Conf. No.	PLAN_SC	PLAN_INI	PLAN_CHAMP	PLAN_WAT	Outcome	N	Incl.	Cases
16	**1**	**1**	**1**	**1**	**1**	**1**	**1.000**	**Case_07**
13	**1**	**1**	**0**	**0**	**1**	**2**	**0.609**	**Case_13, Case_17**
15	**1**	**1**	**1**	**0**	**1**	**1**	**0.538**	**Case_16**
11	1	0	1	0	0	3	0.378	Case_04, Case_08, Case_20
12	1	0	1	1	0	3	0.365	Case_06, Case_14, Case_15
1	0	0	0	0	0	5	0.321	Case_02, Case_12, Case_21, Case_22, Case_23
4	0	0	1	1	0	1	0.130	Case_19
9	1	0	0	0	0	3	0.125	Case_09, Case_10, Case_11
3	0	0	1	0	0	1	0.103	Case_03

Appendix 3: Truth table for context conditions in planning phase for spatial quality[20]

Conf. No.	PLAN_QT	PLAN_DES	PLAN_AGR	PLAN_LAND	PLAN_CLUS	Outcome	N	Incl.	Cases
15	**0**	**1**	**1**	**1**	**0**	**1**	**2**	**1.000**	**Case_06, Case_17**
16	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**1.000**	**Case_04**
32	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1.000**	**Case_16**
2	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0.769**	**Case_23**
28	1	1	0	1	1	0	2	0.500	Case_13, Case_19
25	1	1	0	0	0	0	3	0.333	Case_02, Case_14, Case_15
11	0	1	0	1	0	0	5	0.244	Case_07, Case_09, Case_10, Case_11, Case_12
4	0	0	0	1	1	0	1	0.231	Case_22
19	1	0	0	1	0	0	1	0.000	Case_03
26	1	1	0	0	1	0	1	0.000	Case_21
27	1	1	0	1	0	0	1	0.000	Case_08
30	1	1	1	0	1	0	1	0.000	Case_20

Appendix 4: Truth table for instrument conditions in planning phase for spatial quality[20]

Conf. No.	REAL_SC	REAL_REA	REAL_WAT	Outcome	N	Incl.	Cases
6	**1**	**0**	**1**	**1**	**4**	**1.000**	**Case_06, Case_07, Case_14, Case_15**
8	**1**	**1**	**1**	**1**	**1**	**1.000**	**Case_01**
5	**1**	**0**	**0**	**1**	**8**	**0.985**	**Case_04, Case_08, Case_09, Case_10, Case_11, Case_13, Case_16, Case_20**
1	**0**	**0**	**0**	**1**	**5**	**0.919**	**Case_02, Case_03, Case_12, Case_21, Case_23**
4	**0**	**1**	**1**	**1**	**1**	**0.846**	**Case_19**

Appendix 5: Truth table for context conditions in realization phase for spatial quality[21]

Conf. No.	REAL_CON	REAL_MAIN	REAL_TEN	REAL_LAND	REAL_CLUS	Outcome	N	Incl.	Cases
9	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**1.000**	**Case_16**
10	**0**	**1**	**0**	**0**	**1**	**1**	**1**	**1.000**	**Case_04**
11	**0**	**1**	**0**	**1**	**0**	**1**	**1**	**1.000**	**Case_08**
19	**1**	**0**	**0**	**1**	**0**	**1**	**2**	**1.000**	**Case_14, Case_15**
21	**1**	**0**	**1**	**0**	**0**	**1**	**1**	**1.000**	**Case_13**
25	**1**	**1**	**0**	**0**	**0**	**1**	**2**	**1.000**	**Case_07, Case_20**
30	**1**	**1**	**1**	**0**	**1**	**1**	**1**	**1.000**	**Case_06**
31	**1**	**1**	**1**	**1**	**0**	**1**	**1**	**1.000**	**Case_01**
32	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1.000**	**Case_19**
1	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0.900**	**Case_21, Case_23**
22	**1**	**0**	**1**	**0**	**1**	**1**	**4**	**0.850**	**Case_09, Case_10, Case_11, Case_12**
18	1	0	0	0	1	0	2	0.786	Case_02, Case_03

Appendix 6: Truth table for instrument conditions in realization phase for spatial quality[21]

ID 1643 | EVALUATING NEIGHBOURHOOD SUSTAINABILITY ASSESSMENT METHODOLOGY AS A LOCALIZATION TOOL FOR GLOBAL TARGETS

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ABSTRACT: In the last two decades, global sustainable development concerns have become more decisive on urban development strategies. This new order also created two major sub-processes. While the first one mainly covers the interpretation of major scale sustainable development goals into sub-national strategies, the second one includes providing a successful sustainability monitoring mechanism in coherence with national obligations for global sustainability targets. Sustainability assessment methodology (SAM) have gained importance by standing at the intersection of these two sub-processes. SAM tools have been developed in different geographies for monitoring and supporting sustainable development principles throughout the design and implementation processes. In this context, this paper presents a framework for the utilization of these methodologies in the localization of global sustainability targets through the case of Turkey. For this purpose, criteria of eight existing Neighbourhood Sustainability Assessment Tools (NSAT) were compared for obtaining a combined matrix. In the first stage, provided

matrix evaluated in terms of global sustainability targets and Turkey's national obligations. For providing a local framework and discussing the coherence between national sustainable development strategies and sectoral priorities. Analytic Hierarchy Process (AHP) was used as a simple prioritization technique and applied to decision makers, academicians, activists and project executors from different sectors. The applied framework brings a new perspective and provides an initial guideline for localization of global sustainability goals over discussions on Turkey.

Keywords: Sustainability Assessment, Neighbourhood, Sustainable Development, Localization

1 INTRODUCTION

In parallel with the increasing importance of sustainable development policies, the need for process monitoring and assessment increased as well, and the most important impact of this approach on communities is the recognition of the essential role of local values and policies in the implementation process of global principles. Combining these two approaches in 2002 Local Action 21, nations focused on the effective implementation of sustainability including monitoring and continuity. In this process, it is crucial to choose the right tools that compatible with local characteristics (Kusakabe, 2013). New generation sustainability assessment methodologies (SAMs) provide alternative options that applicable in different geographies and offer a comprehensive tool at various scales for assessing sustainability performance from decision making to post-implementation periods (Adinyira, Oteng-seifah, & Adjei-kumi, 2007; Alberti, 1996; Bebbington, 2009; Böhringer & Jochem, 2007; Shen, Jorge Ochoa, Shah, & Zhang, 2010). Due to these performance-based methodologies mainly used at building scale neighbourhood sustainability assessment methodologies (NSAMs) have taken its place among the common assessment tools. On the other hand, applications of urban scale SAMs could not spread as much as other methodologies as a result of the long and multi-staged assessment process.

Several studies have been conducted with the emphasis on the role of neighbourhoods in the comprehensive sustainable development process. Besides the common debates on negative impacts of urban sprawl, and rapid suburbanization, weakened ties in community – environment relations, and context-specific development practices became the new focus of these studies, and NSAMs were evaluated as a tool to reinforce the links between society, environment, economy, and politics by defining local obligations and necessities for sustainability through measurable criteria sets (Adinyira et al., 2007; Berardi, 2013; Pope, Annandale, & Morrison-Saunders, 2004; Sharifi & Murayama, 2014). Recently, neighbourhood scale methodologies spread to the world as an effective tool for comprehensive sustainability (Sharifi, 2013). In this study, eight successful examples of NSAMs introduced and comparatively analysed according to according to the context-specific criteria sets.

2 NEIGHBOURHOOD SUSTAINABILITY ASSESSMENT

Although global sustainability goals successfully degraded to the neighbourhood design principles, applications are hardly achieving the long-term targets, mainly as a result of different local characteristics. NSAMs propose a new local methodology for translating these principles to a measurable, context-specific criteria sets. Each of these methodologies involves a set of category, criteria, and indicator. Each criterion has a specific weighting that given in accordance with local priorities (Oktay & Özdede, 2009; Poveda & Lipsett, 2011; Sharifi, 2013). In the last decade, many countries developed a national assessment methodology at the neighbourhood scale. LEED-ND (United States) BREEAM Communities (United Kingdom), DGNB NUD (Germany), Green Star Communities (Australia), QSAS Neighbourhoods (Qatar), Pearl Communities (Abu Dhabi) and Green Mark for Districts (Singapore) provide the best examples by representing different geographies from the earth.

LEED-ND

US Green Building Council (USGBC) developed the first green building assessment methodology in 1998 for new constructions. With LEED-ND assessment tool, USGBC aimed to certify newly developing mixed-use neigbourhoods and single-use infill for promoting sustainable, healthy, affordable and environment-

friendly settlements. Many professionals and entrepreneurs from various sectors included in the development process of the methodology. New Urbanism and Smart Growth as leading urban planning approaches in the US have reflected in the criteria sets along with the basic principles of existing LEED methodologies. The methodology covers 12 prerequisites, 44 criteria under 3 main, 1 additional and 1 bonus categories, which are Smart Location and Linkage (SLL), Neigbourhood Pattern and Design (NPD), Green Infrastructure and Buildings (GIB), Innovation and Design Process (IDP) and Regional Priority Credit (RPC). First, two of the three main categories promote urban design principles of the two leading approaches, such as housing and jobs proximity, compact development or transit facilities (CNU, NRDC, & USGBC, 2011).

BREEAM COMMUNITIES

Building Research Establishment Environmental Assessment Method (BREEAM) Communities has been introduced in 2011 for supporting design processes including decision-making and implementation. Although the methodology is partially adaptable to different contexts and spread to many parts of the world in a few years, United Kingdom territory defined as the main target for applications and criteria developed according to the local context of this territory (BRE Global Limited 2014).

Assessment process defined starting from the master planning, and it only covers new developments and renewal areas/brownfield developments. The methodology includes 41 criteria under 6 categories that Governance (GO), Social and Economic Wellbeing (SE), Resources and Energy (RE), Land use and Ecology (LE), Transport and Movement (TM) and Innovation (Inn) (BRE Global Limited, 2014).

CASBEE UD

CASBEE for Urban Development (CASBEE UD) requested by Urban Renaissance Headquarters and has been developed in 2006 by Japan Sustainable Building Consortium (JSBC) as against to global warming and the heat island effect. There are two approaches in the evaluation process, Environmental Quality in Urban Development (QUD) and Load Reduction in Urban Development (LRUD). QUD consists of 3 categories, QUD1 Natural Environment (microclimates and ecosystems), QUD2 Service functions for the designated area, and QUD3 Contribution to the local community (history, culture, scenery, and revitalization). These 3 categories later separated into 15 criteria and 35 sub-criteria. Similarly, the second approach, LRUD includes 3 main categories, LRUD1 Environmental impact on microclimates, facade, and landscape, LRUD2 Social infrastructure, and LRUD3 Management of the local environment. These categories later separated into 16 criteria and 43 sub-criteria (IBEC, 2007).

DGNB NUD

DGNB New Urban Districts (NUD) introduced by German Sustainable Building Council (DGNB) in 2011 for a comprehensive evaluation of environmental, and economic performance. The methodology developed with an efficient participation of the public and private sectors, academia, and entrepreneurs. The process provides both an assessment and a design tool for new developments primarily in Germany and Scandinavian countries (Anders, 2013; Mansfeldt, Pedersen, Sørensen, & Jensen, 2012). The methodology focuses on quality categories, Environmental Quality (ENV), Economic Quality (ECO), Sociocultural and Functional Quality (SOC), Technical Quality (TEC), and Process Quality (PRO). These categories later separated into 14 sub-categories and 45 criteria. Mix-use development defined as the basic requirement for all projects in the assessment process. Accordingly, the system defines minimum 10%, maximum 90% housing development for the site to be assessed (Anders, 2013).

GREEN STAR COMMUNITIES

Green Star Communities developed by Green Building Council of Australia (GBCA) in collaboration with different sectors and introduced in 2012 as a neighbourhood sustainability assessment methodology to provide a guideline for local administrations in line with the sustainable planning objective. In terms of similar climatic conditions, applications focus on new and infill developments in Australia, New Zealand,

and South Africa (GBCA & AECOM 2012). In the development process, the methodology has evaluated in terms of the national framework and as a rating tool for providing a comprehensive approach. 6 main categories, which include “Governance, Design, Liveability, Economic Prosperity, Environment, and Innovation”, were determined in accordance with the national development strategies, “enhancing livability, economic prosperity, environmental responsibility, design excellence and strong governance”. These categories later separated into 38 criteria. In the certification process, a great importance has given to the commitment to the Green Star Communities’ principles. Accordingly, certified neighbourhoods have to achieve necessary criteria and receive a certificate once in every five years (GBCA & AECOM, 2012).

GSAS/QSAS NEIGHBOURHOODS

GSAS/QSAS Neighbourhoods developed by Global Sustainability Assessment System (GSAS) and Qatar Sustainability Assessment System (QSAS) developed by Gulf Organisation for Research and Development (GULF), for assessing the environmental performance of a project, testing building, and infrastructure system and ensuring project’s commitment to the smart growth and sustainable urban planning principles. The methodology developed along with the master plan and development plans and defined as applicable to both new developments and existing neighbourhoods. The main categories involve “urban connectivity, site, energy, water, material, and indoor environment”. The rating ratio defined from -1 to 3 (GSAS/QSAS Technical Committee & GORD, 2013).

PEARL COMMUNITY RATING SYSTEM (PCRS)

PCRS developed by Estimada in 2010 in the context of The United Arab Emirates along with the Vision 2030, which requires at least minimum level certification for all new developments. The methodology developed for rating development projects through the lifecycle. The main categories were identified as “integrated development process, natural systems, livable communities, precious water, resourceful energy, stewarding materials, and innovating practice”. These main categories were later separated into 64 criteria. The first stage of the assessment process “Pearl Design Rating” developed for increasing the vitality of real estate market. In the second stage, “Pearl Construction Rating” measures the improvement and the achievement of the project. The last stage defined as “Pearl Operational Rating” which can be applicable only the occupancy rate of the area reached to 80%, and two years after the application is completed (UPC & Estimada, 2010).

GREEN MARK FOR DISTRICTS

The NSAM developed by Building and Construction Authority (BCA) of Singapore in 2009 for ensuring and monitoring environmentally sensitive master planning. In parallel with the 2030 vision of the country, the main objective introduced as providing a new platform for participatory planning and future partnerships and leading high performance in sustainability. The main categories involve “energy efficiency, water management, material and waste management, environmental quality and protection, and green building and other green features”. These 5 categories later separated into 24 criteria. The highest importance has given to the environmental quality and protection category and the highest possible score for the area is limited with 185 points (BCA, 2013).

2.1 COMPARATIVE ANALYSIS OF EXISTING METHODOLOGIES

Previous studies reveal that the main target of these methods is to achieve globally accepted sustainability principles at local scales, on the other hand, the achievement depends on the localizing these principles in terms of local context (Berardi, 2013; Nguyen & Altan, 2011; Sharifi & Murayama, 2014). National strategies and geographical features are the main constituents of differences. Hence, their origin could be based on different planning approaches. For instance, CASBEE UD and BREEAM Communities are based on Urban Renaissance in UK and Japan, LEED ND, Green Star Communities and QSAS Neighbourhoods follows Smart Growth and New Urbanism principles in the USA. Accordingly, LEED ND emphasized urban design and physical improvement in the criteria sets, BREEAM Communities, CASBEE

UD and DGNB NUD focused on the social dimensions, such as equality in land use and participation. Australia, Qatar, Singapore and Abu Dhabi gave importance to climate and energy issues in Green Star Communities, QSAS Neighbourhoods, Green Mark for Districts and Pearl Communities as a result of their geographical position (Ozdal Oktay, 2015).

When the categories and criteria of all these methodologies compared in accordance with the overlaps, meaning resemblances, and differences in criteria and indicators, for a clear and integrated criteria set, the provided matrix constitute from 9 main categories and 64 criteria. The main categories include “location and site selection, natural environment protection, land use management and urban design, social integration and participation, sustainable building, sustainable infrastructure, economic integration, governance and innovation” (Ozdal Oktay 2015). Examination of NSAMs in accordance with defined categories and criteria reveals that most of the criteria related to “location and site selection” covered by LEED-ND in parallel with US’ national mitigation strategies on urban sprawl. The largest number of criteria related to natural environment included by the CASBEE UD. 16% of DGNB NUD criteria defined under the land use management and design category. BREAAM Communities and Green Star Communities give great importance to social criteria. While LEED-ND focuses on sustainable building category, CASBEE UD promotes sustainable infrastructure in the assessment process. Along with the role of the central government in Abu Dhabi, Pearl assessment methodology included the highest number of criteria under the governance category. Innovation related criteria were not covered in CASBEE, DGNB, and QSAS. Each NSAM defined the size of the application according to different measures, such as population, the number of buildings or the area of the application site. While CASBEE and Green Mark defined no upper limits, QSAS Neighbourhoods doesn’t require both upper and lower limits for the application (see Table 1) (Ozdal Oktay, 2015).

Prioritization of defined categories and criteria is very important for emphasis of the local needs and the priorities and adaptability of the universal sustainability principles. It also allows for adaptation of existing methodologies into different local conditions, such as BREEAM Communities. In this framework, each category and criterion are assigned a weight according to the predetermined national standards (LEED), calculated impact values (DGNB), and expert opinions and evaluations (CASBEE, BREEAM, DGNB, Green Star, Pearl, and Green Mark). As values can be defined directly by the experts, several prioritization methodologies can be used, especially when the number of the participants is high. Analytic Hierarchy Process (AHP) is one of the most common methodologies by offering simple and effective evaluation process (Bhatt, Bhatt, & Patel, 2010; Rosa, 2013; Saaty, 1980, 2008).

SAMs	LEED ND	BREEAM Communities	CASBEE UD	DGNB NUD	Green Star Communities	GSAS/QSAS Neighborhoods	Pearl Community Rating System	Green Mark for Districts
Origin & Applicability	US - 2007 Primarily to US and Canada International	UK - 2011 Primarily to UK International	Japan - 2006 Specific to Japan and Applicable in some parts of Far East	Germany - 2011 Primarily to Germany and Scandinavian countries International	Australia - 2012 Specific to Australia and New Zealand Applicable in South Africa	Qatar - 2009 Specific to Qatar and Gulf Region	Abu Dhabi - 2010 Specific to Abu Dhabi and The United Arab Emirates	Singapore - 2009 Specific to Singapore and Tropic/Sub-tropic region
Organisation & Stakeholders	US Green Building Council (USGBC) Congress for The New Urbanism (CNU) Natural Resources Defence Council (NRDC)	Building Research Establishment (BRE) Related Local Authorities	Japan Sustainable Building Consortium (JSBC) Building Environment and Energy Conservation (IBEC) Urban Renaissance, Industry, Academy	German Sustainable Building Council (DGNB) Construction Sector Investors Akademy	Green Building Council Australia (GBCA) (with participation of different sectors)	Gulf Organisation for Research & Development (GORD) Central Government	Estidama Central Government	Building & Construction Authority (BCA) Central Government
Field of Aplication	New development Infill development Urban regeneration	New Development Urban Regeneration	New Development Urban Regeneration	New Development Urban Regeneration	New development Infill development	New development Existing neighborhoods	New development	New development
Field Size	Number of buildings and Size of the application area Lower limit - 2 buildings Upper limit - 130 ha	Number of buildings Lower limit: 2 Small: 2-9 Medium: 10-499 Large: Up to 5999 Bespoke: 6000 and above Upper limit: -	Number of buildings Lower limit: 2 Upper limit: -	Size of the application area Lower limit: 2 ha Upper limit: -	Number of buildings Lower limit: 300 Upper limit: 20000	No limits	Number of person Lower limit: 1000 Upper limit: 20000-30000	Size of the application area Lower limit: 20 ha Upper limit: -
Certification Stages	Conditionally Approved Pre-certified Certified	Registration Interim Certificate Final Certificate	Pre-design Design Post-design	Pre-certificate Certificate-Infrastructure Urban District	Registration Submission Assessment Certify Re-certify	Request for Proposal Assessment	Design Rating Construction Rating Operational Rating	Pre-assessment Actual Assessment
Certificates	Highest Score: 110 points 40-49 Certified 50-59 Silver 60-79 Golden 80 ve üzeri Platinum	Highest Score: 100 (%) 30-45 Pass 45-55 Good 55-70 Very Good 70-85 Excellent 85 < Outstanding	According to BEE value 0.5 > "C" Poor 0.5–1 "B-" Fairly Poor 1–1.5 "B+" Good 1.5-3 "A" Very Good 3 < "S" Excellent	Highest Score 100 (%) 35-50 Certified 50-65 Bronze 65-80 Silver 80 < Gold	Highest Score 100 (%) 10-20 1 Star 20-30 2 Star 30-45 3 Star 45-60 4 Star 60-75 5 Star 75 < 6 Star	Highest Score: 3 points 0-0.5 1 Star 0.5-1 2 Star 1-1.5 3 Star 1.5-2 4 Star 2-2.5 5 Star 2.5-3 6 Star	Highest Score: 159 points 55 puan altı 1 Pearl 55-75 2 Pearl 75-100 3 Pearl 100-125 4 Pearl 125 < 5 Pearl	Highest Score: 185 points 60-75 GM Certified 75-90 GM Gold 90-100 GM Gold+ 100 < GM Platinum

Table 1 - Comparison of Eight NSAMs (Ozdal Oktay, 2015)

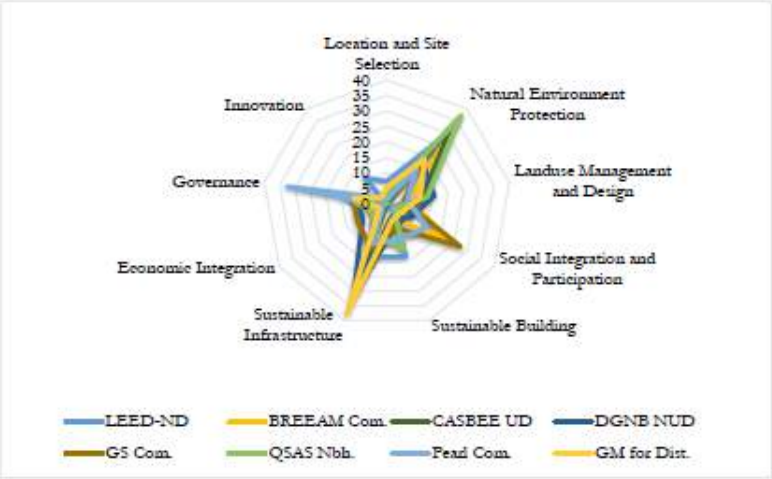

Figure 1 - % Distribution of the criteria in accordance with eight main categories

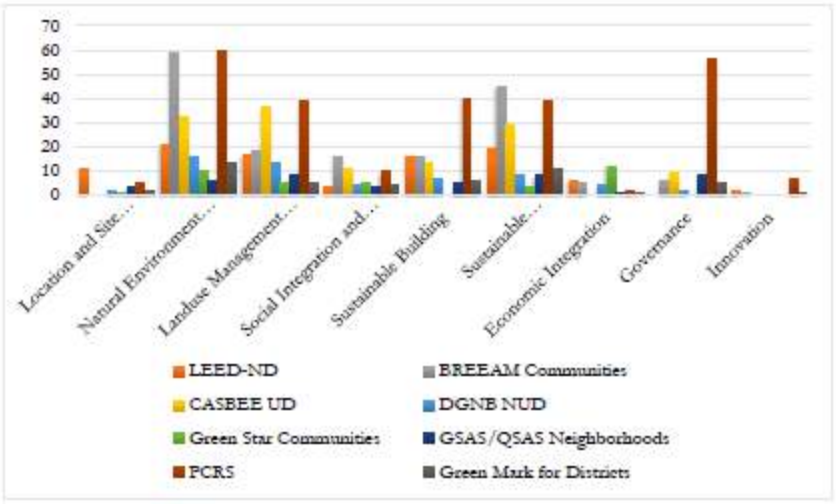

Figure 2 - Distribution of the indicators

3 FRAMEWORK DEVELOPMENT FOR TURKEY

Adapting an existing methodology or weighing categories and related criteria obtained from multiple selected SAMs in accordance with the local priorities of the application area is one of the widely excepted methods in developing a context-specific NSAM (Ozdal Oktay, 2015).

3.1 THE AHP METHODOLOGY

The Analytical Hierarchy Process (AHP) introduced by Thomas Saaty in 1980 for providing a simple, flexible and powerful tool for complex decision making and prioritization (Rosa, 2013; Saaty, 2008). The methodology enables to obtain the optimum results in a transparent and a relatively objective manner by including multiple category and sub-criteria, and reflecting both qualitative and quantitative factors (Saaty, 1980, 2008; VillarinhoRosa & Haddad, 2013). AHP provides an effective measurement for pairwise comparisons based on expert opinions and uses expert opinions to obtain a hierarchy (Saaty, 2008). To be able to structure the hierarchy AHP requires the definition of the problem, a collection of related data, and identification of alternatives, categories, and sub-criteria. (Saaty 1980; Saaty 2008; VillarinhoRosa & Haddad 2013). Once the comparison matrix has been built, the relative importance is calculated for each criterion according to 1 to 9 numerical scale (see Table 2), then the results are normalized by making the sum of the values on each column equal to 1, and averaging the values on each row (Saaty 1980).

Numerical Scale	Interpretation
1	Equally important
3	Slightly more important
5	More important
7	Strongly more important
9	Absolutely more important
2,4,6, and 8 are intermediate values	

Table 2 - Numerical scale for the relative importance

To combine individual evaluations in a group, final values are aggregated by calculation of the geometric mean. The result gives the global score of each category and criteria (Saaty 1980). The AHP incorporates the calculation of the Consistency Index (CI) and Consistency Ratio (CR) for calculation of the possible inconsistencies in the expert evaluations. CR value is obtained from the CI/RI equation. RI represents the Random Index when comparison values for each category and criterion are completely random. Accordingly, if CR value is smaller than 0.1, the results are considered as consistent and a reliable result can be expected from the AHP (Saaty 1980; Saaty 2008; Rosa 2013; Bhatt et al. 2010).

3.2 LOCALIZATION OF THE EXISTING NSA CATEGORIES THROUGH AHP

The government of Turkey committed to use Agenda 21 and Millennium Development Goals as a guideline for its national sustainable development process. In the 2014 development report, the biggest achievement was defined as the elimination of extreme poverty and improvement in the community health. On the other hand, improvements are still not enough for reducing the gender inequality, especially in education, and achieving the comprehensive sustainability. According to the national statistics, the inequality ratios are increasing each year. Since 1996, 7th Development Plan, sustainable development is the part of national strategies. However, the scope is extended in 2014 with the 10th Development Plan. In this context, for the first time sustainability was discussed separately in “liveable spaces and sustainable environment” chapter. Although there are several LEED and BREEAM certificated luxury housing projects in Turkey, there is no application at the neighbourhood scale. Additionally, since 2007 three national building SAM has been developed by Environment Friendly Green Building Association, Mimar Sinan Fine Arts University and Turkish Standards Institution. Nevertheless, none of these methodologies has been applied yet (Ozdal Oktay, 2015).

In order to establish a local, neighbourhood scale framework for Turkey, categories of eight successful NSAMs combined in a matrix, and afterward AHP principles tested on each of them. To be able to build the hierarchy the goal defined as Sustainable Neighbourhood Development and pairwise comparison matrices generated from the 9 categories obtained. In the data collection stage, questionnaire based on the AHP was sent to 23 institutions. Particular attention was paid to select participants from different regions of Turkey. 40 expert opinions were received from government institutions, the private sector, academia, and NGOs. Maximum CR value calculated as 0,0012 which is smaller than 0,1. Therefore, the results accepted as consistent and reliable. Pairwise comparisons applied to categories separately. The maximum normalized score calculated as 1,00, and this score received by two categories involving “location and site selection and natural environment protection”.

Goal: Sustainable neighbourhood Development

Categories	Global Weights
Location and Site Selection	1,00
Natural Environment Protection	1,00
Land use Management and Design	0,69
Sustainable Infrastructure	0,69
Social Integration and Participation	0,65
Governance	0,50
Sustainable Building	0,50
Economic Integration	0,40
Innovation	0,24

Table 3 – Given Global Weights of the Existing Categories

As a result of the AHP questionnaire, the three sectors of four has given the highest priority to the “natural environment and protection” category. The private sector weighed the “location and site selection”

category at the highest level. On the contrary of other three sectors, the academia has evaluated land use management and design category at the 7th row. “Social integration and participation” weighed differently by each sector. In relation to the national priorities on gender equality especially in education, the criteria under this category should be enhanced by defining prerequisites. According to the national agenda, besides the inequalities, energy production, greenhouse gasses emissions, and the earthquake risk at the centre of the current development strategies. Therefore, related criteria under “land use and design, and economic integration” should be defined as prerequisites. This approach will also help to build a framework that promotes local needs and national priorities (Ozdal Oktay, 2015).

Figure 3 - Distribution of the indicators

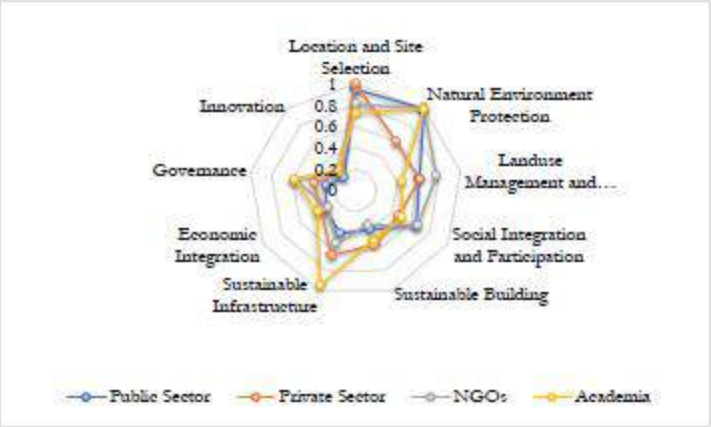

Figure 4 – Sectoral Distribution of the Global Weights

4 CONCLUSION

The prioritization of the categories of eight existing NSAMs will provide a simple framework for structuring a local methodology in combination with the national obligations and local priorities. This suggested methodology is a part of the larger study that involves not only categories but only related sub-criteria. The matrix obtained from the comparative analysis of selected NSAMs can be extended diversified as well as the number of the participants. On the other hand, it is important to keep the framework solid and in relation to the projected scale. Also, AHP provides an effective and easily applicable tool for complex issues and enables to a great number of participants.

Based on the results of this study common principles of neighbourhood sustainability can be easily localized in consideration with different local aspects and national context, and by applying effective prioritization tools.

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ID 1686 | WHICH STANDARDS FOR PUBLIC OPEN SPACE? A NEW CONCEPTION FOR THE 21ST CENTURY CITY

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1 INTRODUCTION

What all historical centres have in common is that they are built along streets, and streets make up most of their public space. Streets make up between 25 and 35% of the land area of these urban centres. It is not too difficult to see the impact of modern ideas of city planning on the urban fabric. Watch whatever city on google maps and shift outwards to almost any new development begun in the latter half of the 20th century. All these areas are characterized by having fewer streets; greater distances between intersections; mid to low building coverage; either high or low rise buildings and density; but always extensive open spaces, mostly green areas.

Cities are made of buildings and the spaces between them, both private and public (Marshall, 2004). Planners and policy makers have invested more in the design and regulation of the built up areas, standards mandating parks and gardens being a notable though limited exception to the rule. The recent critique of contemporary urbanism, has stressed the need of interconnecting again the two separate halves.

In this paper we deal with the problem of what should we demand from public open space (POS) in the cities of the 21st century. In particular, we address the question of the balance between streets, public parks and gardens. Eventually, we ask the question of how much POS is needed and what are the best ways to supply it? Until fairly recently, “orthodox” planning culture would have answered unanimously in favour of more parks and gardens, a trait severely criticized by Jacobs in the following quote:

In orthodox city planning, neighborhood open spaces are venerated in an amazingly uncritical fashion, much as savages venerate magical fetishes… Walk with a planner through a dispirited neighborhood and though it be already scabby with deserted parks and tired landscaping festooned with old kleenex, he will envision a future of More Open Space (Jacobs, 1961, p. 96) .

Why this? And why has planning given up on streets as social spaces and relegated them to movement and access functions only?

In order to answer these questions, we first address the notion of open space and in particular of public open space (POS), sketching rapidly the intertwined elaboration of measures, forms, and needs. Dealing in particular with the UK, Italian and other European cases, we show that standards, far from being a plain policy tool, result from a complex web of policy assumptions.

Secondly, we propose an analytical framework to understand how standards rely, in different countries either on political justifications or technical measures. In fact, they are a non-neutral policy tool, often