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Urbanization Nexus Disaster Risk Management in Ethiopia

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ABSTRACT

By definition, urbanization refers to the process by which rural areas become urbanized as a result of economic development and industrialization. Demographically, the term urbanization denotes the redistribution of populations from rural to urban settlements over time. However, it is important to acknowledge that the criteria for defining what is urban may vary from country to country, which cautions us against a strict comparison of urbanization cross-nationally. The fundamental difference between urban and rural is that urban populations live in larger, denser, and more heterogeneous cities as opposed to small, more sparse and less differentiated rural places.

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Urbanization also considered as the growth of urban population (largely through migration) and the spread of urban lifestyles as well as the resulting spatial processes affecting the respective area and its physical structure. These include predominantly the construction of buildings and the development of urban infrastructure for water, sewage, transportation, communication and energy supply [1].

Urbanization is often treated as something that just happens in urban settlements, though by its very definition it involves a shift in population from rural to urban locations, transforming rural as well as urban landscapes and livelihoods [2]. Almost inevitably, urbanization involves changes in demographic, economic and environmental flows between rural and urban areas, though not always in predictable ways. Urbanization can be spurred by changing urban conditions, but also by changing rural conditions. Although it is possible to divide people into urban and rural residents, as already noted many people move regularly between rural and urban areas and many families span the rural/urban divide as part of their livelihood strategies [3]. Urbanization involved more complex and circulatory migration patterns [4]. This is probably even truer in currently urbanizing countries. The movements vary across age groups and genders, depending on how and for whom rural and urban opportunities and constraints are changing [5].

In terms of development and growth theory, urbanization occupies a puzzling position. On the one hand, it is recognized as fundamental to the multidimensional structural transformation that low-income rural societies undergo to modernize and to join the ranks of middle- and high-income countries. Some models, such as Lucas's explicitly consider how urbanization affects the growth process (primarily through the enhanced flow of ideas and knowledge attributable to agglomeration in cities [6,7].

According to Landes, historically, urbanization considered as an essential ingredient in modernization:

"Industrialization is at the heart of a larger, more complex process often designated as modernization. Modernization comprises such developments as urbanization; the so-called demographic transition; the establishment of an effective, fairly centralized bureaucratic government; the creation of an educational system capable of training and socializing the children of a society; and of course, the acquisition of the ability and means to use an up-to-date technology" cited in Williamson 1987 [8].

Evidence from around the world suggests that the level of urbanization rises with the level of development. Seminal research by Williamson (1965) and Kuznets (1955) shows that industrialization during early stages of development leads to greater inequality in regional per capita incomes as a result of the shift of labor force from low-productivity agriculture to sectors of higher productivity. However, as countries develop, this shift slows and follows a decreasing trend in the latter stages of development, as labor and capital movements equalize returns across sectors. International evidence shows that urbanization increases with development, although the relationship is not always linear. Urbanization rises rapidly during the transformation of countries from agrarian to industrial economies, which usually also coincides with development from low- to middle-income status. Urbanization is associated with faster rates of growth when countries are poorer and less urbanized, but that diminishing marginal returns set in at higher incomes. For instance, Bruhlart and Sbergami (2009) find that agglomeration seems to boost GDP growth up to US$10,000 per capita, and that the opportunity cost of low levels of agglomeration is the highest in poorer countries. This suggests that policies that restrict the growth of urban agglomerations could have deleterious effects for GDP growth in Ethiopia (WDI 2014).

To conclude, Urbanization is a process of change (demographic, institution, culture, etc.) which led to system growth and structural change. This change involves movement of people from rural to urban, change from rural to urban life style, natural increase in birth and death rate, migration (but net migration is not always a major component), and change in city boundaries.

The aim of this paper, hence, is to analyze the nexus of Urbanization and Disaster Risk Management in Ethiopia.

Linkage between Urbanization and Disaster

Cities are important centers of modern societies that will continue to gain in importance in the future. Today, more than half the world's population lives in urban areas [9]. Not only people (residents, commuters, and tourists) are concentrated in cities, but also infrastructures, whose importance extends far beyond municipal, and often national borders. These include transport, communication, and energy networks, as well as educational and healthcare facilities. More than 80 per cent of global economic output is generated in cities [9].

Urban areas face specific security risks. Technological disasters are especially common in cities as centers of industry and infrastructure. They are also focal points of political and social conflicts. Cities are characterized not least by their social and technical density. The damage potential from hazards, such as pandemics or terrorist attacks, is therefore particularly high [9].

The largely unplanned expansion of cities to accommodate rapid population growth, combined with inappropriate land-use planning and the failure of urban authorities to regulate building standards, contribute to the vulnerability of urban populations. In addition, inadequate living conditions of poor populations – including poor health, inadequate nutrition, poverty, illiteracy, and deficient or non-existent sanitation – constitute a permanent threat to their physical and psychological security and create "everyday risks" which cause small-scale disasters on an ongoing basis. Disaster risks from extreme natural hazards are compounded by these everyday risks, resulting in a process of "risk accumulation" specific to urban areas, where risk is amplified by human activities. Urbanization, therefore, often increases the exposure of people and economic assets to hazards and creates new patterns of risk, making the management of disasters in urban areas particularly complex [10].

In an increasingly urbanized world, cities and their inhabitants are facing significant human and economic losses from disasters. Globally, disaster risk continues to rise as more vulnerable populations and assets are exposed to climate extremes. There are considerable variations in severity and distribution within and among urban areas the prevalence of droughts, flooding and storm surges affecting countries in different ways [11,12]. As urbanization puts pressure on available space, either in terms of expansion on to new land or increased density, there is a risk of greater exposure and vulnerability of people and assets to natural hazards [13]. The growing concentration of people and assets in cities, combined with increasingly intense and frequent disasters in recent decades means disasters are affecting more urban dwellers with increasingly harmful consequences for employment, housing and critical infrastructure, such as roads, power and water supplies. This is especially the case in fast-urbanizing developing nations, where poorly planned and managed cities create new risks and threaten to erode previous development gains when disasters strike [14].

The guiding principles of the Sendai framework emphasis the importance of disaster risk reduction being a responsibility shared by "central Governments and relevant national authorities, sectors and stakeholders", and that successful disaster risk management "depends on coordination mechanisms within and across sectors with relevant stakeholders at all levels, and requires… clear articulation of responsibilities across public and private stakeholders" [15]. Strengthening disaster risk governance to manage disaster risk is one of the top four priorities of the framework and is considered to span disaster prevention, mitigation, preparedness, and response pre-disaster and during, as well as recovery and rehabilitation in post-disaster contexts. In terms of specific priorities these establishing strategies, plans, and policies on risk reduction, mainstreaming disaster risk in to other sectors, establishing and maintaining coordination forums, clarifying roles and responsibilities, and so on [15].

Most of the world's future urban growth is set to occur in middle- and low-income countries; particularly in Asia and Africa (UNDESA 2017); while North America and Europe as well as Latin America and the Caribbean are already predominately urban [16]. However, middle- and low-income countries often lack the capacity to plan and manage rapid urban growth and expansion and adapt to emerging hazards. On the other hand, large and mega cities have got greater focus, many of which are not growing especially fast, although they will remain strategic priorities given the size of their economies and populations [17]. One of the main challenges of small to medium cities is, Existing mechanisms for monitoring urban development, risk and loss do not allow for a systematic and anticipatory analysis of the influence of urban growth and investment on risk in urban centers [18]. In large cities with extensive informal or slum communities, data can be incomplete. Elsewhere social change driven by internal displacement, international migration, sprawl from the city center or natural processes of demographic change such as aging, make risk and loss assessment challenging in even the most well-planned cities. In richer and poorer cities, informal growth and expansion is often exposing increasing numbers of urban dwellers to both every day and catastrophic events, with the urban poor bearing the consequences. It is in these situations where there is potentially most to gain from shifting risk reduction into a development mode. However, approaches to urban planning that can address the development needs and priorities of the poorest and most vulnerable groups (particularly regarding access to safe and secure land for housing and basic services) remain elusive and the subject of debate [19].

Sub-Saharan Africa (SSA) is one of the world's least urbanized, yet most rapidly urbanizing regions are becoming increasingly impacted by a wide range of hazards [11,20]. Cities in sub-Saharan Africa are predicted to experience some of the most severe impacts, not least due to the low levels of adaptive capacity among urban populations. There are considerable variations in severity and distribution within and among urban areas: floods and mudslides in small towns in East Africa are forcing many urban residents to leave their homes.

Urbanization in Ethiopia

Ethiopia is also the least urbanised, significantly below the sub-Saharan countries [21,22]. According to the World Bank World Development Report (WDR), Sub-Sahara Africa is 37% urbanized, whereas Ethiopia is only 19% urbanized [23]. The limited extent of the country's urbanization can also be detected in the relatively small, though growing, contribution of urban activities to national

output – an estimated 43 percent of GDP. These statistics imply that the rural-urban transformation in Ethiopia deemed considered as its early stages. Countries urbanize at different rates for various reasons, however [24]. In terms of demographic change, the urban population, growing at 3.8% per annum, is expected to reach 42.3 million by 2037, which could pose significant development challenges if not addressed [21]. Together with the increment of urban population, the rate of urbanization should increase at significant level since it is a key feature of economic development. Supported the above statement saying that; from a demographic perspective, the urbanization level is best measured by the urban population share, with the urbanization rate being the rate at which that share is growing [2].

Disaster and Urbanization of Disaster Risk Management in Ethiopia Disasters in Ethiopia

Natural and human-made hazard induced disasters have been experienced throughout history. In the last three decades, however, both the frequency of their occurrence and the losses associated with them has increased. The incidence and magnitude of disasters today is widely recognized as posing a serious threat to the survival, dignity and livelihoods of countless individuals, particularly the poor. Hard-won development gains are also under threat, especially in the least developed countries (LDCs). Disaster risk is a global concern; occurrence of a disaster in one region will have implications in others. Demographic, technological and socio-economic changes, especially increased urbanization, have resulted in settlement in high-risk zones. This effect is compounded by disease epidemics, such as HIV/AIDS, and increasing climatic variability, exposing the world's economies and peoples to increased threat of disasters.

At national level, disasters cause extensive damage to infrastructure and human resources. This erodes gains made in social development through disruption of services and limitation of economic activities that generate income. Floods which destroy roads and bridges can affect access to market and lead to massive losses for farmers. Destruction of power lines disrupts manufacturing activity and causes loss of income for workers and businesses. In addition to large, discrete and high-impact disasters, recurrent localized hazards erode local capacity for development, destroy livelihoods of the poor and weaken their coping and survival capacities.

According to NPSDRM 2013, "Despite this, unlike in the past, besides drought, risk of other disasters like flood, human epidemics, livestock disease outbreak, crop pests and forest and bush fires as well frequency, scale, and intensity of such disasters have been increasing due to climate change. Weather forecast information issued about climate change also suggests that this situation is going to continue and aggravate in the future. Urban disasters like fire and other incidents are also rising because of fast growing urbanization. Also, signs of earthquakes and volcanoes have been observed in the country, especially in the rift valleys. Even though not frequently, conflicts triggered by different factors also need attention. This above situation, in general, depicts that the country is vulnerable to multiple hazards and associated disasters" [25].

Urbanization of Disaster Risk Management in Ethiopia

Ethiopia is vulnerable to disasters caused by drought, earthquake, flood, war and conflict, human and livestock diseases, pests, wildfire and landslide, amongst others. These different hazards occur with varying frequency and severity. Some result in nationwide disasters, while the impacts of others are more localized. Prior to the famines of 1973/74, responses to disasters were largely spontaneous and uncoordinated [26]. Following these famines, the relief and Rehabilitation commission (RRC), now the disaster Prevention and Preparedness agency (DPPA), was established to coordinate responses. Responses were relief-oriented until the 1984/85 famine, when questions were asked regarding the appropriateness of the emergency response [27]. After a long process of consultation, the national Policy on disaster Prevention a Management (NPDPM) was finally ratified in 1993. The NPDPM describes the link between preparedness and prevention; indicts sectoral integration; spells out how early warning information triggers declaration of a disaster; explains the development of a relief plan; proposes various preparedness measures and specifies their roles. Moreover, BPR also became a base for the enactment of the current National DRM Policy and DRM Strategic Programme and Investment Framework NPSDRM 2013 [28,25]. In 2016, institutional arrangement or shift has done to National Disaster Risk Management Commission (NDRMC).

Ethiopia has been implementing Disaster Risk reduction and Management (DRRM) strategies for long. However, this strategy was not comprehensive as they were focused to rural whereas disregarding urban areas. Urban context is different from rural context in terms of the spatial concentration, elements at risk, vulnerabilities and concentrated hazards – as primary hazard leads to secondary hazard. They are characterized by less visibility of every day urban risks (risk accumulation). Small disaster events are more frequent.

The Government's new approach on Disaster Risk Management (DRM), which reflects Ethiopia's domestication of the Hyogo Framework of Action (HFA), is anchored in reducing multi-hazard disaster risks, vulnerabilities, and impacts of potential disasters. The DRM approach is community focused and establishes clear organizational structures and roles, from the community to federal level. The new DRM approach also encompasses and guides the national Food Security Programme – the largest disaster risk reduction programme in Ethiopia - covering nearly 8 million people [29]. The new National Policy and Strategy of Disaster Risk management stated that the old policy only focused on rural areas, while the current is comprehensive disaster risk management system that concentrates on multi-hazard and multi-sectoral approaches including in urban areas FDRE 2013.

The current multi hazard DRM system comprises six components: prevention, mitigation and preparedness (which constitute the core of disaster risk reduction), disaster response and (early) recovery and rehabilitation (which constitute the post-disaster phase). Institutional strengthening is the overarching component (MoUDHC 2014). Fully capacitated, the DRM system will build the resilience of communities and will lead in turn to a substantial reduction in disaster losses, in terms of both lives and social, economic, and environmental assets, thus enabling sustainable development MoFED and WB 2013 [30].

The Federal Government has, as recently as 2013, issued policy and strategy guidelines on disaster management. The policy and strategy document recognizes that increasing urbanization in Ethiopia is likely to result in increased incidence of hazards such as fire and flood. According to, MUDHCo is identified as the lead institution to coordinate the management of disasters that occur in urban areas with respect to infrastructure, building and other construction related hazards. The MUDHCo has developed a draft strategy for "Fire and Other Hazards Protection, Preparedness, Control and Rehabilitation" to fill this gap [22].

The draft document has adopted the wider definition of disaster management that encompasses taking preventive measures to pre-empt the occurrence of disasters, providing effective response when disaster strikes and rehabilitating affected persons and damaged infrastructure. Cities are expected to prepare disaster preparedness action plans and early warning systems as well as establish dedicated disaster management units [22,31].

Conclusion and Recommendation

Ethiopia is the least urbanized country as compared to Sub-Saharan African country, while the country facing multiple disasters with varied frequency and severity. For the last many years Ethiopian urbanization was unplanned, and disaster risk management policy has been only concentrated on rural area.

Currently, the government has comprehensive disaster risk management system that concentrates on multi-hazard and multi-sectoral approaches including in urban areas. But the coordination and collaboration of various key stakeholders (GO's, private sectors and NGO's) working on the area of urbanization and disaster risk management is very weak.

Therefore, urbanization and disaster risk reduction should be coordinated at policy and implementation levels, within the framework of national development planning.

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