

Infrastructure Development in Rural Areas: A Case Study of Bhaderwah Tehsil

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ABSTRACT

The present study is a generous attempt to find out the infrastructure development in the four selected villages of Bhaderwah Tehsil, i.e., Thanala, Sungli Chinta, and Khellani. For the said paper, the primary source of data has been utilized from the field survey 2022, which is acquired using a well-defined questionnaire. It is found that all four villages, i.e., Thanala, Sungli, Chinta, and Khellani, have transport facilities, wherein Thanala has 100% Kaccha road with poor connectivity to the main road, Sungli has 75% Pacca road with good connectivity to the main road, and the remaining 25% road is still Kaccha or under construction. In village Sungli, 50% of the population owns a vehicle, which is the highest among all the four villages, while the remaining 50% use public transport services as a mode of transportation, i.e., vans or taxis. In village Thanala, 100% of the population uses public transport services as a mode of transportation, and people don't have their own vehicles. In villages Sungli and Chinta, 100% of the population gets drinking water from water pipelines, whereas in Thanala, 58.3% get water from pipelines and 41.7% get water from springs. In village Thanala, 100% of the water pipelines are in poor condition, whereas in village Chinta, 100% of the water pipelines are in average condition. In village Sungli, 75% of people have proper sewage facilities, and almost 75% drain their sewage water into main drains, which is the highest among all the four villages, while the remaining 25% have improper sewage conditions, whereas in village Thanala, 100% of the population has improper sewage facilities, and almost all the sewage water drains into the open fields. In village Thanala Sungli, people don't have proper disposal facilities to dispose of their waste, and 100% of the population disposes of their waste in open fields, whereas in village Chinta, 53.4% of people use dustbins to dispose of their waste, which is the highest among all the four villages. Villages Sungli and Chinta have 100% toilet facilities, whereas in village Thanala, only 25% of people have toilet facilities, which is the lowest among all the four villages. Chinta village has duration of 15–18 hours of electricity, which is the highest among all the four villages, whereas village Thanala has duration of only 5–10 hours of electricity, which is the lowest among all the four villages. Village Khellani has the highest number of primary and middle schools, i.e., 5 and 2, respectively, whereas village Sungli has the lowest number of primary and middle schools, i.e., 1 and 2, respectively, but almost 76% of the people of village Sungli are satisfied with school facilities, which is the highest among all the four villages. All four villages have drinking water facilities in schools, but there is no facility available to purify the water. All four villages also have toilet facilities in their respective schools, but the condition of the toilets is poor in all four villages. All four villages have medical facilities in the form of dispensaries, and village Chinta has the highest number of doctors, whereas village Sungli has no doctor at all. All four villages have telephone line connectivity, but village

Thanala has 100% poor network connectivity and internet facility, while Sungli and Chinta have 100% good network connectivity, with 80% good internet facility in Sungli and 66% good internet facility in Chinta. Sungli is only 5 km away from the market while Khellani is 35% far away from the main market which is highest among all the four villages. On the basis of above analysis some recommendation have been suggested like proper maintenance of rural roads to ensure the proper connectivity of these far flung villages with other parts of the country, restoration of public transport service in these villages, quick implementation of water projects in these far flung villages under Jal Jeevan Mission 2024, proper maintenance of water pipelines, to build proper drainage system for sewage water and the installation of community dustbin in these remote villages, electrification of these villages, installation of telephone and internet network towers and deployment of adequate number of medical staff.

Keywords: Infrastructure development, villages, transport facilities, water pipelines, sewage facility, toilet facility, telephone line connectivity, medical facilities, school facilities, market facilities.

1.1. INTRODUCTION

The building and enhancement of fundamental services with the purpose of stimulating economic growth and increasing quality of life is referred to as infrastructure development. In the current context, it refers to modern road housing, communication, banking, and so on. To avoid confusion with hospitals, schools, and other welfare-type facilities, the term arose during World War II as a military term to imply "underlying structure" in the early days of Marshall Planes, as opposed to social overhead capital. Since then, economists have commonly used the phrase, although it has lacked a formal meaning until today. Various economists have used the term with varying connotations, but without compromising the essential premise that they provide the foundation upon which the economy's structure is formed, there have been efforts to include a number of activities inside the term infrastructure. Any country's development requires infrastructure. It has a vital role in promoting economic growth and thereby contributing to the decrease of poverty, economic inequity, and deprivation in a country better access of the poor to education and health services Water and sanitation, a road network, and electricity are all required for equitable development and social empowerment. Physical, social, and economic infrastructure can be both private and public. The Rakish Mohan committee report (1996) and the Central Statistical Organisation (CSO) define infrastructure as power, gas, water supply, roads, railways, ports, and storage as infrastructure. (RBI) defines infrastructure as power transmission, trains, roads, bridges, and airports, industrialization, and urban infrastructure (water supply, sanitation, and sewage projects). According to the World Development Report (1994) published by the World Bank under the title Infrastructure for Development, the adequacy of infrastructure helps one country's success and another country's failure in diversifying production, expanding exports, coping with population growth, reducing poverty, and improving environmental conditions. It is widely acknowledged that an adequate supply of infrastructure is a necessary component of productivity and growth. Development will be difficult if these facilities and services are not available elsewhere. Aside from the link to growth, infrastructure has a direct relationship with the environment, health, poverty, equity, and overall quality of life. The greater influence of industrialized countries with advanced infrastructure attests to this link. A suitable infrastructure will be required for agricultural modernization and commercialization, as well as the accomplishment of an income surplus. It can serve as a foundation for the development of local manufacturing businesses, as well as an expanded market for their output. Many studies have found a

positive relationship between economic development and housing quality and access to basic amenities such as electricity, safe drinking water, and toilets (Human Development Report, 2011). As a result, the only method to increase a country's productive potential and per capita income is to develop its manufacturing capacity. Thus, regions with poor infrastructure are said to have a lower per capita income, a higher proportion of primary industries, and a low population density. Higher infrastructure-level regions typically have a higher per capita income, a lower proportion of primary sector employment, and a higher population density.

1.2. STUDY AREA

Bhaderwah is a beautiful small valley located in the UT of Jammu and Kashmir, approximately 220 kilometers from Jammu. It is a beautiful alpine valley surrounded by evergreen trees and snow-capped mountain peaks. Chotta (little) Kashmir is so named because it has a lot of outstanding tourist potential with magnificent natural beauty in the valley, which draws a lot of visitors, especially during the summer. This valley is drained by a little stream known as the Neeru River, which adds to its scenic beauty. It is bordered on the south by the Himachal Pradesh district of Chamba, on the west, west, and east by the districts of Kathua and Udhampur, and on the north by Tehsil Gandoh. Due to its difficult terrain, Bhaderwah's elevation ranges from 5290 feet to 14500 feet. Temperatures in the summer range from 26°C to 29°C, while temperatures in the winter range from 2°C to 15°C (Singh et al., 2021; Hussain, 2013).

1.2.METHODOLOGY

The present study is based on a primary source of data, which is acquired using well-defined questionnaires. In the first step, four villages (Thaana, Sungli, Chinta, and Khellani) in and around Bhaderwah are chosen. The four settlements were chosen based on their physiographic characteristics and demographic composition. In the second step, a stratified random sampling technique is being used to choose households, and a total of roughly 60 respondents from various strata, such as religious composition, economic composition, caste composition, and so on, were interviewed in depth. Throughout the study, simple percentage methods are used to assess the collected data. The Microsoft Excel software is used to create tables and graphs.

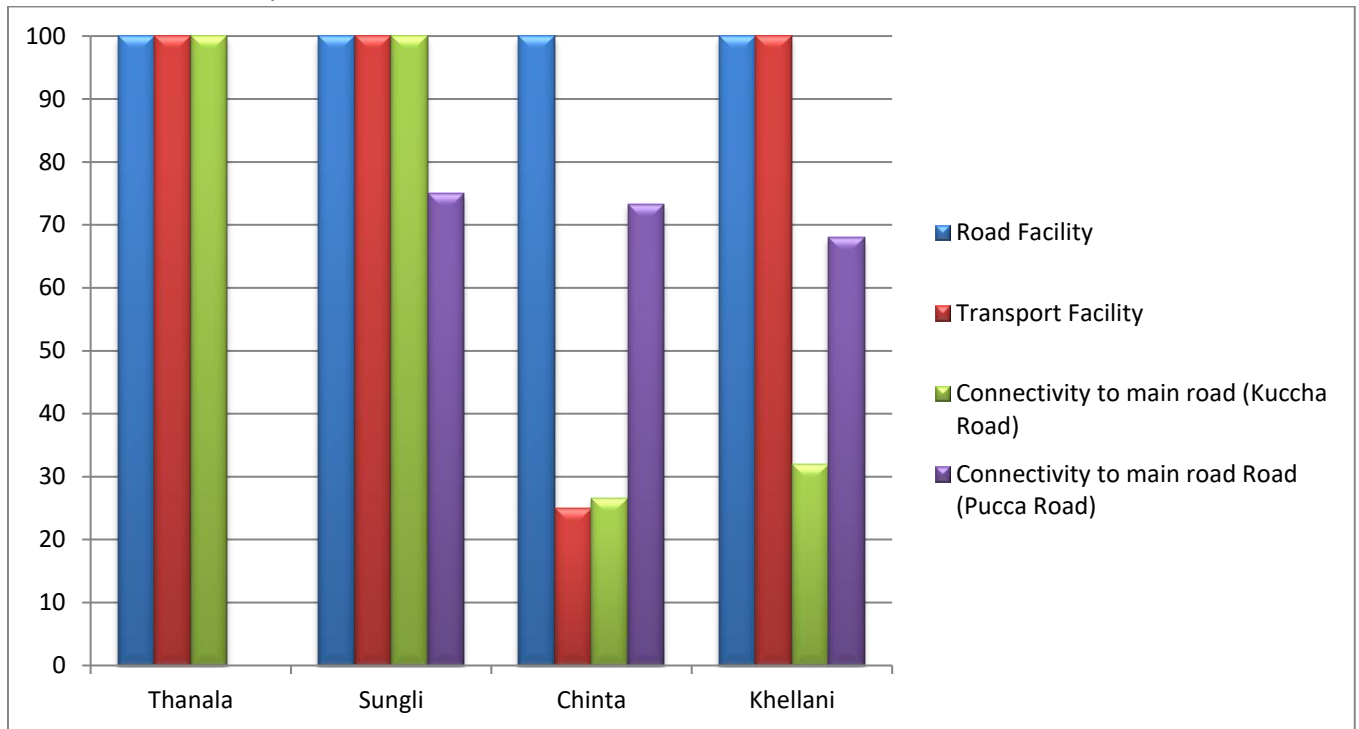
1.4.Objectives

2. To examine the overall infrastructure development of study area.
3. To make policy suggestions based on the study

Table 1 Bhaderwah Tehsil: Road Connectivity and Transport Facility

Villages	Road facility		Transport facility		Connectivity to main road	
	Yes	No	Yes	no	Kuccha road	Pucca road
Thanala	100%	-	100%	-	100%	-
Sungli	100%	-	100%	-	25%	75%
Chinta	100%	-	100%	-	26.6%	73.3%
Khellani	100%	-	100%	-	32%	68%

Source: Field Survey, 2022

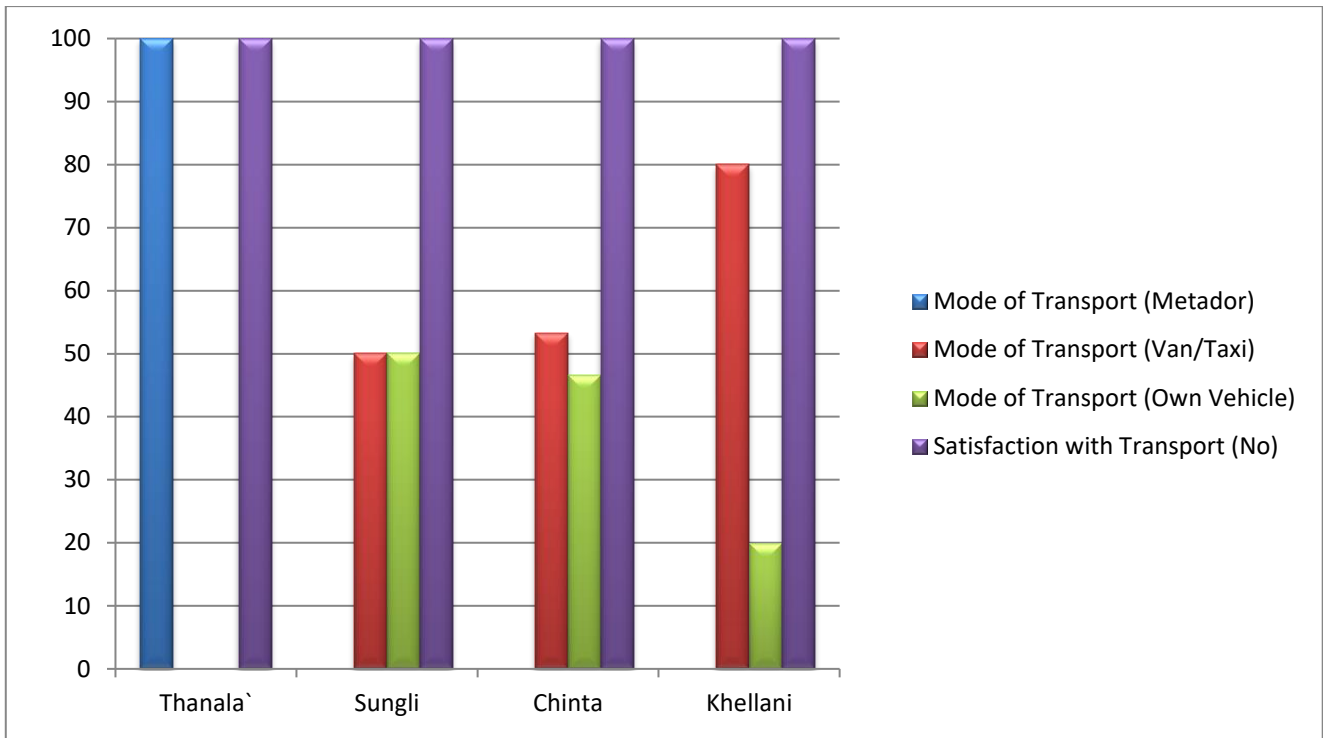


From Table 1, it has been confirmed that all four villages of Bhaderwah, namely Thanala, Sungli, Chinta, and Khellani, have road connectivity with the rest of the district, which is accessible to all residents of these four villages. However, transport is available in all four villages, albeit not at the same intensity, which limits the easy movement of people and resources. During the field survey, it was observed and confirmed by the respondents that among all the four villages, Sungli village has 75% Pucca road with good connectivity to the main road, followed by Chinta (73.3%) and Khellani (68%), whereas Thanala village has 100% Kaccha road with poor road connectivity to the main road.

Table 2 Bhaderwah Tehsil: Mode of Transportation

Villages	Mode of transport			Own vehicle		Satisfaction with public transportation	
	Matad or	Van/ taxi	Own vehicle	Yes	No	Yes	No
Thanala	100%	-	-	-	100%	-	100%
Sungli	-	50%	50%	50%	50%	-	100%
Chinta	-	53.3%	46.6%	46.6%	53.3%	-	100%
Khellani	-	80%	20%	20%	80%	-	100%

Source: Field Survey, 2022

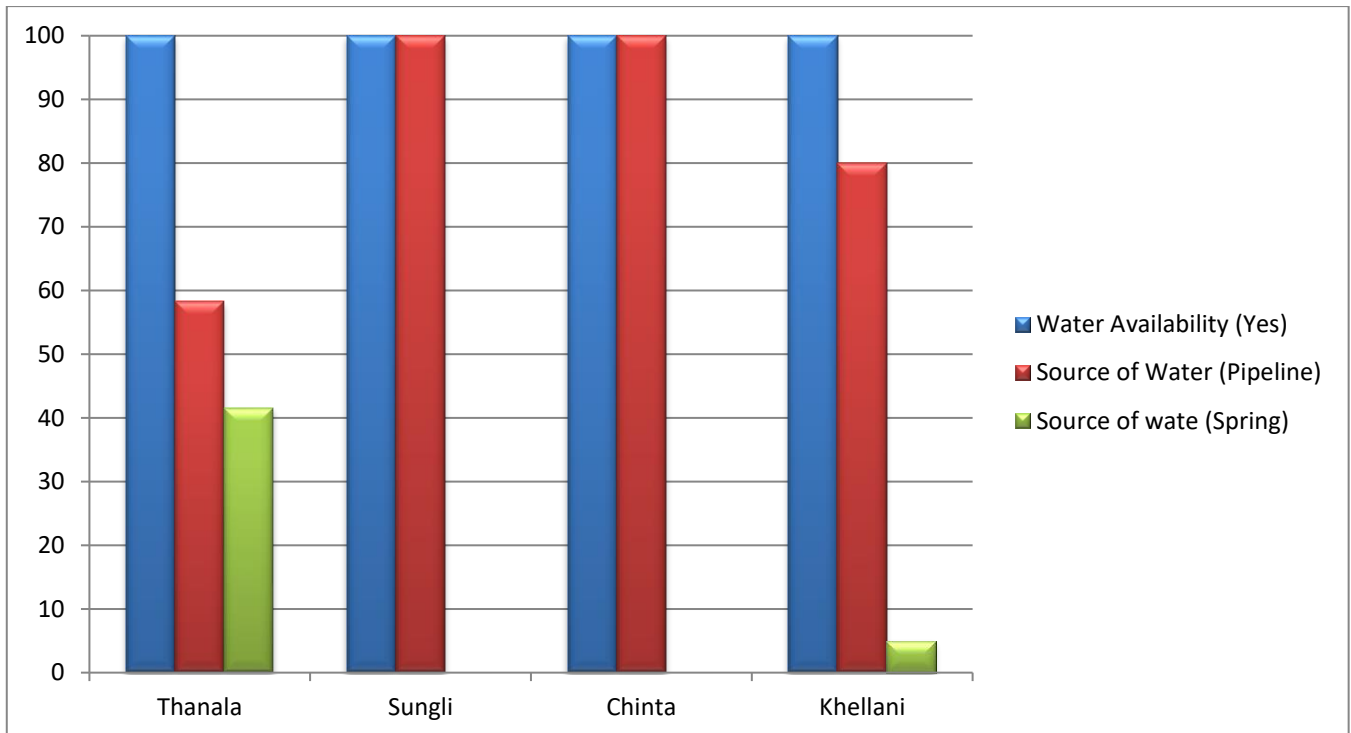


A good road network and transport system is required for people's economic and social well-being. Though all four villages of Bhaderwah, Thanala, Sungli, Chinta, and Khellani have good road connectivity, the analysis in Table 2 shows that these areas do not have good transportation facilities, and there is no satisfaction among people with the transportation facilities. During the survey, respondents from the village of Thanala confirmed that there is only matador service and that all residents rely on it because there are no other modes of transportation. In villages Sungli and Chinta, though there is only the facility of taxis and vans, the people of the village also have their own vehicles. In village Khellani, only 20 percent of people own their own vehicle, but the rest of the 80 percent population is dependent upon a taxi or van for their movement.

TABLE 3 Bhaderwah Tehsil: Water Facilities

Villages	Water availability		Source of water	
	yes	No	Pipeline	Spring
Thanala	100%	-	58.3%	41.6%
Sungli	100%	-	100%	-
Chinta	100%	-	100%	-
Khellani	100%	-	80%	20%

Source: Field Survey, 2022

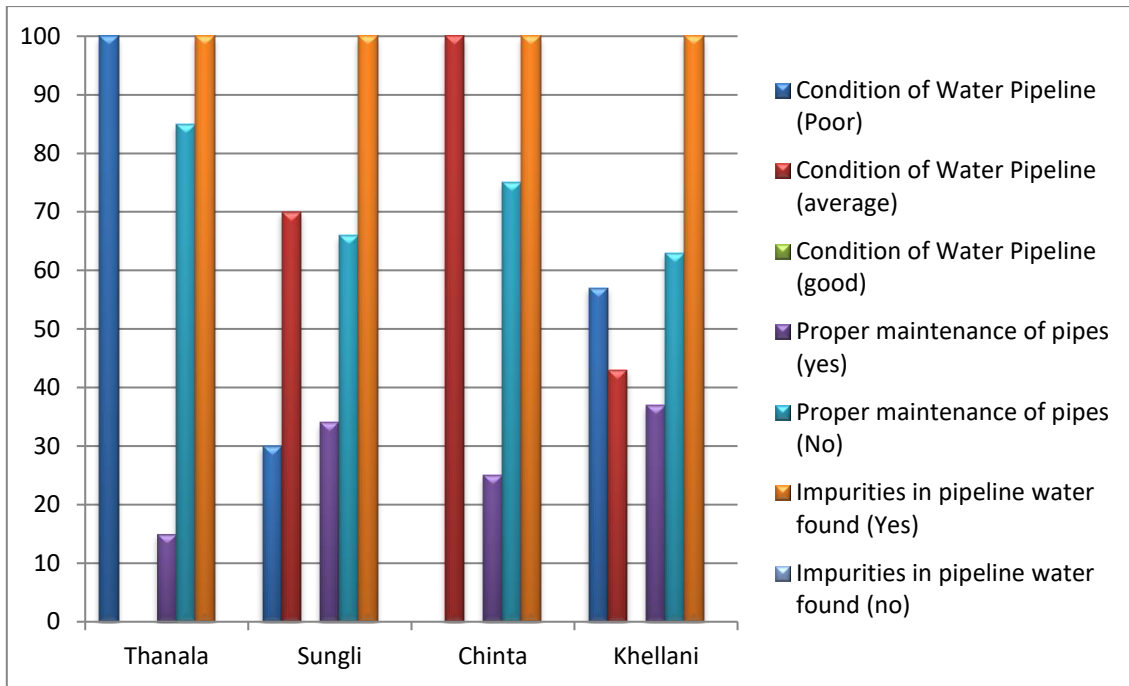


From Table 3, it has been confirmed that all four villages of Bhaderwah, namely Thanala, Sungli, Chinta, and Khellani, have 100% availability of water. In village Thanala, 58.33 percent of inhabitants rely on pipelines for water, while 42.5 percent rely on springs. In the villages of Sungli and Chinta, 100% of the inhabitants rely on pipes as a source of water, whereas in village Khellani, 80% rely on pipelines as a source of water, while the remaining 20 percent rely on spring water as a source of water.

Table 4 Bhaderwah Tehsil : Water Supply Infrastructure

Village	Condition of water pipeline			Proper maintenance of pipes		Impurities in pipeline water found	
	poor	average	good	yes	no	Yes	No
Thanala	100%	-	-	15%	95%	100%	
Sungli	30%	70%	-	34%	66%	100%	
Chinta		100%	-	25%	75%	100%	
Khellani	57%	43%	-	37%	63%	100%	

Source: Field Survey, 2022

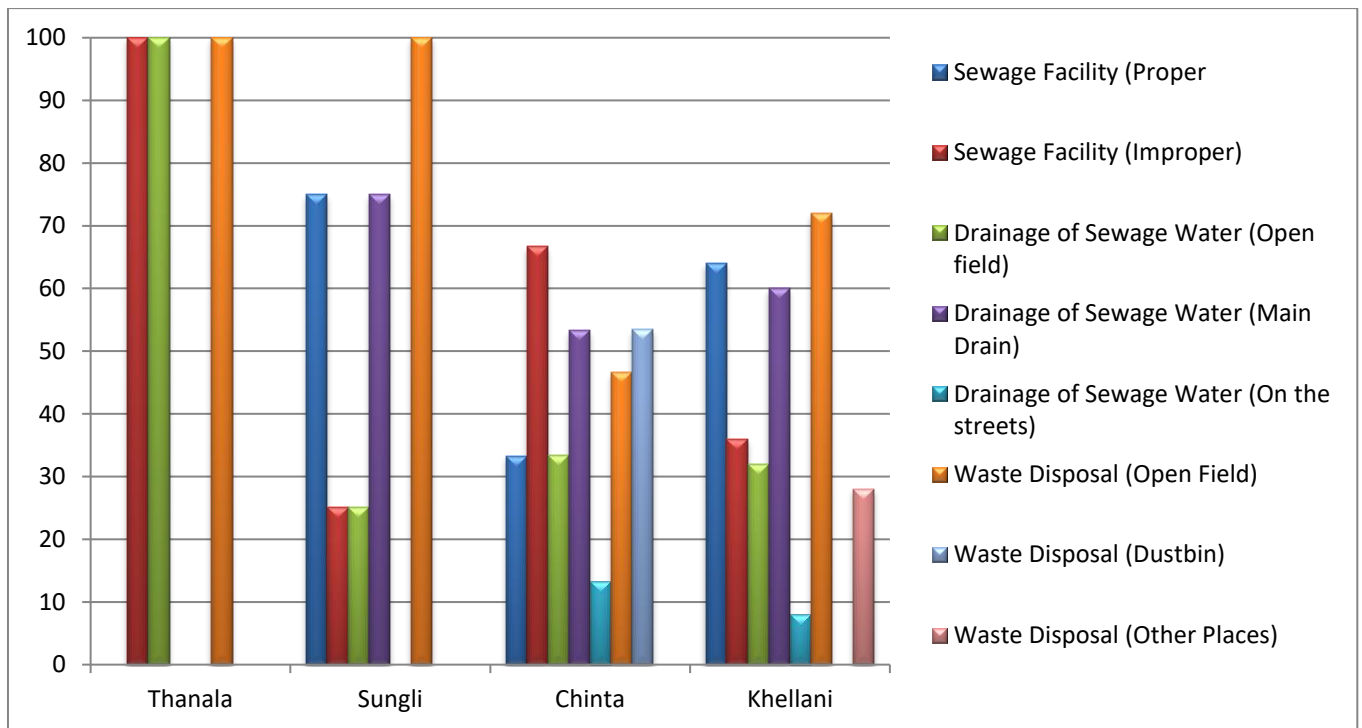


From Table 4, it has been inferred that the pipeline condition in all four villages of Bhaderwah Tehsil, namely Thanala, Sungli, Chinta, and Khellani, is poor, indicating a lack of concern on the part of the administration. In Thanala, 15% of respondents said there is proper maintenance of water pipelines, while 95% said the condition of water pipelines is poor and there is no proper maintenance of water pipelines. In Sungli, 34% said there is proper maintenance of water pipelines, while 66% said there is no proper maintenance of water pipelines. Similarly, in Chinta, 25% of respondents indicated that water pipelines are properly maintained, while 75% said that they are not. In village Khellani, 37% of respondents said there is proper maintenance of water pipelines, while 63% said the condition of water pipelines has deteriorated and there is no proper maintenance of water pipelines.

Table 5 Bhaderwah Tehsil : Drainage and Waste Disposal Facilities

Village	Sewage facility		Drainage of sewage water			Waste disposal		
	proper	Improper	Open field	Main drain	On the streets	Open field	dustbins	Other places
Thanala	-	100%	100%	-	-	100%	-	-
Sungli	75%	25%	25%	75%	-	100%	-	-
Chinta	33.3%	66.7%	33.37%	53.3%	13.33%	46.6%	53.4%	-
Khellani	64%	36%	32%	60%	8%	72%	-	28%

Source: Field Survey, 2022

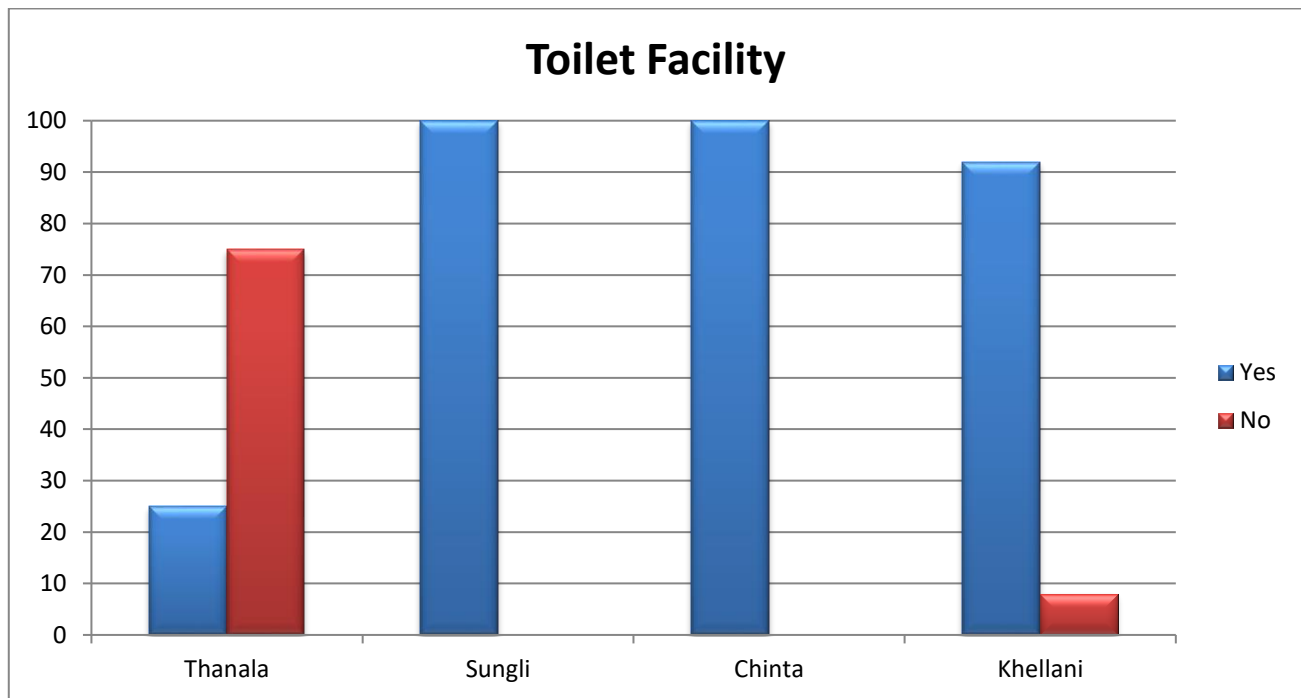


From the table 5 it has been inferred that the sanitation conditions are not homogeneous in all the four villages of Bhaderwah i.e. Thanala, Sungli, Chinta and Khellani. During survey it has been observed and confirmed from the respondents that in village Thanala 100% respondents said that there is no proper sewage facility in the village whereas in village Sungli 75 people have proper sewage facility while the rest of 25% people don't have proper sewage facilities, in village Chinta and Khellani 33.3% and 64% people respectively have proper sewage facilities while remaining 66.7% and 36% people in both villages are devoid of proper sewage facilities. In case of Drainage of sewage water, Thanala village there is no proper drainage system for the sewage water and 100% sewage water drains into the open fields whereas in village Sungli about 25% people do not have proper drainage system for sewage water and their sewage water drains into open fields while 75% people have proper drainage system and there 75% sewage water drains into the main drain, in village Chinta 32% people drain their sewage water open fields, 53.3% drains their sewage water into main field while 13.33% people drain their sewage water on open fields. As far as disposal of waste is concerned the area is lacking in proper management of waste disposal. Out of the four villages three villages i.e. Thanala, Sungli, Khellani do not have community dustbin facility. The people in these villages dispose waste in open fields or on road sides or streams running nearby. In villages Thanala and Sungli 100% population dispose their waste in open fields whereas in village Chinta 53.4 percent people have access to community dustbin while the other 46.6 percent people dispose waste in open fields and in Sungli village 72% population dispose their waste in open fields while the remaining 28% population disposes their waste in other places.

Table 6 Bhaderwah Toilet: Toilet Facilities

Villages	Toilet facility	
	Yes	No
Thanala	25%	75%
Sungli	100%	
Chinta	100%	
Khellani	92%	8%

Source: field survey 2022

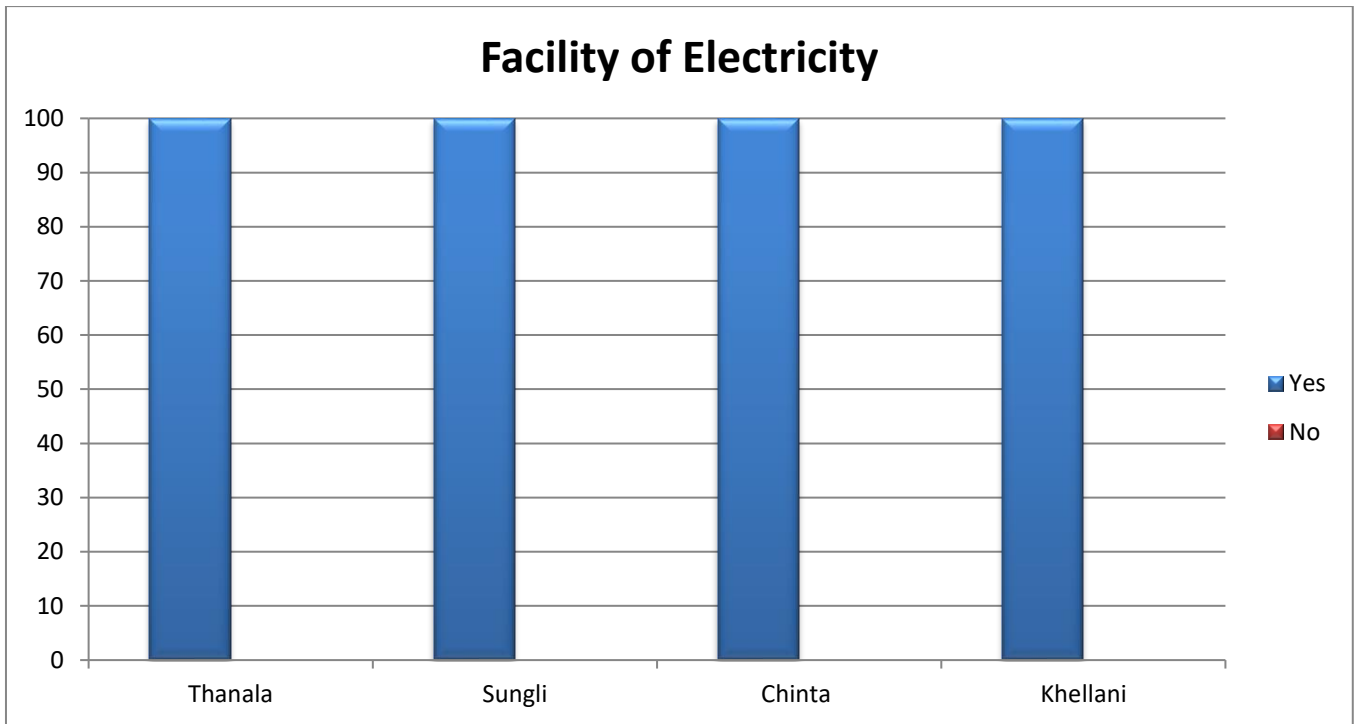


From table 6, it has been inferred that in village Thanala, 25% of the population has toilet facilities, while the remaining 75% do not, and they used to do toilets in the open fields, whereas in villages Sungli and Chinta, 100% of the population has toilet facilities, and in village Khellani, 92% of the population has toilet facilities, while the remaining 8% don't, and they also used to do toilets in the open fields.

Table 7 Bhaderwah Tehsil : Electricity Facility

Village	Facility of electricity		Duration of electricity
	Yes	No	
Thanala	100%	-	5-10 hours
Sungli	100%	-	10-12 hours
Chinta	100%	-	15-18 hours
Khellani	100%	-	10-12 hours

Source: Field Survey, 2022

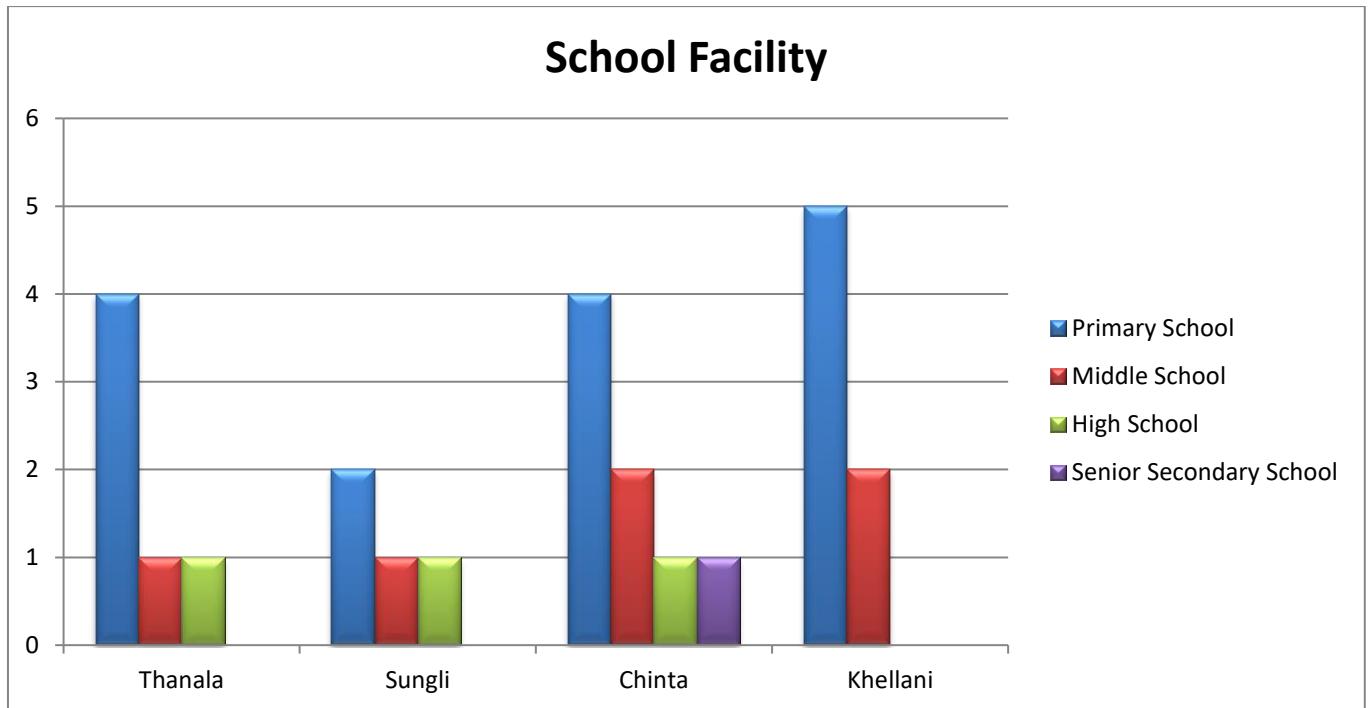


From Table 7, it has been inferred that all four villages in the study area have access to electricity. However, there are variations in the duration of the availability of electricity. Thanala has electricity for 5–10 hours, which is the least among the four villages. Sungli and Khellani are having electricity for 10–12 hours. Chinta has light for 15–18 hours, which is the highest among the four villages.

Table no 8 Bhaderwah Tehsil : School Facilities

Villages	School facility				Satisfaction with school facility	
	Primary school	Middle School	High school	Senior secondary school	Yes	No
Thanala	4	1	1	-		100%
Sungli	2	1	1		76%	34%
Chinta	4	2	1	1		100%
Khellani	5	2	-	-		100%

Source: Field Survey, 2022

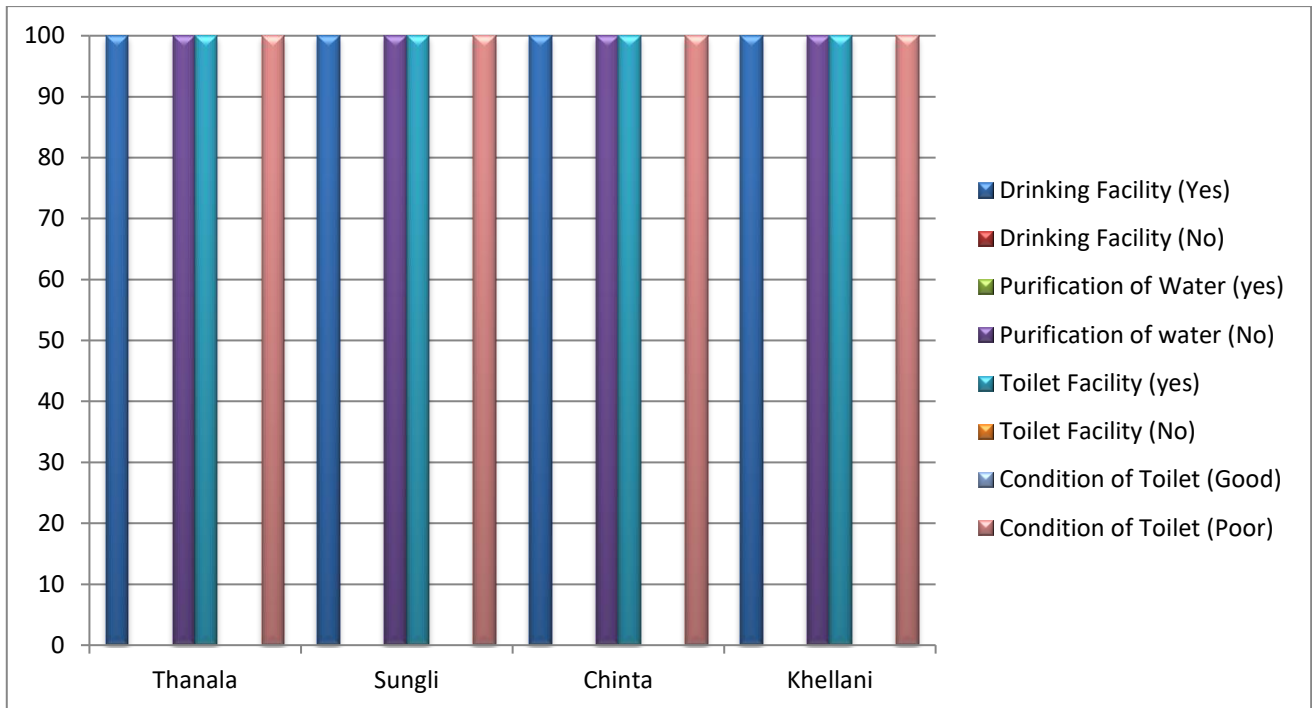


From table 8, it can be deduced that Thanala and Chinta each have four primary schools, whereas Sungli and Khellani have two and five, respectively. When it comes to middle schools, Chinta has two middle schools, followed by Khellani, which also has two middle schools. Whereas Sungli and Thanala have one middle School each. Additionally, it can be inferred from Table 8 that Khellani village does not have a high school, but the other three villages each have one high school. As far as senior secondary is concerned, only village Chinta has one senior secondary, while the other three villages don't have any high secondary. It has also been confirmed from the above table that there is less satisfaction among the people of all four villages regarding school facilities. It has been confirmed by the respondents from all four villages that they are not satisfied with the existing school facilities. It is only in Sungli village that 76% of people are satisfied with the school facilities, while the remaining 34% are not satisfied, whereas in the other three villages, 100% of people are not satisfied with the existing school facilities.

Table 9 Bhaderwah Tehsil: Sanitation Facilities in School

Village	Drinking facility		Purification of water		Toilet facility		Condition of toilet	
	<u>Yes</u>	<u>no</u>	<u>yes</u>	<u>No</u>	<u>yes</u>	<u>no</u>	<u>Good</u>	<u>Poor</u>
Thanala	100%			100%	100%			100%
Sungli	100%			100%	100%			100%
Chinta	100%			100%	100%			100%
Khellani	100%			100%	100%			100%

Source: Field Survey, 2022

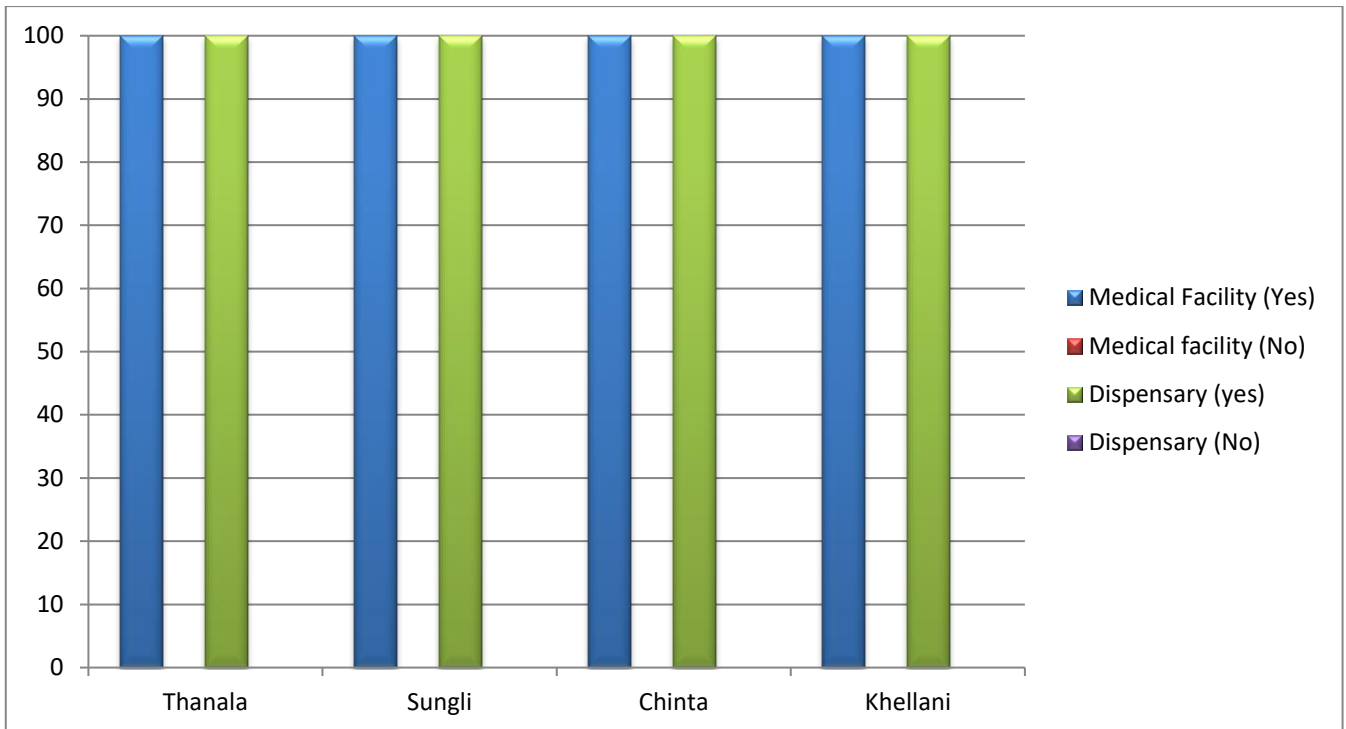


From Table 9, it can be deduced that sanitation facilities are not very satisfactory in the study area. Although 100% of the schools in the study region have access to drinking water, there is no water purifier in the schools. Children are receiving untreated water, which demonstrates a lack of concern on the part of the government. All four villages have schools with toilet facilities, but it has been noted and confirmed by respondents from all four villages that the quality of these toilets is quite poor due to the high child-to-toilet ratio.

Table 10 Bhaderwah Tehsil: Medical Facilities

Village	Medical facility		Dispensary		Availability of doctors		
	Yes	No	Yes	No	No of doctors	All time available	
						Yes	No
Thanala	100%		100%		1		100%
Sungli	100%		100%		-	-	-
Chinta	100%		100%		2		100%
Khellani	100%		100%		1		100%

Source: Field Survey, 2022



From Table 10, it can be deduced that all four communities, Thanala, Sungli Chinta, and Khellani, have access to medical care through dispensaries. In terms of the availability of doctors, it has been confirmed by the respondents from all four villages that doctors are not always available to serve the public. It has also been confirmed by the respondents that Chinta has the maximum number of doctors, 2, followed by Thanala (1) and Khellani (1), despite the fact that they are not always available to help people. Sungli doesn't have a single doctor. People are generally quite unhappy with the available medical facilities.

Table 11 Bhaderwah Tehsil :Telecommunication Facilities.

Village	Telephone line connectivity		Network connectivity			Internet facility		
	Yes	no	Poor	average	good	Poor	Average	good
Thanala	100%		100%			100%		
Sungli	100%				100%		20%	80%
Chinta	100%				100%		34%	66%
Khellani	100%			32%	68%		40%	60%

Source : Field Survey, 2022

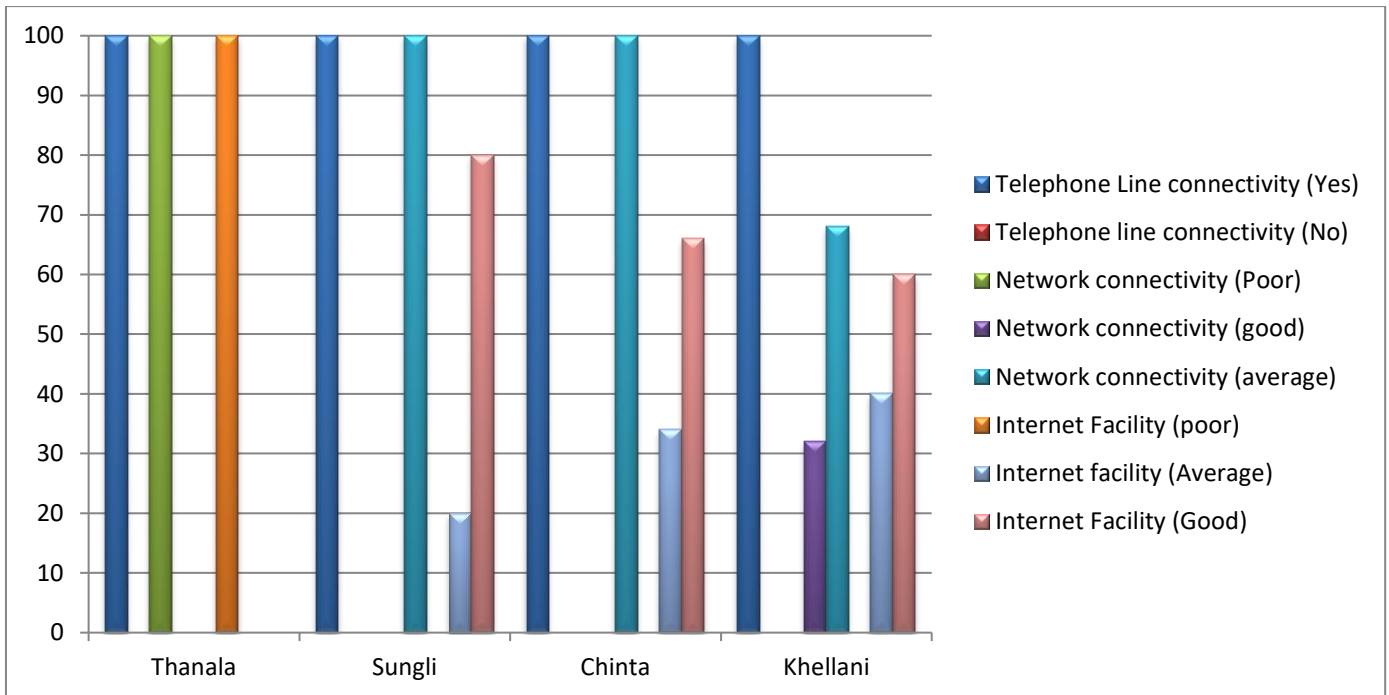
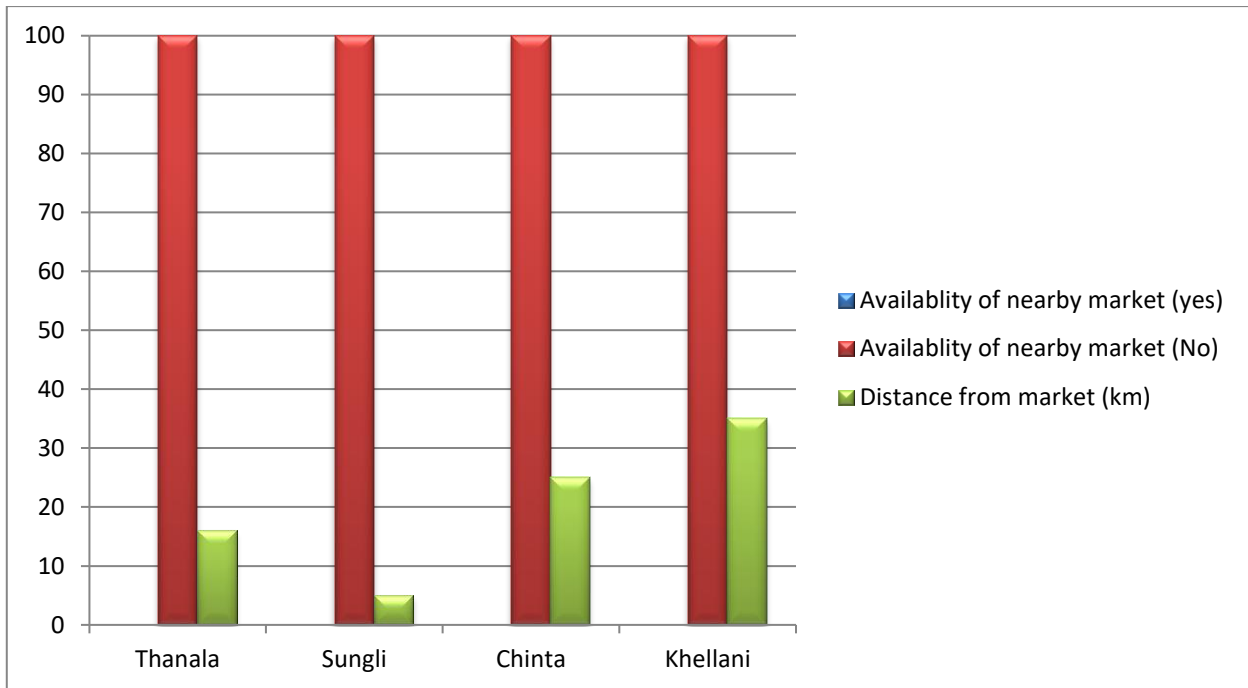


Table 11 shows the network connectivity in all four villages of the study area, i.e., Thanala, Sungli, Chinta, and Khellani. From Table 11, it has been concluded that Thanala has poor network connectivity, whereas Sungli and Chinta have good network connectivity. In Khellani, 32% of people do not have access to good network facilities, while the remaining 68% have good network facilities. As far as internet facility is concerned, Thanala has poor internet facility, whereas in Sungli, 80% of people have good internet connectivity while the remaining 20% have average connectivity, and in Chinta, 66% of people have good internet connectivity while the rest have poor internet facility. In village Khellani, 60% of people have good internet connectivity, and the rest, 40%, have poor internet connectivity. This may be attributed to dispersed settlement, poor network coverage and a lack of concern on the part of the government.

Table 12 Bhaderwah Tehsil : Availability of Market Facility

Village	Availability of nearby market		Distance from market
	Yes	No	
Thanala	-	100%	16 km
Sungli	-	100%	5 km
Chinta	-	100%	25 km
Khellani	-	100%	35 km

Source: Field Survey, 2022



From Table 12, we can conclude that all four villages, i.e., Thanala, Sungli, Chinta, and Khellani, do not have any facilities for a nearby market. The people of Thanala have to travel 16 km to reach the market to buy things, while from Chinta and Khellani it is 25 km and 35 km away, respectively. As Sungli is the nearest village to Bhaerwah town, it has a market facility at a distance of 5 km. The farther the market is, the higher the cost of transportation, and it will also limit the trade of local agricultural products and handicrafts in the market.

1.5. SUGGESTIONS

Following an examination of the complete scenario, the following recommendations can be made:

Roads in rural parts of the country are a very important and critical component of rural development. It is the key to the success of the rural economy; rural health; and education. Therefore, it is imperative to maintain rural roads properly to ensure that these remote settlements are connected to the rest of the nation.

Public transport service should be restored in these far-flung villages so that all the people can easily avail transport service, and the transportation cost should not be very high so that the local people can sell their agricultural products and handicrafts in the local markets without any inconveniences.

Even though the government is working to give piped water to every rural household as part of the Jal Jeevan Mission by 2024, the local government is still delaying these projects. The local government should take immediate action to guarantee that these water projects in rural areas are implemented quickly so that everyone in these remote settlements has access to clean drinking water.

There is a lot of water leakage and waste on the streets due to the poor state of the existing water pipelines, so it is imperative to maintain water pipelines properly.

A proper drainage system should be built for sewage water to prevent it from mixing with clean drinking water. Additionally, community dustbins should be installed in these villages for the disposal of household waste because the majority of people dispose of their waste in open fields, which increases the vulnerability to the spread of harmful diseases.

Although the central government has launched a number of programmes for rural electrification, such as the Pradhan Mantri Sahaj Bijli Har Ghar Yojana (Saubhagya), which aims to provide free electricity connections to all households (both APL and poor families in rural areas, as well as poor families in urban areas), the Deendayal Upadhyaya Gramme Jyoti Yojana (DDUGJY), and the PM-KUSUM programme, it is important to appropriately implement these policies and programmes

The condition of government schools in these villages is also very deteriorating, whether it is a primary school, middle school, or high school. There is no separate toilet for boys and girls in many schools, and the ratio of students to toilet is very high, which further makes the problem more deplorable. Separate toilets for boys and girls should be constructed, and their numbers should also be increased.

The lack of access to clean drinking water is another significant issue that affects pupils in these remote villages' schools, and it also violates UN Standard Development Goal No. 6 (SDGS-6). Therefore, students in these schools should have access to clean drinking water.

Although medical facilities are available in these villages in the form of dispensaries, doctors are not available for the treatment of people in these villages, and the local people have to travel long distances to avail themselves of the medical service. So doctors should be deployed in these far-flung and deprived villages for the benefit of the people.

All the four villages in the study area have telephone line connectivity, but because of their isolation, dispersed population, and administration's lack of interest, the majority of the residents are unable to get high-quality internet service. It is advised to establish internet network towers so that good-quality internet facilities will be restored in these far-flung villages.

Except for one village, i.e., Sungli, all the remaining three villages do not have any nearby market facilities. They found it difficult to sell their agricultural products and other handicrafts due to their remoteness from the market and higher transportation costs. The government should also take these issues of the villagers into consideration and pay special attention to eradicate their grievances.

1.6. Conclusion

From the above discussion of the study area we come to know that a little has been done and more is required to be done for the infrastructure development in the study area of Baderwah. In the present study, we have taken the Baderwah Tehsil of Doda district of J&K to assess the level of infrastructure development in four villages, namely Thanala, Chinta, Sungli, and Khellani. Baderwah Tehsil is lagging behind as far as its development is concerned in comparison to other parts of the union territory. Also, there are disparities within Baderwah with respect to level of development. This can be attributed to the hilly terrain, poor road network, which is the lifeline for the transport of people and resources, and extreme weather conditions. Also, the problem of less concentration and a highly dispersed population has resulted in a growing economic cost of providing services, resulting in a reluctance on the part of the government. So the present studies are being carried out to study the level of regional disparities in infrastructure development and the relationship between infrastructure and economic development.

Among villages, the following trends have been observed with regard to infrastructure development in various attributes such as

Among all the four villages, Sungli village has 75% Pucca road with good connectivity to the main road, whereas Thanala village has poor road connectivity to the main road with 100% Kaccha road. In village Thanala, 100% of people depend on matadors as a mode of transportation, whereas in village Sungli, 50% have their own vehicles, and the rest use vans and taxis as a mode of transportation. Similarly, in Chinta

village, 46.6% of people have their own vehicles, and 53.3% depend on vans and taxis for their daily travel. In Khellani village, only 20% of people have their own vehicles, while the remaining 20% depend on vans and taxis for their daily travel.

Although there is water availability in all four villages of the study area, in villages Sungli and Chinta, 100% of the population gets their drinking water from pipelines, while in Thanala village, 58.3% get their drinking water from pipelines, and the remaining 41.6% get their drinking water from springs. In village Khellani, 80% of the population gets drinking water from pipelines, and the rest get drinking water from pipelines.

Among all the four villages, Thanala village has 100% poor water pipelines, whereas Chinta village has 100% average water pipeline, and in Sungli village, 30% of the water pipelines are in poor condition while the rest are in average condition. In Khellani, 57% of the pipelines are in poor condition, and the remaining 43% are in average condition.

As far as the proper maintenance of water pipes is concerned, it is confirmed from the respondents of all the four villages that in village Khellani there is 37% maintenance of water pipes, which is the highest among all the four villages, followed by Sungli (34%), Chinta (25%), and Thanala (15%). If the impurities in the pipeline are concerned, it is also confirmed by the respondents from all four villages that 100% of the impurities are found in the water pipeline.

Sungli village has 75% proper sewage facilities, which is the highest among all the four villages, followed by Khellani (64%) and Chinta (33.3%), while Thanala has 100% improper sewage facilities. In the case of drainage of sewage water, Thanala village has 100% drainage of sewage water into open fields, followed by Chinta (33.37%), Khellani (32%), and Sungli (25%), while 75% of sewage water drains into the main drain in village Sungli, followed by Khellani (60%), and Chinta (53.3%).

In the case of waste disposal, in villages Thanala and Sungli, 100% of the waste is disposed of in open fields, whereas in Chinta, 46.6% of the waste is disposed of in open fields, and the remaining 53.4% of the waste is disposed of in dustbins. Similarly, in Khellani village, 72% of waste is disposed of in open fields, while the remaining 28% is disposed of in other places.

In Sungli and Chinta, 100% of people have toilet facilities, whereas in Khellani, 92% have toilet facilities, and in Thanala, only 25% have toilet facilities. Although all four villages have the facility of electricity, there are variations within the villages with respect to the durability of electricity. In Chinta village, the duration of electricity is 15–28 hours, which is the highest among all the four villages, followed by Sungli (10–12 hours), Khellani (10–12 hours), and Thanala (5–10 hours).

In terms of education facilities, Khellani has the highest number of primary schools, i.e., 5, followed by Chinta (4), Thanala (4), and Sungli (2). In the case of middle schools, Chinta and Khellani have the highest number of middle schools, i.e., 2, followed by Thanala (1) and Sungli (1). As far as high schools and senior secondary schools are concerned, Chinta, Sungli, and Thanala each have one high school, but there is no high school in village Khellani. There is only one senior secondary school, i.e., in village Chinta, among all the four villages. Other villages do not have any senior secondary schools. It has also been confirmed by the respondents from all four villages that they are not satisfied with the school facilities in their respective areas.

Although there is access to drinking water in the schools of all four villages, facilities are available for the purification of water. As far as the toilet facilities are concerned, there is also the availability of toilets in schools in all four villages, but it has been observed and confirmed by the respondents from all four villages that the toilets in the schools are in poor condition.

Although medical facilities are available in all four villages in the form of dispensaries, the number of doctors and their availability also vary in all four villages. Chinta has the highest number of doctors, i.e., 2, followed by Khellani (1) and Thanala (1). There is no availability in village Sungli.

All four villages have telephone line connectivity, but there is also variability in network connectivity and internet facilities within the villages. Thanala village has poor network conditions and internet facilities, while Sungli and Chinta have good network connectivity. Similarly, in village Khellani, 68% of people have good network connectivity, while the remaining 32% have average network connectivity. In the case of internet facility, in Sungli, 80% of people have good internet facilities, while the remaining 20% have average facilities, followed by Chinta (where 66% of people have good internet facilities and 34% have poor internet facilities), and Khellani (where also 60% of people have good internet facilities and the remaining 40% have average internet facilities).

All four villages are far away from the market, and they are all located at the periphery of the market area. Sungli village is 5 km away from the market area, followed by Thanala (16km), Chinta (25 km), and Khellani (35km).

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