Abstract

Environmental Sustainability and Livelihood Pattern of the Major Tribal People in Jhargram District, West Bengal: A Geographical Study

One of West Bengal's largest districts with a high concentration of tribal people is Jhargram District, India. Measuring the perceived level of the tribal people regarding the natural environment is essential because only this helps us achieve sustainability. Their lives, livelihoods, and living standards solely depend on the environment and natural resources. The perception of tribal people regarding the natural environment and environmental sustainability is one of the key factors in protecting against environmental degradation and maintaining the sustainable livelihood and living standards of tribal people of Jhargram district in particular. This research work is an in-depth study of the environmental sustainability of the Jhargram district and the major tribal communities' patterns of subsistence across the district of Jhargram. In this investigation, the researcher attempted to examine the environmental sustainability and livelihood pattern of the tribal people in Jhargram district with special references to 1) show the spatio-temporal distribution of the major tribes in Jhargram district 2) study the livelihood patterns of the major tribal people in Jhargram district 3) highlight the indigenous knowledge of major tribes for maintaining environmental sustainability in Jhargram district 4) explore the role of environmental sustainability on the livelihood patterns of the major tribal people in Jhargram district and 5) find out the challenges and opportunities of environmental sustainability and livelihood patterns major tribal people in Jhargram district.

Jhargram district was created by bifurcating West Medinipur district, and it came into existence on 4th April 2017. The Jhargram district's major tribal communities are the Munda, Santhal, Bhumij, Lodha, Kora, and Mahali tribes. The majority of the tribal people in this area primarily depend on rain-fed agriculture, which is marked by low productivity, erratic weather patterns, low fertility soil, ineffective irrigation, depleted resources, and antiquated methods. The natural environment of the Jhargram district is deeply affected by modern intervention, which is consequently affecting tribal livelihood.

With an ex-post-facto research design, the current study used a descriptive cross-sectional survey approach. Topographical Maps, Satellite Images, District Planning Series Maps, and so on have been used to describe the physical features of the study area. Programmes like ArcGIS (Version: 10.3.1) and QGIS have been utilised to create the necessary maps. The

temporal change in land cover and usage has been assessed using data from remote sensing. Several indices, including the NDVI, NDBI, and multi-criteria decision-making (MCDM) techniques, have been used in this study.

To describe the socioeconomic characteristics of the people living in the study area, secondary data has been collected from a variety of sources, including the District Agricultural Annual Plan, District Industrial Profile, District Census Handbook, District Gazetteer, District Statistical Handbook, and data from B.L. & L. R.O. and D.L. & L. R.O. offices. The environmental status of the research region has been described through the collection and analysis of environmental data from the relevant department.

Stratified random and purposive sampling techniques have been adopted to collect primary data. Primary data was collected using two types of tools: 1) an interview schedule for important respondents and 2) a semi-structured interview schedule for conducting focus groups with important respondents and in-depth interviews with important respondents such as community leaders and officials at the district and block levels.

There are eight chapters throughout the entire work. The problem statement, review of the literature, the gap in the literature, study scope, goal, research questions, database and technique, sample size and design selection, and more are all covered in Chapter I and Chapter II provides an overview of the study area; Chapter III discusses the major tribal population's spatial and temporal distribution; Chapter IV discusses their patterns of livelihood; and Chapter V discusses their use of indigenous knowledge and environmental sustainability; Chapter VI: The Impact of Environmental Sustainability on the Primary Tribal People's Livelihood Patterns; Chapter VII presents the challenges and opportunities of environmental sustainability and livelihood patterns of the major tribal people, and Chapter VIII presents findings, suggestions and conclusions.

Different tribal communities are not equally distributed in different blocks in the Jhagram district. The study reveals that most Jhargram district blocks have a healthy sex ratio. The standard of living and quality of life are slightly better than the previous condition. Effect of Modernization and Climatic condition tribal occupation patterns changed. Food habits and religious and cultural practices also changed due to modernization. The percentage of natural and regrowth vegetation cover remaining at 37.44 % (Forest Survey of India, 2022) in Jhargram district is a negative indicator of the health of an ecosystem. This means that the ecosystem cannot provide the many benefits natural vegetation provides, such as clean air and water, fertile soil, and habitat for wildlife. Gain of vegetation Cover -NET % Change in natural vegetation cover over the last five years in Jhargram district is 8.5198 %.

The Jhargram district's habitat fragmentation value of 0.6755 denotes significant habitat fragmentation. This means that the natural habitats in the district are being broken up into smaller and more isolated patches due to the construction of roads and other infrastructure. It can also make it easier for invasive species to spread. Red-category industries, such as Jitusole sponge iron, Jhargram paper, and Rashmi cement, generate a variety of pollutants that can harm the environment and human health. The scarcity of clean drinking water is a significant concern for many tribal communities in Jhargram District, as pollution further reduces the availability of safe drinking water sources. Jhargram district has a growing tribal population, and the economy is putting stress and strain on groundwater resources. Most tribal people still depend on forest wood for cooking purposes. Jhargram district is very rich in species diversity. In most of the region, soil is acidic in ($pH<5$) nature, which affects agricultural productivity. The irrigation system has not been properly developed in Jhargram district, which has limited agricultural activity.

There are many ways to balance tribal livelihood and the environment in the Jhargram district. Emphasize ecotourism, social forestry, organic farming, rainwater harvesting, transitioning to non-conventional energy sources, technological innovation in agriculture, block-level irrigation system, Village level market, small-scale eco-friendly industry based on local raw materials, empowering tribal women, and sustainable product development opportunities. The present government takes special initiatives on rainwater harvesting bio reach agriculture in the tribal-prone district of Jhargram, but this is not enough for tribal livelihood as well as environment and environmental sustainability.