

ASSESSMENT OF RURAL ROAD NETWORK ON SOCIO-ECONOMIC DEVELOPMENT OF PYAY TOWNSHIP: THE CASE STUDY OF WETHTIKAN AREA

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Abstract

This research work emphasizes on the assessment of rural road network on socio-economic development of Pyay Township: the case study of Wethtikan Area. Inadequate road investment results in road network not being able to be developed and expanded and it is also difficult to maintain existing roads. The consequence is deterioration of the road network that not only limits accessibility, mobility and regional connectivity of a country, but also results in increased production and transport cost. Rural transport depends on appropriate infrastructure, where rural infrastructure consists mainly of rural road, tracks, and footpaths. Wethtikan Area is situated in Pyay Township of Bago Region (West). It is 28.97 km (18 miles) away from Pyay. It is composed of 21 village tracts and 101 villages. An increased interest in rural roads investment potential has developed in recent years. This is mainly due to the need for development of rural as well as the advantageous that road investment could generate on rural communities. The aim of this paper is to discuss the assessment of rural road network on socio-economic development. To present this paper, field observation was systematically done for the purpose of presenting rural road network on socio-economic development of Wethtikan Area. In methodology, primary source (field survey and interviews with department concerned and local peoples) and secondary sources on types of roads and network, education and health care etc. are collected from departments concerned.

Keywords: *road network, socio-economic development, infrastructure.*

Introduction

Rural areas had relatively large agricultural sector compared to urban areas. Transportation infrastructure is often mentioned as a key to promoting growth and development. Rural road is one of the main priorities of

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Government in Myanmar as a mechanism towards upgrading socio-economic condition and reducing poverty.

Currently several factors, including the lack of adequate road network, are hampering socio-economic development and subsequent economic growth in Wethtikan Area. Roads are the primary mode of transport in the study area for both passengers and freight.

This study has focused on temporal changes and spatial changes of rural road network on socio-economic development in Wethtikan Area. Temporal changes were emphasized before 1988 and between 1988- 2017, and spatial changes were measured for 21 village tracts of Wethtikan Area. This study, therefore, has mainly emphasized on rural road network on socio-economic development of Wethtikan Area.

Problem

Wethtikan is located on the road leading to North Nawin Dam. The road is concrete road that has been constructed since 1972. Road density increased and travel time decreased by establishing the roads connecting villages in the rural area. Travel time decreased due to better accessibility. Well connected areas differ in socio-economic conditions from less connected areas. The paper presents effects of road development on socio-economic condition of the area and points out the different socio-economic condition of accessible areas and less accessible areas. Therefore, the research problem is -

The spatial variation of socio-economic condition is uneven in the study area.

Objectives

- to assess the quality of roads within the study area,
- to analyse the existing density of the rural road network
- to investigate the level of social and economic infrastructure provisioning
- to explain the effects of rural road network on socio-economic development in the study area.

The background of the study area

To materialize the new economic system, infrastructure development projects has been carried out by construction of many new bridges and roads on the one hand and new motor vehicles are imported both for passenger and freight transport. This infrastructure improvement and permission of private participation have cause changes in nature of rural economy. Both private participation and transportation development, especially “Trailer-Jeep and Motor cycle” seem to have caused distinguished changes in rural area. With increasing economic status social welfare condition gradually increased. These socio-economic changes, however, do not occur equally in all rural areas. Some geographically favoring area seems to have more chances for socio-economic development while others have less. Variation of socio-economic condition could be distinguished within the study area.

Wethtikan Area is located at the northeastern part of Pyay Township in Bago Region (West). The distance from Pyay is 28.97 km (18 miles). It is located between North Latitudes 18°54' and 19°06' and East Longitudes 95°19' and 95°27'. It has an area of 201.04 square kilometers (124.92 square miles). It has 21 village tracts which comprise of 101 villages. (Fig 1,2,3) The total population of Wethtikan Area was 40345 persons (18 % of population in Pyay Township) in 2017. In Wethtikan Area, physical resources are suitable for agriculture and other agro-related economic activities located in rural areas. Development of rural areas supported the development of urban area by means of allowing establishment of industries, services and trade (buying and selling).

After economic policy change, the government has extended services including health, education, agriculture, communication, construction of the main roads at the township level. The local development processes have changed due to the economic growth which leads to changes in social conditions. But the development processes are not balanced in all places. Socio-economic conditions could vary according to geographical locations and efforts of the local people. Thus, Wethtikan Area is selected as a study area to analyze its socio-economic variation.

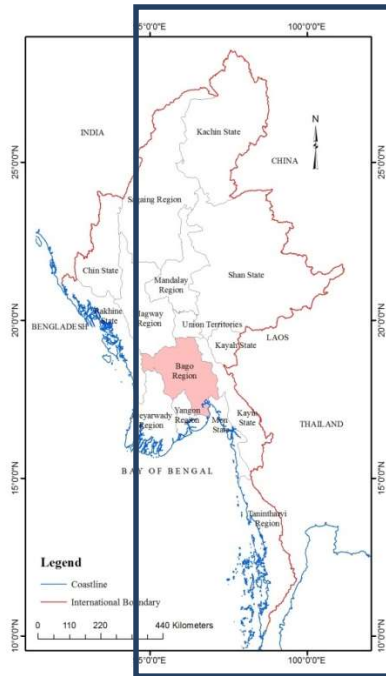


Figure 1. Bago Region in Myanmar
Source: Agricultural Atlas (2002)

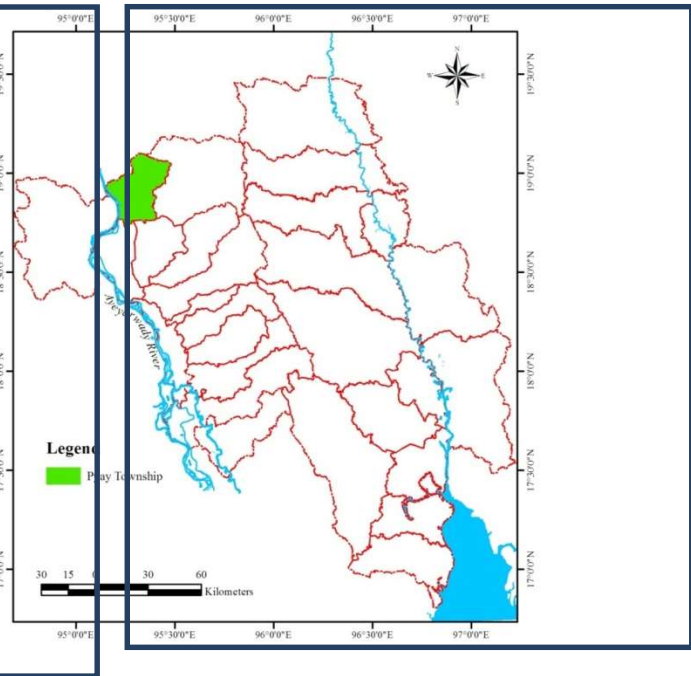


Figure 2. Pyay Township in Bago Region
Source: GAD, Pyay Township

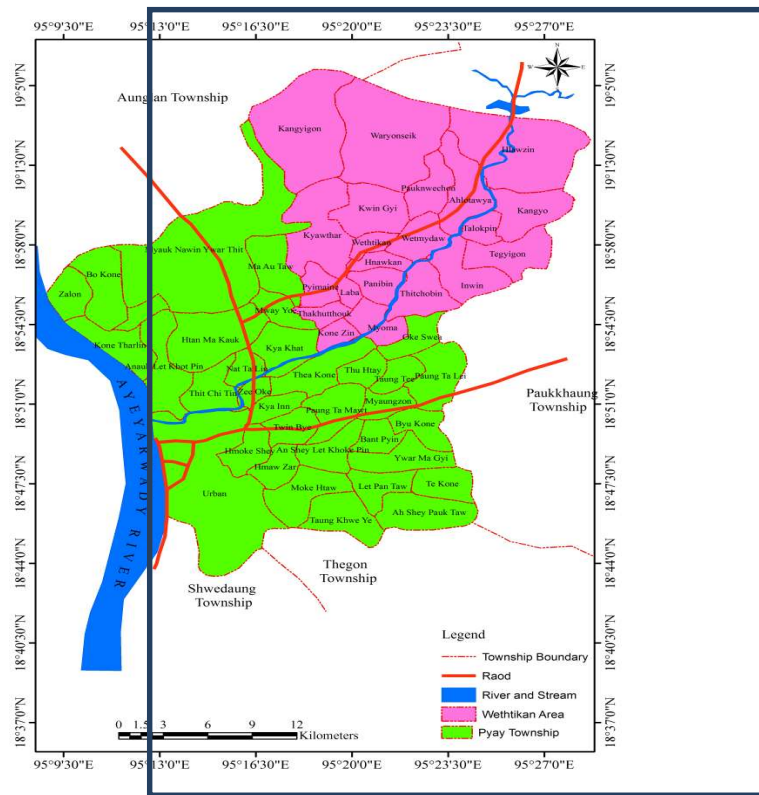


Figure 3. Location of Wethtikan Area in Pyay Township

Source: UTM map (1:50000)

Material and Method

The primary and the secondary data were used to present the paper and they are collected through interviews with local people, local authorities and authorities concerned. The interview questions concerning the difference in socio-economic condition of the people in the area caused by upgrading and opening rural roads. The well connected and less connected village tracts have been chosen to study the effect of transportation network on socioeconomic development and the growth of social and economic conditions were studied from the geographical point of view. The primary data were also collected from field observation, informal talks with local peoples and focus group discussion. The secondary data were mainly collected from the department concerned. Mapping, data linkages, and analysis were done by using GIS, with the help of UTM map (1:50000)(Survey Department).

Results and Findings

Rural Road Network in Wethtikan Area

Road infrastructure is a factor providing links between rural and urban areas and among the villages. The relationship between the socio-economic conditions and transportation infrastructure development leads to the development as well as the uplifting of the socio-economic condition of a location. Economic activity is closely related to progress in transportation which leads to development of economic activities. Transportation routes were built primarily for the purpose of moving commodities and are also used by people.

Transportation development could generate economic development and economic development also forces to construct new transportation infrastructures(Aung Kyaw, Mya Thaug, Nay Win Oo and Associates).

In Wethtikan Area, the length of rural roads was 91kilometers (56/6.1miles) in 2017. This is 33.53 % of the total mileages of the rural roads in Pyay Township.

At present the Ministry of Agriculture, Livestock and Irrigation (Department of Rural Development), local authorities concerns and native people accelerate momentum in constructing new roads, upgrading, maintaining and repairing the existed roads in the study area.

The Wethtikan Area has the length of 76.12 km (47/3.59 miles) of roads in before1988, 91 km (56/6.1 miles) in between 1988 and 2017. These roads are grouped into five categories: such as concrete, crushed stone road, hill gravel road and hard soil roads (Table.1and Fig. 4). Most of the roads are aligned from east to west and from north to south, because of its compact shape of the area.

Network density had increased as the numbers and mileages of the roads had increased. Road network density was 0.23% in 1988 and it increased to 0.28% in 2017.

Table1: Types of Roads in the Wethtikan Area in periods before 1988, and between 1988 and 2017 (in km)

Length of Roads (Miles)	Before 1988	Between 1988 and 2017
Concrete Road	14.48	14.48
Gravel Road	-	8.64
Lateritic Road	48.48	57.56
Hard Road	13.24	10.08
Total	76.12	91

Source: Yin Min Htut (2005) and Department of Rural Development, Pyay Township

Pyay-Wethtikan Road-It secedes from the milepost of (187/6) of Pyay-Taungdwingyi-Magway Road to north-east direction. It was built in 1970, during the construction year of North Nawin Dam (1966-1975). The distance between Pyay and North Nawin Dam is 43.45km (27 miles). It is 28.97 km (18 miles) from Pyay to Wethtikan. From Pyay to Tetut to Wethtikan is 14.48 km (9miles) and the breadth of the road is 0.004 km (12 ft) concrete road. From Wethtikan to Hsisankone is 9.66 km (6 miles) lateritic road.

Former earth roads were upgraded to lateritic roads. Hence, the transportation system has greatly expanded and upgraded, which accounts for the socio-economic development in Wethtikan Area. Due to the development of road transportation facilities, the socio-economic conditions also improved more than before. Transportation facilities support the development of the socio-economic conditions.

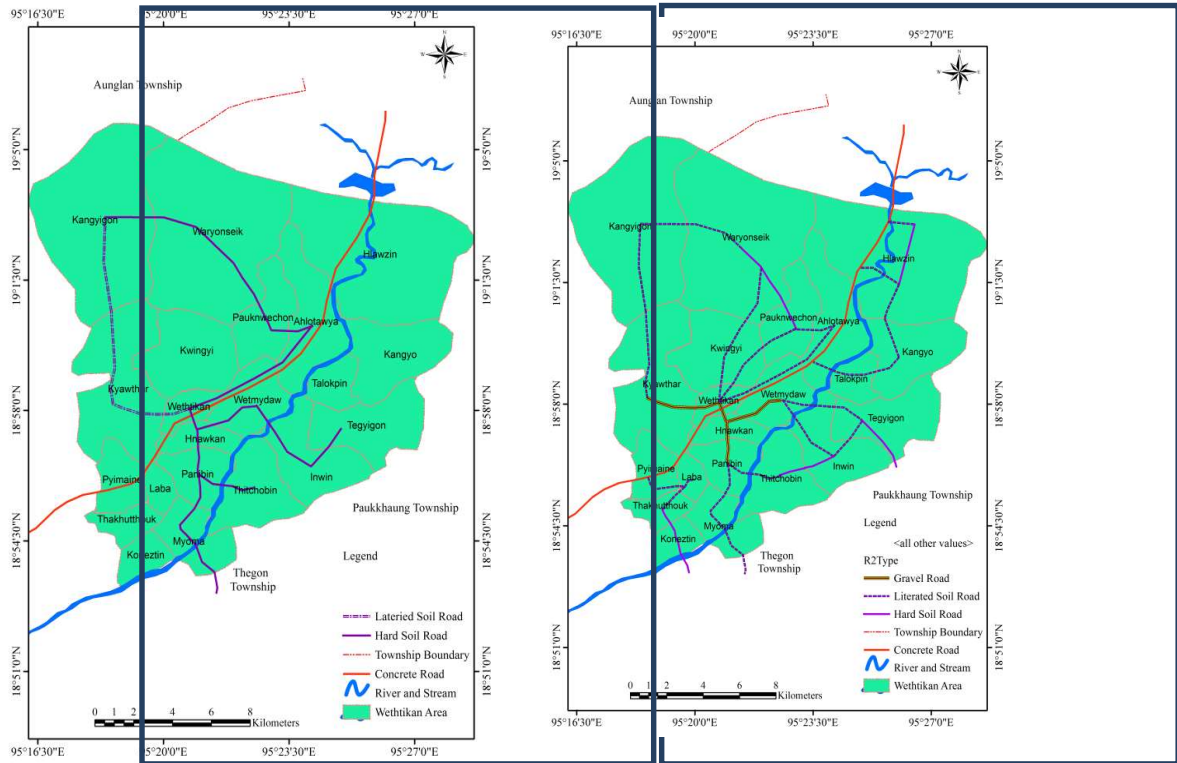


Figure 4.Type of Roads and Road Network in Wethtikan Area (before 1988 and Between 1988 and 2017)

Source: Based on Department of Rural Development, Pyay Township

Social Factors of the Study Area

The population distribution is uneven because it is influenced by the topography, transportation and communication. Population distribution is more concentrated along part of the main roads (Pyay-Wethtikan-Hsisankone) in this area. Wethtikan Area consists of 21 village tracts and total population was 24520 persons in 1992 and increase to 40345 persons in 2017. As the Wethtikan Area is not far from Pyay City, the change was due to natural growth and migration from other nearby places to the study area.

According to Figure 5, growths of population and population distribution are related to road network in the study area. As the rural roads was upgraded and extended, socio-economic condition developed and population density increased in the area.

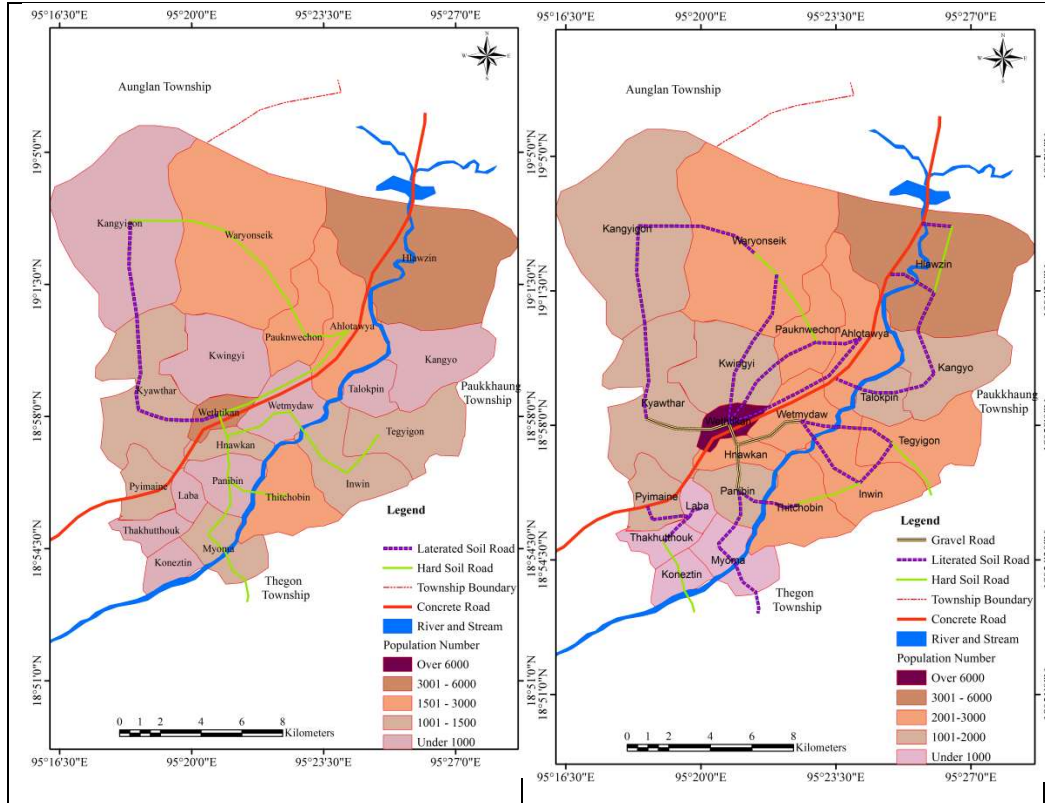


Figure 5. Distribution of Population in Wethtikan Area (1992 and 2017)

Source: Draw based on Population and National Registration Department

Education Sector

In 1988, there were few roads between urban and rural area in the Pyay Township. Social status especially in education sector was lower in that period. At present, road infrastructure development is one of the main pillars to develop educational sector due to better road and easy access to the rural areas. Therefore, upgrading the school level and an increase in number of schools were found in Wethtikan Area.

Education sector is one of the pillars that force to develop a nation, there were one high school and 14 primary schools in 1988 and the number of school increased to two high schools, one middle school and 21 primary schools in 2017 (Table 3). Most of them are situated in the rural areas especially along the new roads and its feeders. Because of better

transportation system in the area, students can go to schools and it takes less time.

Table 3 Progress in the Basic Education Sector of the Wethtikan Area Between 1988 and 2017

Subject	Count	1988	2017	Increase
High School	School	1	2	1
-State School	School	-	1	Upgrading
-Branch School	School	1	1	1
-Affiliated School	School	-	-	
Middle School	School	-	1	1
-State School	School	-	-	
-Branch School	School	-	1	1
-Affiliated School	School	-	-	
Primary School	School	14	21	7
-Post Primary School	School	-	4	Upgrading
-State School	School	14	16	2
-Branch School	School	-	1	1
-Affiliated School	School	-	-	-

Source: Interviews and Education Department, Pyay Township

Poverty Reduction

Mya Seinn Yaung Rural Development Programme has been started since 2014-15 under the guidance and help of Ministry of Agriculture, Livestock and Irrigation, Pyay Township Rural Development Department and Pyay District Rural Development. One of the four objectives of Mya Seinn Yaung Rural Development Programme is to reduce poverty in the rural areas by increasing job opportunity and family income and it is carried out in 29 villages of Pyay Township. Of these, Ahlotawya, Myoma, Waryonseik, Kangyigon and Inwin villages of Wethtikan Area are included.

Socio-economic Pattern of Well Connected and Less Connected Area

Transport itself is not a sufficient condition for development; however the lack of transport infrastructures is a constraining factor for development. The development of any area depends largely on good communications and transport. All modes of transportation are vital not only for the development

of the economy of the Wethtikan Area but also for the improvement of the cultural and social well-being.

To understand the impact of rural road network on socio-economic development, it would be necessary to examine the various socio-economic aspects and the relationship between socio-economic sectors and road network development. All transportation links affect not only regional development but also the socio-economic conditions of local people. Moreover, road network development leads to the emergence of new locations at which economic activities can successfully be undertaken.

Socio-economic activities and the development of transportation facilities usually go hand in hand. The government is constructing new roads and upgrading existing roads including unpaved rural feeder roads, which could actually improve the lives of the rural population, increase accessibility of the area including easy access to clinics, schools and markets, and indirectly create higher standard of living of the areas.

Well connected village tracts and less connected village tracts have been compared to study the growth of socio-economic condition of Wethtikan Area after constructing rural roads.

To compare the village tracts, Wethtikan and Hlwazin village tracts located on Pyay-Wethtikan-Hsisankone concrete road that has been constructed since the North Nawin Dam was established were selected as well connected village tracts. Waryonesik village tract included in Mya Seinn Yaung Rural Development Program and Tegyigon village tract were selected as less connected village tracts.

Well connected Wethtikan Village Tract is situated at the western part of the study area. Wethtikan Village Tract was upgraded as Town in 2000. It has an area of 7.16sq/km (2.7703 sq/miles). Wethtikan Town is composed of six wards. Before 1988, Wethtikan area had Police Training Camp, police station, affiliated high school and 25 bedded hospitals. As animal husbandry was mainly done in Wethtikan area, agriculture ranked second in economic activities of the area. Total paddy cultivated area was only 206.79 hectare (511 acres) and area of garden land was 8.09 hectare (20 acres). Area of agriculture land decreased to 81.34 hectare (201acres) and garden land to

4.45 hectare (11 acres) in 2017. In the study period, population density increased from 171,423 per sq.km (66340 persons per sq. mile) to 321,036 per sq.km (124, 240 persons per sq.mile) because of better transportation. As it was upgraded as a town, socio-economic activities were also changed. In 1990, a high school was opened and a post primary school was established. Although Wethtikan Area has Wethtikan High School and affiliated high school at Hlwazin Village Tract, most students attend Wethtikan High School due to easy accessibility. Few years ago, students from remote areas had to stay in Wethtikan to attend the classes. At present, these children go to Wethtikan daily as commuters, because of better accessibility.

Well connected Hlwazin village tract is located in the northeast of Wethtikan Area. Hlwazin, Lebe, Inntawtha, Thaphaykhoun and Hsisankone villages are included in this village tract. Basic Education Primary School Lebe was established in 1966-67 and gradually upgraded to Affiliated Basic Education Middle School in 1971, and Branch Basic Education High School in 1996. Before 1988, students depended on ferry of Irrigation Department to go to Wethtikan. Parents planned for their children to stay in Wethtikan. At present, students can go as commuters and it only take 30 minutes on foot and 15 minutes by bicycles to attend at the Lebe Branch Basic Education High School. Green gram and groundnut are cultivated on the alluvial land. Agriculture produces of the area are sent to Aunglan Township because of easy accessibility.

Less connected Waryoneseik Village Tract is located in the northern part of Wethtikan and it possessed earth road, but it was upgraded as Laterite road leading to Kyawthar in 2005. Last two or three years, it took one hour to go to Wethtikan by bicycle and at present, it only takes 20 minutes. Therefore, travel time reduces for 40 minutes. Because of better road transportation, local people go to Aunglan Township to sell paddy to get higher income. After 1988, the number of graduate increased to 40 and Rural Clinic is established.

Less connected Tegiyigon Village Tract is situated in the south-eastern part of study area. It includes 5 village tracts in which Tegiyigon, Kantharyar and Sinda villages have state primary schools. After passing the primary school, students living in the area went to the state high school located in Gyogone Village of Paukhaung Township on foot to attend the middle

school level literature and it took about an hour before 1988 as the students had to cross North Nawin Stream. In the flooding period, it was difficult to go to the school and low accessibility affects the education of the students in the area. The areas near the North Nawin Stream produce much agricultural products because of alluvial soils. But, it was difficult to sell out the crops produced in the area to other area because of low accessibility. Moreover, students living in the area also encounter difficulties on education because of poor roads.

In 2012, Township Development Committee contracted earth road and it was upgraded by self-help basis. At present, students go to State High School, Wethtikan Township and it takes only 30 minutes by bicycles and 15 minutes by bikes. In that area, education level become higher and number of graduate was 30. The number of government employee increased to 25 and socio-economic conditions of the area became higher due to better accessibility.

As better accessibility affects economic growth of the area, number of economic activities increased in the area. The young adults go to Yamethin and Meikhtila and work there as seasonal or migrant workers because they can easily come back to the study area in time of emergency due to better accessibility. It somehow show the effects of better transportation on socio-economic conditions of the area.

To reduce the poverty, Cooperative organization lends the loan to the local people but it is lent only for 6 months. Local people want to lend the loan for long term. They also lend the loan from private source but interest rate is high with 6 percent.

Findings

The main findings of this research are as follows:

Development of road transport affects the growth of rural area and the development of rural areas supported the development of urban area by means of allowing establishment of industries, services and trade (buying and selling).

Total length of the road was 76.12 km (47/3.59 miles) before 1948 period and it increased to 91 km (56/6.1) miles in 2017. Generally, travel time

is reduced. Network density had increased as the numbers and mileages of the roads had increased. Before 1988, road network density was 0.23% and it increased to 0.28% in 2017.

In education sector, number of school increased distinctly so that all rural children will have access to a basic education. Although students in the area encountered to continue their education after finishing primary education, students have a chance to learn higher education because of accessibility.

As the transportation sector develops, economic activities of the area somewhat increased and well-being of local people become higher.

Number of population has been increased due to natural increase and establishing boarding schools, upgrading governmental schools and the growth of connection among Yangon, Wethtikan and Nay Pyi Taw caused by better accessibility.

As consequences of the better accessibility, population growth is distinct, area of settlement area increased and number of job opportunities increased. Therefore, it is needed to maintain and upgrade existing road for the purpose of using and supporting local people. On the other hand, to get easy accessibility in education, health care and economic activities, it is necessary to plan public transports that help local people.

Conclusion

Wethtikan Area is located at the northeastern part of Pyay Township in Bago Region (West). The distance from Pyay is 28.97 km (18 miles). It is located between North Latitudes 18° 54' and 19° 06' and East Longitudes 95° 19' and 95° 27'. It has an area of 201.04 square kilometers (124.92 square miles). It has 21 village tracts which comprise of 101 villages. The total population of Wethtikan Area was 40345 persons (18 % of population in Pyay Township) in 2017. In Wethtikan Area, physical resources are suitable for agriculture and other agro-related economic activities located in rural areas.

After upgrading existing roads and establishing new roads, education of the student became higher and trade on agriculture products increased. Effects of transportation on socioeconomic conditions of the local people are

district and number of economic activities also increased owing to transportation sector development.

By fulfilling the needs on transportation steadily, socio-economic condition of the area will be gradually higher in the near future.

Acknowledgement

We would like to express our deep gratitude to Dr Win Naing, Professor and Head, Department of Geography, Pyay University and Dr Le Le Win Professor, Department of Geography, Pyay University and for they kind permission to conduct this research paper and proper guidance. We are greatly indebted to Sayamagi Dr Mi Mi Kyi (E.C member, Myanmar Academy Arts and Science) for her encouraging advice and guidance on this paper. Finally, we deeply thank to our colleagues for their eager and willing help and supports in field observation and data collection.

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