2 Urban forestry in developing countries

2.1 RAPID URBANIZATION AND POVERTY

Urbanization[3] has profound effects on the ecology and economy of a region; the process of urbanization, and ultimately urban development, brings about substantial and dramatic changes to the landscape, a new hierarchy in land use, and an abrupt shift in the arrangement of spatial and time patterns in living conditions and use of resources.

The growth of cities in developing countries and the consequent shift from rural to urban societies are linked to a complex set of factors but result in the so-called urbanization of poverty. In fact, the main reason why people from rural areas migrate to towns is linked to the expectation, very often a mirage, of better livelihoods and security. Sadly, wars, intranational conflicts and natural disasters are also frequent factors of forced urbanization.

An analysis of the trend towards megacities[1] shows (Figure 3) how the urbanization process at its most extreme concerns more and more low-income developing countries. At the beginning of the twentieth century there were no cities in low-income countries exceeding 1 million inhabitants. Towards the end (1995) of the century some 47 percent of these so-called megacities (i.e. metropolitan areas exceeding 10 million inhabitants) were found in developing countries and in just five years the figure increased to 55 percent and is forecasted to reach 61 percent by 2015. By then, nearly 250 million people will live in megacities of low-income countries, whereas ten years previously they numbered around 80 million. This means that 14 metropolitan areas in low-income countries will need to provide livelihood resources, housing and job opportunities to a population equivalent to the number of people living in France, Spain, Italy and Germany combined.

But urbanization is a much wider issue than megacities alone. A dramatic example of booming urbanization of poverty comes from Africa. Up to 1970 no more than 25 percent of Africans lived in cities, while in 2006 the urban population was estimated to overtake 50 percent of people in the continent. The annual urban growth rate in sub-Saharan Africa is almost 5 percent (twice as high as in Latin America and Asia). The area also houses the world's largest proportion of urban residents living in slums, which today are home to 72 percent of urban Africa's citizens, representing a total of almost 190 million people. As more and more people seek a better life in towns and cities, the urban slum population in Africa is projected to double every 15 years. African cities are thus confronted in the new millennium with the problem of accommodating the rapidly growing urban populations, providing them with adequate resources and basic urban services, while ensuring environmental sustainability and enhancing economic growth and development.

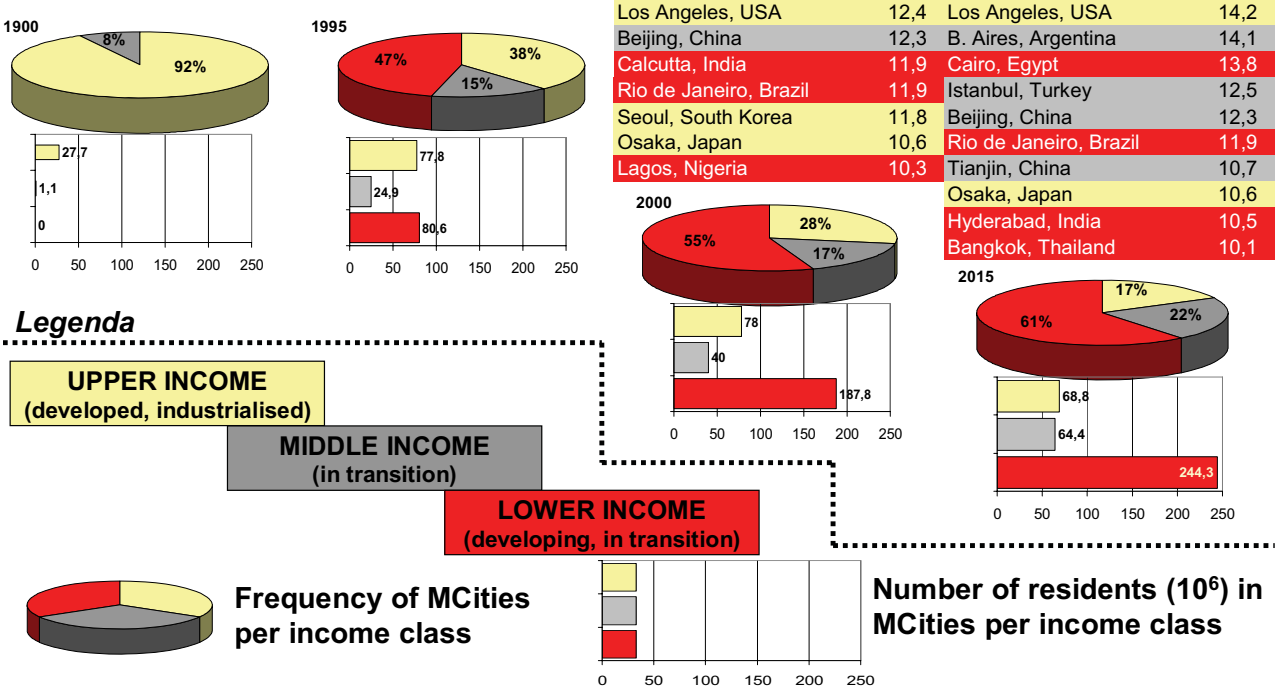
It is evident that the question of urban poverty is intimately linked to access to livelihood resources and job opportunities and, in an ultimate assumption, to the potential quality of life that can be achieved in urban areas. The threatening issues in urban areas can be summarized as:

- uncertain employment;
- precarious housing;
- difficult or almost impossible access to property of the land;
- high costs versus scarce accessibility to primary livelihood needs (drinking-water, food, solid fuel, health, services, transport, education);
- severe health and sanitation problems;
- physical and social insecurity, criminality;
- shortage and discontinuity of energy supplies;
- lack or shortage of land for self-sustaining economic activities;
- lack of sense of belonging, spirit of the place, and frustrating living and working environments;
- limited physical, social and environmental infrastructures, i.e. places for recreation, socialization and outdoor activities at every stage of life.

[3] See Annex 1 for definitions of terms such as *urbanization, city*, *urban agglomeration*, *megacities*, etc.

FIGURE 3
Trends in megacities in the twentieth century and projections to 2015 (various sources)

1900	10 ^{6}res	1995	10 ^{6}res	2000	10 ^{6}res	2015	10 ^{6}res
London, UK	6,6	Tokyo, Japan	26,9	Tokyo, Japan	26,9	Tokyo, Japan	27,0
New York, USA	4,2	Mexico City, Mexico	16,6	Dhaka, Banghladesh	21,1	Mumbai, India	26,2
Paris, France	3,3	São Paulo, Brazil	16,5	Karachi, Pakistan	19,2	Lagos, Nigeria	23,2
Berlin, Germany	2,4	New York, USA	16,3	Delhi, India	17,3	Dhaka, Bangladesh	21,1
Chicago, USA	1,7	Mumbai, India	15,1	Jakarta, Indonesia	17,3	São Paulo, Brazil	20,4
Wien, Austria	1,6	Shangai, China	13,6	Manila, Philippines	16,8	Karachi, Pakistan	19,2
Tokyo, Japan	1,5	Los Angeles, USA	12,4	Mexico City, Mexico	16,6	Mexico City, Mexico	19,2
S. Petersbou., Russia	1,4	Culcutta, India	11,9	São Paulo, Brazil	16,5	Calcutta, India	17,3
Philadelphia, USA	1,4	Seoul, South Korea	11,6	New York, USA	16,3	Jakarta, Indonesia	17,3
Manchester, UK	1,3	Beijing, China	11,3	Mumbai, India	15,1	Delhi, India	17,3
Birmingham UK	1,2	Osaka, Japan	10,6	Buenos Aires, Argentina	14,1	New York, USA	17,0
Moscow, Russia	1,1	Lagos, Nigeria	10,3	Cairo, Egypt	13,8	Manila, Philippines	16,8
Beijing, China	1,1	Rio de Janeiro, Brazil	10,2	Shangai, China	13,6	Shangai, China	14,8
				Los Angeles, USA	12,4	Los Angeles, USA	14,2
				Beijing, China	12,3	B. Aires, Argentina	14,1
				Calcutta, India	11,9	Cairo, Egypt	13,8
				Rio de Janeiro, Brazil	11,9	Istanbul, Turkey	12,5
				Seoul, South Korea	11,8	Beijing, China	12,3
				Osaka, Japan	10,6	Rio de Janeiro, Brazil	11,9
				Lagos, Nigeria	10,3	Tianjin, China	10,7
						Osaka, Japan	10,6
						Hyderabad, India	10,5
						Bangkok, Thailand	10,1



Observing the phenomenon from a combined geographic and ecological perspective, it can be seen how the urban sprawl and the need to accommodate and provide facilities for incoming people modify the environment where urban development takes place. Housing, industrial or commercial blocks, and infrastructures are often to be found on former rural land or already neglected and reclaimed areas. The fast growth of many cities means that land may be appropriated before any planning initiative by local or regional authorities can begin. Speculation on the price of land where new residential or productive settlements are built can be seen as a driving force in the impoverishment of new urban dwellers, as well as a powerful impediment to any planning activity and policy for the sustainable future of urban areas.

The combination of the issues mentioned above highlights the need for concrete action to avoid or reduce major threats and provide better living conditions and livelihoods for new urban people. Ensuing policy, planning and socio-economic problems in general are the following.

- Urban and environmental planning is often ignored or is ambiguous and weak. Landscape changes are caused by corruption, lack of decision-making and a power hierarchy on land tenure rather than by principles of sustainability. The results are often dramatic in terms of new urban environments.
- Urbanization has influences extending well beyond city boundaries; its impact is often not acknowledged and may even be ignored by many urban decision-makers.
- Harmonization and continuity between political strategies at the local, national and regional levels are

often lacking; communication and reciprocal capacity building are ignored.

- Participation and social involvement are frequently absent.
- There is little specific public financial support for greening, agriculture, forestry and agroforestry within cities or in urban development areas.
- The legitimacy of local people and land tenure is weak.
- There is no link between rural and urban planning. The development of cities is often not linked to their landscapes.

Focusing on the energy issues and assuming that woodfuel and charcoal still represent the only affordable fuel for a great number of urban dwellers in developing regions, policies and decision-making on urban environment and land use and on urban/rural interaction become crucial issues.

2.1.2 Poverty issues

"*The locus of global poverty is moving to the cities, a process now recognized as the 'urbanization of poverty'. Without concerted action on the part of municipal authorities, national governments, civil society actors and the international community, the number of slum dwellers is likely to increase in most developing countries. And if no serious action is taken, the number of slum dwellers worldwide is projected to rise over the next 30 years to about 2 billion*" (UN-Habitat, 2003, from the foreword by Kofi Annan, Secretary-General, United Nations.)

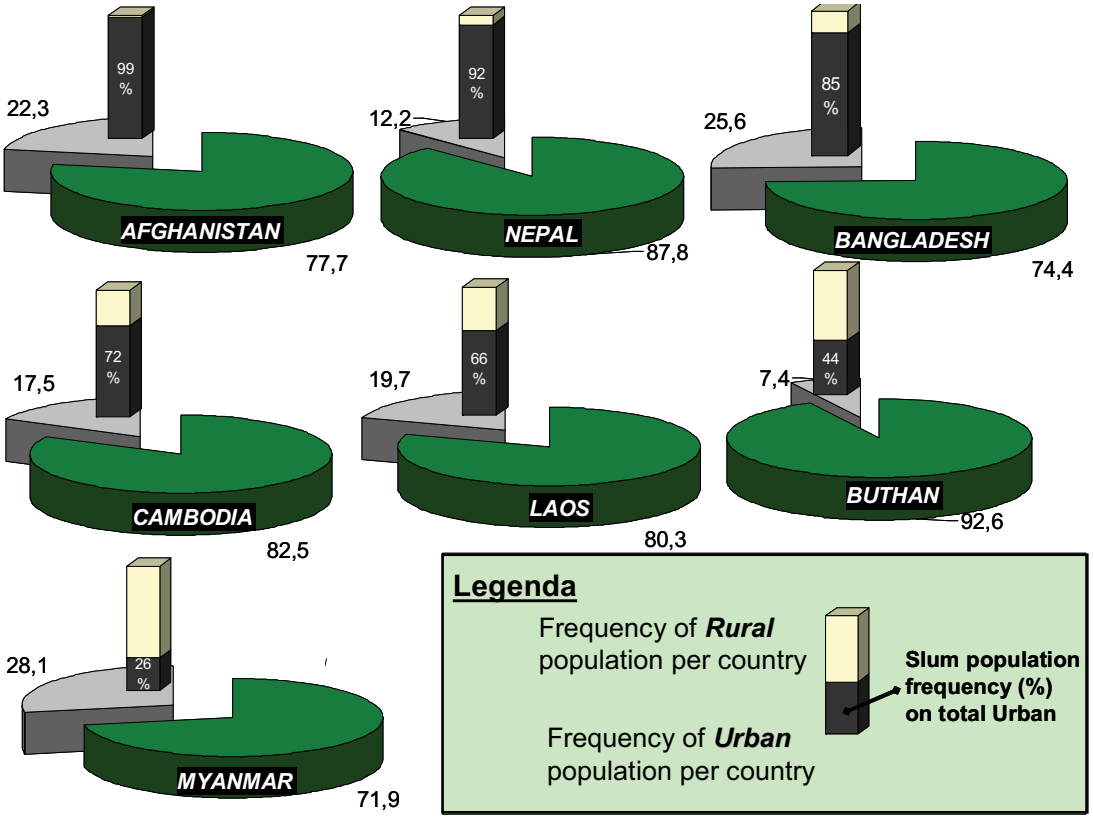
In the urban millennium, the words city and poverty appear to be twinned. The multiple faces of poverty are a dramatic part of *urbanscapes* in many regions of the world. The modernistic dream of a city as a living environment where poverty can not only be reduced but overcome seems far from the present status of urban areas. "Recent evidence shows that the wealth generated by cities does not automatically lead to poverty reduction: on the contrary, intracity inequalities are on the rise, particularly in the cities of Africa, Latin America and Asia" (UN-Habitat, 2006). The expected economic growth and development as a result of urbanization have not happened in many developing countries. In sub-Saharan Africa, where the highest urban growth rate is taking place, economic growth is low and is not expected to improve significantly in the near future. Yet some rapidly developing economies, such as India, in parallel with fast economic development, have also experienced exploding urbanization and the pace of urban growth has been really dramatic: Mumbai, Calcutta and Delhi are expected to be the second, eighth and tenth urban agglomerations in the world respectively, with a proportion of poor people rising to more than 70 percent (Bhasin, 2001).

The dimensions of urban poverty include inadequate and unstable income, inadequate public infrastructure, limited or absent safety nets, inadequate protection of rights, voicelessness and powerlessness, and inadequate access to basic services.

In the latter dimension, the provision of energy for cooking (and boiling water), heating and housing facilities, is not often reported. However, if urban poverty issues are viewed through the lens of key aspects quoted by official sources (UN-Habitat 2004; 2006), and particularly water and food quality, sanitation and health, it is evident that the scarcity of energy supply is a further vehicle for other dramatic problems affecting both the rural and urban poor. The primary reason for guaranteeing an adequate supply of cooking fuel is to ensure that food is properly cooked. Many basic foods are not fully digestible unless they are cooked sufficiently; this is especially true of semi-liquid foods for babies, young children, the ill and wounded and the elderly. Cooking fuels also contribute to safe drinking-water and better health conditions through heating and boiling systems. Despite positive statistics on improved water supply in urban areas, the problem of water quality, linked to major recurrent diseases, remains (UN-Habitat, 2006). In India, 65 percent of hospital patients are treated for water-related diseases. In sub-Saharan Africa, people below the poverty line spend on average one third of their income to treat these diseases. The availability of wood energy could help to overcome this aspect of poverty, especially in urban slums where guaranteed water supplies are more scarce or lacking altogether as compared with other urban areas.

Slums represent one dimension of urban poverty and constitute a multiscale phenomenon: not all the poor are poor in the same way. The incidence of slum population is relatively more significant in lower-income countries worldwide, as shown for countries of south central and southeastern Asia in Figure 4.

FIGURE 4
Urban population rate per country and incidence of slum population in the least developed countries of south central and southeastern Asia (UN-Habitat, 2003)



Another dimension of poverty, both in peri-urban slums and squatter areas of urban centres, is related to the multiethnic composition of globalized urban societies, which often generate conflicts and create barriers among ethnic groups, reducing the effectiveness of poverty reduction efforts.

The causes of the links between poverty and urbanization are multiple, determined primarily by the harsh livelihoods and poverty conditions in rural and fringe areas that force people to migrate to the towns with the prospect of better living conditions. This traditionally explains the massive exodus, emphasized also by the need for profit-based economies to have low-cost labour forces available in urban areas. Yet there are other insidious driving forces. The so-called silent conflicts, often ignored by the media, are forcing epochal movements of entire populations. One in three African countries is experiencing armed conflict and a consequent decline in incomes (UN-Habitat, 2004), with increased poverty and inequality. There are also internal conflicts between groups of different provenance. The peripheral areas of towns host both refugees and internally displaced persons suffering from eradication and extreme misery.

There are more people in slums in those African countries with recent or ongoing conflicts than in cities of countries without conflicts (UN-Habitat, 2004). A particularly dramatic outcome of poverty is that of millions of displaced people in refugee camps, often in peri-urban zones. Africa hosts 30 percent of refugees in the world (UN-Habitat, 2004), with critical areas where refugee camps are reduced to ghost cities often lacking in basic supplies. While the association between fuelwood and urban poverty is apparently not considered a fundamental issue, or in any case is rarely covered in urban poverty surveys, in the agendas and reports regarding refugees the energy question is critical (Box 5).

The environmental impact of fuelwood supply is obviously less relevant than the paramount and immediate goal of saving human life. Yet over time, subsistence energy supplies in long-term refugee camps become inferior and may even cease, causing serious threats for both refugees and the surrounding populations. The provision of a subsistence energy supply to refugees should be planned with care in both the medium and long term. It seems that refugees often move from the gas and kerosene supplies provided back to woodfuels, either because supplies of these “modern” fuels run out or because woodfuels are better known and preferred as a result of traditional cooking practices and cultural identity.

BOX 5
Refugee camps

The majority of refugees today are to be found in the arid and semi-arid areas of the poorest countries in the world. The concentration of large populations in these areas puts a tremendous strain on the fragile environment and meagre resources. Moreover, these environments are hostile to refugees and can affect their health and well-being. Under normal circumstances, populations are free to move in search of more environmentally friendly areas. In the case of refugees, such freedom of movement is not usually possible. It is within this particular environmental confinement that refugees must be cared for and assisted (GTZ/UNHCR, 1992).

"It is a familiar story. In the developing world where biomass – in the form of woodfuel and charcoal – is the primary cooking fuel for most households, forest resources in and around the most heavily urbanized regions have been depleted to meet the demand for traditional cooking fuels. This phenomenon is no different from the situation in which large concentrations of refugees collect fuelwood for cooking and wood for construction in the immediate surroundings of their settlements or camps.

Unfortunately, humanitarian assistance providers have not become sufficiently aware of the necessity to meet the cooking fuel needs of recipients in emergency situations as an integral part of `first phase' emergency programming. … When humanitarian assistance providers do formulate plans to meet the cooking fuel requirements of the recipients of aid, these same providers seem to be aware neither of the health implications of their choice of fuel nor of the provisions of UN General Assembly Resolution 46/182 which affirms that international disaster assistance should serve long-term preventive, as well as relief, functions. In particular, the resolution states that emergency assistance should be provided in ways that will be supportive of recovery and long-term development.

Refugees cooking in the Congo

Refugees in the Sudan

Source: http://www.refugees.org/

2.1.3 Landscape modification and land use changes

Demographic factors, including population growth, density, fertility, mortality, and the age and sex composition of households, lifestyles and societal structures, are known to have an important influence on changes in land cover and use. Human migration, including shifts from rural to urban areas, movements between countries for economic or political reasons, and large-scale planned resettlements also significantly affect land cover and use.

As urban areas expand, they often encroach upon surrounding agricultural lands and, to a lesser extent, upon forested areas. Urban expansion into agricultural areas in developing countries results in the conversion of nearly 500 000 ha of arable land annually (Rosegrant *et al*., 2001). However, urban and developed areas currently cover only 2–4 percent of the Earth's land surface. As a result, some researchers argue that land lost to urbanization will not threaten global food production in the foreseeable future (Rosegrant *et al*., 2001). Nevertheless, urban expansion frequently takes prime agricultural land out of production, making it increasingly necessary to use marginal lands for cropland and pastures. A key problem is that the concentration of people in cities necessitates a major increase in the production of food and energy. Severe losses of peri-urban agricultural land through urban expansion have been reported in Jakarta (Indonesia), Buenos Aires (Argentina), in several Colombian cities and in many African ones.

Evidence of the continuing impact of recent urbanization on landscapes, land use and management requires an understanding of the multiple spatiotemporal scale of urban growth. In particular, the evolutionary processes of urbanization include patterns of suburbanization, exurbanization, peri-urbanization (the shift of urban populations from more dense to less dense areas), multinucleation (the clustering of populations

around several centres, rather than just one, in the same region) and even counterurbanization (the return to more urban areas). Thus, the "urban" concept expands, implying that the rural/urban distinction is a continuum, rather than a dichotomy; people increasingly live not simply in urban settings, but in highly differentiated ones.

The landscape and land use changes associated with urban expansion can be evaluated in terms of the following.

Intensification

Intensified landscape and land use changes occur on the urban fringe or the urban/rural interface, following settlement pressures and the need for space to be used for residential and productive (industrial and commercial) purposes (Figure 5A, B). The result is a general intensification of functions within narrow boundaries and in an uprooted landscape, very often unplanned. In terms of agriculture and forestry serving urban societies, this leads to monoculture systems and a general depletion in multiple resources. Land tenure is often not guaranteed and prices increase rapidly according to the expected profits of both land and urban activities. Intensification replaces former agriculture, grazing and forest activities with modern farming systems and plantation programmes.

Modification

Linked to intensified land use for urban development is the fundamental change in land use in peri-urban areas that are often oriented towards "industrialized" agriculture where a monoculture system prevails. This causes extensive loss of forests as well as modifications in landscape patterns. The sudden change in land property results in high prices and restructured property and farming patterns. In terms of wood energy resources, intensification and modification may represent a reduction in woodfuel supplies or an increase whenever the change includes dedicated plantations.

In turn, rapid urbanization caused by the mass migration of internal displaced persons may result in significant modifications in land use and landscape in the areas abandoned by these groups, far from urbanized zones.

Fragmentation

Fragmentation is a scale-dependent process with different spatial arrangements caused by general/local interests, cultures and strategic policies (e.g. transport infrastructure, urban development and creation of protected areas) (Figure 6A). The disaggregation of landscape patterns results from the impact of (urban) structures and infrastructures as well as from changes in land property or land management. The loss in connectivity of habitat and landscape units has both ecological and socio-economic implications. The former results in a changing pattern of behavioural, reproductive and feeding opportunities for both animal and plant species; the latter leads to limitations in human access to resources. Landscape fragmentation is strongly associated with urban development and leads to a loss of the rural/urban interface and to an increasing distance between urban dwellers and rural people.

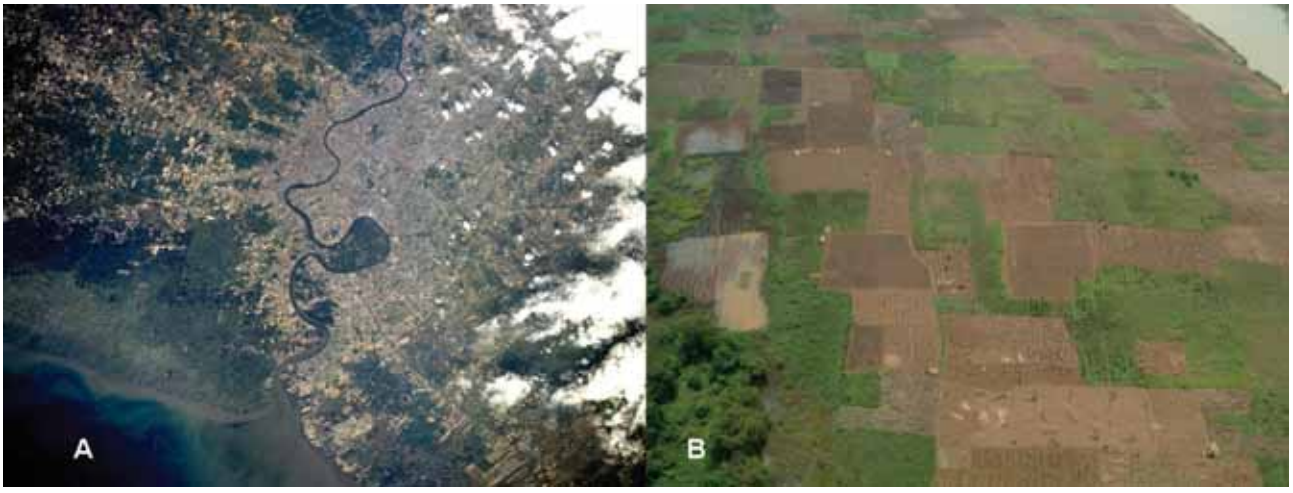
Abandonment

The vicinity of cities often causes changes in lifestyles and types of employment. The result is the progressive depopulation of rural areas and/or the neglecting of traditional land use practices. An associated phenomenon is the daily commuting from the rural suburbs to industrial/commercial occupations in cities. The household may still be in peri-urban or rural areas but people are not actively employed where they live, which results in the abandonment of traditional activities and micro and macro modifications in landscape patterns. The effects of abandonment on wood energy resources are various. The abandonment of agriculture and grazing practices in the absence of other land uses gives rise to secondary processes leading to an increased availability in wood resources. Management, however, usually requires strategic initiatives to form the social contexts to use the resources (e.g. education, definition of property rights, cooperation and participation, and marketing in a sustainable fashion).

FIGURE 5
Urbanization in Port Harcourt, Nigeria
A. Modification of land use caused by urban expansion. B. Intensification of urban landscapes by slums in informal settings in peri-urban areas

Photos: Salbitano, 2004.

FIGURE 6
Landscape modifications on a large scale
A. Urban expansion encroaching upon agricultural land in Bangkok, Thailand. B. Intensification of farming systems in southeast Nigeria



Photos: Salbitano, 2004.

Homogenization
Neglect of traditional land use can lead to a simplification in landscape patterns, resulting in a depletion of landscape diversity in the medium and long term. Substantial changes also affect the use of tree species, e.g. plantations for timber and fuelwood constitute new land use forms that need to be carefully designed to meet landscape and ecological requirements. Finally, the overexploitation of land for urban needs may lead to a homogenized modification of the landscape where desertification and deforestation go hand in hand.

2.2 URBAN FORESTRY

2.2.1 Concept and domain of urban and peri-urban forestry (UPF)

The definition of urban forest given by Miller (1997), i.e. the sum of all woody and associated vegetation in and around dense human settlements, ranging from small communities in rural settings to metropolitan regions, leads to the definition of its related discipline, urban forestry, as “an integrated, city-wide approach to the planting, care and management of trees in the city to secure multiple environmental and social benefits for urban dwellers” (Miller, 1997).

These definitions refer to the physical location of urban forests and trees in urban and peri-urban areas. From a different perspective that privileges “urban influence” over “urban context”, an urban forest or woodland might be described as "a forest ecosystem (or rather, an area of land dominated by tree vegetation) in or near a specific urban area, of which the use and related decision-making processes are dominated by urban actors and their interests, values and norms" (Konijnendijk, 1999).

The urban forest potentially comprises a great variety of habitats (streets, parks, derelict corners, woodlands, etc.) where trees provide an extensive range of both benefits and problems (Grey and Deneke, 1986). In its broadest sense, urban forestry embraces a multimanagerial system that includes *municipal watersheds*, *wildlife habitats, outdoor recreation opportunities, landscape design, recycling of wood and of municipal wastes, tree care in general and the production of woodfuels, charcoal and wood fibre*. The possibility of producing woodfuels and timber is not ruled out, although it is unlikely that this will be a primary aim, at least in developed countries where urban forestry was first defined.

In technical and practitioners’ terms, urban forestry is a *specialized branch of forestry* that has as its objective the cultivation and management of trees for their present and future contribution to the physiological, sociological and economic well-being of urban society. It comprehends, in scientific, technical and strategic ways, the range of activities carried out in the city centre, suburban areas and the "urban fringe" or interface area with rural land. Forestry activities can differ significantly according to the area. In dense built-up areas, the potential for significant new urban forestry efforts is relatively limited. It is mainly an issue of maintaining or replacing trees planted long ago. In suburban areas, more scope exists for tree planting, as land availability is greater than in the city centre but the legal, social and economic frameworks are more critical.

Urban forestry has strong links with community forestry, i.e. "a forest owned and generally managed by a community, the members of which share its benefits – see communal forest, social forest". Community forestry has been defined as "any form of social forestry that is based on the local people’s direct participation in the production process, either by growing trees themselves or by processing tree products locally" (Raintree, 1991).

A fundamental concept of UPF is that a city, in order to be sustainable, needs to develop as an element of, and in harmony with, the landscape and ecosystem around it.

2.2.2 Benefits of urban forestry

The economic, sociocultural and environmental benefits provided by UPF are reported in Figure 7 but the network of potential benefits is much more complex, as illustrated in Figure 8.

The debate on the needs of urban societies and the required and released benefits that UPF supplies, leads to a common vision of the role that UPF plays (or, better, could play) in all urban contexts worldwide. However, particular benefits and functions capture varying attention according to socio-economic peculiarities, current and prospective policies and legislation characterizing the cities, and the embedded or adopted design and management styles. It follows that the woodfuel supply function, i.e. the object of the present issue, needs to be seen in itself but also as related to the other benefits expected from each single tree, hedgerow, park or urban and peri-urban forest/woodland. This implies the elaboration of UPF planning, design and management strategies that are specific for the various urban societies, as well as the adoption of clear policies and legislation that guarantee the maintenance of an adequate tree cover and environmental quality in the long term. However, a major impediment to UPF planning and design that deserves mentioning is linked to the high price of land and property in urban and peri-urban areas.

FIGURE 7
The economic, sociocultural and environmental benefits provided by UPF

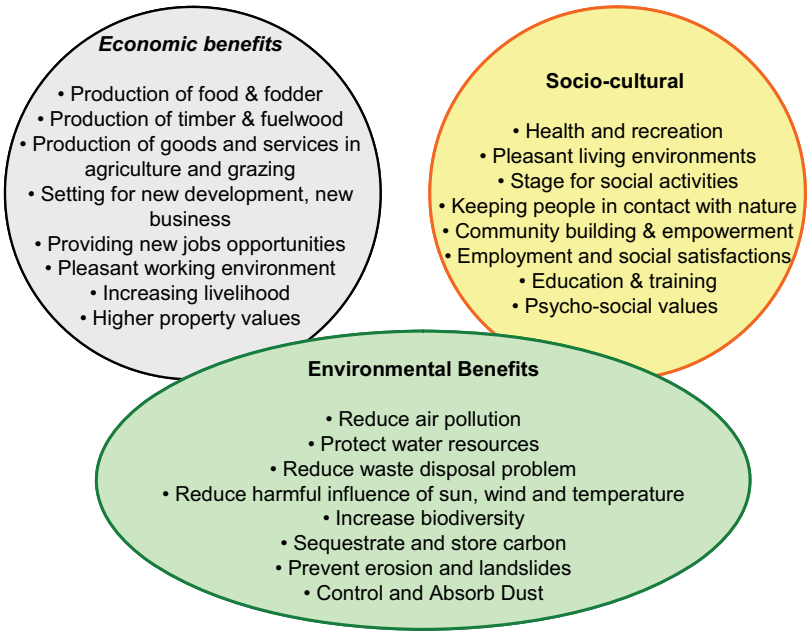
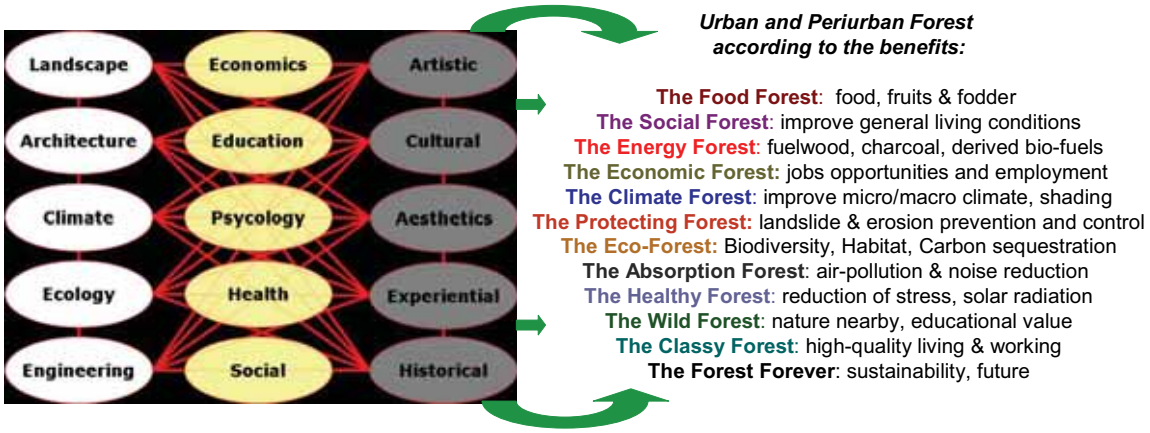


FIGURE 8
The network of benefits provided by UPF and the potential types and functions (Konijnendijk, pers. com.)



2.2.3 How can urban forestry contribute to wood energy supply?

In spite of the expansion of electricity and gas, and because of several economic and cultural factors, woodfuels remain a primary source of energy for a large fraction of urban households in developing countries, either as fuelwood or charcoal (see Section 3.6 and Chapter 4). Most woodfuel is provided by peri-urban areas and beyond. A small proportion of the wood consumed is obtained within the city area, sometimes as an emergency solution that runs the risk of rapidly exhausting wood resources. Small twigs and leaves are commonly used as fuel by the poorest.

Yet the role of urban and peri-urban trees extends far beyond the provision of the occasional bundle of fuelwood, twigs and leaves. A review of the roles and opportunities offered by UPF is essential to:

- understand the pattern of woodfuel supply sources serving the cities;
- define good management practices of tree-based systems for sustainable multiple uses where the

supply of wood energy is adequately integrated;

- outline the potentialities of urban forestry for creating employment and providing incomes in the context of wise management of urban and peri-urban tree-systems;
- check the performance of efficient mechanisms (legal, policy and economic) oriented towards maintaining optimum tree cover in and around cities and limiting the irrational use of tree systems in both cities and the entire woodfuel "catchment" area;
- formulate strategies oriented towards harmonizing urban/rural land and resource management.

The key question is: How and to what extent can urban forestry respond to urban wood energy needs? Related questions are the following.

- How can trees and forests be used for wood energy in the urban environment and by urban stakeholders?
- How can trees and forests be preserved from degradation and encroachment by built-up areas and infrastructures, and be sustainably managed in relation to urban development?
- Which policies and strategies favour the sustainable management of land around cities, adapting the city to its environment?
- What are the direct and immediate impacts of emergency situations (e.g. conflicts, natural disasters, shortage of gas/oil as sources of energy) on the tree cover because of fuelwood needs?

The energy demand generated by urban societies means looking beyond urban and peri-urban trees and forests, in the knowledge that these can cope only partially with the woodfuel needs of city dwellers. Forests and people located further away but under dominant and direct urban influence should be taken into account.

Although UPF can respond only in part to woodfuel demand, it plays a fundamental role in planning a sustainable urban wood energy system. In collaboration with urban development agents, UPF may trigger a virtuous planning process and provide good management practices aiming to deal with urban requirements through sustainable and responsible interaction with rural areas and communities well beyond the city boundaries.

2.3 TOWARDS A BROADER ROLE FOR UPF: A WORKING CONCEPT

Expanding on the definitions given above and specifically on the inclusion of trees and forests that are far from cities but whose finality and management are "dominated by urban actors and interests", it can be seen that the prerogatives and responsibilities of UPF include areas and processes taking place far beyond the urban and peri-urban contexts.

In this perspective, urban forestry should extend its responsibility towards extraurban resources and socio-economic processes dominated by urban influence (FAO, 2001c). The first task in this expanded role would be to disclose the nature, in terms of environmental and socio-economic sustainability and impacts, of the relation between growing urban needs, on the one hand, and the resources and processes that provide commodities and services on the other. This expanded area of influence may be termed the urban woodshed.

Foresters need to understand and assess the direct and indirect responsibilities that cities have towards areas and communities beyond their strict territories and act as a liaison between urban planners, conventional forestry and rural development actors.

Urban forestry thus has a fundamental role in bridging disciplines, aiming to connect with and participate in the responsibility that a city has for the whole territory that responds to and is influenced by urban needs. This is a key ethical and political issue that involves the constant participation of stakeholders both at urban and rural levels and includes the activation of communication flows and capacity-building initiatives.

Urban forestry and all its related silvicultural, economic, sociocultural and political aspects, becomes a means by which cities, urban dwellers and institutions can take responsibility for urban needs and resources. Shared responsibility for land use, and namely for forest and trees, involves a range of stakeholders and practitioners, from town planners and policy-makers to urban dwellers and producers, from non-governmental organizations (NGOs) to associations of wood buyers and sellers.