

# Geoenvironmental Problems, Resources and Development Prospects of Nandakini River Valley

Paper Submission: 03/03/2021, Date of Acceptance: 20/03/2021, Date of Publication: 25/03/2021

## Abstract

Nandakini river valley in the main Himalayan range along the border of Garhwal and Kumaon extends from N 30° 15' to N 30° 22' latitudes and E 79° 19' to E 79° 45' longitudes. The valley altitudes range from 914 m on the confluence in Nandprayag to 4800 m at Chandini Ghat. Total area is 544 sq. km.

The Nandakini River Valley is an important valley of the central Himalayas in the Garhwal region of Uttarakhand, in which the river named Nandakini flows along its tributaries. The river Nandakini originates from the Sili Samudra Glacier and Nanda Ghunti Glacier. This river valley is famous for clean water, fertile soil, minerals, forests and beautiful places. The rural areas in this valley are facing financial crisis despite having rich resources. And depending on the situation and fate, what kind of development should be done for the people here in this area, which can cause minimum environmental damage and use sustainable geological resources. In this research paper, keeping in mind the above points, author has highlighted the possible facts for the development of the rural residents here.

**Keywords:** Forest Fire, Land Slide, Sewage, Social Problems, Environments, Cloud Burst

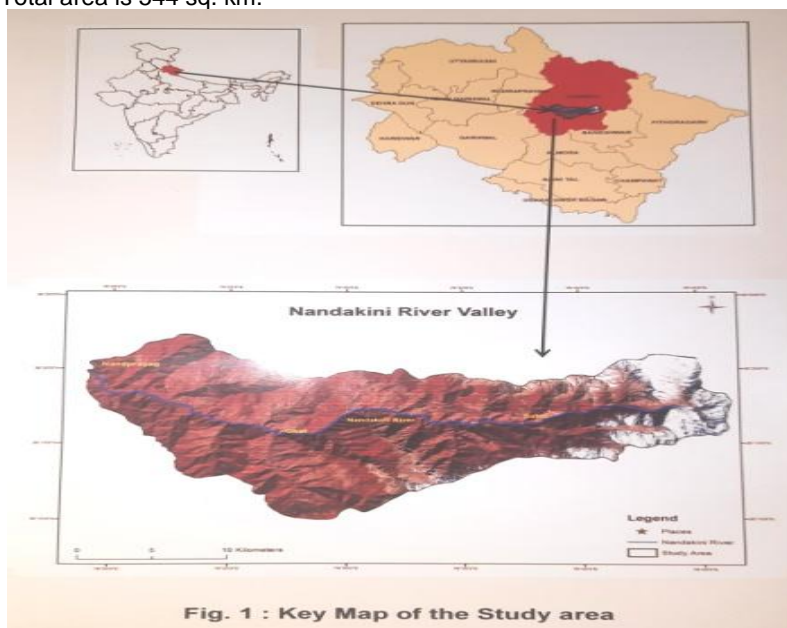
## Introduction

Nandakini river valley in the main Himalayan range along the border of Garhwal and Kumaon extends from N 30° 15' to N 30° 22' latitudes and E 79° 19' to E 79° 45' longitudes. The valley altitudes ranges from 914 m on the confluence in Nandprayag to 4800 m at Chandini Ghat. Total area is 544 sq. km.



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The Nandakini River is the major tributary of the Alaknanda which joins the Alaknanda River at Nandprayag. The Nandakini River originates from the Sili Samudra Glacier and Nanda Ghunti Glacier. This river flows in the Garhwal Himalayas of Uttarakhand. The tectonic plate of the entire

Himalayan region moving. The Indian plate is going under the China plate, due to which the height of the Himalayas is continuously increasing at the rate of 5 cm per annum, this whole area falls in the seismic region, due to which small big earthquakes are coming in this entire Himalayan region every year. Major environmental problems of the river valley include landslides, cloudbursts, forest fires, which have also seen a huge and destructive effect on human life there.

The population inhabiting this area is poor and is dependent on the natural resources for livelihood, due to which unplanned use of natural resources is increasing the environmental problems in the region. On the other hand many young people are unemployed. In search of employment youth has moved to other parts of the country, due to which the elderly and women, girls, child and old age people seen more in this area, who do not have proper resource management earning a livelihood and thus the resources from nearby are constantly decreasing. Many social and economic problems have arisen in this region due to migration of youth to other places.

#### **Aim of the Study**

The purpose of writing this research paper is that the Nandakini river valley is connected with

abundant resources for future development, even after the odd problems, the whole valley is related to many possible development, if the government tries, then the development of the entire valley can be done on a large scale due to which various problems located here have been resolved and along with this, the migration of youth can be stopped. This research paper has tried to focus on resources, problems and possibilities of development here.

#### **Environmental and Social Problems**

The environmental and social problems of the region are as follows:

##### **Environmental Issues**

##### **Landslides**

Mountains located in the Nandakini River valley are affected by landslides due to high slopes, the main cause of landslides is the continuous uplift of the Himalayas and small amounts of vegetation, local residents have cultivated local lands for livelihood, Habitats have cut the mountains for road in an unplanned manner. Fodder for livestock and excessive exploitation of the surrounding vegetation for everyday necessities has resulted in the loss of mountain vegetation which erodes due to light rain or tectonic movements, small hydropower projects and check dam also causally landslides in this valley.



##### **Cloud Burst**

Nandakini river valley is not a very wide valley. Clouds get collected in this valley in monsoon season and sometimes very heavy rainfall starts which is called cloud burst. As a result the river drains are filled with water. Due to being rainy, it takes a huge amount of damage to the surrounding land as well as public life and money.

##### **Forest Fire**

The mountain grass dries up during the summer days before the monsoon arrives, in the hope that the local residents themselves set fire to the dry grass of the mountain in the hope of adding excellent green grass to the cattle in the days ahead. The hills

of the Nandakini river valley are of steep gradient on which this fire rises rapidly upwards and even the huge trees with a terrible form of prey are turned into wild fires which are sometimes extinguished by the local residents. On the other hand, environmental pollution increases, hill slopes are devoid of vegetation, soil erosion starts rapidly and in monsoon rains this land without vegetation takes the form of big landslides, due to which the roads are blocked. Along with this, problems such as the destruction of agricultural land, land leakage arise.

##### **Road Construction Problems**

Since the formation of the state of Uttarakhand, the governments here have been

engaged in road construction work for the development of mountains and connecting small villages to the main road. Continuous road construction work is also going on for the villages around the Nandakini river valley. The mountains are being cut, but the check dam is not being built or delayed on the road side, due to which due to light

rain or mild earthquake, debris from the mountains starts to move while making the road which Debris comes out and is dropped on the hillsides, which reaches the bottom destroying everything, by not cutting the road immediately, leaving it for years, a variety of environmental problems are arising.



**Soil Depletion and Runoff**

The region which is under well defined drainage has maximum runoff during rainy season causing severe erosion. Evaluation of any conservational practice necessitates measurement of soil loss and runoff.

It is observed that the maximum water loss occurs bare fallow plot, where as maximum soil erosion is associated with bare ploughed plot. The soil erosion remain low under grass cover. This proves the effectiveness of grasses as soil and water conservation media. Soil depletion and over fallowing and over ploughing under different crop combination with various systems

**Anthropogenic Activities**

Humanitarian activities are also damaging the environment of the Nandakini Valley in some way, such as cutting down shields to build farms for agriculture, breaking stones to create a boundary for agricultural land. Cutting of natural vegetation for domestic use, cutting grass for fodder, forest fires for new grass, etc. Many works are harming the local environment.

**Pollution of Rivers through Village Sewage**

The sewage water that comes out of the base villages around the Nandakini river valley is directly polluting the Nandakini river and the sewage water must be cleaned and flow into the river but there is no such facility.

**Social Problems**

Villagers residing around the Nandakini valley, who are native to it, have settled in some big villages and some on the surrounding hills and are surrounded by various types of social problems. The conquering of the region also has environmental problems. Somehow connected to social problems. Following are the different types of social problems:

**Unemployment**

There has been no development of the means of employment of villagers in the entire Nandakini Valley area or it can be said that the entire Chamoli region. Residents here are dependent on small wages and natural assets and primary works like animal husbandry, agriculture, fisheries, herb collection which goes well for some time, then they become unemployed, they have nothing in the name of permanent employment.

**Economic Condition**

Due to being unemployed, the economic condition of the people here is poor, they manage their daily expenses with small tasks, they also have no permanent facilities from the government like industrial development, horticulture and cottage industries depending on the weather of the region No efforts have been made through the government for mushroom production, training related to herb production, etc.

**Migration**

Due to the low development in the area, most of the young men of the region are migrating or have been migrating to the regions in search of work. In this area, most of the villages, elderly, women and small children are left. They do not have the youth power to do big things by living, but the youth are also

preferring to go out to work at the place of venturing locally, who were competent and rich in this region, wishing for the best facilities have left the mountains and migrated to the plains. They are living in this region, have poor economic condition.

**Family Status**

There is no equality among the family members among the people settled here, only the women of the family do the work of home care, source of income, agriculture, wood picking, etc. Men mostly do less work. In some families, women and men are all equally work under MNREGA, women earn some income every day, but most men spend their income in alcohol. Due to which the financial condition of the family is never improved.

**Low level of Education**

People are educating in this area, but partial technical knowledge or any training in the school and college that can be used to earn money is not initiating properly, due to which the women class stay at home and make a living from daily small tasks and men. Youth have gone out in search of jobs in the military or in big cities, causing the social balance to deteriorate. The development that could have taken place in the region with the support of the youth is stuck due to their not being here. The elderly and women are mostly unable to take any major decision.

**Contribution of Environmental Improvement and Geology**

The following development programs based on natural resources and the local climate of this region can improve the economic and social condition of the region and this region can also grow on the path of development and become high-quality environmental development and self-reliant.

**Construction of check dam**

Check dams should be constructed on the hill slopes, so that the flow of the soil as well as the rocks can be prevented.

**Reduce dependence on wood**

With increasing supply of gas cylinders in the area, people should be introduced to the new technology of cooking, solar energy should be developed on the empty mountains and electricity should be made available continuously to the villagers at work cost so that their dependence on wood can be reduced.

**Natural Beauty Development**

The natural beauty of this area is so high, centers related to tourism, spirituality, meditation should be opened and tourists should be attracted to this area through publicity. This work will improve the economic condition of the region and reduce the dependence of people on natural resources, which will lead to immense development in the natural beauty of the region.

**Herb Development**

In this area there is a repository of herbs, a medicine called kida jadi is found in abundance in the glacier in this region, which is very expensive, that herb is being harvested here in a random manner, in addition to that herb, different types of herbs are also available. If the villagers here are engaged in the exploitation and production of herbs by forming a

committee by the government, then along with increasing the source of income of every person, the development of the area will also be good.

#### **Mushroom Production**

The local weather of Nandakini River Valley is very suitable for mushroom production, here mushroom production can be done on a large scale which can become a source of livelihood for the people and to improve their economic condition and prevent local problems like migration.

#### **Tourism Development**

This area is naturally rich, in addition to the natural resources, the geography and wild animals of this place can become the medium of attraction of animals. Sports competitions such as rock climbing can be organized on the steep and steep slopes of this place, the culture of the people can be made the attraction of Nandadevi Raj Jat Yatra as a center of attraction for the tourists, so that the area can be developed easily.

From this complete study, I have reached the conclusion that the most important for the development of this area is the geomorphology here which is very important to know before starting any development work. It is very important to know the geological history of this region. To do any development work in that area purposes there is immense possibilities of development exist in this area and, there is a need to make people aware as well as awaken with patience.

#### **Conclusion**

If we conclude this research paper, then it comes to mind that the whole area is inaccessible. People are affected everyday by various environmental and human problems. This area full of resources, herbs is affected by poverty and uncertainty. Any special attention of the government. Not on this side, people work daily for the livelihood at the local level and use the resources of living daily, along with various natural problems also affect the people here, people are mostly displaced for the facilities in the outer areas. It is the people who are

resource-rich, the poor people are forced to live in this area, if the government runs a proper development program here, there can be development here. There is a strong possibility of development. The environment, rivers, medicinal plants, etc. are located in this area. And by training people, poverty can be removed at the local level by developing various schemes like geological, small dams, canals, watermills, and this can generate employment for the people here, so in the research paper which Possibilities have been suggested if a high degree of development is possible in this area.

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