

Identification and Mapping of Health Facilities in Bukuru Town, Plateau State Nigeria

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Abstract

This study identified and mapped health care facilities within Bukuru Town in order to assess the effectiveness of the health care facilities. The list of registered health care facilities was obtained from the Ministry of Health and by identifying and locating their locations. These were achieved with the aid of scientific tools of remote sensing GPS and GIS for an updated map, where the research discovered twenty one (21) health facilities. Questionnaires using the Survey Available Mapping structure (SAM) is used to gather data concerning their categories. The results showed that only one (1) attained the tertiary level, four (4) PHCs while others at health Center level, thus, were uneven distributed (scattered) and insufficient as expected by the policy. The classifications were based on equipment, staff strength and patients' response to the provision of the health care facilities. There were two (2) government owned and nineteen (19) private health care facilities covering distance of 5 to 200 km in terms of patronage. In order to bring about the desired changes to promote the well-being of the people of Bukuru town with estimated population of 168, 275, the research recommended strategies towards attaining the desired goal of effective provision and distribution of health care facilities, such as all health providers to strictly adhere to the policies of the provision, upgrading health facilities to competent health facilities in their true sense and strategy of distribution with the need to improve the additional secondary level of health care in Bukuru Town.

Keywords: Identification, mapping and health facilities

1. Introduction

Healthcare is a significant indicator of social development and access to the health facility is an important component in the overall healthcare system which has a direct impact on the burden of disease that encumbers health conditions in many developing countries (Islam and Aktar, 2011). The spatial distribution of health facilities is of paramount importance to planners. There inequitable distribution over space is of concern and has brought about the issue of provision and effective utilisation of the facilities. It is believed that it is highly available in the urban areas and, the number and quality of health facility in a country or region is one common measure of that area's prosperity and quality of life (Rizyada, 2012). Health facilities include all public, private, non-governmental and community-based health facilities defined as a static facility (i.e., has a designated building) in which general health services are offered. Health posts can be counted as static facilities, but because they are generally small with minimal supplies, they may need to be disaggregated for interpretation purposes (WHO, 2010). In addition, health facilities refer to the physical structure and supporting equipment established for provision of health services. It usually involves a structure with facilities for different health service needs, equipment such as cold chain facilities for storage, management and use in the provision of health services to the population (Shrestha, 2010). Markus and Makanjuola (2011) stated that health policies are directed towards the creation of a basic infrastructure and adequate manpower for effective delivery of health services for the rapid growing population considering primary, secondary and tertiary levels.

Many studies have revealed the availability of health care facility by community participation in various district health systems. Its adequacy is judged as processed of the availability of health centers (facilities) in an area of study, utilization of the services rendered by the available health facilities assessing whether coverage goal has been reached. The research was towards developing a logical framework that the provision and distribution of health facility can be judged, hence, subsequently calls for intervention or improvements.

Therefore, health facilities as can be understood in both qualitative and quantitative term means the quality of care and accessibility to health care delivery within a country, being judged by the quality of physical, technological and human resources available at a given period. The physical structure entails the building and other fixed structures such as pipe borne water, good access road, electricity and so on within the health care environments, while, the technology is about the equipments meant specifically for hospital use including surgeries (Ademilayi and Aluko-Arowolo, 2009).

Accessibility to healthcare facilities has been measured in different ways, depending on the context of the application (Islam and Aktar, 2011). The need for the provision and distribution of health facilities were to meet the set health goal in addition to the Millennium Development Goals. Nigeria being a member state seeks

to pursue strategies to complement the effort of African Union in its goals of increasing better health for all, it states that:

- All citizens should have equal access to the services which they are entitled.
- To have a healthy and safe environment.
- Access to health care.
- Maintaining land use policy to avoid inappropriate depletion of community's facility land.

(Marcus and Makanjua, 2011).

There is the problem of provision multiple facilities to serve people with the services and information on health care, therefore proper distribution of health facilities will help in maximizing accessibility, thereby helping government and stakeholders save cost on providing infrastructure for the entire population and most importantly optimize delivery of health care goals.

The need for the research is necessary because data on health facilities and resources available to the health system are essential to enable government, community and other stakeholders to determine how best to meet the health-related needs of the population. Indicators of service availability cannot accurately reflect access to and utilization of services. For example, clients may avoid use of local facilities or may use ones that lie outside the immediate catchment area because of travel logistics, sociocultural preferences and actual or perceived issues around quality. Urban areas present a particular challenge because, although facilities may be close in proximity, issues of affordability and acceptability become more important obstacles to access (WHO, 2010).

Access to health facility is critical to health care provision and distribution as well to the overarching goal of Universal Health Coverage. Data on health care facilities are rarely collected and have never been reported in the case of Bukuru town. Hence, the need to embark on the research which will allow identification of where there is coverage gaps that warrants intervention; planning strategy.

The present research is aimed to study the provision and distribution of health facilities in Bukuru Town in order to determine their accessibility, effectiveness and proffer planning solution that will improve the health being of the people.

1.1 Methodology

The research method adopted is mainly survey research which involves extensive field survey and interviews. The research will undergo extensive site visit to observe the health care facilities, examine their locations, facilities available, accessibility, and compatibility with surrounding uses, the environmental quality, site coverage, and development permit granted.

The existing Health care facilities in the study area are Mushet Nurse Home Clinic and Maternity, Tausayi Clinic and Maternity, Veejay Royal care hospital, Aminci clinic, ECWA Comprehensive health center, TCNN Clinic, Gyel Central Clinic, Shefwol Clinic, Graceland Clinic and Maternity, Medview Radiological, Sunnah clinic and maternity, Abunaema clinic and Ihsan clinic and maternity, PHC Bukuru Cetral, PHC Bukuru Express, PHC Gyel Lokwon Clinic, Dee Medical center and Bukuru Specialist Hospital.

In order to identify information source and information collection, informal and formal survey were used in collecting and recording the information, thus the use of GPS, GIS and remote sensing tools. And Service Availability Mapping (SAM)). SAM aims to provide an overview of what is available and where; it can be used to monitor scale up and assess equitable and appropriate distribution of services and resources.

Key areas of information it provided

- Availability and location of physical infrastructure (health care facilities, beds, basic medical equipment);
- Location of health service delivery points (public and private);
- Availability and location of health services (maternal and child health, HIV/AIDS, TB, malaria);
- Availability and location of health workers.

Map Profile

Maps were updated and intensively used to drive home points of most of the findings and proposals. They were produced through remote sensing, GIS, geo-referenced and digitalized to reflect the through position on ground. The following maps were produced and used:

Base map of Jos-Bukuru metropolis in scale 1:50,000

- i. Map showing the physical Land use pattern of the study area, scale 1:50,000
- ii. Map showing Plateau State in National setting
- iii. Map showing Jos-South metropolis in the State setting
- iv. Satellite Imagery Showing Bukuru Town in scale 1:50,000
- v. Satellite Imagery showing the existing Health care facilities in Bukuru town 1:50,000
- vi. Countour map of Bukuru Town in scale 1:50,000

- vii. Land Use and Land cover of Bukuru Town in scale 1:50,000
- viii. Map showing the Existing category of Health care facilities in Bukuru town.
- ix. Map showing the Political wards of Bukuru town with the Existing category of health care facilities
- x. Map showing the spatial distribution of the health care facility in Bukuru town
- xi. Map showing the proposed strategy of the distribution of health care facilities in Bukuru town

1.1.1 Result and Discussion

Identification and Mapping of Health Facilities in Bukuru town

The authors identified the available health facilities in the study area using the GPS and presented the true positions of their locations by the X and Y coordinates (see figure 1) and as can be seen for easy identification on figure 2. While figure 3 shows how the health facilities were distributed on map of Bukuru indicating their positions and names for easy identification.

Interestingly, figure 4 reveals the distribution of the health facilities on the political ward map expressing the uneven distribution of the facilities. The facilities were distributed on the horizontal axis which resulted to making Bwandang and Bah wards at the disadvantage in terms of accessibility to the health facilities.

Table 1. The 'X' and 'Y' Coordinate of Health Location in Bukuru Town

| Name of Health Facility | X | Y |
|--|--------|---------|
| Primary Health Center, Bukuru Central | 485268 | 1082707 |
| Mushet Maternity Clinic, Bwandang, Bukuru. | 484919 | 1081955 |
| Tausayi Maternity clinic, Bah, Bukuru | 484676 | 1082046 |
| Veejay Maternity clinic, Bukuru Express. | 484610 | 1082938 |
| Bukuru Specialised Hospital, Bukuru Express. | 484458 | 1083354 |
| Primary Health Center, Bukuru | 484568 | 1082841 |
| Lokwon Clinic, Gyel, Bukuru | 484449 | 1082389 |
| Primary Health Center ,Gyel | 483719 | 1082636 |
| Gyel Central Clinic, Tanchol. | 482843 | 1083134 |
| Shopfunol Clinic Takum | 483731 | 1082701 |
| Grace Land Clinic and Maternity, Takum | 483331 | 1082354 |
| COCIN Dispensary Clinic Gyel | 484282 | 1081995 |
| DEE Medical Center, Gyel. Bukuru | 484714 | 1089204 |
| Salama Clinic and Maternity, Shen Rd, Bukuru | 486220 | 1082030 |
| Medview Radiology, Bukuru | 486665 | 1082664 |
| T C N N Clinic, Bukuru | 486925 | 1082862 |
| ECWA Comprehensive Health Center, Bukuru | 485448 | 1083555 |
| Aminchi Hospital, Bukuru | 485101 | 1083745 |
| Sunnah Hospital and Clinic, Gero Rd, Bukuru | 484435 | 1083146 |
| Abunaema Clinic, Gero Road, Bukuru | 485067 | 1083082 |
| Ishsan Clinic, Bukuru Central. | 485293 | 1082995 |

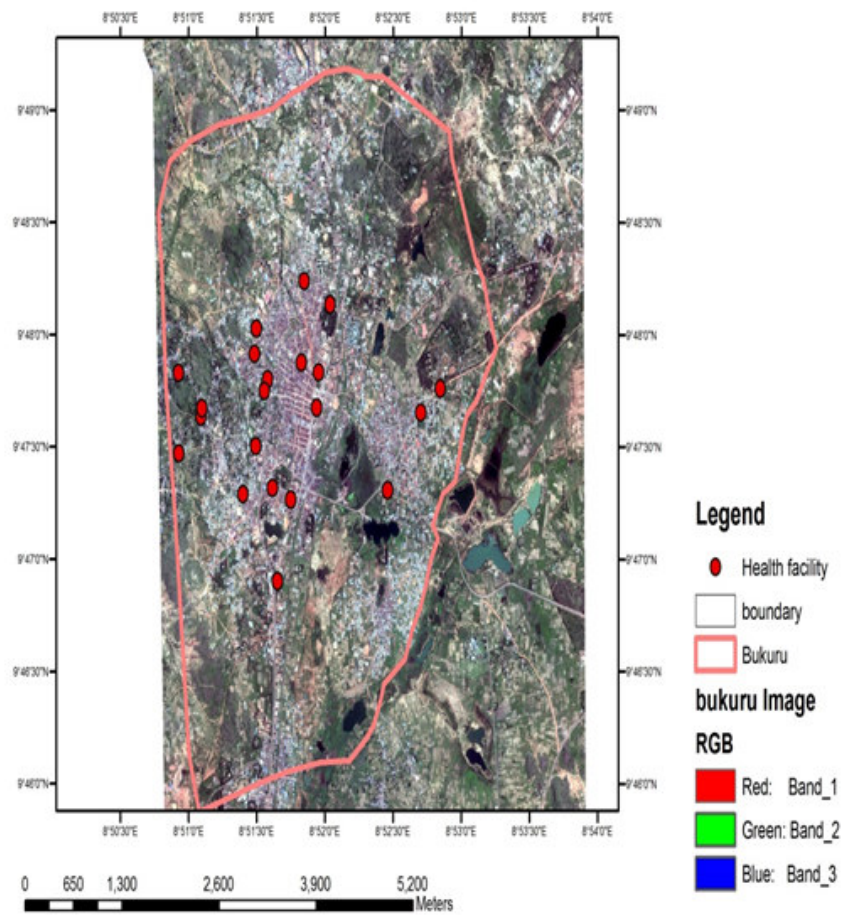


Fig. 1. Satellite imagery showing existing healthcare facilities

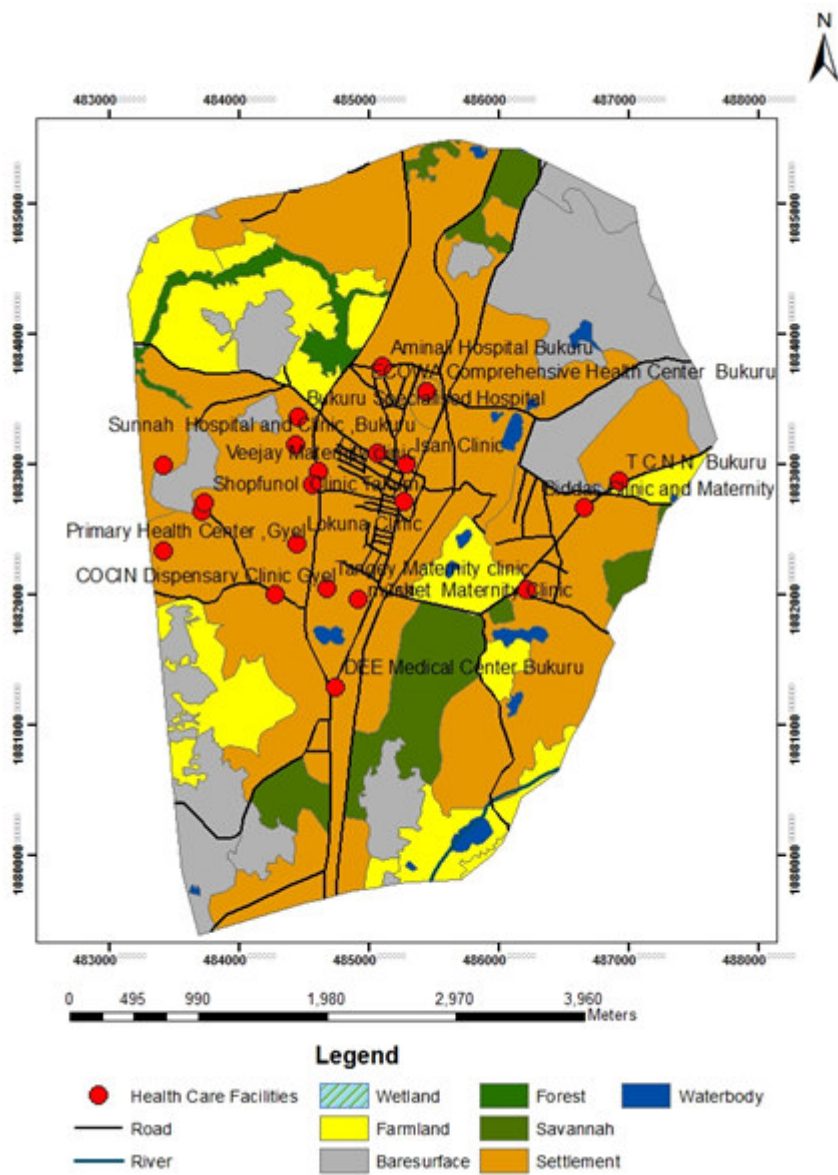


Fig. 2. Satellite Imagery Showing existing Health Care Facilities

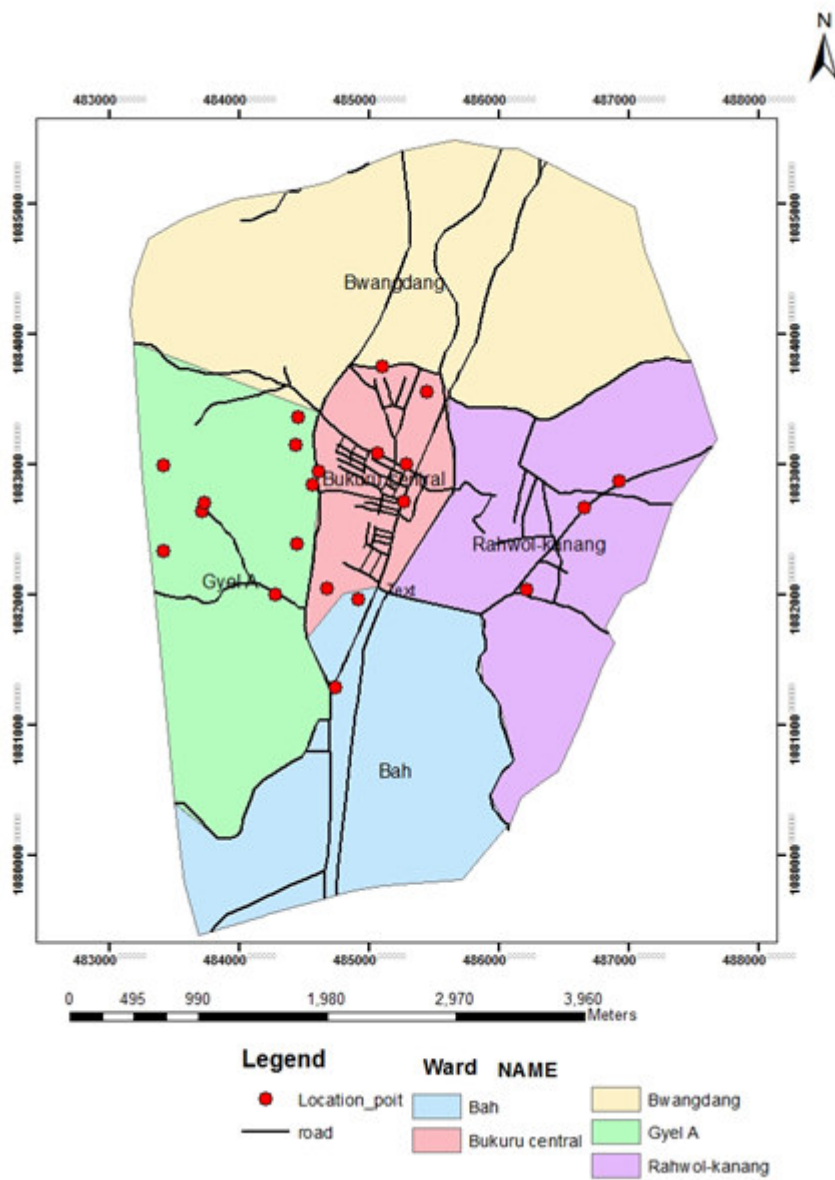


Fig. 3. Distribution of Health Facilities within Bukuru Town

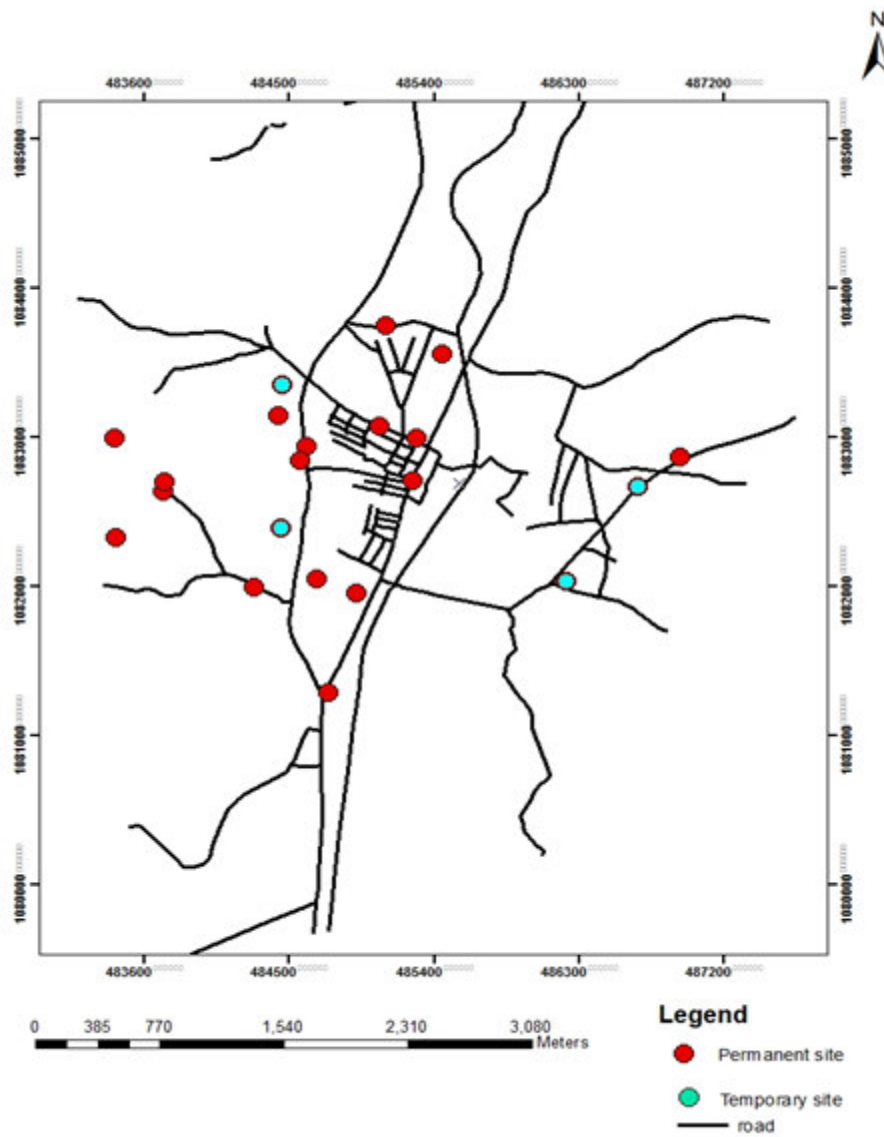


Fig. 5. Permanent and Temporary Sites of Health Care Facilities in Bukuru Town.

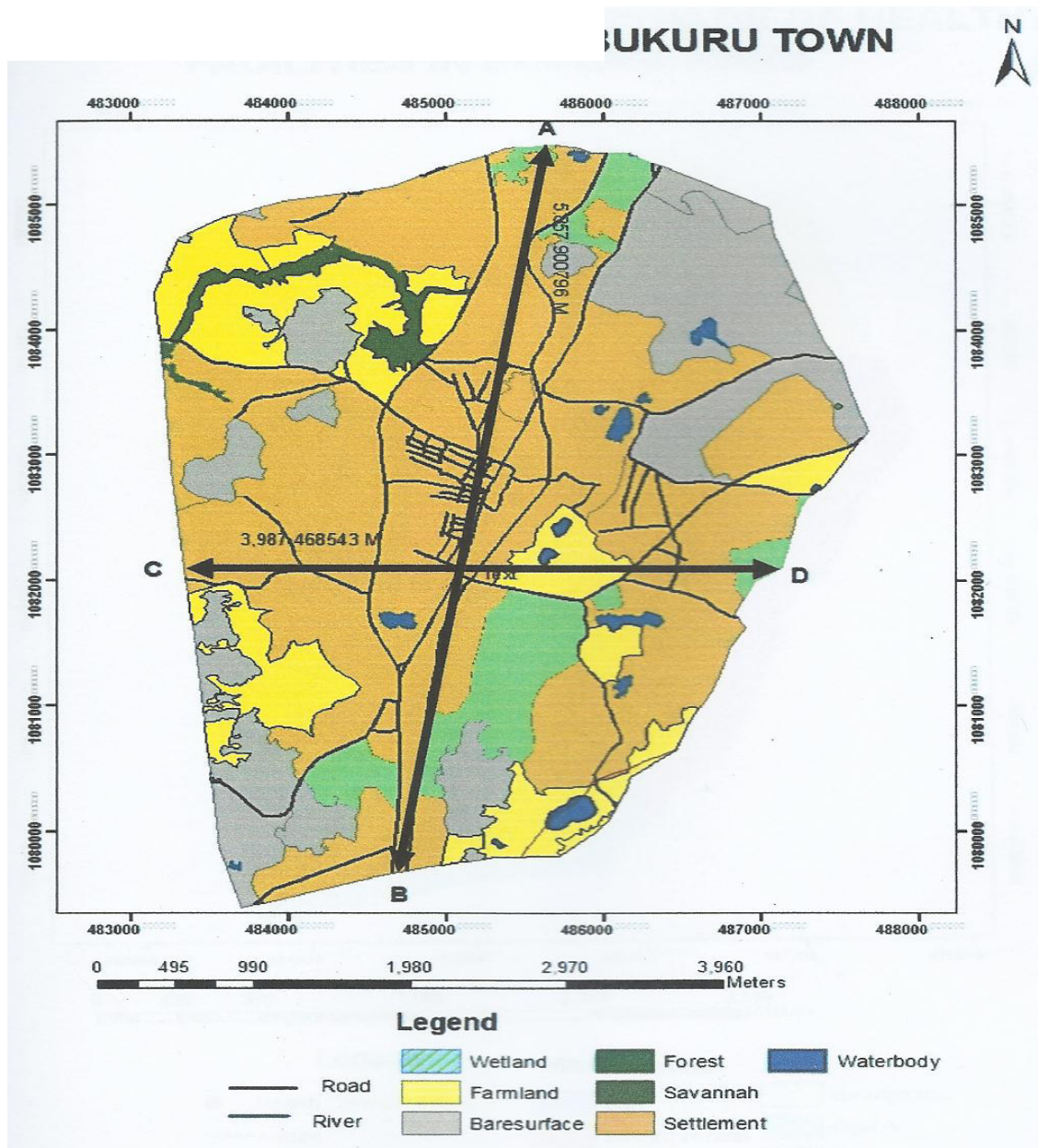


Fig. 6. Diameter Distance of Bukuru Town.

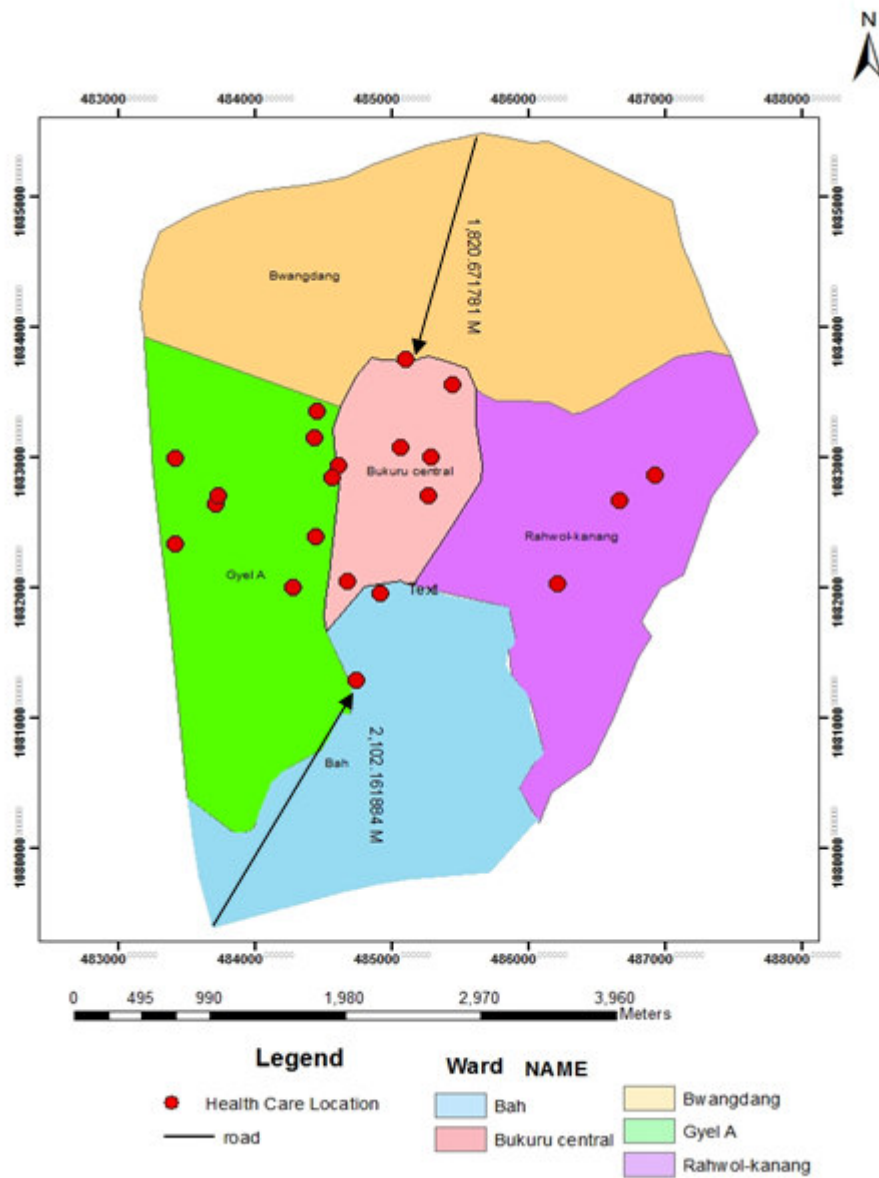


Fig. 7. Range of Distance Coverage of Health Facilities in Bukuru Town.

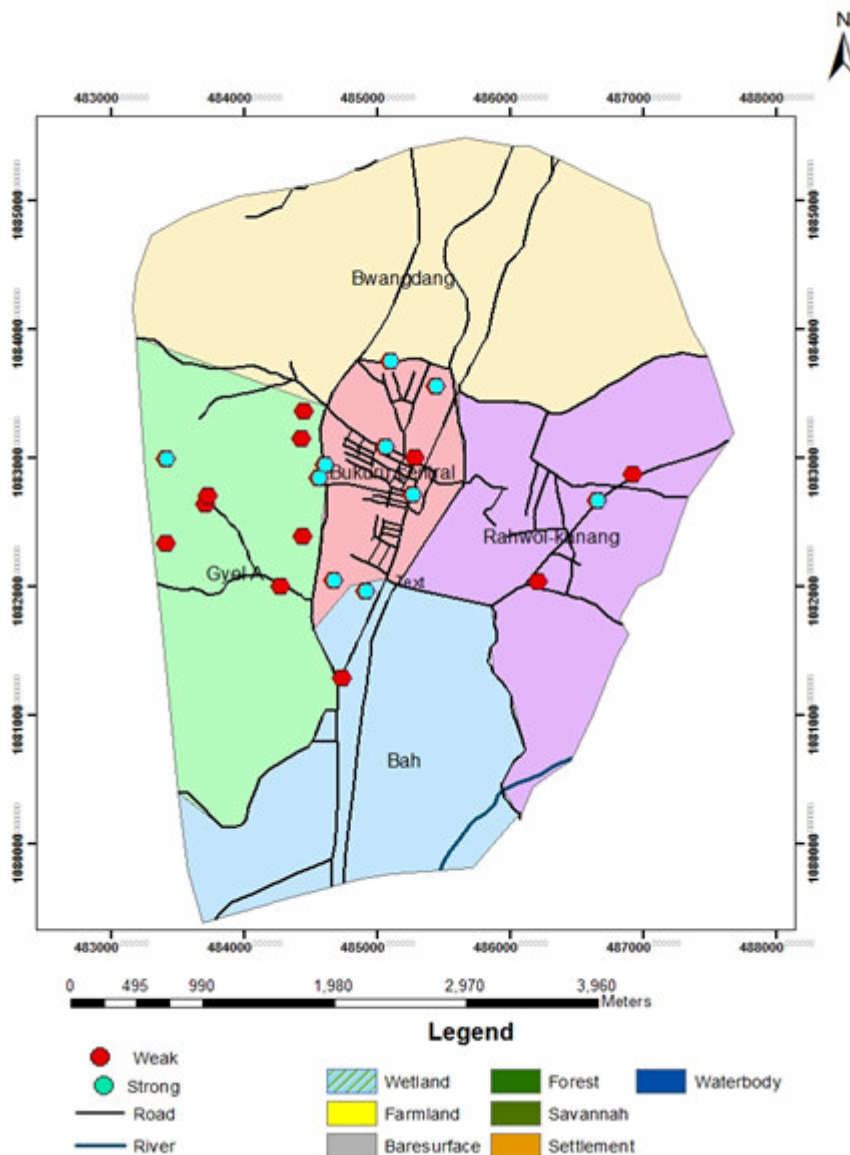


Fig. 8. Staff Strength of Health Facilities in Bukuru Town.

1.1.2 Recommendations

The provision and distribution of health facility will be effective and efficient in service to the people of Bukuru town if the following recommendations are considered.

The statutory body that regulates and enforce law for the establishment or issuing license for operating health care services should be empowered, to keep to the task of monitoring and controlling the sporadic emanation of health facilities. This is in furtherance to effective implementation of the policy of provision of good quality healthcare facility as well checking low quality, most especially the privately owned that where established just for profit making.

There should be synergy between the private and public health providers in the move to provide qualitative and quantitative healthcare facility that would be effective and efficient in operation as well providing services that will enhance the life of the people of Bukuru town.

Proposed Planning Strategy

The recommendations invoke spatial distribution strategy that would be appropriate to enhance accessibility and effectiveness towards improving the health being of the people of Bukuru town.

As always proposals in planning comes with alternatives, because of the different ideas and principles incorporated in the profession, hence, selecting the best alternative to serve as proposal to be implemented in order to achieve the stated goal.

Two alternatives were proposed; alternatives A and B.

Alternative 'A'

This alternative considered the weak (Inadequate) health care facilities to serve as Health centers and the strong (Adequate) health care facilities to serve as PHCs. Since there is only one comprehensive health facility in the area, the author proposed that Dee Medical at Bah ward would maintain its status and serve as a District Hospital in order to compliment the effort of the other facilities. It tends to have the best structure, facilities and spacious with lawn and parking lots See Appendix B. This is reflected in map alternative concept "A" (figure 9).

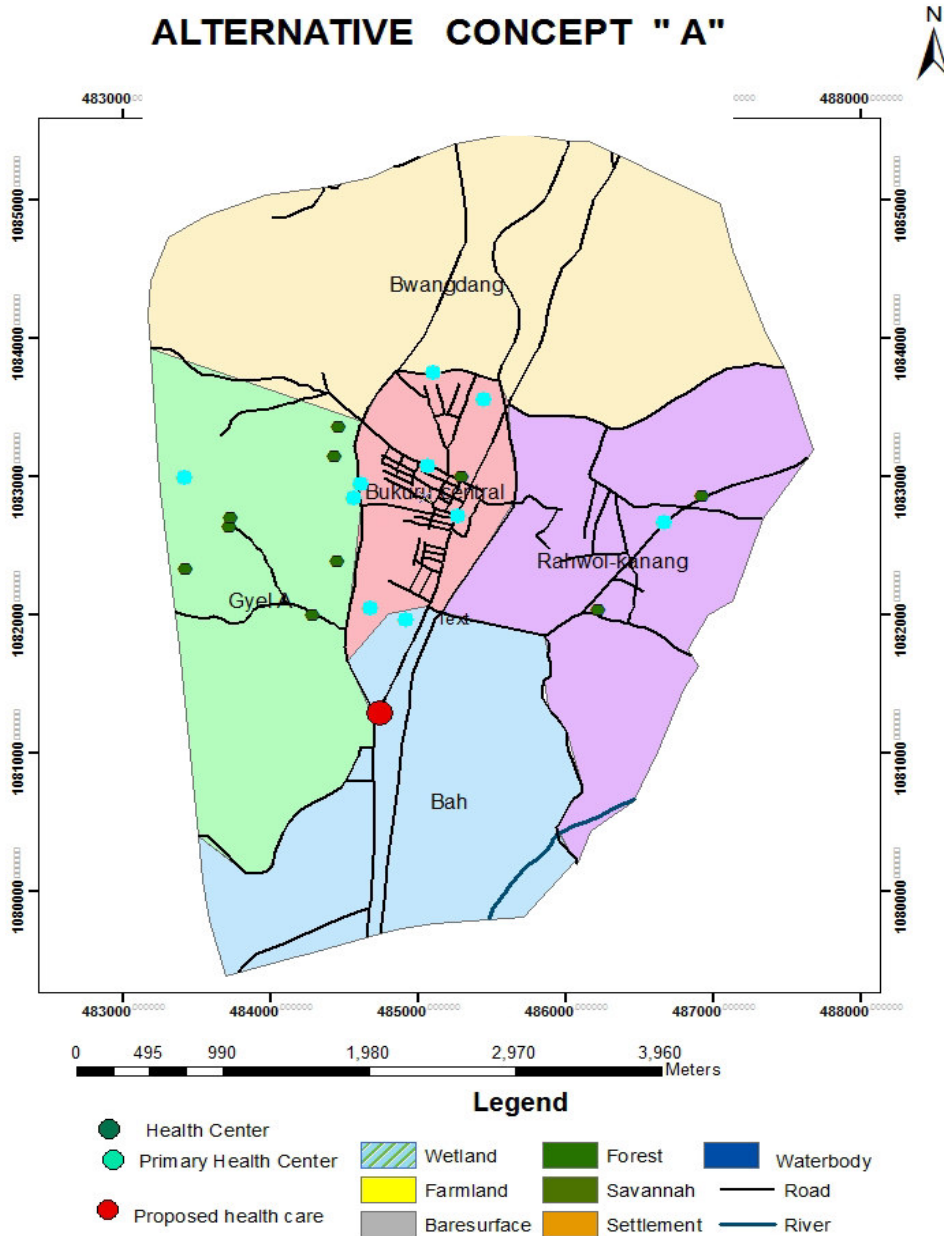


Fig. 9. Concept 'A'.

Alternative "A"

This considered the different advantages and disadvantages.

Advantages

- Reduction of travel time to comprehensive health centers outside Bukuru town.
- Determination of different cadre of health facilities according to prevailing existing conditions.
- It gives sense of identification as to defining the specific area of a complete system to the provision of health facilities in the area.
- It satisfies the policy in variety and provision of the health facilities in Buluru town.

Disadvantages

- It will be cost effective because of the variation of the health facilities.
- The liability of having different capacity of the health facilities for the public or private providers.

Alternative "B"

This also considered the levels of the health care facilities available, by maintaining the inadequate health facilities as health centers and the adequate as PHCs, but with the addition of two (2) district hospitals since the population of the area is about 168,275. This is due to the fact that the policy says one (1) district hospital to 100,000 population. This is reflected in map alternative "B" (figure 10).

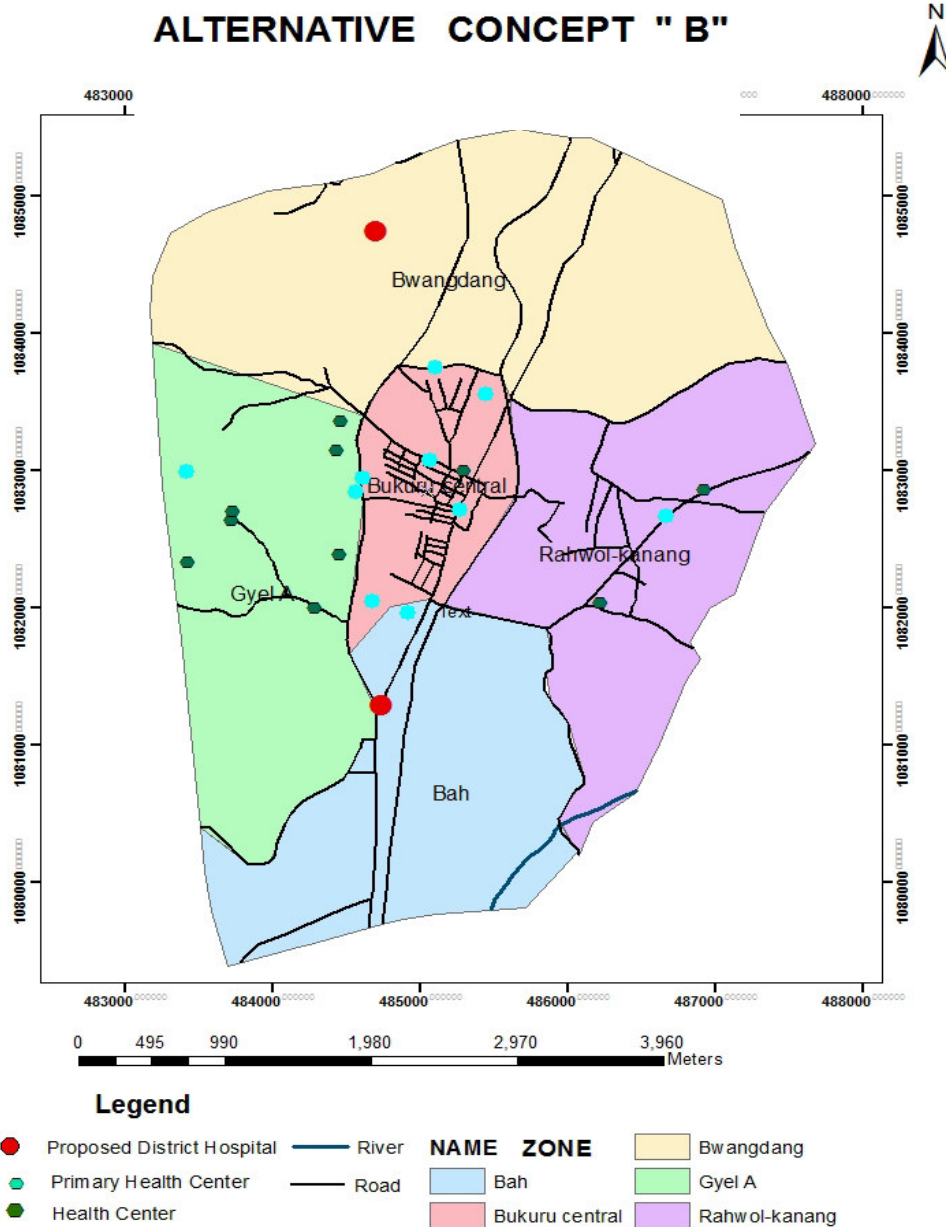


Fig.10. Concept 'B'.

Advantages

- Reduction of travel time to comprehensive health centers outside Bukuru town.
- Determination of different cadre of health facilities according to prevailing existing conditions.
- It gives sense of identification as to defining the specific area to a complete system to the provision of health facilities in the area.
- It satisfies the policy in variety and provision of the health facilities in Buluru town.
- The concept tends to have a fair distribution of the health care facilities in the area.

Disadvantage

- Difficulty in the provision of the two district hospitals which are capital intensive projects involving

high amount of money either by the government or private.

Choice of Alternative Concept

Concept “B” seems more appropriate considering the fair distribution of the health care facilities in Bukuru town, therefore chosen as proposal for implementation. Dee Medical Center being a District Hospital and privately owned facility would be complemented with the newly proposed at Bwangdang ward suggested to be provided by the state government.

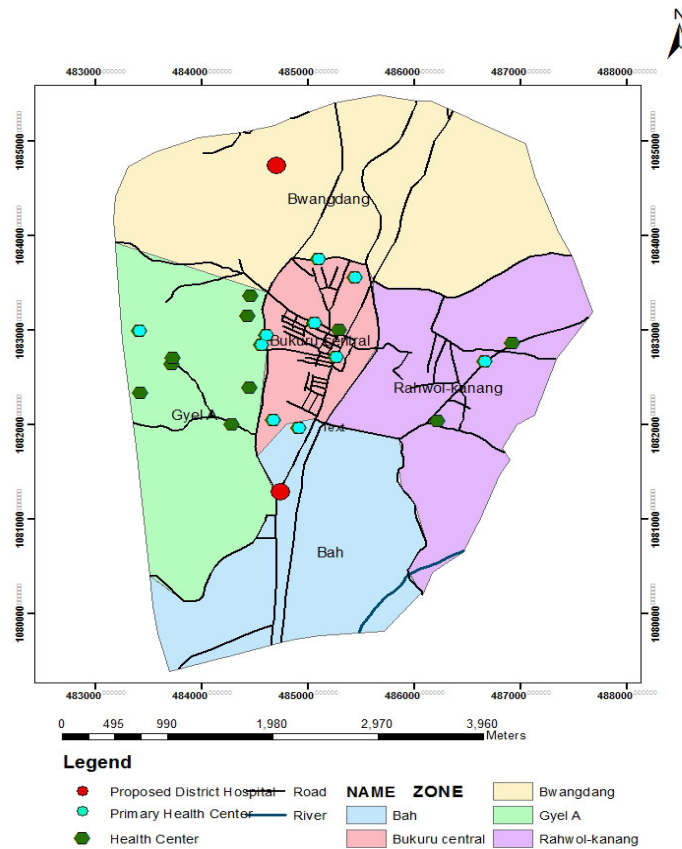


Fig. 11. The Proposed Distribution of Health Facilities in Bukuru Town.

1.1.3 Conclusion

The proposed strategy (Fig. 11) is a recommended approach to achieving a system that works according to the policy of provision and distribution of health care facility to serve Bukuru town effectively. It connotes strategy and policy to providing quality opportunities in the health sector. The Update can be used as a reference by MDAs and other interested Non- governmental organisations, thus, a guide for future actions and decisions. Further research will require further discussion concerning public involvement and implementation strategies.

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