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# The Potential of Sustainable Development Goals in Enhancing Well-being of Elderly People through Green Public Spaces

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## Abstract

**Background:** The population of older people living in urban areas is increasing rapidly, so investigating on the well-being of this important group in urban area is critical. There are many studies that claim green public spaces are very important on human well-being and especially elderly's' well-being (Sugiyama & Ward Thompson 2008; Maas et al. 2006). In SDGs, one of the targets is dedicated to green public spaces, but it does not determine the implementation of them. This research will help to facilitate implementing green public spaces in cities through introducing indicators for monitoring SDGs.

**Objectives and methods:** This research is aimed to contribute to the discourse on transitions towards an economy whose ultimate goal is human well-being. Moreover, it will contribute to the shaping of the conceptual basis of SDG policy, through a critique of the apparent equal treatment of 17 goals, and the exploration of the implications of considering well-being as the ultimate goal of sustainable development. This research will explore that green public spaces can be considered as basic need for human well-being. Finally, this research contribute to the theoretical debate and practical dimension

support

of measuring progress towards SDGs, through the more specific case of Green Public Space (GPS) as a target of SDG-11.

**Results:**

- Transition towards an economy based on well-being through Herman Daly “ends-means continuum” is crucial for human well-being.
- SDG agenda have apparent equal treatment with 17 goals that leads to weak sustainability and finally cannot bring about well-being.
- GPS can be considered as basic need for human well-being that is crucial for enhancing elderly peoples' well-being.
- Three indicators introduced to enhance the implementation and monitoring of the GPSs in the context of SDG-11.

**Keywords** Well-being, Ageing, Sustainable Development Goals (SDGs), and Green Public Spaces (GPSs)

**Jel Classification Numbers** R58, R23, Q56, D6

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## INTRODUCTION

Text From many decades ago, urban population has increased rapidly; from 34% in 1960 to 54% in 2015 (The World Bank 2016) and it is projected to rise to two-thirds (66%) of population in 2050 (United Nations 2014). Additionally, world is facing with boom in the population of people aged 65 and more. In 1965, the proportion of older people (age 65+) to the global population was about 5% and it has gradually increased to 8% in 2015 (United Nations 2015b) and this is projected to increase to more than 15% in 2050. Moreover, the older population is growing faster in urban areas than in rural areas (Suzman & Beard 2011). The percentage change in the population aged 60 years or over between 2000 and 2015 in the rural area is 25%, while in the urban areas is 68%. Therefore, investigating on the well-being of elderly in urban area is valuable.

By growth of urbanization quality of environment in urban area is getting more important for citizens' well-being. Economic growth has happened in urban area with the expense of destroying the environment, so, it has caused reduction in residents human well-being (Bartolini 2010). So, a shift from policies of economic growth to SUD is necessary. Environmental sustainability has different dimensions that in this research the importance of GPS on dimension of human well-being will be discussed. Moreover, GPS are part of ecosystem services that are indispensable for human well-being and health (MEA 2005). GPS are important factor in improving citizens' well-being (Bieri 2013), because they provide area for exercise, recreational activities, cultural activities, etc. (Maas et al. 2006). Therefore, it is crucial to provide enough amounts of GPS in cities. Additionally, residence older than 65 benefit more from GPS (Maas et al. 2006), so the public spaces must be multigenerational to be best desired for all people in society.

This research mainly has three purposes. First, contributing to a transition from an economy based on consumption to an economy based on human well-being (ICSU & ISSC 2015) is the motivation for doing this research. The current economic system couldn't solve the problem of poverty around the world (Hickel 2016b), income inequality has increased (Jackson 2009) and the environment has damaged by over-production (Hickel 2016a). The latest financial and real-economy crises of 2008 have meant that the contribution of growth-driven economics to the enhancement of human well-being is coming under even greater scrutiny.

Second, the framing of SDGs does not distinguish between ultimate and intermediate ends and means and this affects their clarity and, most crucially, their purpose and contribution to a transition to sustainability. This research seeks to contribute to explore the SDG agenda from the perspective of the means-ends continuum and will explore the implications of considering human well-being as an ultimate goal (ICSU & ISSC 2015). Achieving the ultimate goal of well-being is dependent on the interaction of different goals, though, as mentioned above, SDGs policy fails to specify how different goals are connected. In other words, in one extreme some goals reinforce each other and in the other extreme some of them cancel other ones (Nilson et al. 2016).

Third, in a similar way to the economy, urban development is also falling short of enhancing human well-being (Bartolini 2010) and of making such goal (human well-being) its central focus. Given that the world population in urban area is projected to rise to 70% by 2050, the future of wellbeing in urban contexts is likely to be a crucial dimension of 21<sup>st</sup> century sustainability (Habitat III Conference 2016). Sustainable urban development (SUD) aspirations are encapsulated in SDG-11 and, this research will argue, in its link to SDG-3 on human well-being as sustainability's ultimate goal. Green public spaces are one aspect of sustainable urban development that enhance human well-being (White et al. 2013) and will be the focus of the case study. Because of the importance of green public spaces as a means to achieving well-being in urban areas, the research will explore the positive or negative interaction of SDG-3 and SDG-11 and implications in terms of measurement (indicators), in specific case study.

## II. LITERATURE

### A. HUMAN WELL-BEING AS ULTIMATE GOAL

In happiness economics some scholars such as Bartolini (2010) argues that having more money is a mean for living better. Being happy is considered as an ultimate goal by many people (Frey 2008). Therefore, the ultimate goal of economic system must be in accordance with people's desire that is happiness, otherwise it cannot satisfy people's demand. In this regard Layard says: "we naturally look for one ultimate goal that enables us to judge other goals by how they contribute to it. Happiness is that ultimate goal

because, unlike all other goals, it is self-evidently good. If we are asked why happiness matters, we give no further, external reason. It just obviously does matter (Layard 2005, p.113)”.

The approaches of assessing well-being can be divided into two major groups; objective well-being and subjective well-being. Assessing well-being according to the objective well-being is based on the claim that elements of occurring well-being are the same for different people; education, health, friendship, environment, etc. (Stiglitz et al. 2009). On the other hand, subjective well-being consists of three interrelated parts; evaluative well-being (life satisfaction), hedonic well-being (feeling of happiness) and eudemonic well-being (sense of purpose) (Steptoe et al. 2015).

This research goes beyond the realm of crucial economic issues for human well-being and considers the importance of GPS as an objective aspect of well-being. In the following part, the importance of SUD in human well-being will be discussed. Additionally, influence of GPS as a one aspect of SUD on human well-being will be investigated.

## B. RELEVANCE OF SUD AND HUMAN WELL-BEING

The literature on SUD is rarely discussed on the relevance of SUD on human well-being. Therefore, within SUD agendas such as SDG-11, the relationship between SUD and well-being must be considered. Moreover, importance of GPS for human well-being in SDG-11 will be a special focus of inquiry and empirical analysis.

The evolution of contemporary cities has direct effect reduction in quality of urban area that can significantly reduce human well-being of residents. In the case of elderly, cities made them lonelier than decades ago because, social relationship outside their doorsteps has disappeared. In ancient cities, people used to have meeting in city squares, but in modern cities because of two reasons this opportunity of meeting is disappeared. Firstly, by expansion of cities many public spaces are used in favor of private building. Secondly, traffic cars do not let people to walk around the city freely and many spaces of the streets are dedicated to cars. These are the factors that in modern cities reduce human

well-being of citizens (Bartolini 2010). Therefore, reduction of public spaces in modern cities lessens the quality of life in urban area.

Modern cities are not designed according to sustainability and they are according to the paradigm of Negative Endogenous Growth (NEG) because; they are achieving economic growth with the expense of destroying environment and relationships (Bartolini 2010). The quality of environment and relationships are important factors of quality of life, so economic growth in modern cities cause reduction in quality of life of citizens. Therefore, it is critical for the urban Agendas to consider the SUD through the lens of enhancing human well-being. As Nilson et al. (2016) declare one of the issues that forthcoming New Urban Agenda must consider is the relationship between urban development and human well-being.

Based on Wheeler and Beatley (2014) SUD consists of some dimensions such as land use, urban design, transportation, environmental planning, resource use, environmental justice, local economic development, green building practices, food systems and public health. Reducing greenhouse gas emissions and mitigating climate change is the main feature of achieving SUD. Some of the initiatives such as promoting renewable energy and increasing green places to make cities cooler help mitigating climate change (Wheeler & Beatley 2014). Considering SUD in a way that considers different dimensions of humans' life, strongly enhance human well-being.

GPS can be considered as objective factors that are crucial for SUD and human well-being of citizens. In the following part, the importance of GPS on well-being of people and especially elderly people will be discussed.

### **B1. Relationship between GPS and Human Well-being of Elderly People**

Environment intrinsically provides room for enhancing human well-being. In other words, nature makes people happier (Russell et al. 2013). Greenness of cities has a strong positive correlation with urban quality of life (Bieri 2013; Cohen-Cline et al. 2015). Moreover, GPS are intermediate means that has significant influence on human well-being.

These days, cities are getting more populated, so the amounts of green places are becoming less and limited for citizens. GPS provide exercise area for people that improve physical activity of people which is influential in their well-being (Bowler et al. 2010). GPS provide opportunities for social interaction that potentially reduces social isolation and increase social capital that finally leads to higher level of well-being (Lee et al. 2015). Having enough public spaces in neighborhood is more important for older people (Sugiyama & Ward Thompson 2008). Maas et al. (2006) declared that young people (younger than 24) and elderly (older than 65 years) benefit more than adults from GPS, because they spend more time in GPS (Maas et al. 2006). So, public spaces must be multi-functional and multigenerational to be best desired (European Commission 2011). In other words, they must provide a proper situation in public spaces for all residents.

GPS are necessary for providing a better stance of human well-being of citizens living in a city. GPS are very important in achieving human well-being, so, they are one of the means to achieve the ultimate end of well-being.

## B2. GPS; a Public Good for a Basic Need of Elderly People

The other importance of GPS is that they are basic needs for people, because satisfying the basic needs of human being enhances human well-being. The idea of basic needs means that essential needs of all should be satisfied before the less essential needs of a few are met (Streeten et al. 1981). In this part, the role of green public space as a basic need will be studied.

Basic needs are the notion that are important because they not only consider income, but also some other important factors such as health and education. Bergh (2009) considers some factors influential in basic needs such as water, food, shelter, freedom, respect, clean air, direct access to the environment etc. (Van den Bergh 2009). Considering direct access to the environment as basic needs support the idea that GPS are tantamount to basic needs. In other words, enhancing the amount of GPS is one of the factors of satisfying basic needs. Moreover, Bartolini (2010) says: “high quality public pedestrian areas, parks, squares, sports centers and the like, are not luxuries, but a basic need, like schools or hospitals (Bartolini 2010, p.39)”. Therefore, GPS can be considered as basic need for citizens.



Drewnowski and Scott (1966) developed the “living index” that considers physical needs (nutrition, shelter, health) and cultural needs (education, leisure, security) (Hicks & Streeten 1979). Moreover, Sydney Webb includes leisure as basic needs (Streeten et al. 1981). As mentioned above, living index considers leisure as one of the cultural needs, so, GPS that provide a place for leisure time can be a basic need for human being. Additionally, GPS directly influence on health of citizens (Ballas 2013) and health is a basic need (Streeten 1984) that must be improved, therefore, green public space is a basic need for health and well-being.

### III. THE POTENTIAL OF SDGS TOWARD WELL-BEING

SDGs have been published in 2015 as policies for the period of 2015 to 2030. SDGs consist of 17 goals in different dimensions; poverty, agriculture, health, education, gender equality, etc. Considering well-being as a multidimensional concept is necessary, but it is not enough because the main problem is to determine well-being as an ultimate goal. Because of two reasons SDGs cannot bring about human well-being. First, it does not distinguish between means and ends. Second, since SDGs is not based on strong sustainability it cannot bring about well-being.

SDGs are based on Three Pillar model that does not lead to strong sustainability. Because according to *Three Pillar Model*, sustainable development considers three pillars including; economy, environment and society. It means that not only economy is important, but also environment and society are important (Endl et al. 2012). Three pillar model of sustainable development is important because it considers economy, society and environment. But, in this model, three pillars of sustainability are considered separate from each that means the interaction between three pillars are not considered. Also, different capitals are substitutable that means destroying environment can be compensated by economic growth. So, SDGs that are based on *Three Pillar Model* is according to weak sustainability.

Herman Daly articulates the “*End-Mean Continuum*” that distinguishes between *means* and *ends* in sustainable development theory. End-mean continuum of Daly is based on strong sustainability, so it can bring about well-being. Daly considers natural

environment as the “ultimate means” for achieving development and they are as objective for people’s life. The second part of this model is the “intermediate means” of development which consists of economy, technology, politics, and ethics; they are supported by natural resources so it is necessary to preserve the environment. He considers human well-being as “ultimate ends” in the top of the triangle (Endl et al. 2012). Because, GPS are built up from natural resources such as land, trees, water, etc. by municipalities in cities so they are built capital (intermediate means). So, these intermediate means must be used to enhance human well-being.

Long-term human well-being will be achieved only through strong sustainable development. In the strong sustainability, different types of capital cannot be substituted with each other (Endl et al. 2012). Therefore, redefining the definition of three pillars of sustainable development in SDGs to a nested concept is crucial. One of the theories that is based on strong sustainability is: “development that meets the needs of the present while safeguarding earth’s life support system on which, the welfare of current and future generations depend (Griggs et al. 2013, p.306)”.

One of the prerequisite of considering human well-being as ultimate goal of SDGs is redefining the definition of sustainable development from “three pillar model” to “new paradigm of sustainable development” mentioned by Griggs et al. (2013).

## A. THE ROLE OF SDG-11 IN ENHANCING WELL-BEING

SDGs are important goals for having sustainable cities and SDG-11 is indicative of this fact. After the adoption of SDGs by 193 member states in 2015, the issue of monitoring of SDGs is very crucial. In the report of seventieth session of the General Assembly (United Nations 2015a), it is not defined how countries can implement and monitor SDGs in their countries. In this research, I will investigate to find out which indicators are suitable for GPS in target 11.7 of SDGs.

The aim of SDG-11 is to “Make cities and human settlements inclusive, safe, resilient and sustainable”. Making cities safe and sustainable means ensuring access to safe and affordable housing, and upgrading slum settlements. It also involves investment in public transport, creating GPS, and improving urban planning and management in a

way that is both participatory and inclusive. A resilient city is a city that is prepared to absorb and recover from any shock or stress while maintaining its essential functions, structures, and identity as well as adapting and thriving in the face of continual change. Building resilience requires identifying and assessing hazard risks, reducing vulnerability and exposure, and lastly, increasing resistance, adaptive capacity, and emergency preparedness (ICLEI 2015).

SDG-11 includes seven targets related to criteria of sustainable cities that 7<sup>th</sup> target is related to green spaces that is: “By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities”. This target of Goal-11 is too ambitious and also it is not realistic (ICSU & ISSC 2015). It is not clarified what is the definition of safe, inclusive and accessible GPS. In this research, I will interpret these ambiguous definitions mentioned in SDG-11.7 through introducing proper indicators.

Moreover, different goals must not be in contrast with each other and they must support each other. Besides the fact that the goals and targets are interdependent and they must be pursued together, many of the indicators are related to more than one of the targets in SDGs. So, considering the influence of one indicator to different goals and targets is important. As a result, in this study the interdependence of SDG-11 and SDG-3 (health and well-being) will be analyzed. In other words, I will investigate on the dimension of the “urban GPS” of SDG-11, a subjective aspect of well-being, to assess its contribution to improve citizen’s well-being as promoted in SDG-3. Therefore, usage of proposed indicators must be beneficial for improving the relationship between GPS and human well-being.

## B. PROPER INDICATORS FOR GPS

Indicators of GPS can be localized. According to the Open Working Group (OWG), each country can choose proper indicators for monitoring and implementing SDGs to achieve sustainable development. This creates an opportunity for different countries to choose suitable indicators according to their situation. Indicators are very important in implementation of SDGs, because they can be used as a *management tool*

(SDSN 2015). Considering indicators of SDGs as management tool help countries to implement different goals and targets of SDGs. Moreover, indicators of SDGs are such as *report card* because they can be used to measure progress towards sustainable development and help stakeholders measure achieving SDGs (SDSN 2015).

### **B1. Area of green public space as a proportion of total city space**

This indicator calculates the fraction of city space that is dedicated to green public space. GPS are those green spaces such as parks that are free for all people to use them. The amount of urban GPS is not only important in achieving sustainable cities but also important on human well-being. Because, GPS reduce the amount of CO<sub>2</sub>, they preserve soil from erosion, they prevent flood, etc. they are necessary for having a sustainable city.

Having sufficient GPS in city provide a good situation for residents to enjoy from green spaces inside city. World Health Organization (WHO) considered 9 square meters green space per capita. The generally accepted minimum for proportion of green public space to total city space is 15% (Habitat 2013). It means that at least 15% of the city spaces must be dedicated to GPS. Therefore, it is necessary to calculate this indicator in different cities. Because this indicator considers human well-being and health of people, makes a connection between SDG-11 and SDG-3.

### **B2. Proportion of residents within 0.5 km of accessible green public space**

Measures of evaluating proportion of residents living less than 500 meters from GPS illuminates the accessibility of GPS. It also shows the distribution of GPS in different parts of the city. This indicator is useful, because the distance of green public space from residents' location is influential on their well-being. Based on study of white et al (2013), living near GPS enhances human well-being. Also, according to Mass et al (2006), people who use GPS are healthier. Therefore, living near GPS would be an advantage for citizens.

Based on WHO, every people must live in a place that is 15 minutes walking to the GPS. Average speed of people's walking is 5 kilometers per hour. Therefore, by 15 minutes of walking people walk about 1.25 kilometers. But, the variable considers 0.5 kilometers of distance from GPS, because disabled, elderly and pregnant people walk



## IV. CONCLUSIONS

- **Transition towards an economy based on well-being through Herman Daly “ends-means continuum” is crucial for human well-being:** The current economic system that is based on over-consumption could not bring about happiness all around the world. Furthermore, it has caused many problems such as; income inequality, environmental degradation, reduction in well-being, and etc. Therefore, transition from an economy based on over-consumption to an economy based on human well-being is crucial for human well-being. Herman Daly Continuum provides a model for economy that contributes to maximizing human well-being and considering it as ultimate goal.
- **SDG agenda have apparent equal treatment with 17 goals that leads to weak sustainability and finally cannot bring about well-being:** SDGs treat equally with different goals, so they are based on weak sustainability. In other words, different capitals in SDGs are substitutable that this is an obstacle for achieving human well-being. These 17 goals are not the same and SDGs must distinguish 17 goals to four categories; intermediate means, ultimate means, intermediate ends and ultimate ends. The focus of this research is based on Goal-11 of SDGs.. This research, based on Daly Continuum suggests considering human well-being as ultimate end of SDGs and considering SDG-11 as intermediate means to achieve ultimate end.
- **GPS can be considered as basic need for human well-being that is crucial for enhancing elderly peoples' well-being:** GPS are important in enhancing human well-being of elderly. Moreover, because of three reasons they can be considered as basic need for people. First, GPS provide a direct access to the environment that is necessary for meeting basic needs. Second, GPS are usually used for leisure time that is a basic need for human being. Third, GPS have direct influence on health that is basic needs.
- **Three indicators introduced to enhance the implementation and monitoring of the GPSs in the context of SDG-11:** Facility of measurement and implementation of SDGs is important in the effectiveness in transition toward an economy based on well-being. The indicators introduced are; area of green public

space as a proportion of total city space, proportion of residents within 0.5 km of accessible green public space, and total number of crimes in green public spaces per 1000 residents. These indicators are chosen according to having safe, resilient and accessible GPSs.

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