The Birsa Harit Gram Yojana initiative is making measurable progress in increasing the number of beneficiaries, expanding the area under cultivation and planting more fruit trees. The growth in these areas reflects the scheme's effectiveness in reaching more beneficiaries, utilizing more land for sustainable agriculture practices and enhancing long-term productivity through horticulture. Despite challenges, these incremental increases indicate the scheme's potential to contribute significantly to the economic and social upliftment of the participating communities in Jharkhand.

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