Original article

Journal of Urban Development Studies

Analysis of Application and Shortcomings of Street Addressing by Public, Private and Non-Government Organizations in Addis Ababa

Tesfaye T. Gessesse

Asst. Professor of *Housing Development & Management*, College of Urban Development and Engineering, Ethiopian Civil Service University,   Contact: *Email. tesfaye.teshome4@gmail.com; Tel. +251(0)911135847*

ABSTRACT

The current address system i.e. street name, street number and house number in Addis Ababa was introduced long after its establishment as the capital of the country. The Study is designed to explore when the current address system was introduced, identify its type, extent of application by government, non-government including business organizations and shortcomings. To this end data collected from primary source through interview and photographs where as various secondary sources such as newspapers, service bills and documents are used to generate secondary data. The data are analyzed and presented using descriptive statistical techniques such as tables & percentages. The findings of the study reveal that the level of application of the existing street based address system by the major service providers, public, private and non- government organizations is insignificant. On the other hand neighborhood/popular names are found better employed than the street-based address system. Partial naming and numbering of streets, lack of consistent street naming and numbering system, lack of city –wide integrated modern address system are major problems attributed to lack of up-to-date regulations. Finally the study recommends replacement of the old regulations by a new one to introduce integrated city-wide functional street based address system.

Key words: address system, street name, street number, house number

1. Introduction

Managing street and building names and numbers help to ensure the address of each property in the city in unique, unambiguous and logical ways. This facilitates the correct delivery of mail and enabling visitors, especially public service personnel, to quickly locate the address they seek and is particularly important for emergency health and fire services where any delay caused by confusion over the address could put lives at risk (ECA, 2005). Countries have recognized the importance of good addressing. "Address management is the single most important contribution the spatial industry can make for the business

of government and industry", (HAANEN and GOODCHILD 2010:2). Recently many cities in developing countries have experienced rapid growth creating many underserviced neighborhoods. The street identification systems initially used in old neighborhoods particularly in central parts have rarely been extended to new ones. Therefore inadequate identification systems created difficult situations for urban services. For instance, how does one find his way around a constantly growing city? How does the concerned body dispatch ambulances, firemen, or law enforcement personnel? How do you send mail and messages to private homes? How can municipal services be provided? How do the respective institutions pinpoint breakdowns in water, electricity, and telephone systems? (MLGRD 2010, Catherine et al. 2005). These and other questions demand appropriate responses i.e. the implementation of efficient street addressing system.

According to Gakh (2020) & Catherine et al (2005), *Street addressing is an exercise that makes it possible to identify the location of a plot or dwelling on the ground, that is, to "assign an address" using a system of maps and signs that give the numbers or names of street buildings. This concept may be extended to urban networks and services: in addition to buildings, other types of urban fixtures, such as public stand pipes, streetlamps, and taxi stands also get addresses.* Public, local government and private sector are the three distinct partners that plays good street naming and coding (Catherine et.al. 2005 and UNESC, 2005).

In Addis Ababa, a major portion of the city does not have integrated and effective addressing system (street number, street name and house number) useful for navigation purposes until now. Previously, the available information for addressing were *kebele/woreda* (lowest administrative hierarchy) and house number labels written on the house gates. But even with this addresses, most residents, government and non-government organizations are not consciously aware of their address nor utilize it. Navigating to a location in Addis Ababa starts with the "*Sefer* name" or popular name of the area then proceeds to known landmark locations. These "other landmarks" are usually buildings or known structures used to identify a location. The remaining portion of the navigation process is left to asking random strangers to find destination.

This study aims at exploring the application of the existing addressing system to identify locations in Addis Ababa. In doing so, the paper contains background, statement of the problem, objectives of the study, research questions, scope of the study, significance of the study, literature review, research methodology, addressing system in Addis Ababa, conclusion and recommendation parts.

2. Methodology
The Study adopted qualitative research method. The qualitative approach is applied to indicate advertisements and type of addresses posted and identify the current application of addresses by type by organizations both government and non-government to reach and be reached. The qualitative approach also employed photographs to show the current condition of street sign posts.

2.1 Data Type and Sources
Both primary and secondary sources were exploited to generate data. Primary

data are collected through, interview and photographs. Secondary data collected from customer's bill, government owned and private newspapers, and documents. The following sources were used to generate the required data.

2.1.1 Primary sources

Interviews conducted with selected experts/officials and pertinent persons to produce primary data from the government organizations such as Addis Ababa Urban Information & Plan Institute, Ethiopian Postal Service, Addis Ababa branch, Addis Ababa City Fire Prevention and Emergency Service, Addis Ababa City Ambulance Service and Addis Ababa City Road Authority.

Photographs/pictures were taken randomly and presented to evaluate the existing situation of street sign posts.

2.1.2 Secondary Sources

Customer's bill of Addis Ababa City Administration Water and Sewerage Service, Ethiopian Electric Power Corporation and Ethiopian Telecommunications Corporation were used to produce secondary data. In addition, pictures and narration stories of the public and private newspapers (Table 1) published and circulated in the City Reporter (*Amharic),* Capital (*English),* Fortune (*English*), Ethiopian Herald (*English) and Addis Zemen (Amharic)* were selectively been used.

Table 1: News Papers by ownership, number of advertisements and type of addresses

News paper	Date, Vol. & No.	No. of adverts.	No. of address	Ownership
Reporter (*Amharic*)	ቅፅ 23 ቁጥር 1906 እሁድ ሐምሌ 29 ቀን 2010ዓ/ም	100	220	Private
Capital (*English*)	Year 20, N0.1012, Sunday April 29, 2018	46	122	Private
Fortune (English)	Vol. 19, N0.941 Sunday, May 13, 2018	53	116	Private
Ethiopian Herald (*English*)	Vol. LXXIV, No.276, Sunday 29 July, 2018	13	17	Government
Addis Zemen (Amharic)	ግንቦት 12 ቀን 2010ዓ/ም 77ኛ ዓመት ቁጥር፤ ዕለተ	104	126	Government
Total		**316**	**614**	

These newspapers are widely circulated and used by government organizations, the private sector, the business community and NGOs especially for advertising and promoting their services, businesses and announcing vacancies. A single issue of each newspaper is taken to collect data regarding the application of the current addressing system (street number, street name & house number). In the light of this all addresses posted in the advertisement section of the mentioned newspapers whose respective organizations are located in Addis Ababa are counted and analyzed (Table-1). The list of named and numbered streets/roads that were compiled and archived by the Addis Ababa City Integrated Land Information Center was used.

2.2   Data Analysis Techniques

Descriptive statistical techniques were employed to analyze the collected data. Tables and percentages were used to show the distribution of streets based on numbering and naming, type of Name

and application of existing address system by government and non-government organizations. Further, the analysis included photographs and information obtained during interview to show the current condition of street sign posts.

3. Results and Discussion

3.1 Chronology of Neighborhood Names and Criteria in Addis Ababa

Addressing system in Addis Ababa evolves with naming of neighborhoods (*sefer* in Amharic) and followed by naming of streets and numbering of streets and house. The later constitutes modern addressing system to enable navigate and locate places in the city. In this part an attempt is made to show the development and expansion of neighborhoods signifying the growth of the city. The expansions of neighborhoods followed by opening of inter connecting roads to facilitate the movement of people and goods and the necessity of identifying neighborhoods. The necessity of identifying neighborhoods resulted in naming neighborhoods as indicated in the work of Zewdu T. (2007). The formation of its neighborhoods commenced in 1900, after the construction of the *Arat Kilo Gibi,* the then Menelik Palace alternatively known as the Grand Palace. A number of reasons and coincidences are tied with the naming of the neighborhoods. The naming can be categorized according to chronological order and other criteria as explained below.

Names of nobles

This one is the earliest of all associated with *nobles* who were granted plots around the palace. In this regard, *Ras Mekonnen, Ras Tessema, Ras Birru, Ras Seyoum, Fetawrari Habtegiorgis,* *Dejazmach Wube, Negadras Hailegiorgis, Dejazmach Zewdu Abbakoran and Shegole* (named after *Assosa's* chief, Sheik *Hojele*) are some among others.

Named after nations *and* nationalities

This is the second category of neighborhoods named after nations and nationalities of the country that settled in the city, coming from different corners of the country. *Adere, Gofa, Wollo*, *Worji, Menz* and *Sumale Tera* may be mentioned in this regard.

Professionals and servants

Those serving in the palace also established their own neighborhoods and the names reflect the professional background of the founders. The names of the neighborhoods are followed by the Amharic word '*sefer*'. The following are some of them: '*serategna sefer'(*workers'/servants'), *Zebegna (*guards), *Siga Bet* (butchery), *Kubanya (*company), *Tebenja Yaz,* (army), *Gedam* (monastery*), Gebbar (tenants), Seregela Sabi* (chariot drawers), and *Wuha Sinku* (non-salaried infantry) are some.

Occasions/phenomena and historical events

Many neighborhoods of Addis Ababa were given names due to different occasions, phenomena and historical events. *Sebara Babur, Erri Bekentu, doro Manekya, Afencho Ber, Arat Kilo, Sidist Kilo, Amest Kilo, Talian Sefer, Hayahulet Mazoriya, Shiro Meda and Nefas Silk* are some of them. *Sebara Babur Sefer*, for instance, was named after a steam roller that the Armenian Sarkis Terzian once brought into the country, but broke down at that spot in the neighborhood and failed to function for many years. *Talian* (Italian) *sefer* derived its name after the Italian captives were settled in the area

following the Ethio-Italian war. The *Arat Kilo* village was also named due to its location at the junction of four roads.

Native Settlers: Many neighborhoods retained the names given by the native Oromo settlers. *Gullele, Guardome, Kebena, Kotebe, Yeka, Gerji, Lafto* and *Legedadi* are some of the many such neighborhoods.

Italian Invasion: some neighborhoods of Addis were named during the post Italian invasion and occupation of the country. *Merkato, Piazza, Kazanchis, Popolare* and *Cambolojo* are included here. *Kazanchis* was reserved for higher Italian officers while *Popolare* was for lower officers. *Cambolojo* derived its name from the Italian phrase *Campo Allegio Opera*, workers' camp.

Named after Churches There are also neighborhoods named after churches of the area. *Arada Giorgis, Yoseph, Kidane Mehret, Keraneo Medhane Alem,* and *Kechene Medhane Alem* derived their names from the nearby churches.

Embassies: After the battle of Adowa (1896) and the Treaty of Addis Ababa later in the same year, many countries including Italy, the major European powers and the US established diplomatic relations with Ethiopia, recognizing its sovereignty. Many countries opened up embassies in the city following in the footsteps of the above-mentioned countries. Undoubtedly, many neighborhoods of Addis Ababa derive their names from these embassies and legations. Locally named *Ferensay Legacion*, (French Legation) and Rwanda Embassy are worth mentioning here.

Prominent foreign Citizens: Some neighborhoods of Addis Ababa are also named after prominent foreign citizens. *Teret sefer* assumed its name from the

owner of Hotel e France, the French Monsieur Teras.

3.2 Main Features of Existing Addressing System

As explained above following the expansion of the city the need for the construction of intra urban road became a logical consequence. Regarding the construction and naming of roads an Amharic document published by the Municipality of the city in commemoration of its centenary reads as follows.

'በዚሁ ዘመን የመንግስት መሥሪያ ቤቶችና ሌሎችም የህንፃ ሥራዎች ብቅ ብቅ ማለት ጀመሩ፡፡ ከ1900 — 1913ዓ/ም ወደ አንድ መቶ የሚጠጉ ዘመናዊ ቤቶች ተሰሩ፡፡ ሆኖም በዚሁ በምኒሊክ ዘመን ዘመናዊ ህንጸዎች ቢኖሩም አብዛኛዉ ህዝብ የሚኖረዉ በሳር ክዳን ቤት መሆኑ አይዘነጋም፡፡ በሃኛዉ ክ/ዘመን መባቻ ላይ ሰፋፊ የከተማ መንገዶች ተከፈቱ፤ በሶስቱ ሰፋፊ ጎዳናዎችም ላይ የትራፊክ አገልግሎት ተጀመረ፡፡ ሶስቱም መንገዶች ምኒሊክ ጎዳና፤ ራስ መኮንን ጎዳና እና ሩሲኦን ቼፍኑክስና ጎዳና ተብለዉ ይጠራሉ፡፡ (አዲስ አበባ 1879-1979 ፤ ገጽ 16)'

'የመጀመርያዉ ሰፊ ጎዳና ከቤተመንግስት አንስቶ ወደ አብሲኒያ ባንክ ከዚያም ወደ እቴጌ ሆቴል ሲወስድ፤ ሁስተኛዉ ደግሞ ከእንጦጦ መንገድ አንስቶ የራስ መኮንን ድልድይ አቋርጦ ወደ መርካቶ ይመጣና ወደ ቅዱስ ጊዮርጊስ ካቴድራል በማድረግ ወደ አዲስ ዓለም ያመራል፡፡ ሶስተኛዉ ከመርካቶ ተነስቶ የምኒሊክን ጎዳና አቋርጦ በፈረንሳይ ሆቴልና በቼፍኑክስ ጎዳና በማለፍ ወደ ፍልዉሃ ይወስዳል፡፡ እንዲሁም ከመርካቶ አንስቶ ወደ ተለያየ አቅጣጫ የሚወስዱ ሶስት ወይም አራት

የሚሆኑ መንገዶች ስሟቸዉ በይጠቀስም በዚሁ ጊዜ እንደተሰሩ ይታወቃል። (አዲስ አበባ 1879-1979 ገጽ-17)'

The translations read as follows.

Between, 1900 – 1913 EC modern buildings of European style began to appear and consequently nearly one hundred buildings were constructed for government services and others. During the same period or beginning of the 20th century construction of three major intra urban roads were introduced in the city marking the beginning of modern road traffic service. The three roads were named Emperor Menilik, Ras Mekonen and Rulion Chefnuksena. Thus it is possible to conclude that street naming in Addis Ababa as well as Ethiopia began during the reign of Emperor Menelik II.

As indicated in the same source on page 17, the first street named after Menilik II ran between the Palace and Etege Hotel which was named after the Emperors' wife. The second street named after Ras Mekonen begins from Entoto passing through the current Piassa (Arada), St. George Cathedral and finally terminates at Addis Alem. The third street named after a foreigner i.e. Rulion Chefnuksena ran between Merkato crossing Menilik II Street and leads to Filwuha. At the same time three or four streets but not named were running to different directions. Through time due to the construction of new roads, and new street plans changes particularly in the length of the first three named streets is observed.

Although street addressing, particularly street naming in Addis Ababa (Ethiopia) is believed to begin following the development and expansion of neighborhoods as explained earlier, it was widely applied during the era of Emperor Haile Sellassie I. Based on the type of street names (Table-2), street naming in Addis Ababa is driven by (1) Perpetuate the memory of famous people both Ethiopians as well as foreigners (e.g. Menilik II Avenue (Ethiopian) Churchill Avenue (Foreigner)), (2) Reflect historical events; e.g. Adwa Road, (3) Diplomatic; all African Union member States have streets named after their country's name, Marshal B. Tito, W. Churchill, Queen Elizabeth etc

3.3 Street Addressing in Addis Ababa

Despite it is largely limited to Addis Ababa street names reflect the socio-political character of the systems (the Imperial, the *Derg* and the FDRE).

The Imperial Era

As indicated in the "Mirror of Addis Ababa" (1949), published on the occasion of the 58th birthday anniversary of Emperor Haile Selassie I, nearly thirty (30) streets in the city were found named. Ten of them were named after famous foreigners including King George VI and Queen Elizabeth. The rest were named after Ethiopian Kings, Princess, and Patriots. Street addressing system of the imperial era adopted only street naming.

The *Derg* Era

Street addressing during the *Derg* largely appeared to be renaming of the previously named streets despite most of them were remained unchanged. It was during the Derg regime that the change of names of some streets took place. The decision appeared to be politically motivated because the name change includes the ousted emperor and members of the royal family. For instance, Streets named after the Emperor and his families were re- named. Following the 1974 revolution the socialist government (*Derg*) restructured all urban centers into so called *Keftegnas*

(equivalent to the current Sub-city) and *Kebeles* (equivalent to the current *Woreda)*. Along with the establishment of these hierarchical administrative structures house numbering and street numbering were also introduced for the first time in addition to the previous street naming. But the later was discontinued. Practically all housing units were registered and given number. The main objectives of house numbering were to implement effective control system by identifying the exact location of the residents and facilitate the rationing of basic services. Despite the objectives, House numbering in Addis Ababa was not integrated into the existing street addressing system to ease movement and provision of services.

The FDRE Era

Based on unpublished document sources obtained from the Integrated Land Information Center of the City besides the street names employed since the Imperial time currently street number is introduced to improve the addressing system of the city. Along with the following two points are important to be considered. (1) Until now all streets of Addis Ababa are not named, (2) Likewise all streets of Addis Ababa are not fully given street number. Street numbering is under way in 42 out of 116 *weredas* covering about 36.21 percent of the City. Although all streets found in the City are not named the named streets can be categorized into   the following based

3.4 Importance and Application of Street Addressing in Addis Ababa

3.4.1 Importance of Street Addressing

Street addressing in Addis Ababa during the Imperial and the *Derg* regimes suffered from lack of regulatory system.

on the background of the names (Table-2).

Table 2: Distribution of streets by type of Name

Street Name Type	No	%
Ethiopian Nationals	47	38.5
AU Member States	54	44.2
Foreign Nationals & Country Names	21	17.3
Total	122	100

Source: Integrated Land Information Center, 2018 Addis Ababa

Streets named after famous Ethiopians account for over 38.5 percent of the total. The names include emperors, kings, patriots, members of the royal family and other distinguished personalities.

Streets named after the names of member countries of African Union account for about 44.2 percent of the total. This is a new trend in street naming because the previous experiences show only naming after famous personalities while the current naming possesses diplomatic character. This is probably to indicate the role of Addis Ababa as diplomatic centre of the continent, and gives the city a unique position.

Streets named after foreigners include statesmen, kings, queens, presidents, military commanders, activists and respected personalities from Britain, the USA, France, Russia, Yugoslavia, India and Kenya to mention some including names of cities, country and continent together accounting for 17.3 percent. The majority of foreign street names belong to British citizens.

The City Government filled this gap by Regulations No. 15/2004 promulgated on the City's official Addis *Negari Gazta* (2004). The Regulations provide for: (1) The necessity to create conducive situations for assigning names to streets and by using these as reference to establish address system in pursuant of

the road net work plan as commonly used in other modern cities and (2) Street naming address system have the advantage of expediting ambulance, fire-fighting, postal services and the like to the residents of the City. Basically the regulations provide for street naming only and fail to include street numbering. Regarding procedure for assigning names of streets in Part-III article -9, sub-article-1 of the regulations explicitly states, "The power to assign names to the City's streets shall be vested in the mayor or manager of the City". This statement clearly discloses and provides no opportunity for public participation and consultation in street naming reflecting a highly centralized exercise of power and decision making.

3.4.2 Application of Addressing System

In this part application of the current addressing system particularly street name, street number and house number by the main service providers and organizations/institutions is explored (Table 3).

Table 3: Type of Addresses used by the main Service Providers

Service Provider	Street Name	Street Number	House Number	City/Sub-city Name	*Wereda*	Neighborhood /popular name	P.o.Box, Tel.
Ethio Telcom	no	no	no	yes	yes	no	no
Ethio.elec. utility	no	no	no	yes	yes	no	no
Ethio.Broad.Cor.	no	no	no	yes	yes	no	no
AAWSA*	no	no	no	yes	yes	no	no
AAFFES**	no	no	no	yes	yes	yes	no
Ambulance Service	no	no	no	yes	yes	yes	no
Ethio.-Postal Service	no	no	no	yes	no	no	yes

Source: survey data, 2018

AAWSA* - Addis Ababa Water and sewage Authority; AAFFES**- Addis Ababa Fire Fighting and Emergency Service

Service providers

The major service providers are the Addis Ababa Water and Sewerage Authority, Ethiopian Electric Power Utility, Ethiopian Telecommunication, Ethiopian Broadcasting Corporation, Ethiopian Postal Service, the Addis Ababa City Fire and Emergency Service and Ambulance Service. The analysis based on the data indicated in Table-3 produced (1) all the mentioned service providers do not use the modern address system i.e. street name, street number and house number, (2) all the mentioned service providers use sub-city and *wereda* names to reach or be reached by their customers, and (3) Addis Ababa Fire Fighting & Emergency Service and Ambulance service use neighborhood or popular names ('*sefer*' in Amharic) than street name, street number and house number to provide their services. As indicated in the same table the Ethiopian Postal Service does not use street name, number and house number to identify the location of customers as shown in the postal code.

Organizations/Institutions

As indicated in Table: 4, the three private newspapers constitute 62.99% of the total advertisements posted and 74.54% of addresses indicated. On the other hand the two government owned newspapers together account for 36.0 % of the advertisements and 25.41 % of the addresses used. The distribution of

advertisements and addresses used indicate the relatively wider use of privately owned newspapers.

To explore the extent of application of street based address system, advertisements posted in the five widely read newspapers, Reporter (private Amharic), Capital, Fortune (private, English) the Ethiopian Herald (English) and *Addis Zemen* (*Amharic*); by Government Organizations, NGOs, Private Business Companies and Agents, International Organizations and Embassies are assessed.

Table 4: Distribution of advertisements and addresses posted on the five news papers

News paper	Number of adverts.		No. of Addresses		
	Fre.	%	Fre.	%	Ownership
Reporter	100	31.65	220	35.83	Private
Capital	46	14.57	122	19.87	Private
Fortune	53	16.77	116	18.89	Private
Ethiopian Herald	13	4.11	17	3.77	Government
Addis Zemen	104	32.90	126	21.64	Government
Total	**316**	**100.0**	**614**	**100.0**	

Source: survey data, 2018

Table: 5 summarized the stress address by type; by its share the Telephone, & Fax, P.o. Box, and e-mail/web page together constituted 60 % of the addresses posted. These addresses do not enable people navigate easily and find the exact physical location of the concerned Organizations in the City constituting the largest proportion avoiding physical contact between service providers and service recipients.

Neighborhood/popular Names: this is vicinal/descriptive way of indicating location. It involves navigating to a location in the city using popular name/neighborhood name/known land mark of the area in question and accounts for 17.6%. *Shegole, Gofa, Wollo, Sumale Tera, Tebenja Yaz, Eri Bekentu, Gullele, Merkato, Piazza, Kazanchis, Arada Giorgis, Ferensay Legacion* are some of the prominent neighborhood names /*sefer*/ as indicated in sub-Part 9.1.

From among the three components of street based addressing system street name accounts for 7.0 %, house number 4.2 % and street number 0.0 % altogether constituting 11.2 % of the total. Although the city administration recently introduced street numbering but not yet complete so far none of the institutions explained earlier use street number to navigate or indicate location in the city.

In a nut shell the use of modern address system composed of street name, house number and street number for navigation, service delivery and identify location is found insignificant. Sub-city name and *wereda* number are used and account for 1.5 % of the total. Both government and non-government organizations use sub-city and *wereda* to indicate their location in the city.

Most Federal government and some non-government organizations found not indicating their address in any form and this group constitutes 9.6 % of the total. They mentioned only the names of the respective organizations. Therefore how to be reached by service seekers remains in question.

Table 5: Current application of addresses by type, government and non-government organization in Addis Ababa

Address Type	Repo.	Cap.	For.	Ethio. Her.	*Addis Zem.*	Fre.	**%**
Telephone & Fax	81	42	39	8	33	203	**33.1**
P.o.Box	17	12	17	2	7	55	**8.9**
E-mail/web page	33	32	33	3	10	111	**18.1**
Neighborhood/Popular Name	53	19	20	2	14	108	**17.6**
Street Name	17	12	9	0	5	43	**7**
Street Number	0	0	0	0	0	0	**0**
House Number,	5	3	1	0	17	26	**4.2**
Sub-city, wereda	6	2	0	0	1	9	**1.5**
No address	8	2	1	2	46	59	**9.6**
Total	**220**	**124**	**120**	**17**	**133**	**614**	**100**

Source: survey data, 2018

3.4.3 Main Features of Sign Posts

The current sign posts are basically a blend of street number, street name, house number, sub-city name and *wereda* number. The sign are in blue and have both Amharic and English descriptions. The alphanumeric character of the sign posts is illustrated as follows:

Sub-city name → Wereda number → Street number →

Generally, the descriptions contain 4 components. The top small rectangular sign displays a number range (19–39) that describes all the house numbers contained within that specific street. Followed by the bigger rectangular signs that contain the sub-city, *woreda* number and street name/street number for the respective blocks are commonly used.

Figure 1: Street address based on sub-city, wereda and street number

In the above example, the sub-city is indicated by "*Gulele*" then the *woreda*- "9", and the street number "**1918**." The sub-city acronym is defined by the specific sub-city locations of that area. In Addis Ababa, there are ten sub-cities which are *Addis—Ketema, Akaki— Kality, Arada, Bole, Kolfe—Keranio, Gulele, Kirkos, Lideta, Nifassilk Lafto,* and *Yeka.* The third and bottom smaller rectangular sign (34) describes the block numbers on that street. Lastly, the arrow labeled "**B19**" is directionally indicative of a block. For instance, **B19** is the block

number adjacent or diagonally situated from that sign.

| Sub-city → | Wereda No. → | Street name → | House → |

Figure 2: Sign post based on sub-city, wereda, street name and house number

The house number will always start with a letter B, indicative of the Block number the house resides in, in this case, this property is in block number 208, and the house number is 3. The sign also includes the street name which in this case is "Cameroon Av.". The name can also be of a famous person, either Ethiopian or foreigner.

| Sub-city Name → | Wereda No. → | Street Number → | House Number → |

Figure 3: Sign post based on sub-city name, *Wereda*, street number and house number

The above pictures (Figs. 1, 2 & 3) signify the basic features of street based signposts by combining names including (neighborhood, country/place, &famous people), and number with their respective sub-cities. Despite the detail descriptions indicated none of the public, private and non-government organizations use them to navigate or provide services in the City.

3.5 Shortcomings of the Existing System

As consequences of the factors for the adoption of the existing street addressing system, distribution of named streets found in the City and degree of application of the existing system by public, private and non-government organizations, the following shortcomings are identified. Failure to update Regulations No. 15/2004 was identified. The same Regulations made

no provision about street numbering introduced recently and house numbering and gives no opportunity to the public participate in the naming of streets. The system does not allow people to get around the City easily since all the mentioned service providers and over 77.7 % of the organizations do not use street based address system (Table-5) to identify streets and indicate the exact location of urban facilities. The system fails to facilitate effective and efficient delivery of emergency health, fire and police services.

As observed largely in the City, little or no effort made to maintain/restore damaged and or removed name/sign posts. (1) The presence of unnamed streets in all sub-cities and no provision made about the unnamed streets in Regulations No. 15/2004. (2) Reluctance to encourage the use of the existing street addressing system by the City's administration and consequently the application of street names by public, private and international organizations appears to be extremely low (7%) as indicated in Table- 5. (3) Lack of credential document regarding the named streets: Although street naming began during Emperor Menilik II no credential document found regarding the assigning of names in the Municipality archives. According to Regulations No. 15/2004 article 9, sub-article 1, the power to assign names to the city's streets shall be vested in the mayor or manager of the City. The regulations refer to all named streets during the post Derg period. Despite the explanations of the article no credential document is available regarding the named streets in the mayor's office. This is supported by an interview response of Media and Communication bureau of Addis Ababa City Road Authority, and a distinguished athlete who has a street named in his honor.

3.6 Lessons Learned

The experiences of countries/cities signify variations in their street identification systems. Australia, Italy, Canada, France, USA. UK and ex-Yugoslavia exhibit the same system i.e. street naming whereas Japanese system uses street numbering. China appears to be unique as result of the use of three systems, street naming, street numbering and cardinal directions.

Although it was introduced by colonial powers African countries like Mozambique, Guinea Conakry, Senegal, Niger, Burkina Faso and many others began to exploit street addressing for various applications. The connection between street addressing and civic identity, linking with urban information systems, supporting municipal services, tax systems, land tenure systems, upgrading informal settlements, supporting concessionary services and economic development are the major common elements.

4   Conclusion

Street addressing system introduced in Addis Ababa during the era of Menilik II, after the establishment of the City as the capital of Ethiopia. Similar to Paris, Quebec and ex-Yugoslavia in Addis Ababa Street based addressing is largely based on street naming. Thus street naming is the oldest practice compared to street and house numbering.

As indicated in Part-9 big names, historical events and diplomatic interests are found to be causes for the adoption of street names, an experience *equally* shared by the past and current governments. Regarding level of application all service providing organizations do not use the existing street-based address system (street name,

street number and house number). Similarly application of the same system by public, *private* and non-government organizations proves extremely low, 7% street name, 0 % street number and 4.2% house number signifying lack of integration. In contrast the use of neighborhood/popular names to indicate location and or navigate in the City is better employed than the street based address system.

The partial naming of streets, lack of consistent street naming and numbering system accompanied with lack of city – wide integrated modern address system are major problems of the City's address system. Regulations No. 15/2004, (based on street name only) so far the first and the only legal provision regarding the addressing issue failed to address the problems indicated above. Generally application of existing address system and problems in relation to regulations signify navigation and identification of location to reach and be reached in the City suffers from uncertainty.

The creation of a consistent street-based address system is imperative to improve the efficiency and management of services by government, non-government and the private sector. Thus based on the findings of the study and avoid uncertainty the following points are recommended.

The need for replacing or updating Regulations No. 15/2004 is required. This regulation arises from the need to improve the existing system by considering (1) introduction of integrated street-based address system composed of street name, street number and house number; (2) naming and numbering of all streets of the City to implement a modern and functional street-based addressing system and (3) public participation in assigning names and consultation in

naming streets should be encouraged as an expression of good governance. In the city, the Street sign posts need to be properly placed or installed protected and damaged once be replaced or maintained, the awareness creation program need be organized and implemented regarding the importance, and applications of street-based address system to make the system user friendly. Lastly, a proper compilation and protection of credential documents is paramount to trace back the historical development and process of street based addressing system of the city.

Acknowledgement

Author Contribution

I Tesfaye Teshome declare that this research is my work and all sources of materials used for the research have been duly acknowledged.

Competing interest

There is no competing interest regarding this original research article

5. References

A. HAANEN and B. GOODCHILD (2010). Providing certainty in addressing – A street Addressing Standard for Australia and New Zealand, Sydney, Australia

Addis Negari Gazeta (2004). Regulation No. 15/2004: Regulations To Provide For Addis Ababa City Street Naming And Address System. 2nd year No. 32 Addis Ababa, 12th May, 2004

Development: Street Addressing and the Management of Cities. Directions in Development, Washington, D.C, World Bank,

Dia, M. (1996). Africa's Management in the 1990s and Beyond: Reconciling Indigenous and Transplanted Institutions. Washington, DC: World Bank.

Dmitriy Gakh (2020) Peculiarities of Modern Street Addressing System toward to Implementation of the Smart City Conception, Proceedings of the 2020 Federated Conference on Computer Science and Information Systems, M. Ganzha, L. Maciaszek, M. Paprzycki (eds). ACSIS, Vol. 21, pages 543–552 (2020) DOI: http://dx.doi.org/10.15439/2020F68;

ECA (2005) Geographical Data as National Asset: Benefits of National Situs Addressing Systems for Africa, An extended summary. UNITED NATIONS, ECONOMIC AND SOCIAL COUNCILGENERAL E/ECA/COD/4CRP/7, 26 April 2005, Addis Ababa

Farvacque- V. Catherine, L. Godin, H. Leroux, F. Verdet and R. Chavez (2005). Directions in

Hackney Council Building Control, Hackney Archives: Dalston Square, Dalston Lane, E8 3BQ, (http://www.hackney.gov.uk/ca-archives.htm).

Kifiya Fiancial Technology Plc. Cash Receipt: Ethio. Telecom, Ethiopian Electric Utility, Addis Ababa Water and Sewerage Authority, Ethiopian Broadcasting Corporation

Mirror of Addis Ababa (1949). Published On The Occasion of The 58th Anniversary of His Imperial Majesty's Birthday. By Authority of Addis Ababa Municipality, Addis Ababa

MLGRD (2010). Street Naming and Property Numbering System (Street Addressing System). Operational Guidelines, August 2010. Government of Ghana

UN-Habitat (2007). Situation Analysis of Informal Settlements in Addis Ababa: Addis Ababa Slum Upgrading Program. Nairobi, UNHDP

Zewdu, T. (2007). Addis Ababa's Neighborhoods (Sefer). In Hailu H., Amanuel G., Gizaw Y., Befekadu B., &Tamirat G. (Eds.), Addis Ababa In The Past And Its Prospects In The New Millennium (pp. 16 – 17). Addis Ababa Millennium Secretariat

Capital (English) Year 20, N0.1012, Sunday April 29, 2018

Fortune (English), Vol. 19, N0.941 Sunday, May 13, 2018

Ethiopian Herald (English) Vol. LXXIV, No.276, Sunday 29 July, 2018

ሪፖርተር ቅፅ 23 ቁጥር 1906 እሁድ ሐምሌ 29 ቀን 2010ዓ/ም

አዲስ ዘመን (Addis Zemen Amharic) ግንቦት 12 ቀን 2010ዓ/ም 77ኛ ዓመት ቁጥር፤ ዕስተ ሰንበት

አዲስ አበባ 1879 — 1979: የአዲስ አበባ 100ኛ ዓመት አከባበር ፤ የፕሮፓጋንዳና ቅስቀሳ ኮሚቴ፤ ብርሃንና ሰላም ማተሚያ ቤት ህዳር 1979 አዲስ አበባ