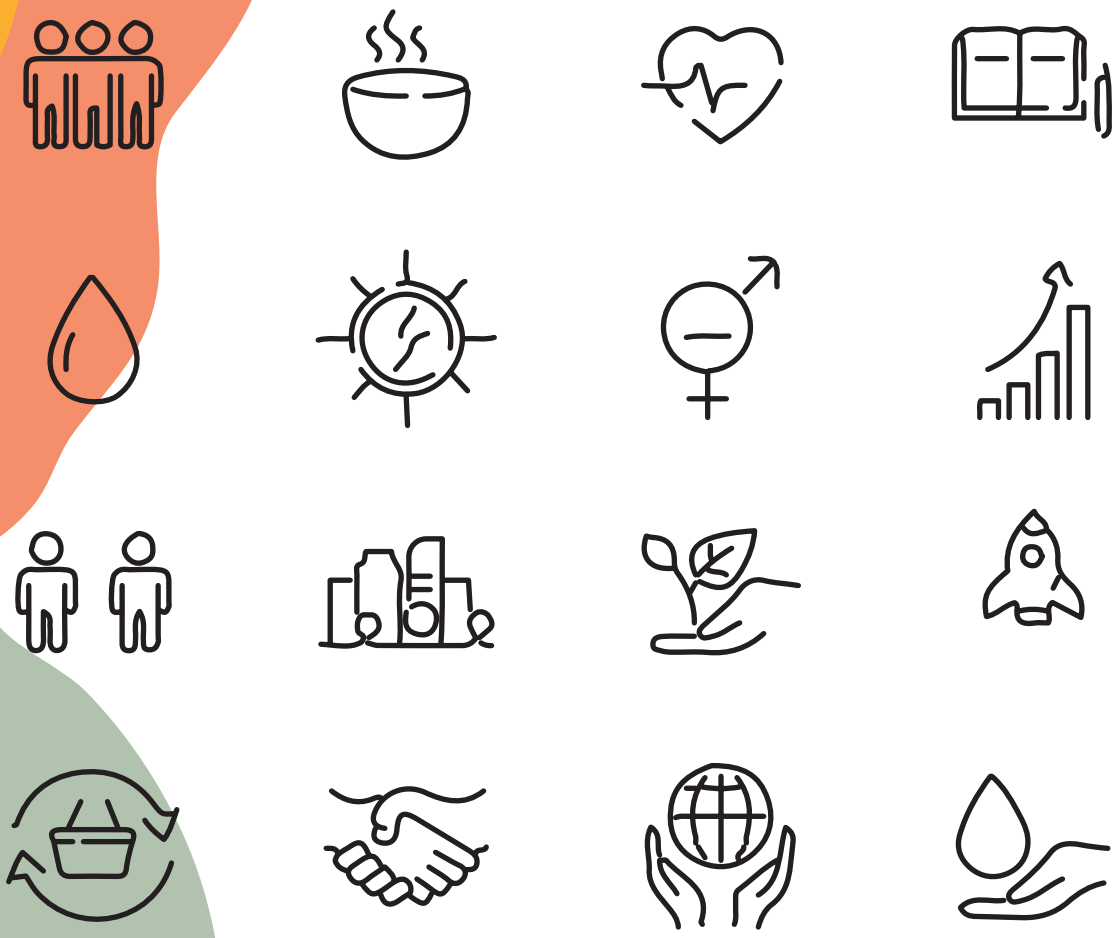

SUSTAINABLE CITIES

RETHINKING URBANIZATION IN KOSOVO FOR KOSOVO MUNICIPALITIES

german cooperation
DEUTSCHE ZUSAMMENARBEIT

implemented by:
giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

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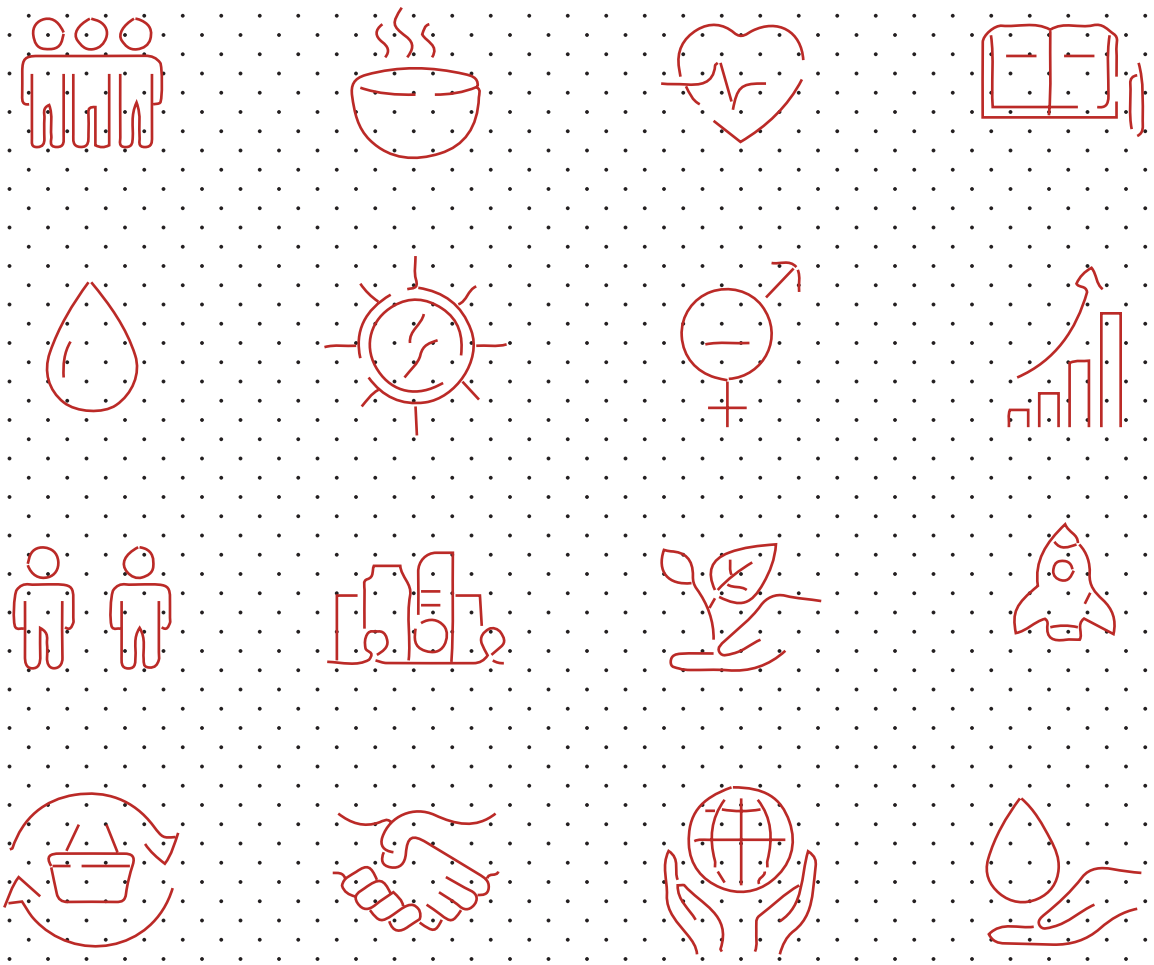
ABBREVIATIONS

BRT	Bus Rapid Transport
EU	European Union
GDP	Gross domestic product
IEA	International Energy Agency
MDP	Municipal Development Plans
MEE	Ministry of Economy and Environment
MEEAP	Municipal Energy Efficiency Action Plans
MEEP	Municipal Energy Efficiency Plans
MESP	Ministry of Environment and Spatial Planning
MZM	Municipal Zoning Maps
NZEB	Nearly Zero Energy Buildings
NZED	Nearly Zero Energy Districts
PM2.5	2.5 micrometres or less
SDGs	Sustainable Development Goals
SSTEC	Sino-Singapore Tianjin Eco-City
SUMP	Pristina Sustainable Urban Mobility Plan
UAE	United Arab Emirates
WHO	World Health Organization



INTRODUCTION

"Cities are the abyss of the human species".[1]

Early cities arose for a better agricultural development, while industrial cities provided economic benefits to humans. Although cities have continuously been growing, it is the latest exponential growth of cities that created the post-modern city. Hence, growing inequalities, environmental degradation, social and economic exclusion and spatial segregation remain among the greatest obstacles to sustainable development worldwide.

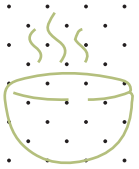
It has been 20 years since the war conflict in Kosovo; the time period when many cities were greatly destroyed. The return of refugees, whose houses were destroyed, resulted on a "construction boom". The war created an urban planning vacuum, thus settlements faced unsustainable urban growth patterns. Buildings, mostly houses, were built in an open land everywhere, following no construction nor urban development restrictions. Following no infrastructure regulations, newly developed areas were lacking basic infrastructure. Urban sprawl, no access to infrastructure, lack of open areas, big scale commercial developments, and car use dependence started dominating Kosovo cities lifestyle pattern. The unequal development rate resulted in population migration from rural to urban areas and from urban to more developed urban areas.

Even though the post-war period construction pace has slowed down, the poorly regulated construction market remains one of the main economic drivers. For the past 10 years, large under-quality high-rise housing blocks have been quite common in the urban landscape of Kosovo. But fortunately, in the recent times the housing construction industry is slowly transitioning from supply-driven to demand-driven, where the client is constantly looking for a higher quality of construction conditions. Urban sprawl in combination with the increased car use creates traffic congestion, thus resulting in an environmental externality like air pollution. The introduced strategic concept within the urban planning framework was supposed to be the driver of the decision-making while developing public services and building the public interest projects. However, even after 20 years from the post-conflict, urban planning decision-making is led by neo-liberal demands that are often misinterpreted as public needs or interests. Municipalities with the aim of responding to the citizens' "needs", like investing in infrastructure in every neighbourhood and village, did very little effort to build sustainable transport solutions.

In the light of the recent developments, such as the COP21 Paris Climate Agreement, the UN adoption of the Sustainable Development Goals for 2030 and the Habitat III Conference, there is an increasing recognition of the role of human settlements as key components of both global challenges and global solutions. Understanding the key trends in urbanization, likely to unfold over the coming years, is crucial to the implementation of the 2030 Agenda for Sustainable Development, including efforts to forge a new framework for urban development.

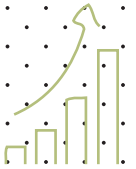
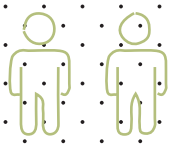
The scope of this paper is to identify the terms and to properly understand the "urban sustainability" concepts which are necessary for formulating a clearer future roadmap for Kosovo cities.

[1] Jean-Jacques Rousseau in 1762 (1972, p. 59).



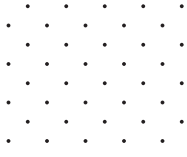


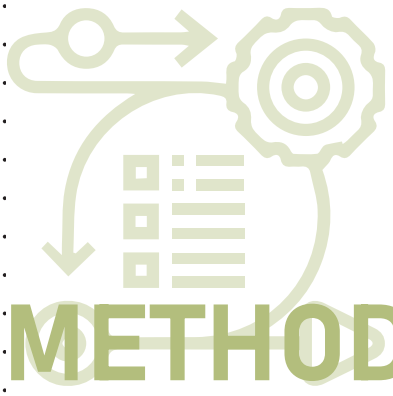













METHODOLOGY

The methodological approach that was chosen for this research paper encompasses of a qualitative research method, alongside the observational one. Through literature review, data collection, observation, and analysis of the current stance and data in Kosovo, an assessment of the existing status of Kosovo's municipalities and cities is provided.

The data were received from different strategic documents, like plans, strategies, statistics, research papers, etc., both at national and local level. In addition, the collected data for different sectors were processed and given a research context, in order to assess the level of sustainability and social responsibility of such sectors.

Nevertheless, an obstacle regarding data collection and the whole methodological approach was the lack of data for Kosovo's cities, which then would have served as a basis for a comparative analysis with the other cities of the neighbouring countries. In order to enrich the research paper with relevant data and information, GIS, statistical analysis and spatial analysis skills were used.

Lastly, a limitation to this research work was also related to the pandemics, COVID-19, and social constrains, which disabled the possibility to receive data fast and conduct structured meetings with certain institutions and entities that are key stakeholders to this sector.

1/ SUSTAINABLE CITIES
GLOBAL TRENDS AND CHALLENGES

Over the last 50 years, the world has witnessed the biggest urban growth and economic transformation of cities worldwide. According to UN Habitat, **"cities occupy less than 2% of world's land surface but consume more than 75% of the world's energy and are responsible for up to 70% of greenhouse gases"**.[2] Cities and settlements, with their "development" and high levels of consumption have threaten water and food, critical for world sustainability.

In 2019, global energy consumption exceeded 576 exajoules, showing an increase of 75% compared to 1990. Households and transport remain 2 sectors that consumed most in 2016.[3] CO_2 emissions coming from global urban energy consumption range between 53 to 87% of the total CO_2 emissions.[4] The high population growth in the cities increase the demand for energy, thus putting pressure in the natural resources and contributing to and the overall CO_2 emissions. Therefore, if citizens continuously consume the energy in an inefficient pattern, the global energy consumption as projected will continue to increase dramatically over the next few decades.

Cities also struggle with providing access to water and sanitation. Almost 1 billion people do not have access to clean drinking water (i.e., tap water), while 2.6 billion do not have access to "improved sanitations services".[5] This will create severe water supply challenges, especially for cities.

Urban decisions have long term footprint resulting in resource exploitation and environmental degradation. As such, even the demolition of buildings or neighbourhoods, which were previously built without urbanization standards, will create a large amount of construction waste. The consequences of the rapid urbanisation were firstly recognized on the Habitat I, United Nations (UN) Conference on Human Settlements on 1976, in Vancouver, Canada. The so-called Vancouver Declaration concluded that **"inequitable economic growth and uncontrolled urbanization will continue, unless positive and concrete action is taken at national and local levels"**.[6] If the cities will continue to grow at the pace of the last 50 years, "urbanization" as a transformation force will become a threat to natural resources and climate change. The cities and the world will become unliveable.

New urban growth of any kind requires extra sensitivity for the social, economic and environmental impact for current and future generations. The social context of cities is of high importance for decision-making. This is especially true in cities across the developing world, were "uncontrolled growth" constitutes significant proportions of city outskirts, and inequality exacerbate the urban division. The cities around the world must undertake sustainable development decisions.

[2] UN Habitat. (2011). "Global Report on Human Settlement 2011: Hot Cities: battle-ground for climate change".
[3] United Nations. (2020). Energy Statistics Pocketbook 2019, UN, New York. https://doi.org/10.18356/8987f9d4-en
[4] Boden, T.A., G. Marland, and R.J. Andres. 2017. Global, Regional, and National Fossil-Fuel CO2 Emissions. Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, U.S. Department of Energy, Oak Ridge, Tenn., U.S.A. https://doi 10.3334/CDIAC/00001_V2017
[5] United Nations. (2018). The World's Cities in 2018: Data Booklet, Statistical Papers - United Nations (Ser. A), Population and Vital Statistics Report, UN, New York. https://doi.org/10.18356/c93f4dc6-en
[6] United Nations Conference on Human Settlements (1976). "The Vancouver Declaration on Human Settlements – A/CONF.70/15 Chapter I – UN Documents: Gathering a body of global agreements".

From “theory to practice” around the world, the term “sustainability” became famous. The term “sustainable development” was first mentioned in a UN Report Conference on the Human Environment[7] in 1972, but the first official definition was elaborated on the Brundtland Report[8] in 1987, emphasizing the principle and imperative of sustainable development: economic, social, environmental and cultural sustainability.

So far, there is no comprehensive international definition for the term ‘sustainable cities’”. Even though there is a lot of scholarly attention given to this, different definitions are still evolving and remain elusive for most of the stakeholders. Besides the term ‘sustainable cities’, many new categories of ‘cities’ were created within the urban planning discourse, like: ‘green cities’; ‘resilient cities’; ‘eco cities’; ‘low carbon cities’; ‘smart cities’; intelligent cities'; etc. The term ‘sustainable city’, as the most common term used in the research and development policy, became a key multisectoral and multiscale concept in interpreting existing urban transformations and in responding to the challenges of creating future liveable urban settlements.

The ‘sustainable city’ concept when applied to urban policy, is based on 2 incompatible principles:

1/ resource use and waste production by cities to remain at levels below the carrying capacity of their ecosystems, while

2/ providing a capacity for sustaining life, social practices and quality of life.[9]

In general, a sustainable city can be defined as a city that is significantly decoupled from resource exploitation and negative environmental impacts and its growth/ development is economically, socially, and ecologically sustainable in the long run. As they develop a sustainable city, decision makers need to formulate strategic frameworks to move into the new era of sustainable urban development.
The 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs) were adopted in 2015 and compose an action plan which aims to benefit primarily the people and planet and ensure common prosperity. The SDGs highlight the current challenges and the goals through which they can be tackled down.

As per data collected in 2019 from a sample of 755 cities in 95 countries, in the period 1990 until 2015, **“most urban areas recorded a general increase in the extent of built-up area (defined as the presence of buildings) per person.”**[10]
Despite numerous development challenges, cities represent an open opportunity for innovative sustainable development. Sustainability, resilience and healthy lives will be failed or be achieved within cities. SDG 11 is a goal specific set for “making cities and human settlements inclusive, safe, resilient and sustainable”.[11] If humanity succeeds in achieving targets under SDG 11, it will influence the real and necessary changes across many of the other SDGs. The SDG 11 together with its respective targets and indicators, will be particularly treated by this paper.

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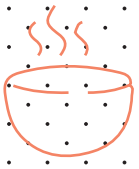
[7] UN General Assembly, United Nations Conference on the Human Environment. (1972). Stockholm Declaration of the United Nations Conference on the Human Environment. Stockholm, 5-16 June 1972. https://digitallibrary.un.org/record/523249?ln=en

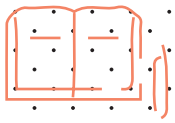
[8] Brundtland, G. (1987). Report of the World Commission on Environment and Development: Our Common Future. United Nations General Assembly document. http://www.un-documents.net/ocf-ov.htm

[9] Campbell, S. (2013). Sustainable development and social justice: Conflicting Urgencies and the Search for Common Ground in Urban and Regional Planning. http://dx.doi.org/10.3998/mjs.12333712.0001.007

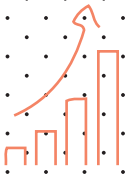
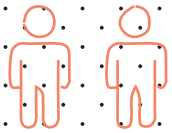
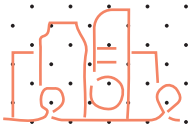
[10] UN. Secretary-General. (2018). Progress towards the Sustainable Development Goals: report of the Secretary-General. New York: UN, 10 May 2018. https://digitallibrary.un.org/record/1627573?ln=en

[11] According to United Nations Sustainable Development Framework, SDG 11 addresses the urbanization challenges and aims to create a more sustainable urban landscape and environment.









2/ GENERAL OVERVIEW

Historically, Kosovo has been through several occupations, wars, and fleeing. The last census conducted by the Government of Kosovo (GoK) took place in 2011. Based on that census, Kosovo has around 1,808,257 inhabitants.

While being a country which has just passed the conflict with a prevailing poor economic and infrastructure conditions, many Kosovars have migrated to developed areas in search of better living conditions. This constant internal migration of population has overburdened the urban areas, which in turn are being developed without a spatial planning control, predominantly at the local level. Thus, this uncontrolled construction in urban zones are prevalent and severe especially along regional roadways (GoK Ministry of Environment and Spatial Planning 2010a).

The consequences are manifested in an unequal development between urban and rural areas, the creation of housing areas without the proper physical and social infrastructure and increasing property and legal disputes. Simultaneously, according to the USAID Kosovo, "this strong connection between urban and rural areas means there is good potential for diversifying economic activities wherever the infrastructure is present and allows market access."[12]

This increased level of internal migration, insufficient and inadequate housing supply, and lack of law enforcement have all contributed to an increased number of illegal settlements and illegally constructed buildings throughout Kosovo. The agricultural stance and displaced owners' land have been the site of illegal settlements, particularly on the outskirts of the urban areas.

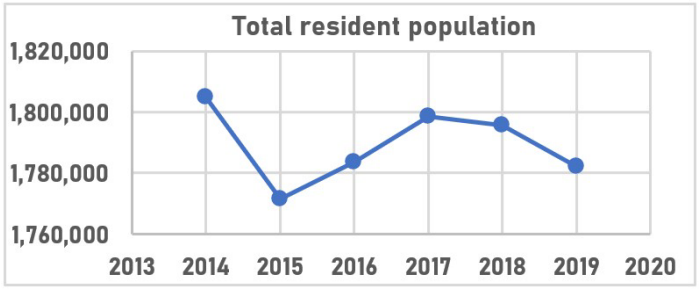


Figure 1. Total resident population in Kosovo, period 2014- 2019
Source: Kosovo Statistics Agency (KSA)

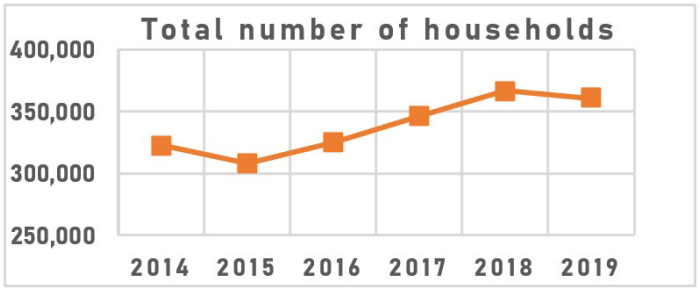


Figure 2. Total number of households in Kosovo, period 2014- 2019
Source: Kosovo Statistics Agency (KSA)

Kosovo households with an average of 5.9 family members[13] representing a relatively large or "extended family"[14] structure. However, if compared to the number of household members in 1981, which was 7[15], one can conclude that the family size is shrinking.

[12] USAID, Country Profile Kosovo. Link accessible at: https://www.land-links.org/country-profile/kosovo/ (Accessed April, 2021)

[13] Census 2011. Data source: Kosovo Agency of Statistics.

[14] "The extended family, headed by an elderly male, usually comprises all of his sons and their wives and children under one roof. In some cases, this extended family may inhabit several adjoining houses. The extended family constitutes one economic unit, and all assets are shared".

[15] Data source: Kosovo Agency of Statistics. https://askdata.rks-gov.net/PXWeb/pxweb/en/askdata/askdata__Census%20population__Census%202011__2%20Republic%20of%20Kosova/census43.px/table/tableViewLayout1/?rxid=fe5de542-7b0c-4e8f-a609-4b41c68d9b41

Additionally, Kosovo's density population is in decline. The population density (capita per km2 of land area) in Kosovo reached a maximum value of 191.60 in 1997, while decreasing to 168.15 capita/ km^2 in 2017.[16]

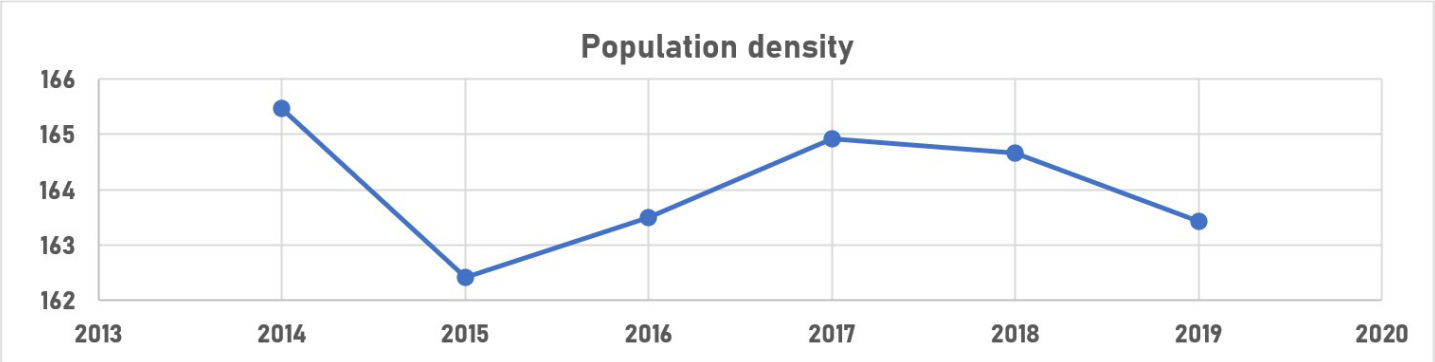


Figure 3. Population density in Kosovo for the period 2014- 2019
Source: Kosovo Statistics Agency (KSA)

Out of the total surface of 1.1 million hectares, approximately 577,000 hectares (53%) is cultivable land. However, In Kosovo (38.5%), the share of utilised agricultural area was similar to that in the EU-27. Pristina is the region with the largest arable land area at 27.7% (GoK 2015a). The majority of agricultural land is privately owned (80%), providing primarily subsistence farming for individual households (World Bank 2015a).

Forest area in Kosovo remains fairly stable at approximately 481,000 hectares (44.7% of total area) and provides timber, fuel wood, and various forest products used by the population. Annual harvest is above the recommended long-term harvest levels and more than 90% of the volume is not harvested according to regulations.

The Assembly of Kosovo on January 25th of 2018 has approved the resolution on Sustainable Development Goals (SDGs). On October 10th, the Council for Sustainable Development Goals was established, chaired by the Chairman of the Committee on Health, Labour and Social Welfare.

There are several laws and policy documents that address sustainability. Legislation on environmental protection, defines sustainable development as **"harmonization of economic development, and protection of the environment to meet the needs of today without jeopardizing the opportunities for future generations to use these capacities and meet their needs."**[17] Additionally, Law on Spatial Planning sets a goal of providing **"a sustainable and balanced development of spatial planning throughout the entire territory of Kosovo as a common national value, through good governance, rational use of space, environmental and cultural heritage protection".**[18]

Most environmentally related laws contain sustainable development as one of the guiding principles of legislation, but the term is not further elaborated in provisions. In the whole of Kosovo's legislation, the term "sustainable city" is not defined, although it is mentioned often in policy and strategic documents.

[16] Ibid.
[17] Official Gazette of the Republic of Kosovo. "Law No. 03/L-025 on Environmental Protection". 06 April 2009. https://gzk.rks-gov.net/ActDocumentDetail.aspx?ActID=2631
[18] Official Gazette of the Republic of Kosovo. "Law No. 04/L-174 On Spatial Planning". 2013. https://gzk.rks-gov.net/ActDetail.aspx?ActID=8865

2.1/ URBAN/RURAL STRUCTURE

According to Kosovo Statistics Agency (KSA), approximately 62% of the population lives in urban areas/cities, which is similar to the current world trend.[17] Transformed into built up surface, urban areas cover only 2% of the total land area.[20]

Municipalities are administrative units. In total, 1,469 settlements are spread among 38 municipalities, dividing Kosovo in 41 identified urban clusters[21] based on a population distribution study[22]. In the municipality level, Pristina has the highest value of percentage (81,3%)[23] of population residing within the urban cluster in proportion to the total municipality population.

Urban clusters or urban morphological zones (UMZ)[24] include CORINE[25] land cover classes, such as: continuous urban fabric, discontinuous urban fabric, industrial or commercial units, open and green urban areas, and infrastructures. UMZ are used to assess the degree of urbanization in a country. This means that in Kosovo due to a high rate of urban agglomerations that were created from 2000 until now, there are less UMZ compared to the administrative settlements.

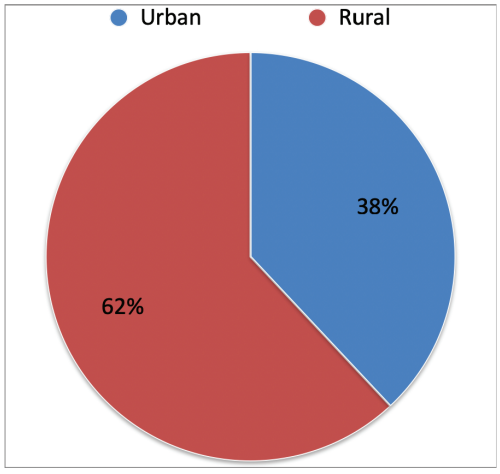


Figure 4. Urban/ rural population divisions in Kosovo. Source: Kosovo Statistics Agency, 2020.

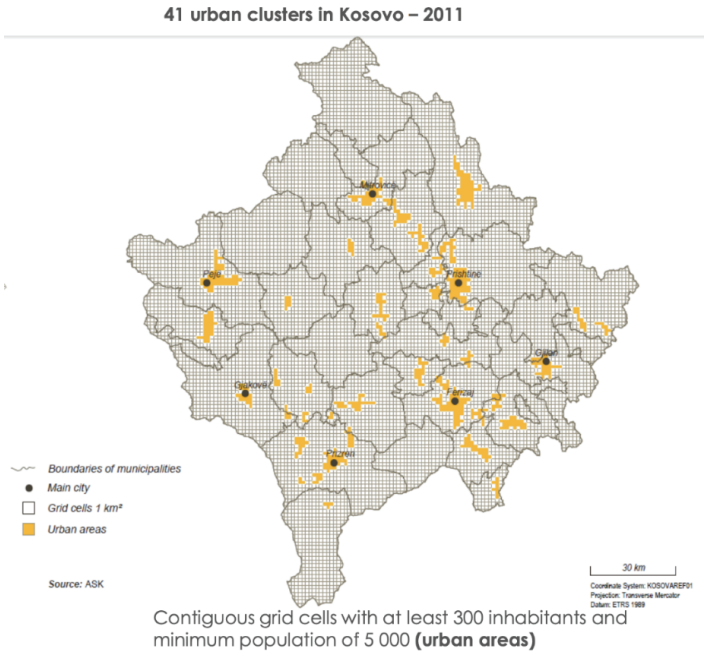


Figure 5. Urban clusters in Kosovo based on population distribution. Source: Bianchini, Shameti, Shala. (2015). Population distribution in Albania and Kosovo.

[19] Kosovo Agency of Statistics. (2020). Urban/rural population in Kosovo. https://askdata.rks-gov.net/PXWeb/pxweb/en/askdata/askdata__Census%20population__Census%202011__2%20Republic%20of%20Kosova/census01.px/?rxid=a0f4db78-2e28-40c1-830b-7a5922623a41

[20] Ministry of Environment and Spatial Planning. (2010). Spatial Plan of Kosova 2010 – 2020. http://www.ammk-rks.net/repository/docs/Spatial_Plan_of_Kosova_2010-2020.pdf

[21] "An urban cluster consists of contiguous grid cells of 1 sq. km with a density of at least 300 inhabitants per sq. km and a minimum total population of 5 000."

[22] Ibid.

[23] Bianchini, Shameti, Shala. (2015). Population distribution in Albania and Kosovo. Fifth International Conference of Balkans demography, 2015. Ohrid, North Macedonia.

[24] According to European Environment Agency, "Urban morphological zones (UMZ) are defined by Corine land cover classes considered to contribute to the urban tissue and function".

[25] CORINE stands for 'coordination of information on the environment'. See more at http://www.eea.europa.eu/publications/COR0-landcover

There are a great deal of existing indicator sets, frameworks and approaches for measuring and monitoring progress in cities who want to address sustainability. The 2030 Agenda and SDGs targets related to the Global Indicator Framework contain 231 unique indicators, which are more suited to assessments for national and regional levels.

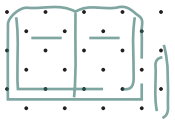
Since 1990, the population in urban areas of Kosovo highly increased. While, globally more people live in urban areas, in 2011 in Kosovo, based on the administrative urban/ rural classification, most of the total population lived in rural areas (62%) and less in urban areas (38%).[26] However, if on top of the same data the grid (EU cells classification typology) urban/ rural classification[27] is used, the urban population of Kosovo in 2011 was up to 54.7%.[28] Administrative criteria for the definition and classification of urban/rural areas, like those used in Kosovo, seems not adequate for a reliable and up-to-date classification of the urban and rural population.

[26] Data source: Kosovo Agency of Statistics.

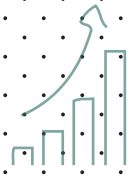
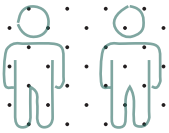
[27] Based on the EU approach of aggregating census population into grid cells, where urban clusters represent contiguous grid cells of 1 km² with a density of min. 300 inhabitants/km², and rural clusters represent grid cells outside urban clusters. See more at: EU Inspire.

[28] Kosovo Agency of Statistics (2015). Population distribution in the Republic of Kosovo: a comparative analysis on urban population and its classification based on administrative and non-administrative criteria. http://www.efgs.info/wp-content/uploads/conferences/efgs/2016/S8-1_presentationV1_IdrizShala_EFGS2016.pdf



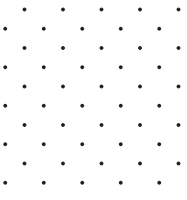










3/ KOSOVO CITIES STATUS, TRENDS AND CHALLENGES

3.1/ SPATIAL DIMENSION

3.1.1/ URBAN PLANNING CONTEXT AND LAND USE PATTERNS

Only in 2003, Kosovo's municipalities were introduced to the concept of strategic planning through the adoption of the Law No. 2003/14 on Spatial Planning[29]. Sustainability, in addition to transparency, inclusion and equality, was one of the key principles to be followed in decision-making. It was the Municipality of Prishtina that adopted the first strategic development plan in 2004.

The law divided the spatial planning in 2 levels, that of national and local. In the national level the spatial planning was structured through the Kosovo Spatial Plan (KSP) 2010-2020+[30] in 2010, under the administration of the ex. Ministry of Environment and Spatial Planning (MESP)[31]. Under the same law, in the local level, municipalities were required to adopt Municipal Development Plans (MDPs) for all municipal territory determining long-term goals of economic, social and spatial development, and adopt Urban Development Plans (UDPs) determining long-term projections for development and management of urban areas.

An implementation strategy, including timeframe and anticipated financing mechanisms, was a crucial component for the strategic and action-oriented planning. Shortly, the municipal authorities had a challenging potential to put (international) theory in to (local) practices. It turns out, that immediate harmonization with the ongoing European development principles, was just a big bite for a small developing country that was just out of war. Most of MDPs and UDPs were shortfall on criteria or indicators that could be used for determination of clear activities for implementation of spatial plans.

In addition, municipalities were caught in between many other issues like providing basic services, budget constraints, and lack of technical expertise for drafting and human resources for implementation and monitoring the implementation. The absence of urban plans (between the period 2000-2008), non-effective monitoring and controlling, and growth trends, all resulted in a large land conurbation[32] and urban sprawl[33]. Even though, with the support of international donors by 2008, most of the municipalities had set their urban area outskirts through adoption of UDPs, lack of control resulted in high level of occupied land around city edges. In 2008 most of them were still in the process of drafting or did not yet started the process of drafting the MDPs and UDPs.

Lack of infrastructure and access to public services were recurrent characteristic for all the forms of urban sprawl in Kosovo. As a consequence, the residing population had to rely on car use even for basic necessities. Unfortunately, a segment of the population, namely children, the disabled, the poor, was being excluded from the fulfillment of such basic necessities as a result of lacking a transportation mean on daily basis.

[29] Official Gazette of the Republic of Kosovo. (2007). Law No. 2003/14 on Spatial Planning. Article 3. https://gzk.rks-gov.net/ActDetail.aspx?ActID=8865

[30] MESP. (2010). Kosovo National Plan 2010 – 2020+. http://www.ammk-rks.net/repository/docs/Plani_Hapesinor_i_Kosoves_2010-2020.pdf

[31] Based on political decision in 2020, MESP was rearranged into Ministry of Economy and Environment (MEE).

[32] According to CEMAT, "conurbation is an aggregation or continuous network of urban communities which have physically merged through population growth and expansion. Physical proximity and continuity of built-up areas are a prerequisite for the definition of land conurbations."

[33] According to CEMAT, "urban sprawl is the unplanned, uncontrolled spreading of urban development into areas adjoining the edge of a city. The term is also used to designate the expansive, rapid and sometimes reckless growth of a greater metropolitan area over a large area."

Since municipalities had already MDPs and UDPs in place, they could not plan for additional infrastructure, services, and amenities, in order to integrate the functional areas/ neighborhoods developed in the city outskirts. In addition, the cost of the minimal infrastructure that municipalities developed created additional weigh burden on already weak municipal budgets.

Inappropriate land-use regulations indirectly promoted the explosion of informal development due to their rigidity or lack of clear implementation mechanism. The MDPs and UDPs left out rural settlements without proper planning policies and buildings regulations In 2013, Kosovo Assembly approved the Law on Spatial Planning[34] where UDPs were removed and the concept of zoning was introduced, including planned land use and buildings regulation for all municipal territory. Municipal Zoning Maps (MZMs) through the integrative urban planning approach are expected to be more understandable and accessible to all citizens. Up to date, most of municipalities are in the process of drafting and adoption of their MPDs and MZMs.

In general, urban sprawl development was an illegal one. Settlements and cities continued to grow, while forest and agricultural land continued to be misused. Up in 2016, more than 350,000 illegally constructed buildings were identified[35], with 45,000 buildings being identified only in Pristina.[36] As a result of this, ecosystem and biodiversity felt a growing degradation pressure.

The urban residential sprawl, which was the major driver of artificial development in the period 2000-2006, became less intensive in the period 2006-2012. Whereas, in the period 2006-2012, all components of the sprawl were very intensive, such commercial/industrial units, mines and dump sites, as well as construction and extension of transportation networks.[37] Meaning, that due to the demand from the people to built more homes in the immediate post-war period and the supply from the construction companies constructed all other types of buildings in the second period.

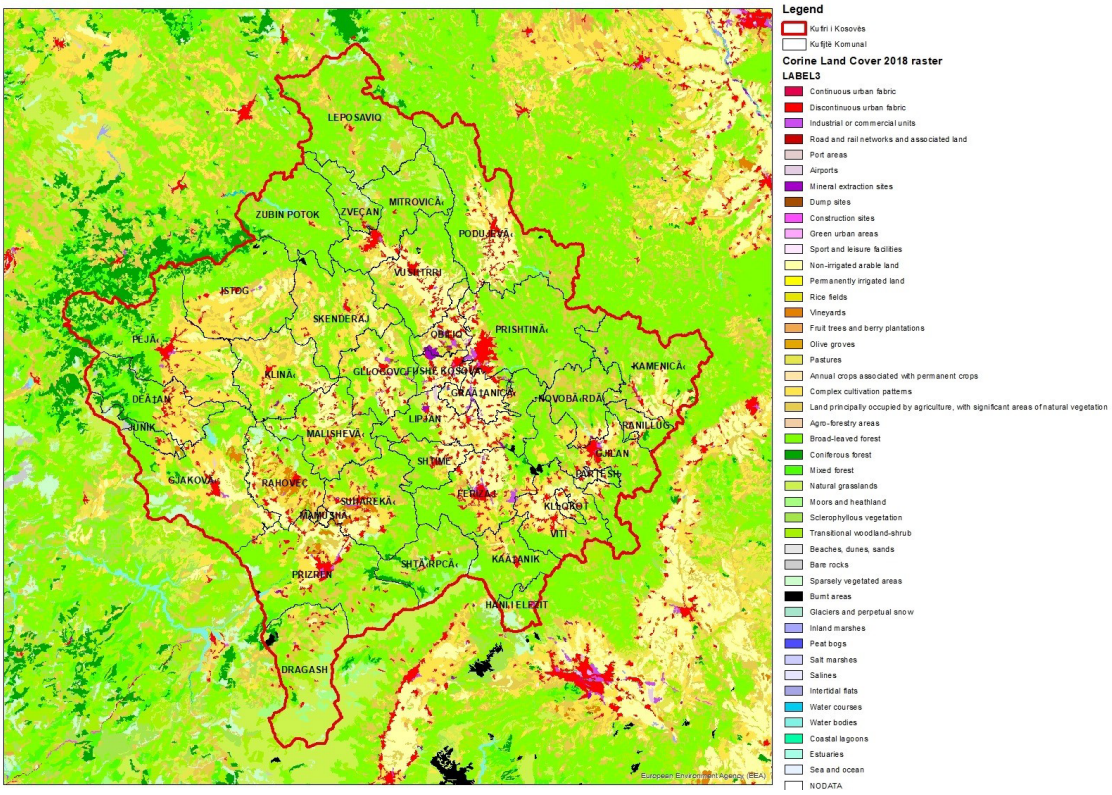


Figure 6. Corine Land Cover 2018, Kosovo. Source: Copernicus aggregated data provided by European Environment Agency.[38]

Paradoxally, the existing settlement situated on plane land were transformed into non-efficient use of land/dispersed settlements and settlements developed along transport corridors/linear shaped settlements. Both dispersed and linear settlements threaten the sustainability through various negative externalities. (See Figure 6.).

[34] Official Gazette of the Republic of Kosova. (2013). Law on Spatial Planning No. 04/ L- 174. Article 10. & 11. https://gzk.rks-gov.net/ActDocumentDetail.aspx?ActID=8865

[35] USAID Kosovo (July 2016). Success story "Building Constructed without Permits in Kosovo move Toward Legalization".

[36] MESP (2015). Kosovo. http://mmph-rks.org/sq/Lajmet/Rreth-350-mije-ndertime-pa-leje-ne-Kosove-1188

[37] European Environment Agency (2017). Corine Land Cover country fact sheets 2000-2012. Kosovo. file:///Users/linkplus-et/Downloads/XK-Kosovostar-landcover%20(3).pdf

[38] Retrieved on 18 December, 2020 at: https://land.copernicus.eu/pan-european/corine-land-cover/clc2018?fbclid=IwAR3TtWRdJ0PBwHce1MuAOwBXCldFC4o4FPT7ShwX-FUiXnffmHoD4sD0das

Figure 8. Annual imperviousness rates for the period 2006-2015 in Kosovo[42]

Based on the figure above, geographically, most of the development happened in the lower flat part of the country, leaving hilly and mountainous parts depopulated. It can be observed that most of the artificial sprawl is concentrated on the edges of the capital/ region of Prishtina, and along the major transportation corridors. In addition, the urban sprawl effect in and around Pristina, but also present in other bigger cities such as Prizren, Peja, Ferizaj, Gjilan, Mitrovica and Podujeva; created a huge settlement conurbation.

Land conurbations and urban sprawl created adverse effects, e.i. increased land sealing and dispersed ineffective land consumption, known as unsustainable land use patterns. In order to assess the level of land conurbations, implications of artificial development, such as the rate of land sealing[39] will be analysed. Land sealing is crucial for understanding the challenges a country has towards sustainable development. Artificial development captures all land area taken for buildings, industrial and commercial areas, infrastructure, sport grounds etc., and includes both sealed and non-sealed surfaces.

The rate of land sealing in Kosovo is among the highest in Europe. The artificial development (housing, economic sites and infrastructures) in Kosovo, within the period 2000-2012 rapidly and strongly grew. The annual land consumption rate for the period 2000-2012 was 1.38%[40] and represents one of the highest among European countries.

In comparison to its neighbouring countries, the land sealing percentages in Albania for the period of 2006-2015 varied from 0.57-0.61%, whereas in North Macedonia the percentages varied from 0.59-0.63% for the same period.[41] This demonstrates that Kosovo shows an increased land sealing trend, meaning that the transformation of the land from its natural state into an imperviousness state is much higher. The 2012-2015 percentages show an alarming trend with the highest rates of land sealing being noted, in contrast to the general trend of a slowing rate of land sealing in most of EEA-39 countries. Corine Land Cover (CLC) aggregated data provided by EEA show a concerning continuing increase in the percentage of annual increase in land sealing over all 3 periods, respectively 2006-2009, 2009-2012 and 2012-2015.

The most striking cases are urban conurbation of Fushë Kosova and Graçanica with the urban area of Pristina. The increasing urban sprawling that can be categorized as different urban growth phenomenon based on spatial forms. Pristina's geographical territory was hugely expanded in a relatively short period of time.

[37] According to CEMAT, "land sealing is the process where sealed/ impervious (urban fabric, industrial sites, commercial activity, etc.) surfaces occupy agricultural, forest or other natural areas." European Environment Agency.
[38] European Environment Agency (2017). Kosovo Land Cover 2012. Country fact sheet.
[39] Copernicus aggregated Imperviousness change information 2006-2015 provided by European Environment Agency (EEA). Retrieved on 18 December 2020 at https://www.eea.europa.eu/data-and-maps/indicators/imperviousness-change-2/assessment
[40] Ibid.

This is confirmed by the fact that the urban space built in 1970 was about 948 hectares, while it expanded in 1999 when it reached 1,693 hectares. The highest number of hectares used for expansion of the city was recorded in the year 2010 with 4,662 hectares.[43] Expressed in percentage from 1970 to 1999 an increase of 78.59% is indicated, while from 1999 to 2010 the city expanded for 175.37%. (See Figure 7). This level of rapid growth was almost totally unplanned, whereas "rural area" was adjacent to “urban areas” formed urban agglomerations and urban sprawl, which have caused multidimensional and long-term consequences.

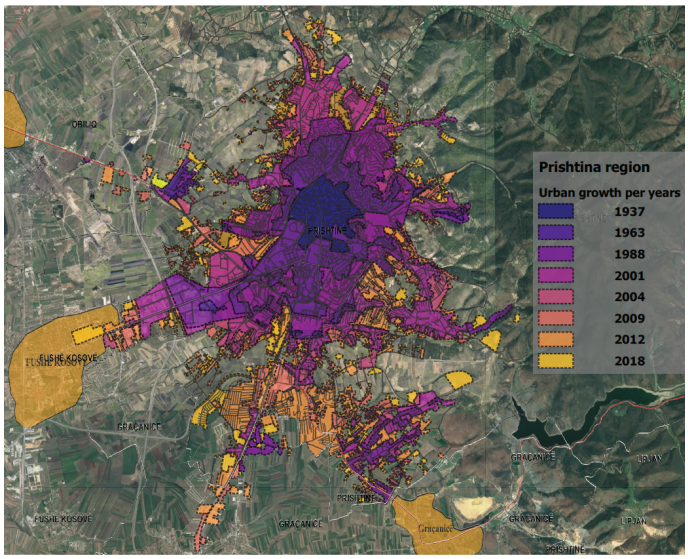


Figure 7. Pristina urban growth through years. Source: Author compiled data (Topographic maps and Orthophoto) visual representation in QGIS

3.1.2/ SPATIAL INEQUALITY

Urban development in the form of urban sprawl increased inequalities by creating high property values in well-located new developments or through gentrification in existing parts of the city.

Different form of urban sprawl patterns that occurred among cities and rural settlements, created 3 inequality development patterns, such as:

1/ Edge Growth are usually located close to urban outskirts with a medium to high density development. Due to low prices or inherited land, the kind of growth is formed by self-built dwellings. Following the lack of appropriate urban plans, the location, and space for public facilities (such as medical centers, kindergartens or schools), when local authorities take initiative to build such facilities there is no space or enough space. Going around both scenarios, these neighborhoods would continue to lack other non- technical and social infrastructure. These areas are not under development pressure, but still have the same spatial pattern as inner-city parts, and generally are developed along major corridors, thus creating linear developments. From there, in order to get access to the major corridor, a phenomenon of dead-end streets are common.

2/ Spontaneous Growth are usually low-density urban sprawl. Similar to leapfrog urban sprawl, such new developments, which are usually built houses by private investors, are more dispersed and lacking appropriate infrastructure. As a consequence, these lands lack access on technical infrastructure and public transport, public services and other elementary facilities needed for the well-being of the community and quality of life.

Minimal infrastructure is developed through 2 different scenarios: 1) if there are very few houses, the investors develop some minimal non-standard infrastructure, such as unpaved road, and access to water and electricity, and rare access to sewage network, and/ or, 2) if there are more than few, or even a small

[43] Gollopeni, B. ‘Rural Urban Migration in Kosovo’. (2015). Accessible at: https://www.researchgate.net/publication/292989258_Rural_Urban_Migration_in_Kosovo

neighborhood[44], municipalities with a reactive approach develop the most needed infrastructure, such as cobblestone road, access to water and electricity. Roads are usually very narrow below security standards.

3/ Leapfrog Development[45] means even more urban sprawl. When many real estate developers decided to build on less expensive land farther away from existing city outskirts, the "satellite" neighborhoods arose, thus creating urban gentrification in Pristina and other cities. The satellite neighborhoods are usually "leapfrogged" outside city outskirts on agricultural quality land. These neighborhoods have their own developed infrastructure, such as paved streets and sidewalks, green areas, strictly following urban and architectural designs of different typology of individual houses. In most cases, the developers offer maintenance, access to some public services, like kindergartens and elementary schools, administered by private entities. Usually, the neighborhoods are "closed", meaning entrance of outsiders is controlled and there is an organized community transport to-and-from the city.

Cities' rapid growth, resulting in urban sprawl, and inner-city de-structuring have left many bigger cities with an urban form with an increasing spatial exclusion. While central areas remained with the same urban development intensity, the suburban areas were given higher urban development intensity, based on inaccurate demographic data.[46] The new neighborhoods were planned to accept high demographic growth and migration from other cities. Unfortunately, "intensity boosted regulations", as expected, created unlivable urban environment, such as absence of appropriate natural light, lack of parking, narrow streets, no green areas, etc.

Spatial gentrification exists also between consolidated neighbourhoods and new neighbourhoods in the city outskirts. Prices of apartments in consolidated neighborhoods, like Ulpiana, Bregu i Diellit and Dardania, remained higher than those in the urban outskirts like Mati and Kalabria, because the more consolidated neighborhoods were developed before the war and had access to better kindergartens, schools, public transport lines, district heating and green areas. The situation is similar in other bigger cities, i.e., Ferizaj, Gjilan, and Prizren, nevertheless the occurrences there are of a lower scale.

In the new neighborhoods of most of the municipalities, , although UDP were set, again lacked proper access to infrastructure and public services. Even though the price in the new neighborhoods was lower, still it was not, and it is not affordable for most of the new families. Therefore, municipalities need to start planning in an integrated approach by catching property values and developing infrastructure in a balanced manner.

[44] Even though these kinds of developments are informal, still local authorities tend to cover as many developments as possible with most needed infrastructure.

[45] Development that occurs beyond the existing limits of urban development and thus leaving the in-between vacant land non-developed and resulting in more urban sprawl.

[46] Most of the UDPs were adopted before the 2011 census, therefore the demographic growth projection was just mathematical assumption of growth. The UDP adopted in 2004 for Pristina assumed that in 5 years period the population in Pristina will grow up to 400,000 inhabitants. The 2011 census registered approximately 200,000 inhabitants in Pristina municipality.

3.1.3/ URBAN, ARCHITECTURAL AND CULTURAL HERITAGE

Urban and architectural heritage is a central issue for sustainable urban development as it enhances a city's attractiveness. The urban social fabric of Kosovo cities is rich in urban, architectural and cultural heritage. The heritage is of different historic periods, each of them presenting cultural layers. The heritage can be found as archeological sites, single buildings or complete urban blocks, like historic bazaars in Prizren, Gjakova and Prishtina. The most famous architectural and cultural heritage are of the Roman, Ottoman and contemporary periods.

Kosovo has about 1,000 archeological and construction sites (mostly Roman and Ottoman period heritage) defined as Protected Zones, under the cultural heritage legislation framework.[47] According to the law, each site and/or buildings that is listed has a set of protection perimeter. Just as the municipality of Prishtina is trying to define the historic center[48], other municipalities are struggling to determine the perimeter of the protected sites located in their territory. Nevertheless, preserving heritage is not about putting all of the neighborhoods or sites under excessively strict protection which would have the effect of fossilizing them and reducing their resilience capacity and their ability to adapt to climate change. Therefore, it is crucial to integrate this issue into the urban strategy as a whole. One challenge of this is that most of the identified Protected Zones do not have a set protection perimeter, and hence, cannot be properly protected and integrated within the urban heritage development strategies. In most cases, due to absence of protection perimeters, surrounding development prevails the heritage by function, height, elevation, access, etc., thus reducing their cultural impact, and in cases risking their complete existence.

The heritage through restoration and preservation projects, innovative attractive events and tourist activities, could be used for economic resilience, in particular for small and medium cities. However, such projects, with exception of some excellent cases (like the restoration project of the Vushtrri's city castle and the Novobrdo castle) are rare.

3.1.4/ PUBLIC SPACES AND LIVING ENVIRONMENT

It is widely known that the public spaces remain an integral component for a high qualitative life for the citizens. These spaces are accessible and open for all age groups, hence providing an identity to the city and feeling of belonging by the fragments of the population. Public spaces host music, dance, drama and art events. In addition to sustainable development, living environments can be places for sustainable urban drainage and enhance walkability.

Before the war, the political structure created numerous open public spaces and green spaces, like urban parks and leisure facilities, in most of the bigger cities in Kosovo. However, rapid growth, urban sprawl, and especially inner-city de-structuring of the urban fabric created huge discrepancies of public spaces and green areas distribution among urban blocks and neighborhoods. In many cases the usability, walkability and access to the public spaces were lost. The remaining public space is degraded or unsafe or considered as such by "users", especially when concentrated in deprived neighborhoods and reinforcing spatial segregation. Municipality of Pristina has showed improvement in maintenance of the existing public and green spaces, but it is still lagging behind with the creation of the new ones.

Setting the parking and traffic as a priority project in decision-making, leaves other public spaces such as parks and sports fields underdeveloped or not developed at all. Uneven distribution of parks and sports fields; excludes a large part of the population: children, adolescents, the elderly, women, people with disabilities from accessing those public spaces. Additionally, many neighborhood public spaces are underutilized in spite of high demand due to

[47] Official Gazette of the Republic of Kosovo. (2008). Law No. 02/L-88 Cultural Heritage. https://gzk.rks-gov.net/ActDetail.aspx?ActID=2533
[48] Main website of the Municipality of Pristina, prishtinaonline.com/

a lack of proper maintenance and vandalism, thus discouraging outdoor game, sports and recreation.

Besides parks and open areas, municipalities can integrate natural resources like rivers into living environments. Often due to the high level of waste pollution, upgrading these natural resources in recreation sites is very complicated and costly. For example, Pristina rivers Prishtevka and Vellusha, both covered and transformed into wastewater collectors, while the degree of pollution is irreversible.

The regeneration of existing public spaces and efficient design of new ones, with the involvement and participation of all users, can help to restore their numerous functionalities and provide a high-quality environment for all. Replacing some of the parking areas and wide roads for the city's other purposes, like green corridors and lanes, playgrounds, waterways, allotments and collective gardens, are nature based solutions. These solutions are recently increasingly being implemented by a number of European cities, such as Stuttgart, Leipzig, Barcelona, Lisbon, London, and etc., towards re-naturing cities to address current climate change and societal challenges.

3.1.5/ TRANSPORT AND MOBILITY

Most common mode of transportation in Kosovo is that of land. 75% of the total length of all roads are asphalted, with 96% of them being national and regional roads.[49] With only 35% of non-asphalted local roads, at the regional level, Kosovo falls within the countries with developed road infrastructure. Nonetheless, on the other hand, the railway network is left behind, where from 380 km of railway, most of it is not functional or with low-speed capacity. In Kosovo, the high level of urbanized roads created a negative effect of drawing linear settlements along corridors.

Mobility is necessary to ensure access and equal opportunities for all, as such go to work, receive education, obtain basic services and products, guarantee leisure and health facilities. In this regards, Kosovo's municipalities are currently facing numerous challenges linked to transport patterns, such as congestion, increased accidents, extreme air and noise pollution, and increased difficulty to ensure mobility, especially for the most vulnerable populations.

Having in mind 1) the level of urban sprawl, 2) linear settlements developed along corridors, and 3) low degree of coverage with urban transport, Kosovo cities are in urgent need for sustainable public transport strategies and solutions. Sustainable public transport solutions improve road access and mobility, while reduce environmental pollution, and improve urban life in general.

However, besides Pristina, no other big city has a functional urban public transport network. Some other municipalities provide urban-rural transport, which are administered either by public or private entities. Low public transport coverage creates car use dependancy and/ or exclusion from traveling to work, school or hospital, especially for rural areas. Therefore, all of the Kosovo municipalities need to provide better coverage of urban-rural transport.

Just as it was stated previously, urban sprawl caused various increasing mobility and environmental problems, i.e. traffic congestion and air pollution. In many cities, lack of municipality- and city- scale public transport affects mostly the poor, promotes marginalization, and deepens social inequities.

The rising costs incurred in the public transport infrastructure investments and management is an additional challenge towards achieving a more sustainable transportation and mobility. Most of municipalities have challenges covering the "expropriation costs" for opening new transport corridors. However, a starting point for the opening of the new transport corridors can be to analyze the local mobility behavior patterns, which means to better understand

[49] Ministry of Environment and Spatial Planning. (2019). Draft Zoning Map of Kosovo 2020 – 2028+. https://mmph.rks-gov.net/assets/cms/uploads/files/Draft%20Harta%20Zonale%20e%20Kosoves%202020-2028%2B%2B%281%29.pdf

the most frequent transport points, time and companionships of the community members. Among rare municipalities that have developed mobility plans are Pristina and South Mitrovica. The Pristina Sustainable Urban Mobility Plan (SUMP)[50] was approved in January 2019, and it is being implemented in a slow pace. Additionally, the South Mitrovica SUMP[51] was adopted in August 2020. Both plans aim to improve the city connectivity by making the urban mobility system more sustainable and have focused on developing solutions for integrating inter-modality transport. If implemented correctly and in time, might solve some long-standing transport issues (like traffic congestion on entrance corridors and lack of parking spots within the inner city) for Pristina, Mitrovica and the surrounding region.

The public transport sector allows impacts by integrating smart solutions, hence small tentative in terms of time and finances. Solutions, like smart transport planning and management, could facilitate and support the municipalities in developing integrated transport infrastructures that combine and consolidate different mobility modes and provide the opportunity to physically move, i.e., walking, cycling, etc., or use various transportation means, such as tram, bus, train, etc.

The capital cities of the neighbouring countries, namely Skopje and Tirana, have had small successes in managing the parking spaces in the central parts of their urban areas. However, similar to Pristina, metropolitan centres should plan and integrate a regional approach of smart transport planning and management. Meaning, transport and mobility plans should be drafted for regions, taking into consideration daily commuters into the capital, thus reducing traffic congestion at the entering city bottlenecks.

It is very important for the local governance bodies to provide incentives to the citizens to switch to eco-friendly mobility solutions, moving them away from private car dependency, such as dedicated and safe cycling and pedestrian lanes networks, frequent, comfortable and user-friendly public transport, as well as bike parking areas, offering real-time information should be applied by Kosovo municipalities.

[50]. Municipality of Prishtina. (2019). The Pristina Sustainable Urban Mobility Plan (SUMP). https://prishtinaonline.com/uploads/sump_pristina_final_report_en_a.pdf

[51] Municipality of South Mitrovica. (2020). https://unhabitat-kosovo.org/wp-content/uploads/2020/08/SUMP-Mitrovica-South-2020.pdf

3.2/ SOCIAL DIMENSION

3.2.1/ SOCIAL EXCLUSION

Social exclusion can arise out of poverty, unemployment, immigration or being on either end of the age spectrum. It can also arise from a combination of any of the above or from spatial segregation. Kosovo's municipalities are obliged to integrate all citizens and leave no one behind through the implementation of social policies for education, city planning, housing, public services, citizen participation and culture.

Citizen information and consultation is legally compulsory, however at certain times, consultations are very limited to information and communication and neither engage the citizen to understand the challenges and solutions and neither touch all parts of the population.

Citizen participation enables the various political, social, religious and ethnic groups to participate in the decision-making that will affect them. To improve citizen participation, capacity building by city stakeholders can be encouraged to help them implement the appropriate means.

3.2.2/ HOUSING FOR EVERYONE

Kosovo's municipalities face challenges to supply decent and quality housing for all due to the fact related to the complex changes that happen in society, as such: multiplication of new families or expansion of existing families, high land prices, and offers from the private market that does not meet the demand of the majority. Municipalities are also expected to supply housing that comply with strict building regulation and meet citizens' expectations, in terms of comfort and energy efficiency: insulation, natural light, access to transport, green and urban amenities.

Considering that the post-war construction boom has resulted in unregulated or illegal construction projects, the regulation of this sector is of high significance. This high level of illegal construction sites was done partly as a result of money laundering, but also in most cases due to the lack of spatial planning.

Meanwhile, Kosovo's capital is still undergoing through a period of construction boom, even though many of these newly built apartments remain largely uninhabited. Even though, during the 2011 census, around 24% of the existing housing stock revealed to be vacant[52], the construction industry remains ranked as the second largest industry in Kosovo.

But given that Pristina's population in 2014 was slightly over 200,000[53] with approximately 40,000 regularly inhabited dwellings, the numbers indicate that a few years ago each dwelling was occupied by about 5 people on average.

However, despite empty houses and newly constructed apartment blocks, there is a lack of affordable housing — most of the available housing is simply too expensive for the average individual searching for a place to live in the city. For example, 500 EUR for a square meter is the minimal price in Pristina region, whereas the average net wage remains around 400-500 EUR.

[52] Kosovo Agency of Statistics. (2011). Population, Household Census and Housing in Kosovo 2011. https://askdata.rks-gov.net/PXWeb/pxweb/sq/askdata/askdata__Census%20population__Census%202011__2%20Republic%20of%20Kosova/census37.px/table/tableViewLayout1/?rxid=7e90fabc-6251-4ada-a820-bb9002129b35

[53] Kosovo Agency of Statistics. (2011). Population Assessment in Kosovo 2014

The Law on Housing Financing Specific Programs of 2010, besides establishing a structure for the distribution of existing and construction of new social housing, also empowers municipalities to seize privately owned vacant housing and rent it to people who qualify for social housing, while subsidizing 50% of the rent. Even though, legally possible development of such affordable housing policies almost has never taken place in reality.

3.2.3/ HEALTH WELL-BEING

Health well-being has become a major issue for the municipalities to become prosperous. Kosovo's municipalities are responsible for the secondary level of health infrastructure and management, such as hospitals and district medical centers, and the implementation of the family medicine. Hence, a sustainable municipality should continually create and improve the physical and human resources for enhancing the health well-being.

Life expectancy has been shown to correspond to the level of health expenditure per capita. Considering the total public, private and private out-of-pocket expenditures, Government of Kosovo invest only 2.83% of its GDP in public health.[54] Compared to Montenegro and North Macedonia, that spend on average 6% of GDP on healthcare[55], Kosovo spends the lowest percentage of GDP in public healthcare among the countries in the region.

Overall, health personnel in Kosovo have fewer visits per capita (2.36) and fewer admissions per 10,000 inhabitants (9.8) compared to the EU, which averages 6.3 visits per capita and 17.6 admissions per 10,000 inhabitants, therefore it can be concluded that the productivity of health professionals is 2.6 times lower than in the EU.[56] The number of hospital beds indicates the resources available to provide services for the treatment of patients in hospitals. The hospital bed/inhabitant ratio in Kosovo is 231 beds/100,000 inhabitant, representing the lowest value of all European countries (538.2/100,000 inhabitants). Hence, Kosovo's municipalities, in order to mitigate this situation, should start investing in a more dispersed health infrastructure.

The problem of insufficient financial resources for health in Kosovo is not only due to the fact that the Government allocates small portion of its budget for direct patient services, but that a relative part of these funds is used to pay fixed costs (buildings, energy, maintenance and staff) leaving the smallest portion for direct costs to the patient related to diagnosis, treatment, prevention and promotion. Functional budget allocation shows that only 32% of the budget allocated to goods and services can be spent directly on the patient (Rtg, RM, CT, laboratory tests, drugs).

Prevention of health problems as a result of an active and healthy environment which provides access to all in quality health infrastructures are essential for proper governance of the future municipal authorities.

3.2.4/ EDUCATION, CULTURE AND LEISURE

Education and training for all help build the qualifications and skills of the local workforce for a strong and resilient local economy. Kosovo municipalities are responsible for the development and management of pre-school, the lower and upper elementary and middle school levels. Kosovo public education system includes 43 pre-school, 952 lower and upper elementary schools, 119 middle schools, and 9 pubhigher education institutions.[57]

The low level of public pre-school facilities (there are many private pre- school institutions, mainly in Prishtina) creates a spatial inequality, by leaving women out of the employment market, especially in the suburban areas and in rural areas.

[54] Ministry of Health. (2019). National Health Accounts Report for 2017. https://msh.rks-gov.net/wp-content/uploads/2019/10/Raporti-p%C3%ABr-NHA-ENG.pdf
[55] Ibid.
[56] Kosovo Agency of Statistics. (2020). Statistical Yearbook 2020. https://ask.rks-gov.net/media/5641/vjetari-2020-final-per-web-ang.pdf
[57] Kosovo Agency of Statistics. (2020). Statistical Yearbook 2020.

Regarding education, Kosovo municipalities face 2 main challenges which are:

1/ Areas of education that are busier (mainly in the cities) and

2/ Areas with a lack of students (mainly in the deeper rural areas, which are constantly growing).

Kosovo school's average area per student is 3.5 square meter.[58] Increasing the percentage of students who study in one shift and increasing the school space per student, aiming for at least 1/3 of students to study in one shift, is crucial for a sustainable access of public education in the municipalities.

Municipalities must find suitable forms, which can be solved through transport, through the gathering of students in a school for villages that have a very small number of students, or other possible alternatives. While in urban areas where there is a large load of students which needs to be dispersed or relocated in the areas where the density of the students is lower. The last option/alternative should be the construction of additional new spaces.

[58] Ministry of Environment and Spatial Planning. (2019). Draft Zoning Map of Kosovo 2020 – 2028+. https://mmph.rks-gov.net/assets/cms/uploads/files/Draft%20Harta%20Zonale%20e%20Kosoves%202020-2028%2B%2B%281%29.pdf

3.2/ ECONOMICAL DIMENSION

3.3.1/ ECONOMIC GROWTH AND EMPLOYMENT

Even though poverty has been declining lately; still in 2017, 18% of Kosovo population lived in poverty, 5.1% below the extreme poverty line, where rural, female households and children were the most affected citizen groups.[59] The general employment rate was 30.1%, where women employment rate was 14.4% compared to men with 46.2%. Unfortunately, inactive labor force remains very high at 60%, whereas inactive labor force among women with 78.5% presents a concerning status.[60]

The COVID-19 pandemic has exacerbated the already fragile Kosovo's economy. The rapid assessment on impact of COVID-19 in Kosovo (January, 2021) concluded that 11% of the respondents reported job loss due to the pandemic during 2020, whereas the hospitality sector with 23% and construction sector with 18% were the sectors with most significant losses.[61]

Unfortunately, majority of municipality budget relies on the grants received from the national level based on the number of citizens. Very few municipalities manage to collect additional budget from taxes and public services, where this phenomenon is mostly present at the smaller municipalities. Several municipalities tried to incentivize economic development by leasing land with low prices for production and processing industries within designated economic zones, like the Economic Zone in Drenas, Skenderaj, Prizren, Mitrovica and other. For example, in Mitrovica out of 42 planned, only 3 companies are operating within the economic zone.[62] In general, very few of designated economic zones had success in attracting international and local companies.

Kosovo municipalities can provide conditions to stimulate the circular economy and green growth, decoupling growth from natural resources consumption and degradation. Unfortunately, with high unemployment rate, low shares of production industry in the economic shares (services, agriculture and construction remain the biggest share of economic sector shares), informal economy and employment, economic zones illegally constructed along main corridors, Kosovo municipalities face the consequences of economic crises.

Therefore, municipalities need to stimulate the economic growth, by developing a local economic development approach which promotes sustainability and inclusiveness which ensures quality of life and reduction of inequalities.

Municipalities need to be innovative in generating income and decent employment opportunities in the urban and rural areas through specific agricultural production incentives, tourism, and green industrial programmes. Some municipalities have been incentivizing agricultural development with grants like Gjakova, Gjilan, Prishtina and others. These projects and grants need to be in accordance with the urban planning documents, with the designated land use and promote green economic development.

[59] Kosovo Agency of Statistics. (2019). Consumption Poverty in Kosovo. May 2019. Available at: https://ask.rks-gov.net/media/4901/poverty-statistics-2012-2017.pdf

[60] Kosovo Agency of Statistics. (2020). Labour Force Survey Q3 2020. December 2020. Available at Labour Force Survey, Q3 2020 | (rks-gov.net)

[61] UNKT, UNDP, UNFPA, UN Women. Rapid Socio-Economic impact assessment of COVID-19 in Kosovo 2. January 2021. Available at: https://www.ks.undp.org/content/kosovo/en/home/library/poverty/socio-economic-impact-assessment-of-covid-19-in-kosovo---2.html

[62] Municipality of Mitrovica. (2020). Municipal Development Plan of Mitrovica 2021- 2029. https://kk.rks-gov.net/mitroviceejugut/wp-content/uploads/sites/18/2018/05/Plani-Zhvillimor-Komunal-Mitrovice.pdf

3.3.2/ DIGITALISATION (SMART SOLUTIONS)

In order to effectively and sustainably transition the cities, innovation remains a critical point as it provides additional and smart methods to improve the local economies, preserve natural resources and ensure a quality of life.

All Kosovo municipalities have a designated website within the national network of servers. Municipalities are very active in informing citizens about many decision, urban plans, other strategic documents, and similar within their websites. Prishtina municipality, has developed another website: **https://prishtinaonline.com/**, where some public services, like getting a birth certificate are efficient and present a huge step towards e-municipality development. Another pilot projects towards e- services is the "e-leja",[63] meaning e-permit developed by Prishtina Municipality supported by the higher education institution UBT[64]. While, this service is still a beta version, if successfully implemented will represent a huge step towards transparency in the efficiency in the construction permit process.

Unfortunately, Kosovo municipalities do not offer e-planning, e-taxes, e-construction permit, or other e- solutions for public services. By establishing smart public services, the citizens will have it easier to receive such services in real time and make the work of the municipality's administration more efficiently, thus it is recommended that the municipalities should start by opening the data sources. Therefore, municipalities should start with the public services digitalization through fostering the development of online applications and delivering municipal's services to end-users through technical platforms.

Digitalization has found its way also in the transport and mobility sector. ICT can help cities be smarter and more connected by using the benefits of real-time information to optimize the city's infrastructure. Trafiku Urban[65], a successful transport ICT solution, both web and mobile phone app based, through which one through which one can locate buses and stations "real-time".

Unfortunately, other Kosovo municipalities struggle with developing ICT solutions like "real-time" information, ICT applications and smart information and communication devices, such as smart street signalization and parking solutions.

[63] See more at: http://eleja.prishtinaonline.com/#/register
[64] See more at: https://www.ubt-uni.net/sq/lansohet-aplikacioni-online-per-leje-ndertimi-donacion-i-ubt-se-per-komunen-e-prishtines/
[65] See more at: https://trafikurban-pr.com/

3.4/ ENVIRONMENTAL DIMENSION

3.4.1/ WATER RESOURCES AND WASTEWATER TREATMENT

Water resources are under increasing pressure in many parts of the world and Kosovo is no exception. The SDGs and the EU Directives require conditions for citizens' access to clean and safe drinking water. As per coverage with water distribution network, Kosovo stands good with 90% of inhabited settlements covered with drinking water distribution network.

The distribution network is publicly owned and administered by public companies. The other 10% is supplied in other ways with water that is not safe in terms of quality.[66] Hence, despite very good water network coverage, Kosovo's municipalities face shortages of drinking water (mostly during summer season) due to scarce water resources, non-efficient use (drinking water used for irrigation and other non-drinking activities) of drinking water and water losses within the distribution network.

90% of the population residing in urban and rural settlements is supplied with drinking water by managed by the public regional water companies. Distribution of water resources is 52% for urban and rural water supply, 41% for irrigation, and 8% for industry. Unfortunately, in urban and rural areas still there are existing disparities in terms of access to the services.[67] Buildings out of the public water network rely on other water sources like "bunars" (wells), using water not safe in terms of quality.[68]

However, water managing companies' report[69] for losses within the distribution system and seasonal low level of water resources, claim that in many rural settlements, and in some cases even the urban ones, feel the absence of drinking water.

As it is widely known, the climate projections for 2050 indicate that the average annual temperature will increase by approximately 2 degrees Celsius, thus the average annual precipitation will decrease by approximately 15%. As a result, Kosovo's municipalities are increasingly seeking out water from sources that are located ever further from cities in order to meet demand. For example, Prishtina Municipality with donors' support built a water cleaning factory, but there are still needs on improvement of the water distribution network. Contributing factors include inadequate management of the water supply and sanitation systems, lack of wastewater treatment and monitoring schemes, and inadequate waste management systems[70], all of which affects the drinking water sources.

The Government of Republic of Kosovo, in cooperation with the municipalities have not been protecting water bodies as they should. In total, 490 km of rivers in Kosovo are being put into a risk to floods and only 28% of those rivers, respectively 140km, have a regulated riverbed. In Kosovo, unfortunately, a percentage of pollution is present in most of the rivers and artificial lakes, which pollution comes mainly from the release of waste water and solid waste into the water bodies. One of the most polluted rivers is the Prishtevka river, which is overwhelmed by

[66] Ministry of Environment and Spatial Planning. (2010). Spatial Plan of Kosova 2010 – 2020+. http://www.ammk-rks.net/repository/docs/Spatial_Plan_of_Kosova_2010-2020.pdf

[67] Kosovo Agency of Statistics. (2020). Statistical Yearbook 2020.

[68] Ministry of Environment and Spatial Planning. (2019). Draft Zoning Map of Kosovo 2020 – 2028+. https://mmph.rks-gov.net/assets/cms/uploads/files/Draft%20Harta%20Zonale%20e%20Kosoves%202020-2028%2B%2B%281%29.pdf

[69] Government of Kosovo. (2017). Kosovo Water Strategy 2017- 2036. http://knmu.kryeministri-ks.net/repository/docs/Strategjia_Shteterore_e_Ujrave__shqip.pdf

[70] EU Office in Kosovo 2015

polluted water coming from approximately 150,000 inhabitants of the capital city. In addition, all wastewater from Fushë Kosova, Obiliq and Vushtrri is released in the Sitnica River, the longest river in Kosovo. Based on the report "Kosovo Water Polluters Cadastre", it was is estimated that "Approximately 63,862 inhabitants of the municipality of Fushë Kosova deploy their polluted water into the Sitnica river."[71]

According to the EU Directives[72], all urban areas with more than 2,000 inhabitants must have installed and functionalized wastewater collecting network including wastewater treatment plant. Hence, in Kosovo, currently there is only one wastewater treatment plant with a capacity of 8,000 inhabitant, located in Llausha, Municipality of Skenderaj. There are also a number of small wastewater treatment facilities in some rural areas.[73] This fact shows that in Kosovo the polluted water is almost not treated at all, thus causing immense level of pollution of rivers and other water resources.

In Kosovo, waste management challenges in cities (i.e., wastewater, solid waste, biomass waste, hazardous waste, medical, etc.) are amplified by the high rates of urbanisation. The cost of building wastewater treatment plants is high due to the "lack of technical capacity" and high construction costs. There are two municipalities (Prizren and Skenderaj) that are currently developing infrastructure for treatment of the wastewater. Nevertheless, the biggest municipality that of Pristina, is lacking a system for treatment of the wastewater.

3.4.2/ POLLUTION AND WASTE

The growth of the cities is imposing great costs in the global and local environment and contributing to the overall climate change. Unfortunately, the environmental problems in Kosovo are quite serious, and even more threatening in terms of land management, construction activities and pollutants discharges in fertile soil, rivers, amongst many.

Considering the rising demand for electricity and heating, a challenge in Kosovo remain the limited capacities of the 2 existing power plants which are showing supply bottlenecks. Currently, 96% of the electricity is generated from old and inefficient lignite-fired power plants, which cause high levels of pollution. Lack of district heating systems, also, makes the residential sector (which accounts of 40% of energy consumption) one of the biggest energy consumers[74], thus making Kosovo very energy intensive.

There is no reliable and verified data on the total amount of waste generated on site. The amount of the waste disposed in sanitary landfills is 392,286.10 tons/year[75]. Approximately, 71% of the total population has access to proper collection services. The on-site system is characterized by a low level of coverage with waste collection service (below 60%). There is a regular waste collection service, mainly in urban areas (on average 60% coverage of settlements), while services in rural areas are provided to only 41% of the population.[76]

The riskiest and most polluted solid waste site is that of Mirash (located in the Municipality of Obiliq), which is also the waste disposal site for Pristina region. The disposal sites for mining waste represent a great threat for contamination of groundwater sources and soil. In addition, GHG emissions coming from landfills are also contributing to air pollution, soil pollution and ground waters. Mitigating the polluting effects of the landfills, will reduce the ongoing degradation of surrounding soils, waters and air.

[71] Kosovo Environmental Protection Agency. Report- Kosovo Water Polluters Cadastre. https://www.ammk-rks.net/repository/docs/Water_Polluters_Cadastre_eng.pdf

[72] EU Directive 91/271/EEC on Urban Waste Water Treatment. https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:31991L0271&from=EN

[73] Ministry of Environment and Spatial Planning. (2019). Draft Zoning Map of Kosovo 2020 – 2028+. https://mmph.rks-gov.net/assets/cms/uploads/files/Draft%20Harta%20Zonale%20e%20Kosoves%202020-2028%2B%2B%281%29.pdf

[74] Energy Community Secretariat (2019). Annual Implementation Report 2019

[75] Kosovo Environmental Protection Agency. (2018). Municipal Waste Management in Kosovo. Status Report. https://www.ammk-rks.net/repository/docs/Municipal_Waste_Managment_in_Kosovo_Status_Report_2018.pdf

[76] Ibid.

Proper monitoring of landfills and recognising the need for new landfills are to be developed according to EU standards, including treatment of landfill wastewaters, drainage system and leachate collection.[77]

According to the Global World Atlas, Kosovo's[78] fossil fuel emissions were 8.9 million tons of carbon dioxide ($MtCO_2$) for 2018.[79] One can argue that Kosovo is not a big carbon emitter, but the CO2 emissions are growing from year-to-year, therefore taking immediate action for decreasing the country's carbon footprint is urgent.

Many cities in Kosovo suffer from poor air quality, with ambient concentrations of particulate matter of a diameter of 2.5 micrometres or less (PM2.5), significantly exceeding the national and EU standards and global air quality guidelines for PM2.5 established by the World Health Organization (WHO).[80] There have been developed few smart phone applications to monitor the air quality, such is the Real-time Air Quality Index (AQI) designed for the Municipality of Pristina.[81] Unfortunately, air pollution in the capital city of Pristina competes with that of the big cities like Beijing, Mumbai, and New Delhi. Furthermore, Pristina also emerged as the 3rd most polluted capital city within Europe.[82]

Pristina ranked as the world's 30th most polluted capital city for PM2.5 pollution, out of a list of 85 global capitals.[83] Pristina's annual average PM2.5 concentration during that year emerged as 23.5 $\mu g/m^3$, which exceeds the World Health Organisation (WHO)'s annual standard for PM2.5 (10 $\mu g/m^3$) more than twofold."[84] Besides Prishtina, two Other cities emerged with high air pollution, such as Prizren with annual 26.0 $\mu g/m^3$ and Fushe Kosova 25.8 $\mu g/m^3$.[85]

According to a report from World Bank, "Especially in winter, urban areas face severe smog episodes, caused by the increased demand for heat from the residential and commercial sectors, which is mainly provided by burning solid fuels."[86] This situation, according to Eve-anne Travers, is attributed to the "primarily to the coal-based thermal power plants, domestic coal and wood-based heating, fumes from car exhausts and high levels of traffic, as well as 'temperature inversion', the creation of air channels at the ground level in Prishtina where harmful fumes and emissions become trapped."[87] Moreover, it is claimed that "This is exacerbated by the lack of horizontal or vertical air channels that would normally carry this pollution away."[88]

If the urban growth is not slowed down, it will trigger tremendous resource constraints (especially in terms of materials, energy and environmental amenities) and pose multiple challenges for growth and development in cities, where production activities are often concentrated.

3.4.3/ CLIMATE CHANGE RESILIENCE

Climate change resilience is defined as the capacity of a territory to cope with a hazardous event, trend or disturbance, while retaining the same basic structure and ways of functioning. Such hazardous events can be heat waves, fires, floods, marine submersions, storms, landslides, earthquakes and droughts, which are believed to be side effects of urban growth and uncontrolled land management which leaves the soil vulnerable.

Urban resilience is risked by the high level of imperviousness of public spaces and decrease of green areas within urban outskirts creates 'heat island' effect and localized flooding hampers. For example, the Pristina's main square, Zahir Pajaziti, and Mother Theresa Boulevard are usually heavily flooded during autumn and spring seasonal water runoffs.

[77] Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste. Consolidated text. https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:01999L0031-20180704&from=EN

[78] Kosovo, as per Global Carbon Atlas for CO2 emissions, was ranked as the #109 out of 222 country ranking per year 2018. See more at: http://www.globalcarbonatlas.org/en/CO2-emissions

[79] For comparison, Montenegro's fossil fuel emissions per 2018 were 2.0 $MtCO_2$, while Bulgaria's fossil fuel emissions for 2018 were 45 $MtCO_2$. Data Source: Ibid.

[80] World Bank. "Air Pollution Management in Kosovo." 2019. Accessible at: https://openknowledge.worldbank.org/handle/10986/33041?locale-attribute=es

[81] Pristina Air Quality Monitor - US Consulate – Kosovo Hydrometeorology Institute. Real-time Air Quality Index (AQI). Accessed at https://aqicn.org/city/kosovo/pristina/us-consulate

[82] IQAir. "2019 World Air Quality Report". IQAir website, March 18, 2020. https://www.iqair.com/kosovo/pristina

[83] Ibid.

[84] Ibid.

[85] Ibid.

[86] "World Bank. 2019. Air Pollution Management in Kosovo. World Bank, Washington, DC. www.openknowledge.worldbank.org/handle/10986/33041

[87] Eve-anne Travers for Prishtina Insight. (2018) Article: Stopping the smog. Retrieved at: www.prishtinainsight.com/stopping-the-smog-mag/ on 2 December 2020.

[88] Ibid.

These two public spaces possess the water drainage systems, however, the invulnerable surface of these spaces are prone for water runoffs.

Increasing tree cover by 10% leads to a reduction in heating and cooling requirements of between 5-10.[89] According to "The Reference Framework for Sustainable Cities", in order to build "the resilience of a territory requires specific data and studies in order to identify and assess the risks and vulnerabilities of the territory to relevant hazards."[90] Morever, it claims that "Crossing this data with the probability of expected impacts is necessary to plan disaster risk reduction actions and crisis management plans."[91]

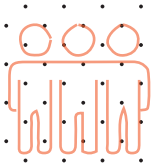
Through demand for heating, ventilation and air-conditioning, refrigeration and manufacturing buildings heavily to the energy consumption profile and carbon footprint of cities. 'Urban heat enclave' effect channels and exacerbates wind speeds in the city, while contributing little to the ability of the city to capture and store water and energy. Concurrently, the lack of district heating systems and inefficient gridding has only led to an increase in the traditional use of burning lignite and firewood for heating and cooking in the household and private sectors. In Kosovo, only 4% of population is supplied with heat from public district heating systems.[92]

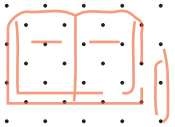
Amongst all of the challenges that threaten the sustainability of Kosovo, there is also one success story, which is that of Gjakova's heating district system, previously based on fossil fuel burning. Supported by the EC Kosovo, the Municipality of Gjakova is building a new incinerator for the district heating system based on biomass fuels. The system will generate mostly thermal energy and a small portion of electricity. The project is one of a kind in Kosovo and the region, and it is expected to be released for operation in mid of 2021.

In regard to energy efficiency, which is a practice that supports sustainable development, the Government of Kosovo has successfully adopted the normative and regulatory framework for the development of the energy efficiency in buildings. Part of the framework are national building standards and other mechanisms, such as sustainable municipal energy planning, a system for energy auditing and the energy certification of buildings, inspection of heating, ventilation and air conditioning (HVAC) systems, and energy management.

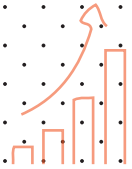
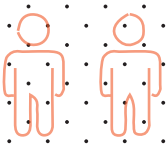
The energy efficiency measures in buildings[93] in cities is a major concern, as stated above, buildings are one of major contributors of global GHG emissions. In Europe, and other developed countries a trend of retrofitting residential and commercial buildings programs and smart new design programs have emerged. In Kosovo, there are several donors that have supported Kosovo's institutions in retrofitting public buildings. Lately, several municipalities have prepared Municipal Energy Efficiency Plans (MEEPs) and supported financially by the Kosovo Energy Efficiency Agency, several municipalities have started to implement energy efficiency measures in locally owned public buildings. However, the private sector is left "to find a solution on their own" for several years now. Fortunately, the Millennium Foundation Kosovo (MFK)[94], have started to subsidise the private sector in implementation of energy efficiency measures in privately owned buildings.

[89] McPherson et al. (2017). The structure, function and value of urban forests in California communities. http://climatereadytrees.ucdavis.edu/wp-content/uploads/2017/11/Str-Func-Value-of-Calif-Urban-Forests-2017-1-1.pdf
[90] The Reference Framework for Sustainable Cities. 2016. Accessible at: http://rfsc.eu/wp-content/uploads/2016/03/30-objectives-1.pdf
[91] Ibid.
[92] Ministry of Environment and Spatial Planning. (2019). Draft Zoning Map of Kosovo 2020 – 2028+. https://mmph.rks-gov.net/assets/cms/uploads/files/Draft%20Harta%20Zonale%20e%20Kosoves%202020-2028%2B%2B%281%29.pdf
[93] Energy saving measures in residential buildings include wall insulation, window replacement, insulation of roofs and basements and application of RES systems
[94] https://millenniumkosovo.org/










4/ CONCLUSIONS AND RECOMMENDATIONS

4.1/ CONCLUSIONS

Cities should develop of an integrated approach of urban planning between sectors, institutions, city governance, civil society, and community organizations and similar. Decision-making for infrastructure affects a range of sectors and meeting the multiple requirements that these sectors impose requires integrated strategies and implementation programmes.

Segregated and uncoordinated actions between decision making institutions towards sustainable urban development are unlikely to achieve some kind contribution to systems-wide sustainability within broader strategic frameworks. Cities should carefully select infrastructure solutions and technology in order to ensure sustainability.

Solutions will be required to meet a range of requirements. Integrated systems are required to ensure city-wide sustainability, among:

Energy resilience: The building and transport sectors are the most consuming sectors for cities. Cities should target for reduced energy consumption, mainly for building consumption of electrical and thermal energy use.

Water resilience: It will require increased efficiency standards and water re-use systems. As it was stated, waste is being released in water sources, thus cities should build sustainable solid and waste-water management practices in order to preserve the good quality of water and ensure water resilience.

Ecosystem resilience: It will require integrated waste management practices that keep pollution within acceptable levels for ecosystem absorption. Additionally, it is necessary to regulate the infrastructure, such as road construction, compact land-use patterns, resilient use of water resources, protection of forests and other biodiversity ecosystems, etc.

Transport resilience: The transports sector contributes to the majority of petroleum (and diesel) fuel use. In order to mitigate the air pollution and decrease CO^2 emissions, cities should build several transport modalities, accelerate use of public transport and cycling.

In developing world contexts, in particular in countries like Kosovo, where rapid growth created a high proportion of informality within the cities, the transitioning process towards sustainability and its implementation needs to look closely to the societal and political conditions.[95] The sustainability transitions should be structured in 2 pillars: (1) adaptation of the existing developments and (2) building new environment friendly developments. These 2 pillars should be integrated within the urban planning sector in coordination with all other concerning sectors, like transport, energy, buildings, etc.

According to the UNEP, "the construction industry consumes a third of global resource consumption and generates 40% of the total global volume of solid waste. The total energy footprint of buildings is even higher if one considers their construction. The building sector is therefore a critical sector where global GHG reductions is concerned."[96]

However, according to UNEP, instead of blindly "adopting techno-centric and technocratic innovations and policy (like many developing countries do) for achieving green growth and sustainability, there is a growing need to rethink sustainability in terms of the" local political and financial aspects.[97]

[95] UNEP. 'Sustainable, Resource Efficient Cities – Making it Happen!'. 2012. Accessible at: https://issuu.com/rodrigovelasquezangel/docs/sustainableresourceefficientcities

[96] Ibid.

[97] Ibid.

Moreover, it claims that "The challenges faced in the developing world have made it increasingly important to create programmes of action that emerge from social justice considerations (e.g., pro-poor visions) for achieving sustainability in cities and at city-region scales."[98] According to them, "This requires a shift away from the predominant emphasis on techno-centric and technocratic schemes that focus purely on asset security towards smart design and planning."[99]

The research recognizes the growing need to address global environmental concerns from an urban perspective and to integrate the urban dimension of global environmental issues. More specifically, the paper aims to promote the link between global agenda and local action. In order to respond to the needs of an increasingly urbanizing Kosovo cities should develop interventions that have both local and global benefits.

Cities in Kosovo have energy non efficient buildings and infrastructure, transport, high level air pollution, lack of waste and water management, degraded biodiversity and ecosystems. Due to the increased vulnerability of energy security in many cities, building sector energy efficiency programs have emerged in both developing and developed world urban contexts. In Kosovo, several donors like the World Bank, EU, and other have been supporting both the national and local level in reducing energy consumption of the public buildings. However, the biggest energy consumer, the private sector buildings, are left out of the investment cake.

Municipalities in Kosovo have several opportunities to demonstrate through pilot projects the important role buildings have in mitigation and adaptation to climate change at local and national level. Specific opportunity represents the nearly-zero energy buildings, which will help unlock the potential for significant reduction in GHG emissions in the building sector. However, municipalities should think developing low- carbon infrastructure at larger city scale, in order to have bigger reducing carbon footprint impact.

As a response to rapid "uncontrolled" urbanization where city governances lost control over development, cities need to take greater control of resources and development. In order to do so, strong policy and technical institutional capacities need to be established. Municipalities need to create specific bodies/teams that are responsible to promote, implement and monitor the sustainable development frameworks in every sector. If the municipality does not have financial capacity for the creation and functionalization of the additional teams, then there is the opportunity for the support by the Academia, national institutions, donor community, etc.

Reliance on electricity for residential heating puts much pressure on the country's energy system and stresses out that district heating systems should be much largely present, especially in bigger cities where collective housing have been built, therefore expansion of the co-generation network "Termokos" and a feasibility studies for district heating systems for Kosovo regional centers' are recommended. Therefore, District Heating Company Gjakova project based on biomass: should serve as a model and good example to follow by other municipalities in Kosovo.

A wide variety of retrofit low and advanced technologies are available for buildings, ranging from low energy light bulbs to solar panels, thermic pumps, wind energy, bio-bin composting and bio-gas systems, insulation and cooling products, devices for energy savings management through appliance load shedding and roof-greening. All these are low- tech possibilities which are very dependent on private sector investments. Low-tech solutions are likely to be more suitable in the developing countries, such as Kosovo.

Municipalities in Kosovo, as other cities in the developing world, face challenges mostly for controlling urban sprawl, expansion of rural settlements, and lack of infrastructures, such as heating system, wastewater and solid waste treatment systems. Mitigation of natural disasters is also not very well structured, so additionally, municipalities lack Mitigation Plans,

[98] Ibid.
[99] UNEP. 'Sustainable, Resource Efficient Cities – Making it Happen!'. 2012. Accessible at: https://issuu.com/rodrigovelasquezangel/docs/sustainableresourceefficientcities

and if there are any plans, their implementation is stagnant.

Spaces for recreation and business activities can also be stimulated through creative and innovative urban ecosystem management initiatives. According to the report Sustainable, Resource Efficient Cities – Making it Happen!, "Urban ecologies are unique and offer up distinct opportunities for urban ecosystem management practises and innovations. Developing solutions to ecosystem management in developing world urban contexts requires to consider each unique settlement circumstances."[100] Population increases demand for better living standards, water exploitation, pollution, ecosystem degradation and adverse climate change all contribute to the global water scarcity problems.

Simpler and cheaper technologies which aid adaptation may find greater uptake in developing countries; for example, rainwater capture, solar water heater, and bio-bin composting and gas capture technologies. Moreover, reuse of water and wastewater for fertilization has already been successfully implemented as retrofits in a number of cities.

As per solid waste management, all Kosovo's municipalities face some challenges, including collection coverage, landfill dumping, and removal of illegal waste sites. To this date, there is no municipality that has initiated any attempt to develop any kind of solid waste treatment, such as combustion or recycling, which surely has implications for the urban ecosystem management. In order to avoid soil, water and air pollution, municipalities need to facilitate on reuse and/or recycling both supported by public institutions and private sector.

Cities that do not sufficiently provide so their communities can become socially unsustainable very quickly and can erupt into social disorder. According to UNEP, "Catering for the youth, in particular, and conducting processes of participation that involve young people in the processes of governance that affect their future may yet bring more value to the evolution of cities in the future."[101]

CONCLUSIONS

[100] Ibid.
[101] Ibid.

4.2/ RECOMMENDATIONS

After closely identifying the challenges that Kosovo faces in terms of meeting a sustainable urbanization, this section provides recommendations which support Kosovo's national and local institutions in addressing environmental externalities and costs imposed in the public health and social lives of the communities and integrating sustainability into their long-term strategic planning. The paper emphasises the need for such institutions to develop and implement policies through capacity building, technology and knowledge support. This includes policies supporting low-carbon, resource efficient and green growth, as well as policies on mitigation of climate change effects and adaptation to a new mind-set and lifestyle.

4.2.1/ SUSTAINABLE CITY AND MUNICIPAL SCALE CONCEPTS

Municipalities should immediately start their transition towards economic, social and environmental sustainability and build the capacity for ensuring the continuance of the transition into a long-term holistic view. Reconfiguring cities as systemic urban transitions requires initiating change from a system-wide perspective. Concepts that play key role in city-scale green economic development strategies are compact city growth, urban ecosystem management, decentralized smart grid energy supply, energy efficient buildings and infrastructure, sustainable urban transport, efficient use of water and wastewater reuse, sustainable solid waste management, biomass/bio fossil district heating system, and waste recycling and waste to energy projects.

All these derive from 5 key sectors for municipalities, such as: urban growth, construction, transport, public services and infrastructure. All these are areas of municipality level decision-making, and citizens for infrastructure choices, each of which integrates across a range of sectors and resource constraints that may be affecting them.

Compact city growth[102], includes compact growth of rural settlements within municipality borders. Compact, sustainable and smart urban expansion needs to be followed with urban planning and design instruments that support sustainable management and use of natural resources and land. According to Simon Elias Bibri, John Krogstie, and Mattias Kärrholm, "Compactness, density, diversity, mixed land use, sustainable transportation, and green space are the core strategies of the compact city for achieving the goals of sustainability."[103] Compact development aims for a more efficient use of land through higher-density planning. Compact development should be supplemented with mixed-use development to incorporate a variety of functions (housing, offices, retail, etc.). The increasing density of urban area allows for more efficient use of resources, including land and energy. If urban areas are combined with sustainable infrastructure, urban areas can reduce their dependency on cars and thus achieve urban walkability. The benefits of such action are lower levels of greenhouse gases, light traffic and less usage of fossil fuels.[104]

According to spatial planning legislation, municipalities should prepare Municipal Development Plans (MDP) and Municipal Zoning Maps (MZM)[105], to specify land use and development conditions for the whole municipal territory. The compact growth concept should be integrated within these plans. The sustainability principle should be integral in each decision and future development sector. These principles should be translated into concrete actions and to be reflected in reality.

Higher density should be delivered carefully. Without strategic planning and coordination, the increased density of single-use development might cause overdevelopment, lack of utility

[102] There is a large body of empirical work on compact cities, especially in the form of case studies, but this paper focuses on definitions generated by UN Habitat and OECD.
[103] Simon Elias Bibri, John Krogstie, Mattias Kärrholm. (2020). Compact city planning and development: Emerging practices and strategies for achieving the goals of sustainability, Developments in the Built Environment, Volume 4.
[104] U.N. Habitat. (2015). Issue Paper on Urban and Spatial Planning and Design, United Nations Human Settlements Programme.
[105] Law on Spatial Planning No. 04/ L- 174, Article 10 and 11. Official Gazette of the Republic of Kosova / No. 30 / 23 August 2013.

services, air quality problems, noise pollution or unused and unprofitable developments.[106]

Urban ecosystem management according to Sustainable, Resource Efficient Cities – Making it Happen!, consists of the integrated management of environmental impacts of urban activities.[107] Natural spaces, such as urban parks, green walls, green roofs and street trees, provide a number of environmental benefits, like: offsetting the 'urban heat island' effect, improving air quality and reducing air temperatures through shade, thereby reducing energy use for cooling.[108]

Sustainable land-use patterns, water quantity and quality, air quality, pollution levels, resource exploitation levels and waste management practices all have significant impacts on ecosystem resilience.[109]

Municipalities, besides challenges of vacant spaces and high costs of land expropriation should use different incentives like additional building space, tax free construction permits, and similar, in order to free up space for additional green spaces within neighborhoods. It is crucial to plant as much tree plants in accordance with the tree suitability (tree size and crown characteristics root development, tree ecosystem resiliency potential, shade, leaf type, drought and waterlogging tolerance, reducing air pollution potential, diseases resistance, flowering and fruiting, etc.).[110]

Energy efficient buildings and infrastructure has large potential to contribute to decreased electricity use, thereby reducing energy intensity. Since, buildings, especially residential ones, are the major contributors to resource consume, like materials, water, electricity, among others, municipalities should prioritize energy efficiency implementation. Building a simple data platform and its systematic population with data about building's classification, level of energy consumption, building's energy performance, is of crucial importance for municipalities, and will serve as a test bed for structured city-scale implementation of energy efficiency measures.

In accordance with the building energy performance legislative framework, municipalities should develop their own Municipal Energy Efficiency Action Plans (MEEAP)[111], and organize their capacity (human and financial) for auditing and managing enforcement of these plans. Integrated within the MEEAP should be public infrastructures, like public lighting, public district heating system, renewable sources district heating system, and similar. MEEAP are a crucial part of long- term implementation of energy efficiency at the municipal- scale.

In addition, Kosovo municipalities, supported by EU, should start developing pilot projects of Nearly Zero Energy Buildings (NZEB).[112] Even though, pilot projects of NZEB would play the role of demonstration, the impact on carbon footprint would be very low. Therefore, municipalities should think of implementing Nearly Zero Energy Districts (NZED), where a whole neighborhood is developed based on consuming very low amount of energy and using renewables nearby to generate energy for the whole neighborhood.

Sustainable urban transport: Sustainable urban transport systems target reduced dependence on the energy sector (i.e., oil and petroleum), reduced congestion and increased productivity, and most importantly reductions in air pollution levels. In addition, public transport systems employ large numbers of people and can help create employment. Since, Kosovo's cities have a large presence of urban sprawl, public transport systems can play

[106] OECD. (2012). Compact city policies: a comparative assessment, OECD Green Growth Studies
[107] UNEP. 'Sustainable, Resource Efficient Cities – Making it Happen!'. 2012. Accessible at: https://issuu.com/rodrigovelasquezangel/docs/sustainableresourceefficientcities
[108] Van Roon, M. (2005). Emerging Approaches to Urban Ecosystem Management: The Potential of Low Impact Urban Design and Development Principles. Journal of Environmental Assessment Policy and Management. Retrieved December 8, 2020, from http://www.jstor.org/stable/enviassepolimana.7.1.125
[109] Ibid.
[110] Dr Andrew Hirons and Dr Henrik Sjöman. (2019). Tree Species Selection for Green Infrastructure: A Guide for Specifiers
[111] Law on Energy Efficiency No. 06/ L- 079, Article 6, Municipal Energy Efficiency Action Plans, implementation and reporting. Official Gazette of the Republic of Kosovo / No. 21/ 05 December 2018.
[112] A NZEBs is defined as a building with a very high energy performance, meaning nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources produced on-site or nearby. Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings (recast)

a great role in increasing access and mobility within urban sprawl parts and can play a major role in overcoming elements of the 'urban segregation'.

Waste management: Solid waste management has the potential to contribute to decreased landfill demand, reductions in GHG emissions, decreased terrestrial and aquatic pollution levels, and reduced energy use (electricity and oil) in the transport and disposal of waste.

In addition, recycling and reuse of waste has the potential to create jobs and to reduce dependence on material imports for production. Municipalities should start seeing waste management as an economic opportunity, not just a utility obligation. However, waste management is a challenge for developed countries, in developing countries municipalities should start with small steps and pilot projects, aiming towards achieving the level of recycling and reuse their waste.

Based on Gjakova biomass-based heating plant, Kosovo's municipalities should start developing city-scale heating systems using waste conversion technologies, like capturing bio-methane from waste-to-gas conversion.

Water and wastewater retrofitting: Water is critical for daily household activities and industrial and agricultural production. Water quality is also important for sustaining health, agricultural activities and ecosystem services.

Infrastructure retrofitting focuses on specific infrastructure networks by building resilience and adaptability to pressures that municipalities may be experiencing (or are projected to experience in the future). Kosovo's cities are projected to have challenges with constant supply with drinking water.

Therefore, municipalities in coordination with water managing companies should reduce water losses within water distribution systems and develop awareness campaigns of efficient use of water.

As retrofitting wastewater concerned, municipalities should open up to Commercial retrofit technologies for grey water re-use and rainwater capture for households and buildings. Solutions do not always have to be large scale ones.

Each sector is a cross-cutting response to the need for ensuring energy, water, food security and greater ecosystem resilience as the systems between which mutual resilience is desirable at city-scale.

4.2.2/ ENABLING INTEGRATION IN CITY/MUNICIPAL TRANSITIONS TO SUSTAINABILITY

Cities are urban environments where social and community structures are very diverse. Adequately diverse public participatory processes, involving multi-stakeholder engagements over developmental priorities and infrastructure needs of communities (whether of urban residents, business, industry, etc.), are consistently viewed as being critical components of engendering shared visions and re-envisioning. Municipalities are obliged to increase transparency while decision- making.

Visions to transition to sustainability need strong political and institutional support. Politicians and institutions play a critical role in introducing elements of a sustainability discourse into the public domain and initiate the process of changing the norms and behaviours by setting new directions and identifying the key sustainability-oriented themes and strategies that will inform development within the city. According to UNEP, "in this respect, thematic and iconic city-scale or national scale projects can play a critical role in providing focus within the vast realm of pressing concerns that cities are occupied with."[113] National level institutions, policymakers and regulators can act as integrators and help implement a shared vision amongst different participants and sectors.

[106] UNEP. 'Sustainable, Resource Efficient Cities – Making it Happen!'. 2012. Accessible at: https://issuu.com/rodrigovelasquezangel/docs/sustainableresourceefficientcities

Finance: Cooperation between local governments, national governments, international bodies, inter-municipality partnerships, in order to increase the chances of success, where funding for sustainability, resource-efficiency and low-carbon programmes and projects is required.

NGOs, development agencies, financial banks, universities and other public research agencies should support municipalities to develop the needed knowledge and capacity on sustainability and low-carbon projects and programmes.

In addition, price mechanisms such as incentives, tariffs, and subsidies can also be utilized instrumentally to stimulate the uptake of sustainability processes and green technologies.

Smart Technology and skills transfer: Smart technology can utilize some processes municipalities face challenges, such as smart solution on information of parking area's locations, parking availability, public transport smart phone apps[97], etc. However, smart solutions and technology transfers must be customized based on socio-technical context into which they are introduced. Socio-economic and mindset factors are as important in successful technology introduction as the total impact of the technology itself.

Technology transfers in developing countries, such as Kosovo, that purchase and try to implement off-the-shelf technology solutions from the developed world, often face challenges, such as not having the appropriate skills and capacity (including management and maintenance skills), nor the innovation skill transfer bases and places of learning to produce the knowledge and skills that are required to support long-term development.

Therefore, new technologies should be planed systematically, where besides implementation, successful transitions and maintaining trajectories towards large-scale behavioral change is planned ahead.

Participatory processes: Transitions require supportive institutions that establish focus groups and task teams that concentrate on coordinating and improving participation and participatory governance between government, business, research and development and civil society organizations – and within them – and help bring about shared vision and consensus, while holding spaces open for debate and consideration on the range of trajectories that can be embraced in migrating towards sustainability and live-ability in cities.

Innovation, academia and research institutes: Setting up research and innovation mechanisms, such as innovation hubs that support knowledge building, technology skill transfer, monitoring and evaluation, are critical elements of realizing municipality-scale sustainability initiatives programmes. Cooperation with academia have been proved as successful on many occasions.

General recommendation is that sustainable concepts should be integrated at the city scale, municipal scale and neighborhood scale, dependent on the local context and achievability potential. However, concepts should not be scattered or being implemented in isolation, since they do not bring significant impact for a sustainable development strategy.

[114] The smart phone app Transporti Urban, developed for Municipality of Prishtina is a good local context example of small smart technologies.

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