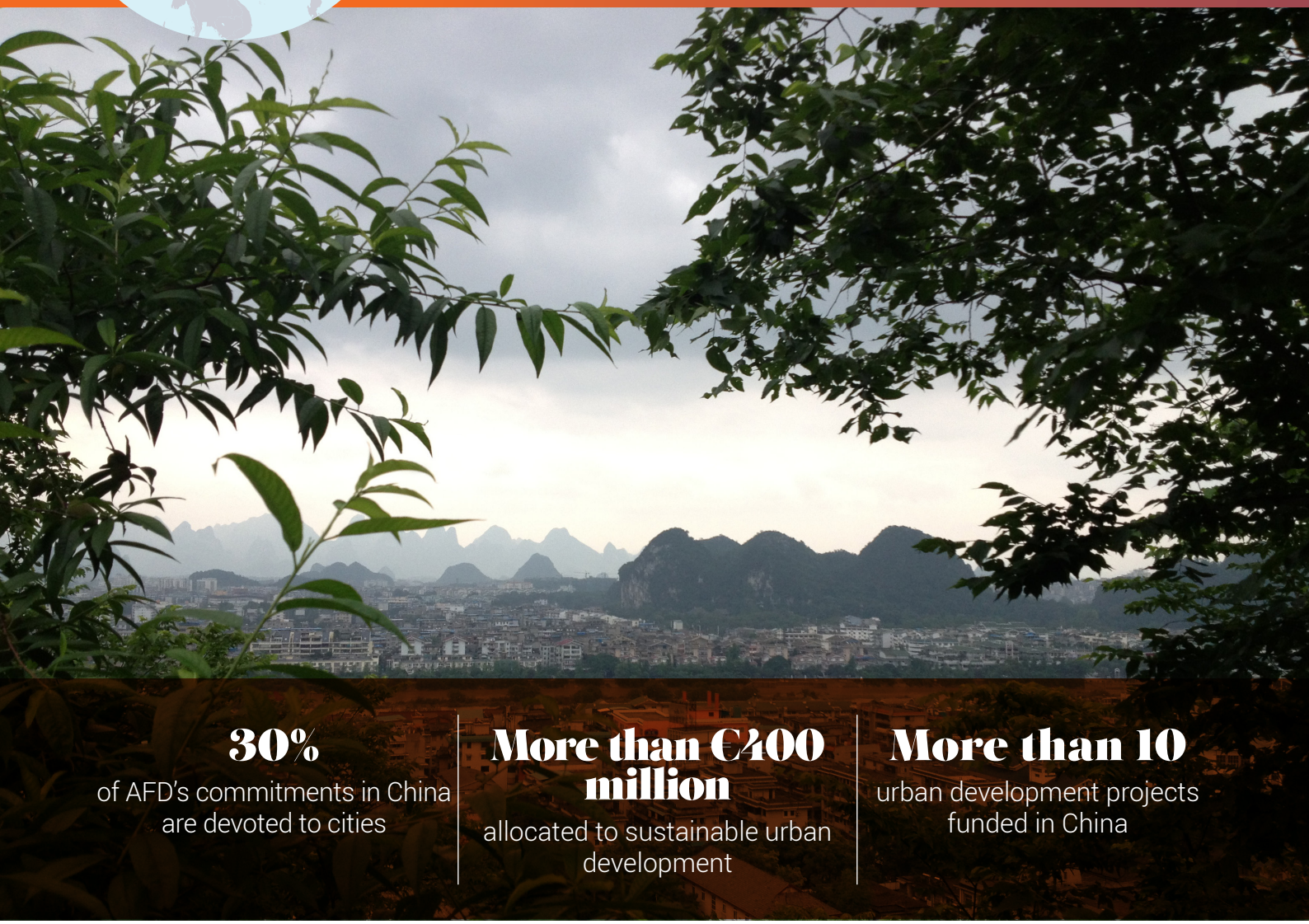
AFD and sustainable urban development in China



30%
of AFD's commitments in China are devoted to cities

More than €400 million
allocated to sustainable urban development

More than 10
urban development projects funded in China

The rapid urbanization which has accompanied China's economic growth over the course of the last few decades constitutes the largest movement of people in the history of humanity. This record urban development has raised huge challenges in terms of access to urban amenities and the limitation of the environmental footprint of cities.

The promotion of sustainable, low-carbon urban development forms one of the cornerstones of AFD's action in China and enters into the framework of a French-Chinese partnership around this issue.

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OUR ACTION IN China

1 Contributing to urban energy transition

A focal point of economic activities, cities are big consumers of energy and thus producers of greenhouse gases.

Since the 2000s, the Chinese authorities have undertaken the modernization of the urban heating sector, the world's second largest market. We are assisting several cities in the creation or rehabilitation of heat networks, promoting the adoption of innovative technical solutions to enable significant energy savings or the use of clean energies.

We have funded a project to **recover the heat generated by treated wastewater** in Jinan and a project to **recover residual industrial heat** in Zibo, in order to feed the urban heating network of these cities. These projects enable a reduction in carbon intensity while improving air quality for inhabitants.

As the building sector also represents a considerable source of energy saving, we have supported a **thermal rehabilitation programme** for 25 public buildings, managed by the municipality of Wuhan. This pilot project was the first thermal rehabilitation program for public buildings in China to be funded by a loan from a foreign donor.

2 Strengthening water, wastewater and waste management

To accompany the growth of its urban population, China is in great need of water and wastewater treatment plants, in addition to waste management facilities.

In response to these needs, AFD is funding several projects for water supply and wastewater treatment, using **energy-saving technologies** and ensuring **cutting-edge treatment** processes and **high-quality services**. For the new Dongjin district in Xiangyang, AFD is funding a collection and treatment system, equipped with the best technology for enhanced protection of water resources.

AFD is also supporting the city of Shaoyang, Hunan, in the implementation of an energy recovery system for the food waste sector, to reduce its environmental and health impact.

3 Supporting 'sponge cities'

As a consequence of global warming and urbanization, China is facing a rise in floods and landslides. To limit flooding, the Chinese government has launched a 'sponge city' policy, aimed at the creation of 16 pilot cities by 2022.

In this framework, AFD is funding a 'sponge city' pilot project in Mianyang, Sichuan, which aims to **improve water management and urban resistance** through the building of sponge facilities: a green corridor, a draining road enabling runoff storage and rainwater drainage. We also provide support in the form of French expertise for local and central authorities in implementing the national flood management policy.

4 Protecting cultural heritage

In China, the articulation between protecting outstanding cultural heritage and its economic and social enhancement is a major challenge. Chinese authorities are taking a keen interest in the French approach, which is to 'bring life' to heritage. AFD is thus supporting several projects aimed at **boosting regional attractiveness** and **fostering local economic development** through tourism and heritage promotion.

In Shanxi province, we are funding the restoration and revitalization project for the historical center of Qixan, which boasts significant heritage, along with the renovation of urban infrastructures. Several French experts have been called upon. In Fengxiang, Shaanxi, we are supporting a new regional movement for the city, which will draw on its archaeological and natural wealth to improve the living standards of its inhabitants.

5 Promoting eco-districts

In close collaboration with the economic departments of the French Embassy in China, AFD has implemented a programme to promote initiatives in sustainable urban development in the framework of the Vivapolis initiative, which brings together French players in the field of sustainable cities. In particular, the programme has provided its support for the design phase of **two 'French-Chinese eco-districts'** in Wuhan and Chengdu.

CHINA

Protecting urban heritage and revitalizing the center of the ancient city of Qixian

The local government of Qixian (Qi County) in Shanxi province in central China has launched a major program to protect, restore and showcase the historic center of Zhaoyu. The innovative initiative, supported by AFD, will be to everyone's benefit.

CONTEXT

Qixian was once a flourishing trade city on the ancient tea road. The remarkable urban heritage in the historic center of Zhaoyu earned the city its classification as a "famous historical and cultural city" from national authorities. However, failure to protect this heritage has caused it to deteriorate. None of the buildings are shown in their best light and the city therefore attracts very few tourists. The city center's 5,600 inhabitants live in historic but dilapidated housing.

With support from AFD, the local government has initiated a project to protect and showcase the city's cultural heritage while also improving the living conditions of residents in the historic center of Zhaoyu.

DESCRIPTION

The project will restore traditional buildings and old housing, create green spaces and recreational areas, renovate roads and renew urban infrastructure, including urban heating, public lighting, sanitation, access to drinking water and stormwater treatment.

It will create an interpretation center on the area's history and showcase the remains of the old ramparts with augmented reality. A tourist route will highlight several historical monuments and activities will be created to promote the local intangible heritage.

Several French experts (École de Chaillot, Inca, Burgéap, In Extenso, Urbanis) have been providing local authorities with their support in the project design.

IMPACTS

- Preservation, enhancement and revitalization of Qixian's cultural heritage;
- Greater urban attractiveness with the development of a vibrant and innovative old city center;
- Improvement of basic services for residents and renovation of social housing, benefiting the most vulnerable residents;
- Creation of direct and indirect jobs through tourism development, with specific support aimed at benefiting local residents.

Country
China

Project start date
Dec. 21, 2017

Sector
Urban

Location
Qixian (Shanxi)

Duration of funding
20 years

Financing tool
Sovereign loan

Financing amount
€70 million

Beneficiary
Qixian County

CHINA

Environmentally friendly wastewater treatment in Xiangyang

The city of Xiangyang is experiencing strong population and economic growth which requires substantial short-term investments. The project to construct a wastewater treatment plant in the new Dongjin district focuses on protecting water resources and respecting the environment.

CONTEXT

Xiangyang, which is crossed by the Han River, is the second most populous city in Hubei province, with 1.2 million inhabitants. The city expects strong growth, which will mainly occur in the new Dongjin district that is currently being built. The existing sanitation system is operating at its full capacity. Consequently, it appeared essential to build a new wastewater treatment plant.

The project aims to provide the new Dongjin district with a wastewater collection, pumping and treatment system equipped with the best technologies. The goal is to pursue exemplary urban development and increased protection of water resources.

DESCRIPTION

The new plant was commissioned in late 2019. With a capacity of 100,000 m^3 per day, it was designed to meet the area's current needs. It treats all wastewater, primarily from households in the new Dongjin district, as well as effluent from the Shenzhen industrial park north of the city.

The treated water is discharged into the Han River downstream from the city. Since the river is an essential resource for the water supply of riparian populations, the plant was designed to meet the highest standards for treated water quality.

The sludge produced will be recovered via additional treatment (digestion and composting) at a plant recently commissioned for this purpose.

IMPACTS

- The project will help develop the sanitation system to meet the needs of a city experiencing strong population and economic growth;
- The processes implemented will enable advanced effluent treatment, which ensures the project has a minimum impact on the receiving environment;
- By 2060, the water treatment station should have a daily capacity of 660,000 m^3 and treat wastewater from nearly two million residents.

Country
China

Project start date
Oct. 29, 2014

Sector
Water

Location
Xiangyang (Hebei)

Duration of funding
20 years

Financing tool
Sovereign loan

Financing amount
€33.6 million

Beneficiary
Xiangyang Urban Sewage Treatment Company

CHINA

“Sponge City”: rethinking water resource management in the Hedong district of Mianyang

Increasing urban resilience to climate change and increased risks of flooding is a crucial issue for Chinese municipalities. AFD is therefore supporting a sponge city project in the Hedong district of Mianyang, a city in Sichuan province.

CONTEXT

Rapid urban growth in China has led to significant artificial land cover, which in some cities has greatly increased the effects of rainwater runoff. This phenomenon, combined with the effects of climate change, including increased precipitation alternating with droughts, can lead to significant flood risks.

In 2015, the Chinese government therefore launched a national “Sponge City” program aimed at rethinking water resource management in cities. The program proposes solutions for absorbing, storing, draining and reusing runoff. It also encourages flood prevention via urban planning principles that improve cities’ resilience to flooding.

DESCRIPTION

The Mianyang project supported by AFD will help create an eco-district in Anzhou district, including the creation of “sponge” infrastructure: a green corridor, a draining road enabling runoff storage and rainwater drainage. The project will also include the construction of a drinking water plant and the main primary distribution networks in order to promote the district's overall management of water resources. An intelligent water resource management system will also be implemented.

The project includes technical cooperation with the Chinese Ministry for Housing, and Urban and Rural Development. This cooperation includes information-sharing seminars, and technical assistance in the flood risk management and improvement of urban resilience to climate change.

IMPACTS

- The new eco-district will be more resilient to flooding;
- Access to safely managed water and sanitation services:
- Reduced use of groundwater and reduced water pollution;
- Support for local and central authorities in implementing the national flood management policy.

Country
China

Project start date
October 24, 2018

Sector
Urban

Location
Mianyang (Sichuan)

Duration of funding
20 years

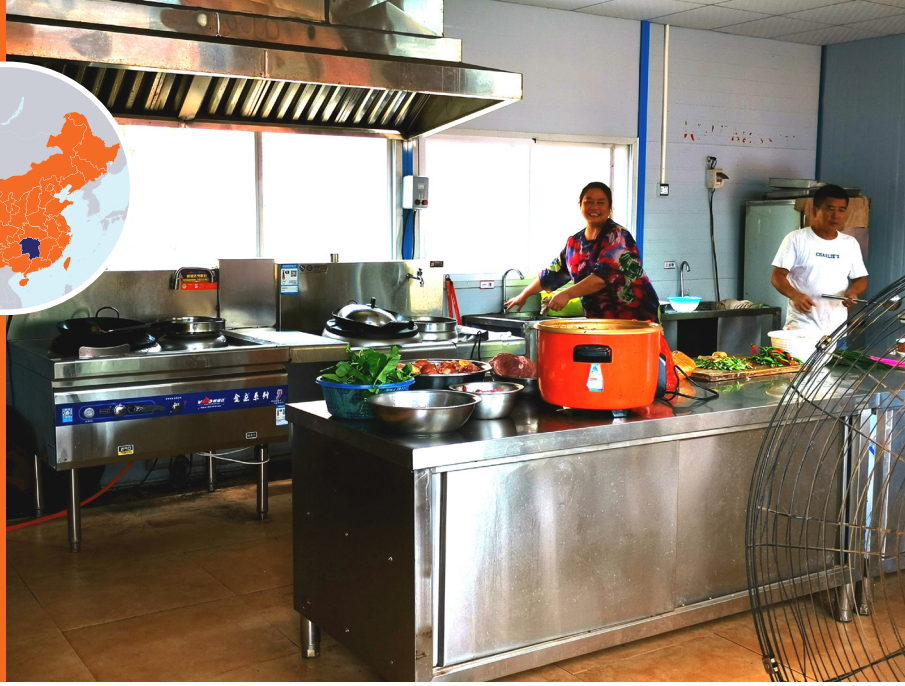
Financing tool
Sovereign loan

Financing amount
€35 million

Beneficiary
Mianyang Anzhou Investment Holding Group Co. (AIHC)

CHINA

Energy recovery from restaurant food waste in Shaoyang



Managing increasing volumes of restaurant food waste has become a major challenge in China. In Shaoyang, AFD is supporting a project that will improve public collection and treatment services for this waste and enable it to be recovered for energy–an exemplary circular economy project.

CONTEXT

The rise in living standards in China has led to rapid growth in the restaurant sector. However, restaurant food waste is often collected informally and is primarily used to feed swine. Used cooking oils are often collected to be reprocessed before being resold to restaurants. These informal practices are both prohibited for public health reasons.

Shaoyang, the second largest conurbation in Hunan, with a population of approximately 8 million inhabitants, has set out to address this problem by establishing a restaurant waste management and energy recovery system.

DESCRIPTION

This project, supported by AFD, is establishing a collection, computer tracking and transfer system for restaurant waste from the districts and counties involved in the project to the treatment site. A waste treatment plant will be built and will use the anaerobic digestion process.

The project also includes energy recovery from biogas obtained from this treatment process and from an adjacent landfill. A system will be installed to capture and generate both electricity and heat.

The fats recovered during the treatment process will be used to produce biodiesel.

IMPACTS

- Improve the quality of urban services in the city of Shaoyang;
- Economic development of waste treatment by-products;
- Reduction of health risks linked to the informal collection and use of food waste;
- Reduction of greenhouse gas emissions by 70,000 tons of CO_2 per year through energy recovery from waste treated at the plant and the recovered biogas.

Country
China

Project start date
Nov. 30, 2016

Sector
Urban

Location
Shaoyang (Hunan)

Duration of funding
20 years

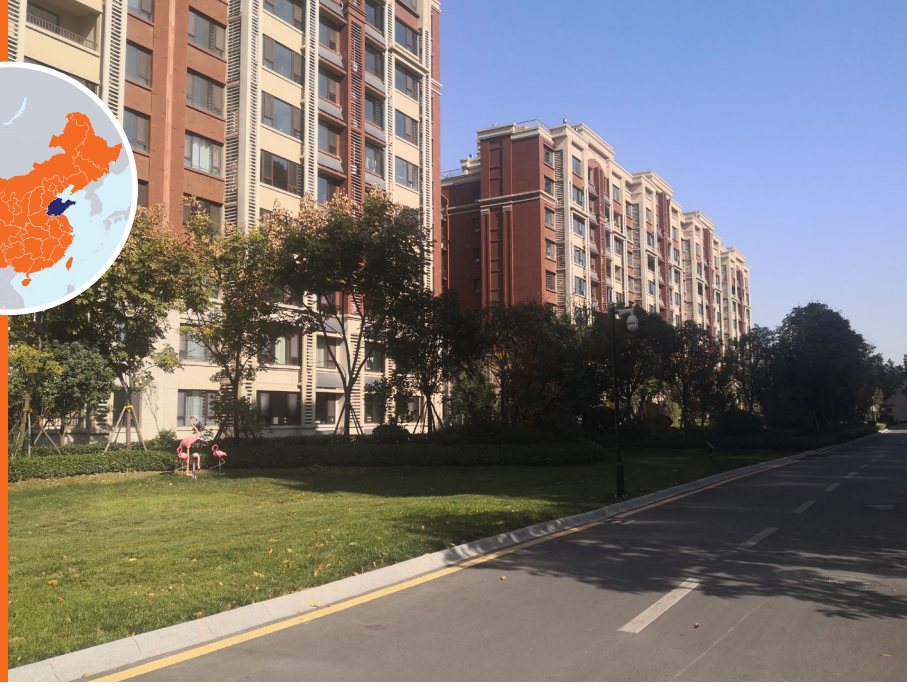
Financing tool
Sovereign loan

Financing amount
€25 million

Beneficiary
Shaoyang Environmental Sanitation Infrastructure Construction Co., Ltd (Sesic)

CHINA

Feeding Jinan's heating network with heat from wastewater



In Jinan, heat from wastewater will be recovered to supply collective heating for two of the city's districts. This innovative energy generation technology is in keeping with national objectives of promoting low-carbon cities and reducing air pollution.

CONTEXT

Jinan is home to 6 million inhabitants and is the capital of Shandong province. Located in a historically industrial region, the province has the highest energy consumption in China. Coal remains the primary energy source, accounting for 81% of its total primary energy consumption in 2014.

Chinese authorities have adopted a proactive policy for diversifying energy sources and achieving energy efficiency in order to reduce local pollution and the energy footprint of cities. Recovering wastewater for use as a heat source is a method that remains underdeveloped in China but offers interesting prospects.

DESCRIPTION

AFD is supporting this project aimed at building decentralized collective heating systems by recovering heat from treated effluent from two water treatment plants. This will provide heating for residential buildings and cooling systems for commercial buildings in two districts of Jinan. The project will cover a total area of approximately 3 million m^2.

In Da Wei district, a new power station will replace the current heating system, which is fueled by a coal-fired cogeneration power plant. In Hua Shan district, north-east of the city, 21 energy stations and 42 water-to-water heat pump units will recover heat from the wastewater from the local water treatment plant. The project also includes the construction of a 7.7-km pipe network, the installation of a 36-km heating network and automation of the network.

IMPACTS

- Reduce the carbon intensity of heating networks, with an estimated annual decrease of 105,989 tons of greenhouse gas emissions;
- Reduce coal consumption by 38,864 tons per year and local pollutant emissions by decommissioning existing individual boiler rooms and stoves;
- Improve air quality and living conditions for the inhabitants of Jinan.

Country
China

Project start date
Feb. 21, 2017

Sector
Energy

Location
Jinan (Shandong)

Duration of funding
20 years

Financing tool
Sovereign loan

Financing amount
€25 million

Beneficiary
Jinan Energy Construction and Development Company (JECD)

Agence Française de Développement (AFD) funds, supports and accelerates transitions to a fairer and more sustainable world. As a French public platform for development, we work with our partners to build shared solutions with and for the people of developing countries.

Our teams have carried out more than 4,000 projects in the field, in the French overseas territories and in 115 countries, for the humanity's public goods - climate, biodiversity, peace, gender equality, education or health. We thus contribute to the commitment of France and French people in favor of Sustainable Development Goals. Towards a world in common.

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March 2021

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