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ASIA-PACIFIC FORESTRY COMMISSION

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TREES IN URBAN LANDSCAPES

SECRETARIAT NOTE

Introduction

1. In 2014, 55 percent of the world's urban population lived in Asia and the Pacific and by 2050, two out of three inhabitants of the region will be living in cities. The region is currently home to 17 megacities (i.e. cities with over 10 million inhabitants), and this number is expected to increase to 22 by 2030. However, the challenge of urban sustainability is not only that of megacities. In fact, almost 90 percent of urban population growth is expected to occur in small- and medium-sized cities that might be even less prepared to face the challenges of rapid growth. Serious challenges are created for city administrators, who face increasing poverty, decreased food security, extreme climatic events, air and soil pollution, difficult access to energy and drinking water sources, increasing difficulties with waste and sewage water management, unemployment and increasing human disease incidence.

2. The United Nations clearly recognize sustainable urban development as a key challenge to be addressed through more sustainable and equitable development. The 11th Sustainable Development Goal (SDG) of the 2030 Agenda for Sustainable Development calls for *Making cities and human settlements inclusive, safe, resilient and sustainable*, while the New Urban Agenda, approved at the Habitat III conference in 2016, encourages urban actors to develop more sustainable and resilient urban models, including through special attention to green public spaces.

3. FAO has been supporting member countries on urban forestry issues for a number of years. At the 1st Asia-Pacific Urban Forestry Meeting, held in Zhuhai China in 2016, a survey among participants showed that in Asian cities, beautification, recreation, health care, air purification, cooling and energy-saving are considered the main benefits of urban forests in relation to human health and well-being. The main challenges identified included land-use conflicts, weak governance, limited technical skills, limited knowledge of policy-makers and absence of public participation and capital investment.

The benefits of urban and peri-urban forests

4. Well-managed urban and peri-urban forests (UPF) provide ecosystem goods and services and other public benefits in and around cities and can help local administrations respond to the needs of

growing urban populations. To help explain these benefits, they have been divided into provisioning, supporting, regulating and delivering cultural services and additional socio-economic benefits.

Provisioning benefits

5. Growing urban populations require food and basic services, posing major infrastructural, social, environmental and economic challenges. In several cities, urban forestry practices, such as collection of wild edible plants, planting of fruit-bearing street trees or establishing multifunctional public parks, can contribute to the availability of food within cities. For example, Jamun trees alongside roads in Delhi yield about 500 tonnes of fruit each year, which is harvested and sold. UPF areas also play a substantive role in supplying energy.

6. In 2013, it was estimated that 38 percent of the world's population still relied on solid biomass for cooking; in developing countries, this percentage was 50 percent. The Asia-Pacific region was the largest woodfuel-producing region in 2015, accounting for 40 percent (740 million m^3) of global production. This demand is mostly satisfied by natural forests, often unsustainably exploited. Thus, the creation and sustainable management of peri-urban forest systems for woodfuel production also protects natural forests from overexploitation. Urban and peri-urban forests can play a key role in increasing water quality by intercepting air pollutants, reducing sediment and filtering rainwater. Finally, green public spaces for recreational and sport activities can help reduce stress and improve urban dwellers' health and well-being (both physical and mental).

Supporting benefits

7. UPF provides habitat for plant and animal species, playing a critical role in supporting the conservation of natural landscapes inside and beyond city boundaries. Natural and seminatural areas can help to preserve local biodiversity and increase ecological connectivity, thus reducing environmental fragmentation and increasing the resilience of natural ecosystems to human pressure. If properly planned and managed, urban green spaces can host surprising levels of biodiversity. Many cities use UPF to prevent land and soil degradation, and to recover their stability and quality. Trees contribute to soil formation, increase soil productivity and improve its permeability. By blocking winds and stabilizing the soils, they can also prevent erosion and reduce soil compaction.

Regulating benefits

8. UPF has a decisive role in regulating ecosystem processes and in increasing the resilience of the urban environment. By shading and cooling the air, UPF help to mitigate the urban heat island effect and support adaptation to climate change. Urban forest, trees and soils can also potentially increase carbon sequestration in and around urban areas. Such potential depends on a number of variables, including the species and size of the tree. Water flow and stormwater regulation is also closely dependent on healthy urban and peri-urban forests. Peri-urban trees increase the protection aspects and quality of watersheds and water reservoirs by combating erosion, limiting evapotranspiration and filtering pollution. In addition, by absorbing excess water and increasing soil infiltration and stability, urban and peri-urban trees can mitigate the occurrence and impact of flooding events.

9. Trees are excellent filters as they intercept gaseous pollutants and particulates from urban activities and vehicular traffic, thus contributing to improved air quality. In 2002, the 2.4 million trees in the centre of Beijing (China) removed 1261.4 tonnes of pollutants from the air. In drylands, trees are also valued for their role in serving as physical barriers against wind and sand storms, contributing to the fight against desertification and erosion. For example, the Korea-Mongolia Greenbelt Plantation Project (2007-2016) successfully planted 3 000 hectares of trees in the Gobi Desert to prevent desertification and mitigate the effects of dust and sand storms in urban areas.

Cultural benefits

10. UPF contribute to increased social equity, promote a sense of community among urban dwellers and help to ensure the preservation of local spiritual and cultural values, which are essential components of place-making – the process of creating high-quality spaces (e.g. parks, squares and waterfronts) that people want to visit and enjoy. UPF are ideal settings for environmental programmes to raise urban dwellers' awareness on the importance of nature conservation. In Malaysia, the Forest Research Institute Malaysia attracts visitors who want to experience the Malaysian tropical rain forest without travelling too far from the city. By beautifying central and suburban areas, urban forests and trees help to reduce social, environmental and housing inequities. Urban and peri-urban parks also provide urban communities with open-air settings for implementing local activities and events, thus increasing social cohesion.

11. Urban and peri-urban forests and trees are often associated with strong cultural, social and religious values. In 2002, 261 heritage trees were surveyed in Bangkok (Thailand): their conservation over the decades was possible thanks to religious traditions prohibiting the cutting of tree species considered to be holy (i.e. *Ficus religiosa*). Also, in Asia many traditional practices such as tai-chi and chi qong have been performed in open green spaces since antiquity.

Additional socio-economic benefits

12. In addition to ecosystem services, urban and peri-urban forests also provide direct and indirect socio-economic benefits and make significant contributions to the creation of a local model of green economy. Urban forests generate jobs related to the establishment, management and maintenance of the green areas and their products, thus contributing to boosting a green economy model for the city. Urban greening also increases property and land values and rental prices, with direct revenues for the government in terms of taxes. Urban greening also contributes to the branding of a city, attracting investment, businesses and tourism.

13. The wood and non-wood forest products (e.g. timber, fruits, nuts, berries, mushrooms, medicinal plants and woodfuel) provided by urban forests contribute to local incomes and improve communities' economic resilience. Urban and peri-urban forests also provide many indirect economic benefits through savings on public costs. By sheltering buildings, they allow savings in heating and cooling costs. By improving physical and mental health, cooling the environment and reducing pollution, they attenuate the frequency of some non-communicable diseases, thus indirectly reducing public health costs.

Towards improved governance of urban and peri-urban forests and trees

14. Rapidly-growing cities often have little time to adjust to the changing circumstances and to the increasing pressure on land and resources generated by uncontrolled urbanization. To ensure that UPF can indeed provide the above benefits, adequate governance of green public spaces and of urban forests is required through policies, clear norms and sound planning. The proper implementation of these tools is, however, often hindered by a number of factors, as described below.

15. The governance of urban green spaces requires that planning departments have adequate mechanisms to acquire the technical skills and knowledge needed to include urban forestry aspects in the overall planning processes or to mobilize support from national forest services to provide the necessary technical inputs.

16. It is also essential to reduce the fragmentation of responsibilities for the development of policy and planning documents across levels of government. The planning of urban forest resources is rarely considered as an integral part of urban planning agenda, but when this is the case, they can play a central role in encouraging proper planning and in making cities more liveable. Efficient governance is also the result of the involvement of various stakeholders such as national forest services,

municipalities, government offices, community organizations and urban residents in different phases of the governance and in the development of efficient coordination mechanisms.

17. Policies related to urban forests are often sectoral, leading to conflicts between sectors over the use of open spaces. In addition, while forests within the city limits are normally managed by municipal authorities, peri-urban forest may frequently be managed by other entities, e.g. national forest services. Thus, effective governance of UPF areas requires policies and/or legislation aimed at harmonizing the range of interests at the level of the entire city region, and work to strengthen urban-rural linkages through adequate investments in infrastructure, particularly transportation, to improve rural productivity while allowing access to markets, jobs and public services.

18. Increased awareness of the goods and services provided by urban forests could also help to address the lack of specific public funds allocated to green infrastructure that affects many public administrations. Both national and municipal budgets are often insufficient to fund adequate urban greening programmes. Therefore, funding may rely heavily on local volunteers and innovation, not only to raise funds, but also to provide programme leadership and physical labour. Wherever possible, funding strategies might attempt a mix of public and private funding. Income-generating activities linked to recreation and/or goods and ecosystem services derived from the urban forest could also contribute to funding the maintenance of UPF. Of course, whenever fees or other forms of service payments are introduced, it is always important to give due consideration to social equity aspects.

19. The active participation of local communities in the governance process of urban landscapes is also an important success factor. In fact, the involvement of citizens in UPF planning, design and management processes can bring many positive benefits such as public support for planning decisions, the avoidance of protracted conflicts and costly delays, an increased trust among institutions and the public, and a reservoir of goodwill that can carry forward to future decisions.

20. Finally, research will continue to play an important role in the development of well-adapted UPF and their management. Priority topics include species selection, impacts on air pollution, adaptation to climate change, as well as studies of public preferences and evolving demands for urban forestry services, among others.

Points for consideration

21. Based on the findings of the *State of the world's forests 2016*, the Commission may wish to:

a) Recognize that the sustainable management of UPF, and their integration in urban planning, is essential for achieving the SDGs, ensuring people’s health and well-being and tackling climate change.

b) Invite countries to:

- Improve coordination among the various levels of governments (national, regional, local) on the development of policies and norms for the development of urban forestry;
- Promote integrated urban planning as a strategic tool for managing the challenge of maintaining an optimal balance between the natural and the built environment; and
- Use adequate policy instruments and boost investments to encourage the development and sustainable management of urban and peri-urban forests and support research.

b) Request FAO to support countries to:

- Raise awareness and promote the role of urban forestry as an essential element of sustainable cities and in the implementation of SDG11;

- Develop tools that can assist relevant government authorities in the planning, design and management of sustainable urban and peri-urban forests that can provide a wide range of goods and services to growing urban populations; and
- Support regional collaboration through the development of regional networks for knowledge transfer and exchange.