Urban and peri-urban forestry and greening in west and Central Asia

Experiences, constraints and prospects

Ulrika Åkerlund
in collaboration with:
Lidija Knuth, Thomas B. Randrup and Jasper Schipperijn

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Livelihood Support Programme (LSP)
An inter-departmental programme for improving support for enhancing livelihoods of the rural poor.

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The Livelihood Support Programme

The Livelihood Support Programme (LSP) evolved from the belief that FAO could have a greater impact on reducing poverty and food insecurity, if its wealth of talent and experience were integrated into a more flexible and demand-responsive team approach.

The LSP works through teams of FAO staff members, who are attracted to specific themes being worked on in a sustainable livelihoods context. These cross-departmental and cross-disciplinary teams act to integrate sustainable livelihoods principles in FAO's work, at headquarters and in the field. These approaches build on experiences within FAO and other development agencies.

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The main goal of this sub-programme is to build stakeholder capacity to improve poor people's access to natural resources through the application of sustainable livelihood approaches. The sub-programme is working in the following thematic areas:

1. *Sustainable livelihood approaches in the context of access to different natural resources*
2. *Access to natural resources and making rights real*
3. *Livelihoods and access to natural resources in a rapidly changing world*

This thematic study on "urban and peri-urban forestry" focuses on the potentials and constraints for urban forestry development at regional and sub-regional levels considering the current experience and future prospects of urbanization in the region that is expected to take place in the next 15 years.

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List of acronyms and abbreviations

ACC	Afghan Conservation Corps
ATP	Armenia Tree Project
CBD	Convention on Biological Diversity of the United Nations
CIS	Commonwealth of Independent States
COP	Country Outlook Paper[1]
DCFLP	Danish Centre for Forest, Landscape and Planning
FAO	Food and Agriculture Organization of the United Nations
FOWECA	Forestry Outlook of West and Central Asia[2]
FRWO	Forest, Range and Watershed Management Organization
GDP	Gross National Product
GPFA	Global Partnership for Afghanistan
GIS	Geographical Information System
HDI	Human Development Index, tool developed by UN Habitat
FOWECA	Forestry Outlook Study in West and Central Asia
FRWO	Forest, Range and Watershed Management Organization of Iran
IDP	Internally Displaced People
LFCC	Low Forest Cover Countries
MCW	Making Cities Work
TOF	Trees outside forests
UAE	United Arab Emirates
UPFG	Urban and Peri-Urban Forestry and Greening
UNCCD	United Nations Convention on Combating Desertification
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change
WECA	West and Central Asia
WHO	World Health Organization of the United Nations
UNOPS	United Nations Office for Project Services
WECA	West and Central Asia

[1] Drafts of national papers prepared and submitted to FAO by National FOWECA Focal Points

[2] FOWECA comprises the following countries: Afghanistan, Armenia, Azerbaijan, Bahrain, Cyprus, Georgia, Iran, Iraq, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Lebanon, Oman, Qatar, Saudi Arabia, Syria, Tajikistan, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan, and Yemen.

1. INTRODUCTION

1.1 Background

FAO has initiated a series of global and regional sector outlook studies to examine linkages between forests and societies and to indicate emerging opportunities and challenges. The Forestry Outlook Study for West and Central Asia (FOWECA) has considered these issues through an extended consultative process in 23 different national contexts in West and Central Asia. Using 2020 as a reference year, FOWECA aims to analyze the trends and driving forces that will shape the forestry sector during the next two decades and to identify policies, programs and investment options that can enhance the sector's contribution to sustainable development. Country Outlook papers outline the current situation, trends and future scenarios at the national level. In addition, FAO has commissioned a series of studies on thematic issues relevant to the forest sector including: (a) policy and institutional changes and land-use dynamics, (b) urban and peri-urban forestry, (c) watershed management, (d) environmental aspects of forests and trees, (e) wood energy, (f) forestry and poverty alleviation, (g) wildlife management and (h) wood consumption trends.

One of the important aspects of FOWECA is the long term prospects for urban and peri-urban forestry in West and Central Asia, especially in the context of urbanization. This thematic study on "urban and peri-urban forestry" focuses on the potentials and constraints for urban forestry development at regional and sub-regional levels considering the current experience and future prospects of urbanization in the region that is expected to take place in the next 15 years.

This paper represents part of an area of work on linkages between access to forest resources and poverty in West and Central Asia. Information on the work is provided through a series of LSP Working Papers.

- 13: Poverty and forestry: A case study of Kyrgyzstan with reference to other countries in West and Central Asia by R.J. Fisher, K Schmidt, B. Steenhof and N. Akenshaev.
- 33: Assessing the access to forest resources for improving livelihood in West and Central Asia countries by Tadashi Shimizu.
- 34: Forest - poverty linkages in West and Central Asia: the outlook from a sustainable livelihoods perspective by Pari Baumann.
- 35: Methodology and case studies on linkages between poverty and forestry: Afghanistan, Iran, Kyrgyzstan and Turkey by Tadashi Shimizu and Monique Trudel, with case studies by Ainur Asanbaeva, Mona Kananian, Gh.Naseri and Melekber Sülüşoğlu.
- 36: Urban and peri-urban forestry and greening in west and Central Asia: experiences, constraints and prospects by Ulrika Åkerlund in collaboration with Lidija Knuth, Thomas B. Randrup and Jasper Schipperijn.
- 37: Greening cities for improving urban livelihoods: legal, policy and institutional aspects of urban and peri-urban forestry and greening in the WECA region (with a case study of Armenia) by Lidija Knuth.

1.2 FOWECA in the context of urbanization

Rapid growth of population and its concentration in cities around the world are affecting the long-term outlook for humanity and sustainable development. Despite four millennia as centres for civilization and economic activity cities have never attracted more than a few percent of the global population until the last century. Now, at the beginning of the 21st century, systems of cities have become a dominant factor in the world's social, economic, cultural and political agenda. For better or for worse, the development of contemporary societies will largely depend on the understanding and management of the growth of cities (UN Habitat, 2001). Even though urbanization has been a known fact since the Second World War, and currently there are no indications of reverse trends, good examples of sustainable urban development are few.

Urban forests and green areas can play an important role in enhancing the sustainable development of urban settlements by their multiple functions; improving environment through reduction of pollution, providing livelihood to the urban poor through forest products and enhancing the quality of urban life providing places for meetings and learning. There is a strong link between parks and gardens in the urban area and the surrounding forests, woodlands and rangelands. While the forestry science and practice have traditionally been developed within a rural context, there is a growing pressure and demand on woodlands from societies living in and nearby urban areas. As a result, forests are no longer understood in the limited context of natural resource production or protection, but have to provide a wide range of socio-cultural, economic and environmental services. In short, forestry needs to become better at serving urbanized societies. At the same time urban parks and gardens traditionally have been considered as isolated islands of private or public open space[3] in the cities, which are not related to each other or to the surrounding forests. But by looking at all the urban green elements, regarding them as parts of the urban green resource, the cumulative effect of the whole system increases their benefits.

This thematic study on Urban and Peri-urban Forestry and Greening (UPFG) is carried out within the FOWECA study and aims to give a general overview of the current status and trends within UPFG in the region of West and Central Asia. Special focus will be put on the particular role of the urban green resource – economically, socially and culturally – in enhancing the sustainable urban development and quality of urban life in the countries in the region. Future scenarios based on analysis of the current status and trends, as well as the driving forces, are drawn up with attached recommendations for the future.

Physical geographical features of the region vary from mountainous, with sometimes humid and temperate climate to rangeland and desert. Several countries have a severe climate with drought, erratic precipitation and scarcity of water, dealing with soil and land fragility, and extensive mountainous areas. Natural hazards such as earthquakes, sand- and dust storms, as well as landslide and erosion, floods and mudslides are common features in the region as a whole. However, the low-forest cover might be the most common feature, making forestry not the most important sector, but nevertheless, important for environmental aspects such as biodiversity, protection of

[3] The term "open space" refers to all kinds of non-built up space in urban areas.

water reserves and land erosion and for local livelihood of the majority of the poor population.

From a socio-economically point of view the region is heterogeneous, with the highly developed oil-rich countries as one extreme and the post-war countries like Afghanistan, Iraq and Yemen as another extreme. Most countries are however in a stage of transition, adapting to market economy, struggling with the challenges of ethnic conflicts, globalization and urban expansion. This fact raises the question about the future role and strategies for Urban and Peri-urban Forestry and Greening, and how the urbanization in the future will affect the urban green resource[4].

1.3 Objectives of the study

This regional outlook study aims at identifying and analysing the problems inherent to the growing urbanization of the region and the social, economic and environmental role trees and forests can play in improving the urban livelihood and meeting future demands of the urban population for forest products and services. The study highlights the potentials and constraints for development of UPFG at regional and sub-regional levels taking into account the current experience in the region as also taking into account the nature of urbanisation that is expected to take place up to year 2020. Specifically the study will focus on the economic, social and cultural aspects of UPFG focusing on following issues:

1. The nature of urbanisation and the differences thereof between the countries/ sub-regions including differences in the nature of migration to the cities in the region and their impact on urban and peri-urban forestry.
2. Long-term trends in urbanisation, including the nature of urbanisation as determined by the various driving forces and the implications for urban and peri-urban forestry in the region.
3. Current level of efforts in urban and peri-urban forestry, indicating successes and failures, and the underlying reasons;
4. Effectiveness of existing institutional arrangements for promoting urban and peri-urban forestry in the region and to what extent the differences are reflected in the overall performance of urban and peri-urban forestry.
5. Financial mechanisms to support urban forestry and their adequacy in making resources available for urban and peri-urban forestry.

[4] For definition of Urban and Peri-urban Forestry and Greening and the Urban Green Resource, see chapter on Definitions.

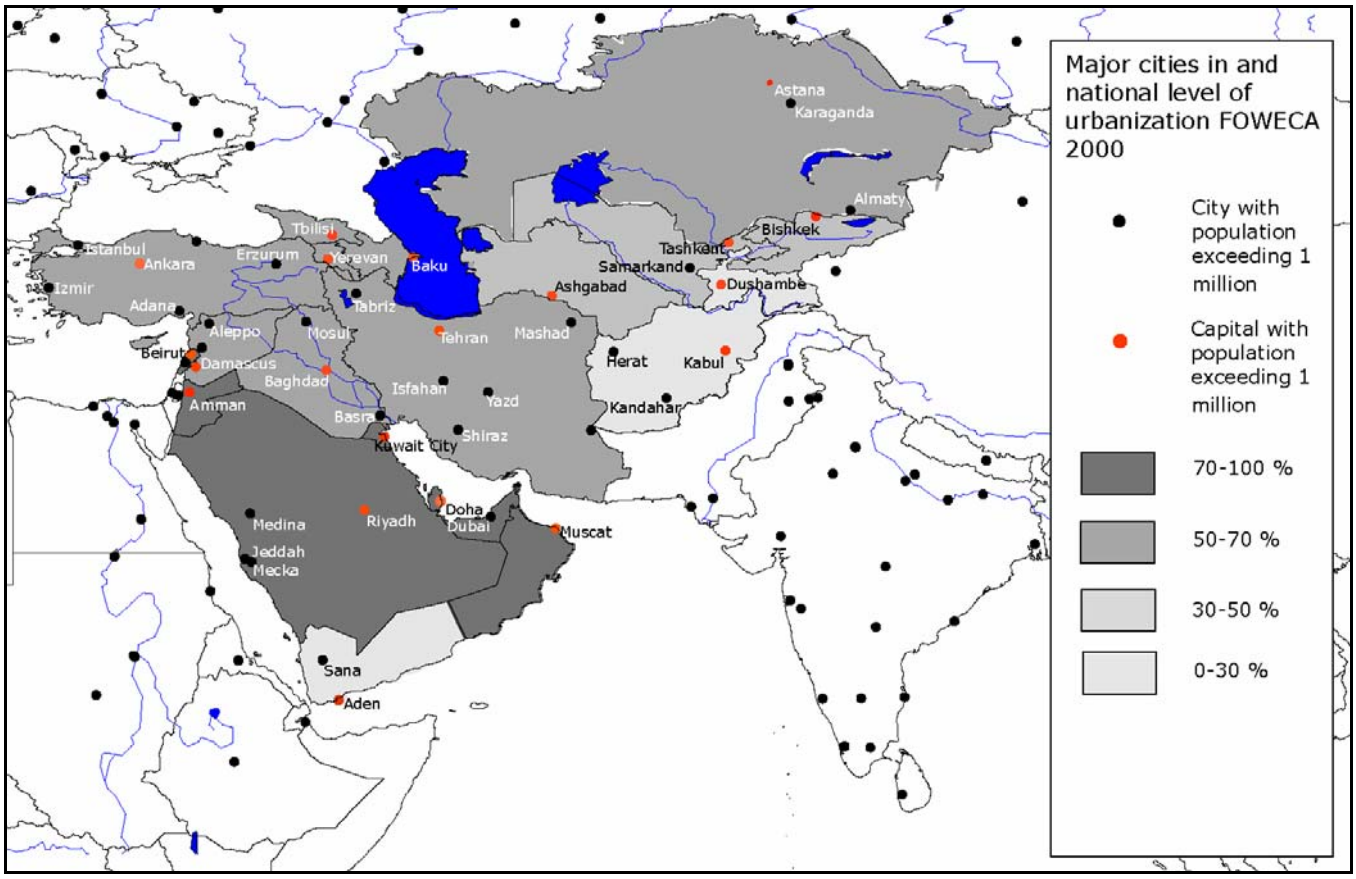

Figure 1: Cities and capitals in the FOWECA region 2005.

The map shows cities (in black) and capitals (in red) with a population exceeding 1 million people. (Map adapted by Ulrika Åkerlund)

1.4 Material and methods

This report is a desk study carried out during four months. No personal visits to the countries have been made. The report is completed by six city case studies on UPFG carried out within the framework of the FOWECA study.

Overall the report is based on material available on the Internet. All statistics on urban population are from UN Population Division's online *World Urbanization Prospects: The 2003 Revision Population Database*, which is the most recent comprehensive database on urbanization available. In this outlook study, data of the year 2000 and prospect for 2020 have been used (see appendix 1). National population figures are from the most recent censuses found in the CIA World Fact Book. The UN Habitat's State of the World's Cities 2002 and 2004/5 as well as Human Development reports from UNDP have provided general and national information on urbanization. Reports from FAO and UNEP have provided information on urban forestry and the urban environment. Other sources of information have been US Congress Library Country studies, city and municipal urban plans, legislations, and conference proceedings. Scientific articles found in databases for academic literature and scientific journals have provided important information. Universities, local municipalities and NGO's have also supplied information on national level through reports and personal

communication. FOWECA Country Reports submitted to FAO during the time of writing, have provided data about UPFG on a national level, based on information from National Ministries and institutions, which are less accessible from the global Internet.

Although the efforts of UPFG in the region and the 23 countries seem to be numerous, the time frames for this report limit to investigate only a few and most accessible of them. Therefore, the UPFG result of the report is limited but gives good general indications of the spectrum of trends and their interpretation applied in the context of the overall global urban situation. The trends have in turn been used to cast future scenarios for urban forestry and greening in the region. The last chapter comprises recommendations for preventing or changing the scenarios.

1.5 Definitions

Concepts of *urban*, *urbanization*, *urban and peri-urban forestry and greening* are often interpreted in different ways in national and disciplinal contexts. For further understanding of the concepts and what they comprise, here follows a brief overview of the terms.

Urban
A global definition of what an urban area is does not exist. National differences in the characteristics that distinguish urban from rural areas, the distinction between the urban and the rural population, is not yet amenable to a single definition that would be applicable to all countries or, for the most part, even to the countries within a region (UN Population Division, 2004). In the WECA region the definition of *urban* varies. In post-soviet countries the definition still follows the two Soviet definitions of urban settlement, i.e. *cities* and *urban-type localities*. The latter is *"officially designated as such, usually according to the criteria of number of inhabitants and predominance of agricultural, or number of non-agricultural workers and their families"*. In other countries the definition of *urban* is related to a specific number of inhabitants. In Bahrain for example, urban areas are *"communes and villages of 2500 or more inhabitants"*, while in Syria, the definition is *"cities or communities with 20,000 or more inhabitants"*. Urban areas could also be defined by local town plans, like in Cyprus and Turkey, or like in Iran where *urban* is *"every district which has a municipality*" (UN Statistics Division, 2002).

Urbanization
Urbanization is a multi-layered process with a complex pattern of driving forces that pushes the development further. In this region the main driving forces are:

- *Globalization*
  Starting in the 1970's with a deregulated labour market, liberalization of financial markets and privatisation of government functions (UNEP, 2002c), globalisation of the economy might be the strongest driving force in the urbanization process today. Globalization allows foreign investors to develop sectors in other countries. Foreign investors tend to invest more in urban than in rural areas. The impacts of globalisation on urban areas have turned cities into centres for services and manufacturing, rather than centres for production and industry. Globalized cities

result in more employment and higher living standards, but also increase of slums and poverty in urban areas (UN Habitat, 2004).

- *Oil resources*

Oil resources and fossil fuels are among the main driving forces for urbanization in the region, in 12 of 23 countries oil is produced, and in all Gulf countries finding of oil was the starting point of urbanization. In many countries incomes from the oil finance the public sector and have also lead to an increased service sector in urban areas (U.S. Congress Library; UN Habitat, 2004).

- *Economies in transition*

The changed global political situation with the collapse of the Soviet Union and development of the European Union has indeed affected the region, starting new economies and societies, especially the eight post-soviet countries. Cyprus, being a member of EU and Turkey in negotiation with EU, are already affected by European situation in their national economies and development status, and are expected to be more so in the future. The era of transition has increased the globalisation and hence urbanization in the region. Economical transition is sometimes interlinked with poor national rural policies, causing poverty in rural areas and triggers migration of people from villages to urban areas and increased urbanization (UN Habitat, 2004).

- *Conflicts and war*

Conflicts and war often leads to migration of rural population towards urban areas, where the situation is safer, and to internal displacement, establishment of refugee camps etc. In the region 16 of 23 countries have recently been in conflict or war (UN Habitat, 2004).

- *Decentralization*

Decentralization is a complex multifaceted concept. It could be described as the process of transfer of authority and responsibility for public functions from the central government to intermediate and local governments or quasi-independent government organizations and/or the private sector (Worldbank, 2001).

Migration

Migration is a result of the different socio-economical driving forces. In an urban context, two kinds of migration are identified:

1. National migration from rural to urban areas, where the rural population is attracted by the higher living standards in urban areas or forced by the poor conditions in rural areas, to migrate to cities.
2. International migration. In-migration or immigration of international guest workers, like in most Gulf countries, where non-locals make out sometimes more than half of the urban population. Or out-migration/emigration to other countries due to wars, ethnic conflicts or impoverished living standards in the own country.

Urbanization is also a result of natural growth of the urban population, due to enhanced socio-economical situation. The urban situation is of national importance as the urban economy affects the whole country and region.

Even though urbanization might seem unsustainable, there is a strong, positive link between national urbanization and national human development. The human development index (HDI) is high in countries with an urbanization level over above 70 percent. Countries that have urbanized earlier have higher incomes, more stabile economies, stronger institutions and are able to better withstand the volatility of the global economy (UN Habitat, 2001).

1.5 Urban and Peri-Urban Forestry and Greening

Urban and Peri-Urban Forestry and Greening (UPFG) have a wide variety of definitions. In its broadest definition it refers to all activities related to the whole *urban green resource*. The urban green resource comprises all green elements under urban influence such as:

- Street trees and road plantations
- Public green areas such as parks, gardens, cemeteries,
- Semi-private space such as green space in residential areas and in industrial or specially designated parks
- Public and private tree plantations on vacant lots, in green belts, woodlands, rangeland, and forests close to urban areas
- Natural forest under urban influence, such as nature reserves, national parks, forests for eco-tourism.
- Urban agricultural land, such as orchards, allotments (dachas) etc.

The FAO term Trees Outside Forests (TOF), referring to all trees that are not in forest, forest lands and other wooded lands in a rural and urban context, are indeed on agricultural and built-up areas and part of all above-mentioned urban green resource elements (FAO, 2002a).

UPFG acts in the interface between urban and rural, dealing with multiple functions of the urban green resource, in which several disciplines and professions are involved. UPFG could be described as the activities with the overall objective not that of timber production or pure beautification but, through a balanced structure of age and species, a sustained production of environmental, social and economic benefits (Nilsson et al, 2001). In developed countries UPFG has gained attention during the last 20 years mainly for its social, cultural and ecological benefits. In developing countries the issues of livelihood, related to forest products such as timber, fuel wood and non-wood forest products (fruits, nuts etc), and environmental issues, like watershed management and protection from erosion, have gained more attention (Kuchelmeister, 2000).

In order to deal with the urban green resource and enhance the benefits of the different elements it is important to consider the following aspects, which will be addressed in this report:

- Policies and legislation
- Strategic planning and management
- Financial mechanisms and operational maintenance
- Ownership and access
- Technology in design, construction & materials
- Key actors and stakeholders
- Education and capacity

There was no documentation available focusing at the urban green resource as a whole, especially in the area of laws and policies. This is one factor explaining why in this study it is sometimes referred to certain specific elements of the urban green resource such as parks, urban and peri-urban forests.

2. URBANIZATION PROCESS

The region of West and Central Asia covered by the FOWECA study comprises a spectra of urbanization from some of the most urbanized countries in the world (Qatar, Bahrain and Kuwait), as well as some of the least urbanized countries in the world (Yemen, Afghanistan and Tajikistan) (see Figure 2). The number of metropolises is however small. In the region only Istanbul has a population exceeding 10 million. But many cities have a population between 2-6 million, for example Tehran, Aleppo, Beirut, Damascus, Baghdad, Riyadh, Baku, Tashkent, and Arbil. Capitals and larger cities often merge with surrounding cities, generating larger urban agglomerations and urban populations (UN Population Division, 2004) (See Figure 1).

The WECA region is heterogeneous, but considering the similarities in current driving forces for urbanization, three different sub-regions have been identified. These are;

- **The Commonwealth of Independent States** (**CIS) countries** (Georgia, Armenia, Azerbaijan, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan and Turkmenistan), sharing a common urban development history and institutional setting
- **The Oil-Economy countries** (Iran, Saudi Arabia, Oman, Qatar, Iraq, Bahrain, Kuwait, and United Arab Emirates) where the oil have been and still is the main driving force for urbanization.
- **The Third Cluster** (Turkey, Syria, Lebanon, Jordan, Afghanistan, Yemen and Cyprus), which do not have a specific element in common, except that they do not pertain neither to the CIS (first cluster) nor to the Oil-Economy countries (second cluster)

2.1 CIS countries

The history of many cities in the former Soviet republics in Caucasus and Central Asia, goes back hundred and even thousand of years. Since ancient times they were considered as large political, cultural and trading centres along the Silk Road and in the rich mountains of Caucasus. Tashkent in Uzbekistan, the largest city in this cluster with approximately two million inhabitants, is 2000 years old (UNEP, 2001a).

The CIS countries comprise the former Soviet republics of Georgia, Armenia, Azerbaijan, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan and Turkmenistan. These countries differ in terms of resources, geographical features and level of development, but share the Soviet history and carry a similar Soviet heritage in terms of urban planning and institutional setting. The current transition process, shifting from centralised economy to market economy starting in 1991 when most of these states gained independence, have had a big impact on the urban situation. Today, Central Asian countries are predominantly rural, except for Kazakhstan, while the level of urbanization in the Caucasus countries is around 50 percent (UN Habitat, 2001).

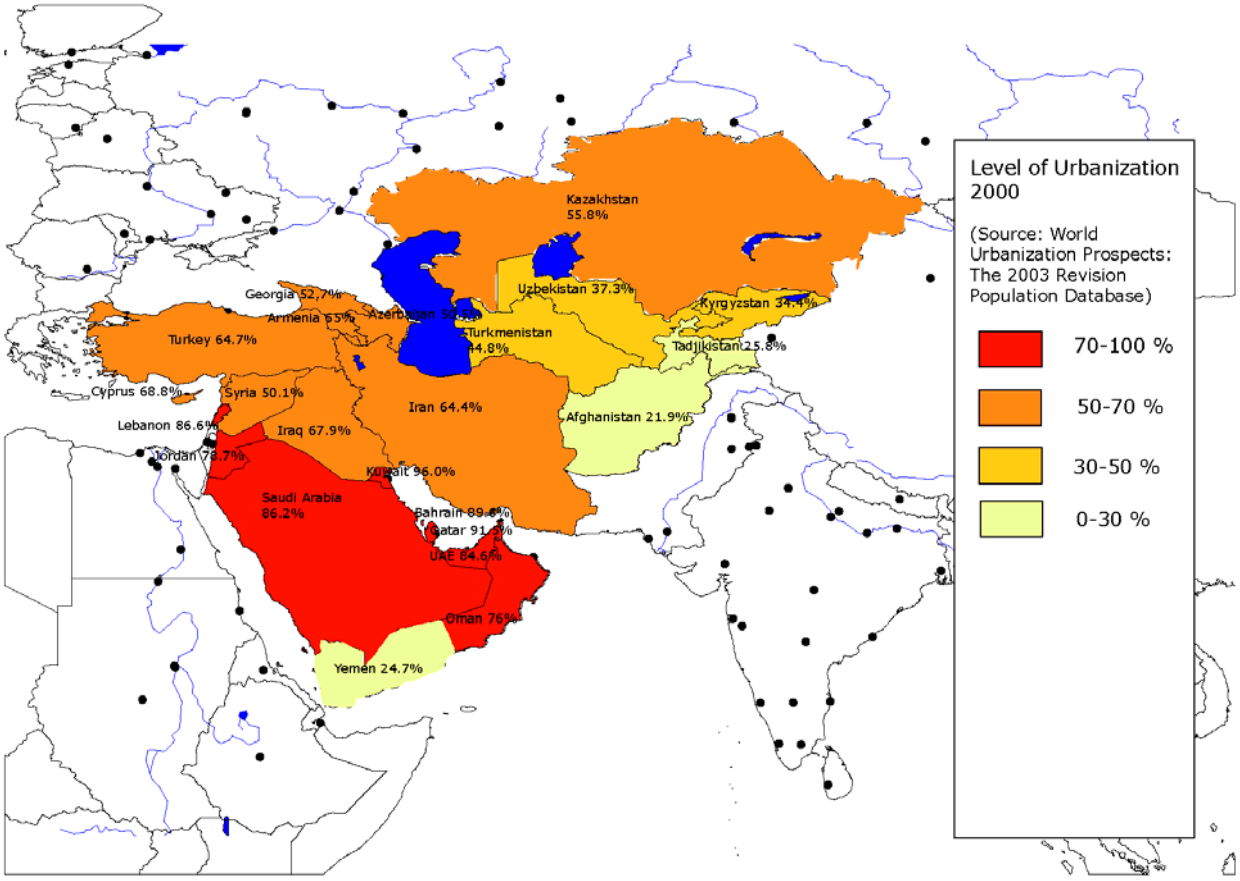

Figure 2: The level of urbanization year 2000 in the FOWECA region

By the year 2000 most countries in the region had a level of urbanization between 50-70 percent (orange colour) Only the Oil-economy countries (except for Iran and Iraq), Jordan and Lebanon have more than 70 percent of the national population living in urban areas (red colour). The CIS countries Uzbekistan, Turkmenistan and Kyrgyzstan are still predominantly rural (yellow colour). Least urbanized are the post-conflict countries Afghanistan, Tajikistan and Yemen. The three clusters are developed with consideration to the driving forces for urbanization. (Map adapted by Ulrika Åkerlund, Source: UN Population Division, 2004)

De-urbanization[5] and migration to rural areas

Most CIS countries are multi-ethnic, traditionally with nomadic tribes and non-voluntarily displaced people, moved during Soviet time. Since the break-up in 1991 there has been a massive movement of people (Heleniak, 1997). As a result of the lifting of restrictions on internal migration, most of the 1990's saw a reversal of a decades-long trend of migration out from rural areas, with rural areas regaining population in some of the CIS republics. They also witnessed significant ethnic-based migration, partly due to deteriorating urban living conditions or economic and social stress, and partly as the outcome of growing nationalism (UN Habitat, 2004). Conflicts like the civil war in Tajikistan, the conflict in Nagorno Karabach (between Armenia and Azerbaijan) and in Abkhazia (Georgia) have also resulted in migration, often to urban areas.

[5] De-urbanization: reverse process of urbanization.

Apart from the normal migration trend from rural to urban areas, two additional trends of migration have been observed in the CIS countries. The first is a *de-urbanisation process*, mainly in Kazakhstan, Kyrgyzstan, Armenia and Georgia, where urban population is decreasing due to emigration of Slavs and Germans, who often resided in urban areas (Heleniak, 1997). The second trend is urban-urban migration, caused by closing industries in the countryside. Especially in Central Asia people tend to move from *settlements of urban types,* i.e. smaller towns into *cities* like regional and national capitals. The rural population is less mobile and often stay in rural areas (UNDP, 2004). The overwhelming majority of migrants from rural to urban areas are attracted to large urban agglomerations around capitals. In Georgia for example, the third largest city, Rustavi, is located close to the capital and the Tbilisi-Rustavi urban agglomeration is emerging (UNEP, 2000b). Similar agglomerations exist around Yerevan, Armenia (UNECE, 2002) and Tashkent, Uzbekistan (UNEP, 2001a). There are also indicators on transformation of rural areas into cities. This is the case in Kyrgyzstan where there were 21 cities and 29 urban settlements in the country in 1994, as by 2004 there were 25 cities and 28 urban settlements (UNDP, 2003a).

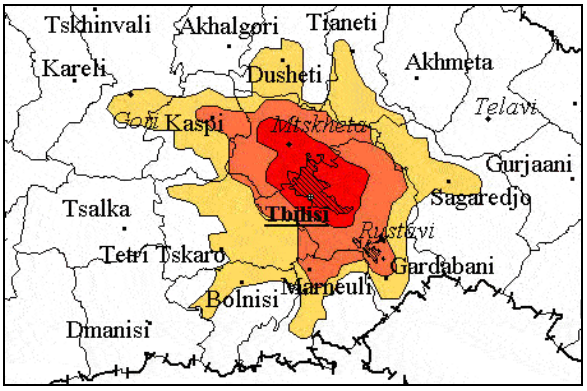

Figure 3: The Tbilisi-Rustavi agglomeration in Georgia.

Urban agglomerations are common around the capitals and other larger cities. Urban areas with good infrastructure attract industry, investment and rural population. Illustration of the distribution and density of population around the capital and the third largest city Rustavi. (Source: UNDP, 2000b)

The Soviet Urban Heritage and the future

Today the cities of CIS countries have to deal with the Soviet urban heritage. This implies shortage of urban housing and urban infrastructure such as water supply and sewage. Large challenges are urban environment, which is deteriorating due to pollution and waste from heavy industries and traffic, economic transition and employment (MCW). Many CIS countries are still working in a rather centralized system and are not promoting urbanization. In Uzbekistan the registration system (a Soviet heritage, used in order to control migration (Gentile, 2004)) is still in practice, making it almost impossible to move within the country without permission from the authorities (Communication 1). But there are attempts trying to attract foreign investors, which are more likely to invest in urban areas. Currently the urban challenge lies within the solution of finding forms for urban governance that allow market forces and smaller governmental units to assume more prominent roles. The choice is largely between continued centralized regional governance and planning or

governance fragmentation, but with greater individual freedoms associated with poly-nucleated urban developments (UN Habitat 2004).

A combination of 1) emigration from urban areas and 2) centralized governance, not promoting foreign investment or urbanization, makes the urbanization processes rather slow. By 2020 none of the CIS countries will have an urbanization rate exceeding 70.0 percent. Tajikistan will be the least urbanized country in the whole region, increasing only 0.4% in 20 years, from 25.8% in 2000 to 26.2% in 2020. Kazakhstan will increase most, from 55.8% to 60.3%. But on the other hand the overall population in Kazakhstan is expected to have decreased by 2020. Other countries will have the following urbanization rate by 2020 (with the rate of 2000 in brackets): Armenia 65.2% (65%), Azerbaijan 53.5% (50.3%), Georgia 53% (52.7%), Kyrgyzstan 37.7% (34.4%), Turkmenistan 53.3% (44.8%) and Uzbekistan 38.7% (24.7%) (UN Population Division, 2004).

2.2 The Oil Economy countries

The discovery of oil resources and development of oil refining has been a crucial driving force in the urbanization processes the oil-rich countries in West Asia, comprising Iran, Saudi Arabia, Oman, Qatar, Iraq, Bahrain, Kuwait and United Arab Emirates (UAE). In fact, many of these countries, like Kuwait, Bahrain, Qatar and United Arab Emirates, had no cities before the oil was discovered in the 1950's (U.S. Library of Congress).

The oil urbanization processes of the Gulf States caused a massive transformation in the urban landscapes, especially in Dubai, Jeddah, Kuwait City, Mecca and Riyadh. In the Gulf States only 26 percent lived in urban areas in the early 1970's. In 1990 it was 73 percent.

Box 1: Urban Development in the Kingdom of Saudi Arabia
The Kingdom of Saudi Arabia has changed its urban-rural ratio from 1:3 in the early 1970's to 3:1 in 1990. The country's capital Riyadh's current population of 5 million is expected to exceed 10 million well before 2030. But it is not only the large Saudi cities that are growing. Smaller cities in the central settlement and development corridor around Riyadh and other Saudi metropolitan areas are showing similar growth patterns, doubling or tripling their populations every ten years. So far, thanks to a strong economical development and centralized planning, Saudi Arabia has been able to control the urban development through five-year plans (UN Habitat, 2004). For example, the Council of Ministers, in its Resolution No. 175 of 18/9/1409, ordered the limitation of urban expansion and set strict regulations, to be complemented by local plans and studies, for future extensions of urban boundaries in proportion to actual urban growth. This should be done in order to prevent the scattered settlements in the outlying urban districts and their linkage to normal urban facilities and service networks, which will need to be substantially expanded if the needs of such residents are to be met (Permanent Mission).

Large exceptions in this region are Iran and Iraq that have a long urban tradition with very old cities like Baghdad and Tehran. Organized urban development started in the 1960's thanks to the oil resources, but has been facing a delayed urbanization in 1980's due to conflicts and societal changes. Because of the US attack on Iraq 2003, urban areas have deteriorated as urban infrastructure, roads, public transports and water and waste management have partly been destroyed. The number of involuntarily displaced people has increased in the urban areas, raising the level of urban poverty. Currently there are several internationally supported projects dealing with the urban development in Iraq, focusing on new housing construction, urban

poverty alleviation, transparent urban management and development of urban infrastructure (UN Habitat, 2004), and the Ministry's Urban Planning Department has allocated ID 7 billion to prepare designs and studies for building new cities in different Iraqi districts (Al Bawaba, 2005). In both Iraq and Iran vast urban development is to expect until 2020, especially in Iran as half of the population is younger than 25 years, and younger people are more mobile and reproductive (McBride et al., 2000).

Rural to urban migration and guest workers

Even though migration from rural to urban areas is common, the high rates of urban population in oil countries are highly correlated to the international migration. About half of the urban population consists of international guest workers (mainly from South-East Asia), and sometimes 80-90 percent of the labour force constitute of migrants. The very large majority of foreigners are concentrated in the capital cities. The high level of immigrants has created an environment of inequality and tensions between national (often referred to as local) and international urban dwellers; the latter never become citizens even though they reside and work their whole life in the country (UN Habitat, 2004).

Oil is the main driving force and, in some oil-rich countries, the only natural resource. With the important infrastructure provided, the countries could produce oil for a long time. Even though some of the countries have reached their peak in terms of capacity to their infrastructure, they will be able to have oil as their main income for several decades from now. In several countries there is a large interest in developing other sectors for sources of income. But as there is general scarce of renewable natural resources, no expertise has been gained and there is a lack of skills, capacity and technology in order to develop these other sectors properly (Communication 2).

By 2020 the urbanization level in the oil-rich countries will be the following (current level in brackets): Bahrain 92.0 % (89.6%), Iran 76.1 % (64.4%), Iraq 76.1 % (67.9%), Kuwait 97.1% (96.0%), Oman 84.1% (76.0%), Qatar, 94.1% (91.5%), Saudi Arabia 91.8 % (86.2%), and United Arab Emirates 88.0% (84.6%) (UN Population Division, 2004).

2.3 The Third Cluster

The third and last cluster of countries comprises Turkey, Syria, Lebanon, Jordan, Cyprus Afghanistan and Yemen. Lebanon, Jordan and Cyprus are quite urbanized, with 86.6%, 78.7 % and 68.8 % respectively, while Afghanistan and Yemen are among the least urbanized in the whole region, with 21.9% and 24.7% respectively. Turkey and Syria are in the middle, 64.7% and 50.1% (UN Population Division, 2004).

None of the countries have the wealth of oil, with a direct consequence on the general lack of resources to finance urban development. Except for Turkey, none of these countries are very rich in natural resources. Even though the urban tradition is longer than in most oil countries, Aleppo in Syria is one of the oldest cities in the world, the urban development has been far from organized. Cyprus and Turkey are facing a different economical situation due to their current and possible future membership of

the European Union. In Lebanon, Jordan and Syria a combination of meagre natural resources (including limited quantities of arable land and access to fresh water), little diversified national economies, inadequate subsidy system, has lead to rapid demographic growth and uncontrolled urbanization. Agricultural societies with rural majorities have abruptly changed into largely urban societies with a limited base in industry and services. These processes proved to be socially problematic, particularly to cities like Amman, Damascus, Sana'a and Istanbul, which rapidly have developed large pockets of concentrated urban poverty. Large urban slums emerged, packed with the poor – many below the age of 20. Impoverished and youthful urban populations have become the central urban issue in Jordan, Syria and Turkey. Few cities are prepared for employment and future housing needs of this young urban population (UN Habitat, 2004).

Box 2: Turkey – massive migration from rural to urban areas
Istanbul is the largest city in the whole West and Central Asia region with more than 10 million inhabitants. It is Turkey's largest city and commercial capital. The growing rate is declining but Istanbul is nevertheless growing and expanding, slowly merging with surrounding cities. Even though there is a serious metropolitan development plan, the rapid growth is mostly spontaneous, without significant control of local or regional authorities. On the eastern side, Istanbul is merging with other cities and on the western side; the city is now enclosing the whole Marmara Sea. Half of the population in Istanbul is poor and live in slums (UN Habitat, 2004). Other cities in Turkey, like Izmir on the west coast, are dealing with similar problems. The annual migration to Izmir is 100,000 people. The massive urbanization causes slums and severe land degradation (Communication 3). Even though there are policies in the country encouraging people to stay in rural areas, the attraction of urban areas is still stronger.

Migration from rural to urban areas and internally displaced people

Urbanization in the Third cluster is caused mainly by migration from rural to urban areas. In addition, the considerable numbers of refugees from decades of conflicts has an impact as well. For instance, in Lebanon, the civil war changed the urbanization processes immensely through migration from rural to urban areas, causing a rapid expansion of the peripheral areas around cities, mainly Beirut, Jounieh, Zahle, Tripoli and Saida (COP Lebanon). In Jordan, more than 80 percent of the Palestinian population in Jordan live in poor neighbourhoods in the urban fringe of main cities and near some rural towns (UN Habitat, 2004). In Afghanistan, around 2 million refugees returned in 2002, of which half a million to Kabul alone. Another 1.5 million were expected to return in 2003 (UNEP, 2003)

Future urban challenges are dealing with employment of the increasing young population, development of new and affordable housing, and decentralization. Decentralization is becoming an increasingly important trend in this sub-region. Many countries are attempting to transfer control of resources and decision-making powers from the central government to the local level. The potential benefits of successful decentralization are significant, however its challenges and obstacles are also numerous, including limited human and financial resources, and workforce and service delivery management (UN Habitat, 2004) For example, Lebanon passed decentralization legislation in the late 1990s. It is estimated that only 30 out of 700 municipalities have an adequate tax base to fund their administrations and delivery of urban services, which will have a direct positive impact on the management of the urban development (MCW, 2005).

By the year 2020 these countries will have the following urbanization rate (rate by 2000 in brackets): Lebanon 90.8% (86.6%), Jordan 82.2% (78.7%), Syria 54.3% (50.1%), Turkey 74.0% (64.7%) Cyprus 73.1% (68.8%), Afghanistan 34.1% (21.9%) and Yemen 34.2% (24.7%) (UN Population Division, 2004).

2.4 Urbanization by 2020

In comparison to the rest of the world the WECA countries will not face a rapidly increasing urbanization by 2020 (see Figure 4). Nevertheless, the national population is increasing in numbers of people and hence the urban population. The regional average of urbanization rate will increase from 61.65% to 66.54%. But the urban population is growing in number inhabitants. In average the number of people living in urban areas will increase by 37 percent units, so until 2020, an urban expansion is to expect.

However, the political evolution in the region is not predictable. The UN Population Division's prospect gives a forecast, but transition processes, ethnical conflicts, wars and globalisation are factors that drastically can change the political and economical situation well before 2020. The recent up-rises in Kyrgyzstan and Uzbekistan show that the situation can change unexpectedly quickly; possibly having impacts on the socio-economic development and the urbanization processes.

Box 3: Urban Poverty in West and Central Asia
Slums and shantytowns are not frequent in the region, but they occur in countries with a high urbanization growth and large rural population. In CIS countries there is a trend of unprecedented rise of inequality, rapidly declining living standards and more households living in slum conditions (UN Habitat, 2004). In Kyrgyzstan 43.9 percent of the urban population is poor, and in Azerbaijan, 40 percent (MCW, 2005). Yemen, the poorest country in the region with currently 24.7 percent urban population, faces a projected urban growth of 5.78 percent annually without the institutional and financial capacities for addressing this magnitude of urban growth and poverty. Slums are also developed in countries severely hit by conflicts and affected by poor governance, like Iraq and Afghanistan (UN Habitat 2004). There is no comprehensive database of the urban poverty level in the region, but urban poverty is a current and future problem in West and Central Asia.

Looking at the future urbanization prospects and regarding the urbanization growth and rate, some countries could be grouped in two additional clusters. Turkey and Iran show similar urbanization patterns and could form a fourth cluster. Even though Iran has oil resources and Turkey does not, they both have a relatively strong economy and large fast growing population of around 65 million today, an urbanization rate of 64 percent, which by 2020 will have increased to about 75 percent. A fifth cluster would comprise the poor and post-war countries Yemen, Iraq and Afghanistan, where the most dramatic urban increase will take place and where the level of urban poverty already is high. Afghanistan will increase from 21.9 to 34.1%, Iraq from 67.9 to 76.1% and Yemen 24.7-34.8 % (UN Population Division, 2004).

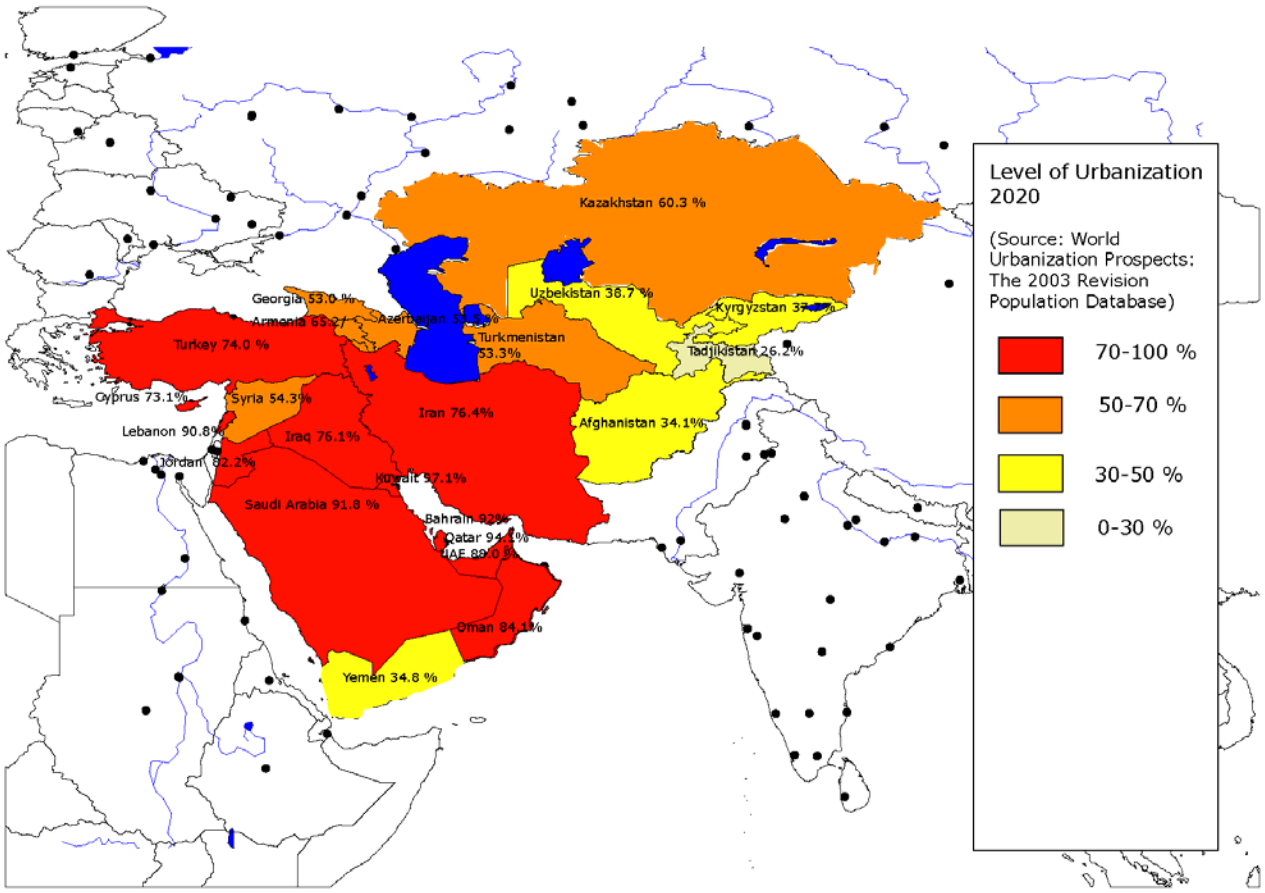

Figure 4: The level of urbanization by year 2020 in the FOWECA region countries

Major changes in urbanization rate are to expect in Turkey, Iran, Iraq, which will exceed an urbanization level of 70 percent (red colour). But also in Yemen and Afghanistan the urban population will increase. Only Tajikistan will still have an urbanization rate below 30 percent (light yellow colour). The CIS countries will not increase much, except for Turkmenistan. (Map adapted by Ulrika Åkerlund, Source: UN Population Division, 2004)

According to the urban population prospects, 12 of the 23 countries will have exceeded a level of urbanization of 70 percent by 2020. Today only 7 countries have an urbanization rate higher than 70 percent. As mentioned above, there is a strong correlation between urbanization rate and human development index (HDI), which is high in countries with an urbanization level over above 70 percent. With a higher HDI by 2020, we could expect totally different demands on the urban green resource than today (UNDP, 2002).

Table1: Comprehensive data table of Urban Population and Level of Urbanization in the year 2000 and 2020 in all 23 countries.

(Source: UN Population Division, 2004)

Country	Urban Population 2000*	Level of Urbanization 2000*	Urban Population 2020*	Level of Urbanization 2020*
Afghanistan	4 683	21,9	13 674	34,1
Armenia	2 024	65	1 908	65,2
Azerbaijan	4 123	50,5	5 280	53,5
Bahrain	607	89,6	891	92
Cyprus	539	68,8	643	73,1
Georgia	2 772	52,7	2 428	53
Iran	37577	64,4	66 011	76,1
Iraq	15 759	67,9	25 714	76,1
Jordan	3 963	78,7	6 216	82,2
Kazakhstan	8 733	55,8	9 297	60,3
Kuwait	2 157	96	3 542	97,1
Kyrgyzstan	1 692	34,4	2 349	37,7
Lebanon	3 013	86,6	3 991	90,8
Oman	1 982	76	3 658	84,1
Qatar	532	91,5	708	94,1
Saudi Arabia	19 083	86,2	33 265	91,8
Syria	8 289	50,1	13 627	54,3
Tajikistan	1 568	25,8	2 032	26,2
Turkey	44 206	64,7	63 395	74
Turkmenistan	2 080	44,8	3 308	53,3
United Arab Emirates	2 386	84,6	3 332	88
Uzbekistan	9 282	37,3	12 502	38,7
Yemen	4 452	24,7	12 718	34,8

2.5 Spatial effects of urbanization

The most obvious dimension of the urbanization processes is the spatial dimension and the changes of urban space when cities and human agglomerations grow. This could be seen either as a densification of the core of the city, or as spatial expansion where the urban territory increases. The latter is often referred to as urban sprawl (UN Habitat, 2004). In a densification process, existing buildings could either be extended and higher, or/and new construction takes place on non-built up land such as parks, gardens, woodlots and other green areas. The term densification, on one hand, refers both to the number of people living per km² (density) and to the volume of built up structure in relation to open space. Sprawl, on the other hand, is urban expansion taking place in the urban fringe, on former agricultural land or in the urban green resource such as urban and peri-urban forests, orchards and woodlots. The nature of urbanization is highly correlated to the physical geographical conditions, the socio-economical development and national and regional policies on development of infrastructure.

In the WECA region, cities are often dealing with a complex topography, located in a mountainous area, which is an important factor in the spatial distribution of the city.

The case of Tehran, geographically located on the plain plateau 1 100 m above sea level, below the mountain range of Elbur, have different climates that affect the social distribution in the city. The well-off people of Tehran live in the northern cooler part of the city, while poorer people live in the southern part, where the climate is hotter and less comfortable. Now when the city is expanding, the climate in the south is too hot, so the city expands to the north. But sooner or later the mountains will limit urban development in that direction (McBride et al, 2000). Tehran illustrates a common problem in the whole region, where the lack of space for development caused by natural and physical features such as mountains and desert, rivers, seaside and natural hazards make out major constraints for urban development.

The CIS countries tend to grow both through densification and through urban agglomeration expansion. The major cities are merging with adjacent cities, generated by investments in developing infrastructure. At the same time urban exploitation (i.e. construction of houses, etc.), takes place downtown. This is the case in Armenia for example where parks, gardens and orchards are disappearing in favour to construction of cafés, houses and industries (UNECE, 2002). The new strategies for spatial development planning adopted by these countries are characterized by several weaknesses, such as spontaneous land privatisation and inconsistent land reform, insufficient information on land use and land ownership. Strategies also reflected imperfect and incomprehensive legislative frameworks regulating spatial development planning, undivided competencies among central, regional and local state bodies in matters of land regulation, weak coordination of activities and lack of cooperation among agencies (Communication 13).

In many oil-economy countries on the other hand, urban areas are expanding out in the desert or on former agricultural land (Communication 4).

The most critical urban development is taking place in the Third cluster of countries, with the exception of Cyprus, where huge migration from rural areas causing illegal settlement and development of slums and shantytowns in the urban fringe (UN Habitat, 2004).

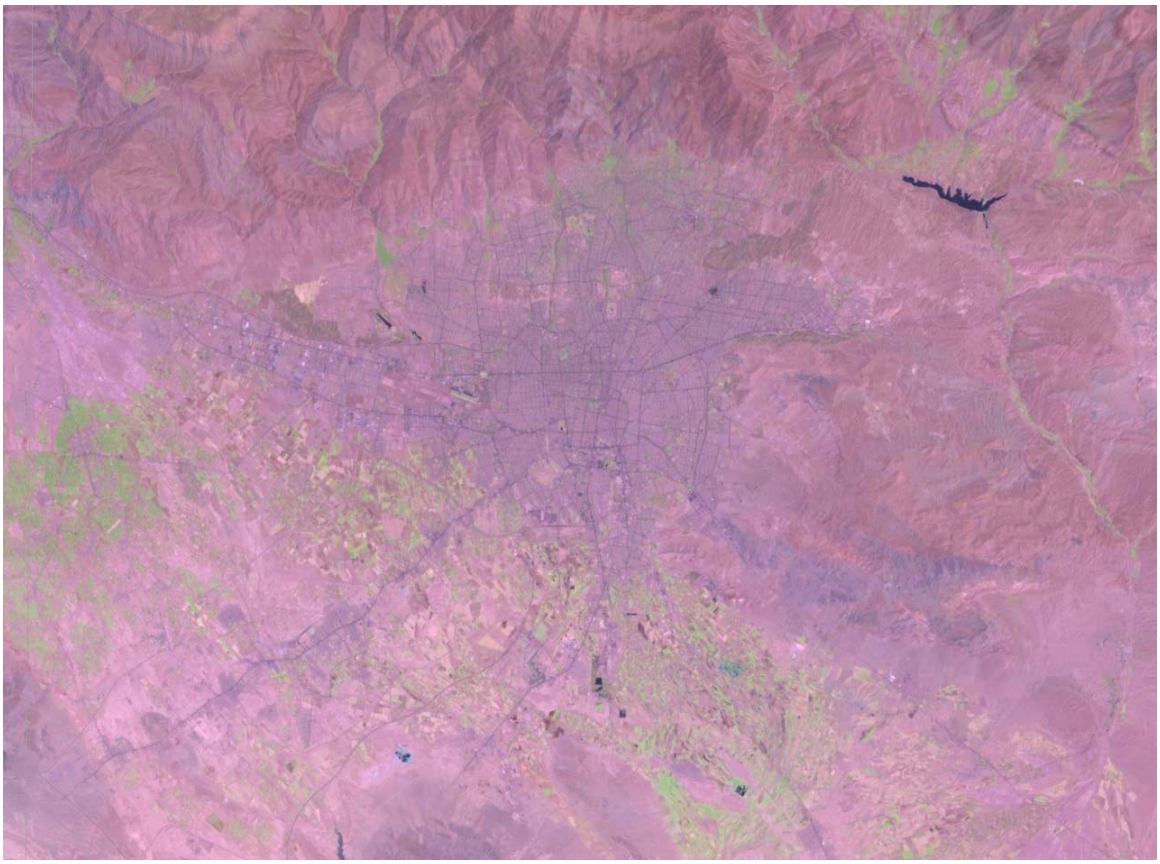

Figure 5: Urban Development in Tehran

Satellite picture of Tehran, Iran, with the Elbur Mountains in the north and the plain in the south. With the desert, south of the city, the climate on the plain is very hot and the urban development tends to take place up in the mountains where the climate is cooler. (Picture: NASA World Wind Online, May 2005)

3. PLANNING AND MANAGEMENT OF THE URBAN GREEN RESOURCE

Despite the fact that urban settlements and cities in the WECA region seldom are located in forested areas, UPFG is of high importance in these countries. Planting trees has been done for improvement of the urban environment, protection from sand- and dust storms, disposal of treated wastewater, for urban livelihood, to prevent urban sprawl and development, and amenity and recreation.

But the urban green resource is also related to the cultural history and urban identity. The name Tehran, capital of Iran, means 'city of plane trees' (McBride et al, 2000), indicating that trees have played and still play an important role in the urban identity and society. Looking at municipal websites of Central Asian countries, they are almost always defining themselves as green cities, as the "Garden of Central Asia". In Almaty for example several measures in order to improve the urban environment and raise the life quality are planned. The aim is to create a functioning green system over the whole city with green corridors leading into the centre in order to enhance the circulation of fresh air. This should be implemented by planting trees and bushes along water streams and roads. A second measure will be to improve and restore the parks of the cities (Government of Kazakhstan, 2003). This is another example of how the urban green resource can play an important part in the city's identity.

According to Spathelf et al (2002) the World Health Organization of the United Nations (WHO) recommends 12 m² of green space per capita in urban areas. Few countries in the region have available statistics on green space per capita, but it is credible that none of the countries in the region make up to the ambition. For example in Tehran each citizen had 3 m² of green space in the year 2000 (McBride et al, 2000), currently in Yerevan 5.8 m² (FAO, 2005b) and in Tashkent the rate is approximately 2.5 m² per capita (Tashkent Portal, 2005). But almost all countries are planning to increase the urban green resource.

This chapter will focus on planning and management aspects of UPFG, previous and current efforts carried out in order to improve and develop the aspects of the urban green resource.

3.1 Background and status of the urban green resource

CIS countries – Long park tradition and green belts

Urban development has been strikingly similar all over Soviet Union, and Soviet planners put high attention to UPFG. A large part of the total urban green resource is located in residential areas from 1960-1990's. But there are also parks, gardens and trees along roads. A major part of the Soviet planning tradition was to arrange *greenbelts* around cities and all settlements in priority order for sanitary reasons, reducing pollution from industries, protect water reserves, provide recreational areas and create a natural boarder between urban and rural, separating industries from settlements. In most cases greenbelts consisted of existing forests and woodlands, but in more arid countries, forest was planted in order to achieve a greenbelt

(Communication 5). In Kyrgyzstan the urban green resource is divided into the following types:

1. *Gorodskoj les*[6] – urban forest, located in the urban fringe of cities or settlements of urban types.
2. Lesopark[7] – Forest parks, i.e. larger forest-like parks, often located in the urban fringe, differ from urban forest by having some constructions like swings, playgrounds etc in the park.
3. Public green space – parks, squares, boulevards, gardens in residential areas and micro districts.
4. Green space of limited public access – green space around private houses, around kindergartens, schools, around public buildings, sports complexes and industrial enterprises.
5. Special green space – protective plantations along roads, nurseries, dachas, Botanical Garden (Communication 6).

It is probable that this categorization is adequate for most CIS countries. Greenbelts can today be found in major cities like Tbilisi, Almaty, and Bishkek. In Dushanbe, Tajikistan, greenbelts do not exist. The city is surrounded by agricultural cropland and the urban green resource is located in the centre of the city and in the micro districts making up as much as 76% of the urban area (UNEP, 2001b) and in Yerevan, the greenbelt was cut during the energy crisis in early 1990's (UNECE, 2002). But the Soviet tradition continues. In Astana, the new capital of Kazakhstan, a green belt around the city has been established since 1997 (Communication 7), as well as in around cities in Turkmenistan (see Box 12).

The state of the urban green resource in most post-soviet countries is deteriorating due to lack of finances for maintenance and development, and an increased exploitation. This is especially the case in Georgia, Armenia, Tajikistan and Kyrgyzstan. Since 1991 few attempts or projects have been carried out with the aim to improve the urban green resource. Especially crucial is when small municipal budget and limited resources to maintain the existing green resource leads to poor management of irrigation system and vegetation. This is often combined with a worsened urban environment and increased pollution due to an escalating car traffic, and urban poverty (UNEP, 2000a,; UNEP, 2000b; UNEP, 2001b; UNECE, 2002)

Another element of the urban green resource, which also is a part of the Soviet tradition, is the allotment, dacha in Russian, often organized in villages located in the vicinity of the cities. The allotment is a piece of state land, approximately 1ha, owned by a citizen for summerhouse and a small private production of vegetables and fruits. In Soviet time and during the first transition years when food was scarce, the dacha was important for survival of the urban people. The current importance of allotment for livelihood varies in CIS. In Tashkent, Uzbekistan approximately 80 percent of the population have access to an allotment, in Uzbek called *tomorqa*. The government recently stressed the importance of *tomorqa* for livelihood for poor people (Communication 1). Nevertheless, the allotment areas make out an important element

[6] "Gorodskoj les" literally means city forest in Russian.

[7] Lesopark literally means forest park in Russian and refer to larger parks with forest character.

of the urban green resource for its environmental, economical and socio-cultural values.

Oil-Economy countries – Urban beautification and environmental improvement

With the strong oil-based economy and often a strong central planning, urban development has been very organized in the oil-rich countries. Even though all these countries are more or less desert, UPFG activities have been carried out the last twenty years in the Gulf countries along with the urban development. Considered as high status, parks and gardens have deliberately been established in United Arab Emirates, Kuwait, Oman and Bahrain. Green areas in centre of the cities, in residential areas and along roads and streets as well as greenbelts around cities have also been established (Communication 4). There are indicators that also Qatar and the city of Doha have been through an extensive greening programme during the last ten years, not only for the purpose of enhancing the beauty of the city, but also benefited the wildlife (Oldfield, 2005).

Box 4: Urban Forestry in United Arab Emirates
Urban environment in all cities in the United Arab Emirates have been greatly enhanced by planting schemes, turning roadsides into gardens and roundabouts into mini-parks. In addition, there are extensive recreation parks where the shade from trees creates a pleasant environment, even during the summer. The rate of change in United Arab Emirates is reflected in these city beautification projects. In 1974, there was only one public park in Abu Dhabi, with very little greenery, but today the number has increased to about 40, covering an area of more than 300 ha. The expansion of green areas in the Emirates is in line with the department's goal of extending the greenery cover to 8 percent of Dubai's total urban area. During 2003, another 30 ha were added to Dubai's greenbelt. At present, the planted area amounts to about 3.2 percent or 2 200 ha (Communication 8).

UFPG activities have been going on a bit longer in Iran. Since the revolution in 1979 the urban green resource has increased a lot in settlements and especially in Tehran.

Box 5: Urban Forests and Parks in Iran
Planting forest around cities in Iran has been going on since the beginning of oil economy and promotion of industrialization and urban development in the 1960's. Most of the forest was however planted after the Islamic Revolution in 1979 until now. Urban forests have been planted in desert areas in order to stabilize sand dunes, provide fuel wood and fodder, and protect population and villages from dust. In the northern parts of Iran, poplars have been planted for wood, pulp and matches industry. Between 1979 and 1994, up to 252 074 ha of urban and peri-urban forest were planted in western, eastern and southern Iran. In total, 320 288 ha have been planted until 1996 (FAO, 2000). Since 1979, a major expansion of public park system has occurred and the number of public parks has risen from 20 in 1979 to over 100 in 1999 as well as trees have been planted in the southern suburbs to reduce the heat (McBride et al, 2000).
The Green belt project around Tehran was planned already in 1971 but started in 1986. The aim was to plant 30 000 ha of land, national and non-national, around Tehran with forest with the general objectives to improve the landscape from an aesthetic point of view, make the weather clean and pleasant, reduce the impacts of different pollutants, and prohibit a reasonable expansion of domiciles (building constructions), recreation, relaxation (forest-therapy). More specific objectives were watershed management activities, environment conservation (wildlife, flora), combat storms and dusty winds of south and west, production in a frame of economic exploitation from fruit bearing and unfruitful trees (in the plains, the main species was *Artemisia seiber* and in the north, *Amygdalus scoparia*, *Pistacia attantica* and *Juniperus exelsa*).
One of the expected social impacts was to reduce the difference in m² green space per capita in the north and in the south. Increasing the green space in the vicinity of Tehran leads to more beautiful landscapes and higher property value (Tehran Parks and Green Space Organization, 2005). However, currently the urban green resource is decreasing due to intensive urbanization especially on the northern side (Communication 9).

The Third cluster – old and new experiences of greenbelts

In the third cluster countries, characterized by disorganized urban development and high rate of urban poverty caused by a strong rural-urban migration the urban green resource, is limited. However, several urban forest projects have previously been and are currently carried out in Turkey, Jordan, Afghanistan, and Yemen.

In Turkey, large-scale afforestation started in the 1930s in Ankara, the new capital of the Turkish republic, and continued after World War II in the whole country around all settlements and cities. According to Uzun et al (2002) the Act of Plantations from that period prescribed that every village or municipality, which lacked plantations, should establish at least 5ha of forests. With an increasing urbanization process in the early 1960's, large scale planning was undertaken, carried out by the Plantation and Erosion Control Division of the Forest Ministry and municipalities. Planting 50 000ha of land, urban forests, green belts, road plantations, erosion control by plantations and memorial plantations were established. In the 1990's tree plantations were established by the state and community organizations, planting for example 100 000 trees in Istanbul in1995-96 and 200 000 in1996-1997. The demand for urban trees and saplings exceeded the supply, which first lead to an increasing import of saplings and then to improvement of national nurseries.

In Jordan, planting around urban areas has been going on since the 1950's (Jordan Country Report, 2005). Currently there is an extensive urban forest and greening project going on in the city of Amman, planned and implemented by Greater Amman Municipality. Recently 1 000 palm trees in some of the city's major thoroughfares and another 10 000-15 000 palms will be planted during 2005 along another 16 streets of the capital (Barakat, 2005).

In Lebanon, since the end of the war in 1991, rehabilitation and reconstruction of Beirut has followed the rules of modern cities, leaving some green spaces and allowing the city to breathe. Beirut being built on at least seven archaeological layers, public gardens are sometimes developed on archaeological sites, mixing culture and recreation (COP Lebanon, 2005).

Most of the urban green resource in the third cluster seems to be located outside the city or in the vicinity, and not in central urban areas. Urban development takes place through urban sprawl and hence threatens the urban green resource.

3.2 Constraints and challenges in planning and management

Technology development and transfer of knowledge

The level of technology used in planning and management of the urban green resource varies in the region. Several countries use geographical information tools like digital maps and satellite photos for planning and monitoring the urban development and the green areas. However, Uzun et al. (2002) claims that the planning and management of urban green areas and forests should to a larger extent be more related to the local conditions and based on detailed inventories. In general there is a lack of inventories

of the urban green resource. In Bishkek, Kyrgyzstan the latest comprehensive data on the total area of the urban green resource are from 1992 (Communication 6).

In Tashkent, capital of Uzbekistan, most plantations and city trees are old, planted in the 1920's-1940's, and are now dangerous (causing accidents) and not aesthetical. Inventories were frequent during Soviet time, but have not been carried out since the early 1990's. Due to monocultures of trees in the urban areas and forests, the trees are vulnerable to diseases: black poplar and poplar of Belle were ruined by Capricorn beetle, Catalpa by worms of sewers and elms died from Dutch elm disease (UNEP, 2001).

The use of georeference tools and systems such as Geographical Information System (GIS) and satellite photos should be valuable assets in monitoring and planning the strategic management of the urban green resource, and its use should be strongly encourage.

Box 6: Use of GIS in Regional Planning, Kingdom of Saudi Arabia

In the Kingdom of Saudi Arabia comprehensive regional information base has been seen as necessary for improving the effectiveness of regional planning. In this context, the information content of the regional reports has been updated during the Fifth Plan period and a system of regional indicators and geographical information adopted.

The regional reports describe the present conditions of various facilities and services sectors. The regional indicators system aims at describing the level of development in each region in a quantitative manner and helps to set priorities for selecting appropriate programs and projects and to assess their impacts on the development of each region, in order to achieve balanced regional development.

With the completion of the geographic data and information system during the Sixth Plan, there will be a statistical and geographic information base, as well as computerized digital maps that will include regional analysis in various fields.

The above-mentioned information will help the concerned government agencies and the Provincial Councils in identifying the level of development in the region and in selecting useful programs and projects and following up their implementation. It will also help in preparing regional development plans in the future (Permanent Mission)

Regeneration of the urban green resource

Management and maintenance of the urban green resource does not only involve planting of new trees. There are different ways of dealing with the natural regeneration, although urban environment and poverty are factors decreasing this process. In Afghanistan the value of pistachio nuts is so high that every single nut is being picked and sold at the market by the local population. The nuts make out a significant contribution to the household economy, but the natural regeneration of pistachio forest does not sustain. In the long-run this is a problem that has to be dealt with by the forest manager and the users (UNEP, 2003). In Armenia where half of the urban green resource was cut during the energy crisis, the method of coppicing has been proved as an efficient tool for regenerating.

Box 7: Regeneration methods in Armenia – coppicing the urban green resource
In Armenia, where 50 percent of the urban green resource has been cut during the energy crisis and for illegal logging, the method of coppicing has been used in order to restore urban green resource, mainly woodlands and forests. This method entails pruning shoots from the bottoms of tree stumps, allowing the trees to strengthen and properly grow as trees rather than bushes. The result of these efforts is a 100 percent survival rate. Furthermore, because of the absence of trees, erosion occurs rapidly and new saplings are washed out before having a chance to grow (FAO, 2005b).

Water resources and irrigation of the urban green resource

In most of the countries in WECA region, water is scarce. As maintenance of the urban green resource requires irrigation, at least in the phase of establishment, scarcity of water is one of the major constraints in management and development of the urban green resource. In CIS countries where the overall urban infrastructure is under maintained, many trees in urban areas are dying because of a poor irrigation system. In Almaty, Kazakhstan, development of the deteriorating irrigation system is one of the main tasks for the next coming years (Almaty Municipality, 2004).

Box 8: Deteriorating irrigation system of Yerevan, Armenia
As Yerevan is located in a semi-arid zone, new trees planted here need serious care. They need, *inter alia*, to be watered in due time and cleared of leaves. However, today there are numerous problems with Yerevan's irrigation system. The length of the capital's irrigation water pipeline is 510 kilometers. 7 000-10 000 cubic meters of water is necessary for one hectare and in the years of drought up to 15 000 cubic meters. Today only for reconstruction of Yerevan water network would need at least 100 million US dollars" (FAO, 2005b).

In United Arab Emirates, where the situation is extreme, the urban green resource has to be irrigated all life, including traditional forest (Communication 8). In Tehran, Iran, the irrigation of basic element of the urban green resource, like trees in parks and along streets, competes with the general water supply to the increasing population. This has especially been the case during the drought years. This calls for new methods and technology related to irrigation (McBride et al, 2000). One kind of new methods was developed parallel with the urban forest plantation around Tehran. Irrigation water was collected in rainwater catchments systems, i.e. basins for precipitation. The system has been an innovative benefit of the whole plantation project, and considered as a good method for irrigation in semi-arid areas (Tehran Parks and Green Spaces Organization, 2005).

Treated waste water disposal and use

Parallel with the scarcity of water, increased attention is being focused on the role that forestry, traditionally a rural-based sector, can play in improving the urban and peri-urban environments in arid and semi-arid regions. It is of great interest in finding safe, environmentally sound and cost efficient ways to treat and dispose of wastewater produced by urban communities and industries. One opportunity to address these concerns is the use of municipal wastewater (both sewage and industrial effluent) to irrigate forests, forest plantations, greenbelts and amenity trees. Wastewater use for forest plantation irrigation has several benefits: safe use and low cost of treatment and disposal of wastewater; rehabilitation of fragile ecological zones; reduced discharge of wastewater into the sea; and use of nutrients in wastewater for production purposes, for example of trees.

Countries in the Near East are showing increasing interest in planting trees to improve water quality and increase food security (FAO, 2004). For example, around 20 countries discussed the role of forests (including some urban green resource components, such as for instance green belts) in food and water security and specifically the issue of the use of treated wastewater in forest plantations at the FAO Near East Forestry Commission. An increasing number of countries in the region, including Egypt, Jordan, Kuwait, United Arab Emirates, and Yemen, have begun using treated waste water to irrigate their forest plantations and greenbelts (FAO, 2002b).

Box 9: Irrigation of urban forests with treated wastewater in Yemen
In Yemen, there is no formal national policy on wastewater reuse, although the practice is encouraged by officials in the Ministry of Agriculture and Water Resources. The first plantation irrigated with wastewater was established at Aden on 7 ha as a part of a green belt around the city. Treated wastewater was transported by tankers. Also in Al-Hodeydah, the local Tihama Development Authority has sponsored various studies for developing a multi-layer crops and trees area using treated wastewater. A project began in April 1995 to establish a green belt around Al-Hodeydah city along 7 km of the Al-Hodeydah - Jizan road and along 7 km of the Al-Hodeydah - Sana'a road to the east. The total length of the belt is about 14 km and the width is 100 metres. The activities earlier developed with the support from IFAD are being continued within the Watershed Management and Waste Water Reuse in Peri-urban Areas of Yemen (FAO, 2002(b).

Overall, however, large-scale use of wastewater for the irrigation of tree plantations or forests is still relatively limited and, where it is practised, it is generally more for reasons of waste disposal and treatment rather than for other values of the urban forests. The cost of treatment using conventional methods, such as wastewater plants, is prohibitively high for most developing countries. As a result, countries are experimenting with other forms of treatment, among which are land application methods, including irrigation of forest plantations. When practised properly, these are simple, low-cost and effective means both to dispose of water and to improve quality of forest plantations. A more realistic set of standards than those for developed countries, which are totally adequate to safeguard public health, should be developed based on the World Health Organization (WHO) and FAO Guidelines (FAO, 2002b; FAO, 2002c).

Water is not only a constraint in the maintenance of the urban green resource. UPFG can be an asset for watershed management. The roots of trees and bushes efficiently bind the water and soil and prevent erosion, landslide and mudslide.

Box 10: Watershed management and flood and landslide prevention in Karsiyaka, Turkey
The urban green resource is essential in watershed management and flood and landslide prevention in the West and Central Asia region, and especially in the mountainous areas. The Karsiyaka district in the Mediterranean city of Izmir, the vegetation has been destroyed, ecological balance been damaged, natural habitat has been eroded and consequently disasters such as the flood in 1995, resulting in 67 deaths, are results of uncontrolled urbanization. Within the project Green Plan in Karziyaka, the planting trees action had one of its main objectives to re-establish the eroded waterfront (Communication 3).

Urban environment

The quality of urban air is affected by the pollution and emissions from industries and car traffic, sand and dust storms, and the density of population. The air pollution in West and Central Asia is increasing. About a third of the vehicles in West Asia are 15 years or older and hence produce higher levels of hydrocarbons, chemicals linked with cancer, and oxide of nitrogen, chemicals linked with smog. In Iran the gas is cheap and accessible with the growing economy, the number of cars has increased immensely. The aging vehicle fleet and the increasing number of cars is one of the key factors that have lead to a decline in air quality over the past 30 years. Others include emissions from industry, including refineries. Economic losses, as a result of the impacts of poor air quality on human health, in Syria alone are estimated at US$188 million per year (UNEP, 2002c).

In Turkmenistan the main source of atmospheric pollution is dust storms. The flat underlying terrain and climatic conditions are conducive to this phenomenon. Among climatic factors contributing to the dust storms are the insufficient and quickly evaporating precipitation, poorly stabilised sands, quickly drying topsoil, and high wind speed. The number of days in a year with dust storms in Turkmenistan varies from 35 to 67, reaching in some years 106 to 113 days in the Karakum Desert. Apart from local origin, dust storms come also from other regions of the world (UNEP, 2002c). In Astana, Kazakhstan, improvement of the urban green resource has been made in order to improve the local climate.

Box 11: Planning Municipal Law – Astana, Kazakhstan

Astana, Kazakhstan has developed a strategy for the town till 2010 on the protection of the environment and natural resources. Part of the strategy involves the analysis of the status of the environment (especially the air pollution). The attraction of investments and technology from different sources is regarded as an opportunity to solve the environmental problems. In order to improve the city's microclimate, the strategy measures to be taken require the establishment of a sanitary protective green zone, the development and realization of a greening program, and the establishment of numerous micro zones for recreation. (Government of Kazakhstan, 2001)

It is recognised that UPFG could contribute to city's air cleaning when planting of high growth rates of broad-leaved evergreen trees. It is noted that a mature beech tree can extract 2.4 kg carbon dioxide per hour from the air and can produce 1.7 kg per hour of oxygen, and in theory may produce enough oxygen for ten people for a year. By shading and by cooling the air through transpiration, trees help to offset the "heat island effect" of urban areas. Trees are effective in reducing air pollution by filtration and absorption and can filter out as much as 75-80% of particulate pollutants, such as dust, from the urban atmosphere. However, the benefits of trees in improving air quality are only significant when trees are in large groups, as it is the amount of leaf volume rather than the size of green areas which controls the effects. The issue of trees in the city is, therefore, as much an issue of public health as it is of amenity. The importance of mature urban trees as carbon sinks has important implications for the planning of areas where there are many mature trees, the retention of mature trees on development sites, and the need to plant species, which ultimately reach a large size wherever space permits (FAO, 2001).

On the other hand, the poor quality of urban air is also a threat to the urban green resource, and one of the main reasons for its deterioration (UNEP, 200b; UNEP; 2000a).

Forest fires

With the dry and arid climate, especially in the summer, many cities state that forest fires are occurring frequently, constituting one of the main threats to the urban green resource (COP Lebanon, 2005; COP Syria, 2005; UNEP, 2001a). The fires start and spread because of careless recreation in the forest, related to lack of awareness among the public, poor technology to deal with the fires (FAO, 2004). In the WECA region, forest fire is a major constraint in the management and development of the urban green resource. To address this problem implies the development of preventive means and methods like information systems, silviculture and public awareness.

3.3 Education, extension and research

Professionals involved in UPFG are mainly from background within planning, forestry, architecture and agriculture. No education specifically aimed at UPFG has been found in any of the countries and there is an indication of lack of education, capacity, awareness and technology related to UPFG in the region. No documentation on for example social and cultural values of the urban green resource has been found.

In several CIS countries, foresters have mainly been educated in Moscow and Leningrad. In Armenia, Forestry Education opened at the Agricultural Academy only a few years ago. Other related professionals like landscape architects and planners have recently opened higher education in the CIS (Communication 11).

The Oil-Economy countries have the capacity to implement good practices of the UPFG. But in United Arab Emirates, for example, where the issues of UPFG are rather new, there is a lack of skills and experience in the field of management. Professionals and specialists from non-Arabic countries are involved in the planning, management and development of the urban green resource in United Arab Emirates (Communication 4).

In the Third Cluster of countries, the level of education seems to be quite high. Turkey has education both within forestry and landscape architecture. Iran has a long experience within UPFG with several universities and education related to forestry and landscape architecture and planning. Even a Regional Centre of Excellence of Low Forest Cover Countries on UPFG was established in Tehran 2004(See Box 13). However, Uzun et al (2002) indicates that the capacity needs to be developed. For example, the number of species planted in urban areas is rather small, which increases the risk for development of diseases. Both qualitative and quantitative characteristics of urban forests should be improved. The specific and dry climate, demands research and development on suitability of new species for urban conditions.

Box 12: Regional Centre of Excellence of Low Forest Cover Countries

Within the Tehran Parks and Green Spaces Organization a Regional Centre of Excellence of Low-Forest-Cover Countries (LFCC) is located. The centre started in 1999 with an Intergovernmental Forum on Forests (IFF), held in Tehran. It was an international meeting of experts on special needs and requirements of developing countries with low forest cover and unique types of forests. In July 2003 the Secretariat for the LFCCs in Tehran hosted a regional workshop on Sustainable Urban and Peri-urban Forestry and Green Spaces Development, organized by FAO. Participants from 17 countries in the Near East, Africa and Europe attended the workshop that highlighted the constraints and good practices in Africa and Near East. The Regional Centre should undertake the role of training experts and producing champions in trees, urban and peri-urban forests, city parks and green spaces, providing services for about 71 members of low forest cover countries. (Tehran Parks and Green Space Organization, 2005) There are however, no official proceedings from the workshop and it is unclear whether the LFCC's Secretariat in Tehran still exists.

International information exchange and partnerships

Several projects related to UPFG have been carried out in the region with help from international support and aid. One example is the above-mentioned Armenia Tree Project, and the FAO/UNEP supported project Urban Forestry/Urban Greening plan development in Karziyaka, Izmir in Turkey, and the New York-Afghanistan greening project lead by Global Partnership for Afghanistan (see below).

4. POLICY, LEGAL AND INSTITUTIONAL FRAMEWORKS

4.1 Policy and legal aspects

This part gives a brief overview of some policy aspects, of the international legal instruments and the most important laws at national level relevant to UPFG. The policy and legal aspects of UPFG are very broad due to the multi-sectoral nature of UPFG. The objective of this chapter is to disclose some crucial issues of the policy and legal framework of UPFG in the WECA region.

Greening Policy

National level

In the WECA region, there are no specific programs on the development of urban green resources at the national level, except for Turkmenistan (see box No. 2 below). The national programs aiming at the establishment of urban green resources and/or the development of UPFG cover UPFG fragmentarily, primarily because their main objective is not UPFG, but UPFG related areas such as forestry or the environment.

Box 13: Tree planting initiative in Turkmenistan:

"On Complex Work for Planting Green Plantations in a Form of Closed Belt Around Ashgabat, Velayat and Etrap Centers" of 26.08.1998, under the motto "Gyok Gushak" (Green belt) have become powerful incentive to the development of forest growing in the country. In autumn 1998 a large park zone on the area of 3 000 hectares with 2.5 million young plants planted, was laid in foothills of the Kopetdag mountains, in the south of Ashgabat. In autumn-winter period of 1999 only along the highway Berzenghee-Khinduvar in the 500-m belt, on its both sides, 1 million of conifers (pine-tree, cypress, thuya, juniper, etc.) were planted. Along other highways and in the park zone of Ashgabat, during 1999 there have been planted 2 100 000 plants on the area of 3.600 hectares. Besides, in 1999 works on establishing 6-row forest belts, fringing Ashgabat, velayat and etrap centres, began." (Ministry of Environment of Turkmenistan, 1999)

There are many programs, especially at the national level, that target the expansion of forests and green space in general. However, most of the policy programs implement international agreements, conventions and declarations. Primarily, these are state programs on climate change, and programs to combat desertification (see below on the international legal framework). Many of these national programs include the establishment of national parks as recreation areas, or the establishment of green belts to decrease pollution, and thus also aim at the expansion of urban green resources.

In most cases, national (forest) programs aiming at UPFG refer to green belt plantations, trees along highways and the establishment of parks for recreation or biodiversity conservation. The National Reforestation Program of Lebanon, for example, aims at the restoration of the country's green cover that was lost throughout the years because of by urban expansion and migration (NRP Lebanon, 2004). There can be other programs aiming at the expansion of UPFG, such as programs to develop tourism. Tajikistan, for example, approved the state development program for tourism for the period of 2004-2009, which aims at the development of eco-tourism and therefore includes some UPFG aspects (COP Tajikistan).

Municipal level

Most programs on urban greening in the WECA region exist at the municipal level, such as those in Amman, Astana, Izmir, Teheran and Yerevan. One illustration is the program of the municipality of Tehran: over 150 local parks were created in Tehran in 2004 and 2005 by the Tehran Parks and Green Space Organization, affiliated with the Tehran Municipality (Iran Daily, September 2004). Furthermore, the organization developed a greenbelt program in 2002 primarily to discourage construction of residential units in the urban fringe (Iran Daily, December 2004). Other objectives of the program included job creation, food and fruits production, and the improvement of general living conditions (Tehran Parks).

Municipalities develop their programs to green the city within the boundaries of the municipality. Such programs exist in almost every city and are financed by the local budget of the city. Again these programs can have various names and objectives. The greening can be a means for different targets, such as noise reduction. For example, municipalities in Kyrgyzstan develop special noise reduction programs that include as one of the measurements the greening along roads (Kyrgyzstan 2001). However, in some cities like Tbilisi (COP Georgia), no real initiatives, either public or private, for increasing the green zones exist or are planned.

Urbanization policies

Migration and urbanization policies must focus on urban green resources because uncontrolled migration to some cities has negative effects on the development of cities. For example, the migration to Karsiyaka, Turkey exceeds three times the acceptable population growth of a city (UNDP 2005). The migrants, mostly from rural areas, start building their houses on lands which are not identified as parcels and are generally owned by the state. The illegal "gecekondu" areas, which started surrounding cities in a very short period of time, have become the major accommodation of the urban poor population. According to statistical data, more than one 1/3 of the population live in such areas in Istanbul, Ankara and Izmir. This example illustrates the important role of (sustainable) migration policies. However, policies aimed at limiting population movements are the most important factor for the preparation and implementation of projects related to the evolution and future structures of the cities

Rural policies in urban areas

In general, related policy programs do not distinguish between urban, peri-urban and rural areas. However, a distinction should be drawn between areas under urban influence (comprising urban and peri-urban areas), on the one hand, and rural areas, on the other hand. National forestry policy programs often deal only with rural communities and their role in the forestry sector, although these programs also include peri-urban areas. Although it might be very difficult to determine precise borders, a certain differentiation between rural and peri-urban areas is necessary because of varying management requirements and conditions.

This issue, however, must be distinguished from the need to promote urban-rural-linkages and to put an end to the urban-rural dichotomy. A clear differentiation is necessary to avoid a strict segregation between projects in the urban and rural environments, taking into account the relationship between rural and urban areas and

the variety that exists in the nature of these linkages. With this approach, UPFG and UPFG-related projects would suit each area and meet its special features and needs.

Urban agriculture policies

Urban agriculture (UA) is recognized as a discipline by policymakers more than UPFG. UPFG policy and decision makers can benefit from the experiences made in the field of UA in the WECA region and around the world. UA and UPFG have many similarities as well as much to learn from each other (RUAF 2004), as they overlap in many respects. UA and UPFG provide food and shelter to the urban poor. UPFG includes elements of the green structure that also fall under the broad definition of UPFG and under the definition of UA. UA on the other hand also includes a tree component.

Concrete urban agriculture projects in the WECA region focusing on policies and programs to enhance urban food marketing and food security exist in Amman/Jordan, Beirut/Lebanon, Damascus/Syria and Kabul/Afghanistan. Amman is one of the first cities in the region to embrace UA. FAO provided technical assistance to the City of Greater Amman in urban food security in 2001. UA in the MENA countries, especially in Amman and Beirut, is at present a highly varied and widespread activity, yet it endures for the most part without recognition by planners, agriculturists, policy/makers, researchers (Cityfarmer 2005). The experiences of Middle Eastern urban agriculturists can offer lessons on food security benefits to urban populations of other arid regions.

International legal framework

There is no legally binding global agreement that deals specifically with UPFG. However, there are numerous conventions that, though not focusing on UPFG as such, do have some influence on urban green resources. Some international documents refer to elements of the urban green resources by using such terms as greening, forestry and biodiversity. However, the relevance of the international instruments to UPFG derives from the multi and cross-sectoral nature of the latter. Instruments relevant to UPFG that have resulted from the United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro (Brazil) in 1992, included Agenda 21,[8] the Principles for a Global Consensus on the Management, Conservation and Sustainable Development of all Types of Forests, the Framework Convention on Climate Change (UNFCCC), and the Convention on Biological Diversity (CBD)[9]. Another set of relevant documents were developed under the auspices of UN-Habitat. However, the contribution of those instruments to sustainable UPFG management is limited to the specific aspects they cover. Most countries in the WECA region, with the exception of Iraq, are parties to CBD, UNCCD[10] and UNFCCC, the three main legally binding international agreements relevant to UPFG.

Table 2: International agreements concerning UPFG in the WECA region

[8] Agenda 21, *Report of the United Nations Conference on Environment and Development*, UN Doc. A/CONF.151/26, Annex II, paras. 6.12. and 18.47.

[9] UN Convention on Biological Diversity, 31 I.L.M. 818 (1992) (entry into force 1993).

[10] UN Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, UN Doc. A/AC.241/27 (1994) (entry into force 1996).

	CBD	UNCCD	UNFCCC[11]	Kyoto Protocol[12]
Afghanistan	R	AC	R	-
Armenia	Acp	R	R	AC
Azerbaijan	Apv	AC	R	AC
Bahrain	R	AC	R	-
Cyprus	R	AC	R	AC
Georgia	AC	R	AC	AC
Iran	R	R	R	-
Iraq	-	-	-	-
Jordan	R	R	R	AC
Kazakhstan	R	R	R	Only signed
Kuwait	R	R	AC	AC
Kyrgyzstan	AC	AC	AC	AC
Lebanon	R	R	R	-
Oman	R	AC	R	AC
Qatar	R	AC	AC	AC
Saudi Arabia	AC	AC	AC	AC
Syria	R	R	AC	-
Tajikistan	AC	AC	AC	-
Turkey	R	R	AC	-
Turkmenistan	AC	R	AC	R
United Arab Emirates	R	AC	AC	AC
Uzbekistan	AC	R	AC	R
Yemen	R	AC	R	AC

Acp=Acceptance
Apv=Approval
AC=Accession
R=Ratification

Relevance of the international instruments to UPFG

The **Habitat Agenda**, the main political document which emanated from the Habitat II conference held in Istanbul (Turkey) in June 1996, is of importance for the promotion of UPFG. The challenges of urban poverty and environmental degradation have many dimensions that are best handled through a multi-faceted, multi-sectoral response. The major international response, thus far, on the part of UN-Habitat addresses the crisis in terms of shelter and associated problems such as health risks, poor environmental care, insecurity and weak urban governance. There is no comparable international initiative that addresses the urban crisis in food and nutrition security, the deterioration of urban natural resources, or a possible response through agriculture. The National Report of Habitat II emphasized the prevention of natural disasters, the improvement of slum areas, the provision of proper recreation areas, and the increase of parks, the significance of improving urban habitat and forestry

Agenda 21 is a comprehensive plan of action to be taken globally, nationally and

[11] United Nations Framework Convention on Climate Change, Status of Ratification, data available online at <http://unfccc.int/files/essential_background/convention/status_of_ratification/application/pdf/ratlist.pdf> (last modified on: 24 May 2004).

[12] Kyoto Protocol, Status of Ratification, data available online at <http://unfccc.int/files/essential_background/kyoto_protocol/application/pdf/kpstats.pdf> (last modified on: 29 April 2005)

locally by organizations of the United Nations system, governments and major groups in every area in which human activities impact on the environment (UN, 2003). Agenda 21 recognizes the benefit of urban green resources for the urban poor by calling for the activation of "green works" programs to create self-sustaining human development activities and both formal and informal employment opportunities for low-income residents (Chapter 7.20.(b) Agenda 21). Chapter 11, paragraph 13(h) of Agenda 21 refers explicitly to "urban forestry" in the context of the achievement of the objective to promote greening of urban and peri-urban human settlements.

Agenda 21 sets out the framework of necessary actions. It is widely recognized that the actions based on these policies rely on partnerships which involve many stakeholder, including local governments. Following is an example of a municipality that promoted a Local Agenda 21 in Turkey:

Box 14: The Local Agenda 21 Initiative in Izmir

The Izmir Metropolitan Municipality area in Turkey is an example of uncontrolled urbanization in the last thirty years. Therefore, within the framework of **City Habitat Local Agenda 21**, the government prepared a Master Plan and a Strategy of urban forestry for the Karşıyaka Municipality within the greater İzmir Metropolitan Municipality. The strategy was developed with the collaboration of central and local government units, volunteer organizations, academic institutions, and the private sector in the context of the UNDP supported project "Implementation of Local Agenda 21 in Turkey" (November 2001). The most significant target of this project aims to increase the quality of living by creating green areas and thus minimizing the risk of erosion and natural disasters, and reducing the effects of air pollution. The program also aims to create green areas for recreation in Karşıyaka within the borders of İzmir Metropolitan Municipality Area (personal communication x1).

The commonly known **Forest Principles** are a declaration that is a "non-legally binding authoritative statement of principles for a global consensus on the management, conservation and sustainable development of all types of forests" adopted at UNCED. The forest principles refer explicitly to greening, stating that efforts "should be undertaken towards the greening of the world." (FAO, 2005)

UNCCD has an impact on UPFG insofar as there is a linkage between UPFG and forests in UNCCD.

Box 15: Implementation of UNCCD and Forest Principles in Iran

Since UNCCD and the adoption of the Forest Principles, Iran has overhauled its management of the country's natural and man-made forests, to include forest restoration, biological diversity, and water and soil protection. In addition, the country was able to finalize its own National Action Program to combat desertification in 2004. Institutional, legal and planning processes within the framework of 20 year outlook and five-year Socio-Economic Development Programs are also under way. Part of this program includes the establishing of about 2 million ha green space consisting of adapted tree and shrub species (COP Iran).

The **CBD** promotes biological diversity in urban and peri-urban areas with regard to urban green resources. The convention is relevant to UPFG because green areas play a vital role in urban biodiversity.

Under **UNFCCC** the international community has committed itself to reducing net greenhouse gas emissions. As UPFG overlaps with the term "forest", UNFCCC and the Kyoto Protocol are of relevance to UPFG, even if this role has to be considered as one subordinate to forests in their natural understanding. (FAO 2005 a)

Box 16: Implementation of the UNFCCC in Azerbaijan

One example illustrating the impact and role of international conventions for the policy programs of a country with direct impact on UPFG is the implementation of the **UNFCCC** in Azerbaijan. Azerbaijan has prepared a special state program on climate change. According to this program the forest area in the Republic should be extended up to 20 percent of the territory. As such, the President of Azerbaijan signed a decree on 26 December 2001 on the preparation of a National Programme on the rehabilitation and extension of forests in the Republic. In compliance with the decree, the Ministry of Ecology and Natural Resources together with state and local self-governing bodies and scientific institutions prepared a National Program. Pursuant to this program, 200 thousand ha of forests will be rehabilitated, 43.000 ha of new forests will be planted. In addition, the program will oversee the creation of a new national park – Shadagh National Park – and the creation of buffer zones. A long-term project of the program envisions the formation of another National Park (Azerbaijan, 2002). This program aims at UPFG as it foresees the establishment of National Parks that serve as recreational areas for urban dwellers in peri-urban areas.

The Millennium Development Goal 7, Target 9, integrates the principles of sustainable development into country policies and programs and with a view to reversing the loss of environmental resources. Target 11 sets to achieve by 2020 a significant improvement in the lives of at least 100 million slum dwellers, and to ensure environmental sustainability addresses UPFG in a very broad sense as part of the environment and the forest.

The General Assembly of the UN established the World Environmental Day in 1972. The UN uses the environmental day to stimulate awareness and enhance political attention and public action. The signing of the "Urban Environmental Accords" capped the United Nations World Environment Day Conference in San Francisco in 2005. The nonbinding Urban Environmental Accords list 21 specific actions that can make cities greener. The vision for the Accords is to create a grassroots political movement through public citizens' ability to influence mayors who are already responsible for tackling many urban environmental issues. The accords call for policies to expand affordable public transportation coverage for city residents within a decade. They also call for creating an accessible park or recreation space within a half-mile of every city resident by 2015 and to pass legislation that protects critical habitat corridors from unsustainable development and to adopt urban planning principles and practices that also take into account open space systems for recreation and ecological restoration. Poverty alleviation in the context of UPFG is not taken into account although this document was also signed by mayors of cities from developing countries.

Implementation of International Agreements in the WECA Region

Most of the analyzed countries have implemented the conventions they have ratified by developing and introducing programs which, in part, establish or preserve urban green resources. The majority of the programs were developed at the national level, largely with the support of international organizations.

Even though various programs were developed, their implementation is often a crucial issue. Implementation heavily depends on the availability of financial resources. Many countries in the WECA region, except for the oil rich countries in the Near East, depend on financial aid from abroad. Therefore, despite signing various international agreements, many countries cannot implement them due to lack of adequate resources. For example, in December 2000, Yemen established several programs to implement the National Plan for Combating Desertification. The National Work Plan for the Environment was also launched in 1996. The National Strategy and Action Plan for Biological Diversity are currently under preparation. Despite these efforts, however, according to the Outlook Country Study, Yemen has very limited abilities to implement these agreements.

4.2 The legislative framework at national level

There is no specific legislation on UPFG at national level in the countries analyzed, but there are several general laws with specific provisions on UPFG at national or regional level. Therefore, when looking at legislation that pertains to urban green resources, it is necessary to examine forestry and environmental legislation in addition to several other laws and regulations. Such laws can be found in legislation that specifically refers to one or more urban green resource elements or, very generally, to trees within a municipality. The present document focuses primarily on the analysis of forest legislation.

Forest legislation

The forest acts of most countries play an important role in the legislative framework of UPFG at national level. Most forest acts either explicitly refer to urban forests and/or partially regulate elements of urban green resources, mainly by referring to greenbelts, shelterbelts or trees along highways.

How do forest laws address UPFG?
Countries with recent forest laws, particularly those in Central Asia and the Caucasus Region, provide for UPFG by referring to forest parks, shelter belts, urban forests, anti-erosion forests, green belts of populated areas and health facilities, and belts along river banks. Some also refer to protective shelter belts on the right-of-ways of the railways and public domestic and international roads, trunk pipelines and other line structures, sheltering forest belts along railways and public automobile roads (see for example Article 23 of the Forest Law of Turkey) and soil protecting forests.

The laws of some countries classify “urban forests” as one category; another category is the “protection forest”, part of which consists of peri-urban forest (e.g. shelterbelts, greenbelts, forests of park zones around the cities)[13]. The definitions of forest types differ from country to country, and include more or less elements of urban green resources according to the definition of UPFG provided in this paper.

It is important to note that the terms “urban forest”, “municipal forest” and “city

[13] See for example: Article 9 of the Forest Code of Armenia, Article 18 of the Forestry Code of the Republic of Tajikistan, and Article 15 of the Law on Forest of Uzbekistan.

forest" are often used interchangeably in forest laws. The meaning of urban and city forest is restrictive compared to the definition used in this paper (see the Definitions section). The terms only refer to forests defined as such by the respective forest codes and situated in a city.

Generally it can be said that "urban forest", "municipal forest" or "city forest", "forest parks" and "green belts" are often covered by national forest laws in the WECA region. In particular, the "protection forest", where such a category exists, includes various elements of urban green resources, as this category refers to shelterbelts and green belts.

Box 17: Definitions referring to UPFG in some forest laws:

- **Article 1 of the Forest Code of the Kyrgyz Republic:**

"City forests are forests within city (town) limits belonging to the Forest Fund."

- **Article 4 of the Forest Code of the Republic of Kazakhstan:**

"Urban forests and forest parks" means forests, designated for sanitary and recreation purposes, located within an urban settlement's boundaries, and enrolled into the State forest fund."

- **Art.2 of the Forest Regulation 1967-1991 of Cyprus:**

"Municipal forest means a minor state forest assigned by the Council of Ministers to a municipality for the purpose of obtaining fuel, timber and other forest produce therefrom or in order to be used and enjoyed by the citizens for the purpose of their amenities and recreation."

- **Article 21 of the Forest Code of Georgia:**

"The category of *green zone forests* is assigned to the forested areas adjacent to cities and other settlements, recreational areas of the Usable State Forest Fund, where forest management mainly implies improvement of recreational, sanitary, hygienic, and aesthetic properties of forests."

The functions of the elements of urban green resources according to forest laws

The majority of laws define the functions of municipal or urban forests as protective, ecological, sanitary-hygienic, cultural and for recreation and health improvement purposes. The purpose of obtaining fuel, timber and other forest produce from the different UPFG categories mentioned above is either excluded entirely, or not seen as a primary function. An exception is Cyprus, where the purpose of the municipal forest is to obtain fuel, timber and other forest produce (Article 2 of the Forest Regulation).

The "state forest fund" does not generally include shrubs and plants in cities and other settlements, individual trees and clusters of trees with an area below a certain limit[14] if they are not part of a city or town forest, and trees and shrubs within gardens.[15] In some countries even protection trees along railways and motor roads are excluded from the state forest fund. Hence, the application of forest codes to urban green resources is limited because they mainly address state forest funds. The forest law of Azerbaijan excludes all green space from the forest fund that can be found within the city boundaries (Article 7 of the Forest Code). The exclusion of gardens that

[14] See for example Article 1 of the Forest Law of Turkey.

[15] See for example: Article 7 of the Forest Code of Azerbaijan; Article 6 of the Forest Code of the Republic of Kazakhstan; Article 10 of the Forest Code of the Kyrgyz Republic; and Article 6 of the Law on Forest of Uzbekistan.

contribute in some regions to the livelihood of people and the exclusion of tree nurseries, etc., inside of a city explains, in part, why the functions of UPFG regulated by the forest laws are often limited to amenity and environmental purposes, and exclude the economic aspects. As a result, **forest uses** are restricted. Many forest laws that deal with "urban forests" and "forest parks" restrict the forest uses for these categories. In most countries, only cleaning and sanitary cutting is allowed (see for example Article 26 of the Law on Forest of Uzbekistan).

Box 18: Article 39 of the Forest Code of Armenia: Features of forest use in urban forests:

"Urban forests are used in first place for cultural and health purposes and for recreation of the population.

In urban forests cutting of wood, harvesting of secondary forest materials, industrial procurement of non-timber forest products and grazing of animals is prohibited.

By the legislation of the Republic of Armenia, in urban forests other kinds of forest use may be prohibited if they are incompatible with recreation and cultural purposes."

Responsibilities in respect of UPFG according to the forest laws

In Central Asia, the responsibilities for management, use and control of urban, municipal and city forests or city parks are generally assigned to the municipality, local self-government bodies or local state administrations.[16] In contrast, the management of parts of the peri-urban forests regulated by the forest law is often assigned to the forestry departments of state bodies (see for example Article 15 of the Forestry Code of Tajikistan). For example, the State Department of Forestry manages green zone forests in Georgia (Articles 16 and 21 of the Forest Code). In Azerbaijan, access to state-owned forests (part of which form peri-urban forests), including greenbelt forests, is controlled by the State Forest Enterprise, which has the exclusive power to cut and sell wood or to grant licenses for fuelwood collection. However, the control is quite limited in reality, with a considerable amount of illegal harvesting taking place, particularly in areas that are relatively accessible from villages or near roads (Government Azerbaijan).

Environmental laws

The general objective of environmental laws is to maintain the environmental balance, thus ensuring environmental safety to prevent hazardous impacts of industry and other activities on natural ecosystems, preservation of biological diversity, and proper use of natural resources.[17] The definitions of environment provided by national environmental laws are directly relevant for the protection of urban green resources. Some environmental laws explicitly refer to "urban areas" (see for example Article 1 of the Environmental Law of Turkey) by setting out the objective to protect and make optimal use of the land and natural resources in rural and urban areas. However, it is rare that the laws distinguish between the three categories: urban, peri-urban and rural. In most cases the distinction is drawn only between rural and urban areas.

[16] See for example: Article 3 of the Forestry Code of the Republic of Tajikistan; Article 10 of the Forest Code of the Kyrgyz Republic; and Article 10 of the Forest Regulation of Cyprus.

[17] Article 1 of the Foundations for Legislation on Nature Protection of the Republic of Armenia; Article 3 of the Law on Environment Protection of the Republic of Azerbaijan; and Article 1 of the Environmental Law of Turkey.

Institutional responsibilities for the protection of elements of the urban green resources differ under environmental laws and forest laws. Under the former, environmental authorities are made responsible the protection of elements of the urban green resources, while under the latter the responsibility lies with forest authorities.

The laws on specially protected areas provide the legal basis for preserving natural areas, *inter alia*. Such areas are mostly defined for the protection of biological diversity and ecosystems, tourism and recreation, taking into consideration social and economic factors and interests of local people, and involving local people and social organizations in preservation and management activities (see for example Article 3 of the Law on Specially Protected Areas and Objects of Azerbaijan). To the extent that protected areas are located in peri- and urban areas, they are relevant to UPFG.

The laws on protected areas partly cover UPFG by regulating:

- the management of national parks (which may be close to, or under the influence of urban areas);
- natural monuments that can be found within the boundaries of a city or on its fringe; and
- zoological parks, botanical gardens and dendrological parks in urban and peri-urban areas.

The responsibilities for protected areas can be divided between forest and environmental authorities, if the forest law establishes a protected area category. For example in Turkey, there are two different schemes in regard to protected areas. The first one is applied by General Directory of Forestry and based on the Forest Act. Within this scheme, a forest that is critical for water and soil protection is declared as "conservation forest". Most forestry activities are banned or strictly limited within this management class except for indispensable interventions such as pest and disease control operations. The second scheme is applied by Ministry of Environment and Forestry and based on the National Parks Law. (COP Turkey)

Specially protected natural areas in urban and peri-urban areas may be under exclusive public ownership. Privatization of lands in such areas may be restricted or entirely excluded (see for example Article 3 of the Law on Specially Protected Areas of Armenia). Obviously, use rights in those lands are very restricted. Cutting is allowed only for maintenance, sanitation, or for the reconstruction of stands of economically low-value and which lose their protective and ecological functions.

Ownership of urban and peri-urban forests and green space

The analysis of ownership of the land, on which elements of urban green resources can be found, plays a decisive role to raise awareness of policy and decision makers and stakeholders about their role and responsibility in the policy, institutional and legal framework of UPFG.

Most green structures within city boundaries belong to the municipality or the government. For example, urban forests and green areas in Tbilisi generally belong to the municipality. However, the state owns forests which are well outside the

municipality and managed by the Tbilisi State Forestry Enterprise. In Yerevan, there are two main owners of green space and urban and peri-urban forests: the Municipality is the owner of green areas, gardens, orchards, parks and cemeteries; the state owns some land that is part of the state forest fund and located within the boundaries of the municipality and on its fringe. The forest enterprise in Yerevan (one of 22 state forest enterprises, which belong to the State Forest Agency under the Ministry of Agriculture) manages urban and peri-urban forest land. However, small orchards and gardens are privately owned by individuals and/or organizations (personal communication 12). Under the land code, the privatization of certain lands that are categorized as land of general use (for example of boulevards and gardens) may be prohibited.

Countries of the WECA region distinguish between private and public **forest ownership**. In some countries, such as Armenia, Tajikistan, Turkmenistan and Uzbekistan, the forest is still the exclusive property of the state (although, for example, in Uzbekistan, there are preconditions on transfer of the forest lands to private ownership on long term rent basis (COP Uzbekistan). This means that in these countries all categories of forests, including elements of urban green resources, are state owned, including protection forest with shelterbelts and green belts, and city or urban forests.[18]

Because of the great diversity of existing provisions, it is difficult to draw generally valid conclusions regarding the ownership of forests in urban and peri-urban areas under forest laws. The state forest fund pertains to the public domain. Most forest laws distinguish between private and state forests forming parts of the forest fund. In doing so, some forest laws explicitly list the forests comprised in the private forest fund and the forests comprised in the state forest fund.

In Armenia, Azerbaijan, Tajikistan and Uzbekistan all forests are state owned. This means that in these four countries the state owns the following elements of urban green resources: (i) forest parks; (ii) city, urban and municipal forests; and (iii) all forest lands that are located in the urban and peri-urban areas and that are elements of the urban green resources. Therefore, in the mentioned countries, only land excluded from the forest fund can be privately owned. Such land includes individual trees and clusters of trees with an area below a certain limit, trees and shrubs within gardens, etc.

The establishment of private landownership is one achievement in the transition from centrally planned to market economies in Central Asia. While land was deemed to be public property when the countries were part of the Soviet Union, following the first stage of land reform after independence, some categories of land were transferred to physical and legal persons as private property. After the land reforms, privatization of land gained ground at state and, municipal level in the countries analyzed (see for example Article 4 of the Land Code of Armenia). These reforms led to increasing privatization of land lots that are part of urban green resources, especially gardens, orchards, family residences and agricultural fields where use rights are generally not

[18] See Article 4 Forest Law of Uzbekistan, Article 2 of the Forestry Code of Tajikistan, and Article 3 of the Forest Code of Armenia.

restricted. Nevertheless, the ownership of city parks and city (urban, municipal) forests remains public in most CIS countries.

Land (planning) legislation

In many countries of the WECA region, local planning is not part of a coordinated and well planned process. For example, in Turkey, the Planning Law Act No 3194 provides for a single procedure for "local physical plans"[19] for all cities (Turk). This means that the same procedure regarding the development of local physical plans apply to cities with over 300.000 inhabitants and cities having between 50.000-10.000 inhabitants despite their different features. The main objective of the development of "local physical plans" in urban areas is the achievement of a "healthy" urban structure, to provide land development and to regulate the use of private and public land for public interest. The other important objective is to prevent uncontrolled sprawl of the city. (Turk)

Competencies for urban planning are not clear because of overlaps and gaps. For example, in Turkey there are several insufficiencies regarding the urban planning due to several legal exemptions. This has a negative effect on the planning of urban green areas that are insufficient in terms of quantity. The old strategies for spatial development planning adopted by the CIS countries are characterized by several weaknesses, such as spontaneous land privatization, inconsistent land reform, and insufficient information on land use and land ownership. They also reflect imperfect and incomplete legislative frameworks regulating spatial development planning, overlapping competencies among central, regional and local state bodies in matters of land regulation, weak coordination of activities and lack of cooperation among agencies.

Legal status of land categories relevant to urban green resources

The land codes include several provisions on the function, status, management and control of the different categories relevant to UPFG. Under land laws, each category of land has its own legal status, including its destination (purpose), rights in relation to possession, use and leasing, and specified use restrictions. For example, Article 6 of the Land Code of Armenia and Article 9 of the Land Code of Azerbaijan recognize the following categories of lands relevant to urban green resources:

- lands of agricultural destination;
- lands of settlements;
- lands of industrial, communication, transport, defence and other destination;
- lands of Specially Protected Natural Areas; and
- lands of the Forest Fund.

Each of the mentioned categories may include elements of urban green resources. For instance, laws dealing with lands of the forest fund implicitly deal with urban and peri-urban forest land, as the forest fund also consists of urban and peri-urban forest lands (see the section on forest legislation). When these lands are located in urban and peri-urban areas, they offer space for urban greening.

[19] The term "local physical plan" refers to master plan.

Challenges of land (use) management

The development of cities and urban areas is often achieved at the expense of forest and agricultural lands. This challenge can only be faced with proper land use planning, through the adoption of land planning schemes or the development of other integrated land use programs. Therefore, ecological and economic zoning of UPFG areas is of great importance in resolving issues concerning effective use, protection and recovery of forest resources and to prevent uncontrolled urban sprawl.

The problems experienced in land use and land management of urban green resources vary from country to country, which makes it impossible to provide a solution for the whole region. It is necessary to analyze each country with its own characteristics and features in order to establish a sustainable system or to improve the existing system. For example, since the 1990s, in some Central Asian countries much progress has been made, although further improvements are still needed[20]. In Iraq, the systems of land management are weak and need an overhaul due to the lack of reliable information following three decades of changing and incoherent land policy, internal conflict, and more recently the destruction of public records (UNDG, 2003).

Problem of enforcement of laws

In some cities of the CIS countries, like Tbilisi and Yerevan, private buildings such as cafes and restaurants are built in green areas without proper licensing or other authorizations. For example, the environmental authority in Yerevan is required to approve construction works before they commence, but the approval is frequently not obtained. Therefore trees are cut down and lawns are destroyed during construction process. As a rule, projects are not subject to the processes of due planning, consideration and agreement. As a result, green zones are invaded by private "investors", which results in reduction of park and green space areas (UNEP 2000b).

Municipality Laws

Municipality laws provide for the establishment of municipalities, their role in local government, and their legal and financial basis, among other matters. Municipalities can design local environmental programs, which deal with environmental protection and may include planting of greenery. Programs may also include collection and processing of the domestic waste, water, air and land protection from pollution, and implementation of the environmental activities along with neighbouring municipalities and other local measures.

For example, the municipality of Astana, Kazakhstan developed a strategy for the protection of the environment and natural resources of the city until 2010 (KG, 2005). Part of the strategy involves the analysis of the status of the environment (especially air pollution). The attraction of investments and technology from different sources is regarded as an opportunity to solve environmental problems. In order to improve the city's micro climate, the strategy measures to be taken include the establishment of a sanitary protective green zone, the development and realization of a greening program, and the establishment of micro zones for recreation.

[20] For instance in Tbilisi, primarily because of the uncertainty of the legal requirements, the green zone is not managed (UNEP 2002b).

Laws on municipalities generally contain specific provisions on UPFG or of relevance to UPFG. They either refer to UPFG in general terms by regulating nature and environment protection in the municipalities, or specifically by addressing particular elements of UPFG, such as gardens, parks and urban forests.

For example, the duties of all municipalities under to the Municipalities Law of Afghanistan include the maintenance of forests, gardens, meadows, enlarging forests, tree planting in lands which cannot be used for agricultural purposes, establishment of tree nurseries, and city planning, whereas the establishment of gardens and zoos is a duty of those municipalities that have more income (Articles 9 and 10).

The mayor of Yerevan is responsible for nature and environmental protection according to Clause 1.2 of the Decree on the Administration of the Municipality of Yerevan. He takes part in the development of state programs on the protection of nature and the environment and implements them on the territory of Yerevan. He also contributes to the preservation and use of specially protected areas and to the realization of measures against cutting of forest, and collaborates with the organizations and people involved in nature protection (Clause 1.21. of the same Decree).

In general, institutional capacity and municipal policies related to urban forests and trees are insufficiently developed because UPFG is not perceived as a discipline. Therefore, existing regulations cover UPFG fragmentarily.

4.3 Institutional framework

Responsibilities for UPFG in the WECA region

In most of the countries analyzed, there are several agencies responsible for UPFG policies and strategies, and for the management of urban green resources (see relevant sections above). There are three levels of government: national, regional and local (district, city and village administrations). At the national level, competent institutions may be the Ministry of Environment, State Forestry Department, State Department of Protected Areas, Ministry of Agriculture and Food, Ministry of Finance etc. The forestry departments have a key role in UPFG in many countries of the region (see above section on forest law) because planning and management of green belts is often their responsibility. The environment authorities are also key actors at the national level. The planning and management of green areas within city boundaries generally is under the responsibility of the municipalities. For example, in Turkey, the Parks and Gardens Department, under the Mayor of Izmir Metropolis, administers the elements of urban green resources within the boundaries of the municipality.

It should be noted that cooperation and communication among the aforementioned different authorities is extremely weak in many countries in the WECA region (Gegeshidze). This is mainly because urban green resources are not conceived as an important discipline, and because of the lack of cooperation and communication between the responsible authorities in general.

As UPFG is a multi, cross-sectoral area, many authorities are involved in decision making and management. This is illustrated by the following two examples..

The first example from **Iran** and illustrates the involvement of the different authorities at the national level.

Box 19: UPFG responsibilities in Iran at national level

The department of Environment manages protected areas which include national parks, ecological reserves, wilderness areas and sanctuaries. Biological diversity protection is put in priority and the extent of protected areas is enhanced. Rare plant specie reserves, peri-urban man-made parks, and protection forests are managed by the forestry sector (COP Iran). The Forest, Range and Watershed Management Organization (FRWO) affiliated to Ministry of Jihad Agriculture, is in charge of rehabilitation, protection, exploitation and development of forest, range and watershed. It is the main governmental institution responsible for planning and implementing forestry programs, including urban and peri-urban forestry activities as mandated by the Forest and Range Nationalization Law and the Protection and Utilization of Forests and Ranges Law (FAO 2000). To plan, supervise and conduct activities, FRWO is comprised of many departments, all relevant to UPFG, including Forest Management, Afforestation and Parks, Range Management, Sand Dune Fixation and Combating Desertification, Extension and Public Participation, Training, Protection, Legal Affairs, Land Survey, Planning and Programming and Institutional Affairs. According to the Country Outlook Paper of Iran, the development of intersectoral collaboration at the national level aims to protect soil, water and biodiversity, as well as urban forestry development. To this end, the forestry sector could protect biological diversity in cooperation with the Department of Environment and develop urban forestry in collaboration with municipalities. The creation of incentives for the private sector and the increase of local communities' involvement in urban and peri-urban forestry activities are considered as one of diverse financial resources for UPFG.

The next example from the **United Arab Emirates** of Dubai Municipality illustrates the involvement of the different departments at the municipal level. Dubai Municipality has six divisions. The responsible division for urban green resources is that of the Assistant Director General for Environment and Public Health Affairs, which consists of seven departments. One of these is the Public Parks and Horticulture Department (see organizational chart below). Its responsibilities are limited to elements of urban green resources in urban areas, and include planning, development, operation and maintenance of horticulture works of roads, squares and parks, as well as providing horticulture guidance and services related to the child city and zoo of Dubai. The department is divided into the following units: Promotion and Recreational Programs Office, Horticulture Section, Horticulture Services Section, and Parks and Recreation Facilities Section. The gardening services they offer include monitoring of horticulture companies for compliance, ensuring the operation of the irrigation network of the city street plants, and increasing the green areas of the city.

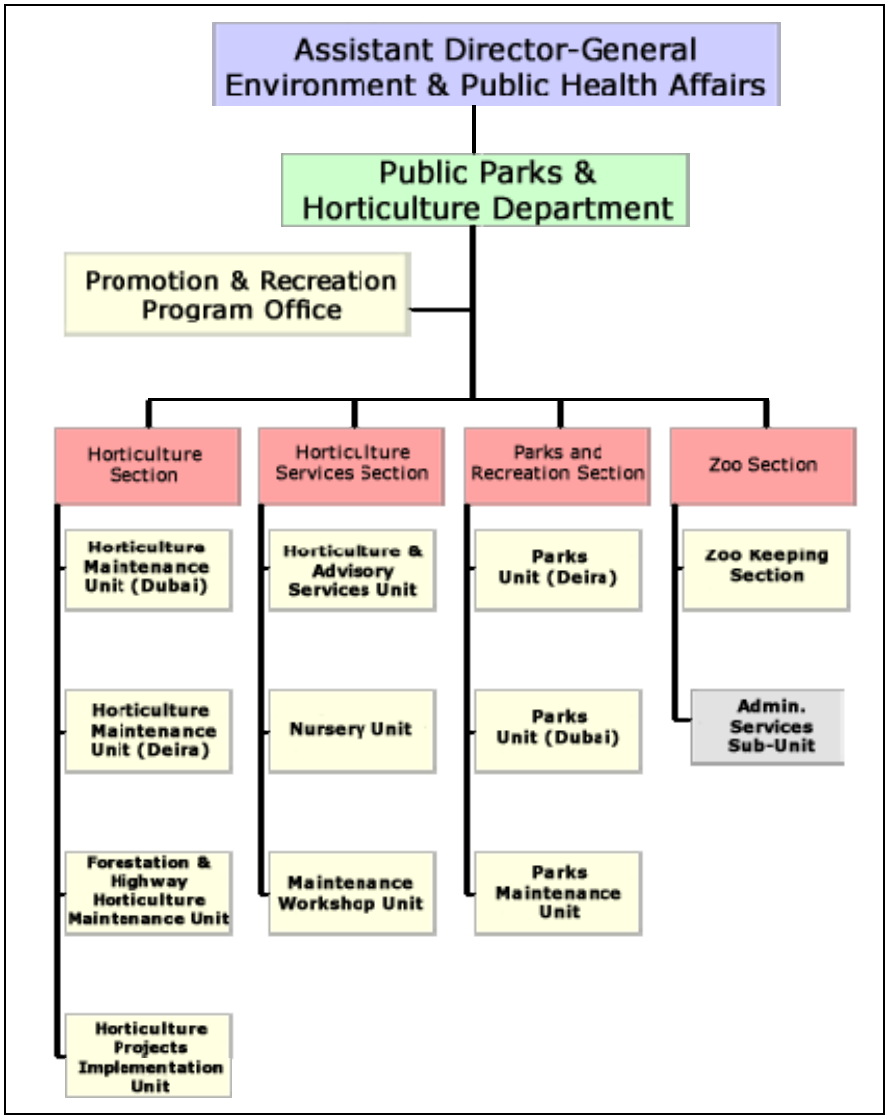

Figure 6: ***Organization chart for Dubai Municipality 2004,***
Source: available online at <http://vgn.dm.gov.ae/DMEGOV/parks-horticulture>

Decentralization and public participation

Decentralization[21] is becoming increasingly important in the WECA region. In this context, responsibilities related to UPFG tend to shift to lower government levels. The effect of decentralization policies will also lead to greater involvement of local community groups, municipalities, and grass-root organizations in the various aspects of UPFG development and management. However, this requires capacity building and awareness raising campaigns, and sufficient financial resources.

Decentralization is not the end objective of reform in the UPFG sector, but rather a means for achieving sustainable urban development (UN 2001). More responsibilities

[21] "Decentralization is a complex multifaceted concept. It could be described as the process of transfer of authority and responsibility for public functions from the central government to intermediate and local governments or quasi-independent government organizations and/or the private sector" (World Bank, 2001).

and leeway in decision making should will provide better delivery at lower costs also in the urban forestry sector and help address the needs of local constituencies more effectively than central governments.

With the exception of Turkmenistan and Uzbekistan, **Central Asia** countries have introduced a decentralization policy or are on the way of implementing this. Currently, in the framework of the program "the development of the local governance in Central Asia", strategies for the development of many cities are designed. The objective is to give to the local government and citizens the possibility to actively foster future social and economic developments instead of merely reacting to events that have already happened (KUIBa, 2005).

However, the process of actual transfer of power and resources has encountered a number of difficulties. The laws and decrees providing for the interactions between various levels of government are often inconsistent and even conflicting (Dabla-Norris et al, 2000; Doane et al, 2000; KDG, 2005). These legislative gaps are primarily caused by a lack of clearly defined criteria for the allocation of authority between the central and local authorities. Also, in a number of cases, the transfer of responsibilities rather than rights has occurred. In other words, the decentralization of responsibilities is rarely matched by sufficient resources (UNECE, 2002). This has undermined local budgets and consequently led to the failure of the municipalities to address many local issues.

An additional problem occurred in some countries that have already implemented the decentralization policy, because of insufficient financial income of the municipalities, that are not only exercising more power but also have more control over financial resources. Local entities frequently have only the authority to collect land taxes, but they do not have the competence to determine fiscal policies. Collection of land tax is very difficult and the outcome quite small (personal communication 13). This affects the funding of the development and management of urban green resources as these, within municipalities, are mainly under municipal ownership and greatly depend on public funding.

Decentralization is also an increasingly important trend in the sub-region of the **Near East**. Many countries are attempting to transfer control of resources and decision-making powers from central to local government level (MCW, 2005), because highly centralized systems of governance with limited autonomy and accountability at the local level do not provide government officials the right structure and incentives to address the basic needs of the population (World Bank).

While in some countries in Western Asia municipal taxes do exist, in practice it is the central authorities which administer the collection and disbursement of municipal funds. In cases where more functions are assigned to local governments, they are not matched with the resources needed by municipalities to perform as managers and decision makers rather than as the simple executors of plans made and managed by the Government. The conditions which would enable local authorities to assume such an expanded role are still not in place (UN 2001). This also affects the funding of UPFG activities as a responsibility of municipalities.

In the oil rich countries, except for Iraq, funding is not a major issue. In these countries the involvement of local people, NGOs and other stakeholders is the key issue. In Afghanistan, Jordan, Lebanon, Syria, Turkey and Yemen, lack of funding is the main problem to address in the context of decentralization. For example, in Jordan's municipalities (with the exception of Amman), the lack of expertise, coupled with the lack of tools caused by financial constraints undermine urban planning and urban management activities (UN 2001), thus negatively affecting urban green resources. Local governments in Jordan have failed to establish themselves as credible institutions that can handle growing levels of urbanization and meet the needs of the urban population for public amenities (UN 2001).

The problem of resource mobilization for UPFG activities, whether through intergovernmental transfers, fiscal reform or income generation at the local level, has not yet been explored in West Asia. However resource mobilization is essential to the sustainability of local urban development and the efficient performance by municipalities of their duties and responsibilities, including urban green resource management.

Greening projects linked to poverty alleviation – NGOs and other initiatives

Generally speaking, there is a lack of awareness of the linkages between urban and peri-urban forests, green space and the alleviation of poverty. Only some of the analyzed projects in the region explicitly mention the urban poor as a target group in the context of greening and planting trees. One of them is the Global Partnership for Afghanistan (GPA), a non-governmental organization comprising citizens and organizations, including non-profits, corporations, and educational institutions, which support Afghanistan's economic and environmental development.

Box 20: Partnership for a Green Afghanistan

Under the direct supervision of the Global Partnership for Afghanistan, tree-planting initiatives aimed at quick impact have been launched, including development of orchards, tree nurseries, woodlots and greenbelts. These projects, building upon local skills and best practices, strive to both protect natural resources and reduce poverty. This program includes: launching a people-to-people tree planting initiative, initially to include 80,000 trees. Funds have been raised via corporate, foundation and private contributors to finance the planting of trees in local Afghanistan communities. Specifically, this program includes sponsoring of new orchards, woodlots and greenbelts by friends in the US and attendance by farm families in Afghanistan. (American Forests)

The objectives of project Afghan Conservation Corps (ACC), implemented by the United Nations Office for Project Services (UNOPS), are restoring nurseries, planting trees along roads, greening schools and mosques. However, the ACC has the potential to undertake many more activities if it had more resources at its disposal (personal communication 14).

The second project in the area linking UPFG with poverty alleviation is the Armenia Tree Project (ATP) founded in 1994 and funded by contributions from Diaspora Armenians to foster environmental protection in Armenia. The project's aim is to improve social and environmental conditions in Armenian's social institutions by

involving and training people in tree planting and care, partly in urban areas. For example, a major program initiative for 2005 is the planting of 90.000 trees at urban and rural sites. By planting fruit trees, ATP provides food, as well as long and short term employment opportunities. ATP recognizes that people directly affected by the greening programs have a direct impact on the success or failure of the greening program. The full participation of citizens and community groups is essential from the very beginning of the project for the protection and maintenance of green areas.

There are only few international projects that aim at UPFG and poverty alleviation. One example is the project for the improvement of urban habitat by developing an urban forestry/greening master plan for Karsiyaka Municipality, Izmir by UNDP and the Republic of Turkey. A team of experts developed an alternative solution for an area, which is both a habitat of a modern society and that shows the typical characteristics of an irregular housing situation, to tackle environmental problems to improve the living conditions of marginalized and disenfranchised residents.

4.4 Actual status and constraints of policy, legal and institutional frameworks

People in urban and peri-urban areas are not fully benefiting from the important potential of UPFG because trees and other elements of urban green resources are neither well perceived nor well documented by government officials, and therefore receive little attention in the formulation of national policy and planning.

In the Caucasus, high incidence of corruption and the low capacity of law enforcement bodies also result in illegal cutting. This lack of capacity alone causes an overall decline in forest quality. (CEO)

In CIS countries the public administration has largely been characterized by a centralized and technocratic ‘command and control’ approach to planning, resource management and public order. In essence, technical staff from line ministries such as agriculture and forestry determine land uses, and the local population is expected to respect the technical guidelines issued by competent authorities. This approach is inadequate to the requirements of today. Official plans often bear little reality to the actual situation, and local populations, faced with few alternatives, use and overuse common resources despite technical planning directives.

Limited public funding, especially within the municipalities, and the ongoing decentralization and privatization policy are likely to lead to a decrease in urban green resources. In practice, programs are and will be implemented only to the extent that financial means allow. The financial commitment of governments is not always insured because of priorities set at different levels. The financial back up of municipalities and the provision of their income will play a key role in the future for urban green resources.

Other than funding, a significant obstacle to development and management of urban green resources is the lack of specific laws and regulations on UPFG within the region. The absence of adequate laws leads to the misuse and destruction of urban green resources. Even where legal prohibitions on the use of urban green resources exist, enforcement may be too costly or there is not sufficient management staff. This

problem is particularly evident in the case of informal settlements, such as for example in Izmir.

The policy, legal and institutional constraints involved are listed below.

Policy constraints:

- Lack of awareness of the importance of the perception of UPFG as a discipline in general;
- Lack of clear distinction between urban, peri-urban and rural areas (fundamental for the development of laws and policy programs);
- Lack of awareness of UPFG as a multi-sectoral discipline;
- Lack of a clear definition for "urban green resource";
- Absence of new approaches towards urban planning.

Legal constraints:

- Lack of specific laws on UPFG; existing laws are incomplete, incoherent and inapplicable;
- Lack of legal definitions for UPFG and urban green resources;
- Lack of systematic rules on urban expansion which take into account the preservation of elements of urban green resources;
- Lack of coordination between relevant authorities.

Institutional constraints:

- Lack of qualified personnel, especially at the local level (FAO 2004);
- Lack of financial resources (need to secure income for municipalities);
- Lack of mechanisms for public participation;
- Lack of coordination between relevant ministries, e.g. greenbelts around cities are often the sole responsibility of forestry authorities.

5. FINANCIAL MECHANISMS TO SUPPORT UPFG

Financing planning, management and maintenance of the urban green resource is often done by the respective owner (see above for ownership and responsibility). This chapter will describe some possibilities and constraints related to financial mechanisms used to support UPFG.

Municipal finances

Elements of the urban green resource, which are owned by the municipality are almost always financed by the municipality, which finances are based on incomes from taxes. In Cyprus, there are special taxes directed to management of the public part of the urban green resource. There are 32 municipalities in Cyprus, of which 24 are active. The main task of the municipalities is greening of urban areas such as parks, streets and municipal areas in the cities. The work is requested by the citizens, who pay taxes to support it (Communication 8).

In CIS and in several other countries a major problem related to maintenance and management of land is the lack of financial resources. Therefore, privatization is often seen as the only solution, even for typically public areas of responsibility and duties such as the maintenance of parks. The Urban Institute of Bishkek, for example, recommends the privatization of parks in Kyrgyzstan which are not sufficiently managed due to financial constraints and lack of specialized personnel, thus attracting private sector for management (KUIB, 2005).

In several Oil-economy countries UPFG is financed by the incomes from the oil (Communication 4). But in the Kingdom of Saudi Arabia, according to the Seventh Development Plan for 2000-2004, the Kingdom will continue their policy of giving the private sector the opportunity to undertake many economic and social tasks of the government, on condition that this would result in real benefits through lower costs, better performance and employment opportunities for Saudi citizens. This involves implementation and management of parks and green areas in residential areas (Ministry of Planning, Kingdom of Saudi Arabia, 2000).

Box 21: Contribution of fines to urban environment and natural resources – The case of Dushanbe, Tajikistan

In Dushanbe, Tajikistan, financial tools are used to protect urban environment, natural resources and prevent environmental pollution. The financial tools include for example payment for licenses for forest cutting and fines for illegal cutting. The City Committee for Nature Protection has its own bank account, which collects money deriving from fining and various environmental payments. These funds are used for different environmental activities in accordance with the scheme approved by the Ministry of Environment and the City Administration. In year 2000, a total sum of all collected environmental payments and punishments from waste disposal and damages was about US$ 25 000. (UNEP, 2001b)

Employment and income generation

Incomes and employment opportunities are produced within the green sector. In Turkmenistan, the project of planting greenbelts has so far employed 10 000 people

(Communication 10). The smaller scale Armenia Tree Project has since 1994 employed hundreds of low-income workers in the nurseries (Armenia Tree Project, 2005). In Tehran the project with planting green belts was implemented by municipal department for parks "Tehran Parks and Green Space Organization" in partnership with the Forest, Range and Watershed Organization and expertise from Tehran University, the Faculty of Natural Resources. Also private stakeholders like professional firms have been involved in carrying out the work on annual contracts. The project has created jobs for 75 firms and job opportunities for about 10 000 people (workers, experts) (Tehran Parks and Green Space Organization, 2005). The employment generated by the urban green resource should be further considered in UPFG.

6. FUTURES SCENARIOS

The future of cities is likely to be influenced by three important trends: the continued expansion and consolidation of global capital; the completion of the urban transition over the next several decades; and the strengthening of city-mediated and increasingly transnational relations. The urban transition here means that the proportion of the population living in "cities", however defined, will continue to increase. But in addition to "citification" urban transition refers to the socio-economic and cultural transformation of much of the countryside as rural people in even remote parts of the globe adopt urban lifestyles and modes of production that are increasingly oriented towards capital accumulation. The 21st century will be the century when the world, as a whole for the first time turn predominantly urban in the sense that this term is understood today.

In West and Central Asia there are no indications that urbanization process will stop. Even though the urbanization rate is not to increase in some countries, the urban population as a whole will still grow and hence an urban expansion is to expect in all countries.

By the year 2020, the role of the urban green resource and Urban and Peri-Urban Forestry and Greening in the societies in West and Central Asia will largely depend on the socio-economic development of the urban areas, the level of integration between urban planning and forestry sector and the awareness and technology in dealing with the geographical physical constraints. With the two variables of socio-economical and level of urban planning and technological development, four scenarios for the future UPFG in the WECA region can be developed (see Figure 7).

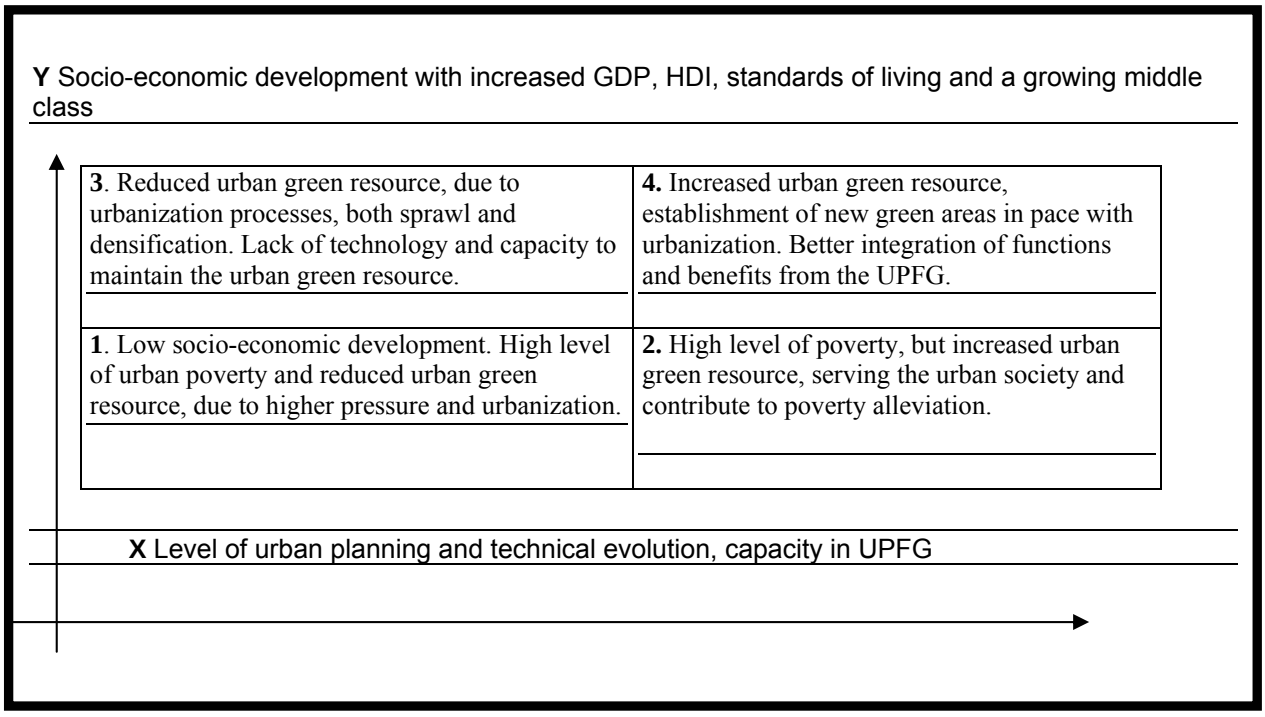

Figure 7: Framework for the scenario development of UPFG by 2020.
With the two variables Socio-economical development on the Y-axes and Technical evolution and capacity in UPFG on the X-axes, four future scenarios are developed.

It should be stressed that one scenario can either act alone, or co-exist with a second scenario in one country, but then most probable in another city.

6.1 Scenario 1: The ticking bomb

The first scenario could be considered as a worst-case scenario with low socio-economic development and low level of technology and capacity. The low socio-economic development leads to a high level of urban poverty. It could deal with a situation where migration is not taking place, but the urban employment is so low, that the existing urban population becomes poorer and poorer. It could also deal with a situation where the low socio-economic development strikes the whole country or region and not only in urban areas, causing migration from rural to urban areas. If precautions by the city are not taken, the risk for development of illegal settlements and shantytowns on the urban fringe increases. In both cases this will lead to reduction of the urban green resource, both in quantity and quality. Either through deterioration due to lack of finances and technical skills, or/and the urban poor use the urban green resource for illegal cutting for fuelwood, logging and use of non-wood forest products. With decreased urban green resource, the risk of worsened urban environment is high, contributing to problems like landslide, erosion, pollution of water and air, damaging the urban health.

The scenario is possible in the case of conflicts, war leading to shortage of for example energy, as has been the case in Armenia during the energy crisis, in Afghanistan during the wars. Several metropolises in developing countries all over the world are already facing this situation. UN Habitat calls the low-income settlements for “Ticking time bombs” (UN Habitat, 2004). The scenario is likely in the poorest countries in the WECA region, such as Tajikistan, Yemen and Afghanistan, but also Iraq, Turkey and Iran, where the urbanization is very rapid. The scenario is also a feasible future in some of the CIS-countries, where the level of urban poverty is already quite high.

6.2 Scenario 2: UPFG for poverty alleviation

With a low socio-economic development, urban poverty will increase and urbanization will continue to proceed with migration to the cities. If this situation is combined with a high level of technology and capacity within UPFG, such as irrigation systems, treated wastewater disposal, local management, and access for the urban, the urban green resource can contribute to improvement of urban environment and to alleviate poverty by providing incomes and livelihood for the urban poor.

In many of the countries facing this scenario, non-wood products from trees are common. Apricots, pistachio, walnuts and many others grow naturally in the region in both rural and peri-urban areas, and are strongly related to livelihood of the rural population. With an increasing number of urban poor, the urban green resource will be able to provide livelihood support through urban agriculture and use of urban forest products such as fuelwood and timber. Done in the right way, by planting and provide education in management and maintenance, this could lead to both poverty alleviation and community building. Planting fruit trees in urban areas has been one of the main goals of the Armenia Tree Project in Armenia and the Greening plan of Karsiyaka in

Turkey, providing income opportunities for the local residents and creating a sense of responsibility among the local residents. With public participation, UPFG can play an important role in improvement of good governance and for community building. Urban forests and trees and their products, managed in a sustainable way, with legal access and transparency, could contribute to poverty alleviation and community building. Prerequisite for this development are legal and policy changes related to access and rights to use the by-products of the urban green resource.

The case-study in Curutiba in Brazil shows how UPFG can, as a part of the overall urban planning, contribute to poverty alleviation.

Box 22: Case-study: The situation of urban forestry in the city of Curitiba, Brazil

Curitiba is known beyond the national border for its policy in favor of a well-ordered urban development, sophisticated public transportation system and environmental conservation attributes, which gave Curitiba the character of a modern model city in Latin America. Already during the last 30 years, Curitiba has focused on its urban planning. A master plan for an orderly urban development was implemented beginning with J. Lermer's administration in 1971. The development of the master plan was accompanied by the IPPUC ("Research and Urban Planning Institute of Curitiba") and permanent discussions throughout society ("Tomorrow's Curitiba" seminars). Today, the city moves forward to extend its solutions to the whole metropolitan area such as "zoning and land use" with timetables for execution.

Today a significant part of the population is involved in Curitiba's environmental programmes. There are several activities in the field of environmental education like "Olho d'Água" where municipal students carry out survey programmes about river quality or "Câmbio Verde", where recyclable trash is exchanged for food or teaching material. For 4 kg of trash one gets 1 kg of fruit. In a programme conducted since 1989 the Municipal Health Secretary supports the production of medicinal plants, which are freely distributed to local health stations. In a project called "Cesta Metropolitana" fruits are sold 30% below market price especially for poor people from peri-urban areas. There are no explicit projects in the fields of urban agriculture in Curitiba, but small producers of the metropolitan area have the right to sell their products on special markets without middlemen. Curitiba's environmental project with the most success concerning participation of the local people is the communal planting project ("Plantios Comunitários"). Supported by the Environmental Education Department planting native (fruit) trees is carried out together with the local people. Once suitable areas are localized, the Department gets into contact with local representatives and involves them in the planning process. Areas for planting always are public areas, mostly threatened by erosion or inundation like steep slopes or riparian zones. The local people are also provided with knowledge about the tree or shrub species. The above-described activities are not restricted to the city centre but have an emphasis especially on the periphery of the urban agglomeration (Spathelf et al, 2002).

The scenario will highly depend on international funding and changes of legal and institutional framework, which allows access and flexibility in the urban green resource. The scenario is possible in countries with high international support such as Afghanistan, Yemen and Iraq. But Turkey and Armenia already has some experience in this field, they might develop something similar.

6.3 Scenario 3. Strong economy and poor urban governance

The third scenario deals with a situation where the economical development is prioritized above everything in the city. The socio-economical level is quite high, the middle class is on the rise and the cities are growing both through sprawl and densification. The urban development is too fast and takes place to a very high price,

not considering environmental assessment or urban zoning. The situation is combined with low level of awareness and interest for environmental issues and UPFG among officials and the public, due to the lack of policies related to awareness raising. The second variable deals with lack of technology, capacity and awareness on how to maintain the urban green resource, leading to a lack of strategy for the urban green areas. This might be the case where the economy grows very fast and legal and administrative institutions cannot cope with the current situation, and might be the future scenario in countries in economical transition. Reduction of the urban green resource relates to both quality and quantity. Russian cities have during the last 15 years faced this situation. The scenario furthermore implies a larger recreational need from the urban population, and a demand for recreational space. If the urban green resource is reduced, the societal pressure increases on what is left.

With the improved socio-economic situation number of pollutants increase, such as industries and cars, air pollution will be a major problem. The scenario is feasible for most countries in the region.

6.4 Scenario 4. The green and environmental aware city

The fourth and last scenario comprises a strong socio-economic development and high level of planning, awareness, technology and capacity. This is the case where cities are growing in a political climate, which allows considering urban planning, environmental assessment and urban zoning in the urban development. Along with urban growth the average income increases and the middle class grows. If used right, the urban green resource can contribute to a sustainable development of the city, where trees and green areas are contributing to an improved urban environment. Higher socio-economical level probably leads to an increased HDI and larger interest for environment and sustainable solutions among the public. Like in the third scenario higher demands on the urban green resource for recreation, which will relate as much to the quantity as to the quality of the green space, are to expect. Planning and management of the urban green resource will focus on production of landscape rather than of forests, fulfilling the urban population's demand for nature experience and recreation. This could also be an issue for national parks, nature reserves, forests around tourist attractions or resorts, where more attention is put on environment, biodiversity and aesthetics, than to the economical benefits. Working in UPFG will not only be about planting trees and managing a forest, but also enhance biodiversity, ecosystems, and maybe but not necessarily to produce wood. This is the case in many Western cities in Europe and North America, and the scenario is to expect in Lebanon and some of the oil-rich countries.

7. RECOMMENDATIONS FOR THE FUTURE

This chapter gives some general recommendations how to better deal with UPFG in order to enhance its contribution to a more sustainable development of urban, peri-urban and rural areas.

Improvement of policy and legal framework

Today there is a lack of UPFG related policies and programs on a national level. Therefore UPFG should be incorporated into **national policies**. For example, the establishment of parks and shelterbelts around urban areas should be proclaimed as a policy objective. This is a very complex issue since it involves many departments, e.g. forestry, agriculture, environment, planning, central and decentralized bodies of governmental and local authorities. Guidelines for policy and decision makers at governmental and municipal levels would assist them in designing their own frameworks and regulations in response to their needs. People living in urban and peri-urban areas should increasingly participate in decision making of UPFG policies at the local, regional and national level. Regular dialogue, consultation and coordination with UPFG stakeholders should be an integral part of UPFG programs. **Specific programs** on the development, establishment, preservation and/or expansion of urban green resources need to be developed and implemented at sub-national levels. Requirements or rules to the review of program implementation should be developed. Experiences in the field of UA in the Near East could be used for the development of policies at various levels.

In **urban planning,** trees and other elements of urban green resources should play a major role. Tree and plant care is centred on crisis management. Therefore greening projects require long-term planning and adequate funding to maintain the vegetation. At the same time the adaptation to recent local needs and requirements should be feasible.

The environmental and institution building guidelines of Agenda 21 should be incorporated into urban UPFG planning wherever possible.

One policy objective at national and sub-national levels should be to turn degraded elements of urban green resources into environments that can be put to productive use by poor families, thereby offering them income opportunities and/or food for household use. Awareness must be raised at the national level of the potential for income generation opportunities derived from urban green resources and their potential as a source of food for the urban poor.

Urban zoning by-laws need to be revised and green structures should be integrated in zoning plans, indicating zones in which UPFG is allowed. Peri-urban green zones can be included in city development plans as part of green belts or green corridors in order to avoid uncontrolled development and soil destruction. Buffer zones can be created and inner-city areas can be preserved by giving these areas to community groups and/or unemployed people under medium term leases for gardening and other greening purposes.

Protection and conservation legal measures may impose restrictions on exploitation and sometimes forbid exploitation of private land. While such measures contribute to the protection of ecosystems and have a positive effect on urban green resources, they may have directly affect land owners' and users' food security and income. In view of this, compensation measures are required to ensure the sustainability of laws on UPFG. **Laws** should balance state, public and private interests in UPFG.

The legal frameworks and the means to implement the new laws and regulations need to be developed at national and sub-national levels. The issue of overlaps and gaps of laws has to be especially taken into account since UPFG is a multi-sectoral area. In most cases laws at local level are more appropriate for dealing with the specific needs and conditions of individual cities. In many cases, simply integrating UPFG into existing city institutions could be the easiest way to get a program started. However, legislation needs to clearly define the **responsibilities** of the different authorities directly or indirectly responsible for UPFG.

Furthermore, the legal framework should also address the existing inter-relations of UPFG with other sectors and areas, such as agriculture, environmental management, town planning and budgetary constraints. Urban green resources cannot be managed in isolation from other sectors and disciplines. The linkages between UPFG and other sectors require comprehensive strategies. Development planning requires a high level of **coordination** between the concerned agencies and institutions. Non-wood forest products, services and functions of UPFG should be coordinated with the objectives of city and town development strategies, environment management, forestry, health, etc.[22]

The objectives of tree planting and the establishment of green zones should be incorporated into relevant legislation. The concept of a green city should be integrated into building codes, laws on urban development, and other related laws.

A comprehensive regional and sub-regional **information system** with relevant data on urban green resources is needed to improve the effectiveness of planning.[23] Such an information system will help to identify the actual status and level of development of the urban green resources, and to select useful programs and projects on development and preservation.

Protection, conservation or production?

The protection and conservation of the urban green resource and ecosystems induces consequences on the landowners and users. Laws that govern protection and conservation measures impose controlled exploitation or sometimes forbid exploitation of the owned land. While these laws contribute to the protection of ecosystems and have a positive effect on the urban green resource, they may have direct consequences on food security and on the income of owners and users of land. Economic and compensation measures will have to be studied and applied in order to

[22] These non-wood functions could include the protective, ecological, recreational, social, and economic benefits of UPFG.

[23] This data might include statistics on the area covered with various elements of the urban green resource, ownership of the different elements of the urban green resource, variations in species, quantity, etc.

ensure the sustainability of laws on UPFG. Laws should coordinate state, public and private interests in regard to UPFG. Legislation needs to clearly define the responsibilities of the different authorities directly or indirectly responsible for UPFG.

Coordination

Furthermore, it is emphasized that the legal framework should also address the existing inter-relations of UPFG with other sectors and areas, such as the wide agricultural, environmental, town planning and financial context. The elements of the urban green resource cannot be managed in isolation to other sectors and disciplines. The continuous interdependencies between UPFG and the other sectors require comprehensive strategies. Non wood forest products, services and functions of UPFG such as the protective, ecological, recreational, social, economical should be seen within their links to the policy priorities of the wide town planning sector, environment, forestry, health etc. Development planning requires a high level of coordination between the concerned agencies and institutions. Planting of trees and establishment of green zones should be incorporated into relevant legislation. The concept of a green city should be integrated into building codes, laws on urban development and laws of related areas. The authority in charge of the management of green belts must be capable of handling urban problems and making adjustments to the green belt policy. The ministry of forestry is an authority that lacks those qualities, because it is not an urban planning authority.

Integration of institutions, professionals and disciplines

Already today urban forests in the region are planned and managed by different ministries and institutions, indicating the wide spectra of objectives with the urban forests such as watershed management, treated wastewater disposal, protection of agricultural plots, amenity and recreation.

The concept of urban forestry is quite new and is not yet widely understood by all policy and decision makers, technicians (agronomists, foresters, horticulturists, etc.) researchers and actors involved in urban planning and management issues. However, there is a slowly growing awareness of the idea of UPFG as an overall management approach for the improvement of the living conditions and environmental protection within cities.

Urban and peri-urban forestry involves a number of different sectors and disciplines. Therefore, UPFG-activities should not only be the domain of foresters or urban planners. Current developments in agroforestry and urban agriculture show the possibilities of combining agriculture with forestry in terms of food production in and near cities. Sound UPFG and urban agriculture programmes can also enhance the vertical integration in seeking improved management of commodities through the production, processing, distribution and marketing stages, leading to added value for agricultural and forestry goods and services.

Urban planning

Good urban planning and urban governance will highly affect the nature of urban development and the level of sustainability. In urban planning, trees and other elements of the urban green resource should play a major role. The planning should be a long term one. At the same time the adaptation to recent local needs and requirements should be feasible. With the physical geographical constraints that are

frequent in the region, lack of suitable land for urban housing, urban development is forced to require elements of the urban green space. But the key to a sound UPFG is not dependent on the quantities, but on the qualities of the urban green resource. Hence, claiming green space for urban development requires improved land-use planning, thorough and careful zoning and inventory of the urban and peri-urban area as well as compensation through new planting or enhancement of quality on existing urban green resource.

A comprehensive regional and sub-regional information system with data of relevance to the urban green resource (for example data on the area covered or on the ownership, of the different elements of the urban green resource) will be necessary for improving the effectiveness of planning. It will help to identify the actual status and level of development, and to select useful programs and projects and following up their implementation.

The authority in charge of planning and **management** of green belts must be capable of handling urban problems and making adjustments to the green belt policy. The ministry of forestry alone may lack those capacities, because it is not an urban planning authority (Burat, 2000). Therefore, landscape architects, horticulturists and foresters together should be involved in urban planning and greenbelt management.

Development of good practices

UPFG is a relatively new field both in the industrialised and developing world. Conserving and expanding healthy, sustainable and multifunctional forest and tree resources in and near urban areas requires adaptation of existing techniques to the urban context. Pressures are often higher, for example in terms of social conflicts, competition for land and societal use. Therefore there is a strong need to strengthen the technical foundation for urban green resource conservation and development.

A world-wide and local inventory of best practices
Before developing new good practices within UPFG, an overview should be obtained of existing good practice by describing and analysing successes and failures with the help of local stakeholders. The starting point could be experiences gained within FAO to date. Community forestry, for example, has primarily been applied to rural conditions, but the approaches and tools developed seem highly relevant also to urban and peri-urban areas. It should be recognised that approaches and techniques to be applied in UPFG will differ across regions and countries according to local conditions and needs.

Capacity building & networking

There is a need for improvement of education and capacity building related to multiple-use forests in order to use them in a more sustainable way and enhance their qualities related to urban life and livelihood. This has to do with how to develop an urban forest and the urban green areas. The problems within the management have been highlighted above and in capacity building there is a strong need for develop and introduce new species, suitable for the specific purpose of the urban trees and bushes. An urban forest can serve many purposes at the same time and it and the challenge lies within how to combine these different goals and purposes at the same time.

Many of the tasks described above will highly benefit from optimum international co-operation. Networks in UPFG have become well established in the North - and especially in Europe - during recent years. The current need is for enhancing co-operation by sharing experiences and knowledge on a regional level. Capacity building and network also means extending partnerships between stakeholders, as well as between public and private actors. Crucial in this respect is awareness of ownership and land tenure relations. The Regional Centre of Excellence of LFCC's was a good starting point, sharing information. Especially from the countries with long experience in UPFG such as Iran, Turkey, Lebanon and the CIS countries, and the countries with less experience, but with the interest and financial means to develop new technologies, like the oil-rich countries.

Development of knowledge and awareness

UPFG as a new field cannot yet build on a sound resource of knowledge and information. No structural inventory of UPFG-resources has been carried out so far at the international level. The Forest Resources Assessment (FRA) 2000 paid some attention to Trees Outside Forest, but no structural inventory was carried out. There is a need for a more structural inventory of knowledge existing within different countries and in the region, as well as of needs and key issues. Moreover, the international dissemination of relevant knowledge needs to be improved. Inventories from local to international level with the involvement of experts and local stakeholders are needed.

Public participation

Transparency in decision processes and public participation are prerequisites if UPFG will reach its full potential in serving urban society and contribute to sustainable urban development. Even though public participation demands larger investments in an initial phase, public participation in planning and management can actually reduce the costs in the long run through local management.

FAO has stressed the importance of placing people first in any kind of forestry. People-centred forestry benefits local livelihoods e.g. by rights to access, more say in decisions, reduced vulnerability, income, improved governance, and partnership, direct benefits and increased powers. While operating in environments where there is a very high amount of owners, local users and stakeholders, UPFG clearly has to be people-centred. Local communities should be involved in forest and tree planning and management and benefit from it; all activities within UPFG should be participatory. Moreover, local knowledge on UPFG and their use and management should be incorporated in any UPFG strategy or activity.

Several initiatives show that partnerships are already forming and that education and community involvement is taking place in many cities. At the same time the benefits are understood in terms of better public relations and community education. For much of the tree planting work in cities, which involves heavy standard nursery stock, public participation is in most cases limited to the backfilling of trees, with the remaining heavier work to be done by specialised institutions.

Financial opportunities

Funding should be sought from a combination of national, regional and local governments, international donors and private enterprises. The trend towards decentralization should parallel a necessary increase in fiscal responsibilities of sub-national governments. Local funding and fiscal authority should be linked to the service provision authority and functions of the local governments. This refers to the local governments access to sufficient resources to fund its own expenditures.

Raising funding by raising awareness

It is important to understand that if city trees are to receive the popular and political support that are essential to fund a continual investment into tree planting and maintenance, then trees must be seen to have real benefits for the population as a whole. There must be considerable public and political support for urban tree planting campaign. Policy support is essential, not only as a requirement to obtain the necessary funding, but also to ensure the co-operation between actors.

Eco-tourism

Several countries in the region, especially in Central Asia have good possibilities for developing eco-tourism in the mountains and in national parks. If eco-tourism is to be developed, it is necessary to manage these parks also to resist to societal pressure and meet the needs of the tourists, often the urban population, but still protect the sensitive nature.

UPFG in a global world

In the "global world", where traditional conceptions change rapidly, the greatest challenge within UPFG might be to see beyond the predominant, but out of date, boarder between "urban" and "rural" and admit that the urban culture exist and affects rural areas, as well as rural culture is needed in urban areas. It is time to exchange experience from science and practice, from both rural and urban cultures in order to better deal with the challenges of the urban development, to build an ecologically sustainable, economically dynamic, and socially equitable future for the urban citizens.

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ANNEX: COUNTRY PROFILES

Afghanistan

Urbanization	
Total Population:	28,513,677 (July 2004 est.) (CIA)
Urban population (2000):	21.9%, 4 971 000 people
Expected level of urbanization 2020:	34.1%, 13 674 000 people (UN Population, 2004)
Main cities:	Kabul (2,549,000 (2000))
Ethnic groups:	Pashtun 42%, Tajik 27%, Hazara 9%, Uzbek 9%, Aimak 4%, Turkmen 3%, Baloch 2%, other 4% (CIA)
Population below poverty line:	23% (2002) (CIA)
Urban population below poverty line:	No data
GDP	No data
HDI	No data
Status and trends of urbanization:	According to the statistics provided by UN Habitat most people are employed within agriculture and the level of urbanization is the lowest in the region. But the country also has the highest expected annual growth of urban population in the region, especially up until 2015, with an annual growth of 5.3 % UN Population Division, 2004).
Urban and Peri-urban Forestry and Greening	
Status and trends	Urban and peri-urban forestry and greening is about to become a big issue on the political agenda. The Municipality of Kabul there were discussions on an immediate and long-term project for "Greening Kabul", in order to improve the urban environment. Community tree planting projects financed by international aid organizations have been carried out the last years (Eddy, 2005).
Urban green cover	No data
Benefits of UPFG	No data
Ownership of UPFG	No data
Policies and legislation	No data
Institutions, key-actors and stakeholders involved in UPFG	Decision-making (planning and management) No data Plantation and Maintenance Municipality
Implementations (Incentives and financial mechanisms)	International aid
Research and educations	
International support	Global Partnership for Afghanistan New York State University of Environment FAO and all UN organizations
Public Participation	

Armenia

Urbanization	
Total Population:	2 991 360 *note:* Armenia's first census since independence was conducted in October 2001 (July 2004 est.) R*efugees (country of origin):* 236 306 (Azerbaijan) *IDPs:* 50 000 (conflict with Azerbaijan over Nagorno-Karabakh) (2004) (CIA)
Urban population (2000):	65%, 2 024 000 people
Expected level of urbanization 2020:	65.2%, 1 908 000 people (UN Population Division, 2004))
Main cities:	Yerevan (capital) (1 407 000 in 2000), Gyumri, Vanadzor (MCW, 2002)
Ethnic groups:	Armenian 93%, Azeri 1%, Russian 2%, other (mostly Yezidi Kurds) 4% (2002) *note:* as of the end of 1993, virtually all Azeris had emigrated from Armenia (CIA)
Population below poverty line:	50% (2002 est.) (CIA)
Urban population below poverty line:	59% (MCW)
GDP	0.754
HDI	3120
Status and trends of urbanization:	Armenia is a highly urbanized country with growing urban agglomerations, especially of Yerevan rural-urban migration trend leading to an uncontrolled urbanization of villages. Most people migrating are in labour-age, increasing the proportion of children and elderly in the villages. 74 % of the country's poor live in urban areas. Urban centres have sufficient basic utilities infrastructures. Nevertheless, lack of proper maintenance over the years has resulted in their continuous deterioration. In some areas there are energy shortage and lack of potable water (MCW, 2002).
Urban and Peri-urban Forestry and Greening	
Status and trends	Yerevan, the capital of Armenia, used to be one of the greenest cities in the Soviet Union, with parks, gardens and street planted along the trees, as well as a green belt surrounding the city as a vital barrier to pollution, dust and disease. Today most of the urban greening is gone due to the energy crisis in the early 1990's, causing illegal cutting, and construction in the city. More than 50 % of the urban green resource is gone due to logging and construction and the city has turned into a dusty and gloomy place with major environmental problems related to erosion and landslide (UNECE, 2002).
Urban green cover	1290 ha of Yerevan's total 22 674 ha, 5.6% of the total urban area 2002 64.1 m²/inhabitant (1992, 87.2 m²/inhabitant) (Sayadyan)
Benefits of UPFG	• Tempering climate • Recreation • Livelihood (for example The Dalma Orchards in Yerevanfor 580 families) • Landslides • Ecological balance
Ownership of UPFG	In general green areas of Yerevan are owned by the Municipality apart from some patches that belongs to Hayantar (Armforest) State Forest Agency, which is the main forest owner in the country. There is no any private forest owner of green zones in Yerevan (Sayadyan, 2005).

Policies and legislation	Forest Code (adopted in 1994) The Government of Armenia has established a Reforestation and Forest Development Fund, which also is responsible for re-greening the city. At the moment the Fund intends to re-green 57 ha of highly degrades green areas. The Municipality of Yerevan is trying to involve and coordinate all forest related organizations' efforts to re-green the highly degraded green areas in the city (Sayadyan, 2005).
Institutions, key-actors and stakeholders involved in UPFG	Decision-making (planning and management) • Ministry of Urban Development • Municipal Department of Greenery Plantation and Maintenance • Local community Department of Greenery • Armenian Forest NGO, Armenia Tree Project
Implementations (Incentives and financial mechanisms)	In Yerevan the most efficient instrument related to UPFG is the City Master Plan. During the last decade, laws related to regulation of urban construction have been changed and are now facilitating construction processes, ignoring the Master plan. New constructions are also carried out without any Environmental Impact Assessment (EIA) (UNECE, 2002).
Research and educations	During Soviet time foresters were educated in Moscow or Leningrad and there was no forestry education in Armenia. Since 2001, however, there is a Department of Forestry at the Academy of Agriculture in Yerevan where students can study and obtain a degree of Bachelor in Forestry (Yacubian Klein, 2005).
International support	• Urban Institute (USAID) • Armenia Tree Project - Since 1994 the Armenia Tree project has planted and restored over 531,000 trees in the country. In Armenia and employed hundreds of low-income workers in the campaign. During 2004 their targets were to expand the fruit tree production to 50 % of total harvest at the state-of the art nurseries. Extending tree-planting activities to local villages where backyards and common areas will receive new trees (ATP, 2005).
Public Participation	Construction projects carried out in Yerevan are seldom considering the opinion of the public (UNECE). Armenia Tree Project is however in their programme considering democracy building and responsibility as a part of their plantation. Agreements are signed between a community and the NGO in order to secure the management and maintenance of the trees (Garibyan).

Azerbaijan

Urbanization	
Total Population:	7 868 385 (July 2004 est.) (CIA)
Urban population (2000):	50.5%, 4 123 000 people
Expected level of urbanization 2020:	53.5%, 5 280 000 people (UN Population Division, 2004)
Main cities:	Baku, capital (1,798,000 (2000)), Giamdza, Sumgait
Ethnic groups:	Azeri 90%, Dagestani 3.2%, Russian 2.5%, Armenian 2%, other 2.3% (1998 est.) *note:* almost all Armenians live in the separatist Nagorno-Karabakh region (CIA)
Population below poverty line:	49% (2002 est.) (CIA)
Urban population below poverty line:	40% (MCW, 2005)
GDP	3210
HDI	0.746
Status and trends of urbanization:	The population of the Republic inhabit in 4500 settlements, including 69 cities, 130 urban-type communities and more than 4300 rural settlements and/or villages (COP Azerbaijan, 2005). Baku was a small medieval town until the finding of the oil. The main cause for urbanization is the migration of rural population to urban areas.
Urban and Peri-urban Forestry and Greening	
Status and trends	The Forest Code and Land Legislation emphasise the environment-preserving and sanitation importance of the forests, use of them for cultural-health purposes and as a kind of main forest use they are evaluated. Use of forests of the Republic for the recreation purpose has wide perspective. Vital beauty of the forests landscapes of Azerbaijan attracts people here, they become wide access area for the recreation purpose. The recreation importance of forests speaks for itself in the view of entertainment, healing and tourism (COP Azerbaijan, 2005). In Baku the soil is arid and does not provide good conditions for vegetation. The forceful wind that whip offs the sea, and for which Baku is so famous, also seriously hinders growth of plants and the development of parks. However, during the oil boom Oil Barons together with the municipality made great efforts to green the city. The soil has to be enriched and the trees irrigated. Nearly every park in Baku is artificial (Akhundov). Land surrounding Baku is polluted by the oil industry and sanitation of the land for any kind of usage, construction or cultivation would take a lot of money. The closest urban forest in Baku is located 200 km from the city (Assa).
Urban green cover	The total area of existing greeneries in Baku is 12202 ha (COP Azerbaijan, 2005)
Benefits of UPFG	• Health • Recreation • Landslide and erosion (COP Azerbaijan, 2005)
Ownership of UPFG	Municipal
Policies and legislation	No data
Institutions, key-actors and stakeholders involved in UPFG	Decision-making (planning and management) No data Plantation and Maintenance Municipality Greenery Departments (COP Azerbaijan, 2005)

Implementations (Incentives and financial mechanisms)	In 2004, for recreation purpose, 193,7 ha of forest areas were transfered to the individuals and legal entities under contract and income obtained from this was 117713,0 thous. manat (24000 $US). This figure is predicted to rise for 50 times by 2020 (COP Azerbaijan, 2005).
Research and educations	No data
International support	• UN Organizations • World Bank projects
Public Participation	No data

Bahrain

Urbanization	
Total Population:	677 886 note: includes 235,108 non-nationals (July 2004 est.) (CIA)
Urban population (2000):	89.6%, 607 000 people
Expected level of urbanization 2020:	92%, 891 000 people (UN Population Division, 2004)
Main cities:	Manama (capital) (134,000) (United Nations Population Division, 2004)
Ethnic groups:	Bahraini 63%, Asian 19%, other Arab 10%, Iranian 8% % (CIA)
Population below poverty line:	No data
Urban population below poverty line:	No data
GDP	17170
HDI	0.843
Status and trends of urbanization:	The population of Bahrain is overwhelmingly urban. Most working-age men who reside in villages commute to jobs in urban areas. The largest city, Manama, is the principal commercial and cultural centre. Manama also spread to the west through the reclamation of hundreds of hectares from the sea. In the newer and less congested neighbourhoods, multi-storey apartment complexes, high-rise hotels and office buildings, and supermarkets predominate. Most of Bahrain's foreign workers tend to live in the city. Bahrain's main towns are Jidd Hafs, Ar Rifaa, Sitrah, and Madinat Isa. Throughout the nineteenth century and during the first half of the twentieth, Jidd Hafs was a relatively prosperous village renowned for its extensive date palm groves and the manufacture of medicinal drugs from the buds, flowers, and pollen of palm trees. By 1975, however, Jidd Hafs had been transformed into Manama's largest suburb. Ar Rifaa, which originally consisted of two adjacent villages--Ar Rifaa ash Sharqi and Ar Rifaa al Gharbi. Ar Rifaa's importance as the country's political centre has continued under Shaykh Isa ibn Salman, who constructed his palace in the town, as did several other members of the Al Khalifa. The town of Sitrah formerly consisted of several palm-cultivating villages, but extensive residential construction during the 1970s fused the villages into one large suburban town. Madinat Isa was a planned community built to relieve the congestion in Manama and such close suburbs as Jidd Hafs and Sanabis. (U.S. Library of Congress)
Urban and Peri-urban Forestry and Greening	
Status and trends	No data
Urban green cover	No data
Benefits of UPFG	No data
Ownership of UPFG	No data
Policies and legislation	No data
Institutions, key-actors and stakeholders involved in UPFG	Decision-making (planning and management) No data Plantation and Maintenance No data
Implementations (Incentives and financial mechanisms)	No data
Research and educations	No data
International support	No data
Public Participation	No data

Cyprus

Urbanization	
Total Population:	775 927 (July 2004 est.) (CIA)
Urban population (2000):	68.8%, 539 000 people
Expected level of urbanization 2020:	73.1%, 643 000 people (United Nations Population Division, 2004)
Main cities:	Nicosia (capital) (197 000 (2000))
Ethnic groups:	Greek 77%, Turkish 18%, other 5% (2001) (CIA)
Population below poverty line:	No data
Urban population below poverty line:	No data
GDP	18 360
HDI	0.883
Status and trends of urbanization:	Cyprus experienced a rapid and intense economic transformation after World War II. The traditional economy of subsistence agriculture and animal husbandry was replaced by a commercial economy, centred in expanding urban areas. These economic changes resulted from extensive construction of housing and other facilities for British military personnel during World War II; exports of minerals (60 percent of all exports), which became the island's most valuable export in the 1950s; and the fourteen fold increase in British military spending through the postwar period. (Cyprus became Britain's most important base in the eastern Mediterranean after the loss of bases in the Arab countries.) Independence brought such an acceleration of economic development, the so-called "economic explosion," that by the end of the 1960s the objectives of the government's economic planning were not only fulfilled, but overtaken. Post-war population redistribution in Cyprus was so extensive that most urban dwellers were born in rural areas. These migrants maintained close ties with the countryside, and many owned plots of land in their places of origin. The satisfaction of owning land went beyond increasing property values, a fact that is easy to understand in Cypriots, who were an agricultural people until just a generation ago. (U.S. Library of Congress) The buffer zone, which keeps the Greek Cypriot and Turkish Cypriot inhabitants of Nicosia apart, has split their town into two separate urban parts, which have been developing independently of each other, thus causing the transformation of the city's structure and the disintegration of its entity. Suburbanisation and the political circumstances which caused the division of the town have had unfortunate effects on economic and living conditions in Nicosia. The existence of the Buffer Zone, which runs through the middle of the city and the historic center itself, has undermined its centrality and turned it into a "frontier" town. Under the impact of rapid growth, and the reality of its division into two separate parts, years of unplanned and uncontrolled development have created accumulated problems for contemporary Nicosia. (Nicosia Municipality)
Urban and Peri-urban Forestry and Greening	
Status and trends	Rapid urbanisation in Cyprus created the need for the development of urban forests which serve mainly for recreation, aesthetic purposes and as carbon sinks. These forests were mostly developed in the semi arid zone and coastal areas. Moreover, within the urban areas a great number of trees were planted along the roads, in parks and gardens. Urban forests are highly appreciated and are used mainly for a wide range of recreation activities. The most popular activities are walking and picnicking. Currently the Rural Development Plan is offering

	opportunities for the establishment of forest vegetation and the improvement and protection of existing ones (COP Cyprus, 2005).
Urban green cover	No data
Benefits of UPFG	No data
Ownership of UPFG	No data
Policies and legislation	No data
Institutions, key-actors and stakeholders involved in UPFG	Decision-making (planning and management) No data Plantation and Maintenance No data
Implementations (Incentives and financial mechanisms)	In Cyprus, there are 32 municipalities, of which 24 are active. The main task of the municipalities is greening of urban areas such as parks, streets and municipal areas in the cities. The work is requested by the citizens, who pay taxes to support it (Ma, 2005).
Research and educations	No data
International support	No data
Public Participation	No data

Georgia

Urbanization	
Total Population:	4 693 892 (July 2004 est.) (CIA)
Urban population (2000):	52.7%, 2 772 000 people
Expected level of urbanization 2020:	53%, 2 428 000 people (UN Population)
Main cities:	Tbilisi (capital) (1,100,000 (2000)), Kutaisi, Rustavi, Batumi
Ethnic groups:	Georgian 70.1%, Armenian 8.1%, Russian 6.3%, Azeri 5.7%, Ossetian 3%, Abkhaz 1.8%, other 5%, IDPs: 260,000 (displaced from Abkhazia and South Ossetia) (2004) (CIA)
Population below poverty line:	54% (2001 est.) (CIA)
Urban population below poverty line:	12% of the urban population is poor (MCW, 2005)
GDP	2260
HDI	0.739
Status and trends of urbanization:	The mountainous geography of the country has played a crucial role in the spatial distribution of the settlements in Georgia. More than half of the urban population live in the four main cities. The national migration has changed pattern from village-town-regional centre-capital to focusing directly on the capital. This means that Tbilisi remains the monopolistic centre for education, culture and industry (Gegeshidze et al, 2002). The third largest urban/industrial development, Rustavi, is situated close to the capital and the emerging Tbilisi-Rustavi urban agglomeration has attracted the overwhelming majority of rural-urban migrants (MCW). Like most other post-soviet countries little housing development and restoration was carried out during the 1990's due to the economical situation. But since 1999 construction on private initiatives have increased significantly. The earthquake in Tbilisi in 2002 damaged central parts of the city and other areas where IDP's from Abkhasia had found shelter. The excessive tendency towards urbanisation is coupled with trends towards the over-centralisation of management, characteristic of the soviet system, which led years ago to the emergence of Tbilisi as a single hypertrophic centre, with a concentration of more than 25% of the population of Georgia and more than 40% of the total urban population. Between Tbilisi and Kutaisi, which still retained the status of the second largest town, the difference in population reached more than one million by the end of the 1980s (with a population of approximately 1.3 million in Tbilisi and 240 000 in Kutaisi). There is no urban centre in the country with a population between 250 000 and 1 million (UNEP, 2000b).
Urban and Peri-urban Forestry and Greening	
Status and trends	In 1994-95 on account of energy crisis, according to information from "Tbilgamtsvaneba" (Municipal Enterprise Greening Tbilisi) about 30 000 trees have been annihilated. This process is going on quite intensively, information on which is not available. Different construction processes are going on "designed" territories and parks available. Operations have been conducted for the purpose of greening of Tbilisi suburbs. Artificial pine crops have been planted. Considerable losses are expected (including financial, by loss of constructed areas and as a result of the termination operations for the purpose of saving/protection, reduction of fire hazard risk and others). Today the green zone of Tbilisi is factually not managed. The main reasons of this are: uncertainty of legal base; inertia/ability of the

	infrastructure of city's territorial planning, its factual absence; factual ignoring (or, impossibility) of the participation of public (including professionals and their communities - landscape designers, architects, urbanists and others) in the process of decision-making; focusing of social problems, mainly on economic (everyday) issues; poor awareness of local authorities about their own part and others. Thus, the city's management system can't provide for the protection and development of existing green areas. There are no existing or expected real initiatives (public, private, and state) for the increase of green zone. The park areas decrease considerably because of construction processes undesirable for public. Inventory of the urban forests has not been implemented since 1994 (UNEP, 2000b).
Urban green cover	By Soviet norms (which are considered to be operative today) for the cities of southern zone 11.6 m² park area per capita, while there is less than 5 m² per capita in the northern part (UNEP, 2000b).
Benefits of UPFG	• Recreation
Ownership of UPFG	Since 1921 parks are state property. All urban green areas are owned and managed by the municipality (Osepashvili, 2005). Part of the urban forest (around 1,000 ha) in Tbilisi is owned and managed by the Municipality and another part (3-4,000 ha) by the Department of the Forestry (part of Ministry of Environment) (Janashia, 2005).
Policies and legislation	There are no specific policies or laws related to UPFG in Georgia. There is however a law on Tbilisi green cover, which involves urban forest, but in other cities there are no legal tools for urban forests. There have been attempts to introduce new law on green cover of cities, but due to the revolution in Georgia, the process is being delayed (Janashia). However, a law stated April 16, 1999 on the "State Complex Expertise and Approval of Construction Projects" aims to "raise the level of design decisions related to architectural planning and urban construction; successively improve the process establishing conditions for safe living and human health and implement measures targeted at the protection of the natural environment". Other laws related to UPFG are Law on the System of Protected areas, Law on Cultural Heritage, Law on Tbilisi, The Forest Code of Georgia. None of these statutory acts required public participation in the process of determining zones. At best the acts state the obligation of informing the public about current protection regimes and prohibited activities only after their execution (Gegeshidze et al, 2002)
Institutions, key-actors and stakeholders involved in UPFG	Decision-making (planning and management) In Tbilisi, the greening of the city was earlier the responsibility of Tbilgamtsvaneba and Municipal Department of Culture, which used to carry out management and economic activities supported by state. Today Tbilgamtsvaneba is responsible for everything and are financed by the municipality (UNEP, 2000b). Plantation and Maintenance No data
Implementations (Incentives and financial mechanisms)	No data
Research and educations	There are indications that there are educations of foresters and landscape architects, but the latter do not seem to be involved in the planning and management
International support	No data
Public Participation	Public participation in UPFG projects is not encouraged in policy or law.

Iraq

Urbanization	
Total Population:	25 374 691 (July 2004 est.) (CIA)
Urban population (2000):	67.9% 15 759 000 people
Expected level of urbanization 2020:	76.1% 25 714 000 people (United Nations Population Division, 2004)
Main cities:	Baghdad (capital) (5 200 000 (2000)) (United Nations Population Division, 2004), Mosul, Irbil, Basrah (all over 1,000,000)
Ethnic groups:	Arab 75%-80%, Kurdish 15%-20%, Turkoman, Assyrian or other 5% (CIA)
Population below poverty line:	No data
Urban population below poverty line:	No data
GDP	No data
HDI	No data
Status and trends of urbanization:	Cities have always played an important role in the history the Middle East as centres for trade, commerce, handicrafts, administrative and cultural activities. Urbanization processes in Iraq took of in the mid 1970's when the price of oil increased. (U.S. Library of Congress). Prior the Gulf War in 1991, Iraq enjoyed a high standard of living, with a majority of the population making up a relatively wealthy middle class. The population of Baghdad grew from 3.8 to 5.6 million between 1987 and 2002. The accelerated process of urbanization – mainly to Baghdad and Basra, throughout the country reflects the concentration of trade, construction, and real estate activities based on oil revenues and has resulted in a dramatic population decrease in rural areas (UNEP, 2002b). In Iraq the urban areas have deteriorated as urban infrastructure, roads, public transports and water and waste management have partly been destroyed by the war in 2003 and there is an urgent need to re-establish the infrastructure. The number of involuntarily displaced people has also increased in the urban areas, raising the level of urban poverty. There are several internationally supported projects dealing with the urban development in Iraq, focusing on new housing construction, urban poverty alleviation, transparent urban management and development of urban infrastructure (UN Habitat, 2004). The Ministry's Urban Planning Department has allocated ID 7 billion to prepare designs and studies for building new cities in different Iraqi districts (Al Bawaba, 2005). 32 % of people living in cities were living near the poverty line in 2002 (UNEP, 2002b)
Urban and Peri-urban Forestry and Greening	
Status and trends	No data
Urban green cover	No data
Benefits of UPFG	No data
Ownership of UPFG	No data
Policies and legislation	No data
Institutions, key-actors and stakeholders involved in UPFG	No data
Implementations (Incentives and financial mechanisms)	No data
Research and educations	No data
International support	UN Organizations
Public Participation	No data

Iran

Urbanization	
Total Population:	69 018 924 (July 2004 est.) refugees (country of origin): 1,223,823 (Afghanistan), 124,014 (Iraq) (2004) (CIA)
Urban population (2000):	68.1% 42 799 000 people
Expected level of urbanization 2020:	76.1% 66 011 000 people (UN Population)
Main cities:	Tehran (capital, 6 979 000 people 2000)) Mashdad, Esfahan, Tabriz, Shiraz (over 1,000,000)
Ethnic groups:	Persian 51%, Azeri 24%, Gilaki and Mazandarani 8%, Kurd 7%, Arab 3%, Lur 2%, Baloch 2%, Turkmen 2%, other 1%
Population below poverty line:	40% (2002 est.) (CIA)
Urban population below poverty line:	29% of the urban population is poor (UNDP, 2003b)
GDP	6690
HDI	0.732
Status and trends of urbanization:	The urbanization processes started in the 1960's and 1970's due to land reforms from the 1960's when the Sha started to subsidize agriculture, commercialising farming and outsourcing many of the existing agrarian communities (Mashayeki, 2004). The government's decision to promote industrial development and establishment of factories and industries around Tehran and other big cities lead to an influx of urban population in the 1970's (Mehdipour, 1999). Between 1979 and 2004 the city of Tehran grew from a population of 5 million to 12 million. During this period freeways, high-rise buildings and large housing estates have been constructed. The urban population is expected to increase, as 50 % of the current population is below the age of 21 years. The younger generation is more expected to move into cities and are likely to reproduce themselves. (McBride et al, 2000) Urban areas however suffer from serious environmental problems such as air pollution from vehicle emissions, refinery operations, and industrial effluents. Other urban problems are inadequate supplies of potable water; water pollution from raw sewage and industrial waste (CIA). General natural hazards such as earthquakes, sand and dust storms, droughts and floods also strike settlements and cities. The earthquake in 2004 in the city of Bam caused 31,000 deaths and 74,000 homeless (UNDP, 2003b).
Urban and Peri-urban Forestry and Greening	
Status and trends	The link between UPFG and Tehran goes back far in history. In Persian Tehran means 'the place of the plane trees', so the urban forests and greenings play an important role as cultural and historical features in the urban identity. During the modernization in the 20th century and especially under the Palvi Dynasty (1921-1979) improvements of infrastructure and access to existing parks were developed. The well-off people of Tehran live in the northern cooler part of the city, while poorer people live in the southern part, where the climate is hotter. However, since 1979, a major expansion of public park system has occurred and the number of public parks has risen from 20 in 1979 to over 100 in 1999 as well as trees have been planted in the southern suburbs to reduce the heat (McBride et al, 2000). Forest plantations started in Tehran in 1935 primarily to control dust, reduce air pollution, control erosion and provide some forest products. Urban forestry has been promoted in Iran since the 1960's in order to protect settlement from dust storms and prevent urban development, but most forest plantation were carried out between 1979 and 1994, during the End of the First Five-Year Socio-Economic Development Plan. Tehran is situated at the foothills of Alborz Mountains with natural forest in the north and the Dasht-E-Kavir (Iranian Central Desert) in the south, bringing in hot winds and dust to the city. Most of the industries are located in the

	southern part of Tehran and hence industrial pollution blows into the city with the desert winds. With the mountains in the north preventing humidity from the Caspian Sea Tehran has a low precipitation (Mehdipour, 1999). Since the foundation of the Islamic Republic of Iran in 1979, several urban forestry projects have been carried out. The principal forest product coming out from these plantations are poles, which are harvested during thinning operations. The poles are primarily used to support forms for concrete construction of buildings. The rapid growth of the city demand a large amount of poles and the production of poles from urban forests were estimated to 56,000 poles in 1997. (Ibid) • Green belt around Tehran City project 1986-2000 • Tehran raw water and green water project 1991
Urban green cover	3 m² green space per capita in Tehran. But the city is planning for 15 m² per person by early 21st century. However, with the rapid urbanization, the demands for open and non-built space increases as well as air pollution and limits of water, it is unlikely that the goal will be reached. (McBride et al, 2000).
Benefits of UPFG	No data
Ownership of UPFG	
Policies and legislation	One law that was specifically aiming at protecting urban forests, passed in 1973, turned out to be counter productive. The law was for protection and development of green areas and prevention of irrational cutting of trees. The law was applied in the entire country, but mainly designed to prevent destruction of urban forests and orchards in Tehran. According to this law, cutting of any trees grown inside legal boundaries of the city was prohibited without municipal permission. The cutting in villages was also banned without a permit from the Ministry of Agriculture and Natural Resources. The law was aimed at protecting green spaces at expanding urban forests. In practice however, it has been less than successful on both accounts. Fearing official questioning on legal disciplinary action if trees on their land died from disease or pests or were uprooted by wind, people hesitated to plant more trees. As a result, the punitive regulations that were ratified for the purpose of improving the environment and forest protection became counterproductive in that they made people reluctant to cooperate with the government on urban forestry issues (Mehdipour, 1999).
Institutions, key-actors and stakeholders involved in UPFG	Decision-making (planning and management) • Tehran Municipality • Iran Forest and Range Organization, • Private firms, • NGO's, • Locals Plantation and Maintenance The Tehran Municipality (the city is divided into 20 zones with separate Landscape Departments responsible for the management of parks, street trees and other public vegetation within each zone) and Iran Forest and Range Organization and Sand Dune Stabilization Department (Mehdipour, 1999)
Implementations (Incentives and financial mechanisms)	No data
Research and educations	Tehran University, the Faculty of Natural Resources
International support	FAO LFCC Low-Forest Cover Countries Regional Centre
Public Participation	In the large-scale urban forestry project there are no indicators that participation of the public has taken place, neither in the planning process, nor in the execution and planting of the project.

Jordan

Urbanization	
Total Population:	5 611 202 (July 2004 est.) (CIA)
Urban population (2000):	78.7%, 3 963 000 people
Expected level of urbanization 2020:	82.2%, 6 216 000 people (UN Population Division, 2004)
Main cities:	Amman (2 524 300 (2001)) Irbid (555 800)
Ethnic groups:	Arab 98%, Circassian 1%, Armenian 1% (CIA)
Population below poverty line:	30% (2001 est.) (CIA)
Urban population below poverty line:	No data
GDP	4220
HDI	0.75
Status and trends of urbanization:	No major urban centre existed in what is now Jordanian territory until the late 1940s. East Bank towns served as local markets and administrative centres rather than as centres of high culture. In 1943 Amman had only 30,000 inhabitants. As capital of the new kingdom of Jordan, Amman grew over the next three decades into a booming, overcrowded metropolitan centre. Population growth was largely a function of the influx of Palestinians since 1948. A high birth rate and internal migration, however, have also been prominent features of the urbanization process. Driven by the shortage of jobs and land, migration into Amman is very high, characterized by Jordanians in search for opportunities, education and health service. Many labour migrants return to their villages on the weekends, as most rural men are employed outside their villages or are in the military. The population rate of Ar-Rusayfah was 7% between 1979 and 1994, Irbid 4.2%, Amman 3%. According to MCW (2005) 4 948 000 lived in urban areas 2000, out of which 578 916 were below poverty level. The Palestinians probably constituted 60 to 80 percent of the city's population in the late 1980s. The smaller towns of the East Bank retained a good deal of the traditional kin- and quarter-based social organization characteristic of Middle Eastern towns. In rapidly urbanizing areas such as Amman, the quasi-paternal relationship of the rich to the poor had begun to break down and the old egalitarian values had given way to class distinctions based on income and style of life. Increasingly evident, class polarization was fuelled by remittances from those working abroad. Remittances were invested in residential property, thus driving up the cost of land and housing. New urban areas, dotted with lavish stone villas and supermarkets and boutiques supplied with expensive imported items, coexisted with overcrowded areas where a jumble of buildings housed the multitudes of the lower-middle class and the poor. Furthermore, Western culture had introduced foreign ideas among the educated that gradually estranged them from the culture of the masses. The high number of internally displaced persons, mainly from Palestine, is often residing in the urban fringe (U.S. Library of Congress).
Urban and Peri-urban Forestry and Greening	
Status and trends	Currently there is a large project on making the city of Amman greener, it's streets and major thoroughfares (Barakat, 2005).
Urban green cover	No data
Benefits of UPFG	No data
Ownership of UPFG	No data
Policies and legislation	No data

Institutions, key-actors and stakeholders involved in UPFG	No data
Implementations (Incentives and financial mechanisms)	No data
Research and educations	No data
International support	No data
Public Participation	No data

Kazakhstan

Urbanization	
Total Population:	15 143 704 (July 2004 est.) (CIA)
Urban population (2000):	55.8%, 8 733 000 people
Expected level of urbanization 2020:	60.3%, 9 297 000 people (UN Population Division, 2004)
Main cities:	Almaty (capital until 1997) (1,130,000 (2000)) (MCW), Astana (capital) (325 000 (2000)) (UI)
Ethnic groups:	Kazakh (Qazaq) 53.4%, Russian 30%, Ukrainian 3.7%, Uzbek 2.5%, German 2.4%, Uygur 1.4%, other 6.6% (1999 census) (CIA)
Population below poverty line:	26% (2001 est.) (CIA)
Urban population below poverty line:	30% (MCW)
GDP	5870
HDI	0.766
Status and trends of urbanization:	Kazakhstan has faced a de-urbanization since the implosion of the Soviet Union in 1991, mainly due to migration of Slavs and Germans from the country. In 1997 the capital was changed from Almaty to Astana. But an in-flow of migrants to Kazakhstan has taken place. According to the national statistics agency, from January-November 2000, the number of internal migrants was 169 141 people, an increase of 10 900 compared to 1999. The agency said that in most regions there was a negative internal migration balance. At the same time, there was an increase in the population of Almaty (by 9 700 people) and Astana (6 000). Also between 1989 and 1999, only five Kazak cities experienced positive annual growth rates: Astana (1.3%), Türkistan (1.0%), Taraz (0.8%), Almaty (0.5%), Qyzulorda (0.5%) and Canaözan (0.1%) Poverty is pervasive in urban areas, and those most affected are pensioners, women and children. (MCW, 2005).
Urban and Peri-urban Forestry and Greening	
Status and trends	Almaty is known as the city of parks. The city is young and most of the urban parks consist of the traditional Soviet parks such as Park for Culture and Recreation, memorial parks and special parks like Botanical Garden, Zoo park etc. There is a green structure network connecting the parks and gardens in the centre through green corridors and boulevards with green space in the larger residential areas in the microrayons (Almaty Municipality, 2004a). The last years, trees and other vegetation in the city are dying due to lack of water caused by a damaged irrigation system and sometimes the absence of irrigation system. In the Development plan for reconstruction of Irrigation System (Almaty Municipality, 2004b) it is stated that improvement of the urban green areas is one of the main factors to improve the urban environment. Trees and green areas are the most efficient means to decrease air pollution as they can keep between 21-86 % of the dust, absorb the most toxic gases and compounds. A functioning irrigation system and fountains and ponds are important to increase the air humidity, as the dry air is a problem to the human health. In order to improve the urban environment and the raise the life quality in the city of Almaty several measures are planned. The aim is to create a functioning green system over the whole city with green corridors leading into the centre in order to enhance the circulation of fresh air. This should be implemented by planting trees and bushes along water streams and roads. A second measure will be to improve and restore the parks of the cities (Kazakhstan Government, 2003). In all there will be planted 664 ha of green space with 133,680 trees between 2005-

	2007 (Almaty Municipality. 2004a). Afforestation projects were carried out all over the country such as works on protective planting of forest on lands of agricultural use, creation of forest lines along rivers and reservoirs and green zones around of cities and populated areas, phyto-melioration of lands of the dried bottom of the Aral Sea, protective forest plantation alone transport roads, but these seems to have stopped. But a sanitary and protection green zone of the Capital of the Republic of Kazakhstan – Astana-city is carried out, for that about 30 thousand ha of lands is allocated (UNEP, 1999)
Urban green cover	The total area of Almaty is 28,200 ha, out of which 5,800 ha is green space with natural, recreational or historical/cultural values. Approximately 20% of the total urban area consists of green space (Almaty Municipality. 2004a).
Benefits of UPFG	• Decrease air pollution • Amenity • Recreation (Almaty Municipality. 2004a).
Ownership of UPFG	Municipal (Almaty Municipality. 2004a).
Policies and legislation	In Astana: Astana Genplan, Astana Master Plan, developed by urban planners in co-operation with the forestry department (Lomov, 2005).
Institutions, key-actors and stakeholders involved in UPFG	• Private company Zelenstroj is involved in the management • Astana Almani (Almaty Municipality. 2004a).
Implementations (Incentives and financial mechanisms)	No data
Research and educations	No data
International support	No data
Public Participation	No data

Kingdom of Saudi Arabia

Urbanization	
Total Population:	25 795 938 note: includes 5,576,076 non-nationals (July 2004 est.) (CIA)
Urban population (2000):	86.2 %, 19 083 000 people
Expected level of urbanization 2020:	91.8 %, 33 265 000 people (UN Population)
Main cities:	Riyadh (political capital, 2 800 000 people (2000, Jedda (administrative capital, 2 millions est. 2000) and Mecka (religious capital, 970 000 (2000))
Ethnic groups:	Arab 90%, Afro-Asian 10% (CIA)
Population below poverty line:	No data
Urban population below poverty line:	No data
GDP	12650
HDI	0.768
Status and trends of urbanization:	Over the past two decades, one striking outgrowth of Saudi development has been rapid migration of the population to the cities. In the early 1970s, an estimated 26 percent of the population lived in urban centres. In 1990 that figure had risen to 73 percent. The capital, Riyadh, had about 666,000 inhabitants according to the 1974 census (the most recent official census). By 1984 the population, augmented by the removal of the diplomatic missions from Jiddah to Riyadh, was estimated at about 1.8 million (US Library of Congress). The Kingdom's main cities, in particular, have witnessed the rapid physical expansion of their outer boundaries, along with a growing concentration of population. Even the huge investments in urban infrastructure could not cope fully with this rapid growth in such a short period, leading to some adverse impacts, mainly on the environment. In particular, the problem of rising ground water tables and the resulting environmental damage in urban communities will be addressed through the provision of comprehensive sewage services. At the same time, the quality of treated wastewater and its suitability for re-use will be raised by expanding the number and capacity of sewage treatment plants. Control of Urban Development Resolution: Considerable inconsistencies have emerged between spatial urban expansion and the number of inhabitants, particularly in the main cities Riyadh, Mecca and Jeddah. This has led to the inadequate utilization of infrastructure and the accumulation of vacant urban lands. Furthermore, the scattered nature of population settlements in these outlying urban districts prevents their linkage to normal urban facilities and service networks, which will need to be substantially expanded if the needs of such residents are to be met. The Council of Ministers, therefore, in its Resolution No. 175 of 18/9/1409, ordered the limitation of urban expansion and set strict regulations, to be complemented by local plans and studies, for future extensions of urban boundaries in proportion to actual urban growth. The sustained application of these regulations and procedures will ultimately enhance the structural coherence of cities and towns (Permanent Mission).
Urban and Peri-urban Forestry and Greening	
Status and trends	In a Development Strategy of the Fifth Plan for Regional and Urban Development there are several proposals for improving the urban environment through better planning system, zoning etc and establishment of greenery. Interesting to note is that in the plans for increasing the number of parks and playgrounds, the programme relies

	upon the private sector. This program aims at increasing the number of gardens, parks and children's playgrounds particularly in cities with high population density. The establishment, operation and maintenance of these recreation facilities will depend largely on the private sector. This program will concentrate less on those rural areas with their own natural parks. However, during the Sixth Plan period, the municipal sector will have many more opportunities for the private sector to implement programs and projects for a wide range of municipal facilities and services, including the asphalting, paving, lighting and "greening" of municipal streets, fencing of cemeteries, development of village cluster services, as well as establishment of water and sewage networks and connections, water purification and treatment plants, storm and rain water drainage networks, flood protection projects and the construction of municipal buildings (Permanent Mission).
Urban green cover	No data
Benefits of UPFG	No data
Ownership of UPFG	Municipality (Permanent Mission
Policies and legislation	No data
Institutions, key-actors and stakeholders involved in UPFG	Decision-making (planning and management): No data Plantation and Maintenance: No data
Implementations (Incentives and financial mechanisms)	Planning to involve the private sector in management and maintenance of urban green space such as playgrounds, parks residential areas (Permanent Mission, 2000)
Research and educations	No data
International support	No data
Public Participation	No data

Kyrgyzstan

Urbanization	
Total Population:	5 081 429 people (July 2004 est.) (CIA)
Urban population (2000):	34.4% 1 692 000 people
Expected level of urbanization 2020:	37.7% 2 349 000 people (UN Population)
Main cities:	Bishkek (capital) (769 000 in 2000), Osh
Ethnic groups:	Kyrgyz 64.9%, Uzbek 13.8%, Russian 12.5%, Dungan 1.1%, Ukrainian 1%, Uygur 1%, other 5.7% (1999 census) (CIA)
Population below poverty line:	40% (2004 est.)
Urban population below poverty line:	29% (2000 est.) (MCW)
GDP	1620
HDI	0.701
Status and trends of urbanization:	Kyrgyzstan is one of the least urbanized countries in Central Asia with only 33.3 %. In July 2001, the UN office in Bishkek stated that the government was not able to control the internal migration in the country and that only 20 percent of the migrants were registered. According to the International Organization of Migration, on third of Kyrgyzstan's residents changed their residency the last ten years and the population of Bishkek increased by 35-45 %. According to the UN, this level of immigration into Bishkek damages the infrastructure of the capital city. 18 % of the country's poor or 445,455 people live in urban areas. 29 % of the urban population is poor (MCW). Poverty is only increasing in urban areas. Most urbanization takes place from smaller cities to larger as Bishkek and not from rural areas to urban. Smaller cities are often dependant on one single industry or enterprise, which after the independence and implosion of the Soviet Union have gone bankrupt. Kyrgyzstan has a very heterogeneous population with more than 60 minority groups. Between 1989 and 1999 their were major changes in the national compound of Kyrgyzstan due to migration – Russians, Germans, Ukrainians and Tatars emigrated and Kyrgyz, Uzbeks and Dungans immigrated (UNDP, 2004). Within the last ten years Kyrgyz Republic experienced significant transformations affecting some rural settlements which were transformed to cities: in 2000 Batken city was founded, in 2001 – Isfana, in 2003 – Nookat and in 2004 – Kerben. Thus, if in 1994 there were 21 cities and 29 urban settlements in the country, then in 2004 there were 25 cities and 28 urban settlements. (COP Kyrgyzstan, 2005)
Urban and Peri-urban Forestry and Greening	
Status and trends	Urban greening and forestry go back to the end of the 19th century, when the cities started to develop. Today it is one of the most important features in the city. The urban green resources are divided into the following categories; 1. Gorodskoj les – urban forest, located in the urban fringe of cities or settlements of urban types. 2. Lesopark – Forest parks, i.e. larger forest-like parks, often located in the urban fringe, containing, differ from urban forest by having some constructions like swings, playgrounds etc in the park. 3. Public green space – parks, squares, boulevards, gardens in residential areas and micro districts. 4. Green space of limited public access – green space around private houses, around kindergartens, schools, around public buildings, sports complexes and industrial enterprises.

	5. Special green space – protective plantations along roads, nurseries, dachas, Botanical Garden. (Koblitskaja, 2005)
Urban green cover	In Bishkek, a city of 16,461 ha, the amount of public green areas (including squares, boulevards, 4 park zones) was 1086 ha in 2000 (Ministry of Ecology and Extreme Situations, 2001).
Benefits of UPFG	No data
Ownership of UPFG	In Kyrgyzstan 1,400 ha of the urban areas are covered with forests. None of this land is in private ownership. 400 ha are owned by the government and the rest, 1000 ha, is owned by local municipalities. This gives a ratio of 1:3.5 between state and municipal ownership (Koblitskaya, 2005).
Policies and legislation	No data
Institutions, key-actors and stakeholders involved in UPFG	No data
Implementations (Incentives and financial mechanisms)	No data
Research and educations	No data
International support	• Swiss Bank • USAID • Urban Institute • Soros Foundation
Public Participation	No data

Kuwait

Urbanization	
Total Population:	2 257 549 note: includes 1 291 354 non-nationals (July 2004 est.) (CIA)
Urban population (2000):	96% 2 157 000 people
Expected level of urbanization 2020:	97.1% 3 542 000 people (UN Population Division, 2004)
Main cities:	Kuwait City (capital, 1 175 000)
Ethnic groups:	Kuwaiti 45%, other Arab 35%, South Asian 9%, Iranian 4%, other 7% (CIA)
Population below poverty line:	No data
Urban population below poverty line:	No data
GDP	16240
HDI	0.838
Status and trends of urbanization:	Urban areas in Kuwait represent 95% of the residential areas which are located on 70 km along the coast. Other residents live in nomadic settlements, but these are gradually disappearing. Considering that the level of urbanization already today is 97.6 % the level of urban planning is also very high. Kuwait is one of the leading countries to apply integrated model districts to serve neighbourhood unit, which are characterized by a limited number of inhabitants, utilities, educational and health facilities, social services, parks and a public library. The need for building new houses increased with the discovery of oil in Kuwait and since 1952 there have several urban planning documents such as structural plans that are regularly updated. The urban area capacity is determined by 2.3 million people (US Congress Library).
Urban and Peri-urban Forestry and Greening	
Status and trends	There is extensive planting of trees, shrubs and herbs along urban roads and in various regional parks. Many villas, town parks and other areas support a variety of plants, so that many urban areas are quite green (US Congress Library).
Urban green cover	No data
Benefits of UPFG	No data
Ownership of UPFG	No data
Policies and legislation	No data
Institutions, key-actors and stakeholders involved in UPFG	No data
Implementations (Incentives and financial mechanisms)	No data
Research and educations	No data
International support	No data
Public Participation	No data

Lebanon

Urbanization	
Total Population:	3 777 218 (July 2004 est.) note IDPs: 300 000 (1975-1990 civil war, Israeli invasions) (2004) (CIA)
Urban population (2000):	89.7% 2 945 000 people
Expected level of urbanization 2020:	90.8%, 3 991 000 people (UN Population Division, 2004)
Main cities:	Beirut (1 639 000) (2000), Tripoli (208 700), Sayda (146 100), Sur (114 800)
Ethnic groups:	Arab 95%, Armenian 4%, other 1% (CIA)
Population below poverty line:	No data
Urban population below poverty line:	No data
GDP	4360
HDI	0.758
Status and trends of urbanization:	Beirut, one of the oldest cities on the east coast of the Mediterranean Sea, has a long and eventful history which makes its city plan difficult to study and categorize. Many of the events in Beirut's history have played a role in the appearance, function and development of the city. The population of Beirut comprises of 75% of the total urban population in Lebanon and almost 5 times the population of the second largest city in Lebanon, Tripoli. Recently, Beirut has served as a haven for refugees of neighbouring countries. As a result, Beirut exhibits many of the "disquieting symptoms of an exploding metropolis." The scale and scope of urbanization has overcome the city's resources and ability to effectively supply the increasing demand for urban space. In fact, Beirut is one of the few cities that may be considered to be "over-urbanized." The city has been unable to curb urbanization through government plans and zoning acts and has failed to establish any residential sectors within the city. As a result, many of the residential buildings have been modified in order to make room for the increasing commercialization of Beirut. The fast-paced urbanization of Beirut can be compared to the urbanization of primate cities in Africa. However, unlike the cities of Africa, the urbanization of Beirut seems to be "generative" rather than "parasitic." That is, the growth of Beirut has been more of a stimulus than a hindrance to the economy. Residents of Beirut have also been able to preserve familial ties and connections and Beirut has been able to retain much of the cultural flavor it is famous for (Hamilton, 2001).
Urban and Peri-urban Forestry and Greening	
Status and trends	Most of Lebanon's major cities have implemented small parks or public gardens the most famous of which is the Beirut Forest. This forest was planted in the beginning of the 20th century and was destroyed during the war. Thanks to the French Government and the Ile de France, the park was rehabilitated and replanted. It was handed over to the Municipality of Beirut which is currently managing it. The park is visited by hundreds of citizens looking for a nearby outdoor recreation facility. Today forests close to settlements and urban areas are threatened by urbanization processes and forest fires. Some local initiatives are merging, aiming at the protection and conservation of peri-urban forests. Some of these initiatives are: • The Baabda forest initiative: this forest is currently the closest peri-urban forest to Beirut. • The Harissa initiative: the Harissa forest culminates at the sanctuary of Our Lady of Lebanon, one of Lebanon's most visited

	sites. • The Nahr Beirut, or the Beirut River, initiative: the watershed of Nahr Beirut is very rich in biological diversity. It offers several development possibilities in the lower and middle zones. After the war, the rehabilitation and reconstruction of Beirut has followed the rules of modern cities, leaving some green spaces and allowing the city to breathe. Beirut being built on at least seven archaeological layers, public gardens are sometimes developed on archaeological sites, mixing culture and recreation. The major socio-economic role played by the Pinus pinea peri-urban forests is jeopardized by the lack of interest of young people in traditional "old fashioned" jobs. Foreign labourers are frequently hired for their expertise and their lower cost. A major challenge would be to create new jobs related to the peri-urban forests and help the new generation to find their interests in such forest related jobs. Picnic lands and outdoor activities facilities are created here and there. Their replication with a sustainable management would certainly help in the protection of the forests. The management of urban forests and trees is the task of municipalities, in general. The lack of expertise and personnel is the major causes of mismanagement problems, like bad pruning. The Ministry of Agriculture interferes whenever it is possible, mainly for the protection against insect pest attacks. (COP Lebanon, 2005)
Urban green cover	No data
Benefits of UPFG	• Socio-cultural • Economical
Ownership of UPFG	• Ministry of Agriculture? • Municipalities
Policies and legislation	The Ministry of Agriculture is developing public gardens, through a demand driven process. At least three gardens are developed every year in different cities and small towns (COP Lebanon, 2005).
Institutions, key-actors and stakeholders involved in UPFG	• The Rural Development and Natural Resources Directorate in the Ministry of Agriculture is in charge of the urban and peri-urban forests, trees and green spaces. • Municipalities – responsible for management and maintenance. The Municipality of Beirut is the only authority in charge of the green spaces inside the capital. • Ministry of Environment, monitoring pollution, urbanization, afforestation etc • NGO "The Friends of the Cedar of God" (COP Lebanon, 2005).
Implementations (Incentives and financial mechanisms)	No data
Research and educations	National centre for Remote Sensing American University of Beirut, the University of Saint Joseph, the Balamand University, the Holy Spirit University, and the Lebanese University (COP Lebanon, 2005)
International support	World Bank; FAO; GTZ; UNDP; USAID; IFAD; EU; GEF; LFCC
Public Participation	No data

Oman

Urbanization	
Total Population:	2 903 165 note: includes 577 293 non-nationals (July 2004 est.) (CIA)
Urban population (2000):	76.0% 1 982 000 people
Expected level of urbanization 2020:	84.1%, 3 658 000 people (UN Population Division, 2004)
Main cities:	Muscat (capital) (573 000 (2000)) (UN Population Division, 2004)
Ethnic groups:	Arab, Baluchi, South Asian (Indian, Pakistani, Sri Lankan, Bangladeshi), African (CIA)
Population below poverty line:	No data
Urban population below poverty line:	No data
GDP	13340
HDI	0.77
Status and trends of urbanization:	Coastal areas are the most urbanized due to their economic and environmental conditions, i.e. availability of water and work opportunities. In spite of the low population growth rate, the total increase in population in the next two decades will require the provision of every citizen with their respective needs. The current low productivity level due to the scarcity of water and arable land will lead to more migration from rural to urban areas, increasing stress on services. The marginalization of the tribal and traditional roles that organized grazing in the past will have a major impact on the pattern of management and utilization of rangeland and forestry resources. There is gap in income between urban (average $1861) and rural (average $1202) areas. This has led to unprecedented consumption patterns in cities. Oman is undergoing extensive economic reform. It is expected that this economic liberalization and globalization and decrease in import price of livestock and non-forest wood products will lead to an increase of rural to urban migration. Urbanization will increase even more due to the change in the age distribution, such that those who are now under the age of 14 years and will reach adulthood in the next two decades will have a different lifestyle. The impact of urbanization on forests and pastoral and rangeland activities will depend on economic changes and socioeconomic development (COP Oman, 2005).
Urban and Peri-urban Forestry and Greening	
Status and trends	Side road plantations, green belts and parks are found around urban centers in the country. Concerning forestation and afforestation. This is mostly done by the public sector with the objective of establishing green belts around cities since 1970's, and wind breaks to protect the environment. It is expected that the forestation activities in the next phase will be developed due to the change in perception of the importance of forests and the inclusion of various parties in these activities. Forestation will focus more on increasing environmental benefits. As the public sector will have the largest role in implementation of these activities, the amount of this effort will depend on the general economic performance and budget priorities of the government. There is still a small fraction of the foreign tourism industry. Nevertheless, locally, ecotourism in forests, rangelands, protected areas, gardens and parks have received considerable attention. Lack of the necessary infrastructure at these sites is a major constraint (COP Oman, 2005). In the city of Salalah, the main constraint in the development of urban forests in Salalah is the availability of land for greening. Since the

	potential in the Salalah city is limited, emphasis is being given to developing peri-urban forests outside Salalah. Two important developments as regards urban forestry in the Salalah city are: • The Department is increasingly contracting private companies for tree planting and maintenance instead of directly hiring workers. This has helped to reduce the costs significantly; • The Department has made a contract with a private sewage water treatment plant, and will start using sewage water to irrigate trees and gardens by end of this year. As fresh water supply becomes a major constraint, future expansion of tree planting will become more and more dependent on the use of sewage water (Ma, 2005). Remote sensing and GIS are currently being used to evaluate the forest and rangeland resources in the country. The government is also using treated wastewater to irrigated trees outside forests. Modern irrigation methods are also being used; nevertheless, further investment is required in order to improve the technology used (COP Oman, 2005).
Urban green cover	No data
Benefits of UPFG	No data
Ownership of UPFG	No data
Policies and legislation	No data
Institutions, key-actors and stakeholders involved in UPFG	• The Ministry of Regional Municipalities, Environment and Water Resources, • The Municipality of Musqat and the Municipality of Zafar are responsible for forestation in urban areas. • Higher Council for Urban Planning deals with combating desertification • Private companies hired by the municipality for planting and maintenance
Implementations (Incentives and financial mechanisms)	No data
Research and educations	No data
International support	No data
Public Participation	No data

Qatar

Urbanization	
Total Population:	840 290 people (July 2004 est.) (CIA)
Urban population (2000):	91.5%, 532 000 people
Expected level of urbanization 2020:	94.1%, 708 000 people (UN Population Division, 2004)
Main cities:	Doha (Capital) (280 000 (2000))
Ethnic groups:	Arab 40%, Pakistani 18%, Indian 18%, Iranian 10%, other 14% (CIA)
Population below poverty line:	No data
Urban population below poverty line:	No data
GDP	0.833
HDI	19 840
Status and trends of urbanization:	The census of March 16, 1986, counted a population of 369 079, and an estimate for 1990 brought the total to 371 863, including up to 70 000 Qataris. The July 1992 estimate was 484 387, with a 1992 growth rate of 3.2 percent. The 1989 birth rate was 31.8 per 1 000 population and the death rate 2.5 per 1 000, for a natural increase per 1 000 of 29.3, a high rate for a developing country. The 1986 census showed that 84 percent of the population was concentrated in Doha and in the neighboring town of Ar Rayyan. Other towns included Al Wakrah (population 13,259) and Umm Said (population 6,094). In total, 88 percent of the population was urban. Reflecting the high number of migrant workers, about 67 percent of the population was male. The age breakdown was as follows: under fifteen, 27.8 percent; fifteen to twenty-nine, 29.3 percent; thirty to forty-four, 32.3 percent; forty-five to fifty-nine, 8.6 percent; and sixty and over, 2.0 percent (US Congress Library).
Urban and Peri-urban Forestry and Greening	
Status and trends	There are indicators of activities greening the city of Doha, improving the wildlife (Oldfield, 2005).
Urban green cover	No data
Benefits of UPFG	No data
Ownership of UPFG	No data
Policies and legislation	No data
Institutions, key-actors and stakeholders involved in UPFG	Decision-making (planning and management) No data Plantation and Maintenance No data
Implementations (Incentives and financial mechanisms)	No data
Research and educations	No data
International support	No data
Public Participation	No data

Syria

Urbanization	
Total Population:	18 016, 874 people note: in addition, about 40,000 people live in the Israeli-occupied Golan Heights - 20,000 Arabs (18,000 Druze and 2,000 Alawites) and about 20,000 Israeli settlers (July 2004 est.) (CIA)
Urban population (2000):	50.1%, 8 289 000 people
Expected level of urbanization 2020:	54.3%, 13 627 000 people (UN Population)
Main cities:	Damascus (capital) (2 200 000 (2001)), Aleppo (2,200,000), Homs (724 000)
Ethnic groups:	Arab 90.3%, Kurds, Armenians, and other 9.7% (CIA)
Population below poverty line:	No data
Urban population below poverty line:	No data
GDP	3620
HDI	0.71
Status and trends of urbanization:	It is estimated that 70 percent of the urban population live in the two largest urban centres – Damascus and Aleppo. Social structure in Syrian cities seems to be in a state of transition. The traditional city--built around a small, wealthy landowning and industrial elite, craft and artisan guilds, and small merchants--has been decisively undermined by political, economic, and technological changes. However, a cohesive structure based on modern secular education, technology, and class alignments has not yet developed. Many of the values associated with the traditional system endure and strongly influence the population, although admiration for modern values and techniques is increasing. (US Library)
Urban and Peri-urban Forestry and Greening	
Status and trends	There are no indicators that there should be specific policies towards UPFG, but there certainly are related policies. The general direction of forestry management and forestry planning in Syria is based on the following points: 1. Forest contribution in supplying food security and increased national income 2. Increasing green cover 3. Modernizing production methods and introducing modern technology for forestry activities such as fire firefighting 4. Reconstruction of forests 5. Developing the concept of forest nature reserves 6. Eco-tourism Development 7. Promoting forest and environmental awareness 8. Aerial surveying of forests Trees outside the forests or forests round the cities are represented by windbreaks around farmland and woodlots of fast growing species such as poplars. • Agro-silvicultural systems round places of worship and public and home gardens. • Trees along river banks and wadis. There are 27 million trees planted in windbreaks covering an area of 4651 ha, composed of several tree species such as various cypruses, edible seed pine, Casuarinas, walnut, willows and tamarix. The windbreaks help to increase crop production by 15-40%. The area planted with poplars cover about 12000 ha containing 33.3 million trees. The agro-silvicultural systems are a recognized component in the

	indigenous knowledge, the farmers of Damascus depression planted poplars and walnut round orchards and along irrigation canals. The system spread to other parts of the world from Damascus depression, and Syria is known to be the first in the world in the adoption of the system in its agricultural practices. The plantations sites near the cities were transformed to places for recreation in the shape of local gardens and parks. These sites are increasing to the extent that might justify declaring them national gardens or parks for the promotion and organization of environmental tourism. Infrastructures were constructed to some of these sites that serve as gardens or national parks. Forest fires are in general a major problem in Syria, and probably occur in urban forests as well. (COP Syria, 2005)
Urban green cover	No data
Benefits of UPFG	No data
Ownership of UPFG	No data
Policies and legislation	No data
Institutions, key-actors and stakeholders involved in UPFG	Decision-making (planning and management) No data Plantation and Maintenance No data
Implementations (Incentives and financial mechanisms)	No data
Research and educations	No data
International support	FAO UNDP
Public Participation	No data

Tajikistan

Urbanization	
Total Population:	7 011 556 people (July 2004 est.)
Urban population (2000):	25.8%, 1 568 000 people
Expected level of urbanization 2020:	26.2%, 2 032 000 people (UN Population Division, 2004)
Main cities:	Dushanbe (capital) (530 000 est. in 2002), Khujand
Ethnic groups:	Tajik 64.9%, Uzbek 25%, Russian 3.5% (declining because of emigration), other 6.6% (CIA)
Population below poverty line:	60% (2003 est.) (CIA)
Urban population below poverty line:	No data
GDP	980
HDI	0.671
Status and trends of urbanization:	The history of many cities of Central Asia and Tajikistan goes back to the hundred and even thousand years. From the ancient times they were considered as large political, cultural and trading centres, including Khujand, Kurgan-tube, Penjikent, Ura-tube, Kulyab, Gissar. Development of industrial manufactures and infrastructures initiated significant growth of cities and urban population. It is important to note that in the beginning of 20th century the share of urban population in Tajikistan was 10%. At present, the number of urban population exceeds 1.7 million peoples those make 28% of all country's population. In the second half of 20th century there were established large cities – Tursunzade, Nurek and a lot of small urban settlements. In Tajikistan, there are 18 cities and more than 50 urban settlements. Most of them are located in the north and south of the country within river valleys and terraces, at the altitude from 300 to 1000 meters above sea level. In Central Tajikistan and Pamirs urban settlements are practically absent, except Khorog city, which is regional centre and few local centres.
Urban and Peri-urban Forestry and Greening	
Status and trends	In Dushanbe, most of green plantations are concentrated within housing estates and along main streets, while industrial green zones are not big enough. In view of reconstruction and enlargement of roads, many green areas are shortened. Suburban green area, which is extremely necessary in arid and hot climate of Dushanbe, is virtually absent, with the exception of new evergreen plantations on the eastern hills. In surroundings of Dushanbe only grain-crops, maize, rice and cotton filed are widely distributed. Complexity in creation of new green plantations in Dushanbe and its surroundings is generally concerned with regular irrigation (UNEP, 2001b).
Urban green cover	76 % of the urban area is covered with green (UNEP, 2001b)
Benefits of UPFG	No data
Ownership of UPFG	No data
Policies and legislation	Nature protection activity is based on the acting republican legislation, city's social development programme and decrees aimed to protect and restore the environment.Many essential efforts have been undertaken by City Administration to restore and enhance the state of greenery in Dushanbe. Some of highlights are restoration of parks and squares, recovery of decorative grass-plots, placing of flowerbeds (UNEP, 2001b).

Institutions, key-actors and stakeholders involved in UPFG	Decision-making (planning and management/ Plantation and Maintenance) Communal services manage and maintain all basic systems of city's economy - renewal of roads, care of greenery, restoration of monuments, scavenging, cleaning of streets, irrigation ditches, etc. NGOs, scientific and public organizations essentially contribute to the environmental protection. Local committee for nature protection, communal and epidemiological services implement decisions and decrees of the city authorities. Several ministries and services are involved in the planning and management of the urban green resource. For example the Ministry for nature protection permanently monitor the condition and pollution of atmospheric air, water resources, greenery, biological resources and radiation. Special emphasis is given to environmental impact assessment for newly introduced techniques and technologies. The City's Committee for Nature Protection takes sanctions against polluters, including penalties, freezing bank accounts, stopping business activities. State committee on land resources determines the use of land resources and payment for land use, while are the Ministry of Culture is responsible for esthetical value of parks and zoo's condition (UNEP, 2001b).
Implementations (Incentives and financial mechanisms)	No data
Research and educations	Presently, group of scientists from the Academy of Science and Tajik State National University develop the project on renewing of greenery in Dushanbe (UNEP, 2001b).
International support	• WHO • OSCE • UNDP
Public Participation	More then 20 ecological NGOs are functioning in Dushanbe along with governmental institutions. They arrange round tables, organize green actions, participate in decision-making process and solve crucial environmental problems (UNEP, 2001b).

Turkey

Urbanization	
Total Population:	68 893 918 people (July 2004 est.) (CIA)
Urban population (2000):	64.7% 44 206 000 people
Expected level of urbanization 2020:	74.0%, 63 395 000 people (UN Population)
Main cities:	Istanbul (9 100 000), Ankara (3 179 000 people 2000), Izmir
Ethnic groups:	Turkish 80%, Kurdish 20% (estimated) (CIA)
Population below poverty line:	18% (2001) (CIA)
Urban population below poverty line:	No data
GDP	6390
HDI	0.751
Status and trends of urbanization:	The features of urbanization in Turkey can be summarised as rapid, detrimental, illegal and imbalanced (Ayanodlu et al). By 1995 more than 65 percent of Turkey's population lived in cities, defined as built-up areas with 10,000 or more inhabitants. The urban population has been growing at a rapid rate since 1950, when it accounted for only 18 percent of Turkey's total. The main factor in the growth of cities has been the steady migration of villagers to urban areas, a process that is continuing, today over 60% of the population live in urban areas, mainly in the nineteen cities with populations of more than 200,000. The largest is Istanbul, with a population of about 10 million. Two other cities also had populations in excess of 1 million: Ankara, the capital (about 3.2 million), and Izmir, a major port and industrial centre on the Aegean Sea (about 2.3 million). Turkey's fourth and fifth largest cities, Adana and Bursa (about 1.1 million each in 2005) have been growing at rates in excess of 3 percent per year. In addition to large and small cities, Turkey has scores of semiurban places that officially are classified as towns. A town (kasaba) is defined as an incorporated settlement with a population between 2,000 and 20,000. Towns generally provide basic economic and political services to the regions in which they are located (US Congress Library).
Urban and Peri-urban Forestry and Greening	
Status and trends	The tradition of planting trees in and around human settlement goes far back in the history of Turkey. Documents from the 1600's indicate that trees were planted, starting with the Ottoman Empire, for the spiritual value, fruits, shade and shelter. The conditions for urban forestry vary within the country with different geographical regions with different climate. According to Uzun et al (2000), Turkey divides in three sub-regions; 1) the Euro-Siberian, 2) the Mediterranean, and 3) the Irano-Turanian. The second and third regions have the lowest forest cover and hence are the most sensitive ones. Two of the three largest cities in Turkey – Ankara and Izmir are located in the Irano-Turanian respective the Mediterranean region. However, Istanbul is the biggest and fastest growing city in the whole WECA region. The rapid growth of urbanization in Turkey has put an increasing demand on forestland and deforestation is one of the striking negative results of urbanization (Ayanodlu et al, 2000). Large scale afforestation started in the 1930's in Ankara, the new capital of the Turkish republic, situated in the Irano-Turanian region, and continued after WWII in the whole country around all settlements and cities. According to the Act of Plantations from that period, every village or municipality, which lacked plantations, should establish at least 5 hectares of forests. With an increasing urbanization process in the early 1960's, large scale planning was undertaken, carried out by

	the Plantation and Erosion Control Division of the Forest Ministry and municipalities. Planting 50,000 ha of land, urban forests, green belts, road plantations, erosion control by plantations and memorial plantations were established. In the 1990's tree plantations were established by the state and community organizations, planting for example 100,000 trees in Istanbul between 1995-96 and 200,000 1996-1997. The demand for urban trees and saplings exceeded the supplies, which first lead to an increasing import of saplings and then to improvement of national nurseries. Today the number of species planted in urban areas is rather small, which increases the risk for development of diseases. Both qualitative and quantitative characteristics of urban forests should be improved. The role of community organizations should be considered officially and more carefully, in order to increase the potential of urban forests. The planning and management should to a larger extent be more related to the local conditions and detailed inventories. With the specific and dry climate, there is a need for research and development on suitability of new species for urban conditions (Uzun et al, 2000).
Urban green cover	No data
Benefits of UPFG	No data
Ownership of UPFG	• State • Municipal • Private
Policies and legislation	Several laws and legislations are indirect related to urban forests in Turkey, but no single law specifically protect urban forests. With different laws that can be interpreted in favour to the purpose of the interest, urban forests fall between the chairs. For example the forest legislation is arranged without differentiation between rural and urban forests. Article 52 in Forest Law allows 6 % construction area in private forest. Most urban forests are private and hence the protection against construction becomes much more important. Therefore it is necessary to look at other tangible laws as well such as; Environmental Law, Land Survey Law, The Municipalities Law, The Law of Encouragement of Tourism, Mining Law, The Protection of Cultural and Natural Assets Law, The Coastal Law and the Law of Agricultural Pesticides and Quarantine. Examining these laws, it becomes obvious that they do not provide sufficient protection as the rules related to forest are too open to interpretation (Ayanodlu, 2002). Governments will invest more in rural development to reverse or at least to slow down the migration from rural to urban. New incentives will be introduced to attract people in rural areas. Incentives might cover employment opportunities, improvement of services such as education, health, infrastructure, credit schemes in agriculture etc. This will loose the negative effects of rural people to forest resources (COP Turkey, 2005).
Institutions, key-actors and stakeholders involved in UPFG	
Implementations (Incentives and financial mechanisms)	No data
Research and educations	Foresters Landscape Architects
International support	FAO
Public Participation	• Green plan for Karziyaka, Izmir

Turkmenistan

Urbanization	
Total Population:	4 863 169 people (July 2004 est.) (CIA)
Urban population (2000):	44.8%, 1 997 000 people
Expected level of urbanization 2020:	53.3%, 3 308 000 people (UN Population Division, 2004)
Main cities:	Ashgabad (capital) (462,100)
Ethnic groups:	Turkmen 85%, Uzbek 5%, Russian 4%, other 6% (2003) (CIA)
Population below poverty line:	34.4% (2001 est.) (CIA)
Urban population below poverty line:	No data
GDP	4300
HDI	0.752
Status and trends of urbanization:	Turkmenistan's population is rather stable, with distribution between urban and rural areas and migration trends showing minor changes between censuses. The annual population growth rate, however, is rather high, and population density has increased significantly in the last forty years. Prior to the arrival of Russians in the late nineteenth century, Turkmenistan had very few urban areas, and many of the large towns and cities that exist today were developed after the 1930s. Ashgabat, the capital and largest city in Turkmenistan, has a population of about 460 000. The second-largest city, Chärjew on the Amu Darya, has about 165 000 people. Other major cities are Turkmenbashy on the Caspian seacoast, Mary in the southeast, and Dashhowuz in the northeast. Because much of the Russian population only came to Turkmenistan in the Soviet period, separate Russian quarters or neighbourhoods did not develop in Turkmenistan's cities as they did elsewhere in Central Asia. This fact, combined with a relatively small Slavic population, has led to integration of Turkmen and Slavs in neighbourhoods and housing projects. Apart from the outflow of small numbers of Russians immediately following Turkmenistan's independence, neither out-migration nor in-migration is a significant factor for Turkmenistan's population. In 1992 there were 19,035 emigrants from Turkmenistan to the Russian Federation and 7,069 immigrants to Turkmenistan. (US Library of Congress)
Urban and Peri-urban Forestry and Greening	
Status and trends	In the centre of Ashgabat, the squares have been expanded, trees and shrubs have been planted, and public transport was removed outside of the centre. This created conditions that facilitate better air exchange and lowering of pollution level. This is connected also with arrangement of the new National Park in the Berzengi region. The large forest-park complex, creation of which was initiated by the Turkmen President, will provide a radical solution to the problem of clean air in Ashgabat and will even lower the air temperature in summer. The main source of atmospheric pollution in Turkmenistan is dust storms. The flat underlying terrain and climatic conditions are conducive to this phenomenon. Among climatic factors contributing to the dust storms are the insufficient and quickly evaporating precipitation, poorly stabilized sands, quickly drying topsoil, and high wind speed. The number of days in a year with dust storms in Turkmenistan varies from 35 to 67, reaching in some years 106 to 113 days in the Karakum Desert. Apart from local dust storms, there are dust storms, which move to Turkmenistan from other regions of the world (UNEP, 2000c).

Urban green cover	No data
Benefits of UPFG	• Protection from dust storms • Recreation • Amenity
Ownership of UPFG	No data
Policies and legislation	The President puts high priority on establishing greenbelts around the major cities. Since 1998, he has been issuing annual decrees, which specify the number of trees to be planted. Since 1998, a total of more than 50 million seedlings have been planted, of which more than 30 million in and around Ashgabat. The government aims to plant 14 million seedlings annually by the year 2020. About 70 % of the seedlings are conifers. Following the 1998 President's decree to encourage tree planting by all citizens, in September 1999, Gok Gushak was established by the Ministry of Forestry according to the President's decree. Gok Gushak belongs directly under the Cabinet of Minister. It is a financially-self-sufficient state enterprise whose income comes from its forestry activities (mainly growing and selling seedlings) and some agriculture activities (growing wheat/cotton). It establishes an annual forestry plan, produces and sells seedlings and monitors the implementation of afforestation activities. (Uemoto)
Institutions, key-actors and stakeholders involved in UPFG	Decision-making (planning and management/ Plantation and Maintenance) Gok Gushak, Joint-Stock Forestry Company, in collaboration with Ministry of Nature Protection, is responsible for establishing a forestry plan and monitoring the implementation, while all the ministries and other state enterprises are responsible for resource allocation and actual planting.
Implementations (Incentives and financial mechanisms)	Presidential decree
Research and educations	No data
International support	No data
Public Participation	No data

United Arab Emirates

Urbanization	
Total Population:	2 523 915 people note: includes an estimated 1 606 079 non-nationals; the 17 December 1995 census presents a total population figure of 2 377 453, and there are estimates of 3.44 million for 2002 (July 2004 est.) (CIA)
Urban population (2000):	84.6%, 2 386 000 people
Expected level of urbanization 2020:	88.00%, 3 332 000 people (UN Population Division, 2004)
Main cities:	Abu Dhabi (capital) (466 000 (2000)), Dubai (872 700), Sharjah
Ethnic groups:	Emirati 19%, other Arab and Iranian 23%, South Asian 50%, other expatriates (includes Westerners and East Asians) 8% (1982) note: less than 20% are UAE citizens (1982) (CIA)
Population below poverty line:	No data
Urban population below poverty line:	No data
GDP	22,420
HDI	0.824
Status and trends of urbanization:	Urbanization of UAE did not take place until the discovery and exploitation of the oil. A harsh environment and marginal economic conditions kept the population of the region low and economically depressed until the exploitation of oil. According to estimates, between 1900 and 1960 there were 80,000 to 95,000 inhabitants in the emirates, mostly in small coastal settlements. Although the population of the emirates probably did not increase a great deal during this period, there were considerable shifts within the territories, caused by changes in economic and political conditions. The 1968 census, conducted under the British, was the area's first; it enumerated 180,226 inhabitants. Ever greater demands for labour and expertise fuelled a population boom throughout the 1970s until present (U.S. Library of Congress). The population of the UAE is overwhelmingly urban, with more than 80 percent of the people living in cities. The largest city, Dubai, is the main port and commercial centre and Abu Dabi is the capital (CIA) The cities are developing very rapidly and the spatial expansion is counted in kilometres per year (Hauberg-Jensen. 2005).
Urban and Peri-urban Forestry and Greening	
Status and trends	Urban environment in all cities in the UAE have been greatly enhanced by planting schemes, turning roadsides into gardens and roundabouts into mini-parks. In addition, there are extensive recreation parks where the shade from trees creates a pleasant environment, even in the summer months. The rate of change in the UAE is reflected in these city beautification projects. In 1974, there was only one public park in Abu Dhabi with very little greenery, but today the number has increased to about 40, covering an area of more than 300 ha. The expansion of the green areas in the Emirates is in line with the department's goal of extending the greenery to cover 8 per cent of Dubai's total urban area. During 2003, another 30 ha were added to Dubai's greenbelt. At present, the planted area amounts to about 3.2 per cent or 2200 ha (Ma, 2005). The United Arab Emirates is located in an arid subtropical region stretching across Asia and North Africa where desert climate prevails with scarcity of water and vegetation cover. Despite of those harsh conditions, the state initiated to encourage the spread of a green cover throughout the country through tree planting in large stretches of land. That constituted establishment of artificial forests, natural sanctuaries for the preservation of flora and fauna in its natural habitats and

	greenbelts around cities and along roads, land was leased to the citizen free of charge for the establishment of farmlands that would contribute towards environmental stability. The artificial forests are mainly confined to Abu Dhabi Emirate in the form of greenbelts round cities and street planting in the other emirates. The objectives of these plantations were: • Belts of forests to combat desertification and sand movement, • Protection of farms, agricultural areas and rangelands. • Protection of cities against wind-blown sands, absorption of harmful gases and mitigation of environmental pollution. • Conversion of some forests to natural sanctuaries for breeding some animals such as gazelles, bush rabbit and birds, and general preservation of wildlife. • Making use of forest products. 90 % of the treated waste water is used for irrigation of the plantations. Also ground water from the desert is used for this purpose. The younger population of nationals is very aware of the environment and are eager to work in this direction. At the moment there is a shift of generations and the young nationals is taking over the management. The problem is the lack of skills and capacity in how to manage the environment (Hauberg-Jensen, 2005). The cities are developing very rapidly and even though there are laws to protect green areas and plantation, exploitation on them occur. However, the total area of urban green is increasing as the city is expanding and desert is turned into forest through plantation.
Urban green cover	No data
Benefits of UPFG	• Amenity • Shade and improved environment • Hunting in the forest • Treated waste water disposal • Forest products
Ownership of UPFG	All urban green areas are owned by the municipality and the city.
Policies and legislation	Greening and foresting is encouraged by the government
Institutions, key-actors and stakeholders involved in UPFG	No data
Implementations (Incentives and financial mechanisms)	No data
Research and educations	No data
International support	International companies in all fields provide capacity building and development of UPFG technologies (Hauberg-Jensen, 2005).
Public Participation	

Uzbekistan

Urbanization	
Total Population:	26 410 416 (July 2004 est.) (CIA)
Urban population (2000):	37.3%, 9 282 000 people
Expected level of urbanization 2020:	38.7%, 12 502 000 people (UN Population Division, 2004)
Main cities:	Tashkent (capital) (2 148 000 (2000)), Samarkand
Ethnic groups:	Uzbek 80%, Russian 5.5%, Tajik 5%, Kazakh 3%, Karakalpak 2.5%, Tatar 1.5%, other 2.5% (1996 est.) (CIA)
Population below poverty line:	There is no official definition of poverty in Uzbekistan and thus no reliable estimate of its extent. Nor is there a mechanism to monitor the impact of policies and interventions on the poor. As in many other countries formerly in the Soviet bloc, the government of Uzbekistan appears reluctant to address poverty explicitly. But it is greatly concerned about social development and the rise of the inequality. (MCW, 2005)
Urban population below poverty line:	According to MCW 2002, 269 000 people living in urban areas lack water supply and 359 000 live without sanitation coverage in urban areas.
GDP	1670
HDI	0.709
Status and trends of urbanization:	Uzbekistan is the most populated part of the Central Asia. 39.9% of the Central Asian population live in Uzbekistan, thus country ranks first in the Central Asian countries and third in CIS countries in total population. The population doubling time is 25 years (UNEP, 2000d). There is a steady process of urbanization in Uzbekistan. The capital of Uzbekistan, Tashkent is the biggest city in the Central Asia region with over two million registered residents. The Tashkent Agglomeration is the biggest in the Central Asia region by its size of population, territory and economical meaning and is the pool of city settlements of monocentric type. The Tashkent Agglomeration consists of Tashkent City and adjoining territory with 60-70 km radius from the centre of Tashkent, which includes the main core - Tashkent and outward zone of its satellites. In the structure of Tashkent agglomeration, except Tashkent, there are 6 other towns (Gazalkent, Keles, Toytepa, Chinaz, Chirchik, Yangiyul), 15 urban settlements, 637 rural settlements with total population of more than 2963 thousands people, 2192 thousands people are from urban and 771 500 people are from rural places. The territory of the Tashkent agglomeration is about 6.4 thousands square kilometres (in the limits of populated part).All urban settlements are united by production, labour and cultural links with Tashkent. The Tashkent agglomeration has very high industrial potential. It produces more than 30% of the total volume Gross industrial production. The first place belongs to Chirchik and Yangiyul towns, which give 64% of industrial production in agglomeration (without Tashkent). The structure of the industry is determined by the main city to a considerable extent. In Tashkent City are produced about 73% of total volume of brass production (UNEP, 2001a). The number of towns is increasing, the role and significance thereof for social and economic development is becoming greater, and urban population is growing. Compared to 1939 the number of towns in Uzbekistan has increased almost 5 times. An additional role in the development of Uzbekistan's urbanization is assigned to historic towns like Samarkand, Bukhara, Andijan, and Ferghana, which served as centres for culture and civilization, and to the comparatively younger industrial towns of Almalyk, Navoi, Zarafshan, Chirchik and many others (MCW).

	According to the Plan of Operation of Tashkent City from 2003 Tashkent will expand from 32,690 to 42,525 ha. The infrastructure will be improved by a construction of a large ring road around the city. The housing fund will also expand from 47 million sqm to 51.2 million sqm. (Tashkent Portal)
Urban and Peri-urban Forestry and Greening	
Status and trends	Tashkent is one of the greenest cities in Central Asia, from the early times it is called as city-garden. City parks, public gardens, avenues, street plantations occupy 20 km², and more than 70 km² is occupied by planted territories of dwelling districts, kindergartens, schools, hospitals, enterprises, establishments and organizations. Beginning from the middle of the 20th century some kinds of trees have disappeared from parks and streets of the city. Black poplar and poplar of Belle were ruined by Capricorn beetle, Catalpa - by worms of sewers, elms died from Dutch Elm Disease, White acacia - from spring and autumn storms. After annual cutting of trees, snowfalls, spring and autumn storms - when not only branches are broken, but whole trees are pulled up - on the city streets the huge heaps of leaves, dry grass, and wood are appeared. The removal of this waste requires much time, as this is the material of big volume. The places where they are accumulated become spontaneous dumps. In the conditions of the hot climate these branches and leaves become dry during 2-3 days and become dangerous as the sources of fire. The typical autumn landscape of separate city districts is the smoke from burned leaves; branches grass and consumer waste (UNEP 2001). In coherence with the development of the city (see above) there are also plans on enlarging the green space until 2015. Today a Tashkenter has 2.5 sqm greenspace per capita; by 2015 this number will have increased to 12.5 square meters. National Parks named after Alisher Navoi, Abdullah Kodiri, located close to Tashkent, will be fully reconstructed, as well as new artificial reservoirs and fountains will be built (Tashkent Portal).
Urban green cover	Tashkent has appr. 2.5 m² green space per inhabitant (Tashkent portal) In the whole country there are 24,830 ha of Municipal Gardens and Forest parks, and 22,700 ha of stands of forests around cities, settlements and industrial centres, and 5,400 ha around health centres. All urban related categories are planned to increase in the future. By 2050 Uzbekistan is planning to double their forest stands around cities, settlements and industrial areas to 47,700 ha (COP Uzbekistan, 2005).
Benefits of UPFG	• Amenity • Recreation • Shelter from salty dust and sand
Ownership of UPFG	Municipal
Policies and legislation	
Institutions, key-actors and stakeholders involved in UPFG	No data
Implementations (Incentives and financial mechanisms)	No data
Research and educations	• Tashkent State Agrarian University – Faculty of Forestry • Forestry Collage in Kensai Village and in Surkhandarya region (combining forestry and horticulture) (COP Uzbekistan, 2005) • The Scientists of Institute of Botany and Botanical Garden Academy – Tashkent (UNEP 2001)
International support	No data
Public Participation	No data

Yemen

Urbanization	
Total Population:	20 024 867 people (July 2004 est.) (CIA)
Urban population (2000):	24.7%, 4 476 000 people
Expected level of urbanization 2020:	34.8%, 12 712 000 people (UN Population Division, 2005)
Main cities:	Sanaa (capital) (1 653 300), Aden (510 400), Taizz (406 900)
Ethnic groups:	predominantly Arab; but also Afro-Arab, South Asians, Europeans (CIA)
Population below poverty line:	42% (2004) (CDS)
Urban population below poverty line:	No data
GDP	870
HDI	0.482
Status and trends of urbanization:	Yemen is categorized as one of the Twenty Least Developed Countries (LDC) in the world. In the last three decades, Yemen has witnessed rapid population growth reflected in population growth from 12.8 million in 1990 to 15.4 million in 1995 and to 18.3 million in 2000. Moreover, the population is characterized by a young age structure where 48.8% of the population is below 15 years of age. The rapid population growth exacerbated by the young age structure has burdened demand on basic services such as education and health care. Further, a rapidly growing workforce has eroded many gains of expanding employment opportunities in the market place. Yemen's population is predominantly rural with only about 25 percent living in urban areas. Again, its population is unevenly distributed, living in small concentrated dwellings dispersed over the whole country. These sporadic dwellings are more prevalent in mountainous regions; thus, stifling the provision of basic services. Moreover, the uneven demographic distribution is more manifested in less population density in the eastern and the western plains; in contrast to higher density in the mid-high plateau, causing over exploitation of the underground water basins, to the point of almost total depletion (Yemen Ministry of Planning and International Cooperation, 2005).
Urban and Peri-urban Forestry and Greening	
Status and trends	Currently, urban forests have diminished considerably, and in some areas disappeared completely due to continuous urbanization and the lack of forestry policies that take into consideration the social importance of these forests. (COP Yemen, 2005) There have been projects in 1993 and onwards with planting greenbelts around the city of Aden, using treated waste water for irrigation (FAO, 1994). It is estimated that some 74 Mm3/year of effluent will be potentially available for reuse in the near future and that up to 15,000 ha of land will be irrigated with treated wastewater. There is no formal national policy on wastewater reuse, although the practice is encouraged by officials in the Ministry of Agriculture and Water Resources. In the absence of a formal policy and governing legislation with appropriate regulations, reuse is widespread through private initiatives with limited surveillance and public health safeguards. Irrigation with wastewater in forestry plantations is practised in Yemen. The principal species used for windbreaks and roadside plantations are Acacia cyanophylla, Casuarina cunninghamiana and Eucalyptus camaldulensis. The first plantation irrigated with wastewater was established at Aden on 7 ha as a part of a green belt around the city. Treated wastewater was transported by tankers. Also in Al-Hodeydah, the local Tihama

	Development Authority has sponsored various studies for developing a multi-layer crops and trees area using treated wastewater. A project began in April 1995 to establish a green belt around Al-Hodeydah city along 7 km of the Al-Hodeydah - Jizan road and along 7 km of the Al-Hodeydah - Sana'a road to the east. The total length of the belt is about 14 km and the width is 100 metres and species used are the same as above with the noted addition of Conocarpus lancifolia. The activities earlier developed with the support from IFAD are being continued within the Watershed Management and Waste Water Reuse in Peri-urban Areas of Yemen (FAO, 2002b).
Urban green cover	No data
Benefits of UPFG	• Treated waste water disposal
Ownership of UPFG	No data
Policies and legislation	No data
Institutions, key-actors and stakeholders involved in UPFG	No data
Implementations (Incentives and financial mechanisms)	No data
Research and educations	No data
International support	USAID and City Alliances
Public Participation	No data

Further information about the LSP

The Livelihood Support Programme (LSP) works through the following sub-programmes:

Improving people's access to natural resources
Access of the poor to natural assets is essential for sustainable poverty reduction. The livelihoods of rural people with limited or no access to natural resources are vulnerable because they have difficulty in obtaining food, accumulating assets, and recuperating after shocks or misfortunes.

Participation, Policy and Local Governance
Local people, especially the poor, often have weak or indirect influence on policies that affect their livelihoods. Policies developed at the central level are often not responsive to local needs and may not enable access of the rural poor to needed assets and services.

Livelihoods diversification and enterprise development
Diversification can assist households to insulate themselves from environmental and economic shocks, trends and seasonality – in effect, to be less vulnerable. Livelihoods diversification is complex, and strategies can include enterprise development.

Natural resource conflict management
Resource conflicts are often about access to and control over natural assets that are fundamental to the livelihoods of many poor people. Therefore, the shocks caused by these conflicts can increase the vulnerability of the poor.

Institutional learning
The institutional learning sub-programme has been set up to ensure that lessons learned from cross-departmental, cross-sectoral team work, and the application of sustainable livelihoods approaches, are identified, analysed and evaluated for feedback into the programme.

Capacity building
The capacity building sub-programme functions as a service-provider to the overall programme, by building a training programme that responds to the emerging needs and priorities identified through the work of the other sub-programmes.

People-centred approaches in different cultural contexts
A critical review and comparison of different recent development approaches used in different development contexts is being conducted, drawing on experience at the strategic and field levels in different sectors and regions.

Mainstreaming sustainable livelihoods approaches in the field
FAO designs resource management projects worth more than US$1.5 billion per year. Since smallholder agriculture continues to be the main livelihood source for most of the world's poor, if some of these projects could be improved, the potential impact could be substantial.

Sustainable Livelihoods Referral and Response Facility
A Referral and Response Facility has been established to respond to the increasing number of requests from within FAO for assistance on integrating sustainable livelihood and people-centred approaches into both new and existing programmes and activities.

For further information on the Livelihood Support Programme,
contact the programme coordinator:
Email: LSP@fao.org

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