

# THE SUSTAINABLE CITIES CHINA PROGRAMME (1996-2007):

A COMPENDIUM OF GOOD PRACTICE



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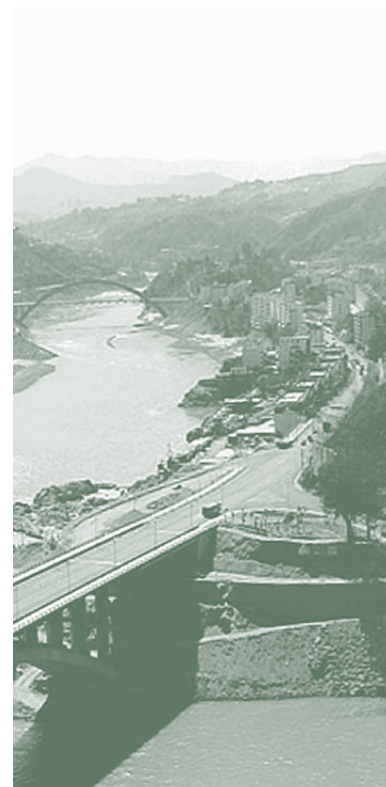
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## ABBREVIATIONS

ACCA21	Administrative Centre for China's Agenda 21
ACPA21	Administrative Centre for Panzhihua's Agenda 21
EMIS	Environmental Management Information System
EPM	Environmental Planning and Management
GIS	Geographic Information System
NGO	Non-governmental Organisation
ROAP, UNHABITAT	Regional Office for Asia and the Pacific, UNHABITAT
SCP	Sustainable Cities Programme
SGP	Sustainable Guiyang Project
SHP	Sustainable Hailin Project
SPP	Sustainable Panzhihua Project
SSP	Sustainable Shenyang Project
SWP	Sustainable Wuhan Project
SWPO	Sustainable Wuhan Project Office
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UN-HABITAT	United Nations Programme for Human Settlements

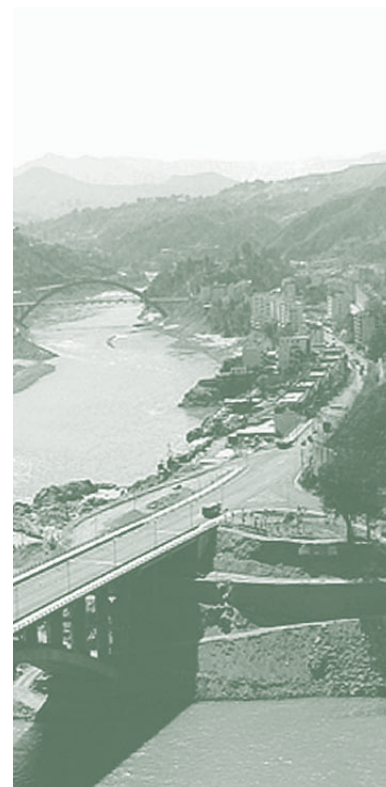


## PREFACE

The Sustainable Cities Programme was first implemented in 1996 in Shenyang and Wuhan, in China. From this initial experience, the Environmental Planning and Management methodology was integrated in urban management to address pressing environmental concerns, such as air pollution, water quality, solid waste management and urban traffic. Innovative participatory and environmental governance mechanisms were tested, promoting sustainable natural, economic and social development of both cities through the implementation of demonstration projects. As a result, environmental awareness increased and cross-sector and institutional cooperation strengthened.

From the success of the Shenyang and Wuhan experiments, the Sustainable Cities Programme II was set up in 2005 between Administrative Centre for China's Agenda 21 and UN-HABITAT. This international project was designed to last three years. Guiyang, Hailin and Panzhihua were chosen as pilot cities of the Sustainable Cities Programme II with three main objectives: (i) to improve the Environmental Planning and Management/Sustainable Cities Programme application and policy implementation processes; (ii) to develop an institutional framework and networks for sustained Environmental Planning and Management support; (iii) to institutionalize normative functions of the Sustainable Cities Programme. The criteria used for the pilot-city selection comprised institutional, human and technical capacity, geographical location to balance between southern and western regions, the urbanization trend in relevance to upcoming environmental challenges, strong cross-sector communication and commitment by local authorities, project feasibility as well as the identification of positive outputs for city environment/development.

This publication is a review of the Sustainable Cities Programmes experience and impact in China from 1996 – 2007.





Panzihu Street © SPP

## CHAPTER 1: THE SUSTAINABLE CITIES PROGRAMME PROCESS

The development potential of cities all over the world is being increasingly threatened by environmental deterioration. Aside from the obvious effects on the health and well-being of people, environmental degradation directly impedes socio-economic development. For development to be truly 'sustainable', cities need to find better ways of balancing the environment with the pressures on it by human beings.

### ENVIRONMENTAL DETERIORATION IS AVOIDABLE

The Sustainable Cities Programme recognizes that environmental deterioration is not inevitable. Although many cities are suffering severe environmental and economic damage, there are encouraging signs that deterioration is not a necessary evil or an outcome of growth. Mounting evidence from cities around the world show that the fundamental challenge to development is good urban governance, better planning and more effective management.

### SUSTAINABLE CITIES PROGRAMME - A PARTICIPATORY PROCESS MODEL FOR GOOD GOVERNANCE

The Sustainable Cities Programme is a world-wide technical cooperation facility of UN-HABITAT and UNEP. It works at city level in collaboration with local partners to strengthen their capabilities for environment planning and management. It is a participatory process model to promote Good Governance. Employing a common conceptual framework tested in many countries, the Project adopts a style and methodology unique to each city to meet that city's specific needs.

The Sustainable Cities Programme emphasizes that properly planned and managed cities hold the key to human development in a safer environment.

Good Urban Governance is the key and is characterized by the principles of partnerships, transparency, & accountability. The Sustainable Cities Programme also supports the improvement of governance at the municipal level. It also promotes gender parity as an integral aspect of environment planning and management.

### STAKEHOLDER PARTNERSHIPS

The Programme's challenge has been to rally key stakeholders to work together for effective change in attitude and behavior in Environmental Planning and Management. Working group methodology has been found to be an effective tool for the purpose. The process consists of a logical sequence of inter-connected activities with specific outputs.





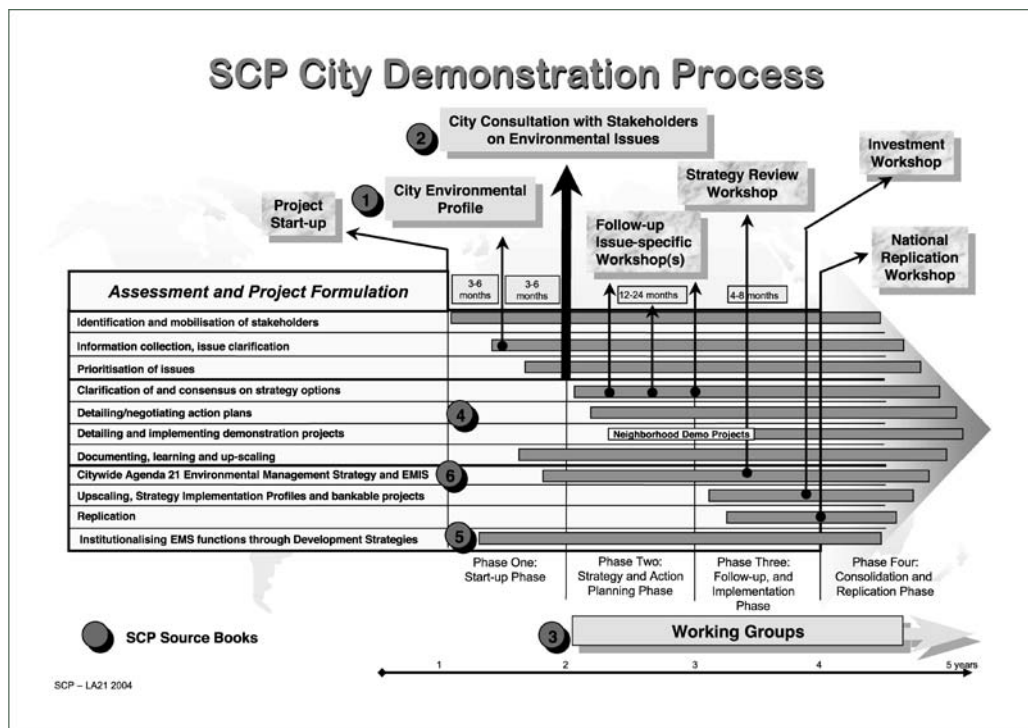
## THE GLOBAL APPROACH

The global approach of the Sustainable Cities Programme to effective environment planning and management has four distinct phases:

- (I) Start-up
- (II) Strategy building and action planning
- (III) Implementation and demonstration
- (IV) Consolidation and replication.

The appended chart illustrates the process of the Sustainable Cities Programme.

ILLUSTRATION 1: THE SCP DEMONSTRATION PROCESS

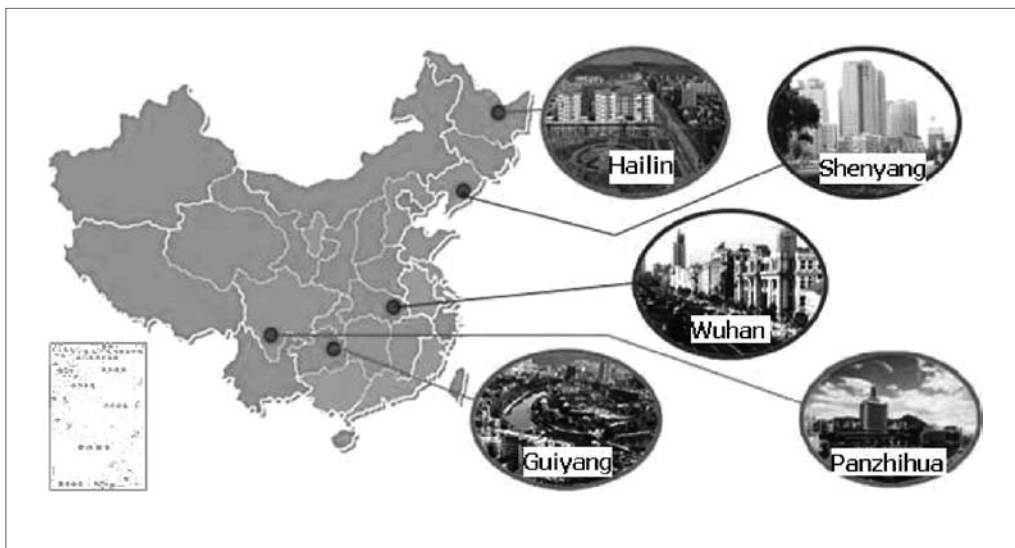


## CHAPTER 2: CHINA

China is the most populated and the fastest developing country in the world. It faces incomparable challenges and environmental consequences due to the rapidity of its development. Previous policy efforts, such as the 'Environment and Development Report for People's Republic of China', 'Ten Measures for China's Environment and Development', 'White Paper for China Agenda 21', 'China Agenda 21 Action Plan' and others, have all laid the ground work for an overall strategic framework for China's Agenda 21. From 1996, five cities - Shenyang, Wuhan, Panzhihua, Guiyang and Hailin - have taken part in the Sustainable Cities Programme project. The project emphasizes that while achieving economic growth and social development, the protection of natural resources and ecological systems must be taken into consideration.

Today, some years after the implementation of the original Sustainable Cities Programme, China has taken an active role in sustainable urban development. With almost 60% of its population living in the rural areas, national policies are aimed at improving living standards with job creation opportunities in cities. This suggests the Chinese government is focused on establishing new urban settlements and enlarging existing ones. With this expected urbanization trend, China faces the challenge of how to improve the city's environmental management capacity to promote sustainable urban development.

ILLUSTRATION 2: FIVE CITIES IN SCP IN CHINA © CHINA SCP OFFICE



## 2.1 SHENYANG

Shenyang is the largest city in northeast China with a population of about seven million people and covering an area of 13 000 square kilometers: Located in the Liaoning Province, it is the political, economic, cultural, technical, and distribution centre of northeast China. Shenyang has become an important industrial base, supported by state investment. Since the 1980s, Shenyang's economy and living standards have grown rapidly. While industrial enterprises try to adhere to market regulations, there has been a rapid increase in consumption, exacerbating air emissions and increasing pollution levels. Moreover, urban infrastructure has lagged behind, creating a series of environmental problems.

First, coal-based industries account for 71% of energy produced in China, burned without pre-treatment, advanced combustion or desulphurization devices. The smoke emitted is carbon dioxide, sulfur dioxide and nitrogen dioxide. As infrastructural investments are costly, the coal-based energy structure remains dominant and air pollution continues to rise along with urbanization, industrialization and the growth of household energy consumption.

Secondly, water availability and the pollution of water are also important challenges. Water availability is limited and unevenly distributed. Efficient utilization and reuse is low and urban sewage treatment insufficient. Water loss from leaky pipes accounts for more than 10% of the total supply, resulting in insufficient utilization and waste. As urban water consumption increases, additional supplies and drainage pipelines are needed. At the same time, the organic pollutants discharged into the Hunhe River reached about 120,000 tons, making it the main river to dilute water-based pollutants in Fushun and Shenyang. Environmental quality indicators for Hunhe and Liaohe Rivers exceed state water quality standards for surface water because of insufficient water management.

Thirdly, noise and solid waste pollution are common. Noise monitoring established that the average noise exceeded the national standard. As waste is not classified, there is little waste recycling and resource prices are unreasonable. Waste disposal is limited and many materials are not recycled. Shenyang's environmental circumstances are hindered by traditional development methods. Something needs to be done to consider economic development alongside the use of resources, the impact on the environment and population growth, and then to adjust the direction of development so that it incorporates low-pollution technology to control emissions. It is anticipated that if there is no environmental management resources will be drained and the environment will be destroyed. It would also mean that China's economic success will be rendered ineffective, and Shenyang's long-term development could be jeopardized. To achieve sustainable development, Shenyang needs to persist in its efforts to strengthen the capacity for sustainable development, by improving its economic, social, legal and comprehensive decision-making mechanisms.

In July 1994, the Shenyang authorities, together with UN representatives, signed a Cooperation Intention Paper for the Sustainable Shenyang Project. In May 1997, Shenyang signed the "Sustainable Shenyang Project" with UN-HABITAT, UNEP as well as the China International Centre for Economic and Technical Exchanges. Shenyang became the first Chinese city to be included in the Sustainable Cities Programme.

## 2.2 WUHAN

Located in central China, Wuhan is one of the largest metropolises in China, with approximately seven million inhabitants. It is situated where the Yangtze River meets its principal tributary, Han River. The city is divided by the two rivers



into three parts: Hankou, Hanyang and Wuchang and is an important transport city. In the early 1990's, Wuhan enjoyed a booming economy and infrastructure growth with a GDP rate of 15.5% and a relatively low population growth. By 1995, Wuhan had developed into an important industrial, financial, technological and education centre with a GDP totaling RMB60.691 billion, the main industry sectors being steel and automobile manufacturing.

Along with rapid economic growth, however came environmental challenges. The implementation of the Sustainable Cities Programme in Wuhan aimed to upgrade the city's capacity in environmental planning and management, to enhance departmental cooperation, build public participation in environment management, incorporate environmental thinking into the city's master plan, and prepare relevant strategies and action plans to solve environment problems through to the implementation phase.

### 2.3 PANZHIHUA

Panzhihua City is situated in Sichuan Province, where the Jinsha River meets the Yalung River. It has a population of 1.1 million, of which rural and ethnic groups make up 13% of the total. Panzhihua is a typical industrial city: it is an important source of iron, steel, energy, vanadium and titanium, and architectural materials. In recent years, Panzhihua's economy has developed rapidly. As it has developed, production was extensive, efficiency low and it is now having a negative impact on the environment. The city's environmental capability is limited and there is pressure to improve on environmental protection:

- Air Pollution: Pollutants mainly came from industrial emissions – soot, SO<sub>2</sub>, fly ash, etc.
- Solid Waste: Management of city domestic wastes was backward, with limited treating capability and poor techniques that needed to be improved.
- Water Pollution: Many enterprises were built along the river, which created great pollution risk to these rivers as wastewater treatment was limited.

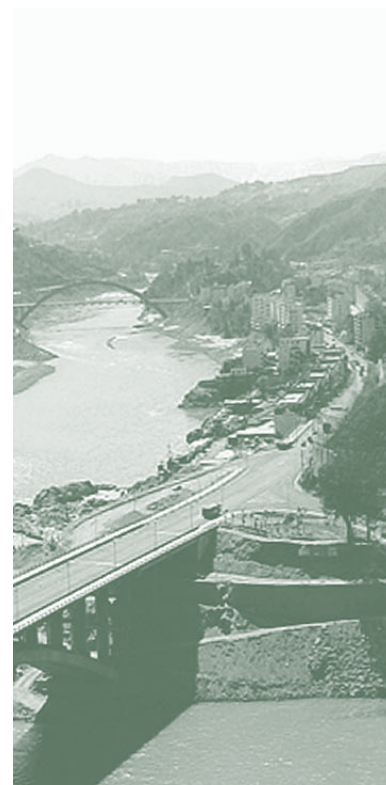
The challenges to urban environmental management are:

- Urban management capacity needs to be improved. There is a lack of technical support for environmental protection and archaic infrastructure.
- Environmental awareness and participation needs to be improved.

### 2.4 GUIYANG

Located in the central area of Guizhou, Guiyang is an inland city situated in western China. It spans an area of 8,034 square meters, 30% of which is urban. Guiyang city comprises six districts and three counties, with a total population of 3.5 million people. Besides a unique karstic (eroded limestone) landscape, Guiyang has an abundance of mineral resources, especially bauxite and phosphorous.

Due to the fragility of its ecology and the increasing rocky desertification due to human activity, Guiyang's terrestrial ecological system is in jeopardy. A fast growing GDP, low efficiency and its resource-based module have resulted in serious environmental pollution. Compared to other developed areas, Guiyang's industrialization level is in its transitional stage, with low capacity for technical innovation and an inadequate urban infrastructure.



In 2004, Guiyang Communist Party Committee China along with the municipal government adopted a long-term proposal to transform the city into an ecological economy. This prepared the ground for Guiyang to become one of the pilot cities of the Sustainable Cities Programme implemented by UN-HABITAT. With the support of local authorities, the goal of Guiyang Sustainable Cities Programme was the creation of the Guiyang Ecological Economy City Master Plan and, as a consequence, the promotion of local sustainable development.

## 2.5 HAILIN

Located in southeastern Heilongjiang Province, Hailin covers an area of 8000 square kilometers, with a population of 440 000. The urban area spans only 10.5 square kilometers, with a population of approximately 87 000. Almost three quarters of Hailin's land is covered in forests providing shelter to a large variety of flora and fauna. Due to its large green area and water reserves, Hailin is best known as the **"Forest Sea and Snow Plain"** and **"Chinese Snow Township"**. Although Hailin has experienced significant economic growth over the past few years, its unregulated resource-based economy is putting the environment in jeopardy. The over-exploitation of resources and the neglect of environmental protection, the environmental quality of the city has dropped dramatically because of the continuous discharge of industrial waste, exhaust gases and waste water, and soil erosion.

Some environmental initiatives have taken place at the local government level to regulate and manage some of its natural resources, such as "Protecting Mother River, Douyin River under permanent control, constructing Lotus Lake project", "Sewage Treatment projects", "Returning farmland to forest and soil conservation projects" and "Forest sea action". However, the environmental problems of water conservation and soil erosion still exist and have possibly become worse. Local governments, enterprises and the public are not fully aware of the seriousness of the environmental problems it faces, nor of the long-term consequences. Local government sectors lack sufficient cooperation because of competing interests, and the channels for public participation are inadequate. To make the sky of Hailin blue, water green, and mountain green, Hailin city joined in the Sustainable Cities Programme in March 2005, adopting the useful tools and approaches of Sustainable Cities Programme to enhance urban management capacity, systematically resolve environment problems and achieve city sustainable development.



Hailin © Liu Yiwu

## CHAPTER 3: SUSTAINABLE CITIES PROGRAMME IN CHINA

The Sustainable Cities Programme was jointly sponsored by UNCHS (now UN-HABITAT), UNEP and UNDP in various global demonstration cities according to the requirements of Agenda 21 presented at the UN Conference on Environment and Development in Rio de Janeiro in 1992. The China Agenda 21 was published by the Chinese Government in March 1994 as a guideline on sustainable development.

### 3.1 ACCA 21 AND LOCAL AGENDA 21

The Administrative Centre for China's Agenda 21 is China's national secretariat for promoting sustainable development at all levels. Its mission is to promote implementation of China's Agenda 21 and push forward sustainable development via policy and strategy studies, promotion of environment-friendly technology, coordinating national Science and Technology programmes, establishing China Sustainable Communities, fostering international cooperation and exchange, local capacity building and raising public awareness.

### 3.2 PHASE ONE: START-UP OF SCP IMPLEMENTATION

The Sustainable Shenyang Project was the first Sustainable Cities Programme implementation project in China. It was formally signed by both the municipal government and UN organizations and executed nationally by the China International Centre for Economic and Technical Exchanges of the Ministry of Foreign Trade and Economic Cooperation which is responsible for outputs and activities. The Shenyang municipal government was the implementing agency responsible for coordinating and supervising financial and specified inputs; as well as ensuring effective project application. UN partners contributed professional and technical advice and project support. This project aimed to promote sustainable physical, economic and social development of Shenyang, with a central focus on environmental issues. Drafting a sustainable development strategy and binding management strategies, as well as establishing an environmental action plan, were key for the project's success. The Sustainable Cities Programme process was implemented in three successive phases with each phase based on the previous one with follow-up continued after completion.

*The first phase* launched the consultation mechanism and mobilized the main organizations related to urban environmental planning and management. Via a series of activities involving stakeholders - preparation and updating the Environment Profile, as well as discussion and training - the main environmental problems were identified.

*The second phase* addressed specific action plans. This phase focused on the establishment and operation of specific working groups to conduct analysis, assessment and consultations to resolve key environmental issues determined by city consultations. It aimed to develop specific environmental management strategies into detailed plans to be implemented by organizations responsible for improving environmental quality and urban environmental management strategies.

*The third phase* was the implementation stage. This put the strategies and action plans of the first two phases into practice.



### 3.2.1 INSTITUTIONAL SET-UP

At the national level, ACCA21 is the organization in charge of implementing and managing the Sustainable Cities Programme, in conjunction with Peking University which works as the technical training partner. Headed by UN-HABITAT, ACCA21 consists of members of the Ministry of Science and Technology of China, the Ministry of Construction, the State Environment Protection Agency, and representatives of Shenyang and Wuhan cities (Sustainable Cities Programme pilot cities Phase I). Together, they constituted the consultative group for "Promoting Sustainable Urbanization in China".

Within each city, the Sustainable Cities Programme process is steered by a Leading Group who give it direction. Leading groups, often include the mayor and deputy mayor, and other key stakeholders at the local level, in the position of director or another relevant post.

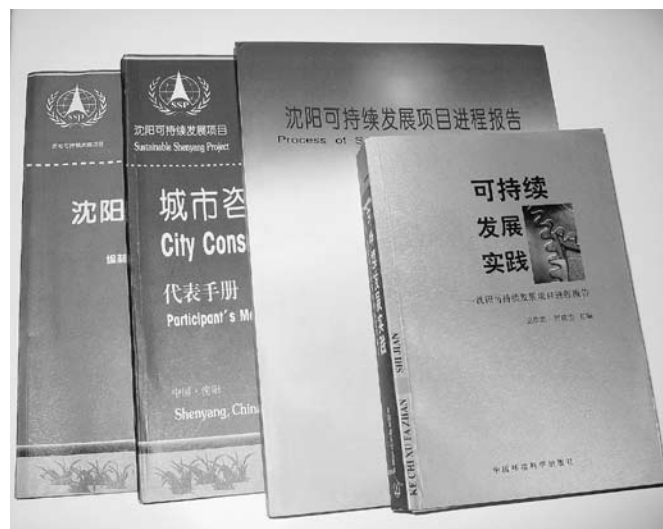
Working groups, consisting of key stakeholders from government, institutions, businesses, the private sector and communities, formulated specific strategies, action plans and project proposals in the targeted areas. To support the Sustainable Cities Programme, a Project Office was set up. It was responsible for coordinating and arranging project activities, communicating with overseas and national partners, as well as supporting working groups in preparing project materials, crafting work plans, and other routine activities.

SCP is built on public participation, and key stakeholder groups participated directly in project activities by giving suggestions and proposals. The public also monitored government activities, participated in consultations, planning and decision-making. Awareness regarding sustainable development has been improved through several channels: i) the Representatives of the People's Congress and Political Consultative Congress; ii) Municipal Government Hotlines; iii) Departments in every government agency dealing with public complaints; iv) Specific offices in residential communities; and v) The public media.

### 3.2.2 TECHNICAL AND FINANCIAL INPUT

SCP in China was financially supported by UN and donor assistance. UN-HABITAT, ACCA 21, Peking University, local universities and research institutions provided technical assistance and support during the implementation of SCP in each pilot city. For instance, UN-HABITAT and ACCA21 contributed with the capacity-building of the SCP process as well as training sessions on environmental information systems such as EMIS and GIS and assistance during the compilation of the Environmental

Profile and Project Profile, organization of the city consultation and operation of working group and demonstration projects. On the other hand, Peking University provided the valuable support of translating all SCP source books and materials from English to Chinese including the design and implementation of training



SCP books translated to Chinese © SSP



workshops and the development of training guide books and presentations. Additionally, Peking University was able to assist in reviewing outputs such as the environmental profile and project profile, and during the process of the city consultation, working group and demonstration projects, to maintain the essence of SCP and coordinate organizational procedures. Furthermore, Peking University along with ACCA21 worked as the organisms by which cities might give comments regarding their lessons learned not only to provide valuable inputs for documentation and dissemination but also to localize SCP into the local/ neighboring contexts and enrich the SCP process for future replications.

On the local level each pilot city was supported by local universities and research institutions. In the case of Guiyang, Renmin University designed and coordinated the Guiyang Ecological Economy Master Plan with participation of Guizhou University, Guizhou Normal University, Guizhou Social Science Academy and Guizhou Provincial Government Development Research Centre. They also provided technical assistance in the compilation of the environmental profile and project profile, organization and participation of the city consultation, working group and demonstration projects. On the other hand, Heilongjiang Environment Protection Science Institution along with Harbin Industry University, Heilongjiang Environment Science Institution and Heilongjiang Planning Institution provided technical support during the Sustainable Cities Programme implementation process in Hailin. Finally, Panzhihua's local technical support team was composed of local environmental science institutions as well as scholars from universities and private sector experts.

### 3.2.3 CITY ENVIRONMENTAL PROFILES

One of the objectives of Sustainable Cities Programme is to assist cities in organizing information on the state of their environment, urban development and institutional situation into a city environmental profile. The environmental profile presents a database of information needed for the planning and management of the city. All the Sustainable Cities Programme cities in China had city environmental profiles prepared.

**Shenyang** contacted UN-HABITAT and domestic organizations and institutions for early coordination, while the Sustainable Shenyang Project conducted research on sustainable development for Shenyang's Environmental Profile. In January 1996, the first manuscript of Shenyang's environmental profile appeared which not only gave analysis on key environmental problems, but demonstrated actions which helped push this project forward. In June 1997, a "City Sustainable Development Environmental Risk Estimation Meeting" was held with more than 60 officials and city professionals. By July, UN experts came to Shenyang to give technical guidance. In August, the "Consultation Meeting on Environmental Problems in Shenyang" was held with government departments, forming a technical-support group to discuss key environmental problems and how to tackle them. Stakeholders participated throughout the environmental profile process. During the initial stages, participation was limited. With time, participation increased, and problems not previously considered important were discussed. In practice, everyone's understanding improved and it enabled more scientific and effective decisions. UNCHS held the "The Global City Sustainable Development Plan 1997 Annual Meeting" which provided key stakeholders with an opportunity to further understand Sustainable Cities Programme and the Environmental Planning and Management method, to gain political support and stakeholder participation in Shenyang for Sustainable Shenyang Project.

**Wuhan** in March 1995 first discussed the Sustainable Cities Programme with experts from UN-HABITAT and UNEP. By September, additional UN experts had collected information and prepared the compilation of the Wuhan Environment





Profile and Sustainable Wuhan Project document. By December 1996, a review of the Sustainable Wuhan Project was held by UNDP China and UN-HABITAT with local experts from Wuhan and Shenyang also attending the meeting. By late May 1997, the Sustainable Wuhan Project document was signed by UNDP-China, and Mr. Wu Hopu, Vice-Mayor of Wuhan. The Sustainable Wuhan Project Office was also established in the Wuhan Environment Protection Bureau and all further activities were coordinated by the Leading Group.

In April 1997, Sustainable Wuhan Project Office invited local experts to guide the Wuhan Environment Profile and by December 1997, the final version was completed. The environmental profile demonstrated that the inter-dependence between the environment and development, and described Wuhan's overall environmental status. It identified priority issues: surface water pollution; municipal solid waste management; vehicle emissions; environment pollution from industry; and urban ecology. It also consolidated important background information on the Sustainable Wuhan Project. The environmental profile was submitted as the main conference material regarding Wuhan's urban environmental challenges during the Wuhan City Consultation.

The compilation of **Panzhihua's** environmental profile was an important step and the basic material for the city consultation. Panzhihua's environmental profile described the overall economic, social and environmental situation of Panzhihua. Trainings were held prior to compilation, in order for all involved members to understand the procedure. Detailed investigations were undertaken to examine Panzhihua's current environment/development situation and to determine which critical issues should be examined. As such, four main environmental issues were noted: air pollution, water pollution, utilization of land resources and solid wastes treatment.



In October 2005, an environmental profile draft was complete and ready for discussion and by November 2005, Panzhuhua's Sustainable Cities Programme Pilot Project Group submitted the revised environmental profile to ACCA21 and UN-HABITAT, which provided feedback. In March 2006, the Panzhuhua city consultation was held, at which time participants provided suggestions and advice. Following the city consultation, the compilation group made final revisions to the environmental profile. Compiling the environmental profile was an important outcome of trans-departmental cooperation adopting the suggestions and advice from enterprise, non-governmental organisations, academies, universities, and citizens.

The compilation process that put together cross-sectoral issues within the **Guiyang** Environmental Economic Profile, as well as its revised final version, was completed almost six months after constant work from Guiyang local authorities, municipal departments and faculty from Guizhou, Renmin and Beijing universities and Guizhou's research centres. The Environmental Economic Profile analyzed Guiyang's current status regarding urban and economic development, environmental resources and management. Special attention was put on those economic sectors that had a big impact on Guiyang's natural environment such as: mining, manufacturing, construction, tourism, entertainment, agriculture and forestry. Later on, a detailed analysis was conducted in regards to the relationship between environmental resources and consumption patterns to define the extent of usage of natural resources and the impact on each economic sector's management and life span. Additionally, an overview of the city's water resources and waste disposal, as well as atmospheric conditions, land use and biodiversity was included, focusing on the unique karstic ecological system that shapes Guiyang City. The document recognized that Guiyang's economic and social development has remained in a low profile in the past years, harming the environment and without significant outputs. There is an intrinsic dependence on natural resources to achieve economic growth. The karstic local ecosystem, however, is so sensitive to irresponsible exploitation that soil erosion, desertification and geological disasters are occurring ever more frequently. On the other hand, it has been realized that an underdeveloped urban infrastructure without environmental consideration backlashes the city development. As one of results of the Sustainable Cities Programme project, the Environmental Economic Profile offers the preliminary analysis and serves as input for the development of the Guiyang Ecological Economy City Master Plan.

In **Hailin**, after the engaged participation from all the Sustainable Cities Programme leading group members, ACCA21, UN-HABITAT and the Peking University experts, the environmental profile was finalized. Hailin's environmental profile reflected its major environmental problems regarding land, water, air, solid waste, ecosystems, and historical cultural heritage. It also analyzed the current environmental management profile of Hailin, including the organizational structure and stakeholders of environmental management. The profile not only provided the basic information for environmental managers, planners and other stakeholders, but also illustrated the relationship between urban development and the environment, and improved stakeholders' collaboration capacity and the public's ability to participate, laying a solid foundation for the implementation of options in the next steps.

### 3.2.4 CITY CONSULTATIONS

In all Sustainable Cities Programme cities in China, the city consultation created a platform for discussions of concern regarding prioritized environmental issues and provided the background as to the general framework for introducing interventions with a city wide impact. City consultations were attended by representatives of a broad spectrum of stakeholders including federal, state and



local governments to traditional authorities, academia, private sector enterprises, community groups and individual residents. Drawing on the experience of the city consultation process, several aspects were noted:

- Need to incorporate sustainable development into economic and development strategies
- Importance of collaboration, via information exchange and cross-sectoral cooperation
- Need to make use of public media to strengthen awareness and mobilize citizens
- Working groups should be focused on key environmental issues
- Demonstration projects should be developed and gradually expanded
- Communication and cooperation at home and abroad
- Seek support from UN institutions, international organizations, national and provincial departments, to accelerate the choice, demonstration and establishment of projects.

To clarify **Shenyang's** key environmental issues, in May 1998, the municipal government held a city consultation. More than 300 representatives from management, public and private enterprises, educational and scientific institutions, news agencies, communities, UN organizations, national/provincial departments, as well as domestic/overseas city representatives addressed Shenyang's economic, social and environmental issues. Agreement was reached on how to develop the Sustainable Shenyang Project, work with Shenyang's environmental issues and to form the Resolution of City Consultation for Sustainable Shenyang Project. To target specific stakeholders to attend the city consultation, "Representative Qualification Recommendation Forms" were sent to government, public and private enterprises, educational and scientific departments, press circles and communities; of which 227 representatives were selected. The process not only ensured representatives from different backgrounds, but also generated publicity for the Sustainable Shenyang Project.

The city consultation identified Shenyang's main environmental issues and proposed a series of priorities, with an emphasis on current problems and awareness of sustainable development. Three themes and consultative groups were formed at the city consultation: i) Air Pollution Prevention, ii) Water Resource Protection and Water Pollution Control and iii) Urban Domestic Waste Disposal. Following the city consultation, all strategies were publicly announced and implemented by various institutions, facilitating information exchange and cooperation. The consultation facilitated participants to reach agreement on how to carry out Sustainable Shenyang Project. It also strengthened Sustainable Shenyang Project implementation through facilitator-trainings with UN and other experts and helped promote sustainable development via communication, which helped Shenyang recognize best-practice cases and publicize its own experiences. The city consultation as a new decision-consulting mechanism challenged the traditional managerial model by incorporating the stakeholder opinions. It also improved government understanding of the complexity of environment-development actions and cross-sector cooperation.

In **Wuhan**, preparation for the city consultation started in October 1997. Prior to that, thorough preparation was made by Wuhan municipal government, releasing information to relevant departments, enterprises and stakeholders. In April 1998, the Leading Group held a city consultation with 140 people attending, including experts from the UN and ACCA 21, representatives from provincial, municipal and district government, as well as non-governmental organizations, senior consultants and academics. The meeting organizer invited the community to engage in group discussions on relevant environment-development issues.



After extensive discussions amongst local and foreign experts and attendants, the following areas were identified: surface water pollution control, air pollution control in urban districts, municipal solid waste management and improving urban traffic. The consultation established working groups and following the city consultation, a number of smaller consultations were held specifically in the priority areas.



Wuhan Sustainable Development Consultation © SPP

**Panzhihuas** city consultation was held in March 2006 with 160 participants, including representatives from UN-HABITAT, ACCA21, Peking University, as well as relevant municipal departments, organizations, political parties, enterprises, non-governmental organizations and representatives of Wuhan, Shenyang, Hailin and Guiyang. The event was conducted via plenary sessions and group discussions. In discussion, some participants addressed other environmental issues – such as food safety. Air pollution - the most serious environmental threat - was the priority issue, reflected in the Conference Declaration. The city consultation provided a platform for public participation in environmental management and planning, changed the mechanism of single responsibility, providing a reference of urban environmental protection, planning and construction.

With the full participation of 165 local representatives from **Guiyang City**, municipal departments, private sector, faculty and researchers from several institutions and universities, community members and the media, the Guiyang city consultation took place in June 2008. Participants were divided into four working groups which avidly discussed the major findings of the environmental profile, implementation mechanisms and specific strategies for the Guiyang Ecological Economy City Master Plan, as well as suggestions for the rational exploitation and protection of environmental resources in the course of economic development. In that sense, all discussions were aimed at analyzing the economic and social aspects of Guiyang development and finding more efficient ways of using natural resources causing the minimum environmental damage, in order to be incorporated into the city's Master Plan. The main issues that were discussed were:

- An innovative development concept as an urban ecological economy with an all-encompassing systemic engine, including the re-definition of the industrial structure and spatial layout as well as the adjustment of policies and production patterns
- A comprehensive waste management system that would prevent pollution of aquifers from landfill leakages
- Adequate monitoring measures with standardized criterion
- A comprehensive planning approach able to anticipate possible overturns during the implementation process
- An increased support of the tertiary industry, mainly tourism, enhancing cultural heritage
- The rational utilization of water and mineral resources to optimize their efficiency.



**Hailins** city consultation was held between 30 May to 1 June 2006, with a total attendance of 174 persons, including representatives from the administrative committee and other related branches, the people's congress, the regional and national government, the private sector, education and media, community, social groups, UN-HABITAT, Peking University, Harbin Institute of Technology and the Heilongjiang Institute of Environmental Science. In the session, leaders, experts and the representatives held an engaging discussion on the Environmental Profile, Proposal of Water *Environmental Problems in Hailin*, Proposal of Strategy and Action Plan for Conserving Water Environmental Resource in Hailin City, Proposal of Environmental Management Institution in Hailin City.



Hailins city consultation © SHP

The city consultation was an important part of the Sustainable Cities Programme process in these Chinese cities. The consultation meant the end of Phase I and marked a starting point for Phase II: addressing specific action plans in working groups.

### 3.2.5 WORKING GROUPS AND STAKEHOLDER PARTICIPATION

Following city consultations, which identified and prioritized environmental issues specific to each city context, working groups were formed to address the Environmental Planning and Management process by tackling environment/development challenges. Stakeholder participation was a critical component of the Sustainable Cities Programme and an important element for consideration in all working groups. While the number and composition of working groups varied per city, all working groups addressed the following aspects: i) sectors that damage the environment, such as larger enterprises discharging pollutants; ii) sectors influenced by air pollution; iii) sectors that work with preventing air pollution; iv) research institutions; v) non-governmental organizations, communities and the private sectors, such as the Communist Youth League, the Women's Union and private companies. Through participation, these stakeholders gained understanding of the Environmental Planning and Management method, and directly and indirectly benefited through participation.

In **Shenyang**, three main working groups were formed, with sub-working groups addressing specific issues. All working groups functioned by incorporating regular trainings and symposiums, and using various tools (such as Geographic Information System) to set priority areas. To provide scientific recommendations for water planning, the Shenyang municipal government organized a working group on the development and utilization of water. In May 1998, a report was given to Mayor Suixin Mu, who suggested it act as a blueprint for water-resource planning in Shenyang. The Water Resources Working Group addressed prioritized sub-issues, such as quality of water supply, building a sewage treatment plant, Liaohe River pollution protection, industrial and domestic water distribution,



etc. The Air Pollution Prevention Working Group aimed to improve atmospheric quality and was comprised of citizens, enterprises (discharging air pollutants) and the environmental protection department. By working together, this working group gained both direct and indirect benefits, as did the improved atmospheric condition. The Domestic Solid Waste Working Group was set up consisting of representatives from municipal government, research institutions and residents. This working group later divided into sub-working groups to develop priority issues, such as the Laohuchong Domestic Waste Landfill, the Hunnan Domestic Waste Transfer Station, etc.

Following **Wuhans** city consultation, four working groups were formed to address key environmental challenges in the municipality. The Water Pollution Control Working Group identified two prioritized sub-issues: i) drinkable water and the protection of Han River and ii) improving management of the eutrophication of Wuhan's lakes that required proper sewage treatment. The Air Pollution Control Working Group was established to monitor dust pollution; industrial pollution, motor vehicle exhaust and oil smoke from the catering (food) trade. The Solid Waste Management Working Group managed Wuhan's waste situation. Several issues persisted for this working group: solid waste had not been effectively controlled, legislation needed to be strengthened, proper investments were lacking, there was limited staff and a lack of training competence and contamination of the waste stream – hazardous and non-hazardous waste mixed. Finally, an Urban Traffic Improvement Working Group was set up, as vehicular traffic had rapidly expanded without the necessary infrastructure. The traffic situation in Wuhan was dense and poorly-coordinated. This working group addressed urban planning, public transport alternatives and cleaner fuels, among other issues.

In **Panzhuhua**, a working group was set-up to monitor air pollution – its most serious threat. The working group organized meetings to improve cooperation and collaboration regarding air pollution problems. By examining research and baseline studies, a report was drafted indicating what should be done and how it should be implemented. Sub-working groups were created to tackle specific areas.



Panzhuhua working group session © SPP

During plenary meetings, each sub-working group chief addressed problems and plans for project implementation. In working group meetings, members gained understanding of Sustainable Cities Programme approaches and tools for implementation.

Following the city consultation, the **Guiyang** Ecological Economy City Master Plan was enriched with further input from working groups. Two projects were selected from the enhanced Guiyang Ecological Economy City Master Plan: i) shifting from fossil fuel into a gas energy source for vehicles in Guiyang and ii) Biogas Capture and Management by the Guiyang Sanlian Dairy Co. Ltd. Both projects satisfied the selection criterion specified by stakeholders during the city consultation and were in line with the city's priorities.



The priority environmental issue of **Hailin** was identified as water resource management and protection during the city consultation. The Working Group on Water Issues was established to work within a framework of public participation, inter-departmental and resource-sharing cooperation. At the same time three sub-workgroups were established: wastewater treatment workgroup, watershed ecological protection workgroup, and water resources rational development and utilization workgroup. The leaders of relevant government departments were the leaders of sub-workgroups. On the basis of strategies and action plans formulated, several demonstration projects were developed. The Wastewater Treatment working group was responsible for urban sewage pipelines and sewage treatment plants demonstration projects. The Watershed eco-environment protection working group was responsible for the reforestation and tree planting along the river demonstration projects. The rational utilization of water resource working group was responsible for the demonstration projects of the Forest Sea reservoir water supply projects. In January 2007, the three sub-working groups held meetings separately where responsibilities such as policy coordination, action plan formulation and implementation processes were identified, and detailed tasks were assigned. As a result, specific strategies and action plans were approved and publicized to raise public awareness. Subsequently, several meetings took place in order to follow-up activities and strategies regarding each demonstration project.

Due to the diversity of backgrounds of the participants in each working group and sub-working group in the respective cities, opinions differed and sometimes reaching a consensus was difficult. The core of the Sustainable Cities Programme process, however, lies precisely in the participatory process. Making use of Sustainable Cities Programme tools and methodologies, agreement among members was reached, enhancing inter-departmental and resource-sharing cooperation.

### 3.3 PHASE II: STRATEGY DEVELOPMENT AND ACTION PLANS

In the light of the Sustainable Cities Programme, broad-based participation, cooperation and democratic decision-making, were upheld by the working groups to improve the prioritized environmental issues at hand. Each working group developed strategies and action plans to ensure successful implementation of sustainable development strategies within the targeted areas. A variety of strategies and action plans were drafted by each city for each topic area – perhaps too many to mention in this report in detail; however, the report recognizes the overall success of the Sustainable Cities Programme process in the following examples.

#### SHENYANG

In Shenyang, the Water Resource Working Group focused on “a shortage of water resources and heavy water pollution”. The Water Resources working group suggested the following strategies and actions:

- Short and long-term recognition of water resources for consumption and distribution, i.e. the use of ground and surface water
- Surface water to be used for irrigation by cooperating with provincial hydraulic departments to exploit surface water
- Develop research on water reuse and construction of wastewater treatment plants
- Treat water from North Wastewater Treatment Plant for industrial use in Tiexi



- Shenyang should exchange views with related provincial departments
- Establish a water resource management model for scientific management
- Raising charges to fund water supply construction via a reasonable pricing system, utilizing enterprises and cooperation with foreign investors
- Incorporate cleaner production and pollution control in new construction and industries
- Strengthen the Department of Environmental Industry to support water-friendly industries
- Via SCP techniques incorporate publicity campaigns and use cross-sector cooperation to ensure active stakeholder involvement.

The Air Pollution Prevention Working Group addressed the following key air environmental issues: prevention, supervision and management of air pollution, prevention of excess energy consumption, prevention of vehicle tailpipe pollution, enhancing fuel combustion efficiency, cleaner energy development, improving the urban fuel structure, cleaner production, addressing dust pollution. The principles of extensive participation, coordination and cooperation as well as democratic decision-making facilitated resource-sharing and cross-department cooperation amongst the working groups ensured prioritized issues were addressed. This process, focused on sustainable development, played an important role in improving Shenyang's air quality. Consequently, strategies and action plans were formed to address the following:

- Supervision and management of air pollution by enforcing regional and national standards
- Addressing air pollution in residential areas – both factory pollution and regulating street vendors catering services
- Preventing coal smoke pollution – all boilers and stoves with a unit capacity less than one ton/hour and a coal burning volume of less than 150 kg/hour were forbidden to burn raw coal
- Preventing vehicle pollution – municipal and district environmental protection departments coordinated supervision and management to perform selective inspection of motor vehicle tail gas exhaust – carrying out tail gas detection for vehicles inspection and requiring renovation for vehicles whose tail gas discharge exceeded the stipulated standards
- Incorporating Environmental Pollution Reporting Stations – piloted in residential areas
- Improving environmental publicity and education concerning air pollution prevention strategies.

All members of the Solid Waste Working Group considered improving Shenyang's domestic waste treatment and changing the situation – from limited and backward garbage-recycling to expanding and improving waste management – their responsibility. The Solid Waste working group had the following strategies and actions planned:

- Addressing Shenyang Domestic Waste Disposal
- Ensuring active participation of a variety of stakeholder groups – academia, residents, decision-makers, the private sector and non-governmental organizations
- Enacting expert consultation meetings – and determining the Harmless Disposal of Domestic Waste and Reutilization of Resources in Shenyang
- Proposal Adoption following stakeholder participation in relevant symposiums





- Urban waste was addressed by a planning group, policy group, institution group and the public; each with two invited moderators and supported by experts coming from the United Nations
- Investing in an urban domestic waste harmless disposal project.

## WUHAN

The Water Pollution Control Working Group identified two priority sub-issues: i) drinkable water and the protection of Han River and ii) improving management of the eutrophication of Wuhan's lakes that required proper sewage treatment. Strategic measures and actions included:

- Monitoring Industrial Pollution
- Monitoring water for efficient use and quality
- Urban Wastewater Treatment
- Pollution control and ecological recovery in river and lake basins
- Utilizing Scientific and technological support
- Legislative Support

The Air Pollution Control Working Group considered the following areas important: dust pollution, industrial pollution, motor vehicle exhaust emissions, oil smoke pollution from the catering trade and prepared the following strategic measures and actions:

- Controlling industrial pollution and energy consumption via urban planning, creating a zoning system for industry and incorporating a pricing scheme to prevent 'dirty fuels'
- Controlling motor vehicle emissions by improving existing roads, incorporating pedestrian areas, and ensuring vehicles meet pollution standards
- Greening and cleaning air by building and enlarging parks, incorporating green on streets and bridges and protecting biological corridors
- Use media and research to improve air quality by increasing citizen awareness and ensuring standards and techniques are up-to-date as stated in research
- Controlling pollution of oil smoke in catering trade by creating facilities in designated areas that monitor pollution.

The Waste Management Strategy and Action Plan aimed to improve environmental sanitation in accordance with economic viability. It focused on reducing waste output – by sorting, recycling and implementing treatment via landfills, compost, incineration and recycling. It also improved environmental consciousness of residents and government. A comprehensive plan was enacted – installing efficient management and communication throughout the waste cycle. By the end of 2005, up to 40% of waste was recycled. By 2010, all cities will be set up with sanitary waste landfills and compost facilities – greatly influencing Wuhan's aim to achieve sustainable waste management. Additionally, to reduce waste, new technologies (such as pyrolysis and gasification) were also considered. This was done by:

- Strengthening legislation to improve proper monitoring and compliance
- Increasing investment to improve municipal solid waste disposal facilities – such as waste transfer stations, waste treatment plants and municipal solid waste incineration plants



- Incorporating automobile washing stations to keep the city roads clear of sand and dirt
- Invest in special vehicles for environmental sanitation
- Invest in waste collection and transport boats, as well as monitoring waste in the water area.
- Improve construction knowledge in terms of environmental sanitation technology
- Increase the number of waste collection containers (overall availability) and also the variety of containers available (to promote source separation particularly hazardous waste)
- Through media, education and public campaigns, strengthen participation and consciousness.

The Urban Traffic Improvement Working Group aimed to establish a modern, fully-dimensional and comprehensive transportation system that produced limited amounts of transport emissions while convenient for passenger and goods movement. This included improving the road system with an inner-ring road to release dense traffic, as well as developing better public transport serviced by trams, buses and private buses (to a certain extent). For the period 2000-2010, a comprehensive traffic system was planned with several lanes and ring-roads, in addition to the provision of public transport. Further, training and awareness campaigns were planned to inform targeted residents about relevant laws and regulations.

#### PANZHIHUA

Industrial air pollution has been the main source of Panzhihua's air pollution. This was in part due to the distribution of the industrial structure, as well as the particular geographic terrain and urban structure. In addition to Panzhihua's industrial structure, its dependence on coal-based energy has resulted in suspended dust and significant particulate matter (PM10) pollution. Strategy and action plans to examine potential improvements to air quality are being implemented via pilot projects to demonstrate that pollution prevention is not only possible but also beneficial.

#### HAILIN

In Hailin, the following strategies were adopted – for all working group projects:

- Combine government regulation with market mechanisms, to mobilize resource inputs
- Comprehensively use administrative, economic and legal means to strengthen supervision
- Include environmental protection account anticipations into the local financial budget, which will increase annually
- Formulate policies to attract environmental friendly investment. For example, attract domestic and foreign capital to invest in environmental protection projects
- Mobilize the enthusiasm of enterprises to control water pollution
- Actively carry out policy and institutional innovations. Use the incentive measures to achieve the win-win mechanism of environment and economy. Improve environmental awareness, and establish a mechanism of public participation.



Specific action plans worked out by the working groups were sent to the government for further discussion and decision-making, and later became government documents.

### GUIYANG

Guiyang municipal government has a high regard for the issue of ecologic environment, and proposed to set up an eco-economy city in accordance with the principle of sustainable development, taking the recycling economy as the key to realizing harmonious development of the economy, society and environment. To improve the quality of atmospheric environment, recently Guiyang implemented many air pollution control projects. By the end of 2004, Guiyang Public Transportation Corp. was classified as a major unit of air pollution control.

Guiyang Public Transportation Corp. has run the public transportation system for the whole city, with fuel oil vehicles running frequently in the urban district, accelerating the negative effects on the environment due to vehicle exhaust fumes. To change this behaviour, Guiyang Public Transportation Corp. is promoting the transformation of fuel vehicles to natural gas vehicles as an effective measure to reduce the cost of energy consumption and improving environment quality.

### 3.4 PHASE III: IMPLEMENTATION, UP-SCALING AND REPLICATION

All Sustainable Cities Programme cities in China implemented demonstration projects.

Shenyang worked with ACCA 21, UNCHS, UNDP, UNEP and other international agencies to replicate the experience of Sustainable Shenyang Project in other cities in northeast China. During Sustainable Shenyang Project implementation, Shenyang often collaborated with Wuhan, introducing Sustainable Cities Programme and Environmental Management Information System.

Media coverage of Sustainable Shenyang Project (as well as Sustainable Wuhan Project, Sustainable Panzihua Project, Sustainable Guiyang Project and Sustainable Hailin Project) promoted the transfer of Sustainable Cities Programme experiences and lessons. Participating in international conferences, interviews with reporters, international exchanges, website postings and documentation, played important roles in introducing Sustainable Cities Programme China to the outside world.

Successful Sustainable Cities Programme in Shenyang and Wuhan has been a powerful foundation for the Sustainable Cities Programme in China, providing a lot of experience and suggestions for other cities in the application, implementation, problem solving and promoting of the Sustainable Cities Programme. Panzihua, Guiyang and Hailin are further improved and have greater results because they benefited from pilot experiences accumulated by the first round cities.



### 3.5 PHASE IV: INSTITUTIONALIZATION

Environmental Planning and Management is focused on change. It focuses on changes in the way people think about sustainable urban development, the environment, development management and institutional support. In the Sustainable Cities Programme China, many innovations were introduced which challenged the traditional way of thinking. This has started to create localized institutional changes, but still strong and far-reaching change will, at the national and regional levels, continue to take time. The changes in thinking have created a certain level of institutional success. As such, Sustainable Cities Programme challenged traditional top-down decision-making processes by incorporating the different interests of stakeholder to discuss and agree on priority environmental issues and the means to tackle them. This process included several steps:

- (i) Suggestions or comments from the public or technicians were received
- (ii) The responsible department organized consultations and formulated a programme and/or even a pilot project to test a particular initiative
- (iii) Such initial plans or pilot projects were then submitted to the government's leading group for decisions, and later, implemented citywide. During the last step, the decision was revised according to the experiences gained. Bottom-up decision-making procedures reflected public will and were based on majority interests.

Sustainable Shenyang Project (together with the Sustainable Wuhan Project, Sustainable Panzhihua Project, Sustainable Guiyang Project and Sustainable Hailin Project) strengthened and advanced the regulatory system for sustainable development, set and advanced management mechanisms on sustainability, made cross-sectoral coordination more formal and systematic, and improved urban management capacity. To standardize the activities of social and economic development, a number of systems were set up, including a policy system, a legislation system, a strategic indicator system, a dynamic environment and ecology resource monitoring and management system, planning and statistics systems for social and economic development, and an information system, which improved the awareness of sustainable development for the whole society.

In Shenyang, beyond creating an example, Shenyang Municipal Government also learned from international best-practice. It conducted public surveys on government performance, in which 1,170,000 households took part. Through project activities, the municipal government learned to value the requirements, comments and suggestions from ordinary citizens. Sustainable Shenyang Project strengthened public supervision of government works, and increased ownership and awareness, which has further promoted environmental initiatives around the city. Concerning physical environmental improvements, the working group process provided decision-makers with a participatory and coordinated mechanism to improve the urban environmental situation.

The Sustainable Cities Programme in China has given more chances for each city to share experience with each other, and provided a wider platform for communication and study. Working Groups, pilot projects, city consultations and so on, are all valuable tools for further Sustainable Cities Programme development in China.



## CHAPTER 4: DEMONSTRATION PROJECTS

All of Sustainable Cities Programme China cities formed working groups with stakeholder input, creating a platform where more sustainable ways of urban planning could be incorporated – identifying the link between development and the environment. The working groups then formulated strategies and action plans, from which demonstration projects were planned. Demonstration projects highlight the feasibility of strategies and action plans in specific target areas. They also became the physical outcome of the key environmental issues originally addressed during the city consultation.

### 4.1 SHENYANG

#### INDUSTRIAL AND DOMESTIC WATER DISTRIBUTION

Tiexi Dual Water Distribution Project was a major municipal construction project in 1998 - one of 10 civil construction actions - a project to improve water quality in Tiexi (an industrial district of Shenyang) and to alleviate conflicts between water supply and consumption. The project was funded by the municipality and implemented in 1998. The project was executed via careful implementation and strict management. In June 1998, Mayor Mu Suixin opened the floodgate supported by a cheering crowd. The completion of the Tiexi Dual Water Distribution Project not only assured the demands of industrial and domestic water use in Tiexi, it improved domestic water quality and established a supply system. At the same time, cross-sector cooperation between municipal departments ensured that all perspectives were included.

#### NORTH WASTEWATER TREATMENT PLANT

In 1997, about 1 400 000 tons of wastewater were discharged daily in Shenyang – mostly severely polluted without treatment. As such, Sustainable Shenyang Project experts concluded it was vital to incorporate centralized urban wastewater treatment and to monitor water quality. The Northern Shenyang Wastewater Treatment Plant was the first large urban wastewater treatment plant in northeast China – occupying 33 hectares and servicing more than one million people. The plant has 34 large wastewater and sludge treatment tanks, 12 wastewater and sludge pumping stations and 5 motor rooms to treat 400,000 m<sup>3</sup>/d of urban wastewater via biochemical treatment. After original treatment, water is reused by industry or discharged into the Weigong River, and used for irrigation. The sludge is treated via a mesophyllic digestion process, the biogas produced is used for the energy consumption of the digestion system, and excessive biogas is used to generate electric power. The digested sludge is used as fertilizer and green manure after being dewatered. The Northern Shenyang Waste Treatment Plant plays an important role in controlling water pollution, improving the living standards, promoting urban modernization and increasing Shenyang's investment attraction.

#### SOUTH WASTEWATER TREATMENT PLANT

Shenyang Southern Wastewater Treatment Demonstration Plant covered 2.58 hectares with a total budgetary investment of RMB124 million Yuan. Treatment aimed at improving wastewater for reuse by industries or release into the



environment. This came under Sustainable Shenyang Project coordination as well as municipal construction, building, design, supervision and other departments. The construction of this Waste Water Treatment plant brought environmental, social and economic benefits and improved Huihe River water quality. The needed infrastructure was provided by Shenyang Environmental Protection Group. This plant provided a platform for growth of the environmental protection industry in Shenyang, instigating reform of large state-owned enterprises and adjusting the industrial structure. It played a demonstrational role for both wastewater treatment plants in Lingkong and Yuliangpu.

### CLEANER PRODUCTION

As an industrial base, Shenyang followed the route of “high input and high consumption, low output and heavy pollution” leading to an unreasonable product structure maintained by dirty and backward processes creating severe industrial discharge. Besides generating large amounts of pollution, it has also restricted economic development. Cleaner production has been implemented in many countries as an effective measure for harmonious development incorporating both environment and economy, as well as for industrial pollution control – a key factor of sustainable development. In 1996, six enterprises in Shenyang - machinery, chemical, pharmaceutical and light industry - piloted cleaner production techniques. From this Sustainable Shenyang Project, representatives unanimously agreed that, “industrial enterprises must further launch cleaner production activities and implement water and energy saving techniques to lower the pollutant discharge to meet stipulated standards within limited time.” In 1998, after addressing the actual conditions of enterprises, a cleaner production goal aimed to audit 100 product types – reducing 10,000 tons raw material loss and pollutants, and creating an economic benefit of CNY100 million. Twenty enterprises were identified by the municipality as relevant. One enterprise was recognized as a key auditing enterprise by each County Environmental Protection Bureau in order to launch the work with emphasis and interest.

Since execution, prominent environmental and economic benefits have been achieved. At the same time, many enterprises established cleaner production teams to accept relevant training and guidance under the Sustainable Shenyang Project working group on cleaner production and to implement cleaner production consultations within their enterprises.

### REDUCING AIR POLLUTION IN RESIDENTIAL AREAS

Air pollution in residential areas was addressed by the air environment working group. Enterprises discharging large amounts of smoke and dust, particularly during the winter, were investigated for potential violations. Monthly inspections examined pollutant discharges and environmental departments inspected various enterprises. Public participation was critical, as residents sent 1000s of complaint letters targeting areas to be addressed – even excessively smoky barbecue grills were dealt with – resulting in 10 000 barbecue grills being taken away. As enterprises, big and small, improved their air emissions a better living environment was created for residents.

### PREVENTING VEHICLE POLLUTION

Municipal and district environmental protection departments coordinated supervision and management responsibilities to perform road inspection and selective inspection of motor vehicle tail gas exhaust emissions – carrying out tail gas detection on vehicles and requiring renovation for vehicles whose tail



gas discharge exceeded the stipulated standards. 65,000 vehicles were inspected in Shenyang with 81.8% meeting stipulated standards. A total of 9,000 motor vehicles were inspected in districts and counties. In the whole city, 1000 motor vehicles were selectively inspected in vehicle-owned units. Selective inspection of motor vehicle tail gas has laid a foundation for effective prevention of pollution caused by motor vehicle exhaustion. The use of non-leaded gasoline was incorporated to reduce lead pollution discharged from motor vehicles. All petrol stations abided by governmental notices and discontinued the sale of leaded gasoline resulting in a reduced lead discharge by 93.6%.

#### ENVIRONMENTAL POLLUTION REPORTING STATIONS

Sustainable Shenyang Project set up various environmental pollution reporting stations for experiment in early 1999, which was accepted by residents. In mid-1999, Shenhe District also set up environmental protection and disturbance complaint stations in 10 resident areas. Obvious signs were hung on the outside of these facilities with complaint and report telephone numbers provided. Regular visits were conducted by members to the units to address opinions. Later, Shenhe District spread this experience to 16 street offices around the district about developing environmental protection and complaint stations.

#### LAOHUCHONG DOMESTIC WASTE SANITARY LANDFILL PLANT

Shenyang Laohuchong Domestic Sanitary Waste Landfill Plant had a designed capacity of 20.1615 million cubic meters. In its first phase, the landfill could treat 750 tons of domestic waste per day building up to a daily treatment capacity of 1500 tons in its second phase. Shenyang Laohuchong Domestic Sanitary Waste Landfill was a key project for Shenyang and Liaoning Province. To prepare for a national health inspection and to meet the requirements of safe domestic waste disposal, the main portion of the landfill began operation in September 1998. The design of the landfill was undertaken by Shenyang Municipal Engineering Design and Research Institute and the Shenyang Institute of Environmental Health Sciences. In February 1998, Shenyang Administration Office of Environmental Sanitation convened a meeting on the preliminary design of the landfill, discussing design requirement. In March, a design plan review meeting was held to determine a construction plan. A preliminary design was then approved by the Shenyang Municipal Construction Commission and Shenyang Municipal Urban Construction Bureau approved the Preliminary Design respectively, and the process commenced.

#### HUNNAN WASTE TRANSFER STATION

After two months of negotiation, the Shenyang Administration Office of Environmental Sanitation reached a common understanding with Jiaochang Village in Dongling District and signed an agreement in March 1998. According to the agreement, by the end of May 1998 Shenyang Administration Office of Environmental Sanitation would pay a land compensation fee of CNY0.7 million. In March, Shenyang Institute of Environmental Health Sciences finished a feasibility study and submitted it to Shenyang Municipal Planning and Shenyang Urban and Rural Construction Commission for approval. In April, Shenyang Municipal Planning Design and Research Institute completed the planning map and submitted it to Shenyang Municipal Planning for approval which granted approval regarding the feasibility study, which was distributed to Shenyang Municipal Construction Commission, and other departments. Based on the approval, in late April, Shenyang Municipal Planning Design and Research Institute and Shenyang Institute of Environmental Health Sciences undertook a preliminary design of the transfer station.



## CONSTRUCTION OF 100 PUBLIC TOILETS

According to requirements in the 1997 municipal government work report requested by the Mayor, and by the push to achieve urban sustainable development in the Shenyang Declaration, the municipal government arranged to build 100 public toilets. An implementation plan was adopted; tasks determined as well as responsibilities of concerned departments determined. In February 1997, the Office Director of the toilet-building leading group held the first meeting resulting in heated discussions – regarding responsibilities, toilet location, types and size, schedule, design of water-flush toilet and building competition plan, etc. Agreement was reached and arrangements were made for the toilet building. As of September 1999, 100 toilets were completed and by mid-September another meeting was held in the Administration Office of Environmental Sanitation to summarize the process and main challenges.

## ZHAOJIAGOU DOMESTIC WASTE INTEGRATED DISPOSAL PLANT

Zhaojiagou Domestic Waste Integrated Disposal Plant Project commenced in 1995, pre-construction was complete in 1996, and investment and initial constructions were undertaken in 1997 and built up in the same year. In 1998, supporting infrastructure and a medical waste incinerator were constructed. By May 1998, it was in operation and included an industrial waste disposal, domestic waste sanitary landfill treatment, domestic waste composting and a medical waste incinerator. The physical and chemical testing indicators meet relevant national standards.

## URBAN DOMESTIC WASTE REDUCTION

Beyond better waste treatment, it was also deemed imperative to reach sustainable development to help reduce the waste stream as a whole. As such, waste management was viewed as a whole system of environmental sanitation, with a need to understand the whole process and the links between generation, source, transport, sorting, treatment, resource utilization, to final disposal – and also the behavior links at all stages. Thus, the working group approached this as a research and as part of the Urban Domestic Waste Reduction Project. The tasks were to investigate the basic characteristics of domestic waste and various measures and rules about domestic waste reduction and relevant laws. By October 1999, most of the work was completed and implemented.

## 4.2 WUHAN

### OILY WASTEWATER TREATMENT

Hanyang District is a developing urban industry, with hundreds of factories. Every year these factories discharge almost 20 million tons of wastewater; 80% of the total urban sewage – 140 000 tons discharged daily - drain into Moshui Lake. For example, the Foreign Trade Automobile Transport Company is situated next to Moshui Lake, and the company's oily wastewater discharges directly into the lake. The lake water is dark and smelly, with a resonating oily film. As this pollution affected the entire community, improvement efforts involved government, factories and the public. This project was taken as a Sustainable Wuhan Project demonstration for the treatment of urban oily wastewater (about 10 tons/day) from automobile maintenance. Overall project investment was CNY100000 and implemented by the Environmental Protection Scientific Technology Development Company of





Hanyang. The project was completed in 2000, with water reaching a quality standard and reducing pollution loads to Moshui Lake, and at the same time raising public awareness about environmental protection.

#### JIQING CATERING AND RECREATIONAL CENTER

The Jiqing Street, a densely populated area, is located in the centre of city and is famous for its numerous roadside-catering stalls. This project implemented centralized treatment of oil smoke pollution. To tackle this problem, various stakeholder groups were involved to coordinate, manage and improve environmental protection via public awareness campaigns and stakeholder involvement. Consequently, the informal catering stalls were re-organized and coordinated under one roof – the Jiqing Catering and Recreational Center. This center, with a business area of 4800 square meters, was able to centralize treatment of oil smoke within the building. It was completed in 2000 at a total cost of CNY16 million. It was implemented by Chenguang Environmental Protection Institute. Upon completion, roadside catering stalls were banned within 100 meters of the recreation center, in order to try to influence catering businesses to establish themselves within the center to incorporate centralized air pollution mitigation measures.

#### DAISHAN ORGANIC COMPOSTING

In 2003, a new comprehensive treatment and utilization center for waste management, the Daishan Organic Composting Plant, was constructed in Jiang'an to harmlessly treat waste. Daily treatment capacity was 400 tons and the overall investment was USD600000. Daishan Organic Composting Plant uses a process through which normal domestic waste can be decomposed within 7-10 days, reducing fermentation, and saving land and expenses. Additionally, the waste facility generates profits: it can produce 82 tons of organic fertilizer and 580 kilograms of plastics from 100 tons of waste. Profits of CNY70 can be attained from 1 ton of organic compound fertilizer and CNY1000 from 1 ton plastics. Wuhan can also save coal (for fuel) valued at CNY300 000. Total payback period was three years.

#### WUHAN URBAN TRAFFIC ADMINISTRATION

While some traffic planning had been undertaken in the 1980s, it was minimal and limited to certain parts of the city. In total, there were only 68 intersections with traffic lights prior to Sustainable Wuhan Project implementation. It was agreed that this was an important issue to be tackled in Sustainable Wuhan Project and was coordinated by the Traffic Administration Bureau and Construction Administration Committee. It was agreed that participatory administration and relevant policies were needed to ensure enforcement. Certain zones were selected and piloted. Implementation included the construction of an inner-circle (before 2000) and improving the city road network. Next the highway system was improved and tunnels incorporated to make crossing rivers more convenient – without residents traveling far distances to cross existing bridges. Also, light rail and a subway were incorporated and monitored to ensure consistent timing of these public methods, as well as buses. Finally, to help improve transport logistics, parking lots were constructed, as well as better airport links and transport centers for goods-transport. Traffic signage was improved throughout Wuhan. Traffic lights were incorporated in heavy intersections, and traffic centers set up to support residents. Staff, planners and construction workers were trained on the



new system to ensure its ability to improve Wuhan's traffic situation. This project aimed to reduce traffic in the central city zone and improve administration methods.

### 4.3 GUIYANG

#### SHIFTING FROM FOSSIL FUEL TO GAS AS AN ENERGY SOURCE FOR VEHICLES

Due to the semi-closed mountain basin, Guiyang suffers from large trapped concentrations of air pollution derived mainly from motorized transportation. As fossil fuel is its main source of energy, public transportation accounts annually for almost 100 000 tons of combustion gas discharged into the atmosphere. Based on the Guiyang Ecological Economy City Master Plan, Guiyang local authorities through the Guiyang Public Transportation Co. took the initiative to reduce 80% of CO<sub>2</sub> and 30% of NO<sub>x</sub> emissions by adapting old fossil fuel operated vehicles into natural gas engines. The latter not only reduced the cost of energy consumption but also improved significantly the air quality in the city.

The Guiyang Public Transportation Co., in partnership with several municipal departments and the private sector, set up the agenda for the implementation process with a timeline of five years, starting in 2006 with 300 buses as a testing mechanism. During this process, expert groups for technical consultation, the construction of facilities for liquid gas production and distribution as well as policy adaptation measures and guidance were also considered. By 2010, Guiyang City's public transportation system is expected to be operated mostly by liquid gas vehicles - reducing the enormous amount of exhaust gas discharged into the atmosphere.

Up to now, a standardized liquid gas operation for the public transportation system has benefited Guiyang City in many ways: (1) environmentally, through the significant reduction of combustion gases emissions into the atmosphere (2) economically, through the introduction of technological and cleaner innovations into the automobile industry that will eventually attract more external investment and the reduction of energy expenditures and (3) socially, through the accomplishment of an important component of the city's Master Plan that would lead Guiyang into a more sustainable and harmonious development.

#### BIOGAS CAPTURE AND MANAGEMENT BY THE GUIYANG SANLIAN DAIRY CO. LTD

After intensive efforts by local authorities to promote cow-breeding to satisfy Guiyang's nutritious needs, the surrounding environment was in danger due to the solid waste from farms. The daily discharge of 15 tons of solid manure as well as 35 tons of liquid manure and fodder has contributed to air and water pollution.

With the full support of the National Ministry of Agriculture and its local representations, as well as technical-expert working groups, the Biogas Capture and Management project led by the Guiyang Sanlian Dairy Co. sought to produce organic fertilizer and to capture the biogas resulted from the solid and liquid manure decomposition. With a capacity of 35 tons of daily manure, the annual output of biogas was around 86,000 m<sup>3</sup> and 1 100 tons of fine organic fertilizer. The total cost for the demonstration project development and implementation was CNY4.55 million which suggested a reduction of 12 600 m<sup>3</sup> of discharged waste water and methane emissions and an additional net income of CNY800 for local farmers. Hence the social and environmental benefits obtained from



this project contributed largely to the achievement of an ecological economy in Guiyang.

#### 4.4 HAILIN

##### CITY WASTEWATER TREATMENT PLANT

Considering that Douyin River is a natural drainage and rainwater carrier, one of Hailin's demonstration projects includes the effective waste water management with the construction of sewage treatment plants and 35.5 km of pipelines. This project is planned to be completed in two phases: the first phase comprises the actual building of sewage treatment plants with a total processing capacity of 20 000 m<sup>3</sup>/ day of waste water; the second phase of the project incorporates the upscale processing capacity of 40 000 m<sup>3</sup>/ day. The total cost estimated for the project execution is CNY130 million.



Hailin Waste Water Plant ©SHP

To meet the deadlines and completion phases of the project's first phase, institutional and managerial arrangements took place within the leading agencies, such as the City Development and Reform Bureau, the Water Bureau and the Environmental Protection Bureau. During the whole process, the organizational leadership was strengthened, specific responsibilities were assigned, policy measures were enhanced, activities were effectively monitored and the state financing funds were channeled and increased.

##### PLANTING WILLOWS AND FORESTRY

The project of willow-planting along Hailang River in 2007 comprised a preparatory stage to set up institutional arrangements within municipal departments: an implementation stage to actually obtain the seedlings and carry out the tree-planting and an inspection stage to monitor the correct planting and to complete a comprehensive evaluation and documentation process.

During the Sustainable Cities Programme demonstration project implementation, participants realized that the sense of responsibility for ecological construction and environmental protection needed to be strengthened, considering the valley reconstruction and the river regulation as top-priority environmental issues. Additionally, the practice of a comprehensive management and an inter-departmental cooperation proved to be an effective and pragmatic way of operation. The technical and scientific foundation made a considered approach to environmental issues and the meeting deadlines brought the project to a successful completion.



## 4.5 PANZHIHUA

### AIR POLLUTION TREATMENT

On October 2006, according to the consensus reached at the on City Consultation Conference of Panzhihua Pilot Project of UN-HABITAT Sustainable Cities Programme, aimed at Panzhihua's priority environmental issue - air pollution - the Sustainable Cities Programme demonstration projects were formally implemented. The projects implementation included Panzhihua's Sustainable Cities Programme Project Team, Panzhihua's Sustainable Cities Programme Project Technical Supporting Group, relevant stakeholders (individuals and departments) of demonstration projects, and Panzhihua's Air Pollution workgroup, which was in charge of overall collaboration and organization work of demonstration projects.

Panzhihua Sustainable Cities Programme demonstration projects included three fields: awareness improvement, pollution treatment and replacement of clean energy - respectively implemented by Workgroup of Social Promotion, Workgroup of Industrial Pollutants Emission Control and Workgroup of Clean Energy Promotion. The implementation of Panzhihua Sustainable Cities Programme demonstration projects were based on the principle of extensive participation and collaboration, which played a positive role in establishing a trans-departmental cooperation mechanism, improving air quality in Panzhihua and promoting its sustainable development. Panzhihua Sustainable Cities Programme demonstration projects are well implemented and basically reach project design.



## CHAPTER 5: THE NATIONAL CAPACITY- DEVELOPMENT SUPPORT STRATEGY

### 5.1 DISSEMINATING THE PROCESS AMONGST CITIES

Experts from Peking University were appointed to conduct training workshops for senior municipal officers from the selected Sustainable Cities Programme pilot cities. The aim of the workshops was to introduce detailed information about the Sustainable Cities Programme/Environmental Planning and Management process to strengthen capacity in municipalities. During the first phase, special emphasis was given to multi-department cooperation and coordination, as well as to the Sustainable Cities Programme/Environmental Planning and Management process. Secondly, workshops were focused on enhancing technical and managerial skills regarding the use of Environmental Management and Information System, how to compile the Environmental Profile, how to hold a city consultation and how to implement the Sustainable Cities Programme process. Finally, the third stage comprised the overall conclusions of Sustainable Cities Programme as well as special Sustainable Cities Programme training courses that contained specific features about each pilot city.

### 5.2 EPM TRAINING STRATEGY IMPLEMENTATION

Through case analyses, team discussions, team reports and lectures based on the Sustainable Cities Programme serial books, the Sustainable Cities Programme/Environmental Planning and Management Training Strategy was carried out by DISC, UN-Habitat and ACCA21 representatives. In July 2005, the complete Sustainable Cities Programme methodology- Environmental Profile, City Consultation, Working Group, Strategy and Action Plan, and Institutionalization- was introduced in the form of workshops, where officials from Shenyang and Wuhan also shared their experiences and lessons learned with Guiyang, Hailin and Panzhihua city members. During the group discussions, participants focused on their environmental issues and discussed the Draft of each environmental profile with experts. Along with that, the Environmental Management and Information System workshop was held with the presence of more that 100 officers from several city departments and local stakeholders from each pilot city. The training sessions aimed to enhance technical and information management skills regarding urban environmental issues.



In the case of Panzhihua, there was a complete understanding of Sustainable Cities Programme methodology; a good organization and cross-sectional cooperation was strengthened and that made the city more aware and knowledgeable about its environmental status. Similarly, Hailin city promptly adopted Sustainable Cities Programme methodology; its reduced size made a more feasible understanding and further implementation. On the contrary, Guiyang did not allocate full resources and time to properly incorporate the Sustainable Cities Programme methodology into the city dynamic.

### 5.3 IMPROVING INFORMATION AND EXPERTISE IN REPLICATION CITIES

- Synthesis of common city issues from environmental profiles and city consultations, and dissemination on national-local websites and newsletters

As emerging economies, cities in China have the common conflict between high-speed economic development and rigorous environment protection. The environmental profile of three pilot cities showed that the poor management of environment issues and weak cooperation of multi-sectors are the core defects. The city consultation in all of these three cities made a great achievement in building cooperation mechanisms. Their experiences and lessons learned were constantly exchanged in training courses and disseminated on the ACCA21 website as well as local newsletters on sustainable development.

- Development of a national guide book to implement Sustainable Cities Programme/Environmental Planning and Management in China.

The development of the national guide book for Sustainable Cities Programme/Environmental Planning and Management implementation was based on practical experiences. The Sustainable Cities Programme phase I in Shenyang and Wuhan contributed extensive examples and lessons learned at local and national levels. The Chinese context was taken into consideration with the development of different strategies regarding supporting platform, urban dynamics and economic growth and teambuilding.

- How city-to-city cooperation was promoted and how exchange workshops strengthened dissemination of lessons learned.

The city-to-city cooperation strategy included the sharing of information and lessons learnt from the Sustainable Cities Programme cities phase I (Shenyang and Wuhan) to Sustainable Cities Programme cities Phase II (Guiyang, Panzhihua and Hailin) during the city consultations and ad-hoc field trips, as well as training sessions held in Beijing.

### 5.4 INSTITUTIONALIZING THE EPM PROCESS

Institutionalizing the Environmental Planning and Management process means to change the legislative and regulatory frameworks that recognize sustainable development as a priority issue, and to disseminate the strategies used at the national level for potential replication.

It is not easy to adjust an institution, because it involves not just administrative aspects but also political factors that have to be taken into consideration. The Sustainable Cities Programme institutionalization is more feasible to achieve at the local level, like in Hailin, where a specific Sustainable Cities Programme group has been established within the government structure.



## CHAPTER 6: LESSONS LEARNED

### POLITICAL SUPPORT IS CRUCIAL FOR A SUCCESSFUL SUSTAINABLE CITIES PROGRAMME IN CHINA

During the selection process for pilot cities, the level of political support was an important aspect to consider. Each selected pilot city was committed to a formal agreement with ACCA21 including specific Terms of Reference to properly ensure accountability and establish clear responsibilities during the Sustainable Cities Programme process. One of the successes in Hailin was the strong commitment of one of the highest political figures in the city, ensuring a clear and feasible Sustainable Cities Programme implementation process. On the contrary, Panzhihua encountered more operational difficulties since the Sustainable Cities Programme team had to directly mobilize and persuade the community to get their approval and support during the implementation process. One objective of the Sustainable Cities Programme was to improve environmental planning and management at the municipal government level. High-level representation in city consultations and cross-sectoral working groups provided an excellent enabling environment – crucial for deepening, broadening and institutionalizing the participatory process, and integrating working group proposals in the city budget system.

### THE CITY CONSULTATION PROGRAMME SHOULD BE DESIGNED DELIBERATELY

Whereas Panzhihua's city consultation was a success, in the case of Guiyang it was difficult to mobilize senior officials and private sector people at the same time because it was the last consultation in the process. The differences in expertise and educational background of each pilot city made a big difference in the output of each city consultation, as well as the city's relevance in terms of economic growth.

### PAY ATTENTION TO THE PROJECT STRUCTURE

The municipal government provided sufficient human resources, and set up a Leading Group and project office. The leading group guaranteed strong political support, and the project office acted as a bridge linking international organizations, central government and the executing agency for developing plans and guidelines. The project office was also in charge of involving all local stakeholder trainings regarding Sustainable Cities Programme/Environmental Planning and Management, preparing and coordinating project activities, and providing technical support to working groups to formulate strategies, action plans, and investment and technology project profiles. The Project Office was also responsible for introducing the Sustainable Shenyang Project to the outside world and working together with other agencies to replicate a similar experience.

### SUSTAINABLE CITIES PROGRAMME IS A USEFUL TOOL FOR IMPROVING PUBLIC PARTICIPATION

All along the implementation process, it was acknowledged that the Chinese need to learn how to use their rights endowed by the Sustainable Cities Programme. The different understandings of the 'inclusive participatory



approach' provoked some difficulties within the operation of Hailin's working groups, whereas Panzhihua and Guiyang experiences were successful using different methods to encourage active participation among all stakeholders.

Sustainable Cities Programme China successfully mobilized the participation of the private sector and ordinary residents, involving them in working groups and other activities. Public media increased public awareness and affected citizen behavior. For example, in Shenyang, many voluntary environmental organizations were established, and over 10 000 volunteers became involved in promoting environmental protection, collecting public comments, and participating in activities to clean/beautify the environment.

#### DOCUMENTATION SHOULD BE EMPHASIZED AS A PARTICULAR SUSTAINABLE CITIES PROGRAMME METHODOLOGY FOR REPLICATION AND UP-SCALING THE PROCESS

The Chinese understanding of documentation is primarily focused on results rather than the whole process. Hence, the process is incomplete and prevents outsiders from knowing what was learned along the way. To solve this problem, we extracted the documentation process as a separate section to emphasize its functions. However, we strongly recommend including social scientists in the Technical Support Units both at national and local level, to prepare survey instruments during the implementation, and there is also a need to consider a special budget line towards this end since it is a time-consuming job requiring the expertise of a specialized person.

#### EXPERTS IN SOCIOLOGY AND MASS MEDIA ARE RECOMMENDED FOR BETTER ASSESSMENT AND DISSEMINATION OF SUSTAINABLE CITIES PROGRAMME IN CHINA

Although the dissemination of information in pilot cities is on a large scale, a particular and constant communication strategy throughout the process with its corresponding assessment is strongly recommended. Experts in sociology and the mass media should be appointed for this assignment.

#### CROSS-SECTORAL COORDINATION

Involving major stakeholders from different sectors to identify and prioritize environmental issues regarding urban development was crucial. Based on consultations, the project converted priority issues into agreed strategies, implementation plans and demonstration projects.

#### STRONG SUPPORT FROM UN AGENCIES AND OTHER INTERNATIONAL ORGANIZATIONS

UNDP, UNCHS, UNEP-IETC provided financial, administrative and technical support. In the case of Shenyang, based on the success of Sustainable Shenyang Project, UNCHS/UNEP and ICLEI signed a memorandum of understanding with Shenyang Metropolitan Government to further strengthen urban governance, whilst the European Union and Shenyang Metropolitan Government are cooperating on a follow-up urban planning project.





## BETTER INSTITUTIONALIZATION REQUIRES A LONGER PROJECT TIME

Due to the Chinese government's structure and regime, organizational frameworks and substantive changes, such as participatory and bottom-up initiatives, are difficult to achieve. The political dynamic in China makes it challenging to maintain a long-term programme because of the constant changes in its own structure. However, local initiatives sponsored by municipal governments and community support, like Hailin city, proved to be effective in improving the environment and promoting economic development at the same time. To institutionalize Sustainable Cities Programme into the Chinese structure, consolidation is needed by replicating the model in other cities.

### 6.1 LINGERING CHALLENGES

- It is difficult to strengthen and analyze basic research, especially if some stakeholders are unsure of the process or out of touch with the real challenges
- It can be difficult to involve all stakeholder groups. Without wide participation, this can limit the perspective of the decisions taken.
- Applying Sustainable Cities Programme tools and approaches often took longer than anticipated, especially in the beginning when many stakeholders (particularly those in industry) were skeptical as to the benefits
- Following the city consultation, confusion often lingered among stakeholders and not enough attention was given to building project awareness or related media sources as to the benefits of the project
- Funding and technology challenges often made it difficult to implement projects or action plans
- There was often a lack of understanding at the project level, especially about localized tools, and limited supervision to ensure effective implementation. Involving all stakeholders was often difficult at the lowest levels.



## CHAPTER 7: CONCLUSION – THE SUSTAINABILITY OF SCP IN CHINA

During Sustainable Cities Programme implementation, strategies and detailed action plans for sustainable development were formulated to improve coordination of social, economic, environmental and cultural development. Broad-based participation increased awareness, understanding and (gradually) generated a sense of stakeholder ownership in proposals – recognized as a central requirement in decision-making.

*Financial:* In accordance with strategies and action plans, the Sustainable Cities Programme partners invested in project implementation and incorporated budgets into the fiscal plan. Funds were mobilized via different sectors. For example, increased water discharge and treatment fees were levied to cover the operation costs of two wastewater plants, and different prices for water supply were charged to different consumers. Preferential policies were set up to encourage the use of energy-efficient building materials.

*Social and economic:* To incorporate diversity of perspectives, women, the disabled, the elderly and students were involved in project activities. Project areas responded to interests at different levels, especially lower levels, through the working group process. Learning from international experiences, cities in the Sustainable Cities Programme often set up a hotline for public comments about government work and conducted surveys to review municipal government actions, which highlighted social and economic equality, especially at lower levels.

*Cultural:* While utilizing and absorbing innovative international concepts and experiences, the Sustainable Cities Programme cities in China began to recognize their own value. Environmental values, consumption concepts, equality in participation and preservation awareness improved.

*Environmental:* Sustainable Cities Programme attracted more and more interest and support, and put sustainable development as a long-term goal. In Shenyang, for example, the municipal government integrated sustainability into its Annual Governmental Report – as related goals in 2000 included the construction of two additional wastewater treatment plants and an incineration plant for domestic solid waste. It included finishing the landfill projects and transition stations, and comprehensively controlling air pollution so all industrial polluters met state discharge standards, to ensure that air and surface water quality meet state standards.

*Capacity building:* Sustainable Cities Programme has brought many benefits to the selected Chinese cities and further beyond. The demonstration cities proved fundamental in identifying the possibilities of development and environment focused thinking in cities. Via capacity-building, public participation and stakeholder involvement, the selected Sustainable Cities Programme cities in China have been able to see noticeable benefits to the environment, economy and social development.

Based on Sustainable Cities Programme's implementation and relevant capacity building efforts, the China Sustainable Cities Programme network has been established including 5 Sustainable Cities Programme cities and 5-6 Sustainable Cities Programme China anchor institutes. Furthermore, by taking advantage



of the China National Sustainable Communities, which include about 150 cities and counties, the network has been strengthened nationally. At the same time, the initiative of building up an Asia-Pacific Regional Training Centre for Urban Sustainable Development has been designed and pushed forward by ACCA21 and UNHABITAT's Regional Office for Asia and the Pacific to improve Asian-Pacific regional capacity building.



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