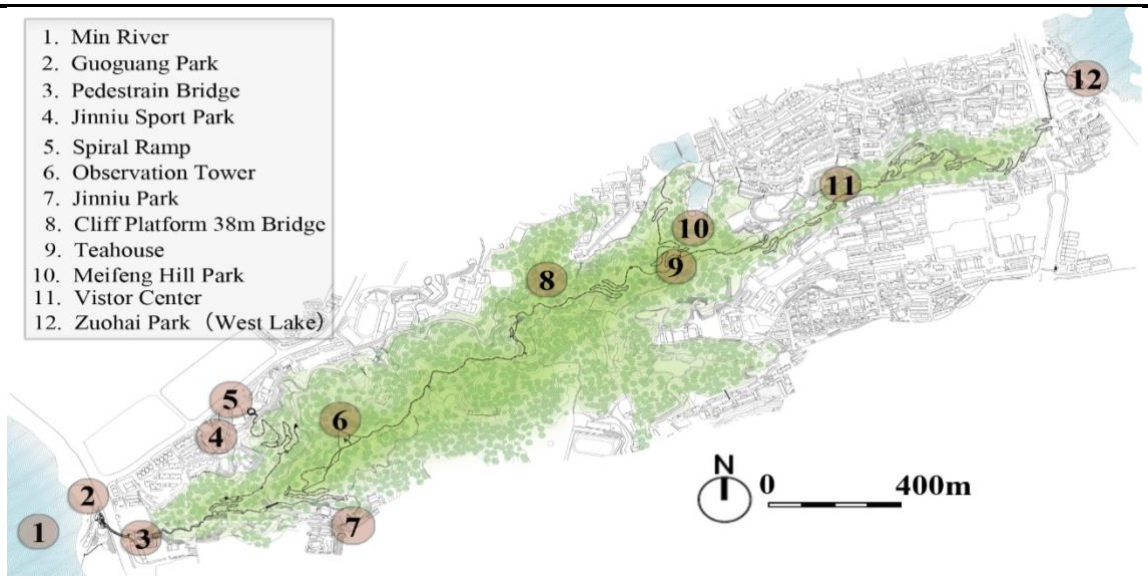
FU FOREST TRAIL, FUZHOU - CHINA

Section	
	This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 821242
1	**TITLE OF CASE STUDY AREA:** Fu Forest Trail, Fuzhou - China
2	**INTRODUCTION** The Fu Forest Trail ('Fudao' in Chinese) is a mountain forest trail project built by the Fuzhou Government since 2016. It is not a traditional ground-based mountain trail, but a new mountainous slow-moving system based on the design concept of a "treetop walkway" (Lowman, 2006; Schwarzer, 2010; Hughes & Morrison-Saunders, 2002). The Fu Forest Trail has a delicate architectural structure, and the trail platform is suspended over a vulnerable urban mountain forest. In August 2018, the Fu Forest Trail was opened to the public. The trail is highly accessible so that at least 200,000 people living in the area can benefit directly (Wang, 2017). The real purpose of the construction of the Fu Forest Trail is to promote policies related to urban mountains protection and urban green restoration. Actually, as a mountainous city, Fuzhou is facing a dilemma: In the past decade or two, the urbanisation process has swallowed up many of the green hills in the city (Wang, 2017; Yang et al., 2008). In order to make good use of urban mountains and their associated forest resources, to maintain the characteristics of urban landscape, and to give better consideration to protection and development, the conflicts need to be managed between high-intensity construction requirements brought about by rapid urban development and the conservation of the urban landscape and green open space protection.
3	**KEY FACTS AND FIGURES OF THE CASE STUDY AREA** **Biogeographic region**[1]**:** Coastal **Surface area:** 11.968*10^5 ha **Country:** China **Region/Province:** Fuzhou/ Fujian
4	**LOCATION MAP(S)** 

[1] https://www.eea.europa.eu/data-and-maps/data/biogeographical-regions-europe-3

	 **Location of the study area –Fu Forest Trail Programme, China (Lin, 2019)**
5	**NAME OF MUNICIPALITY AND WEBSITE ADDRESS** Metropolitan City of Fuzhou: No official website address, but official WeChat account which provides updates and information on the FuForest Trail：'FuForestTrail')
6	**LEAD ORGANISATIONS:** • Metropolitan City of Fuzhou • Fuzhou Gardening and Greening Bureau
7	**LOCAL CONTACT(S)** Fuzhou Municipal Forestry and Parks Bureau, Fudao Park Service Center Fuzhou, China Tel: + 86 (0591) 83768730 WeChat：FuForestTrail
8	**PRINCIPLE UF-NBS (Urban Forests as Nature-Based Solutions) ACTION(S)** **Provision of new infrastructure/facilities:** • Forest plantations • Provide a variety of recreational spaces for the public • Improvement of urban forest landscape connectivity • Construction of multiple scale urban parks
9	**OTHER PRINCIPLE NBS ACTION(S) – non-UF** • Recycling of construction waste/garbage (e.g. using concrete from removed buildings in landscape architecture such as park paths, garden ornaments) • Recreational and environmental educational activities (e.g., workshops for urban birds, bees or butterfly biodiversity)
10	**LOCAL STAKEHOLDERS LIST ONLY** 1. **Governing authorities**: Fuzhou Greening Office, Fuzhou Gardening and Greening Bureau, Metropolitan City of Fuzhou 2. **Associations:** Sciences and technology associations (e.g. education and cultural), cultural, and sports, non-government actors (e.g. project contractors, seedling nursery developers, NGO/volunteers, previous land contractors, scholars and social media)

<table>
<tr><td></td><td colspan="3">3. Citizens: Park wardens (mostly non-volunteer, usually the government pays for them), citizens for maintain and cleaning gardens (non-volunteer, e.g. gardeners), citizens who are related association members
4. Municipalities: Municipalities of Gulou Districts
5. Public/private institutions: Public institutions: Office of Planning and Development, Office of Voluntary Tree Planting (under the framework of Capital Greening Office); Municipalities of local districts (e.g. District Gardening and Greening Bureaus); Research institutes or universities that have be involved in this project (e.g. Fuzhou Forestry University, Research Institute of Forestry Chinese Academy of Forestry); no private institutions since this project was mainly funded by municipal and district government revenues
6. Park planner and authorities: Planner: Look Architects (Singapore); Authorities and administrative Division: Fuzhou Gardening and Greening Bureau
7. Technicians for park maintenance/monitoring and to educate and support citizens: Office of Park Management (technicians, administrative personnel, and workers); Environmental Education Department</td></tr>
<tr><td>11</td><td colspan="3">UF-NBS FRAMEWORK</td></tr>
<tr><td></td><td>a.</td><td>UF-NBS typology</td><td>[redacted]</td><td>• Forest Trail
• Community parks, green urban areas, historical gardens or country parks with trees (i.e., large urban public park, amenity green spaces, local areas for play [LUP];
• Woodland play area (e.g. urban forest parks);
• Wooded riverbank green and wooded banks of ponds and lakes, natural and semi-natural water bodies and hydrographic networks (i.e., river corridor, lake banks, pond);
Ornamental trees;
• Choice of plants (i.e., native tree species, non-indigenous ornamental tree and plant species), selected tree species that could avoid the plant source pollutions (e.g. willow, pollen pollutions)</td></tr>
<tr><td></td><td>b.</td><td>Integration</td><td></td><td>Built-up structure (e.g., environmental education bases); Transport infrastructure (e.g., parking lots)</td></tr>
<tr><td></td><td>c.</td><td>Network/connectivity</td><td></td><td>n/c</td></tr>
<tr><td></td><td>d.</td><td>Multifunctionality</td><td></td><td>The Fu Forest Trail also meets the needs of the community (recreation, social activities, environmental education, areas for dogs)</td></tr>
<tr><td></td><td>e.</td><td>Multi-scale</td><td></td><td>n/a</td></tr>
<tr><td></td><td>f.</td><td>Strategic planning processes</td><td></td><td>In order to make good use of urban mountains and their associated forest resources, to maintain the characteristics of urban landscape, and to give better consideration to protection and development, the conflicts need to be managed between high-intensity construction requirements brought about by rapid urban development and the conservation of the urban landscape and green open space protection. The Fuzhou municipal government has been constantly adjusting its policies during recent years. No longer has it been simply delimiting the green line of mountain protection as in the past, but it has adopted a strategy of “Use-driven protection” to coordinate the protection of mountain and the</td></tr>
</table>

				development of urban areas around the mountains. "Use-driven protection" means that urban mountains or urban forests should be protected, but it should also be recognized that it is unrealistic to completely suppress the development of surrounding urban areas in the name of protecting mountains. Public use of the mountain forests can be enhanced by establishing a slow walking system which can meet the basic requirements of the landscape being reachable, accessible, and offering opportunities for tourists. Public use of the landscape will contribute to public health and wellbeing. Furthermore, it highlights the value of urban mountains, promotes the importance and protection of urban mountain areas by society as a whole, and further guides and controls the coordinated development of surrounding urban areas when the opportunity emerges, so as to achieve the effect of "coordinated symbiosis" (Fuzhou Municipal Bureau of Urban and Rural Planning, 2017).
	g.	**Inter- and transdisciplinary**		The Fu Forest Trail brings together, in a synergistic participatory process, a variety of actors and their knowledge from different disciplines (e.g. ecology, urban planning, urban forestry, forest management, social sciences), which include administrative authorities, landscape planners, scholars/professional experts, farmers, individual citizens and technicians who educate and support citizens/groups who help maintain the initiatives as well as undertake monitoring activities.
	h.	**Social cohesion and biocultural diversity**		A survey conducted by the Fujian Agriculture and Forest University showed that the Fu Forest Trail has a very high degree of public recognition (Huang 2019).
	i.	**Governance arrangements**	I. Project management structure.	Project coordinator – City of Fuzhou
			II. Local community engagement and the nature of their engagement.	Members of local community were engaged in public discussion and stakeholder workshops as participatory approaches for FD planning and management. Nature of their engagement was to participate in workshops and give their own ideas. As part of the project activities an online survey with different user groups was also administered to better understand how they use the forest trail and learn about their needs and suggestions for improvement.
			III. City-scale and/or region-wide governance for the project and/or UF-NBS (city and regional stakeholders and	n/a

			character of their engagement)	
			IV. National and international governance context (national and international stakeholders and character of their engagement)	The national level monitors the project implementation.
			V. Other (specify)	n/a
	j.	**Institutional frameworks**	I. Project staff responsibilities.	**City of Fu Forest Trail's project staff:** Project management (3 persons) • Planning and organisation of project's activities • Quality control Communication manager (1 person) • Planning, organisation, and implementation of project's communication activities • Informing project manager about progress and problems with communication activities Financial manager (1 person) • Planning, organization, and implementation of project's financial activities • Informing project manager about progress and problems with financial activities
			II. Project Management Committee (Y/N) if Y.	n/c
			III. Frameworks above the project that exert influence on the project and/or UF-NBS e.g. Municipality, National Forestry Department.	Ministry of Agriculture, Directorate of Forestry, approves all forest management plans.
			IV. Private companies that work on behalf of/or are embedded within the project.	n/a
			V. Trade representative organisations that are involved in the project	n/a
			VI. Regulatory frameworks that the project operates	Notice of the General Office of the People's Government of Fujian Province on Coordinating and

			within (i.e. bylaws, municipal laws, national laws, licences and leases, partnership agreements etc)	Promoting Afforestation and Greening Work in 2019 Min Zheng Office [2018] No. 91 "Notice of Fujian Provincial Forestry Department on Printing and Distributing the Implementation Plan for Afforestation and Forest Management in 2017" (Minlinzao Bianhan [2017] No. 2); "Afforestation Technical Regulations" (DB35/T84-2005); "Quality Classification of Seedlings of Major Afforestation Tree Species" (GB6000-1999);
			VII. Other (specify)	No
	k.	**Economic frameworks**	I. Community fundraising	n/a
			II. Project delivered services and monies raised by project	Assessment and mapping of forest ecosystem services was conducted based on the national and FAO's approach.
			III. City, regional general funds	n/a
			IV. Special funds e.g. National Lottery, Challenge funds	n/a
			V. National government funds	n/a
			VI. Private sector investment	n/a
			VII. International funds e.g. European Union structural funds, LIFE + etc.	n/a
			VIII. Other (specify)	n/a
	l.	**Sino/European comparative relevance**		Fuzhou is one of the most populous cities in southern China, and it is mega-city in comparison with European cities. Fu Forest Trail is new style urban forest project in Fuzhou's history. Like all other UF-NBS projects in Europe, Fu Forest Trail aims to improve the wellbeing and meet the demands of citizens. However, the governance, institutional and economic framework of Fu Forest Trail and a multi-functional approach are quite different from European examples, which is valuable for comparison (to find the similarities and differences).
	m.	**UF-NBS valorisation**		The Fu Forest Trail is a government-dominated (human) intervention meeting the entertainment needs of the public and promoting the sustainability and resilience of Fuzhou city. The Fu Forest Trail also can contribute to provide more job opportunities for social society (e.g. need more workers or staff to manage the new afforestation sites, develop eco-tourism).

	n.	**Procurement of UF-NBS**		Public use of the landscape will contribute to public health and wellbeing. Furthermore, it highlights the value of urban mountains, promotes the importance and protection of urban mountain areas by society as a whole, and further guides and controls the coordinated development of surrounding urban areas when the opportunity emerges, so as to achieve the effect of "coordinated symbiosis".
	p.	**Ecosystem services (list the three most important services being provided in no more than 50 words)**		• Protected the forest coverage and urban greenspace; • The health and wellbeing benefits gained through the use of the recreation facilities; • The provision of educational facilities for local residents and visitors relating services
	q.	**Renaturing**		The Fu Forest Trail maintains the status of urban forests and provides better conditions for forest naturalisation.

12 **LESSONS AND TRANSFERABILITY**

The design of the Fu Forest Trail adopts many new concepts that are different from the traditional urban forest trails, creating a precedent for the rigid frame suspended plank road in China. It has aroused great interest of the public, made the Fu Forest Trail famous abroad, and exerted a huge social impact. Although the treetops have a wide view and good air permeability, the shading effect is slightly worse; We hope that Fu Forest Trail can provide reference and help for the designing of similar projects.

13 **REFERENCES (Harvard style)**

Lowman, M., 2006. It's a jungle up there: More tales from the treetops. Yale University (Newhaven, CT). 12-14.

Schwarzer, M., 2010. The tree canopy as blueprint. Architectural Design 80(3), 20-27.

Hughes, M., Morrison-Saunders, A., 2002. Repeat and first time visitation in an experience specific context: The valley of the Giants Tree Top Walk. The Journal of Tourism Studies 13(1), 20-25.

Wang, W.K., 2017. The ideality, action, difficulty and countermeasure of the mountain protection in the city: The practice and study on the mountain protection in Fuzhou. Fujian Architecture & Construction 3, 11-15(in Chinese).

Yang, W., Wang, W.K., Lin, D.D., Ma, Y.F., 2008. Conservation of mountains in Fuzhou city. Planners 8(21), 28-31 (in Chinese).

Lin, Y.B., Liu, J., Yu, K.Y., Ke, Y., 2019. Research on perceived evaluation for landscape environment of treetop walk—A case study of "Fu Forest Trail" in Fuzhou. Chinese Landscape Architecture 35(6), 72-77 (in Chinese).