



THE NEW URBAN AGENDA AND ITS IMPLEMENTATION IN IRAN



Photo: Ghazal Raheb

The aim of this article is defining new strategies to enhance living conditions of urban areas according to New Urban Agenda discussed and agreed upon during Habitat III in 2016.

Ghazal Raheb

has a PhD in architecture from Iran University of Science and technology, graduated in 2008. She is an academic member of Road, Housing and Urban Development Research Center (BHRC) since 2004 and head of architecture and urban development institute of BHRC since 2015.
raheb@bhrc.ac.ir

Mahta Mirmoghtadaee

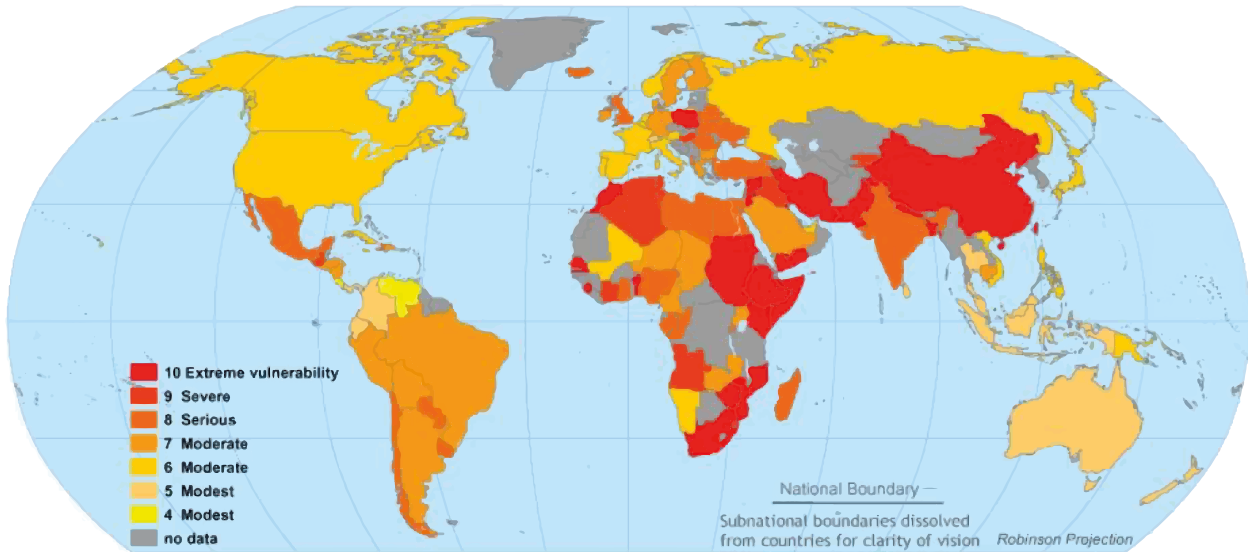
studied architecture and urban planning in the University of Tehran. She is an academic member of Road, Housing and Urban Development Research Center (BHRC) since 1997. Her research interests are sustainable and energy efficient urban planning and transit oriented development.
mmoghtada@yahoo.com

Mehran Rafiee

is researcher in the field of urbanism and urban planning. Since 2010, in the Road, Housing and Urban Development Research Center (BHRC) of the Iranian Ministry of Roads and Urban Development.
mraf85@gmail.com

1

Global Distribution of Vulnerability to Climate Change. Combined National Indices of Exposure and Sensitivity



Scenario A2-550 in Year 2100 with Climate Sensitivity Equal to 5.5 Degrees C
Annual Mean Temperature with Aggregate Impacts Calibration

Source: Wesleyan University and Columbia University 2006

The Islamic Republic of Iran is a country with diverse climatic conditions, located in arid and semi-arid zones with a fragile mountainous ecosystem and an economy seriously depending on oil production. The maps illustrate the climatic zones and the topographical condition of the country.

In Iran, rapid urbanisation and the growth of informal settlements have put more people and structures under risk and more pressure on the environment, especially in big cities.

The fluctuation of the annual average temperature in Tehran shows a gradual increase of more than 4 degrees centigrade from 1950 to 2010.

On the other hand, Iran is located in the area with the highest sensitivity to global warming and extreme vulnerability to climate change. This constitutes a serious challenge of the 21st century.

Status of sustainable development indicators in Iran

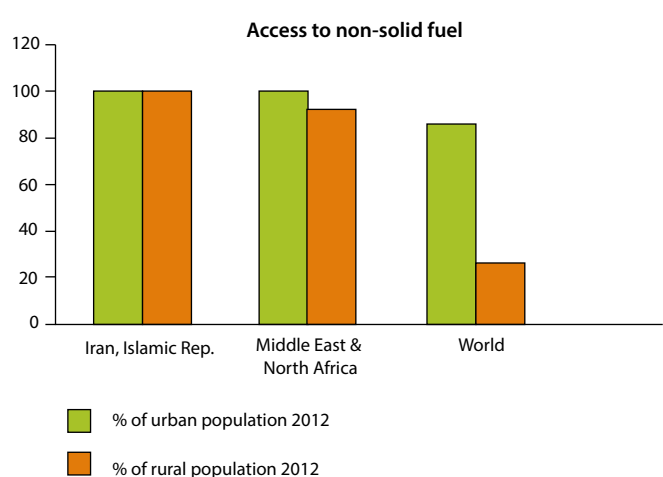
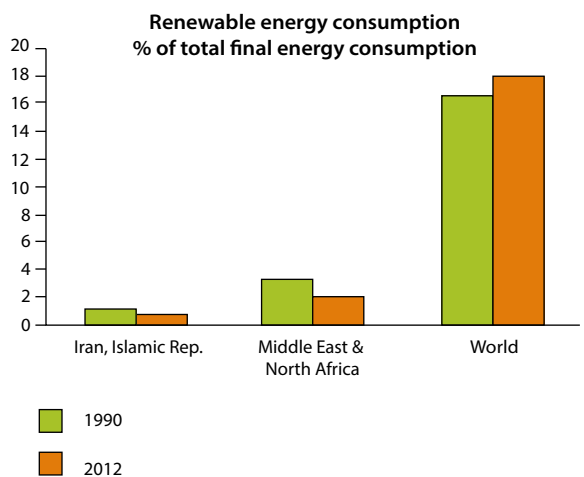
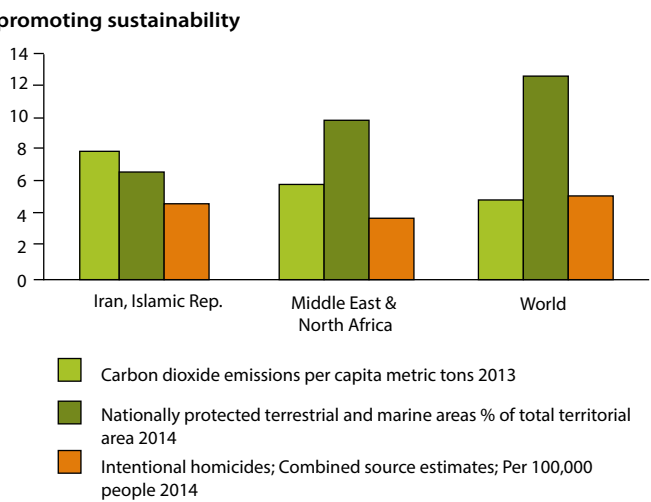
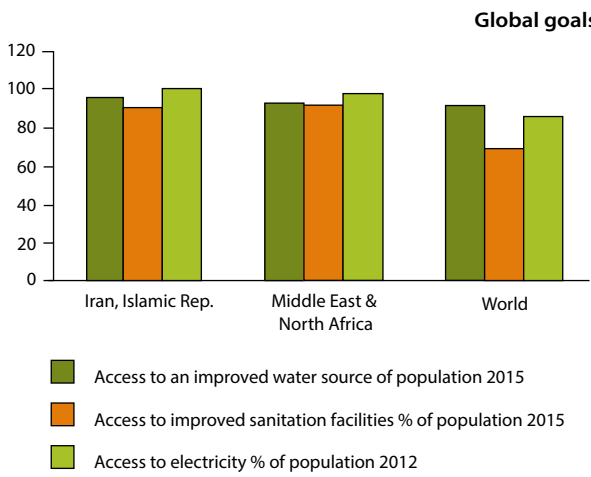
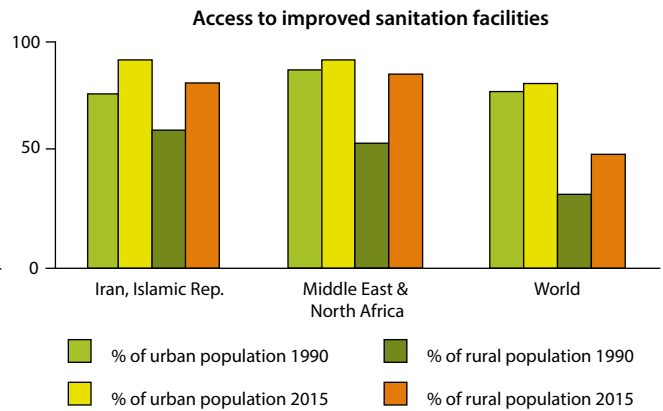
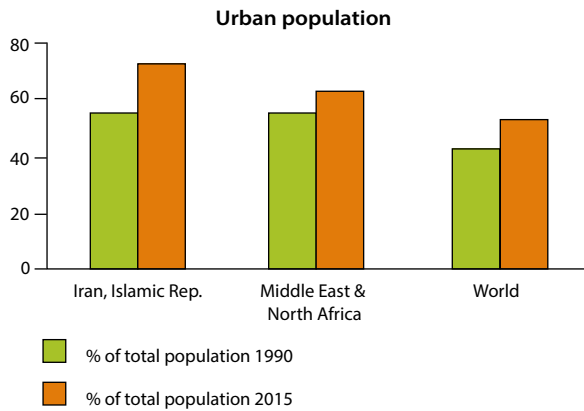
The quantitative analysis of sustainable development indicators is a guide for managers and planners at the national as well as local levels to achieve the Sustainable Development Goals (SDGs) and the implementation of New Urban Agenda. A comparative study indicates the status of Iran in the world from a sustainability point of view. The following indicators have been considered for comparing Iran's position in the Middle East and the world: urban population,

global goals promoting sustainability, access to sustainable energy and growth of GDP.

The information was compiled from officially recognised international sources presented by the World Bank with the most current and accurate global development data and includes national, regional and global estimations.

2

Urbanisation and Sustainability



Source: Raheb, Mirmoghtadaee, Rafiee; Worldbank 2017 [retrieved on 22.05.2017].

Rapid urbanisation in Iran and environmental consequences

Although cities cover only 2 % of the Earth, they are home to about 50 % of the world population, consume one-third of the total energy supply and are responsible for 80 % of greenhouse gas emissions. Against this logic, it is clear that rapid urbanisation and the fast growth of urban areas would affect a country's share in climate change.

Iran's demographic and socio-economic situation has drastically changed during the last decades. Once being an agriculture-based society with the majority of population residing in rural areas, Iran changed to become a more urbanised country during the last decades of the 20th century, with a shift from agriculture to the market economy and the resulting creation of a modern but oil-dependent urban sector.

A review on the urbanisation trends of the country shows the apparent increase in the population of Iranian cities during the last 20 years. The following graphics illustrate a gradual increase in the number of cities and the population of urban areas.

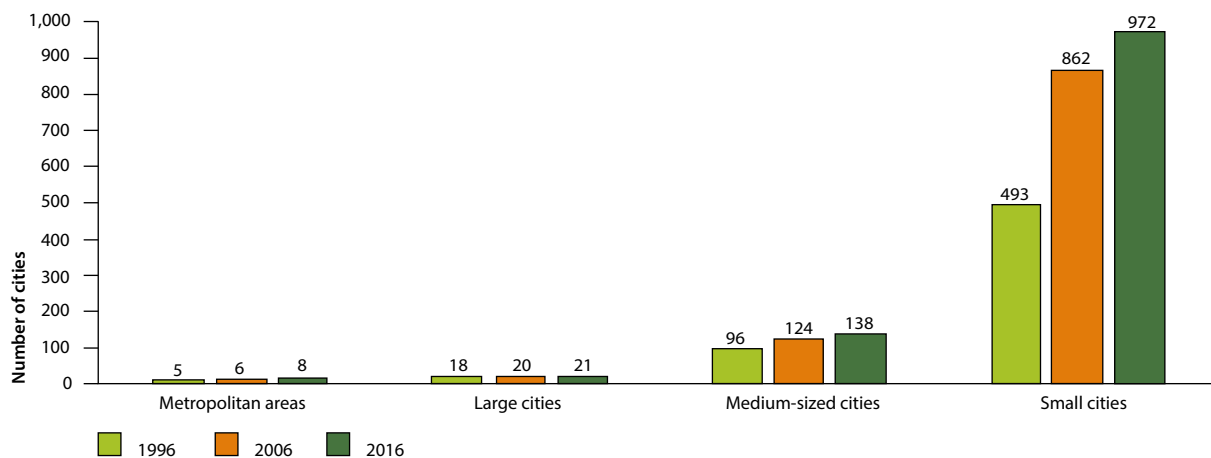
Air pollution and environmental degradation are serious problems in metropolitan areas and are considered the main reason for cardiovascular diseases and deaths in large cities. This is the consequence of rapid urbanisation with serious side-effects on people's living conditions. According to Abbaspour/Soltaninejad (2004) "The vehicle fleet

and motorisation, with a large number of old and poorly maintained vehicles as well as growing domestic vehicles are responsible for much of the recognised pollutants discharged to the atmosphere in metropolitan areas of Tehran. The transportation-related pollutants are carbon monoxide (CO), reactive and non-reactive hydrocarbons, nitrogen oxides, (NOx) sulfur oxides (Sox), and lead (pb)". The annual report of the "Air Quality Control Company" of Tehran also indicates that mobile sources of air pollution, such as private cars, shared taxis, motorcycles, vans, trucks, buses and minibuses, are responsible for 85 % of the annual air pollution (AQCC 2015). Each year – due to severe air pollution which causes serious health risk for the inhabitants – there are several days off, in which kindergartens, schools, factories and even state offices are closed. This unexpected situation has serious economic consequences, especially in Tehran, which is responsible for more than 70 % of the economic turnover of the country (Eghtesadonline 2016).

World Health Organisation data show that cardiovascular diseases are the most important cause for health factors such as "the sum of years of life lost due to premature mortality" (YLL) and "years of healthy life lost due to disability" (YLD) in Iran. According to the same data, "ischaemic heart diseases" were the leading cause of death, killing 97.7 thousand people in 2012 (WHO 2012).

3

Changing trend of the number of cities classified by population in Iran over twenty years (1996–2016)



Source: MRUD 2016

Iran's missions towards decreasing greenhouse gas emissions

Iran joined the United Nations Framework Convention on Climate Change (UNFCCC) on 18th July 1996 and consequently established the National Climate Change Office (NCCO) in the Department of the Environment of Iran in 1998. On 22nd August 2005, Iran joined the Kyoto Protocol. The government passed national rules for the implementation of the UNFCCC Plan and the Kyoto Protocol in 2009 and revised it in 2012.

Accordingly, national policies in decreasing greenhouse gas emissions are divided into two parts (MRUD 2016):

- National plans which are funded by the governmental budget aiming at a 30 % decrease until 2025
- International funding and technical support aiming at a 34 % decrease until 2025 under supervision of UNFCCC

Also, as renewable energies do not have a noticeable share in Iran's energy supply (only 1% in 2013), the government identified some national activities for promoting the renewable energy production in collaboration with the private sector (SATBA 2017).

A critical overview of the New Urban Agenda

A review of the current urbanisation trends of Iran and its consequences such as environmental degradation and climate change, added by the country's commitment to international protocols and summits on climate change, indicates the necessity of radical changes in urban planning and management. The New Urban Agenda has been provided to support planning concepts and instruments for addressing the situation. To discuss its potentials for dealing with the specific problems of Iran, a brief overview of the content and main topics of the document will be provided here.

The first Habitat Conference was held in Vancouver (Canada) in 1976, and Habitat II followed 20 years later in 1996 in Istanbul (Turkey). The New Urban Agenda has been adopted at the United Nations Conference on Housing and Sustainable Urban Development, known as Habitat III, which has been held in Quito (Ecuador) from 17–20th October 2016. The bi-decennial format allows for the long-range implementation and impact of the conferences to be unfolded and assessed in a realistic timeframe (timeframe (Habitat III 2016a).

The New Urban Agenda has been developed to implement sustainable urban development at the global, regional, national, sub-national and local levels, with the participation of all relevant actors. It also contributes to the implementation and localisation of the 2030 Agenda for Sustainable Development, and to the achievement of Sustainable Development Goals (SDGs), including Goal 11 of making cities and human settlements inclusive, safe, resilient and sustainable.

Three main “transformative commitments for sustainable urban development” have been developed in the New Urban Agenda, which are (Habitat III 2016b):

- sustainable urban development for social inclusion and ending poverty Paragraph No. 25–42)
- sustainable and inclusive urban prosperity and opportunities for all (Principles No. 43–62)
- environmentally sustainable and resilient urban development (Principles No. 63–80)

Achievements and effective implementation of the mentioned goals or commitments would be possible through the following means. The core idea is to use the capacities of urban planning, design, financing, development, governance and management to address the dominant problems, by

- building the urban governance structure: establishing a framework (Principles No. 85–92),
- planning and managing urban spatial development (Principles No. 93–125) and
- means of implementation (Principles No. 126–160).

The last phase of the New Urban Agenda has been introduced as “follow-up and review” (Principles No. 161–169), in which periodic revisions and the monitoring of the implementation process and its impacts have been planned.

According to the New Urban Agenda, environmental degradation is among the major obstacles for sustainable development worldwide. It also considers the protection, conservation, restoration and promotion of ecosystems, water, natural habitats and biodiversity, minimisation of environmental impacts and the change to sustainable consumption and production patterns.

A brief overview of the above-mentioned means highlights the importance of “good urban governance”, “participatory policies” and “integrated planning”. Urban design and planning is the focal point, as discussed in Principle No. 100. The role of sub-national and local governments has also been acknowledged as key players in addition to national governments. In other words, the commitments could be achieved through a bottom-up practice, started by the public and supported and followed up by the local and national governments as well as local organisations, institutions and stakeholders. The role of new technologies in improving the human existence has also been considered in the New Urban Agenda, and the so-called smart city has been mentioned as a means to achieve the goals.

It can be concluded here that urban planning is the main instrument to achieve the goals represented by the New Urban Agenda (NUA). The following major challenges have been introduced by the Iranian Minister, Dr. Akhoondi (2016) in the Third United Nations Conference on Housing and Sustainable Urban Development Habitat III.

How to achieve the goals of the NUA

- adoption of “national urban policies” by the government to ensure a coordinated approach to planning and managing cities and towns
- paying attention to “quality of life” as the centre of the efforts to develop sustainable human settlements
- regeneration of the national identity to increase the “sense of belonging” among our citizens
- implementing integrated land use transportation policy
- development and expansion of urban railroad networks to support “urban mobility”
- regular “monitoring” and its “periodical revision” of all adopted development plans
- giving high priority to “local economic development strategies” in preparing master plans for cities

Rules towards sustainability in Iranian development plans

The 50th Principle of the Constitutional Law of Iran states: „Environmental conservation is a public duty“ (IPRC 2017); in continuing it is stated that „Economic activities and others which involve polluting or irreparable damage to the environment are prohibited“ (ibid).

To support sustainability in development plans, several laws, rules and regulations have been provided on different scales. Since Habitat II, four five-year development plans have been prepared and implemented in Iran. It is expected that the rules constitute frameworks for development activities in conserving the environment, decreasing pollution, fostering desirable settlements as well as social and economic sustainability. Taking into account the outlines mentioned, some main indicators have been considered in the development plans of Iran, particularly in densely populated cities. Implementing these ideas will be carried out in harmony between policy makers and executors. As follows, some of the most important rules related are:

- **Sustainable development in the environmental major policies**
(imparted by the Supreme Leader on 17 November 2015)

The Sustainable Development Goals of the United Nations (a 15-year programme covering the period from 2015 to 2030) comprises 17 goals, amongst them goal 11 paying special attention to communities and sustainable cities. This goal sets targets for countries in order to achieve sustainable urban development, also laying the foundation of the New Urban Agenda. In the major policies there are different clauses which support SDG 11. The main important issues discussed are: enhancement of living conditions, punishment of environmental destructors, monitoring and controlling the quality of natural resources, tackling environmental hazards and development of green transportation policies.

- **Sixth economic, social and cultural programme (2017–2021)**

The sixth development programme of the 5-year planning system of the Iran (2017–2021) is the latest plan for leading the country over the next five years. This programme has been compiled and is approved by the time of writing this article, in the form of twenty sections and 144 articles. Part XI of this Act with 15 provisions is dedicated to the Transport and Housing Programme covering the next 5 years. The

major issues discussed in the programme are: Urban regeneration, promotion of regional passenger rail transportation system, improving the living quality of marginalised people, restoration of the cultural and natural heritage, waste management and recycling and upgrading rural housing.

■ 20-year perspective in 2025

This document underlines the necessity of promoting favourable environments in line with other outlines.

■ Major policies of country planning 2011 (imparted in February 2011)

This document constitutes of the following crucial elements:

B-1: Due attention to the national and land integrity and intensifying Iranian-Islamic identity and the management of land by the effective use of locations, historical heritage and cultural and natural attractions in the country in line with

development objectives, improving tourism and conservation of historical records;

V-5: Prevention of uncontrolled immigration to the centres of the provinces;

Z-5: Selecting some capable metropolitan regions, harbours and islands and equipping them with high-tech communication and information services in order to attain higher-level roles.

■ Major imparted policies in urban planning (imparted in 18 February 2011)

Here, physical aspects of cities in horizontally or vertically oriented development are defined with an emphasis on Iranian-Islamic identity and observation of cultural, social, economic, security, neighbours' rights, infrastructure facilities, climatic and environmental aspects.

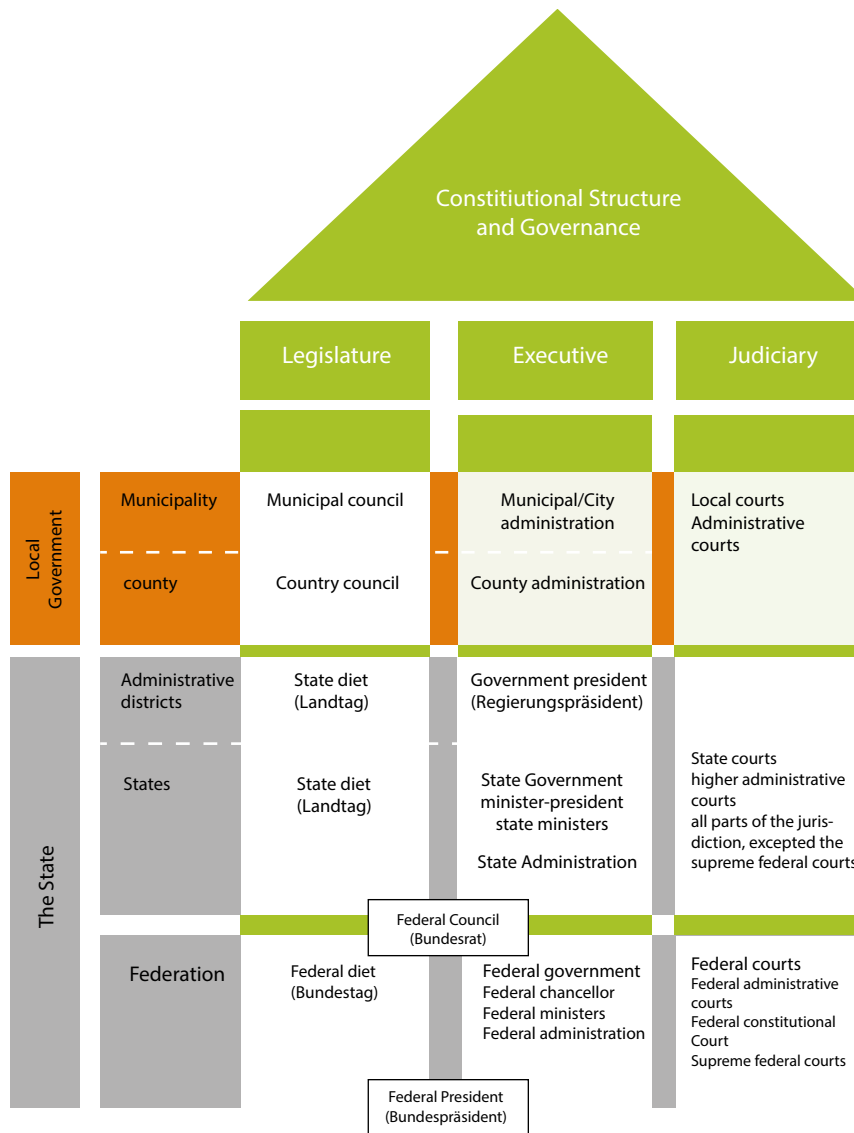
The role of the Iranian-German Partnership in achieving the goals of the New Urban Agenda

A review on the approved policies and planning instruments available in Iran proves the country's commitment to environmental conservation. However, it seems clear enough that international cooperation and support from other countries would enhance the possibility of implementing the New Urban Agenda in Iran. Germany and Iran rely on a long history of cooperation. During the last decade, the two countries started joint research projects with the focus on sustainable and resource-efficient urban planning and development. Considering the prominent and successful achievements of Germany in fulfilling the goals of environmentally sound development, mutual learning could be a goal for the Iranian planning system. However, as urban planning is a locally developed system originating from national rules, regulations and the political system, it seems neither practical nor even realistic to simply copy what other countries are carrying out and expect the same outcomes. For a wise and realistic cooperation, it is necessary first to review each country's capacities. In the following, the planning system and instruments of both countries together with their experiences to achieve sustainable urban planning will be reviewed.

Comparative study of the planning systems and instruments

The basic legislative system of **Germany** and the essentials of democracy have been defined at three levels, namely the federal, state and local governments.

At the federal level, the Federal Parliament (Bundestag) is in executive power. State Parliaments (Landesparlamente), county councils (Kreistage), city councils (Stadträte) and municipal councils (Gemeinderäte) are also in executive power but limited to states (Länder), cities, towns and urban areas respectively and undertake responsibilities in these areas. The federal structure of the state comprising the three levels of federal, state and local governments is decisive for the system of planning in Germany. Spatial planning in Germany is decentralised in its agenda accordingly. The distribution of competences and functions between the three levels of government produces a system with legally, organisationally, and substantially differentiated planning levels (Schayan/Giehle 2010).



Source: Pahl-Weber/Henckel 2008

State spatial planning gains its concrete structure and form from federal principles of spatial planning, while at the local area, objectives are developed in compliance with both state and federal planning specifications. At the local level, it is the responsibility of local authorities to regulate the use of land for buildings and other purposes.

Planning is therefore decentralised in Germany, and the most important documents are provided on the scale of

states and municipalities. Generally, planning is performed at three levels including the Federal Government, governing mayors and municipalities. The most important instruments of urban planning are land-use plans which are provided as legal documents by the municipalities, being reviewed periodically every fifteen years. Local development plans as detailed plans are prepared by the municipalities and include three-dimensional information. These plans are updated in case of any changes or requirements.

5

Local level planning system in Germany

Planning level	Planning instruments	Content of plan	Legal basis	Policy maker	Legal impact	scale
local authority	Binding land use plan	Arrangement for urban development and order in the form of legally binding designations for specific parts of the municipal territory	Federal Building Code in connection with Land Utilisation Ordinance and Plan Notation Ordinance	Municipal council	Legal by binding for everyone, legal basis for building projects and issuing building permits	~ 1:500 1:1,000
	Preparatory land use plan	Represents in basic form the type of land uses envisaged for the entire municipal territory in accordance with the intended urban development	Federal Building Code in connection with Land Utilisation Ordinance and Plan Notation Ordinance	Municipal council	Binding effects for all planning authorities	~ 1:10,000

Source: Pahl-Weber/Henckel 2008

“The comprehensive planning system in Germany is composed of formal and informal plans: The Federal Building Code (Baugesetzbuch – BauGB) is designated to create legally binding (formal) instruments” (Bialk/Kurth 2013: 4). Two important formal planning instruments for controlling urban development on the local level in Germany are the „binding land use plan” (Bebauungsplan) and the „preparatory land use plan” (Flächennutzungsplan) (see figure 5). A binding land use plan is defined as a document that “lays down legally binding rules for the development and organisation of sections of the municipal territory. It is developed on the basis of the preparatory land use plan, but unlike that latter, it creates direct rights and duties with regard to the utilisation of the sites within its preview...” (Pahl-Weber/Henckel 2008: 163).

Accordingly, preparatory land use plans are defined as documents to “represent in basic form the types of land uses envisaged for the entire municipal territory in accordance with the intended urban development which is proposed to correspond to the anticipated needs of the municipality” (ibid). Apart from formal planning tools which are legally binding documents, the German planning system also includes supplementary and informal documents which are used to prepare alternative planning and are to be taken into account in preparing formal plans.

The urban planning system of **Iran** is characterised by a centralised structure in which decision-making and planning is based on a hierarchical process limiting subordinated bodies and local authorities in independent decision-making. General policies of the system are commonly based on

programmes and national plans such as the Vision 20 Document and Five-Year Plans for Economic-Social Development (being prepared and proclaimed by Management and Planning Organisations).

In this centralised planning system, different institutions are responsible for preparing and executing planning documents. The planning system is considered to be a “sector-centralised model, where organisations and agencies on different planning levels are vertically linked” (Pahl-Weber/Wolpert 2014: 39).

While the formulation of building rules and regulations together with planning processes (policy-making, supervision, preparation of development plans and budgeting) is the responsibility of the Ministry of Road and Urban Development and its Supreme Council of Architecture and Urban Development, municipalities take the role of applying the formal documents provided by the Ministry with limited legal power to influence the planning process of the cities. Most important planning instruments on the local level are “detailed plans” and “comprehensive plans”. According to the definitions, “The comprehensive (master) plan which is prepared for the cities with a population of more than 25,000 people is a long-term physical plan. (...) upon approval of the comprehensive plan, a detailed plan must be prepared for medium and large-scale cities based on the comprehensive plan. The detailed plan determines the detailed land use allocations and requirements, exact physical condition of street networks and detailed population density in city parcels” (Rasoolimanesh et al. 2013: 223).

Role of sustainability in planning instruments

It is not exaggerated to claim that environmental concerns are the heart of any decision-making in **Germany**. However, with the enactment of the country's new energy concept, the role of energy and climate change in the planning system has gained more priority. As a part of the *Energiewende* (energy transition) in Germany, development planning needs a strategic energy concept at the local level. Due to its decentralised planning system and self-governance of local authorities, different cities have developed different climate-related strategies: "In Leipzig, for example, it is called Integrated Energy and Climate Action Plan, and in Munich Ecology Guideline – Part: Climate Change and Protection" (Bialk/Kurth 2013: 3). Informal tools in Germany's planning system could be used as the main instruments to include climatic issues in planning documents. "Climate zoning plans" are informal and sectorial plans which bundle all sustainability actions to improve the city's liveability and its resilience to climate change. The decentralised planning system in Germany enables municipalities to take a key role in energy governance. They possess "the right to regulate all local affairs on their own responsibility, within the limits prescribed by the laws" (Schönberger 2013: 10). This self-government provides the ability to plan according to the local situation, and as climate and energy should be handled locally, this is one of the main reasons for their relative success.

Iran is a country with a centralised and sectorial planning system, in which local governments are mostly responsible for executing urban development plans, though forced to perform on low rights in decision-making, preparing plans, supervising plan preparation, approval, review and amendment (Jasbi 2012). A review of the planning system of Germany indicated two important factors which affect

the relative success of sustainable planning in the country. One is the development of a national energy master plan which harmonises all activities throughout the country, and the other one is the power and willingness of local authorities to prepare and realise energy efficiency and sustainable planning. In Iran, urban planning documents on the local level have been developed according to standardised instructions which are valid for the whole country. This uniform content neither offers any room for various geographical and climatic zones of the country nor any capacity for including energy and climatic considerations (Barakpour/Mosannenzadeh 2012). At the same time, informal planning tools which work like supporting documents to include new themes (like energy and climate) do not exist in the Iranian planning system.

Discussion

Cities as the main consumers of natural resources take an important role in optimising natural resource consumption and sustainability. Germany and Iran have their individual planning systems and national policies to deal with environmental issues. Mutual learning and comparative planning studies would be useful for the empowerment of nations in general. The article indicates that the preparation of a National Energy Master Plan to create consistency between organisations associated with energy and sustainability topics is one of the reasons for efficient energy planning in Germany. Also, the insufficiency of urban regulations and documents related to sustainability and the limitation of public participation in the form of private organisations and NGOs in the specialised scope and the urban planning level can be the most important factors in the insufficiency of planning in this field (Mirmoghtadaee et.al. 2017).

Conclusion

Sustainable development would be achieved during all steps of development planning including strategies, implementation and monitoring. Paying due attention to cities as "social organisations" should be considered as the fundamental policy for national development planning – also in promoting the economic role of cities in national development. In addition, in all planning steps, global environmental challenges such as climate change, unsustainable energy

consumption and the risk of disasters should be considered. Development plans should be provided on the national and local scales.

In this respect, the most important outlines for proposing a strategy framework regarding sustainable development planning would be as follows:

Sustainable planning strategies

National scale

- Promote the use of spatial planning as a facilitating and flexible mechanism rather than as a rigid blueprint.
- Raise public awareness and strengthen public capacities based on the concept of urban and territorial planning.
- Establish and maintain information databases, cadasters/ registers and mapping systems on population, land, environmental resources, infrastructure, services and related needs, as a basis for preparing and revising spatial plans and regulations.
- Put in place general phasing, updating, monitoring and evaluation systems applicable to urban and territorial plans, possibly through legislative actions. Performance indicators and stakeholder participation should be an essential part of those systems.
- Support the development of planning agencies that are properly structured, adequately resourced and undergoing continuous skills development.

- Establish effective financial and fiscal frameworks in support of urban and territorial planning implementation at the local level.

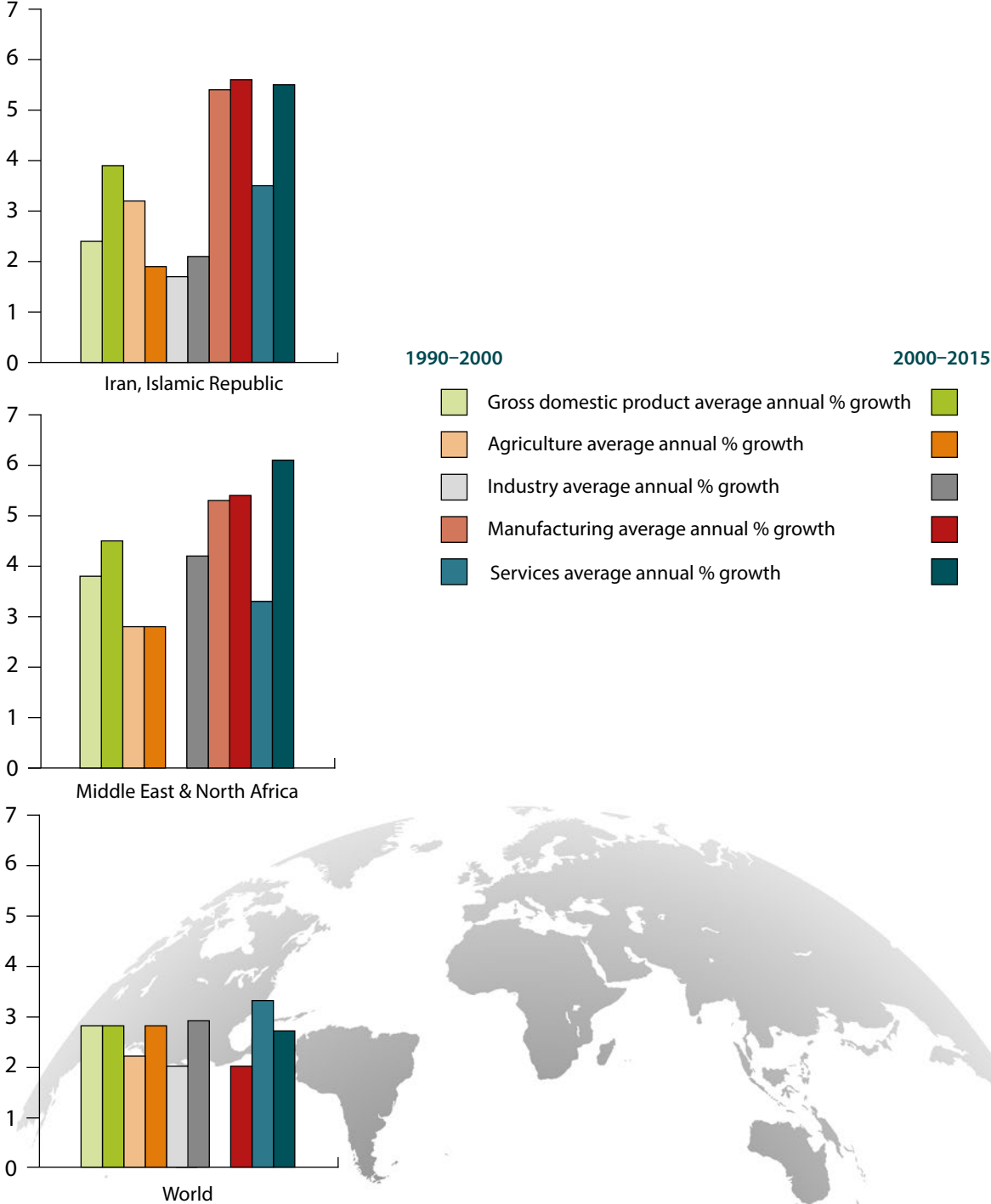
Local scale

- Develop a shared strategic spatial vision (supported by adequate maps) and a set of consensual objectives, reflecting a clear political will.
- Elaborate and articulate urban and territorial plans that include multiple spatial components.
- Set up institutional arrangements, participation and partnership frameworks and stakeholder agreements.
- Create a knowledge base to inform the urban and territorial planning process and to allow the rigorous monitoring and evaluation of proposals, plans and outcomes.
- Design a human resource development strategy to strengthen local capacities to be supported by other spheres of government, as appropriate.

Literature

- Abbaspour**, Majid; Soltaninejad, Ahmad, 2004: Design of an environmental assessment model on the effect of vehicle emission in greater Tehran on air pollution with economic sensitivity. *International Journal of Environment Science and Technology*, 1(1): 27–38.
- Akhoondi**, Abbas, 2016: Third United Nations Conference on Housing and Sustainable Urban Development (Habitat III). Accessed: <http://www.news.mrud.ir/news/29371> [retrieved on 22.05.2017].
- AQCC** – Air quality control company, 2015: Annual report of Tehran air quality in 2014. Nashr-e Shahr Publication. Accessed: <http://air.tehran.ir/portals/0/ReportFiles/AirPollution/New/25.pdf> [retrieved on 22.05.2017].
- Barakpour**, Naser; Mosannenzadeh, Farnaz, 2012: Comparative study on energy efficiency policies in the area of land use planning in Iran and England. *Urban studies*, Volume 1, Issue 1: 41-60.
- BHRC** – Road, Housing and Urban Development Research Center, 1993: Climate zonation map in Iran.
- BHRC** – Road, Housing and Urban Development Research Center, 2012: Height dispersion in Iran.
- Bialk**, Sylvia; Kurth, Detlef, 2013: Climate zoning planning for resilient cities, integration of climatic action plans in Germany's urban planning system. Conference proceedings of the AESOP-ACSP joint Congress. 15–19 July, Dublin, Ireland.
- Eghtesadonline**, 2016: Loss of economic turnover due to air pollution. Accessed: <http://www.eghtesadonline.com/fa/content/> [retrieved on 22.05.2017].
- Habitat III**, 2016a: The new urban agenda explainer. Accessed: http://unhabitat.org/wp-content/uploads/2016/11/New-Urban-Agenda-Explainer_Final.pdf [retrieved 22.05.2017].
- Habitat III**, 2016b: United Nations Conference on Housing and Sustainable Urban Development (Habitat III). Quito, 17–20 October 2016. Accessed: <http://habitat3.org/wp-content/uploads/N1639668-English.pdf> [retrieved on 22.05.2017].
- IPRC** – Islamic Parliament of the Islamic Republic of Iran, 2017: 20-year perspective in 2025 of Iran. Accessed: <http://rc.majlis.ir/fa/law> [retrieved on 22.05.2017].
- IPRC** – Islamic Parliament of the Islamic Republic of Iran, 2015: Iran sustainable development in the Environment Major policies (imparted by Supreme Leader on 17 November 2015). Accessed: <http://rc.majlis.ir/fa/law> [retrieved on 22.05.2017].
- IPRC** – Islamic Parliament Research Center Of The Islamic Republic Of Iran, 2011: Iran Major policies of the country planning. Accessed: <http://rc.majlis.ir/fa/law> [retrieved on 22.05.2017].
- IPRC** – Islamic Parliament Research Center Of The Islamic Republic Of Iran, 1989: The Constitution of the Islamic Republic of Iran. Accessed: <http://rc.majlis.ir/fa/law> [retrieved on 22.05.2017].
- Iran Meteorological Organization**, 2017. Accessed: <http://www.irimo.ir> [retrieved on 22.05.2017].
- Jasbi**, Ghazaleh, 2012: Urban governance and contribution of climate change consideration and energy efficiency: case study of Hashtgerd New Town, Iran, Proceedings of REAL CORP 2012, 14–16 May.
- MRUD** – Ministry of Road and Urban Development, 2016: Iran National Report for Third United Nations Conference on Housing and Sustainable Urban Development (Habitat III).
- MRUD** – Ministry of Roads and Urban Development, 2011: Iran Major imparted policies in urban planning. Accessed: www.mrud.ir [retrieved on 22.05.2017].
- Mirmoghadaee**, Mahta; Mousavian, Seyed Mohammad Farid; Gomarian, Payman, 2017: A comparative study on the role of energy efficiency in urban planning system of Iran and Germany. *Bagh-e Nazar*, Vol. 13, No. 43.
- MPORG**, 2017: Iran Sixth economic, social and cultural program (2017–2021). Accessed: <http://www.mporg.ir/portal> [retrieved on 22.05.2017].
- Pahl-Weber**, Elke; Henckel, Dietrich, 2008: The Planning System and Planning Terms in Germany A Glossary. ARL, Germany.
- Pahl-Weber**, Elke; Wolpert, Annette, 2014: Tehran-Karaj: Rapid urbanization, in: *Space, planning and design (future megacities- book 5)*, Elke Pahl-Weber and Frank Schwartze (eds.), Jovis, Germany.
- Rasoolimanesh**, Mostafa; Jaafar, Mastura; Badarulzaman, Nurwati, 2013: Urban Planning and Management System in Iran: A Review and Assessment, School of Housing, Building, Planning Universiti Sains Malaysia, 11800, Penang, Pulau Pinang, Malaysia.
- Rosenzweig**, Cynthia and others, 2008: Attributing physical and biological impacts to anthropogenic climate change, *Nature*, Vol. 453: 353–358.
- SATBA** – Renewable Energy and Energy Efficiency Organization, 2017. Accessed: <http://www.suna.org.ir> [retrieved on 22.05.2017].
- Schayan**, Janet; Giehle, Sabine, 2010: Facts about Germany. Societäts Verlag, Frankfurt/Main, Germany.
- Schönberger**, Philipp, 2013: Municipalities as key actors of German renewable energy governance: An analysis of opportunities, obstacles, and multi-level influence, Wuppertal Institute für Klima, Umwelt, Energie GmbH, Germany.
- Wesleyan University and Columbia University**, 2006: Accessed: <http://ciesin.columbia.edu/data/climate/> [retrieved on 22.05.2017].
- World Bank Data**, 2017: Accessed: www.worldbank.org [retrieved on 22.05.2017].
- WHO** – World Health Organization, 2012: Iran (Islamic Republic of): WHO statistical profile. Accessed: <http://www.who.int/countries/irn/en/> [retrieved on 22.05.2017].

Growth of output



Source: Raheb, Mirmoghtadaee, Rafie; Worldbank 2017 [retrieved on 22.05.2017]; Design: Marion Kickartz, Background graphic: © cunico / Fotolia