

Geographical Study on the Land Surface Configuration of Hpa-an Town, Kayin State

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Abstract

This research paper focuses on the land surface configuration of Hpa-an Town, Kayin State. Hpa-an is the capital of Kayin State. It is located about 15 metres (50 feet) above sea level but some of relief topography are abrasively upward increase such as Htaungwi , Kyarinn and Zawkapin Hills. Thanlwin River across in the western part of Hpa-an Town. Therefore, vicinity of Thanlwin River annually is flooded in the rainy season. According to the configuration of town, the most of study area is located from flat area close to sloping of hill. The low land area is mainly not only floods but there has dense population and concentration of economic activities. In addition, Hpa-an is one of the attractive places for travel and tourism in Myanmar.

Key words: Land Surface Configuration, Hpa-an, Kayin State

Introduction

The development of the city is due to land surface configuration. Hpa-an is situated in the middle part of the Hpa-an Township, located on the eastern bank of Thanlwin River and in the northern part of Tanintharyi coastal area which is mostly a mountainous region. It is located on the outcrop of Moulmein Limestone and it is located the narrow alluvial area of the Thanlwin River that flows from north to south. The configuration of town is well connected with low land area but hilly area which has low connectivity and accessibility.

Aim and Objectives

The aim of this paper to understand the basic geographic factor that determines surface configuration and economic activities of Hpa-an Town.

The objectives area to assess the surface configuration that impact on urban economy and distribution of the population and to find out the facts which essential needs for future development and infrastructure of the town.

Sources of Data and Methodology

For the collection of this research, necessary data, figures and information are provided by primary data and secondary data as following:

- (1) Township Administrative Office Hpa-an (2014)
- (2) Ministry of Labour, Immigration and Population (2014-15)
- (3) Settlement and Land Record Department

The majority of the study of this research is based on the descriptive method and explanatory forms of survey graphical analysis.

Physical Factors of Hpa-an Town

Hpa-an Town is situated in the middle part of the Hpa-an Township, which has an average height of 15meter (50 feet) above mean sea level. The astronomical location of this

town between is 16° 50' 00" and 16° 55' 00" North latitudes and 97° 36' 50" and 97° 40' 20" East Longitudes. It is bounded by Kawhtaw village tract on the north, Hlakamyin village tract on the east, Tayokehla, Yetha village tracts and Hlarkadaung village tracts on the south, Thanlwin River on the west. The Hpa-an is family close to the commercial region of Myanmar 'Yangon' and highly accessible to the most developed regions of the country. It has locational advantages for economic development as well as Thailand.

The area of Hpa-an town is 25.90 square kilometers (10.0 square miles) and composed of nine wards. They are Thayettaw-Myinetahzin-Kyarinn ward (ward No. 1), Zaytan ward (ward No. 2), Kuseik ward (ward No. 3), Zeetaw ward (ward No. 4), Aungnanmingalar ward (ward No. 5), Pyitaungsu ward (ward No. 6), Zwemanlwin ward (ward No. 7), Htaungwi ward (ward No. 8) and Yadanadipa ward (ward No. 9). The widest part from east to west is 5.97 km (3.71 miles) and about 6.82 km (4.24 miles) from north to south. So, it has nearly compact shape. (Fig. 1, Table 1)

Table (1) Wards area of Hpa-an Town (2014)

Sr. No.	Name of Ward	Sq-km	Sq- miles	Percentage
1	Thayettaw-Myinetahzin-Kyarinn ward (ward No. 1)	2.90	1.12	11.2
2	Zaytan ward (ward No. 2)	1.35	0.52	5.2
3	Kuseik ward(ward No. 3)	0.65	0.25	2.5
4	Zeetaw ward(ward No. 4)	3.13	1.21	12.1
5	Aungnanmingalar ward (ward No. 5)	3.16	1.22	12.2
6	Pyitaungsu ward (ward No. 6)	1.24	0.48	4.8
7	Zwemanlwin ward (ward No. 7)	4.58	1.77	17.7
8	Htaungwi ward (ward No. 8)	3.83	1.48	14.8
9	Yadanadipa ward (ward No. 9)	5.05	1.95	19.5
	Total	25.90	10	100

Source: Township Administrative Office Hpa-an (2014)

The Physical factor of Hpa-an Town can be divided into two divisions. These are western lowland area and eastern food-hill area. Hpa-an Town is located on the bank of Thanlwin river in the lowland area. So, Hpa-an where located at the bank of Thanlwin river is completely flat. The western flat plain is low-lying during the period of heavy rains and when coincides with spring tide, these areas are flooded. It has generally about 15 meter (50 ft.) above the sea level. However, eastern foot-hills areas as small hills are isolated hillocks. They are Hpa-me Taung 46 meter (150 ft.), Htaungwi Taung 176 meter (578 ft.) and Kyarinn Taung 352 meter (1156 ft.) and are well known in this town.

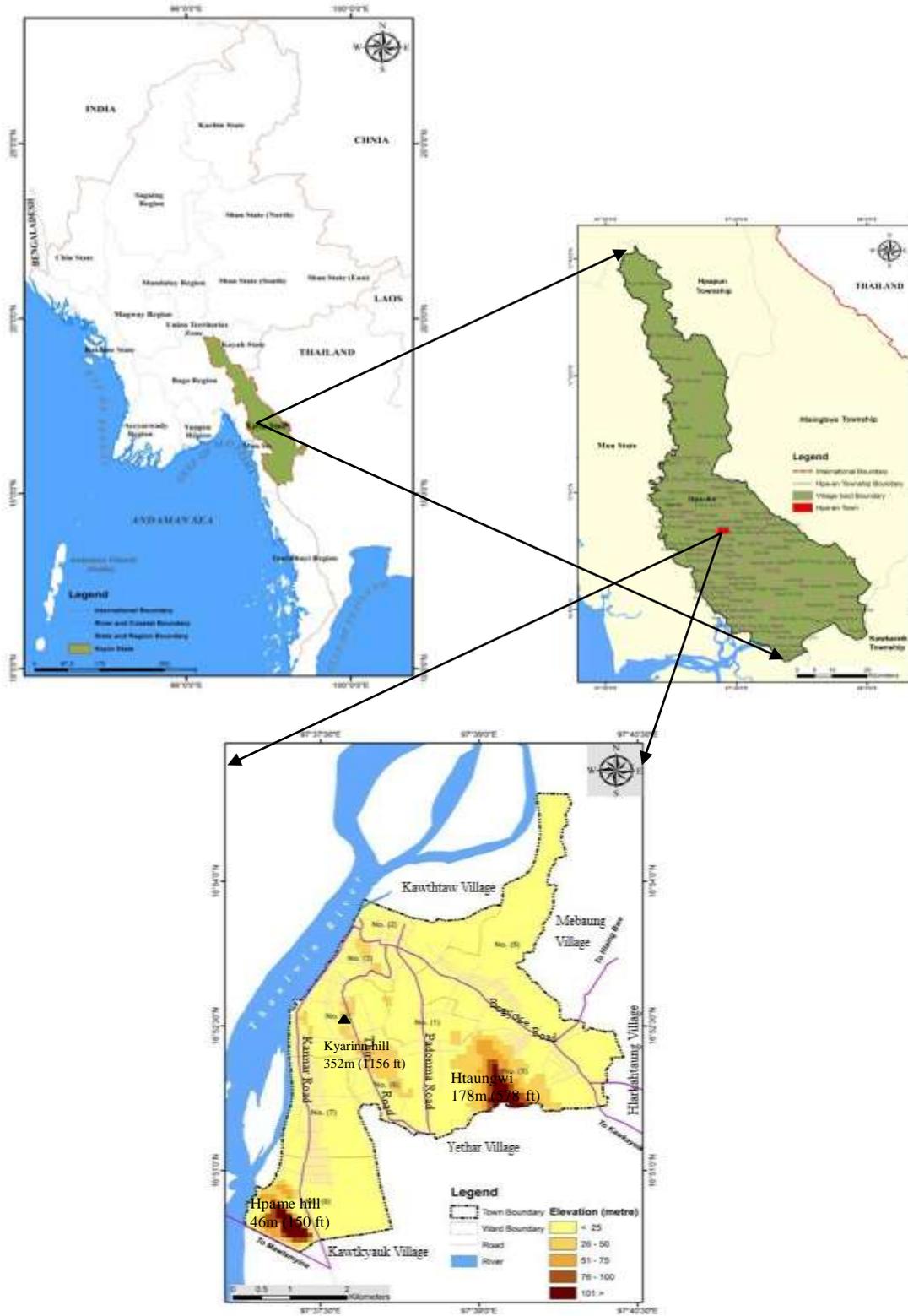


Fig. (1) Location of Study Area

Source: Survey Department, Map Based on Topographic Map (1:63360)

Hpame Taung and Htaungwi are situated in the western part of the town and Kyarinn Taung is also famous and located at the southeastern part of the town. The Thanlwin River is the major River in Hpa-an Town. It flows from north to south western part of the town. There are many creeks and streams which flow to the Thanlwin River. Kanthayar Lake is located at the center of the town. This lake is beautiful and attractive for the visitors. In general, the eastern part of the town is slightly higher than the western part.

Location and surface configuration are the two major factors which cause heavy rain and high temperature. Although the temperature is high all year round but not extreme because Hpa-an is near the coastal area. The highest average temperature is (39.75°C) in April and the lowest temperature is (14.8°C) in January during 2006 to 2015. During the southwest monsoon period, the town experiences the effect of tropical monsoon, and obtains plenty of rain. Heaviest rainfall is found in the mid rainy season. The highest rainfall experiences 1240.77 mm in July during the 10 period in 2006 to 2015. In July and August, it often receives continuous rainfall for a week or ten days. Although rainfall in the region is mainly orographic type, cyclonic types are also common. It is located within the seasonally shifting monsoon wind belt and the type of climate is Tropical Monsoon (Am). These climatic conditions are favorable for human settlement. The town has been inhabited for a long time because of favorable site, situation, and climatic condition. (Source: Department of Meteorology and Hydrology, Hpa-an Station, 2015)

The geology of Hpa-an can be located on the south western part of eastern highland, at the beginning of Tanintharyi coast and on the bank of Thanlwin River, Hpa-an Town has exposed rocks such as schists and gneiss. The sedimentary rocks of Quaternary age was exposed on the lower eastern portion of the Thanlwin River. These rocks are composed of alluviums, gravels and laterites.

In response to low flat land, the soils that developed within Hpa-an Town area are of meadow soil group which is highly in clay content. The forest soil group occurs in the south western part and southeastern part. Lateritic soil and soils formed by erosion of the limestone occur in the east of the ward. In the meadow soil area, deep foundation is necessary in construction of roads and heavy buildings. Since then clayey soils cannot withstand the heavy weight. Thus, causing difficulties in construction roads and roads are not found in the highest lowland area of taungs.

Natural Vegetation of Hpa-an had been cleaned primarily for cultivation and settlement. In early days, Hpa-an Town was covered with tropical rain forests. The principal species found in Hpa-me, Htaungwi and Kyarinn Taung are Padauk, Teak, Thetyingyi, Myayar and Ingin. The present vegetation cover of the town is planted by man. The conservation of the existing trees and planting of additional young plant on the Hpa-me hill is being carried out by the forest department. Since Hpa-an became an urbanized town, the natural vegetation was not seen in naturally. But there are abundant species in the taungs.

Human Factors of Hpa-an Town

Total population is one of the forces considered for the development of road network. Because of the population growth, formerly small towns have changed into the large cities and they need inter-connections between those pairs of cities and other neighbouring areas. To understand the total population of the area, the study of population growth, distribution, and density is necessary. Moreover, the economic activities developed after the construction of Thanlwin Bridge, Gyaing-Zarthabyin and Gyaing-Kawkareik Bridges. Most of the people settle on the lowland area of Hpa-an Town, able to go, trade and communicate.

Hpa-an is the most populated area in Kayin State. There is not only State' Capital and being the headquarter of Kayin State administration but also good transportation. According to table (2), the total population increased 51880 in 1993 and further to 68383 in 2003 as well as 75215 in 2013. This increase was according to internal stability, better health conditions and fall of death rate. In 2015, the total population of Hpa-an Town is 75653 with 37206 males and 38447 females. Urban population growth is more affected by immigration rather than its natural growth. It also increased because of availability of better amenities, opportunities for jobs and higher living standard. Urban population growth in Hpa-an Town is shown in Table 2. At present, the total population of Hpa-an is 75653, its density of population is 2920.97 persons per square kilometer. However, the density of population differs from place to place. Ward No.(2),(3) (downtown area) and Ward No.(6) area densely populate. Others are moderately populated; the lowest density of population is Ward No. (7) and (8). It has still a lot of agricultural land. The actual population distribution of Hpa-an is largely controlled by its physical features. Therefore population distribution can be seen in the flat plain downtown area and the concentration of along the highway main roads.

Table (2) Growth of Urban Population in Hpa-an Town

Wards	Areas	Total Population					Population Density Per sq.km				
		1993	2003	2013	2014	2015	1993	2003	2013	2014	2015
No.(1)Ward	2.9	8131	10057	10872	10935	11014	2803.79	3467.93	3748.97	3770.69	3797.93
No.(2)Ward	1.35	7974	8062	8163	8197	8371	5906.67	5971.85	6046.67	6071.85	6200.74
No.(3)Ward	0.65	4369	4510	4652	4663	4663	6721.54	6938.46	7156.92	7173.85	7173.85
No.(4)Ward	3.13	9185	9975	10189	10205	10205	2934.5	3186.9	3255.27	3260.38	3260.38
No.(5)Ward	3.16	9796	10946	11158	1179	11179	3100	3463.92	3531.01	3537.66	3537.66
No.(6)Ward	1.24	5841	6750	7079	7095	7095	4710.48	5443.55	5708.87	5721.77	5721.77
No.(7)Ward	4.58	4226	5054	5283	5286	5286	922.71	1103.49	1153.49	1154.15	1154.15
No.(8)Ward	3.83	2358	2791	2825	2826	2826	615.67	728.72	737.6	737.86	737.86
No.(9)Ward	5.05	Nil	10238	14994	15014	15014	Nil	2027.33	2969.11	2973.07	2973.07
Total	25.89	51880	68383	75215	75400	75653	2003.09	2640.27	2904.05	2911.2	2920.97

Source: Administrative Office of Hpa-an Town(2014)

Urban residents in Hpa-an can be divided into native and foreign nationalities. Bamar (37.44 percent) is the majority nationality. Kayin (32.99 percent) is the second largest, and Mon (8.01 percent) is the third largest national group. Shan, Rakhine, Chin and Kachin are minorities. Therefore, Hpa-an is a multiethnic area. Among foreign nationalities, Indians are the largest group and there are only a few Chinese. Buddhism is the main religion.

According to the 2015 data, 73.85 percent of the total populations were Buddhists. Christians was the second largest (13.78 percent) faith in Hpa-an, Muslims (7.68 percent) was the third largest religion and Hindus (4.45 percent) was the fourth largest religion (Table 3).

Table (3) Population by Religious in Hpa-an(2014 -2015)

Town	Buddhists		Muslims		Hindus		Christians		Others		Total	
	Total	Percent	Total	Percent	Total	Percent	Total	Percent	Total	Percent	Total	Percent
Hpa-an	55867	73.85	5807	7.68	3370	4.45	10426	13.78	183	0.24	75653	100

Source: Ministry of Labour, Immigration and Population

Education is essential for urban development because education is the foundation of human resource development. In higher education center, there are Hpa-an University, Technology University, Hpa-an Education College, Computer University. In 2014, three Universities and one college had 392 teaching staffs and 4057 students. In Basic Education Sector, there are four High Schools, two High Schools- Branch, one middle school and one middle – Branch, eight primary schools and four Post-Primary Schools in Hpa-an Town. In 2014-15 academic years there are 264 teachers and 7363 students at high schools. Above the mention that education system within Hpa-an is fairly good for effective teaching.

The health sector is vital for urban development and the improvement in the living standard of the inhabitants. Each and every residence should be physically fit and morally sound. These situations indicate that the acute shortage of medical staff for effective public health care.

There are three famous traditional festivals. They are Chi PhyuPhwe ceremony or Lat Chi Pwe, held on the full-moon day of Waking, Kayin's New Year festival held on Pyarho and Zweekabin Pagoda festival held on the full-moon day of Dabbing. These festivals are so famous that they cannot only attract locals and around the town but also arouses those living in different regions to come back to Hpa-an.

Electricity supply isn't in sufficiently due to in availability of sufficient fuel oil. Hpa-an now receives electric power with 66 KV Volt from That on Electric Power Plant. The electric power is transmitted to the respective wards by 11 KV lines via 163 transformer each having a capacity of 11/0.4 KV. There are now 31084 household-use meters, 56 power meters and 63 private transformers.

Groundwater and Thanlwin River water are the main sources of water supply in Hpa-an Town. At present water is supplied by Township Development Affairs to the households of ward No.(1),(2),(3),(4) and (9) with a total volume of 40,000 gallons per day. In wards No. (5), (7) and (8) have to rely on water acquired by private tube wells, hand-pumps and surface wells. In the elevated Ward No. (6) and (9) have to face water shortage problem in summer. As water from the the Thanlwin River is sent directly to the storage tank, the water quality is not so clean and safe for domestic consumption particularly for drinking.

The Land Surface Configuration of Hpa-an Town

There are nine wards in Hpa-an Town. Most of the wards located on the flat land. The western part of the Ward No. 4 (Zeetaw Ward) has a hill called Hpa me and 46 metres (150 feet) high. The southwestern part of Ward No. 8 (Htaungwi Ward) has 178 meters (578 feet) above sea level. This hill is known as Htaungwi Hill. The southern portion of Ward No.9 (Yadanardepa Ward) is the highest area. The highest peak of Kyarinn Hill is 352 meters (1156 feet) above sea level. (Fig. 2)

The lowland area of wards which situated nearly with Than Lwin River, flooded in the rainy season. These wards are Ward No.2 (Zaytan Ward), Ward No.3 (Kuseik Ward), Ward No.4 (Zeetaw Ward) and Ward No.7 (Zwemanlwin Ward) are flooded in the rainy season. Moreover, Ward No. 5 (Aungnanmingalar Ward), Ward No. 1 (Thayetaw – Myinethazin-Kyarinn Ward) and Ward No. 9 (Yadanadipa Ward) are poor drainage area. Ward No.5 (Aungnanmingalar Ward) is the worst area of the flooded area.

There is one administrative office in every ward. Ward No.1 is the central part of downtown area of Hpa-an Town and the area cover about 2.9 square kilometres (1.12 square miles). It is about 11.2 percentage of the town. The Hospital of Hpa-an Town, private clinic, Township stadium, telecommunication office and fire station, print and published, agriculture department and monastery are situated in the Ward No. 1 (Thayetaw –Myinethazin-Kyarinn Ward). Various types of shops such as stores, tea shops, cold drink shops, and etc, exist along the main road of Bogyoke Road.

Ward No. 2 (Zaytan Ward) is located at the northern part of Hpa-an Town and nearly with Than Lwin River. The area is 1.35 square kilometres (0.52 square miles). It is about 5.2 percentage of town. In 2007, the second highest populated area of wards in Hpa-an Town. Pagodas, the small private hotels and inns, wholesale markets and store houses are shown as the main center of the economic activities.

Ward No. 3 (Kuseik Ward) is also situated near the Than Lwin River and has 0.65 sq.km (0.25 square miles). It is about 2.5 percentage of the town. Government guest house, Church, Zweekabin Hall, Tatnaywin Cinema, Myanmar Traditional Medicine hospital, Meteorology Station, Port and other economic types are found in this ward.

The area of Ward No. 4 (Zeetaw Ward) is 3.13 square kilometres (1.21 square miles). It is about 12.1 percentage of the town. State Administrative Office, Central Nurse Office, State Law and Regulation Council, Tax Office, Land Record Department, Civil Department, State Education Office, Basic Education High School and Basic Education Primary School are located in this ward. Therefore, this ward is called the official ward. The other economic activities are saw mills, oil mills and other domestic factories.

Ward No. 5 (Aungnanmingalar Ward) has 3.16 square kilometres (1.22 square miles). It is about 12.2 percentage of the town. The religious buildings, education buildings and Aung Than Lwin Playground are situated. The students of Hpa-an University stay at the rent houses of Ward No. 5. Ward No. 6 occupies about 1.24 square kilometres (0.48 square miles) wide. It is about 4.8 percentage of the town. Church and Basic Education High School are located in this area. This ward can be found the settlement area.

The area of Ward No. 7 (Zwe Mann Lwin Ward) is covered by 4.58 square kilometres (1.77 square miles). It is about 17.7 percentage of the town. The development of the urbanization process, the paddy field replaced as the residential area. Ward No. 8 (Htaungwi Ward) is 3.83 square kilometres (1.48 square miles). It is about 14.8 percentage of town. There is no settlement area until in 2007. No.9 Ward is 5.05 square kilometres (1.95 square miles) wide. It is about 19.5 percentage of the town. Pagodas, religious buildings, educational buildings, civil office, high way offices and Hpa-an University and Hpa-an High-way Gate are located in No. 9 Ward.

The main economic activities are ticket shop for high-way gate, small hotels, store houses for many gates and wholesale market include in this ward. (Seen in plates)

There are four main roads such as Bogyoke Road, Padonma Road, Thiri Road, and Kannar Road. These roads are constructed by metal roads and located about 30 metres (100 feet) above the sea level and the main road are not constructed on top of highest land. Other roads are Kyarinn Road, Zweekabin Road, and Oo Yin Road with built by gravel and earth land. The main transportation roads lead to smooth not only transportation and communication but also commodities flow of economic activities. Most of the residents settle along the main roads for their economy (Fig. 2).

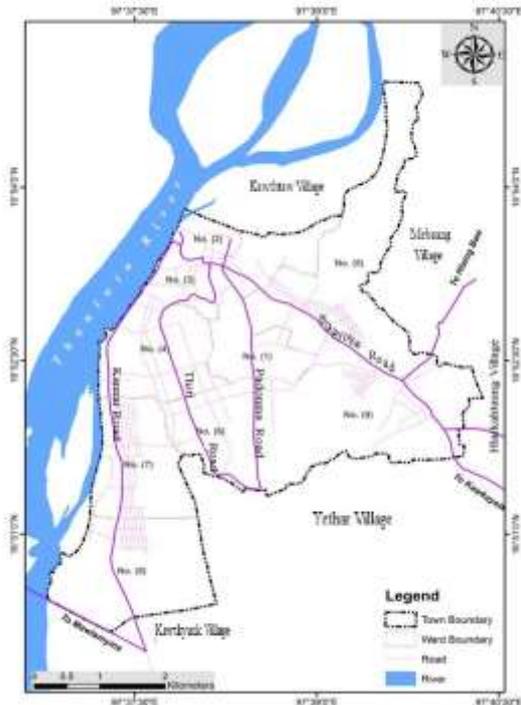


Fig. (2) Wards and Main Roads in Hpa-an Town
Source: Survey Department, Map Based on Topographic Map (1:63360)

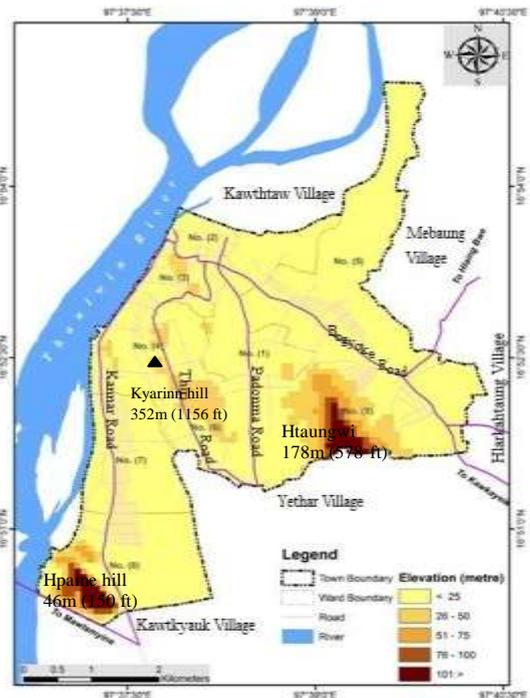


Figure (3) Land Surface Configuration of Hpa-an Town
Source: Survey Department, Map Based on Topographic Map (1:63360)

Ward No.1



Plate (1) Administrative Office



Plate (2) Special Clinic of Hpa-an Town

Ward No.2



Plate (3) Administrative Office



Plate (4) Shwe Yin Myaw Pagoda



Plate (5) Myoma Market at Ward No. 2

Ward No.3



Plate (6) Administrative Office



Plate (7) Zweekabin Hall



Plate (8) Zweekabin View



Plate (9) Administrative Office of Ward No. 4

Ward No.5



Plate (10) Administrative Office



Plate (11) Hpa-an

Ward No.6

Plate (12) Administrative Office

Ward No.7

Plate (13) Administrative Office

Ward No.8

Plate (14) Htaungwi Monasterys

Ward No.9

Plate (15) Administrative Office

*Source of plates : Field Survey

Note: Photographs taken on April, 2012

Conclusion

Hpa-an is the capital of Kayin State and it includes nine wards. This town is situated on the eastern bank of the Thanlwin River. So, Hpa-an Town is facing with the problems of the flooding and bank erosion in the rainy season especially vicinity of the river. Flooded areas are Ward No.2 (Zaytan Ward), Ward No.3 (Kuseik Ward) and Ward No.7 (Zwe Man Lwin Ward) in rainy season. They have poor drainage area of Ward No.1,5 and 9.

Most of the densely populated area can be found on the flat land area. According to table (2), the highest populated density of wards are Ward No. 2 (Zaytan Ward), Ward No. 3 (Kuseik Ward), and Ward No.6 (Pyitaungsu Ward) are located on the lowland area of Hpa-an Town. Ward No. 1 (Theyettaw-Myinethazin-Kyarinn Ward) is the center of the land surface configuration of Hpa-an Town. Ward No. 7 (Zwe Mann Lwin Ward) is the new ward of urbanization area in Hpa-an Town. Other extension wards are Ward No. 5 (Aungnann Mingalar Ward) and Ward No. 9 (Yadanardipa Ward). The settlement areas are increased except the Kyarinn taung hill. The physical factors, human factors and land surface necessary urban infrastructures should be supplemented for development of town. Due to the land surface configuration of Hpa-an which is located close to Thailand, Mawlamyine and Thaton cities of Mon State, Bago and Yangon regions, trade with local and international can be developed in the foreseeable future. Moreover, Hpa-an Town is positioned near picturesquely Zwdekabin Hill that can take many visitors. Limestone cave such as Sadden, Bayinnyi, Kawgon, Kawkathaung, Yathitpyan ect, are natural attributes for the development of ecotourism in Kayin State. Thus, Hpa-an, it attracts for travel and tourism in Myanmar.

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References

Department of Geography, 1999. *Geography of Myanmar*. University of Distance Education, Yangon, Ministry of Education.

Hla Tun Aung, 2003. *Myanmar the Study of Process and Patterns*, HRD, Ministry of Education, Myanmar.

Khin Win Naung, 2003. *Transportation and Communication of Hpa-an Township*, Unpublished Term Paper, Department of Geography, Hpa-an University.

Nan Moe Myint Thu, 2016. *Geographical Analysis on Pattern and Process of Urban Area Expansion in Hpa-an Town*, Geography Department, Hpa-an University.

Soe Ni Lin, 2003. *Urbanization of Hpa-an*. Unpublished Term paper for Master of Arts, Department of Geography, Hpa-an Degree College.

Soe Ni Lin, 2003. *Urbanization of Hpa-an Township*, Unpublished Term Paper, Department of Geography, Hpa-an University.

Township Report, 2014. Township Administrative Office Hpa-an

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