Report on documentation and evaluation of Urban HEART pilot in Tehran, Islamic Republic of Iran

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1.   Introduction

1.1   Background to health and health inequities in Iran

Equity in health is defined as the absence of systematic disparities in health or in the major social determinants of health amongst different social groups. Inequities in health systematically put groups of people who are already socially disadvantaged (for example poor people, females and members of ethnic or religious groups) in an even worse position with respect to their health (*1*). Differences in health that are systematic and socially induced are *unfair*; they are modifiable and can be regarded as inequities in health (*2*). Due to systematic differences in pattern of health within a society and across different socioeconomic groups, differences in health status are not distributed randomly (*3*).

The Islamic Republic of Iran[1] has a middle-income economy and is one of the most populated countries in the region, with a population of about 70 million. Iran is a multi-ethnic and multicultural country with a rich heritage in different subgroups of its population. Half of the country's population consists of Persian-speaking Iranians, while Azerbaijanis account for at least 25%. Other major ethnic groups include Kurds, Lors, Bakhtiaris, Baluchis, Arabs and Armenians (*4*).

The health and demographic profile of Iran is in transition (see country profile in section 2.2). However, in recent decades, the country has witnessed great progress in the development of its health sector. Following the Islamic Revolution in 1979, more investments in public health led to improved access to health services in the country. This was combined with the development of a basic but robust rural primary health care network (*3*). A World Bank report of 2007 showed a significant improvement in a number of health indicators, including life expectancy, infant mortality rate, under-5 mortality rate, family planning programme coverage and malnutrition rates in the Iranian population. Provision of care faces the challenge of a rapid increase in the rate of urbanization in the country in the last three decades. Less than half of the population lived in urban areas in 1980, but this has increased to around 70% (table 1).

Table 1. Trends in urban and rural population distribution (%)

Year	Urban	Rural
1980	49	51
1996	62	38
1998	63	37
2000	64	36
2002	67	33
2005	67	33

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[1] Henceforth referred to as "Iran".

Table 2 shows data for a number of demographic indicators for urban and rural areas and for males and females.

Table 2. Demographic indicators by urban/rural and by sex

Indicators	Urban	Rural	Male	Female
Crude birth rate	15.2	18.2	17.3	16.7
Crude death rate	5.0	5.0	5.6	4.3
Population growth rate	11.1	14.5	11.7	10.4
Dependency ratio	54.3	73.0	61.5	58.9
% population < 15 years	30.1	35.9	32.4	31.8
Total fertility rate	1.8	2.4	–	2.0

Source: Iranian Ministry of Health and Medical Education.

Based on current estimations, Iran demographic profile is experiencing a change from a relatively young to a more ageing structure, and will become similar to a developed country's profile in the coming two decades (figure 1). This changing population structure is expected to change the epidemiological profile and the burden of disease in the country (*3*).

Figure 1. Iran population pyramids, 2005 and 2025 (projected)
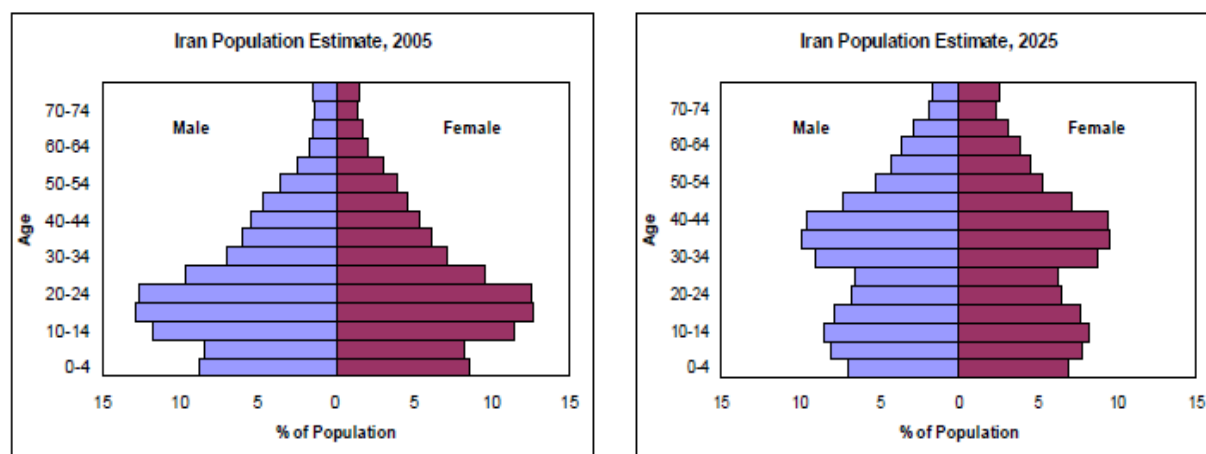
Based on the information provided by the Statistical Centre of Iran, provincial mortality and fertility are strongly related to the level of socioeconomic development in different provinces. Thus, provinces have been grouped into five regions based on their mortality (particularly child mortality) and fertility rates (figure 2). Region 1 includes provinces with the lowest levels of mortality and fertility, and region 5 consists of provinces with the highest mortality and fertility levels. Classification of Iranian provinces in figure 3 is based on socioeconomic status (literacy rate and gross domestic product per capita). These figures illustrate the association between health and socioeconomic status and the disparities that exist between

subpopulations within the country, which are particularly evident in southern Iran and among the provinces.

Figure 2. Classification of Iranian provinces by mortality and fertility
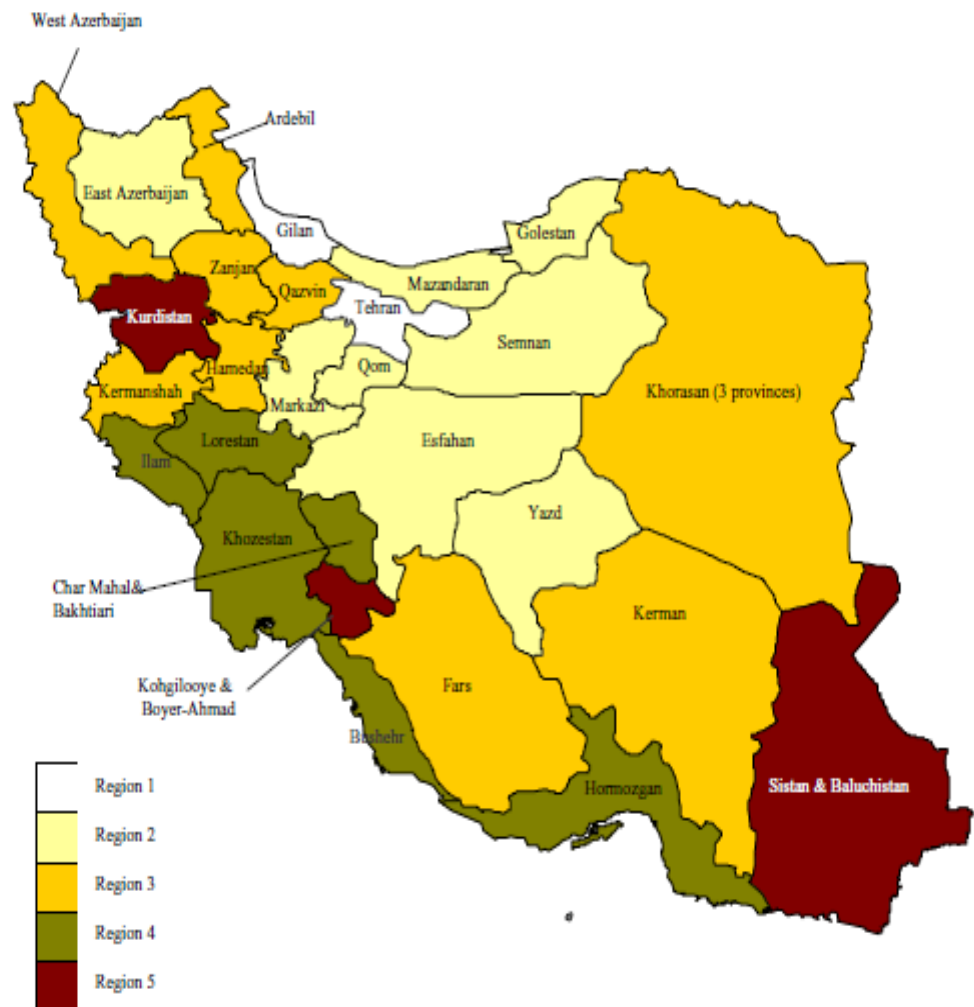
Source: Statistical Centre of Iran, 2000.

Figure 3. Modified classification of Iranian provinces based on socioeconomic status (GDP/capita and % literacy)

West Azerbaijan
Ardebil
East Azerbaijan
Gilan
Golestan
Zanjan
Qazvin
Mazandaran
Kurdistan
Tehran
Semnan
Hamedan
Qom
Kermanshah
Markazi
Khorasan (3 provinces)
Lorestan
Ilam
Esfahan
Khozestan
Yazd
Char Mahal & Bakhtiari
Kerman
Kohgilooye & Boyer-Ahmad
Fars
Bushehr
Hormozgan
Sistan & Baluchistan

Region 1
Region 2
Region 3
Region 4
Region 5
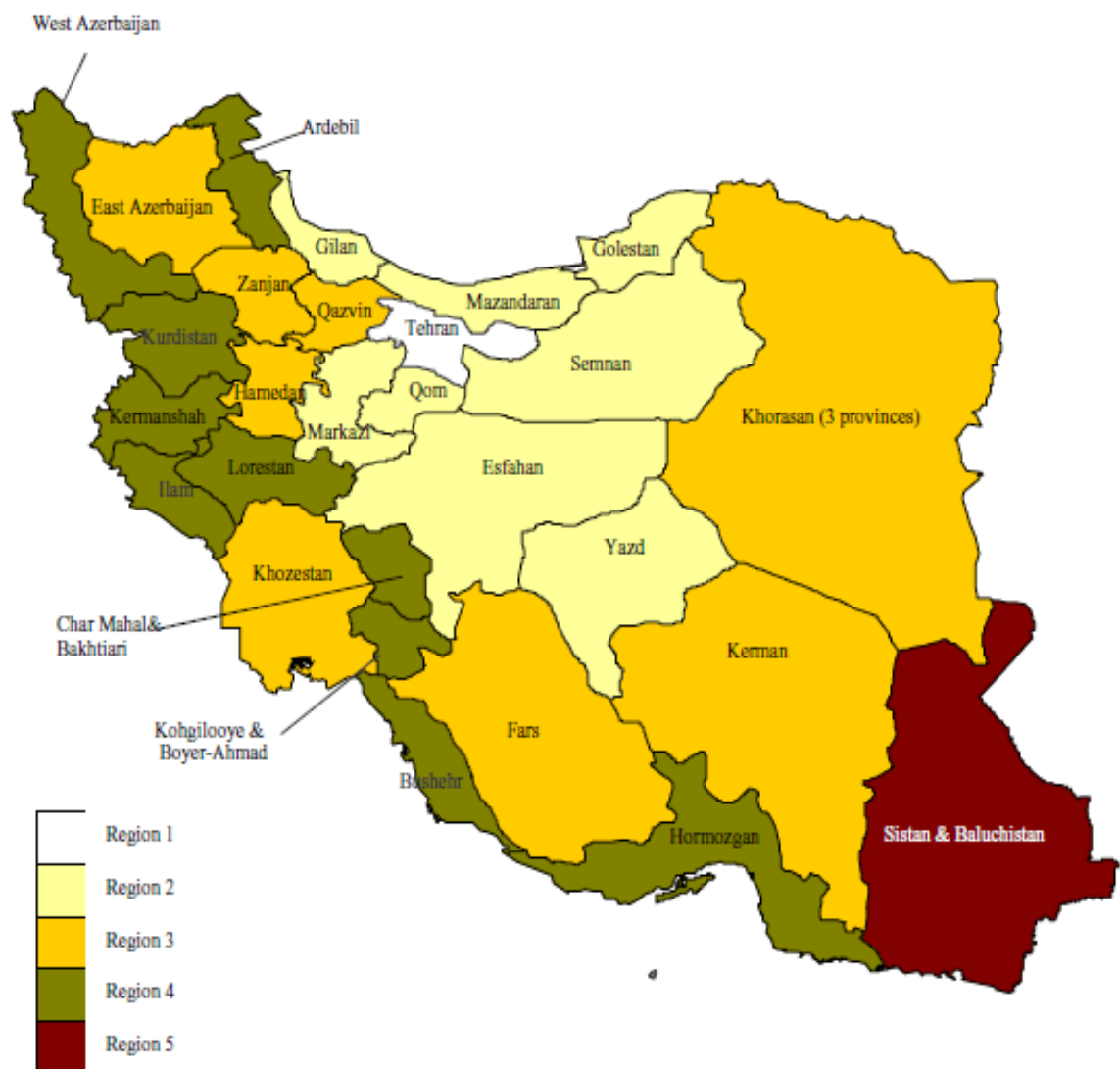
In order to improve health equity, the Iranian authorities have become increasingly concerned with health inequities and social determinants of health based on geographical, economic, cultural, population density and rural-urban differences. Iran, which is represented on the Commission on Social Determinants of Health by Mr Seyed Alireza Marandi, former Minister of Health, has taken major steps to focus on the use of scientific evidence on social determinants of health and health equity in the formulation of national policies (*5*).

Results of health studies and statistical surveys reveal the existence of systematic differences and inequalities in health not only between different countries but also across socioeconomic groups in a country or city (*2*). Tehran's population increased 15-fold from 210 000 in 1931 to more than 12 million 1n 2011. The share of Tehran's population of the entire population of

Iran has also increased from 2% in 1931 to 15% in 2011. This is mostly the result of migration from deprived rural and urban areas to the capital city in search of better living conditions (*6*).

In sum, Tehran houses diverse ethnic and linguistics groups from all over the country. The municipal authorities in Tehran are committed to work hard to utilize several mechanisms to make the capital an equitable metropolitan city in 20 years time through facilitating the proactive participation of its population to make the city a sustainable place for living (*6*).

1.2   Evaluation of Iran's experience in Urban HEART pilot in Tehran

Evaluation of an implemented project can help managers and policy-makers have a common understanding of the project's outputs and provide them with an actual experience to enable improved performance in future regarding programme design, management control, resource allocation, capacity building, organizational learning and stakeholder management. A valid evaluation can also help to redefine goals and objectives, initiate new activities, support and reinforce existing ones, close down certain activities, adopt other means and technical solutions or new strategies, decide on organizational development, and change the numbers or training of staff, methods of supervision and means of decision-making (*7*). Evaluation can be performed internally or externally: self or internal evaluation is performed by partner members, preferably those who are directly involved in a project; external evaluation is performed by experts who have not had any role or defined task in the project.

If these two types of evaluation give different results, then clarification is required. External evaluation usually illustrates the strengths and weakness of the programme or project and gives rise to suggestions to promote mutual understanding and consensus. External evaluation can also be applicable to legitimize a programme or project for decision-makers or government authorities. External evaluation mostly focuses on lessons learnt from a project for further application in the evaluated programme or project, or in a similar future project (*8*).

The World Health Organization (WHO), as the designer and agreement provider of the Urban Health Equity Assessment and Response Tool (Urban HEART), decided to implement an independent evaluation of Urban HEART (Tehran pilot project) prior to disseminating the results and after fulfilment of the pilot project objectives.

It is expected that the technical documentation and evaluation results, targeted for wide dissemination, will be useful for stakeholders in other urban areas to develop activities based on the management performance in this pilot project, become more familiar with the tool and apply it to decrease health differences, and finally consider lessons learnt in this project about the procedures that should be avoided in other projects. To sum up, the evaluation result will assist project providers to have appropriate performance levels in future experiences (*9*).

2. Urban HEART pilot project in Tehran

2.1 Overview of Urban HEART pilot project in Tehran

Disparities in health status and opportunities within and between countries has become one of the main concerns for the global community in recent decades. Poverty, economic development and health were discussed by the international community at a number of summits, including the United Nations Conference on Environment and Development (Earth Summit), Rio de Janeiro, 1992, and the Copenhagen Social Summit, 1995.

However, achieving agreed targets for social and health equity has proved difficult. At the Millennium Summit in 2000, the international community formulated the Millennium Development Goals (MDGs), an aim of which was to achieve greater equity in a range of parameters. Progress has been made in attaining some, but by no means all, of the targets in the MDGs, and economic and social inequities and associated health inequities are still widespread.

WHO, as an advocate of improved global health, launched the Commission on Social Determinants of Health in March 2005. Nine knowledge networks supported the work of the Commission. The main focus of these networks is on synthesizing knowledge to inform the Commission about opportunities for improved action on social determinants of health. The WHO Centre for Health Development in Kobe, Japan, was selected as the hub of the Knowledge Network on Urban Settings. The Network concentrated on health development issues, with an emphasis on health care delivery and urbanization, health systems, economic and environmental aspects, and assessing health needs for health promotion. At the first meeting of the Knowledge Network on Urban Settings in February 2006, the group reviewed a detailed report on health challenges for the poor and identified 60 topics and issues that were relevant to the synthesis of global knowledge and evidence on social determinants of health in the urban setting (*10*).

The year 2007 was a turning point for urban health. One of the recommendations in the report of the Knowledge Network on Urban Settings was the development of a tool for logical planning on the issue of urban health. Such an evidence-based planning tool would address the concern of policy-makers as to how they can best assess and respond to health inequities within cities. During development of the tool, several international meetings were conducted for diverse target groups who would be the critical focal points in urban health policy-making, with the aim of pilot-testing the tool and learning lessons from different groups (*11*). The results of the pilot tests were collected and ensuing recommendations compiled throughout 2008. Figure 4 illustrates the stages in the development of Urban HEART, and figure 5 shows the general principles of the tool.

Urban HEART is a user-friendly guide for policy- and decision-makers at national and local levels. While the tool may be described as "user-friendly", its application requires a level of competence that exceeds the skills of everyday community members. Specialists with access to databases and community-level sociodemographic information need to be employed to implement Urban HEART.

Figure 4. Stages in the development of Urban HEART
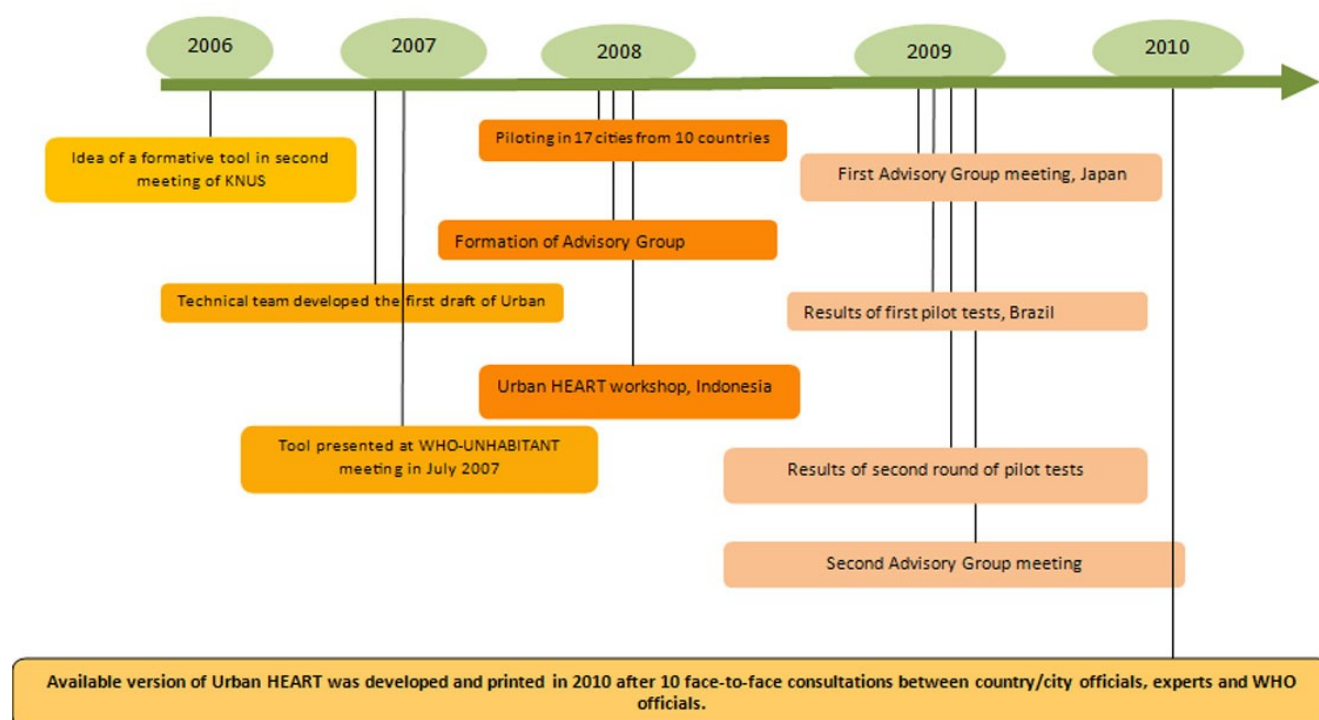
Figure 5. General principles of Urban HEART
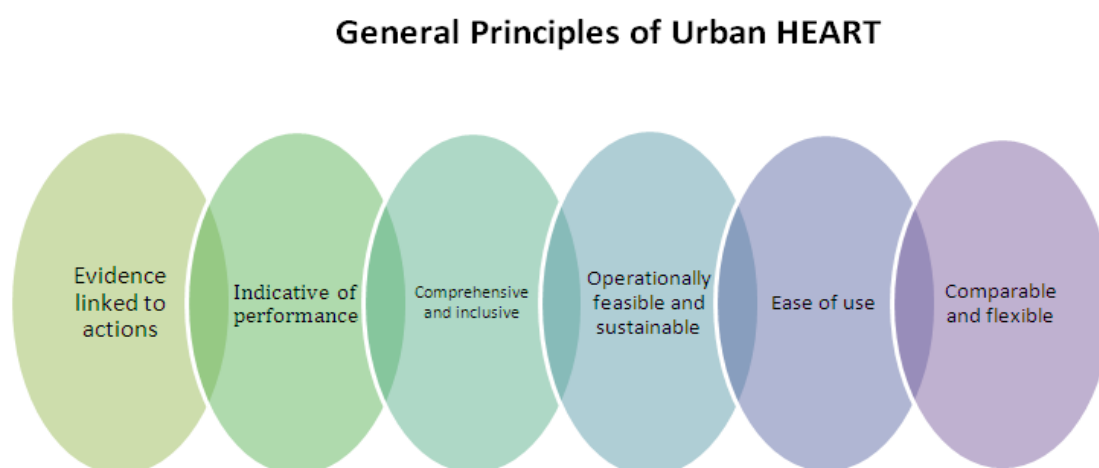
Urban HEART has primarily been used as a planning tool by decision-makers at national and local levels to:

- assess and monitor inequities in urban health outcomes and social determinants of health;

- identify viable and effective actions to optimize urban health and reduce inequities;

- determine priorities and plan for resource allocation.

Urban HEART will be suitable for situational assessment, monitoring and planning for cities, particularly for highly populated cities, in tandem with the local government unit scorecards. The applied scorecards consisted of six domains (physical and infrastructure, human and social development, economic development, governance, health, and nutrition), with a total of 65 indicators to assess equity in health. Officials in Tehran Municipality completed the cards in this pilot work.

Figure 6 shows the key objectives of Urban HEART, and figure 7 gives the components of Urban HEART.

Figure 6. Key objectives of Urban HEART

Figure 7. Components of Urban HEART
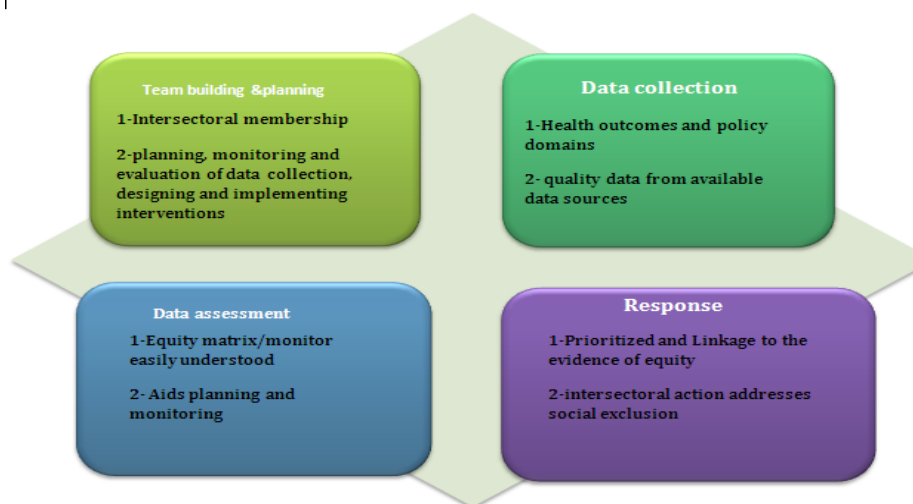
It is important to recognize the core elements that form the basis for successful implementation of Urban HEART. There is no one-size-fits-all prescription to resolve the complex problems faced when attempting to reduce health and social inequities. Any action needs to consider existing ongoing interventions; follow a cyclical rather than a linear process; and engage all local stakeholders.

Three core elements form the basis of Urban HEART implementation (*12*):

- sound evidence (including disaggregation, validation, consistency, representativeness, confidentiality, data security and accessibility, and adjustment methods);
- intersectoral action for health;
- community participation.

WHO suggests that minimal costs may be incurred in getting data resources located within the institutional mechanisms of national and local governments. It also recommends that data should be obtained from existing information systems and regular records and reports to the extent possible.

Among its key characteristics, Urban HEART:

- ensures consistency with local governance processes
- allows the integration of the results of the assessment in the local political debate
- facilitates linkages with other sectors
- ensures better chances of influencing budget allocation
- puts health equity issues at the heart of the local policy-making process.

To ensure feasible, efficient and sustainable application of Urban HEART, it is important that its implementation be integrated into the planning cycle of local governments and authorities, including planning and budgeting exercises. Urban HEART can complement existing social and health initiatives by providing an equity lens. WHO has defined six steps to implement the urban HEART process successfully, as follows:

Step 1: build an inclusive team

Step 2: define your local indicator set and benchmarks

Step 3: assemble relevant and valid data

Step 4: generate evidence

Step 5: assess and prioritize health equity gaps and gradients

Step 6: identify the best response.

Figure 8 demonstrates how to implement Urban HEART in practice, adjusting it to the "input-process-output" model. It is estimated that if all steps are followed carefully and in order, a cycle of Urban HEART will be accomplished in 36–40 months.

Figure 8. Urban HEART implementation process
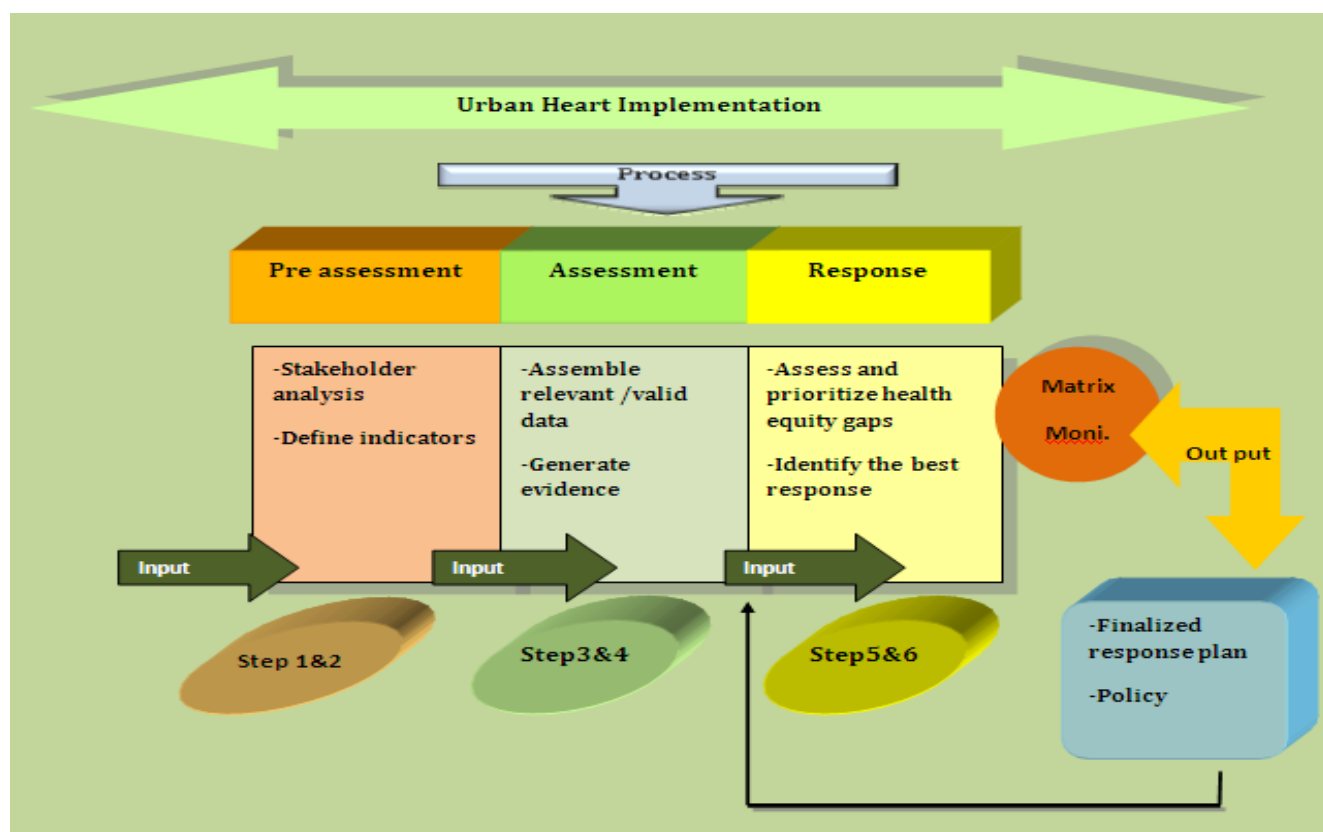
Source: designed by author.

Building an inclusive team during the pre-assessment phase is essential. Strategically, an inclusive approach helps build political commitment. It is more likely that agencies and communities will take ownership of the response to problems if they have participated throughout the process and have played a key role in identifying problems. While team building may be the most time-consuming step in the process, it may also be the most important step. Conducting an environmental scan or stakeholder analysis will be helpful to identify people who should join the team (*12*). Based on experience, it is better to involve social, economic and health policy stakeholders who have authority to share data with the project; for example, there is benefit in engaging stakeholders involved with education, police and law enforcement, sanitation and waste removal, roads and traffic management, housing and finance, as well as centralized agencies that have access to diverse datasets. If it is expected that new funding will be required for response strategies, it is important to engage the finance departments early on.

Moreover, all relevant levels of government planning can be engaged, including national, provincial, municipal and local district authorities, as well as community leaders, including elected officials, grass-roots organizations and nongovernmental organizations (NGOs) (*12*). It is also possible to recruit participants who can promote community empowerment or people who have experience in analysing large datasets, for example from participating agencies or universities. To make Urban HEART sustainable, a realistic budget, including costs of meetings, venues, travel, meals, stipends, materials and personnel, should be

provided. As mentioned before, integrating Urban HEART into existing programmes will save money and time. New data analysis, however, may entail costs, requiring funding from government agencies, NGOs and foundations (*12*).

2.2   Islamic Republic of Iran: country profile

The Islamic Republic of Iran is a low- to middle-income country with a GDP per capita of US$ 1650 in 2001. The population was approximately 72 million in mid-2008. Iran has the third largest population, after Pakistan and Egypt, in the WHO Eastern Mediterranean Region. It is ranked 18th in size among the countries of the world.

Iran is a diverse country: over half of it is mountainous, a quarter is desert and less than a quarter is arable land. Its mountains have helped to shape both the political and the economic history of the country for several centuries. The mountains enclose several broad basins, or plateaus, on which major agricultural and urban settlements are located.

Iran is located in south-west Asia and borders the Gulf of Oman, Persian Gulf, and Caspian Sea (figure 9). Iran shares its northern borders with Armenia, Azerbaijan and Turkmenistan. These borders extend for more than 2000 kilometres, including nearly 650 kilometres of water along the southern shore of the Caspian Sea. Iran's western borders are with Turkey in the north and Iraq in the south, terminating at the Arvand Rud. The Persian Gulf and Gulf of Oman form the entire 1770-kilometre southern border. To the east lies Afghanistan and Pakistan. Iran's diagonal distance from Azerbaijan in the north-west to Sistan and Baluchestan Province in the south-east is approximately 2300 kilometres.

Figure 9. Map of Iran

The climate of Iran is mostly arid or semi-arid (figure 10). Most of the relatively scant annual precipitation falls from October through April. Iran enjoys rich natural resources, including petroleum, natural gas, coal, chromium, copper, iron ore, lead, manganese, zinc and sulphur. The country has high risk levels for natural hazards, such as periodic droughts, floods, dust storms, sandstorms and earthquakes. Iran has a strategic location on the Persian Gulf and Strait of Hormuz, which are vital maritime pathways for crude oil transport.

Figure 10. Climate map of Iran

Legend:
- Caspian Mild and Wet
- Hot Dry Desert
- Hot Coastal Dry
- Coastal Dry
- Caspian Mild
- Hot Semi-Desert
- Dry Desert
- Mediterranean with Spring Rains
- Mediterranean
- Cold Mountains
- Very Cold Mountains
- Cold Semi-Desert
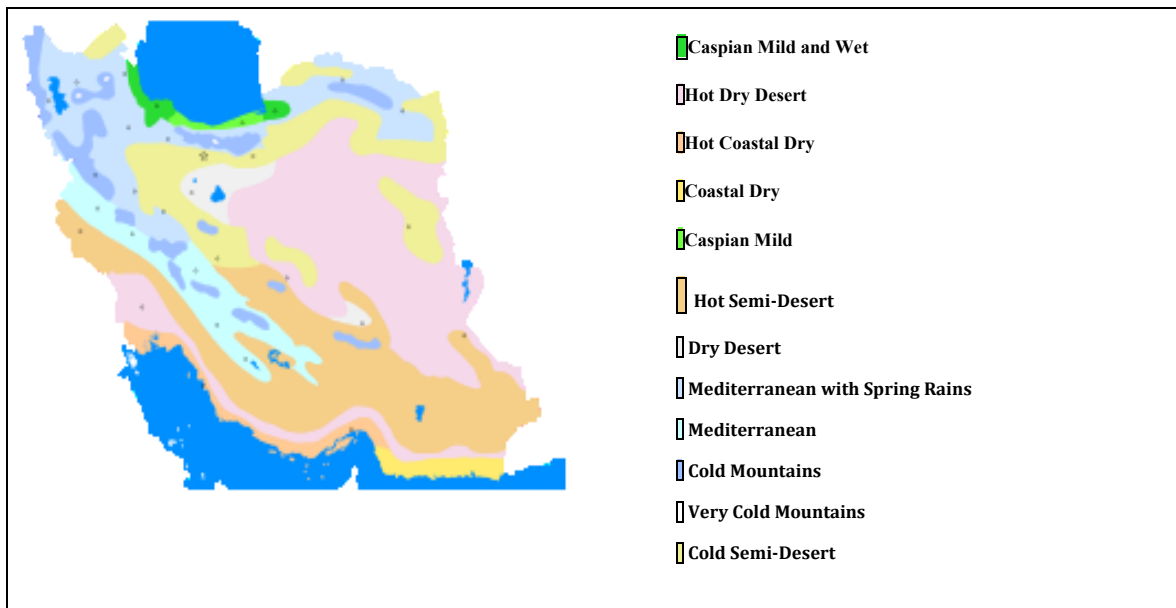
Iran is a constitutional Islamic republic. The country is divided into 31 provinces, which are further broken into smaller administrative areas or districts. Tehran is Iran's modern capital, with a population of almost 12 million people. During the period 1975–2000, the population doubled. The annual population growth rate declined significantly from 3.4% in 1986 to less than 1.5% in 2000–2001. The fertility rate was high in the 1950s and 1960s and decreased very little during the late 1970s. Following the revival of the Family Planning Programme in1989 the fertility rate fell significantly, and by late 2000 had dropped to around 2.1 in all urban areas as well as some rural districts. As more than 50% of the population is under the age of 20, population growth will continue. The proportion of the elderly (age group 65+) has risen to 5% and may soon pose the health and social system with major challenges. Nevertheless, Iran's demographic and social indicators are constantly improving. After Pakistan, Iran is second in the world for number of refugees hosted. It was estimated that in January 2007 there were 968 000 registered, and approximately 2 million unregistered, refugees in Iran (*13*).

2.3   Description of pilot site

Tehran, located at the foot of Mount Tochal, is the capital and largest city of Iran, and the administrative centre of Tehran Province. The city is famous for its numerous resorts on the slopes of the Alborz Mountains, and for its museums, art centres and palace complexes. Contemporary Tehran is a modern city featuring many tall structures, of which the Azadi Tower and Milad Tower have come to be symbols of Tehran itself. It is the largest city in the

Middle East and is the 16th most populated city in the world. Most Iranian industries are headquartered in Tehran. In the 20th century, Tehran faced a large immigration of people from all parts of the country (figure 11).

Figure 11. Tehran: population growth
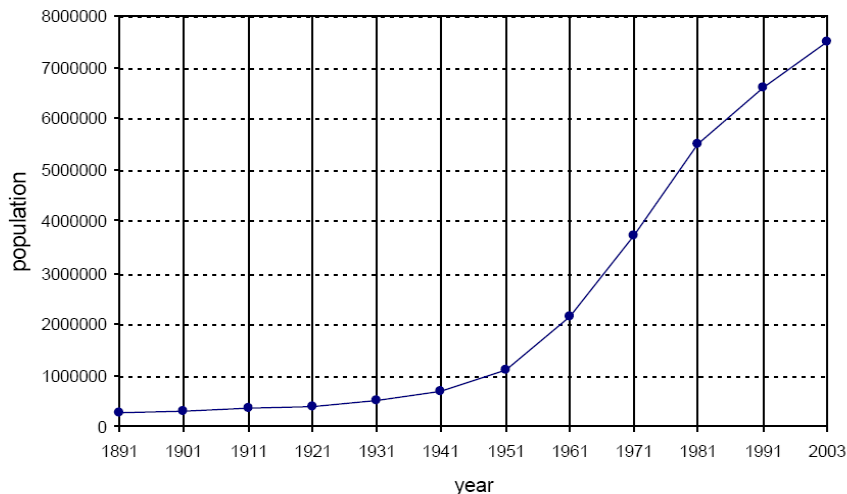
Tehran's urban region underwent rapid population growth between 1950 and 1970, similar to other metropolises of the world, and is now witnessing a slower growth rate. Since 1976, and especially after 1986, development of the Tehran metropolis has been characterized by a rapid growth of its suburban areas, which now contain 30% of its 12 million inhabitants. Therefore, Tehran's urban region is geographically very different from the 1970s, not only in terms of population, but also socially, culturally, economically and administratively.

The distribution of population in the City of Tehran and its urban area is uneven, as the Province of Tehran has both vast rural areas in the desert regions with low population density, as well as very rich and well-irrigated arable lands that include populous, large villages. The populated areas in the old quarters of the city are in clear contrast to the industrial areas with very little residential population. Therefore, the average population density in various locations varies considerably: the average density of the province is 5.3 persons per hectare, while in the City of Tehran it is 92 persons per hectare, and in the province without Tehran, it is only 1.9 persons per hectare. Tehran is a capital with a low average density because it contains large areas that have not been built on. The distinction between the "city" and the "village" is still obvious, although they now have increasingly similar social, cultural and economic features. The difference is striking between the high-density areas in the southern half of the city (with 412 persons per hectare in districts 10, 14 and 17, and an overall average density of 300 persons per hectare) and the low-density areas in northern quarters (with 40–90 persons per hectare, and densities of 44 for Vanak, 54 for Zafaraniyeh, and 63 for Tajrish). Although southern quarters have a higher density, there is no real contrast between the city's north and south. Rather, a more complicated geographical situation has been shaped; the city centre, which previously had a higher population density, is now facing a decrease in residential population, and its density is now lower than the city average (Ferdowsi has 92 persons per hectare). Municipal districts 21 and 22, which are

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recent additions to Tehran's limits, are less populated, as the industrial zone between Tehran and Karaj and areas of vacant and afforested lands are located within them.

Tehran's borders have changed as it has expanded. Tehran was shaped as a rectangle with a length of 30 kilometres, from the slopes of Mount Tochal to the north to the shrine of Shah Abdol Azim to the south. The city's 25-year expansion limits were defined, and those limits are, more or less, in accordance with the present-day borders of the city. There are 22 districts, with a total area of 707 square kilometres. Districts 21 and 22 were added to Tehran in 1991. These districts changed Tehran's geometrical form to a triangle, with a base as long as 50 kilometres. In the Comprehensive Plan of 1968, Tehran's jurisdiction was set to cover 1800 square kilometres, which is the present basis for planning. With the growth and development of rural centres due to immigration, and their transformation into large settlements with their own boundaries, definition of Tehran's limits has become a complicated and intricate problem (figures 12 and 13).

Figure 12. Administrative districts of Tehran
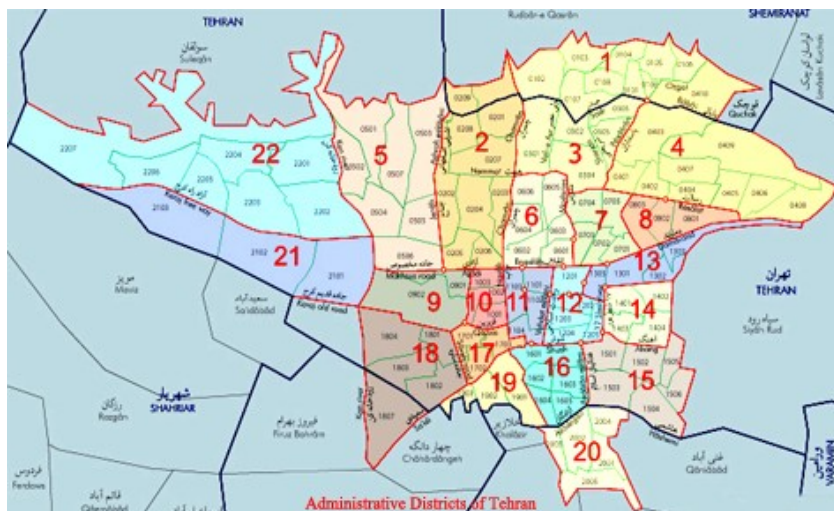
Figure 13. Tehran city borders
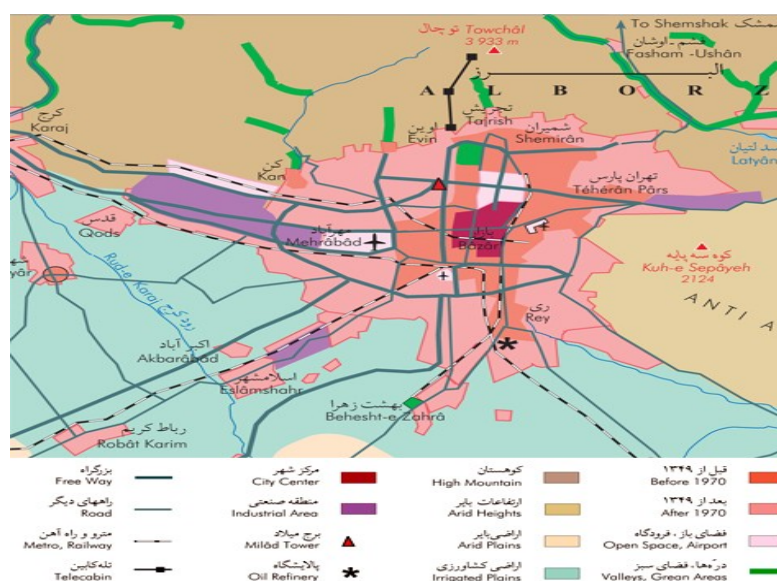
Although these changes have had little direct impact on the citizens, they have created inconsistencies in administrative affairs and coordination of urban policies. The City of Tehran is divided into 22 districts and 112 subdistricts (nahiyeh) (table 3). There are also smaller subdivisions, such as howzeh and blocks. They have, however, no administrative application. Recognized neighbourhoods, such as Shemiran, Bazar, Narmak, Lavizan, Tehran Pars, Naziabad, Javadiyeh, Punak and Abbasabad, do not correspond to official divisions, but approximately overlap with municipal districts and subdistricts. When Tehran's population was only 1 or 2 million, this diversity in administrative partitioning did not cause much of a problem. Today, however, administration of a modern city requires logical management and planning, and in particular, harmony and coordination with various organizations to promote the quality of services and respond to the increasing needs of the population (*14*).

Table 3. Tehran municipal districts and populations

District	1996	2006
1	249 676	379 962
2	458 089	608 814
3	259 019	290 726
4	663 166	819 921
5	427 995	679 108
6	220 331	237 292
7	300 212	310 184
8	336 474	378 725
9	173 482	165 903
10	282 308	315 619
11	225 840	275 241
12	189 625	248 048
13	245 142	245 724
14	394 611	483 432
15	622 517	642 526
16	298 410	291 169
17	287 367	256 022
18	296 243	317 188
19	227 389	247 815
20	356 079	335 634
21	188 890	159 793
22	56 020	108 674

2.4　Implementation of Urban HEART in Tehran

Urban HEART was pretested in a selected country (Malaysia). After that, a pilot implementation was conducted in a number of low- and middle-income countries in 2008–2009, including Iran (figure 14).

Figure 14. Urban HEART pilot locations
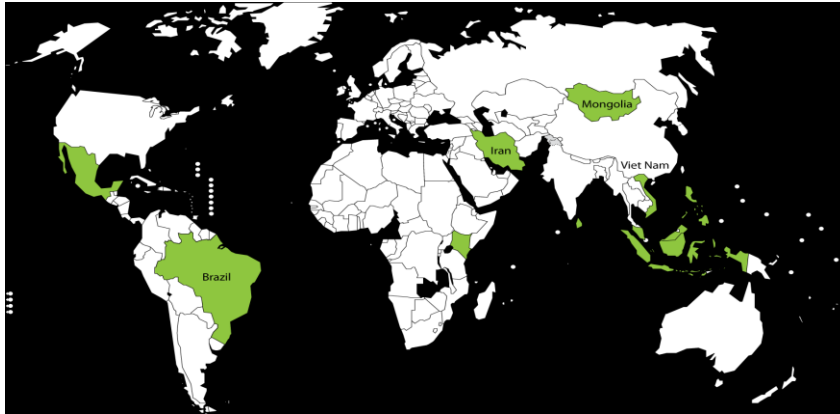
The pilot of Urban HEART was formally launched in Tehran, Iran, 19–21 April 2008, in collaboration with Tehran Municipality and the WHO Tehran Country Office. Tehran was selected as a pilot site because it represented diverse populations and facilities, highly urbanized and rapidly urbanizing communities, an urban-rural mix of population, and supportive and progressive district leadership. Two main types of indicators were defined by Urban HEART, as developed by the WHO Centre for Health Development, Kobe, Japan:

Health outcomes. This group of indicators is indicative of major outcomes or impacts of multiple factors and drivers that reflect the performance of the health system and other sectors associated with the determinants of health, and include:

- life expectancy at birth
- infant mortality rate
- under-5 mortality rate
- maternal mortality ratio
- specific disease morbidity and mortality rates.

Health determinants. These are categorized based on four policy domains:

- **Physical environment and infrastructure** consists of indicators for determinants and interactions associated with living conditions at the household level, such as access to safe water and sanitation services and exposure to indoor air pollution, as well as indicators related to environmental conditions in the neighbourhood, community and the workplace, such as exposure to road traffic and job-related hazards.

- **Social and human development** includes indicators related to determinants and interactions that influence social exclusion or inclusion and may hinder human development, for example by obstructing access to education, health services, nutrition, food security and social services, and by creating obstacles to better health-seeking behaviours and improved personal lifestyle and health practices.

- **Economics** includes indicators related to determinants and interactions associated with economic barriers to health equity, including lack of access to credit and capital and to job opportunities, limited potential for generating income, and other obstacles to moving out of poverty.

- **Governance** includes indicators related to determinants and interactions involved with governance, rights and political exclusion, such as those associated with the legal status of the urban poor, property and ownership rights, participation in decision-making processes, and priorities in the allocation of resources to improve health and its determinants.

Countries and cities can include additional indicators based on their priorities, specific needs and unique characteristics (*12*).

In recent years, Iran has made notable achievements in the areas of developing successive five-year plans (after the Islamic Revolution), formulating MDG indices, setting up information systems in the Iranian primary health care network, and planning the 25-year development programme (endorsed by all levels of decision-makers in the country). Based on these experiences, it was decided to adapt the original Urban HEART indicators to the local situation and extend them to cover all determinants of health. The ensuing 65 indicators in six domains are shown in table 4.

Table 4. List of indicators, Tehran Urban HEART

Domains					
Physical and Infrastructure	**Human & social development**	**Economic**	**Governance**	**Health**	**Nutrition**
Safe drinking water	Education: Net Enrollment Rate	Employment	Annual reports by municipality	Vaccination	Calorie poverty
Road traffic accidents	Education: Gross Enrollment Rate	Residency in normal home	Satisfaction of citizens with municipality services	Early pregnancy	Wasting
Burn	Attaining final year of primary school	Person living per room	Lawfulness	Exclusive breast - feeding	Stunting
Fall	Primary school completion	Fair financial contribution Index (FFCI)	Responsiveness to citizens' complaints (Hot Lines)	Breast – feeding for 24 months	Low birth weight
Other accidents	15-24 years education	Health catastrophic costs	Contracts transparency	Infant Mortality Rate	Food diary
Air pollution	Adult education	Household costs	Community participation in decision making issues (local election, monetary)	Under 5 years Mortality Rate	Food costs
Noise pollution	Higher education	Absolute poverty	Standard activities	Maternal Mortality Rate	Cereal costs
Access to public transport	Domestic violence	Relative poverty		Quality of life	BMI
Solid waste management	Street violence	Social welfare Index		Safe delivery	
Utilization of available health facilities/services	Death due to homicide	Human Development Index		Disability	
	Disabilities due to violence				
	Adult smoking				
	smoking at 13-15 years old				
	Addiction/ substances abuse				
	Smoke-free places				
	Mental health				
	social capital				
	Death due to suicide				

The Tehran model was developed during a workshop held in Tehran with participants from Urban HEART pilot sites around the world, and representatives from the WHO Kobe Centre and the WHO Eastern Mediterranean Regional Office. The technical advisory committee of Tehran Urban HEART developed a questionnaire to assess the approved indicators (annex A). A pilot study was conducted to test the questionnaire, using 50 families in five districts of Tehran – totalling 250 households – who were stratified randomly and selected in late June 2008. After piloting, the following activities were undertaken by the technical advisory committee (*14*):

- adjust indicators and data-gathering methods based on pilot results
- establish executive teams
- undertake assessment
- develop interventions.

3. Method of documentation and evaluation

Evaluation may be defined as the systematic collection and analysis of information on the performance of a policy, programme, or initiative to make judgments about relevance, progress or success and cost-effectiveness, and to inform future programming decisions about design and implementation. Evaluation means asking good, critical questions about programmes to improve them and help them be accountable for the wise use of resources (*13*). Figure 15 illustrates the logic model of programme action.

Figure 15. Logic model of programme action
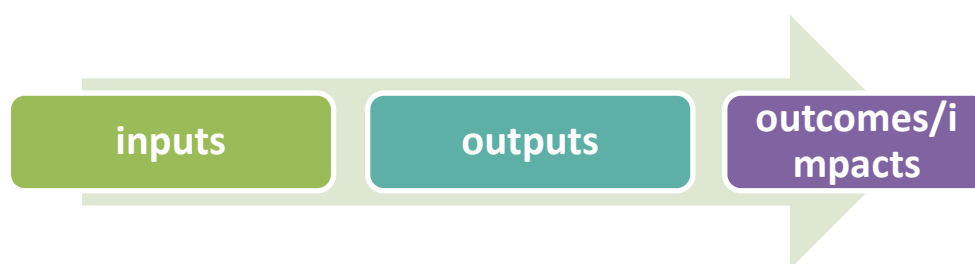
Using this model, the process can be evaluated in a logical sequence:

- Input evaluation describes what was invested, such as staff, time, money, materials, equipment and technology.
- Process evaluation examines what was done.
- Output evaluation shows what was reached or achieved.
- Outcome-impact evaluation looks at what was changed (short-term, medium-term and long-term results).

 Based on the Urban HEART user manual (*12*), there are six steps to follow in the Urban HEART process. However, some steps may need to be revisited and repeated in the course of an Urban HEART cycle. The cycle itself should be repeated and is intended to expand cumulatively. Urban HEART is a continuous process. The steps are as shown in figure 16.

The Urban HEART implementation steps and logic model of programme action helped development of the evaluation method for the Tehran pilot. The evaluation team of the National Public Health Management Centre decided to do the evaluation in three phases:

- pre-assessment phase
- assessment phase
- response phase (response prioritization, policy development, impact and outcome).

The external evaluation team established a set of critical questions with WHO collaboration. Annex A includes core questions in the evaluation process.

For data collection multiple techniques were used, such as interviews, focus group discussions and document reviews, to generate both qualitative and quantitative data to assist in answering the core questions.

Figure 16. Six steps to implement Urban HEART
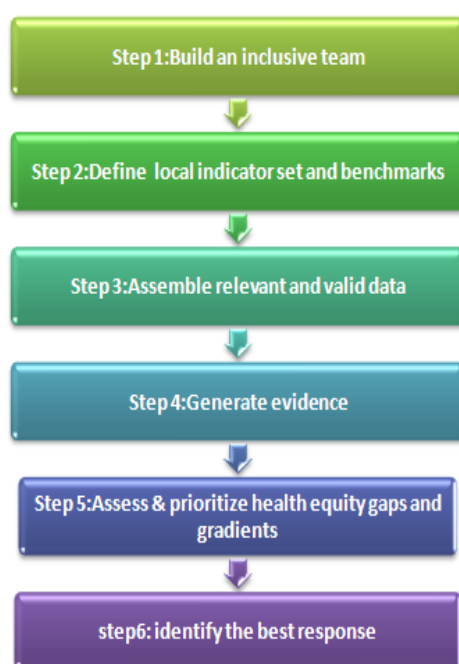
Available documents reviewed by the external evaluation team were as follows:

- published article in *Medical Journal of the Islamic Republic of Iran*, 2010, 24(3): The application of Urban Health Equity Assessment and Response Tool (Urban HEART) in Tehran: concepts and framework.

- an overview of the Urban-HEART Tehran experience (final report of project).

- evidence based on health equity assessment in Tehran (final report in Farsi).

- *Narrowing the gaps in Tehran: identifying social determinants of health through Urban HEART.* Report written by Seyed Mohammad Hadi Ayazi, Mohsen Asadi Lari and Mohammad Mehdi Golmakani.

- minutes of technical advisory committee meetings and their recorded audio files.

- Urban HEART pilot project in Tehran PowerPoint presentations for national and international conferences.

Although these documents helped formulation of answers to some of the core questions developed by the evaluation team, interviews and focus group discussions were needed to obtain further information. Two focus group discussions were held during the evaluation. Many of the technical advisory committee members participated in those sessions. Annex B lists those who took part in the focus group discussions and interviews.

The evaluation team carried out all focus group discussions and interviews. The team sent all the core questions by e-mail to each of the technical advisory committee members, investigators, and technical supervisors of the six main domains, but none of them replied. There were no ethical permissions required for the process, but for official permission the team kept in touch with the main investigators. In addition, WHO wrote a letter to Tehran

Municipality requesting those responsible to facilitate the evaluation process. All the answers obtained were analysed and categorized for the implementation phase of the Tehran Urban HEART project.

The external evaluation of the Urban HEART Tehran pilot aimed to:

- describe the content of Urban HEART as adapted to the pilot site

- describe the processes, structures and mechanisms of implementation

- review and validate the data generated for the health equity assessment

- describe intersectoral actions and community participation generated or strengthened by the process

- describe the accomplishments of the project

- identify recommendations for improving and scaling up the implementation of Urban HEART.

Table 5 shows the components of the evaluation of Urban HEART.

Table 5. Components of the evaluation of Urban HEART

Pre-assessment	Assessment	Response
Critical areas	**Implementation process**	**Output, outcome, impact**
Identify influential champions Identify stakeholders Undertake training for stakeholders Recruit participants from various policy sectors, levels of government and local communities Develop plans for sustainability and succession Document the team-building process Identify indicators to capture issues of concern to local decision-makers Develop data collection resources Select indicators that are measured at regular intervals	Identify obstacles and solutions Develop data standards and common units of disaggregation Perform data quality and validity checks Implement demonstration project with a few easily obtainable data Share early results with stakeholders Review the technical instructions to produce an accurate Matrix and Monitor Re-evaluate data quality Use the Matrix results to help plan the Monitor	Tailor meeting agendas and presentation materials to particular stakeholder groups Prioritize equity problems based on charts Verify accuracy of the results Consider the strengths, weaknesses, opportunities and threats associated with potential responses Make sure selected response plan will target health equity priorities Make sure that intervention will not make inequities worse Gain community support in designing the response plan Know the right time, format and audience for presenting the action plan for response Ensure policy uptake and development Undertake programme development and implementation Put in place monitoring and evaluation mechanisms

4.   Documentation and evaluation results

4.1   Pre-assessment phase

Introduction

The main purpose of the pre-assessment phase is to identify the main objectives and priorities, and to provide a relevant and feasible programming framework within which programmes and projects can be identified and prepared. Based on the Urban HEART guidelines and user manual, the external evaluation team considered the following items as a checklist to determine whether and how the different subprocesses were undertaken in the pre-assessment phase: identification of resources, time framework, stakeholder analysis, justification plans, community participation plans, term of reference, plans about sustainability and succession, team building, identification of appropriate indicators and availability of data, data collection resources and methods.

Methods and materials

For documentation and evaluation of the pre-assessment phase of Urban HEART pilot application in Iran, official documents and reports, Urban HEART team interviews, and expert interviews were used. Two interviews with Urban HEART contributors and one interview with committee members of the Research and Planning Centre of Tehran Municipality were performed. In the next step, all recorded interviews, after precise listening, were converted by the Urban HEART external evaluation team to written documents. In addition, official reports of all meetings that had been performed by the Research and Planning Centre, covering 58 meetings in all, were reviewed, as well as all official letters that were issued by the Research and Planning Centre.

Results of Urban HEART pre-assessment phase

The results of this evaluation showed that the Research and Planning Centre of Tehran Municipality oriented itself gradually to the concept of Urban HEART, but other potential participants (stakeholders, mainly government officials) that could have been engaged in this phase were not included. As a result, other sectors were not informed about the Urban HEART project. Regarding engagement of national and local governmental officials, although the Research and Planning Centre had invited some experts, it seems that other national and local governmental officials outside Tehran Municipality were not engaged actively in the Urban HEART project in the pre-assessment phase. In addition, a considerable number of governmental officials in other major governmental sectors that are responsible for providing and developing equity policies and programmes did not participate in development of the pre-assessment phase. In summary, the Tehran Urban HEART team was mostly from Tehran Municipality, as well as academics who are experts in the fields needed for technical aspects of the project. Annex C lists the members of the team.

There was no one from the policy- or decision-making level of other governmental sectors on the team. One of the technical advisory committee members said, during an interview: "The municipality is the main responsible organization for many affairs of the city. Through the

Urban HEART project, we were creating evidence for all policy-makers to manage and reduce inequities. So it was not necessary to build up a huge committee of different people with different ideas. It might present the project with serious problems."

Organization of the technical working group was also assessed by the Urban HEART external evaluation team. Documentation review and interviews showed that the technical working groups were organized by the Social and Cultural Affairs Department of Tehran Municipality and the members of the groups were invited according to their experiences and based on the needs of the Research and Planning Centre of Tehran Municipality. Although the Research and Planning Centre was multisectoral, the members were not representative of their organizations, and they were not able to apply the decisions in their own organizational system or draw the other sectors' attention to Urban HEART concepts. However, evaluation of the structure of the Research and Planning Centre showed that all members stated their commitment and responsibility to develop the Urban HEART project in a collaborative environment.

Another aspect assessed by the external evaluation team was engagement of stakeholders in the Urban HEART project. Tehran Municipality was identified as the main stakeholder in the project. The output of Urban HEART could be useful for many sectors, including governmental organizations, especially the Ministry of Health and Medical Education, the Ministry of Housing, and welfare organizations, but they were not included by the Research and Planning Centre. The WHO representative in Iran provided knowledge and guidance to focus attention on the responses of stakeholders, but for most of the pre-assessment phase Tehran Municipality was the main organizer and stakeholder. Thus, Tehran Municipality was the most supportive organization to develop and perform Urban HEART in Tehran.

Concerning the resources of Urban HEART, two major inputs were assessed: human resources and financial resources. Findings showed that Tehran Municipality supported finances and provided staff for implementing the project. In addition, experts who were invited in the pre-assessment phase from other organizations contributed scientific resources to the Urban HEART project in Tehran. Additionally, Tehran Municipality contracted the Iranian Students Polling Agency to develop and prepare data collection methodologies and gather all data in the assessment phase.

Regarding the designated timeframe for the pre-assessment phase, it was found that a timetable had not been developed in advance, but was formulated based on the progress of this phase.

Facilitating and hindering factors were other assessed items. Findings showed that commitment of the Mayor of Tehran and all sectors of Tehran Municipality was the most important facilitating factor. Additionally, no major barriers were observed, other than a lack of insight into engaging other organizations as stakeholders for setting indicators and other tasks.

After the inauguration of Urban HEART, subcommittees were formed to determine the most appropriate indicators for equity assessment in Tehran in all four policy domains. Members of the subcommittees included academics of Tehran universities and policy-makers in Tehran

Municipality. Subsequently 65 indicators in six domains – physical and infrastructure, human and social development, economic development, governance, health, and nutrition – were developed. It seems that new indicators were developed from a planning perspective, and there was no evidence of the community playing a role in developing new indicators. In April 2008, an Urban HEART workshop was conducted in Tehran with the aim of finalizing the indicators. All pilot sites presented their studies regarding the indicators used in their own countries to investigate inequalities in health. The Tehran team also presented its indicators, which were approved by the other participants. The Tehran team considered five key points in setting new indicators:

- They can be generalized.

- They can be extracted from all districts.

- They are measurable.

- They are health related.

- They are interrelated and affect each other.

In the next step, the Tehran team reviewed available sources of information at international, national and local levels to determine the appropriate approaches for data collection for all 65 indicators. A technical advisory committee was set up to determine which data collection approach was appropriate for the next steps. The technical advisory committee considered all available tools in the six policy domains. According to the documents, various questionnaires were used for this purpose. These questionnaires were either generated by experts or previously validated, as suggested by the working groups. Then a comprehensive questionnaire was developed to collect data for 42 indicators in 13 sections. Lists of the indicators and components of the questionnaire are given in tables 6 and 7.

Table 6. Indicators of Tehran Urban HEART

Domain	Indicators
Physical and infrastructure	Healthy water Accidents and injuries Air pollution Noise nuisance Access to public transport Solid waste management Health centre utilization
Human and social development	Education (net enrolment ratio, gross enrolment ratio, primary school completion, higher education) Violence (domestic, street) Smoking/addiction Smoke-free places Mental health Social capital
Economic development	Employment Residency in normal home/persons/room Fair financial contribution index Household costs Absolute/partial poverty Social welfare index Human development index
Governance	Annual reports Contracts, transparency Satisfaction Responsiveness (hotlines) Community participation (local elections) Lawfulness Standard activities
Health	Safe delivery Vaccination Teenage pregnancy Breastfeeding Infant, under-5, maternal mortality ratios Health-related quality of life, disability index
Nutrition	Calorie poverty Wasting Stunting Low birth weight (intrauterine growth retardation, neonatal mortality rate) Body mass index (obesity) Food diary Food costs, cereal costs

Table 7. Components of Tehran Urban HEART questionnaires

No.	Section
1	Identification form
2	General particulars of the family members
3	Home facilities and assets
4	Health, vaccinations and mortality
5	Accidents and injuries
6	Domestic violence
7	Disabilities
8	Responsiveness, satisfaction
9	Mental health
10	Quality of life
11	Household costs
12	Smoking and addiction
13	Social capital

The Urban HEART team omitted the 13th section, finalizing the questionnaires with 12 sections. The validity and reliability of the questionnaires were examined through a pilot study. Samples of the questionnaires are available in Annex D.

4.2   Assessment phase

Introduction

The assessment phase aims at describing problems and needs, and charting the local resources available to make the most effective interventions. Thus, an appropriate assessment is necessary for the best response. Consequently, all planning for effective response must be based upon knowledge of the real situation, and of the various factors that have formed it. Assessment is an activity that can firmly link planning to the realities in the field, and thereby to the main goals of the project. The findings should guide and define the content of the response formulation. The assessment phase of Urban HEART is an indicator guide designed to identify differences between various population groups within the city or across cities using indicators of key health outcomes. The external evaluation team focused on the following subjects in the assessment phase: identification of obstacles and solutions, data standards and common units of disaggregation, data quality and validity, data resources, sharing of results, accurate Matrix and Monitor, and resources used.

Methods and materials

For documentation and evaluation of the assessment phase of the Urban HEART pilot application in Iran, official documents and reports, Urban HEART team interviews, telecommunications and expert interviews were used. Several interviews were performed with the Urban HEART assessment phase executive committee (by the Iranian Students

Polling Agency) and committee members of the Research and Planning Centre of Tehran Municipality, and a document review was undertaken. For more transparency, technical committee members and executive team members were asked to complete a chart presenting all the required information about the assessment phase.

Results of Urban HEART assessment phase

The technical advisory committee subcontracted a private organization with good experience in research and data gathering – the Iranian Students Polling Agency – to collect accurate data during the assessment phase. The Iranian Students Polling Agency conducted the assessment phase of Tehran Urban HEART over 55 days during mid-2008. The results of this evaluation reveal that potential participants (such as stakeholders) who could have been engaged in this phase were in fact not included, and there was no evidence to show how the results compared with the expectations of the stakeholders.

Tehran Municipality had a strong foundation for the assessment phase. Academic experts were selected to oversee the operations and results. These experts had a technical role, rather than representing their respective organizations. The role of the community did not go beyond responding to questionnaires. Data sources were mainly based on the components of the questionnaires and data types were quantitative. The external evaluation team provided an evaluation table to obtain the key points in data gathering. The table was sent to technical advisory committee members and domain supervisors for completion, but unfortunately the evaluation team did not get any response .

According to the interview with an Iranian Students Polling Agency manager, there were two main monitoring systems to guarantee proper implementation of the survey. Every four or five surveyors had a mentor to ensure proper fieldwork, and each district had a high-ranked supervisor from academia to observe all relevant activities within the district and check the quality of sampling, data collection, communication with families and compliance with standards.

For the survey, at least 960 households were investigated in each of the 22 districts, and 22 300 questionnaires in total were distributed. The questionnaire took around 45 minutes to be completed. Each surveyor investigated six to eight households per day. Field investigators were asked to refer any problem during the survey to their mentors and supervisors using their own cell phones for that purpose. District supervisors (university academic members) were also encouraged to follow up their assigned field closely to provide feedback to the investigators and to homogenize and ensure the consistency of the survey. Any comments about the instructions and questionnaire, either from investigators or from supervisors, were appreciated, and necessary amendments were made after the survey. A steering committee chaired by the principal investigator of the project was responsible for any guidelines and directions for the whole survey. In sum, there were 700 personnel for the assessment phase. From 676 surveyors, 80 persons cancelled the contract before starting, 51 persons quitted the job and 13 persons were fired. The main reasons for contract cancellation were difficulties with the questionnaires and workload; inappropriate acceptance and behaviour of some respondents; and unwillingness to answer the questions in some districts.

The manager of the Iranian Students Polling Agency declared that both the technical advisory committee and Iranian Students Polling Agency had done all they could to obtain validated data, but he did not present any evidence for his claims. The provided Matrix was formed by using appropriate software, which included just one type of disaggregation variable in 22 districts of the City of Tehran. A new spreadsheet was opened in charting software for the data gathered for each indicator in 22 districts. First, the names of the districts were labelled in columns. Then, in labelling the rows, the first column was used to label each policy domain. In the second column, the names of the indicators were entered, following which benchmarks were added. Different types of benchmarks for different indicators had been defined by the working groups in advance. Based on WHO guidance, three colours were used in the Matrix; red, yellow and green. The red colour defines the value worse than the selected benchmark; yellow indicates performance that is equal to the benchmark; and green indicates performance better than the benchmark. Unfortunately, there were no footnotes to identify the sources of the benchmarks.

Project cost details were not given to the evaluation team, though table 8 shows estimated costs for the Tehran Urban HEART pilot application presented in the international conference, Brasilia, 2009.

Table 8. Estimated costs of Tehran Urban HEART pilot, Brasilia conference

Component	Est. cost ($)
Workshops to determine indicators	70 000
Developing the questionnaires	20 000
Training surveyors	30 000
Conducting the survey (1000 families per district)	300 000
Data analysis and finding the gaps /mapping/presenting data to districts	100 000
Setting interventions: workshops etc.	30 000
Conducting interventions	–
Total	550 000

Additionally, based on the results of the interview with the manager of the Iranian Students Polling Agency, 40 000 Iranian rials was paid for each completed questionnaire and 360 000 rials was paid daily to each mentor. There were 34 supervisors with daily wages of 160 000 to 180 000 rials, and eight top supervisors with daily wages of 200 000 rials.

4.3   Response phase

Introduction

In a project management process a response phase aims at the best reaction to an event, occurrence or situation, based on sound evidence, in order to provide solutions to a particular problem. In the response component of Urban HEART, interventions and actions are grouped

in five response strategies, which are derived from a qualitative review of case studies and include best-practice recommendations from WHO and UN-Habitat and field experiences from implementing Urban HEART. The response strategy packages guide prioritization and development of context-specific interventions or actions.

Methods and materials

For documentation and evaluation of the response phase of the Urban HEART pilot application in Iran, official documents and reports, reviews, Urban HEART team interviews, and expert interviews were used. Several interviews were also undertaken with the Urban HEART committee members of the Research and Planning Centre of Tehran Municipality.

Results of Urban HEART response phase

Actions based on Urban HEART have been divided into five categories:

1.   Evidence-based policy-making

Presenting the results of the first phase of the Urban HEART project led to the following measures in the policy-making category:

- In early 2009, Tehran City Council implemented the indicators of Urban HEART in the context of a five-year urban development programme.

- In budget allocation, the Tehran Islamic City Council has considered the inequity of different areas as revealed by Urban HEART data.

- Codification of indicators of equity in health, prepared by the Supreme Council of Health and Food Safety and approved by the Cabinet, was a consequence of the project. It is hoped that these indicators will be routinely reviewed by the Supreme Council to inform decision-making processes from 2012.

2.   Evidence-based practice

It was intended that each sector would implement practical action plans based on the final results of the Urban HEART project, though the evaluation team did not receive any evidence of this. In 2010, however, Tehran Municipality launched a programme called "Tehran, the smoking-free city" based on results from the project. The elements of this plan were:

- establishing the Smoking Prevention Centre in Tehran

- establishing no-smoking parks in Tehran

- educating psychiatrists for consultation and guidance on the basis of smoking cessation

- educating physicians for development of smoking cessation clinics

- educating the members of smoking prevention centres

- preparation of pamphlets and publications.

3. Intersectoral collaboration

Extracted results from the project were given, through formal and official channels, to the corresponding organizations so that they might be used to launch intersectoral plans for decreasing inequities. The Urban HEART team has therefore sent the published reports and documents to other ministries and organizations. But there was no means of knowing the reaction of other sectors when receiving data about their sectors from the Health Unit of the Municipality. Also, no evidence was found by the evaluation team to indicate any intersectoral action suggested by other sectors to reduce health inequities in the City of Tehran.

4. Community-based initiatives

The WHO Regional Office for the Eastern Mediterranean has developed an innovative Community-Based Initiatives Programme for health and development, in which simultaneous emphasis is put on economic growth, improvement in standards of living, health status and quality of life. These approaches provide a new orientation for multisectoral efforts to ensure that health considerations are core to all development and environmental activities. The following community-based initiatives for health and development have been introduced in the region:

- basic development needs
- Healthy Villages programme
- Healthy Cities programme
- women in health and development.

The main objective of the Community-Based Initiatives Programme is to facilitate the integration of health policies and programmes into national strategic development agendas in order to improve health and environmental conditions, reduce poverty and achieve a better quality of life through the attainment of the MDGs. The work is focused on promoting equity, especially from a human rights perspective, gender mainstreaming, and enhancing the role of women in health and sustainable development. The Community-Based Initiatives Programme is well known in Iran. This strategy is implemented by the Ministry of Health with community participation in many of the urban and rural areas of the country. The Tehran Urban HEART team believes that the Community-Based Initiatives Programme can be one of the most effective strategies for reducing health inequities, and it will be launched in coordination with the second phase of the Urban HEART project.

5. Health system response

Considering the outcomes of the project and with inspiration from the network of primary health services in the country, which is one of the most successful systems in the region, Tehran Municipality is planning to establish a health system based on the social components of health. In this system, for every 4000 Tehran citizens there is one health house, and, there is an urban health centre for every four of these houses. Moreover, in each district of Tehran there is an urban health management centre. As this model is now being pilot-tested, an electronic copy was not provided, and as a result it was not available to the evaluation team.

Response phase conclusions

In conclusion, in the response phase, the results attained from reviewing the documents and holding interviews and group discussion sessions with members who contributed to the project can be summarized as follows:

- Efforts in this phase were mainly focused on Tehran Municipality units, and other sectors and institutions were not engaged.

- No evidence regarding prioritization and determination of significant indicators for interventions were presented.

- No evidence regarding prioritization and determination of significant corrective interventions were presented.

- No evidence was presented regarding proposals or prepared operational programmes.

It should be mentioned that the second phase of Urban HEART is being initiated in Tehran, and, the members contributing to this project have admitted that the response section has been postponed to that phase. It means that a full response will be based on the more comprehensive results from the first and second phases.

5. Findings and recommendations

5.1 Summary of process

To identify and address inequalities in health and its determinants among societies, Urban HEART, with its four policy domains related to social determinants of health, was developed by the WHO Kobe Centre and piloted in several countries.

In October 2007, the WHO Country Office offered Urban HEART to Tehran Municipality and working groups were subsequently organized in all four policy domains to agree on the indicators most appropriate for equity assessment in Tehran alongside the other pilot cities in the world. A total of 65 indicators in six domains – physical and infrastructure, human and social development, economic development, governance, health, and nutrition – were developed and approved in an international workshop held in Tehran in April 2008. A comprehensive questionnaire for 42 indicators in 12 sections was developed by the technical advisory committee to be administered in a large population-based survey in Tehran. In this survey, the questionnaires were completed by 21 120 households in all 22 districts of Tehran (at least 960 in each district).

The Urban HEART project in Tehran highlighted differences in all 42 indicators throughout the 22 districts of Tehran. To help policy-makers, the measured indicators were demonstrated in several matrices. A sample of these matrices is available in annex E.

5.2 Strengths and weaknesses

Strengths

The strengths of the Urban HEART pilot project in Tehran can be identified as follows:

- appropriate model and framework prepared by WHO Kobe Centre
- strong support by Tehran Municipality and Mayor of Tehran
- interaction of a notable number of investigators, academics, experts, and the executive staff team
- skilled research managers
- support of WHO
- allocated funds.

Weaknesses and related recommendations

The project had some weaknesses too. The following recommendations are given accordingly:

1.   Community participation

The participation of people is essential in this project. Discrepancies exist between the information on inequities found in source documents and what people experience in reality.

Targeted interventions depend on community participation. The participation of the target population in the Tehran Urban HEART pilot was limited to completion of questionnaires.

2.   Intersectoral collaboration

The Urban HEART project depends on intersectoral collaboration. Although the Tehran Urban HEART team was multisectoral, and could bring the municipality's units, academics, experts and specialists together, for other sectors, the top-level managers (policy-making areas) and mid-level managers (operational areas) were not actively engaged.

It is recommended that the organizations and ministries that are responsible for the processes regarding the indicators studied for this project should contribute to planning for assessment and analysis of the indicators. In fact, the responsibility for obtaining and interpreting each indicator should be assigned to the corresponding organization. It is also recommended that this participation should take place from the outset of determination of the indicators. This would strengthen the role of organizations in putting the results of the project into practice by determining and prioritizing the most significant indicators and designing and implementing corrective interventions. Moreover, the relevant organizations would be well placed to analyse the consequences of interventions, and contribute to the development of practical, targeted activities.

It should be noted that aggregation of urban services in municipalities has not yet occurred in Iran. Furthermore, the majority of services relevant to this project are managed by other organizations, which in most cases are not municipality related.

In conclusion, urban health equity in Tehran does not only fall under the supervision of the municipality. Consequently the Urban HEART project might be considered as a national project and implemented in collaboration with all ministries and other related organizations.

3.   Appropriateness of indicators

The focus of this project on municipality indicators resulted in a lack of universality of indicators. For instance, in the field of governance, health equity indicators were introduced that did not manifest the role of government in reducing health inequities in the city.

If, from the technical advisory committee point of view, the municipality can be assumed as the local government of Tehran City, some indicators that relate more clearly to the role of the municipality in reducing health inequities should be added. For example, a number of indicators could be established in the following areas:

- out-of-pocket payments and actions that would reduce this
- geographical and economic access to health services in the districts of Tehran
- responsibility of Tehran Municipality regarding health promotion
- access to parks and places for recreation in the districts of Tehran
- green spaces by population in the districts of Tehran
- effects of natural disasters and policies and actions for their reduction in Tehran City
- health-oriented planning in development of Tehran

- health-oriented policy-making in urban services

- traffic and its relation to the physical, mental and social health of people.

4. Health system response

Tehran Municipality is planning to establish a health system based on social determinants of health as a response intervention. Iran needs a comprehensive health system not only to deal with the social determinants of health, but also to embrace all three dimensions of health as defined by WHO, namely the physical, mental and social dimensions. In its 2002 annual report, WHO defined the health system as follows: "A health system includes all activities whose primary purpose is to promote, restore, or maintain health." Such a system includes all players, including governmental and nongovernmental organizations, as well as individuals and communities. In addition, the social determinants of health are not the responsibility of municipalities only; there are many agencies providing health services and facilities in all urban and rural areas. In Iran, the Ministry of Health and Medical Education is a core member of the health system and has a stewardship role.

5. Evaluation and dissemination of information

There was no documentation available to show if internal evaluation of the project had been carried out by the investigation team. Generally, implementing the second phase of a project occurs after undertaking corrective interventions based on measurement of the expected changes, which cannot be done if there is no available information about the implemented interventions and their results. Therefore, dissemination of the external evaluation should be very important to the next phase.

Annex A. Questionnaire to assess indicators

Core questions for documentation and evaluation of Urban HEART

Pre-assessment phase

- ✓ **What did the participants think of the orientation? Was it useful?**
- ✓ **How were the national/local government officials engaged in this process?**
- ✓ **How was the technical working group convened?**
- ✓ **What were its organizational structure, mandate, membership, roles and responsibilities?**
- ✓ **Was the group multi-sectoral?**
- ✓ **Who were the key stakeholders?**
- ✓ **Who was the most/least supportive of the project?**
- ✓ **What were the funds required, including breakdown by major components (e.g. meetings, materials)?**
- ✓ **What was the staff time required, including breakdown by different skill sets (e.g. project manager, data analyst)**
- ✓ **How were the resources mobilized?**
- ✓ **What is a realistic timeframe in which this phase can be completed in a similar context?**
- ✓ **What were the things that made this phase difficult?**
- ✓ **Did the stakeholders think this phase went well? Why or why not?**

Assessment phase

- ✓ **What was the mechanism to engage stakeholders in this phase?**

- ✓ **How were community groups included in this phase?**

- ✓ **What were the stakeholders' (including community) perceptions of being involved in this phase?**

- ✓ **How were the indicators selected? What were the key decision factors?**

- ✓ **What were the data sources and data types used for each indicator?**

- ✓ **How were the data collected and validated?**

- ✓ **Were the data appropriate and accurate?**

- ✓ **How were the Matrix and/or Monitor created?**

- ✓ **What did the resulting Matrix and/or Monitor look like?**

- ✓ **Did the results match the impressions/expectations of different stakeholders?**

- ✓ **What were the funds required, including breakdown by major components (e.g. meetings, materials)?**

- ✓ **What was the staff time required, including breakdown by different skill sets (e.g. project manager, data analyst)**

- ✓ **How were the resources mobilized?**

- ✓ **What is a realistic timeframe in which this phase can be completed in a similar context?**

- ✓ **How can the Urban HEART Assessment component be improved? What other resources are needed?**

Response prioritization phase

- ✓ What was the mechanism to engage stakeholders in this phase?
- ✓ How were community groups included in this phase?
- ✓ What were the stakeholders' (including community) perceptions of being involved in this phase?
- ✓ What were the priority health equity issues, and why?
- ✓ How were the Matrix and Monitor results used to prioritize health equity issues?
- ✓ What other information or factors influenced the prioritization of health equity issues?
- ✓ What were the priority strategies/interventions, and why?
- ✓ How was Urban HEART used to identify and prioritize strategies and interventions?
- ✓ What other information or factors influenced the prioritization of health equity issues?
- ✓ Was a proposal/action plan developed based on the Urban HEART implementation results?
- ✓ How and to whom was the proposal/action plan presented?
- ✓ What were the funds required, including breakdown by major components (e.g. meetings, materials)?
- ✓ What was the staff time required, including breakdown by different skill sets (e.g. project manager, data analyst)
- ✓ How were the resources mobilized?
- ✓ What is a realistic timeframe in which this phase can be completed in a similar context?
- ✓ How can the Urban HEART Response component be improved? What other resources are needed?
- ✓ What were the things that facilitated this phase?
- ✓ What were the things that made this phase difficult?
- ✓ Did the stakeholders think this phase went well? Why or why not?
- ✓ What are the lessons learned about completing this phase successfully?
- ✓ Was the proposal/action plan accepted or rejected, and by whom?
- ✓ What were the key factors that influenced the decision?
- ✓ What did the decision makers think of Urban HEART?
- ✓ Was a programme/intervention developed and implemented?
- ✓ What was the programme/intervention? How closely was it linked to the proposal?
- ✓ Have you been monitoring and evaluating the process? If so, how? If not, why?
- ✓ What are the main accomplishments of the project?
- ✓ What, if any, are the negative effects of the project?
- ✓ Did the Urban HEART implementation result in putting health equity issues higher on the agenda of local, regional and/or national governments and other agencies?
- ✓ Are there plans for scaling up Urban HEART implementation in the region/country?
- ✓ Have other municipalities adopted or taken interest in Urban HEART?
- ✓ Did the Urban HEART implementation generate or strengthen other policies or programmes beyond those directly resulting from the pilot project?
- ✓ Did the Urban HEART implementation generate or strengthen intersectoral collaboration to address health/health equity issues?

Annex B. Participants in focus group discussions and interviews

Technical advisory committee members who participated in focus group discussions:

- Dr Mohammad R. Vaez Mahdavi, MD PhD, Professor of Physiology

- Dr Mohsen Asadi Lari, MD PhD, Assistant Professor of Epidemiology

- Dr Ali A. Farshad, PhD, Professor of Occupational Health

- Dr M. Mehdi Golmakani, MD, Director of Health, Municipality of Tehran

- Dr Ahmad A. Noorbala, MD, Professor of Psychiatrics

- Dr Soghrat Faghihzadeh, PhD, Professor of Statistics

- Dr Naser Kalantari, MD, Associate Professor of Paediatrics

- Dr. Hossein Raghfar

In addition, 12 interviews were done with members of the technical advisory committee, including:

- Dr Hossein Malek Afzali, PhD, Professor of Public Health

- Dr Mohammad R. Vaez Mahdavi, MD PhD, Professor of Physiology

- Dr Soghrat Faghihzadeh, PhD, Professor of Statistics

- Dr M. Mehdi Golmakani, MD, Director of Health, Municipality of Tehran

- Dr Ali A. Farshad, PhD, Professor of Occupational Health (by telephone)

- Eng. Ali A. Haery, Director of Iranian Students' Polling Agency

The external evaluation team carried out interviews more than once with several of the key persons mentioned above. The evaluation team, including Dr Hamid Allahverdipour, NazilaTajaddini and Hossein Behdjat, carried out all focus group discussions and interviews.

Annex C. Members of Tehran Urban HEART team

The members of the Tehran Urban HEART team were as follows:

- M.H. Ayazi, Senior Adviser to the Mayor

- Ali Aasghar Farshad, Professor of Occupational Health

- Hossein Malek Afzali, Professor of Biostats and Public Health

- Ali Maher, Adviser to the Deputy of Coordination (Tehran Municipality)

- Soghrat Faghihzadeh, Professor of Statistics

- Golam Hossein Salehi, Adviser to the Deputy of Coordination (Tehran Municipality)

- Naser Kalantari, Associate Professor of Paediatrics and Nutrition

- Farhad Sadr, DG in Deputy of Coordination (Tehran Municipality)

- Ahmad Ali Noorbala, Professor of Psychiatrics

- Ali Montazeri, Professor of Public Health

- Hossein Raghfar, Professor of Economics

- Mohammad Taghi Joghataei, Professor of Rehabilitation

Other contributors were:

- Dr Mohammad R. Vaez Mahdavi, MD PhD, Professor of Physiology and former Deputy of Tehran Municipality

- Dr Mohsen Asadi Lari, MD PhD, Assistant Professor of Epidemiology

- Dr M. Mehdi Golmakani, MD, Director of Health, Tehran Municipality

Annex D. Samples of questionnaires

Urban Equity Assessment Study – General household questionnaire (2008)

Section 1 Household identification form (information form)

1.   Household ID Code

District	Region	Block	Household

2.   Name and surname of the head of the household: _____

3.   Interviewee code (the person's code being registered in the household) [   ]

4.   Address:

4.1 District No. [|]

4.2 Region No. [|]

4.3 Neighborhood _____

4.4 Mailing address _____

4.5 Post Code (10 digits) [| | | | | | | | |]

4.6 Tel No. _____   Mobile No. _____

5.   Duration of residence at current address [|] (year)

      If under 6 months: [   ] (months)

6.   Head of the household's place of birth: (please state)

      Number of family members: [   ]

      Time the interview started: _____ hour _____ minute

      Time the interview ended: _____ hour _____ minute

      Interviewer: Miss/Mr _____ Interviewer Code: _____

      Date of interview: _____ Signature: _____

Do not write anything on this part

Supervisor's name: Miss/Mr _____ Supervisor's code: _____

The questionnaire is endorsed: □   Date of interview: _____   Signature: _____

Reviewer: Miss/Mr _____ Reviewer code: _____ Date of review: _____

Section Two- General Particulars of the Family Members.

7- the person's code in the household	For All the Members				Members aged 5 years & above	Members aged 6 years & above				Members aged 10 & above	16- Insurance Cover		
	8- Family members'name & surname	9- Relation with the head of the family	10- Gender	11- Date of birth	12- Education	13- Occupation status	14- Type of job			15- Marital status	Medical		16-3- Pension
							Job 1	Job 2	Job 3		16-1-	16-2- Complemen insurance	
		1- Head of the family. 2- Spouse 3- Child. 4- Son or daughter-in-law. 5- Grand child or great grand child 6- Parent 7- Sibling 8- Others 9- Relatives 10 Non-relatives	1- Male 2- Female	Day/ Month/ Year	1- Illitrate 2- nursery/ Pre school 3- Only reading & Writing 4- Primary school 5- Secondary school 6- High school diploma 7- Post secondary 8- Bachelor of science 9- Master of science & above	1- working 2- Unemployed (seeking a job) 3- Unemployed (having income) 4- Student 5- Housewife 6- Others 7- Pensioner/ retired				1- Having a spouse 2- Widowed 3- Divorced 4- Unmarried	1- Social security 2- Medical insurance 3- Others 4- Not insured	1- Yes 2-No	1- Social security 2- Public staff 3- Others 4- Private 5- Without pension

Section Three- Residency Information, home facilities and the household necessities of

17- Ownership of the residency
☐ 1- Landlord   ☐ 2- Tenant   ☐ 3- Other (please state)

    18- Number of the rooms at disposal
19- Area of the house (square meters)   ☐☐☐☐

20- Whether the household utilize the following facilities at home?

	Facilities	Yes		No
20-1	Tap water	Independently	Common	
20-2	Telephone			
20-3	Bath			
20-4	Kitchen			
20-5	Lavatory			

21- Whether the household utilize the following equipments?

		Yes	No	Using for job
21-1	Car			
21-2	Motorcycle			
21-3	Cell phone			
21-4	Freezer			

22- What is the main source of energy for heating of the household?

Others	Gasoil	Gas	Electricity
☐	☐	☐	☐

Section Four- Information on the children's health, birth, and death (under 5 years old)

24- Is there any child under 36 months in the family? □1-yes □ 2- No (go to the question No. 24-1)

23-1	Has been occurred any childbirth in the family in the recent year?	□1- yes, alive □2- yes, dead	□3- No, (go to the question No. 23
23-2	If yes, where has it been occurred?	**First delivery** □1 - Hospital Go to the question No. 23-4	**Second delivery** □1 - Hospital Go to the question No. 23-4
23-3	If the delivery has not occurred at the hospital, who helped the delivery?	**First delivery** □ 1-obstetrician □ 2- midwife □ 3- others	**Second delivery** □ 1-obstetrician □ 2- midwife □ 3- others
23-4	Has the infant of 6 to 12 months been solely breastfed in his/her first six months of life?	First child code □ □1- Yes	Second child code □ □1- Yes
23-5	How did the breast feeding in the first 2 years of infant's life last (for the children aged 24-36 months)?	First child code □ Duration of breast feeding (months) □□	Second child code □ Duration of breast feeding (months) □□
24-1	Has anyone of the family died in the last year?	□ 1- Yes	

		deceased 1			deceased 2		
24-2	If yes, what was his/her age and gender?	24-2-1- Age		-24-2-2 Gender □1- male □2- female	24-2-1- Age		-24-2- Gender □1- male □2- female
		Under 5 Month	Above 5 Year		Under 5 Month	Above 5 Year	

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Is there any children under 24 months (0 month till 23 months and 29 days) in the household? ☐ 1- Yes ...... ☐ 2- No
Does the infant have vaccination card? ☐ 1- Yes ...... ☐ 2- No .....

First infant's code No. ☐☐

Second infant's code No. ☐☐

1- Type of the vaccine	2- Vaccination schedule	3- With registration card		4- Without registration card (based on the mother's memory)	
		Injected (date)	Not injected	yes	No
25-3-BCG	At birth				
25-4-Polio	At birth				
	First dose				
	Second dose				
	Third dose				
25-5-DTP (diphtheria, tetanus,pertussis)	First dose				
	Second dose				
	Third dose				
25-6-Hepatitis B.	First dose				
	Second dose				
	Third dose				
25-7-MMR	First dose				

1- Type of the vaccine	2- Vaccination schedule	3- With registration card		4- Without registration card (based on the mother's memory)	
		Injected (date)	Not injected	Yes	No
25-3-BCG	At birth				
25-4-Polio	At birth				
	First dose				
	Second dose				
	Third dose				
25-5-DTP (diphtheria, tetanus,pertussis)	First dose				
	Second dose				
	Third dose				
25-6-Hepatitis B	First dose				
	Second dose				
	Third dose				
25-7-MMR	First dose				

Has any accident happened for any members of the family <u>in the last year</u>? ☐ 1-
Yes…☐ 2-No …(Go to question 27)

If yes, ask the following questions:

	26-1 Region of the accident	26-2 Type of accidents	26-3 Type of the traffic accident	26-4 Place of accident	26-5 method of transport	26-6 Outcome of accident
The person's code in the household	District number (1-22) Suburb/ out of the city (88) Unspecified (99)	(1)Burn (2) Drowning (3) Electrical stroke (4) Fall (5) Poisoning (6) Suffocation (7) Suiside (8) Bite (9) Traffic accidents (10)Stab wound (11) Street quarrels (12)Others	(1)Car-person accident (2)Biker accident (3) Motorcycle accident (4)Car accident	(1)House (2)School & educational places (3)Public places (4) Sport & recreational places (5) Streets & allies (6)High ways & roads (7)Work places (8)Other	(1) Trained staff (2)Not trained people (3)Not transferred	(1) Recovered (2)Under treatment (3) Disability (4) Death

Section six- Domestic Violence

27- Has any of the following domestic violence been occurred between the family members during the last month? ☐ 1- Yes ...☐ 2- No (Go to the question No. 28)

	27-1- Type of the violence	27-2- Where did you refer to resolve it as the last resort?
Code of the family member (victim)	1- Physical violence with complications (bruise, rupture, bleeding, fraction, dislocation) 2- Physical violence without complications (pushing, slaping, kicking) 3- Insult, verbal violence 4- Others (specified)	1- Parents 2- Friends/ acquaintances/neighboures 3- Police station 4- Medical centers 5- Court/forensic medicine 6- Not refered to anyone

Section Seven- Evaluation of disability

28- Is there any disable person in the household? ☐ 1- Yes ...☐ 2- No. .... (Go to the question No. 29)

If yes, which type of the following disability has he or she?

Person's code in the household	28-1- Type of disablity							28-2- Whether he/she uses rehabilitation services? (1) No (2) Public (3) Charity (4) Private
	Paralized	Amputee	Completely blind		Completely deaf	Mental disability	
			One eye	Two eyes			

Section Eight- Responsiveness of the municipality and the level of household's satisfaction

29- Are you familiar with Tehran municipality 137 hot-line? ❑1- Yes
❑2- No .(Go to the question No.30)

29-1- Have you requested or complained through the 137 service in the recent year? ❑1-Yes ❑ 2- No ..... (Go to the question No.30)

29-2- Have the results satisfied you? ❑1- Completely satisfied ❑2- Relatively satisfied ❑3- dissatisfied ❑4- completely dissatisfied

30- Are you familiar with Tehran Municipality 1888 hot-line? ❑1-yes ❑ 2- No (Go to the question No. 31)

30-1 Have you requested or complained through the 1888 service? ❑1- Yes ❑ 2- No (Go to the question 31)

30-2- Have the results satisfied you?

❑1- Completely satisfied❑2- Relatively satisfied ❑3- dissatisfied
❑4- completely dissatisfied

31- Have you been generally satisfied with Tehran Municipality activities and services in the last 2 years?

❑1- Completely satisfied❑2- Relatively satisfied ❑3- dissatisfied
❑4- completely dissatisfied

31-1 Have you (or the family) been questioned by the regional municipality about satisfaction with its services in the last 2 years? ❑1- Yes ❑2- No

32- Have you attended to the central or regional municipality for any reason in the last 2 years? ❑1- Yes ❑ 2- No (Go to the question No.33)

32-1 Have the offered services satisfied you?

❑1- Completely satisfied❑2- Relatively satisfied ❑3- dissatisfied
❑4- completely dissatisfied

32-2 Have you been inquired about the level of your satisfaction after receiving the services? 1- Yes 2- No (Go to the question No.33)

32-3 If yes, how?

❑1- By personal inquiry at the outlet? ❑2- By the forms for the evaluation of the consent

❑3- By the letter to the box planned for direct communication with the mayor & municipailty authorities

❑4- Through the phone inquiry the day after ❑5- Others

Section Nine General Health Questionnaire (GHQ-28)   (David Goldberg)
Person's code in the household: ☐☐
Please read this carefully.

We should like to know if you have had any medical complaints and how your health has been in general, *over the past few weeks.* Please answer ALL the questions on the following pages simply by underlining the answer which you think most nearly applies to you. Remember that we want to know about present and recent complaints, not those that you had in the past.

It is important that you try to answer ALL the questions. Thank you very much for your co-operation.

Have you recently

A1	been feeling perfectly well and in good health?	Better than usual	Same as usual	Worse than usual
	Much worse than usual			
A2	been feeling in need of a good tonic?	Not at all	No more than usual	Rather more than usual
	Much more than usual			
A3	been feeling run down and out of sorts?	Not at all	No more than usual	Rather more than usual
	Much more than usual			
A4	felt that you are ill?	Not at all	No more than usual	Rather more than usual
	Much more than usual			
A5	been getting any pains in your head?	Not at all	No more than usual	Rather more than usual
	Much more than usual			
A6	been getting a feeling of tightness or pressure in your head?	Not at all	No more than usual	Rather more than usual
	Much more than usual			
A7	been having hot or cold spells?	Not at all	No more than usual	Rather more than usual
	Much more than usual			

B1	lost much sleep over worry?	Not at all	No more than usual	Rather more than usual
	Much more than usual			
B2	had difficulty in staying asleep once you are off?	Not at all	No more than usual	Rather more than usual
	Much more than usual			

B3	felt constantly under strain? Much more than usual	Not at all	No more than usual	Rather more than usual
B4	been getting edgy and Much more bad-tempered? than usual	Not at all	No more than usual	Rather more than usual
B5	been getting scared or panicky Much more for no good reason? than usual	Not at all	No more than usual	Rather more than usual
B6	found everything getting on Much more top of you? than usual	Not at all	No more than usual	Rather more than usual
B7	been feeling nervous and Much more than usual	Not strung-up all the time? than usual	No more than usual	Rather more at all

Have you recently

C1	been managing to keep yourself Much less busy and occupied? than usual	More so than usual	Same as usual	Rather less than usual
C2	been taking longer over the things Much longer you do? than usual	Quicker than usual	Same as usual	Longer than usual
C3	felt on the whole you were doing Much things well? less well	Better than usual	About the same	Less well than usual
C4	been satisfied with the way Much less you've carried out your task? satisfied	More satisfied	About same as usual	Less satisfied than usual
C5	felt that you are playing a useful Much less part in things? useful	More so than usual	Same as usual	Less useful than usual
C6	felt capable of making decisions Much less about things? capable	More so than usual	Same as usual	Less so than usual
C7	been able to enjoy your normal Much less day-to-day activities? than usual	More so than usual	Same as usual	Less so than usual

D1	been thinking of yourself as a Much more worthless person?	Not at all	No more than usual	Rather more than usual

than usual

		Not at all	No more than usual	Rather more than usual	Much more than usual
D2	felt that life is entirely hopeless?	Not at all	No more than usual	Rather more than usual	
D3	felt that life isn't worth living?	Not at all	No more than usual	Rather more than usual	
D4	thought of the possibility that you might make away with yourself?	Definitely not	I don't think so	Has crossed my mind	Definitely have
D5	found at times you couldn't do anything because your nerves were too bad?	Not at all	No more than usual	Rather more than usual	Much more than usual
D6	found yourself wishing you were dead and away from it all?	Not at all	No more than usual	Rather more than usual	Much more than usual
D7	found that the idea of taking your own life kept coming into your mind?	Definitely not	I don't think so	Has crossed my mind	Definitely has

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Section Ten: Quality of Life (SF-12)

The SF-12 Health Survey Questionnaire

This survey asks for your views about your health. This information will help keep track of how you feel and how well you are able to do your usual activities. Please answer every question by selecting the answer as indicated. If you are unsure about how to answer a question, please give the best answer you can.

34-1- In general, would you say your health is: (Fill in the circle that best describes your answer)

Excellent	Very good	Good	Fair	Poor
O	O	O	O	O

The following items are about activities you might do during a typical day. *Does your health now limit you* in these activities? If so, how much? (Fill in a circle on each line.)

	Yes, limited a lot	Yes, limited a little	No, not limited at all
34-2- Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	O	O	O
34-3- Climbing several flights of stairs	O	O	O

During the *past 4 weeks*, how much of the time have you had any of the following problems with your work or other regular daily activities *as a result of your physical health*?

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
34-4- Accomplished less than you would like	O	O	O	O	O
34-5- Were limited in the kind of work or other activities	O	O	O	O	O

During the *past 4 weeks*, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of *any emotional problems* (such as feeling depressed or anxious)?

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
34-6- Accomplished less than you would like	O	O	O	O	O
34-7- Didn't do work or activities as carefully as usual	O	O	O	O	O

34-8- During the *past 4 weeks*, how much did *pain* interfere with your normal work (including both work outside the home and housework)?

Not at all	A little bit	Moderately	Quite a bit	Extremely
O	O	O	O	O

These questions are about how you feel and how things have been with you *during the past 4 weeks*. For each question, please give the one answer that comes closest to the way you have been feeling.

How much of the time during the *past 4 weeks*...

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
34-9- Have you felt calm and peaceful?	O	O	O	O	O
34-10- Did you have a lot of energy?	O	O	O	O	O
34-11- Have you felt downhearted and low?	O	O	O	O	O

34-12 - During the *past 4 weeks*, how much of the time has your *physical health or emotional problems* interfered with your social activities (like visiting friends, relatives, etc.)?

All of the time	Most of the time	Some of the time	A little of the time	None of the time

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O	O	O	O	O

34-13- *Compared to one year ago,* how would you rate your health in general now?

Much better now than one year ago	Somewhat better now than one year ago	About the same as one year ago	Somewhat worse now than one year ago	Much worse now than one year ago
O	O	O	O	O

Section Eleven- Information on the household costs

How much is the average costs of the following items for all members of the family in the specified term?

code			period (months)	Cost (Rial)	
35-1	Average costs of clothing & footwear		6		
35-2	Average costs of the household health	Medicines	One		☐ insurance
		Medical diagnosis	One		☐ insurance
		medical visit	One		☐ insurance
		Transport fee for medical services	One		
		Hospital	12		☐ insurance
		Other health services (paramedical, rehabilitation,ambulance, etc.)	12		☐ insurance
35-3	Average costs of tobacco		One		
35-3	Insurance average costs	Medical services (public staff, armed forces, other groups, etc.)	One		
		Retirement (public staff, armed forces, other groups, etc.)	One		
		Social security (personal share of the insurance fee)	One		
		Other insurances	3 months		
35-4	Average costs of transport services inside the city	Public transport	One		
		Rental car/ tel taxi	One		
		Personal car maintaining	One		
		car fuel	One		
35-5	Average costs of the household communication (Telephone, internet connection, etc.)		One		
35-6	Average costs of the household	Sport & amusement	One		
		Cultural (cinema, theater,	One		

	recreational & cultural facilities	different books, etc.)		
35-7	Average costs of the household miscellaneous goods &services	Personal services (barber, housekeeping, dry cleaning, ...)	One	
		Social services (kindergarten, nursing home, disables' school, etc.)	One	
35-8	The household educational average costs	Elementary school	12	
		Secondary & high school	12	
		University	12	
		vocational/ open training	12	
35-9	Average costs of dwelling	Rent, repair, instalment, upkeep, etc.	12	
35-10	Average costs of the household energy consumption	Electricity, gas, gasoline, ...	A month in Summer	
			A month in Winter	
35-11	The household average investment	Land, stock shares, building, estate, ...	12	
35-12	The household average saving		12	

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Section Twelve- Smoking tobacco, and addiction

36- Has any of the family members above 13 smoked any forms of tobacco such as cigarette, waterpipe, or pipe in the last month? ☐ 1- Yes   ☐ 2- No (Go to question 37)

The person's code in the household	36-1- Cigarette	36-2- waterpipe, pipe
	1- smoking 2- probably smoking 3- quit smoking	

37- Has any of the family members above 13 already consumed narcotic substances such as opium, heroin, cannabis, or extacy? ☐ 1- Yes   ☐ 2- No (end of the interview)   ☐ 3- I don't know (End of the interview)

	37-1- Opium (or other substances such as heroin, krack, ...)	37-2- Stimulant drugs such as cannabis, cocaine, glass or extacy
The person's code in the household	Consumption pattern in recent month 1- Never used in the last month 2- Once to three times a month for fun 3- Once to three times a week regularly 4- Once to three times a day 5- I don't know	

Annex E. Matrices for indicators: Urban HEART pilot, Tehran

Findings of Urban Heart project in Tehran were demonstrated in several matrices to help the policy makers. For example some of the most important indicators (and bi-products) are in tow matrices as below:

The following matrix uses colour coding for each district and indicator (G = green, Y = yellow, R = red).

District	Male 10+ unemployment rate	Male 10+ Unemployment	10 – 15 Employment rate	FFCI	Catastrophic costs	Violence rate	Severe violence rate	Addiction rate	Higher education	Illiterate 15+	Traffic accidents	Suspected to mental disorder	Somatization	Anxiety	Depression
1	G	Y	Y	G	Y	G	G	G	G	Y	G	G	G	G	G
2	Y	Y	Y	Y	G	Y	Y	G	G	G	Y	Y	G	Y	Y
3	G	Y	G	G	Y	Y	Y	G	G	G	G	G	G	G	G
4	Y	Y	G	G	G	Y	Y	Y	G	G	Y	Y	Y	Y	Y
5	Y	Y	G	Y	Y	Y	Y	Y	G	G	Y	Y	G	Y	Y
6	Y	R	G	G	Y	Y	Y	G	G	G	Y	Y	Y	Y	G
7	Y	Y	G	G	Y	Y	R	Y	Y	Y	Y	Y	Y	Y	Y
8	Y	Y	G	G	Y	G	Y	R	Y	Y	Y	G	Y	Y	Y
9	R	R	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	R	R
11	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
12	G	Y	R	Y	Y	R	R	R	Y	Y	G	Y	Y	Y	Y
13	Y	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
14	G	Y	Y	Y	Y	Y	Y	R	Y	Y	R	Y	Y	Y	Y
15	Y	G	Y	R	R	Y	Y	R	R	R	Y	R	Y	Y	R
16	R	Y	Y	R	R	Y	Y	Y	R	R	Y	R	R	R	R
17	R	G	Y	R	R	G	Y	Y	R	R	Y	R	Y	Y	R
18	Y	Y	G	R	Y	Y	G	Y	R	Y	Y	Y	Y	Y	Y
19	Y	Y	G	R	Y	R	Y	Y	R	Y	Y	Y	Y	Y	Y
20	Y	Y	Y	R	Y	R	Y	R	Y	R	Y	R	Y	Y	Y
21	R	R	G	Y	R	Y	G	Y	Y	Y	Y	Y	Y	Y	Y
22	Y	R	G	Y	G	Y	Y	G	Y	Y	Y	Y	Y	Y	Y

District	Person per room	Area per capita	Abnormal home	Personal computer	Family size	Piped water (independent)	Landline Telephone	Bathroom (independent)	Kitchen (independent)	Toilet (independent)	Mobile Phone	Freezer	Car	Piped gas
1	yellow	green	green	green	yellow	green	yellow	green	green	green	green	green	green	yellow
2	yellow	green	green	green	yellow	green	green	green	green	green	green	green	green	yellow
3	yellow	green	green	green	yellow	yellow	yellow	green	green	green	green	green	green	yellow
4	yellow	yellow	yellow	yellow	yellow	green	yellow	green	green	yellow	yellow	yellow	yellow	green
5	yellow	green	green	green	yellow	green	yellow	green	green	yellow	green	green	green	red
6	green	green	green	green	green	green	yellow	green	green	green	yellow	green	green	yellow
7	yellow	yellow	yellow	yellow	yellow	green	yellow	green	green	yellow	yellow	yellow	yellow	yellow
8	yellow	yellow	yellow	yellow	yellow	green	yellow	yellow	green	yellow	yellow	yellow	yellow	green
9	yellow	yellow	yellow	yellow	yellow	green	yellow	yellow	yellow	yellow	yellow	yellow	yellow	yellow
10	yellow	yellow	yellow	yellow	yellow	green	yellow	yellow	green	yellow	yellow	yellow	red	green
11	yellow	yellow	yellow	yellow	yellow	green	yellow	yellow	green	yellow	yellow	yellow	yellow	green
12	yellow	yellow	yellow	yellow	yellow	yellow	yellow	red	yellow	yellow	yellow	yellow	yellow	yellow
13	yellow	yellow	yellow	yellow	yellow	green	yellow	yellow	yellow	yellow	yellow	yellow	yellow	green
14	yellow	yellow	yellow	yellow	yellow	green	yellow	yellow	yellow	yellow	yellow	yellow	yellow	green
15	red	red	yellow	red	red	green	red	red	yellow	red	red	red	red	green
16	red	red	red	yellow	red	green	red	red	red	red	red	red	red	green
17	red	red	red	red	red	yellow	red	red	red	red	red	red	red	red
18	red	red	yellow	red	red	green	red	red	yellow	yellow	yellow	yellow	red	green
19	red	red	red	yellow	red	yellow	red	red	red	red	yellow	red	red	green
20	yellow	yellow	yellow	yellow	yellow	green	yellow	green	green	yellow	yellow	yellow	yellow	green
21	yellow	yellow	yellow	yellow	red	green	yellow	green	green	yellow	yellow	green	green	yellow
22	yellow	yellow	green	yellow	yellow	green	green	yellow	green	yellow	yellow	yellow	green	yellow

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