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URBAN FRIENDLY FORESTS ARE AN ALARMING FOR LESSENING OF GLOBAL WARMING: AN INVITED VIEWPOINT

Akale Assamere Habtemariam
Department of Biology, Botanical science, Faculty of natural Science, Mekdela Amba University, Ethiopia. Email**; akale1819@gmail.com**

ABSTRACT: *Global warming is one of the current issues, which bring devastating impacts on human life. Globally, majority of the world's population lives in urban, and this trend will increase to 66% by 2050 and this may lead to shifting green space to 'artificial surfaces.' Cities consume up to 80% of total global energy production, and account for 71 to 76% of global CO2 emissions. During 2071–2099 periods, more than half (60%) of Sub-Saharan African summer months are projected to be hotter than 5-sigma, especially in West Africa (90%). Urban trees in streets, gardens and parks provide as capture and store large amounts of pollutions. Many countries use urban forest for aesthetic value, but they have huge knowledge gaps in related to the scavenger important of urban forests for pollution. Until now, Urban forests practices hasn't been applicable and given less attention. Planting of the Urban is the only non-alternative weapons for reducing the current hazardous climate change. In order to achieving the goals of the Paris agreement, all countries should design, establish and implementing urban forests. Therefore, fast growing, evergreen, large leaved, agro-climatic suitability, spread and canopy tree species should be accustoming in the urban to neutralize the pollution. Until now, Urban forests practices hasn't been applicable and given less attention.*

KEYWORDS: climate change, global warming, pollution, urban forest

INTRODUCTION

Global warming is one of the current issues (Fagbohunka, 2015) which affecting all regions and countries, predominantly those living in poverty and food insecurity (FAO, 2016). It brings overwhelming impacts on human life and settlements (Balaban, 2012). The emission of industrial pollution is one of the consequences of global warming, due to greatly increasing of water vapour, carbon dioxide, methane and nitrous oxide, all greenhouse gases (Fagbohunka, 2015). During the Paris Agreement in 2016, 178 countries had already signed on the global issue, which needs urgency action responding to the climate change challenges (FAO, 2016).

The majority of the global population lives in cities and people depend on urban ecosystems for cooling, air quality regulation, cultural identity, recreation and tourism, physical and mental health (Tripathi et al., 2015; Derkzen et al., 2017). Urbanization leads to a change in accessibility of ecosystems (Derkzen et al., 2017) and not obvious places, to connect with the natural environs, which possess degrading settings, over-crowded housing, air pollution and noise (Lehmann, 2019). Cities have great opportunity in sinking the climate change by means of mitigation and adaptation

actions (Balaban, 2012). The urban and rural areas are parts of ecology and understanding of the Earth as a single living system that is in balance (Lehmann, 2019).

Today, consider the ecology as wheel and understand cities need to build smart planet for the well-beings, which create the steady condition. Within this system, cities will be evolving as the greatest creation of humankind. According to Tripathi et al. (2015), urban trees planting in streets, gardens and parks provide many ecosystem services to cities including offsetting carbon emissions through carbon storage and sequestration. As stated by Dibaba (2019) urban forest plays the great role to capture and store large amounts of atmospheric carbon.

Many countries use urban forest for aesthetic value, but they have huge knowledge gaps in related to the scavenger significant of urban forests for the carbon dioxide, which are released from the industries, transport service, massive population and so on. Therefore, this review provides good strategic information about global warming and the significance of Urban forest and it provides as an alarm to speed up the whole world countries for planting their urban via ecofriendly plants.

Global warming

Globally, the urban population is increasing rapidly, leading to further urban intensification in which green spaces are increasingly under threat (FAO, 2016). As stated by Chigbo et al. (2016), industrialized countries account about 80% of the carbon dioxide buildup in the atmosphere and this causes higher levels of pollution and uncontrolled exploitation. Global pollution creates a "public bad" affecting everyone (Jonathan et al., 2017). The intensity of temperature increases in the world, especially high in cities (ILO, 2019). Greenhouse gases, which released from different sources, persist in the atmosphere affect the climate of the entire planet long after they are emitted (Jonathan et al., 2017). In 2003, more than 70,000 people died in Europe from a severe heat wave and this event will increase in coming years (David, 2008). During the 2071–2099 period, more than half (60 %) of Sub-Saharan African summer months are projected to be hotter than 5-sigma, with especially strong increases in tropical West Africa (90 %). Over this period, almost all summer months across Sub-Saharan Africa will be hotter than 3-sigma (Wenbin et al., 2018).

Urban expansion and consequences

The majority of the world's population already lives in urban areas, and this trend will increase to 66% by 2050 (GERICS, 2015). This urban expansion is leading to changes in the countryside, shifting green space to 'artificial surfaces' (GERICS, 2015 and Lehmann, 2019). According to Lehmann (2019) the survey study in 2015 at UK revealed that over 22,000 hectares of green space was converted to artificial surfaces between 2006 and 2012. Vehicle emissions and building codes are a few examples, as are carbon cap-and-trade or carbon tax regimes (un-habitat, 2014). Example, the main cities of India and city of Essen, Germany, the transportation sector was found to be the main source of CO2 in the urban atmosphere as reported by Fares et al., 2017. Literature (Parshall et al., 2011) in the US showed, transportation is accounting about 33.6 percent of total emissions and 86 percent of transportation emissions are associated with on-road vehicles. Cities consume up to 80% of total global energy production, and account for 71 to 76% of global CO2 emissions (GERICS, 2015).

Urban Forest and carbon sequestration

Urban trees are influence on air temperatures and consequently alter carbon emissions from numerous urban sources, and it is important to keep the urban landscape cool, increase heat absorption and heat storage (Lehmann, 2019). The urban forest needed to absorbing carbon emissions in cities that contribute to carbon offset policies for the world, and causing global warming (Junghwan et al., 2014). Planted green belts have the potential to filter automobile emissions between highways and adjacent areas (Eisenman et al., 2019). The tree coverage differs widely between cities, and it reduces the impact of high temperatures, collect storm water and fine dust and act as carbon sinks to reducing pollution (Lehmann, 2019). Urban trees help to regulate the urban microclimate and minimizing climatic change (Ordóñez et al., 2010).

In the National Capital Territory, more than 18,000 parks and gardens spread in about 8000 ha in various locations throughout Delhi were recorded (Tripathi et al., 2015). Urban and suburban home gardens play a major role in providing food, breeding sites, shelter for animals and plants also modifying microclimate (Reta, 2016). In this modern world, global warming and climate change have hit the center stage and so tree carbon accounting is gaining gradual attention among scientists and experts across the globe in recent times (Tripathi et al., 2015).

Global Agreement and Future Goals

Urban forests have a vital frontline role to play in the achievement of the SDGs. Urban forests and parks, gardens, pocket parks and tree alleys deliver important social services (FAO. 2016). The 2015 Paris Agreement proposed a more ambitious climate change mitigation target on limiting global warming to 1.5 ◦C instead of 2 ◦C above preindustrial levels (Wenbin et al., 2018). In 2015, more than 170 cities and 12 provinces were actively involved the National Forest City programme in China (FAO, 2016). In this agreement United Kingdom, Germany and Portugal were agreed to reduce the green gas emission into net zero in 2050 and Sweden in 2045, similarly the remaining major members of the country were ratified the agreement on the Low, medium and a high rating reduction of green gas emissions (FAO, 2016).

City-Pollution scavenger

The healthy city is vital to the health of wellbeing and therefore importance to greening cities and is right age and technology to minimize global warming, such as urban heat islands, heat waves, urban flooding, energy blackouts and potential (Lehmann, 2019). Green plants are the only organic bodies on Earth that absorb or store CO2 emissions (Junghwan et al., 2014) and it can be scavenging the pollution, which are driven by the cities itself, release from many sources. Therefore, planting the appropriate and ecofriendly plants in the urban area should absorbing huge amount of carbon dioxide and other gases to maintaining the balance flow of gases from the town to rural ecosystems.

Choice of eco-friendly plant species in urban environments to mitigate pollution

The most effective and successful tree selection will account for site-specific conditions (Kumar, et al., 2013). According to Akale et al. (2019), it is essential to identify and study the presence of ecofriendly homegarden plants. Urban trees in parks and forested areas can in fact sequester and store large amounts of carbon. As Fares et al., (2017) and Hakan et al. (2015) stated that planting

trees near and around the buildings can indirectly reduce carbon emissions. Correspondingly, can reduce building energy use, besides reducing emissions for plants and all trees, which are in the growth process, diminish carbon dioxide from the air year.

The result of Kumar, et al., (2013) showed that, evergreen trees are better sequestering than the deciduous trees. Balasubramanian et al. (2017) also reported that the carbon content in trees is more when compared to shrubs and herbs. Plants with large stems and high heights, woody type with many branches, trunks of large diameter are able to sequester more carbon compared than trees with small diameter (Suzaini et al., 2019). The sequence of Jiangnan University's vegetation average carbon stocks: evergreen tree> deciduous trees>shrub> evergreen shrubs; evergreen tree's average carbon stock is far greater than the deciduous trees; shrubs carbon stocks are smaller (Yue et al., 2013).

The criteria as Kumar, et al. (2013) stated that, plants should be evergreen, large leaved, rough bark, ecologically compatible, low water requirement, minimum care, high absorption of pollutants, resistant pollutants, agro-climatic suitability, height and spread, Canopy architecture, Growth rate and habit (straight undivided trunk), Aesthetic effect (foliage, conspicuous), Pollution tolerance and dust scavenging capacity. This study can be used to neutralize the carbon production in various industries by planting fast growing tree species with high carbon sequestration potential in short span of time (Nagajothi1 et al., 2018).

Research Needs and Perspectives

Human decisions and activities can significantly influence urban forests, and science-based guidance is needed at both the policy and management levels (FAO, 2016). Development of national and international policies to combat global climate change is a huge challenge, involving many scientific, economic, and social issues (Jonathan et al., 2017). Large-scale tree planting projects that replace highly reflective surfaces with forests will result in more heat trapped near the ground during winter. Urban forestry is a transdisciplinary field involving the entire community, with its members and their interactions contributing to the many unknowns in formulating holistic policy, science, and management for sustainable cities (Endreny, 2018).

Substantial Procedure

Urban regeneration projects allow enhancing urban resilience via transform the cities into greener, more efficient, climate resilient places to live (Lehmann, 2019). In Ethiopia, the national 4 billion trees planting project officially launched by Prime Minister Abiy Ahmed on May 26, 2019, is set to mobilize national reforestation program of planting 40 tree seedlings per head and the green day was celebrated on July 29, 2019 and were planted over 4 billion plants. This indicated Ethiopia highly contributed to the reduction of global warming and the other many country could be giving prior attention. New urban design concepts should be incorporating and introducing greenery and biodiversity into the urban built environment (Lehmann, 2019). The site-specific air quality effect of vegetation along open roads and street canyons flanked by buildings has emerged as a topic of special interest (Eisenman et al., 2019).

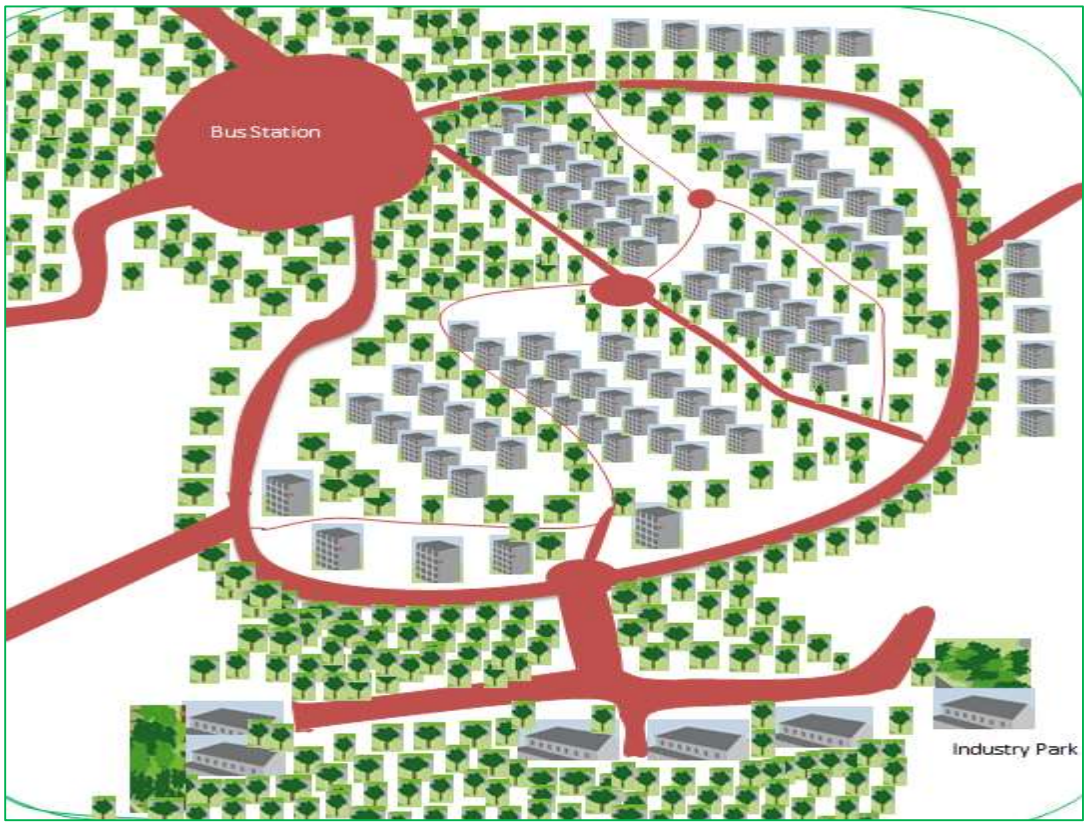

Figure 1. Urban design in order to reducing climate changes (By Akale Assamere)

CONCLUSION AND RECOMMENDATIONS

Global warming is one of the current challenging problems, which affecting the normal health of the people. Most importantly, urban air contains high concentrations of pollutants. Cities are the sources of significant air pollution, since they are the location of intense fossil fuel consumption and land use changes. Actually globally warmer in cities are high than the surrounding rural area. The urban infrastructure contributes hugely to increases in greenhouse gas emissions and it causes climate change. In the urban, there are massive motors, automobiles, buses and many types of cares, huge industries, which releasing CO_2 and other toxic gases to the surrounding. In addition to this, the numbers of the population that are settling in the urban is increasing from time to time. Therefore the surrounding temperature increasingly overtime and it causes global warming in the world via increasing the sea level, acid rain and decreasing the layers of ozone and the globe becoming warmer and warmer from time to time and year to year.

Until now, Urban forests practices are not applicable and given attention in the world. In order to reducing, the increment of global warming and for the maintenance of well honesty sustainability in the globe is planting (urban forest) urban and peri-urban inhabitants. Planting of the Urban is only non-alternative weapons for reducing the current hazardous climate change. Many country

signed agreements in order to reducing the effects of carbon dioxide emissions. In order to achieving the goals of the Paris agreement, all countries should design, establish and implementing urban forests and all governments should design policies and implement projects to reducing the rooted problems of global warming, like Ethiopia which were planted over four billions of plants with in one days.

Therefore: the urban and government administrate of all countries should be given high attentions all in the one-hand to reducing the non-sounding killer, which is called global warming

- Selecting urban friendly plants, which have a maximum pollutant sequestration capability to each of the town
- Industry parks should be out of the town, and will be covered by massive plants
- All the roads and streets site sides should be planting with superior plants
- In the urban, the numbers of parks, gardens and streets should be given high attention.
- All cars stations should be designed at side of the town and surrounded by a massive of friendly plants
- Design an urban planting project and immediately implement urgency policy

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Highlights:

- **Global warming showed increasing trends and this leads to deceased many peoples.**
- **Global cities accounted nearly 71 to 76% of global CO_2 emissions.**
- **Similarly, high hectares of urban forest have been shifting to artificial surfaces.**
- **Therefore, climate change is currently immense issue and has hit the center stage.**
- **As a result, urban tree is gaining gradual attention to dipping climate change.**