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COVERING GUANGXI, YUNNAN, GUIZHOU AND

SICHUAN

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Executive Summary

1. Developing Environmentally Friendly Energy Resources in Accordance with Local Conditions

1.1 In recent years, energy security has become one of China's major strategic priorities, and the 11th National Five-Year Plan has accordingly demanded the speedy development of green energy resources.

1.2 Guangxi planned to construct 200,000 methane gas tanks in 2007. The numbers of newly-built methane gas tanks in Guangxi's rural areas has increased since 2001, and now account for a third of China's total, whilst total tank construction and the percentage of families subscribing to these tanks places Guangxi among the top nationwide. A "husbandry—methane—planting" eco-agricultural model has thus taken shape. It has spread the following benefits to 12.88 million rural families: the provision of high-quality methane fuel, a reduction in tree logging, a forest protection zone covering 490,000 hectares and the production of 80 million tons of organic fertiliser. In addition, it has brought added economic benefits worth RMB 3.54 billion to Guangxi's rural areas.

1.3 In 2005, Guizhou started co-operating with Germany on the development of barbadosnut bio-diesel, which should meet the Euro IV emission standard. Guizhou has plans to plant more than 10 million acres of Babadosnut over the next 10 to 13 years, and has set up a corresponding bio-diesel industry with an annual production capacity of 2 million tons.

1.4 Eight areas (prefectures and cities) and 61 counties in Guizhou have formulated plans for small hydropower-for-fuel projects designed to protect the environment. According to these plans, 3.6932 million farmers will experience the benefits, with annual power generation standing at 3.135 billion kilowatts. This will save 14.747 million acres of forest.

- 1.5 Hong Kong should make the use of renewable resources a development priority. This means introducing and improving foreign technologies and promoting renewable energy resources such as bio-diesel from an application perspective. Hong Kong could also negotiate with the Mainland (like Guangxi has done) to introduce bio-diesel and related equipment, such as gasoline-bio-diesel bi-fuel vehicles.

2. Trends and Updates on the Four Southwestern Provinces/Region

2.1 Sichuan Province—Sichuan Launches “Ten Action Plans to Benefit the People”

- 2.1.1 The Sichuan Provincial Government launched the “Ten Action Plans to Benefit the People” in January 2007 as an important component to “promoting the building of a harmonious society”. These plans, targeting mainly the needs of rural areas, were promoted by Du Qinglin, the newly appointed party secretary of the Sichuan Provincial CPC Committee. Governments at all levels in Sichuan have already incorporated these action plans into their general work plans.

- 2.1.2 The concept of “Ten Action Plans to Benefit the People” is in line with the thinking articulated in Premier Wen Jiabao’s 2007 Government Work Report. It is also conducive to local development, placing emphasis on the “coordination”, “balance” and “harmony” of society as well as on improving livelihoods.

2.2 Guangxi Zhuang Autonomous Region—Guangxi Pushes Forward the “Clean Urban and Rural Areas Project”

- 2.2.1 In September 2006, Guangxi rolled out the “Clean Urban and Rural Areas Project” aimed at improving environmental conditions and sanitation across the region. The Guangxi Provincial Government has introduced a host of policies and linked the promotion of officials with their performance, in respect of the cleaning project, which has also helped foster active co-operation between officials and the public.

2.2.2 This move has received support from the public as well as the Central Government. Improving the environment will not only attract investment, but it will also raise awareness among the public and promote good governance. It is a reflection of how governments on the Mainland are transforming themselves into becoming more service-oriented, which accords with the Central Government's emphasis on public welfare and public service in order to build a "harmonious society".

2.3 Yunnan Province—Yunnan Promoting Forestry Development

2.3.1 Yunnan is planning to expand its forests by 20% each year during the 11th Five-Year Plan period. It has adopted the "industrialisation of ecological construction, and ecologicalisation of industrial development" approach, which focuses on the development of eight industries, including forestry-paper integration, featured commercial forests and ecological forest tourism. This will see the promotion of forestry product processing and the cultivation of emerging industries such as bio-energy.

2.3.2 At present, China is importing timber and resource-oriented products in large quantities, and this has caused strain on global supply and demand. This has influenced the pricing of finished products as well as raw materials. Such a development is not advantageous to Hong Kong's competitive edge, as its strengths lie in the trade of manufactured products. Hong Kong's enterprises should make adjustments to their products' portfolio, and place more emphasis on the intensive processing of resource-oriented agricultural products.

2.3.3 Hong Kong's enterprises could use their rich financial resources to gain access to Yunnan's forestry industry, and enter the industrial value chain where commercialisation and economies of scale are applicable, such as in natural oil and biomass fuels.

2.3.4 By offering help with tree planting, Hong Kong could become involved in Clean Development Mechanism (CDM) projects and develop a CDM trading platform in Hong Kong.

2.3.5 Hong Kong people in the tourism trade could take part in the management of Yunnan's ecological forest tourism.

2.4 Guizhou Province—Guizhou Implements Controls on Pollutant Discharges and the Pollutant Discharge Licence System

2.4.1 Guizhou has implemented comprehensive controls against the discharge of pollutants and introduced a pollutant discharge licence system. This move was made against the backdrop of China's deteriorating environmental conditions and the strengthening of Central Government control on the total amount of pollutant discharge allowed. The policy mainly provides for the following: local governments are to be assigned targets to control the total amount of pollutants released under their jurisdiction; project approval can be vetoed on environmental grounds; major pollution sources are to be monitored; the pollutant discharge licence system will be fully implemented; and the pollutant discharge fee collection system will be strengthened.

2.4.2 By collecting pollutant discharge fees, the Central Government aims to force enterprises on the Mainland to take responsibility for environmental costs, and push enterprises to upgrade their industries. These measures will be long lasting and comprehensive.

2.4.3 By making good use of the business opportunities arising from environmental protection, Hong Kong enterprises, universities and scientific and technological agencies in the public sector could participate in schemes such as the "Harbour Area Treatment Scheme", so as to master core environmental protection technologies and promote the scaling-up and commercialisation of technological development.

1. Developing Environmentally Friendly Energy Resources in Accordance with Local Conditions

The Chinese economy is growing rapidly and energy resources have been depleted substantially. Recently, China has come to rely more heavily on imported petroleum, and energy security has become one of China's major strategic priorities. Furthermore, the world economy is developing rapidly and countries are engaged in fierce competition for oil resources. The possibility of an imminent energy crisis is undeniable. Therefore, the development of renewable and environmentally friendly energy as a key aspect of addressing the energy crisis has become a major focus for the global community. The bio-energy industry has developed quickly throughout the world. In particular, international food prices have risen because the United States is keenly developing corn bio-diesel. China is not a bystander in this regard. In the 11th National Five-Year Plan, China advocated central themes such as a circular economy, environmental protection, sustainable development and the speedy development of green energy resources.

1.1 Guangxi Speeds Up Construction of Methane Gas Tanks

As energy supply tightens, the development of renewable energies such as methane gas, solar energy, tidal energy and wind energy will receive more attention. Methane gas, a traditional form of renewable energy, may revive its popularity by reason of a change in production methods, the widening application area and technological maturity.

1.1.1 Funding Provided for 200,000 Newly Built Methane Gas Tanks

Guangxi will build 200,000 new methane gas tanks in 2007. A capital sum of RMB 110 million will be arranged to build 150,000 methane gas tanks in nonpoverty villages, 50,000 methane gas tanks in poverty villages and the development of 80,000 eco-homes. This project has been included in the 'Ten Major Projects for the People in 2007'. In fact this is the eighth consecutive year

that Guangxi has included the methane gas project in its Major Projects for the People.¹

In order to speed up this project and improve the efficient use of capital, the Treasury of Guangxi has designed a new financial mechanism. This will see government departments coordinate the financial subsidy for 150,000 methane gas tanks in non-poverty villages and 50,000 methane gas tanks in poverty villages, and ensure financial support for Projects for the People. On 9 March 2007, the Treasury, Agricultural Department and Poverty Aid Office of Guangxi passed on the coordinated methane gas tanks projects to the relevant cities and counties. It has been confirmed that the financial capital for the projects has reached its proper destination, according to source and category. In the non-poverty villages, each new methane gas tank received a subsidy of RMB 400 which was RMB 100 more than in 2006 and the required funds have come from the Agricultural Department's budget. In the poverty villages, each new methane gas tank received a total subsidy of RMB 1,000² and the required funds were arranged by the poverty area infrastructural building fund.

In addition, in 2007, five self-governing counties in the Dashi (大石) hilly areas of Guangxi, namely Longan (隆安), Mashan (馬山), Tiandeng (天等), Dahua (大化) and Douon (都安) implemented the "big infrastructure building strategy" (基礎設施建設大會戰) and each methane gas tank received a subsidy of RMB 1,400. The required funds of RMB 400 per tank came from the Agricultural Department of Guangxi's budget, and RMB 1,000 per tank came from the "fiscal subsidy for big infrastructural strategy" (大會戰財政專項補助資金). The subsidies for methane gas tanks, in principle, reach individual households in the form of building materials, gas equipment and labour costs. Before the release and renewal of these subsidies, a public notice will be released with the subsidy amount and a list of subsidised householder names, in order to improve transparency and public scrutiny.³

¹ Zhou Yin: "Guangxi will arrange 110 million RMB to build 200,000 methane gas tanks (周映: "廣西今年安排 1.1 億元在非貧困村建 20 萬沼氣池")", People's Net, 17 February 2007, <http://env.people.com.cn/BIG5/5407646.html>

² For example, in 2007, RMB 1,600 was needed to build a domestic methane gas tank in Gongcheng (恭城縣), including the pipe, fireplace and gas tank. In 2006, the cost was RMB 1,300. The price increases in 2007 were caused by the improvement of the local economy and labour costs. Data was taken from a local study.

³ Wu Mei, Lou Qinjian: "Speeding up the pace of eco-development with 200,000 methane gas tanks (吳梅、盧清建: "加快生態建設步伐廣西年內將建 20 萬座沼氣池")", Xinhua Net Guangxi Channel, 23 March 2007, http://big5.xinhuanet.com/gate/big5/www.gx.xinhuanet.com/newscenter/2007-03/23/content_9587529.htm.

Guangxi is rich in forest resources. However, for a long time, people have been using wood as fuel resulting in the loss of many green forests. Nevertheless, people in Gongcheng, Quilin (桂林市恭城縣) have woken up to this fact. Ten generations of county officials and county governments have pioneered the methane gas tanks in order to protect the Green Mountains. At present, 85% of households have access to methane gas, constituting a “husbandry-methane-planting” eco-agricultural model. Each agricultural household has a methane gas tank which uses urine and livestock waste to produce methane gas sufficient for cooking and lighting. The remains produce an effective fertiliser, which can be used to improve the quality of fruit trees. Gongcheng is a mountainous area. The production of methane gas has not only improved the production of fruit trees, it is also preserving the forest. The fruit trees enrich the livelihoods of local people and are turning a poor remote county into a model county. Recently, there has been a concentration of livestock and methane gas tanks in villages to achieve economies of scale by saving labour and improving efficiency. Methane gas tank technology has developed from the first generation in the 1980s to the fourth generation, and water and gas pressure adaptations have been made to reduce the amount of labour required to handle the remains.⁴ The Guangxi Communist Party of China (CPC) officials and the government are promoting methane gas tanks in Gongcheng as an “eco-agricultural” experience, and view the building of methane gas tanks as a key infrastructure project for villages.⁵ This project will solve the rural energy supply problem and preserve the green forest.

1.1.2 Methane Gas Proliferation Rate Above the National Average

During the 11th National Five-Year Plan, Guangxi followed the principle of “Ecology, Industry, Circulation, Development and Enrichment”, built on the basis of methane, to modify kitchens, sewage disposal, livestock management (pigs and cows), water, roads and homes. Such adjustments have improved the efficiency of household units, rendered agricultural production harmless and cleaned up the living environment. It constitutes a virtuous ecological cycle centred on the agricultural household, and development of an ecological home. In 2006, there were 218,000 methane gas tanks. The project costs and government financing amounted to RMB 310 million, representing the

⁴ According to a local study conducted in April 2007.

⁵ Luo Changoi: “2,450,000 methane gas tanks in Guangxi installed to protect the green forest (羅昌愛：‘廣西 245 萬座沼氣池呵護綠色山川’)”, People’s Net, 20 May 2005, <http://theory.people.com.cn/BIG5/40557/46473/46573/3403615.html>.

largest investment so far.⁶ According to statistics, Guangxi has reported the highest household proliferation of new build methane gas tanks in China since 2001, and the number of new buildings accounted for almost a third of the national figure. By late 2006, there were 2,937,100 methane gas tanks and more than 700,000 ecological households. The methane gas proliferation rate came to a whopping 36.21%, which was far higher than the national average of 7%.⁷

According to the Energy Office of Guangxi, there are about 3 million methane gas tanks, benefiting 12.88 million rural families and providing 1.172 billion metric metres of quality methane gas fuel. The methane gas energy is equivalent to 836,800 tons of coal, saves 5.86 million tons of wood, protects 488,300 hectare of forest, produces 80.42 million tons of highly effective organic fertiliser and improves the efficiency of agricultural industry. It also increases farmers' income and savings by about RMB 3.54 billion. In addition, the agricultural use of methane gas has brought about changes in kitchens, livestock management and sanitation, and saves a vast amount of labour from jobs such as wood logging⁸ and grass cutting.

1.1.3 Future Arrangements

The building of methane gas tanks has effectively solved the energy problem in Guangxi's villages, promoted the structural change of the agricultural industry and changed the pre-existing way of life in villages. A new industry with ecological, economical and social benefits is being developed gradually. New ecological villages are evolving, such as Gongcheng Hongyan (恭城紅岩), Beiliu Luo Zheng (北流羅政), Wuming Gongbei (武鳴公背) and Pubei Fuduotang (浦北福多堂). The Guangxi CPC officials and Guangxi's government planned to spend a further eight years (2006 to 2013) building 2.4 million methane gas tanks, in order to increase the methane gas proliferation rate to over 70%, and see methane gas used throughout Guangxi.

⁶ See footnote 1.

⁷ See footnote 3.

⁸ Liu Shuiyu: "Methane gas has helped 12 million farmers in Guangxi (劉水玉: "沼氣為廣西 1,200 多萬農戶送去'福氣'")", Xinhua Net Guangxi Channel Channel, 6 February 2007, http://big5.xinhuanet.com/gate/big5/www.gx.xinhuanet.com/newscenter/2007-02/06/content_9242367.htm.

In 2007, several tasks were required to further the construction of methane gas tanks in Guangxi. Firstly, the construction of village energy facilities and their extension to rural areas. Secondly, the construction of middle to large scale methane gas projects which promote the ecological agricultural model of “methane gas – organic fertiliser – high yield plantation” (i.e., the Gongcheng model). This emphasises ecological campus methane projects and husbandry which concentrate on methane gas construction. Thirdly, improvements to the construction of methane gas networks in villages, plans for village level methane gas service stations, and the speeding up of the service network. Fourthly, improvements to the technological advancement and development of new fermentation technology in Wuming (武鳴) and Guanyang (灌陽), in the six county pilot projects. Finally, the question of what raw materials farmers who do not own pigs should use must be solved.

However, in Guangxi, the emphasis has gradually shifted from quantity to quality and towards a build-use-manage service mechanism for methane gas tanks. These include “professional construction, property management, social services and market operating systems”. The construction of methane gas tanks in Guangxi requires work to be standardised and professionally carried out, so that a comprehensive village energy system can be established. This will ensure the smooth operation of the gas tanks after construction, together with a three stage technological service network in the counties, towns and villages. The methane gas service network has been set up now in 12 counties and 240 villages, with excellent construction standards and post construction services, to the satisfaction of the farmers.⁹

1.2 **Guizhou Develops Barbadosnut Bio-diesel**

Barbadosnut can be turned into bio-diesel and used to fuel vehicles, thus reducing reliance on petroleum and diversifying the structure of energy resources. It can grow in infertile and rocky land without occupying farmlands, and is a low cost plant which does not need to be resown every year. Guizhou is a mountainous area, but there are between 4 million and 6 million acres of land which would be suitable for growing barbadosnut.¹⁰

⁹ See footnote 1.

¹⁰ “Guizhou’s Barbadosnut bio-diesel research makes a major breakthrough (王麗：“貴州小油桐生物柴油研究取得重大突破”)” Xinhua Net Guangxi Channel Channel, 19 June 2006, http://www.gz.xinhuanet.com/xwpd/2006-06/19/content_7291582.htm.

Barbadosnut can survive in dry and poor environments. At present, barbadosnut is spread over 20,000 acres of land across 12 counties. The barbadosnut seed contains around 30% and 38% oil and its kernels between 50% and 60%. The remains are rich in protein and can be turned into food for poultry, fertiliser, bio-agricultural medicine and bio-medicine. Bio-diesel is a chemical compound and glycerine is a further by-product. In the USA, beans are the major raw material used for bio-diesel and annual production has reached 456,000 tons. Germany is the largest consumer of bio-diesel, where it is mainly produced from rapeseeds. In 2002, Germany produced 1.1 million tons, which was almost half of the global consumption of 2.1 million tons. It is estimated that by 2010, production will reach 3.4 million tons. At present, the retail price of bio-diesel is 30 Euro cents less than ordinary diesel. Italy, France, Japan, Brazil and India are paying a lot of attention to the bio-industry as well.¹¹

1.2.1 Sino-German Co-operation Attracts Attention

In order to speed up the bio-industry in 2005, Guizhou started working with German bio-diesel projects and these have now reached an advanced technical level. A “Memorandum on Sino-German Renewable Energy Co-operation and Guizhou’s Barbadosnut Co-operation Project” was signed with eight German corporations, including Siemens and Bosch. Since this Memorandum was signed, the Guizhou Barbadosnut bio-diesel project has attracted attention in China and around the world.¹² In fact, the project has produced a high quality product. In 2005, the Guangdong Petroleum Product Examination Centre, the Beijing Polytechnic University Vehicle Emission Quality Examination Centre and the Chongqing Vehicle Analysis Institute carried out studies on the Guizhou barbadosnut bio-diesel sample, including the energy test and emission test. The results showed that the burning rate and other indicators (in particular, the emission of smoke and particles) outperformed the zero-numbered Chinese diesel. In September and October 2005, four laboratories in Germany, including Daimler Chrysler and Shell, carried out tests on Guizhou’s barbadosnut. Preliminary results showed that, with technical improvements, the bio-diesel produced by Guizhou’s barbadosnut should meet the Euro IV emission standard.¹³

¹¹ Shen Shiwei: “Bio-diesel, is an attractive industry – the development of Barbadosnut in Guizhou, present and future (沈仕衛: “生物柴油: 喀斯特山區的誘人產業——貴州省發展小油桐生態項目的現狀與前膽)”, 11 January 2007, <http://www.bioindustry.cn/info/view/2595>.

¹² “Guizhou’s bio-diesel first exported to Germany (“貴州生物柴油首次出口德國”),” the Chinese Bio-industry Technology Information Net, 14 December 2006, <http://www.bioindustry.cn/info/view/2028>.

¹³ See footnote 11.

Since the launch of Guizhou's Barbadosnut bio-diesel project in 2004, the preliminary stages of the project, including research, planting and processing, have gone smoothly. The Guizhou Development and Reform Commission, and the Guizhou Science and Technology Department have signed a series of co-operation agreements (witnessed by the Chinese Premier and German Chancellor in a special signing ceremony). Approval has been given by the National Development and Reform Commission to Guizhou's barbadosnut standardised plantations and its high technology demonstration project for mass production. Furthermore, the Guizhou Science and Technology Department has included the Guizhou Barbadosnut project in the Sino-German Vehicle Clean Energy Co-operation Demonstration project. The Guizhou Development and Reform Commission has also approved a barbadosnut plantation project and a barbadosnut bio-diesel project, and the Sino-German project has entered a stage of substantive collaboration. Investors from China and around the world have been attracted to the business, and want to share in the project. At present, barbadosnut production in Guizhou occupies 160,000 acres. Moreover in 2007, there will be two bio-diesel projects using barbadosnut seeds as raw material for bio-diesel.¹⁴

1.2.2 Further Industry Development

The western part of China is in a critical stage of speeding up the reform and open door policies, and economic and industrial structures are undergoing continuous adjustment. However, the process cannot be sustained with just the injection of new resources but requires a further stage of refinement and betterment, the adoption of new technologies, and adjustments to economic and industrial structures. Therefore, the promotion of the bio-diesel industry in Guizhou is in line with Central Government policies, as there are four benefits (associated with energy replacement, economic development, environmental protection and the socialist construction of new villages) and four non-competitive features (namely food, land, industrial profits and energy development with the international community). There is much scope for development, and the industrialisation strategy is based upon creativity.¹⁵

¹⁴ "Guizhou's Barbadosnut bio-diesel project has made good progress ("貴州小油桐生物柴油項目取得積極進展")," Guizhou Development and Reform Commission Website, 23 January 2007, http://www.gzdpc.gov.cn/html/ywbd/2007-1/23/10_59_37_508.html.

¹⁵ Zhang Xin et. al: "Barbadosnut industry may develop into a high technology chain (張興、陳竹、萬群、王兵、趙國梁：“小油桐產業：有望形成新興高技術產業鏈”)," 12 March 2007, http://www.gz.xinhuanet.com/vwpd/2007-03/12/content_9481084.htm.

In early 2005, based upon research results from the Guizhou University and Guizhou Agricultural Science Institute, Guizhou launched the barbadonut seed and plantations in two southern prefectures, Qianxinan Prefecture (黔西南州) and Qiannan Prefecture (黔南州). At present, there are 100,000 acres of barbadonuts planted. Furthermore, the “Plan for Guizhou’s Barbadonut Plantation and Industrialisation” has been formulated. If joined with other areas in the province, the plantation area will exceed 10 million acres. Annual production could grow from 100,000 to 200,000 tons of bio-diesel, with 15 production lines, and a production scale of two million tons of bio-diesel although this plan will take 10 to 13 years to complete.¹⁶ So far, there are 200,000 acres planted with barbadonut, with annual production standing at 300 tons of bio-diesel, from which 20 tons of bio-diesel samples have been drawn. All the results indicate that bio-diesel is superior to Chinese zero-numbered diesel.

1.2.3 Present Plans and Suggestions

According to current plans, there are about four to six million acres in Guizhou suitable for the growth of barbadonut, which could produce two million tons of bio-diesel per annum, worth RMB 20 billion. This could lift 1.5 million farmers out of poverty. The industry will help Guizhou to develop many other areas of the economy and society including a new high technology industrial chain. However, the development of bio-energy in China is a vast project, and the barbadonut bio-diesel industry is new. Despite much research, issues at national level have yet to be resolved.

Firstly, the National Development and Reform Commission should strongly support Guizhou in its development of the barbadonut bio-diesel industry. With further coordination and planning, a leading barbadonut bio-diesel industry could be established in Guizhou. This could help relieve poverty, reduce stone desertification, and improve the environment and related industries. In this way the barbadonut bio-diesel industry could become a model for the expedite development of Guizhou. The relevant departments of state could work with the departments of Guizhou to draw up plans to deal with returning farmland to forest, planting mountain forests, stone desertification and the environmental protection of the two rivers, so that policies and financial aid can be used to support the

¹⁶ See footnote 11.

plantation of barbadonut. At the same time, there will be coordination of project funding in support of the large scale planting of barbadonut, its applications and scientific development.

Secondly, the country should standardise bio-diesel technology as soon as possible. Bio-diesel has become popular just recently and many projects have suddenly emerged. Many corporations, both in China and around the world, are claiming that they possess the intellectual property rights to bio-diesel technology. In fact, the level of technology is uncertain and there are low quality, highly polluting bio-diesels on the market, especially in the agricultural market. The relevant departments could coordinate research institutes and companies, such as Petrol China, to formulate and implement an authoritative technical and quality standard for bio-diesel. This may sort out the confusion in the market and support the production of high quality barbadonut bio-diesel.

Thirdly, the country should promote bio-diesel. The relevant state departments could liaise with Petrol China and other public sector departments to advocate the use of bio-diesel. This would involve encouraging and formulating policy, so that corporations and authorities could use bio-diesel, and support its development.¹⁷

The barbadonut bio-diesel projects in Guizhou have made good progress over the past two years. Right now the projects being carried out mainly involve plantation technology developed by the Guizhou University and Guizhou Agricultural Science Institute. In southern Guizhou, Qianxinan Zhou (黔西南州) and Qiannan Zhou (黔南州), there are 100,000 acres planted with barbadonut with a production capacity of 10,000 tons of barbadonut seeds. A technology company in the Qianxinan Prefecture has developed its own bio-diesel technology, and has a processing plant with an annual production capacity of 10,000 tons of bio-diesel, which meets German bio-diesel quality standards. The company is now applying for a patent. Another company in Guizhou is using Guizhou University's research findings on the plantation and development of barbadonut, to build production lines with ancillary facilities for bio-diesel. The production capacity will be about 10,000 tons of barbadonut bio-diesel. The plan for the implementation of the project has been completed and production was due to start in early 2007.

¹⁷ Tian Chun, Li Yue: "Speeding up Guizhou's barbadonut bio-diesel industry (田春、李月：“加快發展貴州小油桐生物柴油產業”),” Chinese Industrial Bio-technology Information Net, 19 March 2007, <http://www.bioindustry.cn/info/view/3916>.

The feasibility study carried out by Guizhou and Germany has now reached the working stage. One ton of barbadosnut oil for technical research has been sent to Germany already for technical research purposes, and the project is using German biological technology and equipment, housed in a model factory with a production capacity of 50,000 to 100,000 bio-diesel. The total investment is worth RMB 150 million and it is estimated that construction work will start in early 2007.

The Guizhou University has carried out further research on barbadosnut seeds, selected better technology and equipment for production, separation and further processing of bio-diesel. The preparation stage has been completed and the relevant technology has passed the tests set by the province. The equipment is sufficient to produce an annual production capacity of 300 tons of bio-diesel, and 20 tons of finished bio-diesel products.¹⁸

The Guizhou Development and Reform Commission has completed the “Plan for Barbadosnut Plantation and Industrialisation”. According to the plan, during the 11th Five-Year Plan and 12th Five-Year Plan period, ten sets of production equipment, capable of producing between 50,000 and 100,000 tons of bio-diesel, will be built. Furthermore, four million acres of high standard and reliable barbadosnut fields will be planted in two stages.¹⁹

1.3 Small Hydropower-for-fuel Project

1.3.1 Overall Significance

The small hydropower-for-fuel project not only provides energy, it is consistent with the interests of farmers, regional development and environmental protection. There are two main implications for Guizhou:

Firstly, it solves farmers’ energy problems, consolidates the results of returning farmland to forest and protects the environment.

¹⁸ See footnote 11.

¹⁹ “Guizhou bio-diesel is first exported to Germany (“貴州生物柴油首次出口德國”)”, Chinese Industrial Bio-technology Information Net, 14 December 2006, <http://www.bioindustry.cn/info/view/2028>.

Guizhou has an area of 176,000 square metres, of which 92.5% are mountainous areas. The total population is 38.37 million, with 32.81 million (i.e., 85.48%) of these living in rural areas. By reason of weak economic foundations and the special geographical environment, the majority of the population are farmers, and Guizhou is an under-developed economy. In most of the poor mountainous areas, more than 60% of the rural population burn wood and grass for energy, whilst another 30% burn coal. Wood logging over an extended period of time has not only caused environmental pollution, it has also destroyed the forests. Land has disappeared, causing soil degradation and stone desertification. Guizhou is environmentally the worst performing province in the western part of China. The eroded land amounts to 41.6% of the total land area and stone desertification amounts to 21% of the total area. Unfortunately, these changes are becoming more frequent and natural disasters are becoming more and more severe. This is having a great impact on the sustainable development of Guizhou ecological preservation and the economy as well as flooding prevention work. The poor ecological environment is also the main cause of poverty in Guizhou.

The Central Government solution is to develop small hydropower-for-fuel projects. These will solve farmers' energy problems, consolidate the results of returning farmland to forest, protect ecology, improve the environment and realise the sustainable development of the economy.²⁰ Early experiments in villages for the elementary stage of using electricity to replace wood burning have proved that the hydropower-for-fuel project has not only solved farmers' energy problems in the long run and improved their production methods, it has also protected and enhanced the ecological environment, and effectively prevented the environment from deteriorating further by dealing with the cause of the problem.

Secondly, the rich hydropower resource is a favourable factor.

China is advocating the use of small hydropower-for-fuel projects because hydropower is a clean renewable energy. It is consistent with sustainable development and environmental protection requirements. At the same time, small

²⁰ “CCP Central and State Council on agricultural works in the villages for 2002”, No. [2002] 2, and “CCP Central and State Council on the good handling of agricultural work in villages (in Chinese),” No. [2002] 3. These documents suggest that the small hydropower for fuel project may help consolidate the results of returning farmland to forest and protecting the natural forest, and is good for energy structure in villages, increasing farmers' incomes, and reducing poverty in remote, ethnic-minority populated areas and former revolutionary areas.

hydropower-for-fuel projects are widespread, providing electricity on the spot without the need for long distance transportation or relocation of people, and it does not cause flooding. Guizhou is rich in hydropower, so it is favourable to the small hydropower-for-fuel project.

Guizhou's hydropower resource is equivalent to 18.75 million kilowatts of energy (all the data has not yet been re-examined), ranking sixth in China. The development potential is up to 16.83 million kilowatts, of which small and medium hydropower resources account for 674,000 kilowatts. At present, only 18.9% of the small and medium hydropower resources in Guizhou have been developed and the development potential is massive. Hydropower resources are widespread across 9 cities and prefectures, and 81 out of 87 counties have small hydropower-for-fuel projects. Water resource units have been built for small hydropower-for-fuel project of 1.04 million kilowatts, generating 4.3 billion kilowatts of electricity.

In Guizhou, there are 73 stone desertification counties. Hydropower resources could be developed to produce 15.2091 megawatts, or 90.36% of current capacity. There are 50 poor counties with about 60% of the hydropower capacity in Guizhou. Therefore, developing cheap and clean hydropower resources may solve the energy needs of the rural population, and be effective in helping them escape from poverty.²¹

1.3.2 The Douyun (都匀) Case

The Hydropower-for-fuel project in Douyun is part of a bigger project to build an ecological village, and improve industry coordination in the village. It is promoting changes in roads, electricity, kitchens and sanitation and also connecting electricity, roads, water, televisions and telephones. The project will make the community more beautiful, green, shiny and clean and spreads the benefits of electrification. There are five villages in the project which have switched to hydropower for cooking and heating, and the price of electricity is

²¹ Dai Qunli: "Hydropower-for-fuel is an effective way to prevent ecological deterioration – a research report about Guizhou's hydropower-for-fuel ecological protection project (戴群莉：“小水電代燃料是從源頭上遏制生態惡化的有效途徑——關於貴州省實施小水電代燃料生態保護工程的調研報告”),” the Guizhou Water Resources Department Website, 3 March 2004, <http://www.gzmwr.gov.cn/OfficeWeb/Reports/Detail.aspx?read=true&id=65>.

only RMB 20 cents per kilowatt. It is estimated that each household could save up to RMB 200 in fuel costs each year.²²

Since July 2005 when the hydropower-for-fuel project was started, the area within the project has seen 13,000 square metres of wood saved from logging and a reduction in coal burning equivalent to 1,500 tons. This has effectively protected 32,000 acres of forest, prevented 3,000 acres from soil erosion, and consolidated 23,000 acres of land. At the same time, 64,000 labour (previously used for wood logging and coal transportation) were released each year. Over 200 workers have changed their jobs, and found new jobs in nearby mining enterprises. The area under the project has increased its income by more than RMB 1 million and the Douyun farmers have received actual benefits from the hydropower-for-fuel project.²³

1.3.3 Policy Background

The Ministry of Water Resources has designated the small hydropower-for-fuel project one of three icon projects, and project experiments started in 2003. On 30 December 2003, launch meetings were held simultaneously in Sichuan, Guangxi, Yunnan, Guizhou and Shanxi. China put the most emphasis on western regions and areas of ecological significance and chose 26 hydropower-for-fuel projects in hydropower-rich areas. The project encompasses five provincial districts and 26 counties which have had success with hydropower-for-fuel projects. This has effectively solved the energy problems of more than 200,000 rural people, consolidated 300,000 acres of returning farmland to forest, protected 1.56 million acres of forest, reduced carbon dioxide emissions by 770,000 tons, released labour forces in the village, mobilised rural infrastructural development, enriched the living environment of the village and inspired farmers to change their ideas. This project has found a way, with government assistance, for private enterprises and farmers to reduce electricity costs, promote ecological protection and improve livelihoods.²⁴

²² “Douyun farmers receive actual benefits from the hydropower-for-fuel project (“都匀農民小水電代燃料喜得實惠”),” Douyun News Net, <http://2005.dys.gov.cn/news/dynews/2005-7/13/200507138539.shtml>.

²³ See footnote 22.

²⁴ Li Qidao: “The history of water and electricity in villages, part VI (李其道：“農村水電史實與改革發展（之六）”),” 4 November 2005, <http://www.china5e.com/dissertation/water/20051104095233/html>.

1.3.4 The Provincial Plan and Pilot Projects

According to the plans of the Ministry of Water Resources, the small hydropower-for-fuel project in Guizhou is to be introduced in eight regions (prefectures and cities) and 61 counties, of which 49 counties are stone desertification counties, 43 counties are poor counties in Guizhou and 23 counties are former revolutionary regions. Hydropower resources in the 61 counties amount to 14.7242 million kilowatts with the potential to be expanded to 13.2223 million kilowatts. The population covered by the projects is around 13.085 million and China plans to develop the small hydropower-for-fuel project over 18 years. In the 10th Five-Year Plan, the small hydropower-for-fuel project was implemented in environmentally damaged but hydropower rich areas.

According to these plans, by 2010, the fuel problems of 923,300 households and 3.6932 million rural people will be solved, with new hydropower machines generating 783,500 kilowatts of energy with an annual capacity of 3.135 billion kilowatts, which will protect 14.747 million acres of forest. The total investment so far stands at RMB 4.021 billion.²⁵

1.4 The Significance for Hong Kong

The examples from Guangxi and Guizhou show the significance of innovation. In poor areas, natural resources are limited, but new ideas can solve local problems. Resources can be utilised when projects are developed on the basis of local conditions. The significance of these new ideas lies in changes to the development and resource utilisation model. In these poor villages, the energy supply structure has been changed accordingly. On the one hand, bio-energy and hydropower are renewable power sources which are environmentally friendly and bring economic benefits. On the other hand, the renewable energy may directly form a new industrial value chain and provide new industry and products. Indirectly, the use of renewable energy can save local labour and produce many important by-products. The combination of these factors can help villages find a solution to their pre-existing difficulties. For example in Gongcheng (恭城), Guangxi is using methane gas to improve food production. According to a recent survey, Gongcheng has switched to fruit production, which has a higher market value, and the fruits are sold in China and overseas. This has resulted in the

²⁵ See footnote 21.

development of a modern fruit production, sales and manufacturing industry. The example of barbadosnuts in Guizhou shows that with sufficient scientific research and investment, the local economy can evolve from small farming operations to an intensive knowledge based scientific industry. Such innovation contributes substantially to improving the local economy and industry.

It would be impossible for Hong Kong's urban economy to adopt the methods used in Guangxi and Guizhou, but renewable energy should be a major development focus. Firstly, for the sake of environmental protection, it relies less heavily on fossil fuels. In particular, the current electricity generation from coal in Hong Kong is not efficient from an environmental or economic point of view. Secondly, based upon a unified electricity network, the international energy development trend is to diversify energy sources and supplies. Hong Kong relies on centralised suppliers, which creates a monopoly for electricity and gas. It hampers technological advancement and efficiency improvements. The continuation of old technology and management systems will inhibit social and economic development. The huge energy demand in Hong Kong could be sustained more widely by advanced forms of renewable energy, such as wind power, solar energy, electricity from waste, and other technology and methods. However, incumbent energy companies may have a vested interest in preventing further development in this area.

2. Trends and Updates on the Four Southwestern Provinces/Region

2.1 Economic Performance of the Four Southwestern Provinces/Region

In January and February 2007, the economies of the four southwestern provinces/region operated smoothly and grew at a fast rate. In terms of industrial production, the added value of Sichuan industries still ranked first among the four provinces/region. This shows that Sichuan has a stronger industry relative to the other three. The industrial growth rates for the four provinces/region all exceeded 20% and the national average, with Guangxi and Yunnan reaching 24.6% and 23.3% respectively.

Sales of industrial products in Sichuan, Guangxi and Yunnan improved compared to the same period last year and rose by 0.5% to 1.6%. Among the four provinces/region, the sales rate in Sichuan was the closest to the national average. The sales rate in Guangxi was the lowest and stood at less than 85%. In recent years, the first quarter sales rate for industrial products in Guangxi have been consistently low, believed to be related to seasonal differences which affected a variety of industries including sugar products. At the end of the first quarter, the sales rate should rebound and improve as it has done in previous years.

Table 2-1: Economic Performances of the Four Southwestern Provinces/Region in January and February 2007

Region	Value-added to Industry		Sales of Industrial Products		Urban Investment	
	Jan-Feb Total (RMB billion)	Year-on-year Growth	Jan-Feb total (%)	Change (% points)	Jan-Feb Total (RMB billion)	Year-on-year Growth
China	-	18.5%	97.0%	0	653.5	23.4%
Guangdong	165.7	16.1%	98.2%	0.3	59.5	8.1%
Sichuan	45.3	22.6%	96.6%	0.8	35.4	31.6%
Guangxi	19.8	24.6%	84.6%	0.5	18.1	47.2%
Yunnan	23.9	23.3%	92.5%	1.6	18.6	19.6%
Guizhou	12.0	22.4%	-	-	8.2	10.2%

Note: Local data is only preliminary and subject to further adjustments. This may differ from information released at a later date by the National Bureau of Statistics.

Sources:

1. National Bureau of Statistics Website, <http://www.stats.gov.cn>.
2. Sichuan Statistics Website, <http://www.sc.stats.gov.cn>.
3. Guangxi Statistics Website, <http://www.gxti.gov.cn>.

4. Yunnan Statistics Website, <http://www.stats.yn.gov.cn>.
5. Guangdong Statistics Website, <http://www.gdstats.gov.cn>.
6. Liupanshui (六盤水) Statistics Website, <http://www.tjj.gzlps.gov.cn>.

The four provinces/region performed well in foreign trade. Export growth in Sichuan and Yunnan exceeded 40%, and Sichuan's growth rate of 47.6% was higher than the national average. Although Guizhou has been relatively weak in foreign trade, the growth rate of its exports also surpassed 30%. Nevertheless, with regard to imports, the growth rates in Guangxi, Yunnan and Guizhou were lower than the national average. Sichuan recorded negative growth in imports which was very different from the fast pace of growth seen last year.

Sichuan, Guizhou and Guangxi have all recorded positive trade balances, with the highest recorded in Sichuan, at USD 750 million. Meanwhile, Yunnan has a negative trade balance of around USD 60 million.

Table 2-2: Trade Performances of the Four Southwestern Provinces/Region

Region	Exports		Imports		Trade Balances
	Jan-Feb Total (USD billion)	Year-on-year Growth	Jan-Feb Total (USD billion)	Year-on-year Growth	Jan-Feb Total (USD billion)
China	168.71	41.5%	129.1	20.6%	39.61
Guangdong	47.49	37.2%	36.05	24.3%	11.44
Sichuan	1.08	47.6%	0.33	-8.6%	0.75
Guangxi	0.56	25.3%	0.51	19.9%	0.06
Yunnan	0.52	40.7%	0.57	18.9%	-0.06
Guizhou	0.16	31.7%	0.11	18.4%	0.05

Note:

1. This table is based upon data from local export units.
2. The negative trade balances represent net imports.

Sources:

China Customs Statistics (Monthly Export and Imports), vol. 210, February 2007, pp 16 – 17.

2.2. Trends and Updates on Sichuan

2.2.1 Economic Performance of Sichuan

In January and February 2007, the economy of Sichuan functioned well, maintaining relatively fast growth in industrial production, investment and consumption.

Table 2-3: Major Economic Indicators for Sichuan in January and February 2007

Economic Indicators	Total (RMB billion)	Year-on-year Growth
Investment in Fixed Assets	40.6	26.8%
Total Retail Sales of Consumer Goods	63.2	13.9%
Total Imports (USD billion)	1.7	20.3%
Budget Revenue	13.0	46.1%

Note: Local data is only preliminary and subject to further adjustments. This may differ from information released at a later date by the National Bureau of Statistics.

Sources:

“The economy in Sichuan has been good for the past two months (in Chinese),” Sichuan Statistics Website, 15 March 2007,

http://www.sc.stats.gov.cn/stats_sc/zxtjxx/200703160051.htm.

In January and February, the large-scale industrial enterprises in Sichuan reported a 22.6% growth in value-added to industry and reached RMB 45.22 billion which was the same growth rate as that recorded last year. Industrial growth came mainly from heavy industries, and value-added amounted to RMB 30.1 billion. The growth rate reached 23.8%, and was 3.5% higher than that for light industries. Some individual regions have seen faster growth in industry including Nanchong (南充), Suining (遂寧) and Ziyang (資陽), which all grew by more than 30%.²⁶

Investment in Sichuan totaled RMB 40.61 billion in January and February, with the tertiary sector witnessing the highest growth rate at 28.6%. Industry-wise, growth in transportation, manufacturing and the environmental management sectors was spectacular, amounting to 62.7%, 47.7% and 47.1% respectively. Re-investment in industries also grew by 30.1% to RMB 7.29 billion,

²⁶ “Sichuan’s economy has performed well over the past two months” (“前兩個月四川經濟開局良好”), Sichuan Statistics Website, 15 March 2007, http://www.sc.stats.gov.cn/stats_sc/zxtjxx/200703160051.htm.

which represented 42.8% of the total industrial investment. This ratio was 1% more than that recorded last year²⁷, which is a good sign for future industrial development.

As for consumption, although total retail sales of consumer goods registered a smaller growth rate (0.2% lower than that of last year), the growth rate was still impressive. The village market has grown faster, and the growth rate for the counties and below was 13.3%, and 1% higher than that of last year.

Although Sichuan's economy has been performing well, there are several issues that call for attention, including difficulties in energy saving and waste reduction, insufficient investment in prominent industries and a sharp rise in consumer prices.

2.2.2 Updates on Sichuan – Ten Action Plans to Benefit the People

On 14 December 2006, Sichuan's government sought opinions and suggestions for the "Ten Action Plans to Benefit the People" initiative, through conferences and the media. After modifications and perfections, the Sichuan government formally published the "Ten Action Plans to Benefit the People" (hereafter referred to as the "Ten Action Plans") on 26 January 2007, in the "Sichuan's Government Working Report for 2007". The Ten Action Plans in Sichuan represent a major initiative towards meeting the demands of the Central Government to create a harmonious society. It shows that policies for improving people's livelihood are both important and timely.

Contents of the Ten Action Plans

In December 2006, Mr. Du Qinglin (杜青林), the newly appointed the Secretary of Sichuan Provincial Party Committee of CCP, put forward the 'Ten Action Plans'. On 3 December 2006, Du made an appearance at the provincial leading cadres' conference in Sichuan and outlined the principle of "starting from things which can be done, working on things that most concern people, dealing

²⁷ "Sichuan's investment grew well in January and February ("1-2月四川投資增勢良好"), Sichuan Statistics Website, 23 March 2007, http://www.sc.stats.gov.cn/stats_sc/zxtjxx.200703230040.htm.

with people's urgent needs and matters which benefit the people". Thereafter, Du conveyed the message of the CPC Central Economic Working Conference. The emphasis in 2007 was on improving employment, the minimum living standard, education, medical assistance, village transportation, drinking water, farmers' training, village housing, poverty relief and pollution management. All ten of these issues require urgent attention. A 44-page action plan was published within one month and included general planning, annual planning, itemised duties and supervisory mechanisms.²⁸

The emphasis of the Ten Action Plans was to speed up development in rural areas, increase support for ethnic-minority and poor areas, and improve social construction. While the Ten Action Plans mainly target the needs of rural areas, it also takes into consideration the needs of urban dwellers. According to a cadre from the General Office of Sichuan Provincial Party Committee of CCP, all projects comply with three criteria. Firstly, the projects all relate to matters of public concern. Secondly, the public will directly benefit the public, and thirdly, the projects are within the capability of the government.

The Provincial Government has set clear targets (see Table 2-4), and conveyed these targets to the governments of prefectures and cities.

Table 2-4: The Targets of the Ten Action Plans

Items	Targets
1. Increasing Employment	<ol style="list-style-type: none"> 1. Creation of 520,000 new urban jobs; 2. Creation of 250,000 jobs for laid off workers and unemployed landless farmers; 3. To ensure that at least one family member is working in each unemployed family.
2. Minimum Living Standards	<ol style="list-style-type: none"> 1. To include qualified urban residents, whose monthly allowance must not be less than RMB 76; 2. To include 1.6 million people in rural areas, whose monthly allowance must not be less than RMB 19; 3. To include qualified disabled people²⁹, with a support rate of up to 20 %; 4. Basic insurance for the elderly to be increased to 8.75 million.
3. Financing Education	<ol style="list-style-type: none"> 1. Free tuition fees for 9.93 million pupils in compulsory education, and free textbooks and free boarding for poor families;

²⁸ "The people's interests are paramount – the publication of Ten Action Plans to Benefit the People in Sichuan ("人民利益至上，四川“十大惠民行动”出炉记)," *Sichuan Online*, 25 February 2007, <http://202.98.123.203:82/nsichuan/sczh/20070225/200722585637.htm>.

²⁹ 'Disabled people' means disabled people who do not have relatives under a legal obligation to care for them, or with relatives who are unable to care for them, or the elderly with no capacity to work or without income, or infants.

Items	Targets
	<ol style="list-style-type: none"> 2. To ensure that students from poor urban families enjoy the benefits of education; 3. Pupils in ethnic areas in 9 counties to receive 9 years of compulsory education; 4. Up to 10% of schools pupils to receive assistance in high school; 5. Special education to be expanded by 10%.
4. Medical Protection	<ol style="list-style-type: none"> 1. New medical stations will be extended to cover 80% of the counties, cities and towns. The health service in the cities to cover 8.5 million people; 2. Medical assistance to be extended to poor people in cities and villages; 3. The selection of two cities as pilot projects for national medical insurance, and 1.3 million people in cities and village to be covered by medical insurance.
5. Transportation in Rural Areas	<ol style="list-style-type: none"> 1. Construction of 2,500 km of new roads to connect villages, and 7,500 km of new roads to connect towns, as well as the construction of 300 transportation stations in villages and towns.
6. Drinking Water	<ol style="list-style-type: none"> 1. To ensure safe drinking water supplies to 2.4 million people; 2. To drill 300,000 wells for one million farmers.
7. Training of Village Workers	<ol style="list-style-type: none"> 1. Training for up to two million village workers; 2. New technology training to be made available in 60 counties, as well as training for 60,000 farmers, promotion of technology in 600,000 farming households and delivery of 20 million practical skill training sessions.
8. Village Housing	<ol style="list-style-type: none"> 1. To solve the problems of 25,000 homeless households and 20,000 poor farmers who have housing problems; 2. To relocate 5,000 households who live in areas vulnerable to disaster; 3. To support the building of 500,000 new methane gas tanks.
9. Poverty Relief	<ol style="list-style-type: none"> 1. To help 200,000 farmers in absolute poverty and improve the livelihoods of 600,000 low income farmers; 2. The launch of a poverty relief program and disease prevention work.
10. Environmental Protection	<ol style="list-style-type: none"> 1. Increase the treatment of pollution in the Tuo River and Jianing River areas, manage industrial pollution and pollution from poultry; 2. To remove pollution near sources of drinking water; 3. To manage 18 areas liable to natural disaster; 4. Rebuilding of 1 million acres of land; 5. Protection of 288 million acres of forest, planting of another 3.45 million acres of forest, and consolidation of the returning farmland to forest results amounting to 12.73 million acres.

Sources:

“Ten Action Plans to Benefit the People”

Governments at all levels in Sichuan have incorporated the Ten Action Plans into their targets. By reason of different local conditions, individual local plans are not the same, in either quantity or targets. In Leshan (樂山), for example, the targets of the action plan exceed those of the provincial average.

Sichuan's government has paid a lot of attention to the Ten Action Plans, and established a specialised working platform. There is a Ten Action Plans joint conference, which is responsible for tasks relating to organisation, coordination, promotion and instruction. In addition, Sichuan has devised corresponding financial and supervisory arrangements. The province plans to inject RMB 27.91 billion into the project, of which RMB 4.37 billion will come from the provincial budget.³⁰ Local audit units will look closely at the implementation of the Ten Action Plans, paying particular attention to fund raising, the supervision of fund distribution and management, and investigation of any illegal or wasteful behaviour.³¹ The Provincial Government will publish the working results, and heavy criticism will be levelled at any local government department, no matter at what level, which falsifies reports or fails to make sufficient effort to implement the Plans.

Most of the projects in the Ten Action Plans are similar to the “Ten Practical Initiatives” promoted by past governments. This shows that the local livelihood problems remain the same. It also shows that these Ten Action Plans, completed in one month, represent just the continuation of previous government work. Compared with the Ten Practical Initiatives project in 2005 and 2006, the Ten Action Plans do not have any new content, including technology solutions for the household, special education and home relocation away from natural disaster zones. However the targets and the tasks are more comprehensive and abundant than in the past.

The Ten Action Plans is a Long Term Policy

To ensure that the Ten Action Plans to Benefit the People actually works, and is not just a facade, or a short-term window dressing exercise, Sichuan's government published the “Ten Action Plans to Benefit the People during the 11th Five-Year Plan”, as its overall planning and long term mechanism. This has made the Ten Action Plans a long-term task for the government and part of the targets of the 11th Five-Year Plan. Chengdu (成都), Mianyang (綿陽) and Liangshan (涼山) have also put together a relevant planning process. Sichuan will invest more than RMB 100 billion during the 11th Five-Year Plan on the Ten

³⁰ “2007 Working Report of Sichuan People's Government (《2007年四川省人民政府工作報告》)”.

³¹ “To ensure that the policy actually benefits the people, the Ten Action Plans will be audited (“確保政策真正惠民，審計瞄準‘十大惠民行動’”),” Sichuan Online, 11 February 2007, <http://www.scol.com.cn/nsichuan/sczh/20070211/200721192715.htm>.

Action Plans³², so that there will be more balanced development in cities and villages, across regions, and between economy and society. Due to this substantial investment, the Ten Action Plans have been placed on a more solid footing than in the past. With the supervision of the Central Government, the Ten Action Plans stand a better chance of success.

The Significance of the Ten Action Plans

The Ten Action Plans is consistent with the thinking of the “2007 Government Working Report” by Premier Wen Jiabao (溫家寶). The Report takes the view that there is room for improvement in the way that government tries to address public concerns, governmental functions are somewhat outdated, and some departments and officials are out of touch with the people. Therefore, the Central Government intends to pay more attention to social development, improvement of livelihoods and speeding up of the development of social constructions. In this way the Central Government will be able to solve issues which cause concern and are relevant to the people. The ultimate aim is to promote social, economic, political and cultural developments and to uphold social justice, so that the Chinese people can share the fruits of social development.³³

The Ten Action Plans in Sichuan not only allow local people (especially poor farmers) to enjoy basic living standards, it also enhances the environment and quality of life. At the same time, the Ten Action Plans is a policy based on local conditions. Sichuan is an inland province which depends on agriculture, and poverty is mainly confined to the rural areas. There are about 5.49 million poor and low income people living in the villages of Sichuan, constituting about 10% of the rural population.³⁴ Therefore, solving the poverty problem in rural areas is an effective and direct way to narrow the gap between rich and poor, to build a fair and harmonious society, and ensure regional stability. The majority of the Ten Action Plans focus on helping farmers, through the provision of medicine and education in villages, and increasing the productivity and economic development

³² “Du Qinglin on Ten Actions Plans (‘杜青林談富民興川：十大行動改善民生聚民心’), Xinhua Net, 7 March 2007, http://big5.xinhuanet.com/gate/big5/news.xinhuanet.com/local/2007-03/07/content_5814140.htm.

³³ “2007 Government Working Report” by Premier Wen Jiabao.

³⁴ “Insisting on constructing a harmonious Sichuan using scientific development and a positive approach (‘以良好的作風推進堅持科學發展構建和諧四川’),” the State Council’s Leading Office Group for Poverty Alleviation and Development Website, 14 March 2007, http://www.cpad.gov.cn/data/2007/0314/article_333202.htm.

of rural areas. It also reflects the policy direction of the Central Government in getting urban industry to support rural areas.

Significance for Hong Kong

The policy in Sichuan has the strong support of Du Qinglin (杜青林), the newly appointed party secretary of the Sichuan Provincial CPC Committee. Du was previously the head of the Ministry of Agriculture, and appointed directly by the Central Government to Sichuan. Upon assuming office, he immediately promoted issues relating to villages and livelihoods. This represents a major policy shift by the Mainland Government.

Firstly, the development strategy of the whole country has changed from one focused purely on economic growth to a more balanced service type of government, which pays more attention to co-ordination, balance and harmony. In fact, the many years of rapid economic growth have caused serious damage to the environment, widened the gap between cities and villages, and caused disquiet among different social groups. If these aspects are neglected and continue to worsen, it may lead to social unrest and adversely affect long term sustainable development. At this stage, the Central Government has made livelihood and environmental issues the priority. The Ten Action Plans reflects and responds to the latest thinking from the Central Government.

Secondly, the Central Government has allowed local governments to put aside social welfare issues, and to develop the economy first. However, since 2006, or the 11th Five-Year Plan, especially after the change of government in the 17th session, the Central Government has paid more attention to social issues. This reflects the Central Government's working report, but has arisen also from the fact that the Central Government is more frequently directly appointing the heads of local governments, whereas previously they tended to be promoted among local leaders. In this way, the Central Government can have more say on the promotion of livelihoods and environmental policy, and reverse the past bias of local governments towards economic growth.

Thirdly, although 50% of GDP is generated from secondary industries, 50% of the working population work in the primary industries (which accounted for only 12.6% of GDP in 2005). Secondary industries do bring economic benefits, but the livelihood issues are important in the villages. This has been a

common phenomenon since the establishment of the PRC, but intensified after the open door policy was introduced in 1980. At present, the Central Government is undergoing a major shift in policy, and is now putting the livelihood issue first. Following official changes and the development of government policy, this new strategy could be realised in five to ten years' time.

As for Hong Kong, the livelihood policy for the Central Government and Sichuan remains only a local matter³⁵; it does not affect the economic relationship between the Mainland and Hong Kong or between Sichuan and Hong Kong. However, from the broader perspective of the relationship between Central Government and Hong Kong, there may be a discrete change. In future, the Central Government will pay more attention to the development of livelihood and social welfare matters.

³⁵ The indirect effect is that following a rise in minimum wages, the government will strictly enforce social security and labour rights, and increase taxes to pay for social welfare. This however does not help Hong Kong businesses transfer their business models to Dongguan or Guangdong, or to inland provinces like Sichuan.

2.3 Trends and Updates on Guangxi's Autonomous Region

2.3.1. Economic Performance of Guangxi

In January and February 2007, the economy of Guangxi grew at a relatively fast pace. There was significant growth in industrial production and investment which represented a good start for the year 2007.

Table 2-5: Major Economic Indicators in Guangxi in January and February 2007

Economic Indicators	Total (RMB billion)	Year-on-year Growth
Investment in Fixed Assets	18.3	40.7%
Total Retail Sales of Consumer Goods	31.1	15.4%
Trade Volume (USD billion)	1.1	22.7%
Budget Revenue	10.5	30.7%
Consumer Price Index (%)	103.2	3.2

Note: Local data is only preliminary and subject to further adjustments. This may differ from information released at a later date by the National Bureau of Statistics.

Sources: Guangxi Statistics Website, <http://www.gxtj.gov.cn>.

As a result of growth in light and heavy industries, in January and February 2007, industrial growth in Guangxi speeded up. Large-scale industrial enterprises reported value-added to industry of RMB 19.81 billion. The growth rate was 24.6% and the highest for the past 10 years.³⁶ The sugar industry performed particularly well, with a growth rate of 23.6%, and contributed 24.4% to the growth of value-added by large-scale industrial enterprises.³⁷ The efficiency of Guangxi's industries also improved, resulting in a growth in net profits of 32.6%, the highest for the past three years.³⁸

³⁶ "A promising start for Guangxi's economy in the first two months of this year ("今年頭兩個月廣西經濟增長實現開門紅"), Guangxi Statistics Website, 21 March 2007,

http://www.gxtj.gov.cn/economy_news/news_display.asp?sendid=11996.

³⁷ "Good start for economic growth in Guangxi in January and February this year ("1-2月廣西工業生產實現良好開局"), Guangxi Statistics Website, 20 March 2007,

http://www.gxtj.gov.cn/economy_news/news_display.asp?sendid=11990.

³⁸ Highest growth rates recorded for industries in Guangxi during January and February this year ("1-2月廣西工業利潤增幅創近三年同期最高"), Guangxi Statistics Website, 28 March 2007,

http://www.gxtj.gov.cn/economy_news/news_display.asp?sendid=12045.

The market for consumer products has grown quickly as a result of the rapid income growth of both urban and rural residents. In January and February 2007, total retail sales of consumer goods grew by 15.4%, which was the strongest growth since 1997. Investment growth in Guangxi ranked the highest in the four provinces/region while the secondary industries grew most rapidly at 74.8%. In particular, the nonferrous metals and transportation equipment industries increased by 4.94 times and 2.15 times respectively. Investment in equipment rose by 110.5%, which will result in higher productivity in the future.

Although economic growth in Guangxi has shown positive signs, there are problems. Firstly, the price of sugar has plummeted considerably, adversely affecting business profits and the industrial development of some counties. Secondly, the consumer market has failed to achieve balanced growth, and thirdly, progress on new projects and existing work has slowed down, as has the injection of capital.

2.3.2. Updates on Guangxi – Clean Urban and Rural Areas Project

In September 2006, Mr. Liu Qibao (劉奇葆), the Secretary of the Guangxi Zhuang Autonomous Region CPC Committee, put forward the “Clean Urban and Rural Areas Project” in order to celebrate the following conferences: the “Summit Conference Marking the 15th Anniversary of Sino-ASEAN Dialogue”, the “Sino-ASEAN Commerce and Investment Summit Conference”, and the “Nanning (南寧) International Folk Song Festival”. The targets of the project were hawkers, illegal parking, refuse, illegal advertisements, dirty work places³⁹ (including the contravention of building regulations) and improving the sanitary conditions of cities and villages in Guangxi. It is hoped that this will improve both quality of life and the environment.

Mr. Liu Qibao took the view that the “Clean Urban and Rural Areas Project” is significant because it connects with the people and shapes the style of officials. To ensure the effectiveness of the project, Guangxi has put forward related policies. In December 2006, the “Decision to Implement the Clean Urban and Rural Areas Project by the People’s Government of the Guangxi Zhuang Autonomous Region” was published. The project had defined targets (see Table

³⁹ “In Beihai, Guangxi, a village party secretary lost his job for failing to do sufficient cleaning (“廣西北海市一鎮黨委副書記因‘搞清潔不力’丟官””, People’s Net, 9 February 2007, <http://gov.people.com.cn/BIG5/48377/5384600.html>).

2-6), and proposed that a good foundation for work in 2007 would be the establishment of “civilised cities, villages and towns” and “sanitary cities, and advanced units in counties and villages”. This included the regulation of administrative work, to comprehensively and effectively improve the living environment of residents in urban and rural areas, and the narrowing of the sanitary gap between cities and villages.

Table 2-6: The Main Targets of the “Decision to Implement Clean Urban and Rural Areas Project by the People’s Government of the Guangxi Zhuang Autonomous Region”

Projects	2008	2011
Award for Chinese Civilised City or Advanced Chinese Civilised Cities	3	---
Civilised Cities in Guangxi	50%	80%
Civilised Villages and Towns in Guangxi	30%	50%
Sanitary Cities	8	20
Sanitary Advanced Units	1,000	2,200
Sanitary Counties	14	36
Sanitary Villages	500	1,500

Sources:

“The Decision to Implement the Clean Urban and Rural Areas Project by the People’s Government of the Guangxi Zhuang Autonomous Region”

At the same time, Guangxi published the “Implementation of Awards for Informants Relating to Clean Urban and Rural Areas Projects” and “the Measures for Clean Urban and Rural Areas Projects”. According to the former, citizens may by mail or telephone report the destruction of and acts which damage government property, cityscape and the environment. Once the information is verified, the award money will be paid whilst personal data relating to the informant will be kept confidential. The latter project will list the results of the cleaning inspection in the officer’s record, and implement an accountability system and public hearings. The autonomous regional government will separately examine both excellent and poor performing units, and praise or criticise them accordingly.⁴⁰ The Guangxi government is perfecting the penalty and award system, and encouraging residents to participate and supervise in cleaning up the environment. In addition, the promotion of officers is linked to their cleaning performance. An interactive relationship has been established between officials and residents.

⁴⁰ “The implementation of Guangxi’s policy for Clean Urban and Rural Areas Projects (“廣西出臺政策加強實施“城鄉清潔工程”)”, Xinhua Net, 18 January 2007, http://www3.xinhuanet.com/chinanews/2007-01/18/content_9074480.htm.

Some local governments have even established a very strict accountability system. On 25 December 2006, Nanning (南寧), the capital city, published the “Temporary Methods for Implementation of the Clean Urban and Rural Areas Projects in Nanning.” It established the first accountability system relating to city appearance in China. The Secretary of the Nanning CPC Committee, Ma Biao (馬飆), asked all the departments of the city, from streets to units, to assume particular responsibilities. Whenever it is proved that an unclean situation has arisen within the domain of an official, whether they are top leaders or unit heads from local state enterprises, the official will be ordered to rectify the situation or be removed from office.⁴¹

In Qingxiu District (青秀區), Nanning, a 400 metre long watercourse became very dirty and untidy. Consequently, Mr. Liu Daiqing (劉代青), the Vice District Chief, responsible for cleaning in the county and village, was removed from office. Mr. Huang Runbin (黃潤斌), the Secretary of the Qingxiu District CPC Committee, and Ms. Huang Lijuan (黃麗娟) were transferred to other posts, and other officers deemed negligent were disciplined.⁴² In February 2007, there was an announcement by Hepu County, Beihai (北海市合浦縣) calling for the removal of the village chief of Baisha village (白沙鎮), because he did not make enough effort on the Clean Urban and Rural Areas Projects. This incident attracted widespread media and public attention because this was the only case in China where an officer was found administratively liable for defaulting on cleaning responsibilities.

In the Clean Urban and Rural Areas Projects, the Nanning government mobilised civil servants, residents and students to clean the city. One million people were involved in sweeping the streets⁴³, which became cleaner than ever. Undeniably, the Clean Urban and Rural Areas Projects will be distorted somewhat when extended to the sectors below county level. Individual supervisory and law enforcement units were rather tough, and adversely affected the rural public, thereby distorting the original intentions to benefit the people. Overall, the people

⁴¹ “Insufficient cleaning efforts! Real accountability (“打掃清潔不力！“問責”動了真格)”, People’s Net, 30 January 2007, <http://env.people.com.cn/BIG5/5345587.html>.

⁴² “Many officials in Nanning were held accountable for insufficient efforts to carry out the Clean Urban and Rural Areas Project (“南寧多名幹部因執行“城鄉清潔工程”不力被問責)”, People’s Net, 23 January 2007, <http://cpc.people.com.cn/GB/64093/64387/5318761.html>.

⁴³ “Guangxi starts the cleaning campaign, and officials are made accountable for cleaning (“廣西開展“清潔運動”，首施官員“清潔問責制”)”, China News Net, 4 January 2007, <http://61.135.142.194:89/gate/big5/www.gx.chinanews.com.cn/xw/show.asp?id=27163>.

and the media have appreciated the government's attempts and welcomed the preliminary results.

The Central Government Supports the Clean Urban and Rural Areas Projects

The Central Government approves and supports the Clean Urban and Rural Areas Projects. When Premier Wen Jiabao inspected Liuzhou (柳州市), he was impressed that the “mountains and rivers were crystal clear and clean”. Since late October 2006, the CPC Propaganda Department and the CPC Central Civilisation Office have allocated RMB 20 million in support of activities relating to the Clean Urban and Rural Areas Projects in Guangxi. The CPC Political Bureau member and Chairman of the Propaganda Department, Mr. Liu Yunshan (劉雲山), said that he hoped that Guangxi would continue with the Clean Urban and Rural Areas Projects and that the initiative would last a long time.⁴⁴ Subsequently, Guangxi formulated the “Five-Year Plan for Clean Urban and Rural Areas Projects” to make it into a long-term rather than temporary policy.

The Significance of the Clean Urban and Rural Areas Projects

Guangxi is willing to allocate substantial resources to the Clean Urban and Rural Areas Projects. Apart from environmental considerations, there are also economic considerations to take into account because foreign investments are not only decided upon cost and return. A good environment can create a competitive edge by attracting foreign capital and businesses, and promoting economic growth. Guangxi is presently at the stage of rapid industrialisation and urbanisation but it will not repeat the industrial development path seen in Dongguan (東莞) and Bao'an (寶安) in the PRD. Talent is needed to upgrade industries, but a good city environment is particularly important.

Moreover, the Clean Urban and Rural Areas Projects have unique social and political functions. Firstly, they foster civil responsibility and promote the good sanitary habits of citizens, change pre-existing customs and improve quality

⁴⁴ The central government allocated 20 million RMB to support Guangxi in the Clean Urban and Rural Areas Projects (“中央撥出2千萬專款支援廣西“城鄉清潔工程”), Xinhua Net Guangxi Channel, 25 October 2006, http://big5.xinhuanet.com/gate/big5/www.gx.xinhuanet.com/newscenter/2006-10/25/content_8339910.htm.

of life. Furthermore, headed by Liu Qibao, the Guangxi management is testing the capability of officials in the execution and mobilisation of people, to see whether they can rapidly complete the political task. Secondly, they hope to change the unhealthy attitudes of the past, whereby officials only focused on economic construction and did not address environmental cleaning and protection. Negligent managers and officials should be dismissed, in order to upgrade the efficiency of the government. From the words of Liu Qibao, if a mayor cannot take care of city sanitation, how can he or she take care of development?

In fact, the cleaning of cities and villages reflects the civilisation level of a society, and overall governance and the abilities of government and the district. In the age of globalisation, social capital and institutional factors may weigh more heavily than traditional factors in production and competitiveness.

The Clean Urban and Rural Areas Projects – Lessons for Hong Kong and Suggestions

The Clean Urban and Rural Areas Projects indicate a changing role for the government. For a very long time, the government devoted almost all of its energy to economic development and related policy fields. Under such entrepreneurial types of government, individual localities were sacrificed for the welfare of society, and the interests of residents and workers. Unfortunately it neglected environmental protection and destroyed the long traditions of civilisation, for the sake of growth and profits. Governments are not the same as businesses. Governments are accountable to the whole of society, as well as history and future development. At present, the Mainland Government is gradually incorporating the regulation of social affairs into their working agenda and making environmental protection and sanitation the responsibility of government. Apparently, the Mainland Government is returning to its cardinal role, looking towards society, paying more attention to the public and turning into a “service” type of government. The proposal from the Working Report of the Central Government signals this trend and states that the government has to pay attention to social enterprises. Guangxi is a leading role model for the new trend in China.

As such, the Clean Urban and Rural Areas Projects in Guangxi are regarded by the central and local governments as an important initiative towards creating a harmonious society. In line with the 11th Five-Year Plan, it has obtained

funding allocations from Central Government, indicating that Central Government will support local policies where they match the national policy.

The Clean Urban and Rural Areas Projects in Guangxi constitute a local policy. It has no direct effect upon co-operation between Guangxi and Hong Kong. However, by merely observing the interaction between Central Government and Guangxi, the emphasis on a “Harmonious Society” has not been placed upon the developed economy, but upon benefits to society and public services. In this aspect, Hong Kong is at the forefront of cities in China. In fact, the community and social services, such as pro-bono work and the new social enterprise project are worthy of study by the Mainland.

Since the introduction of the Clean Hong Kong Campaign, there have been no major community campaigns. Social activities will improve the quality of citizens and shape community culture. The ecology of Hong Kong society is mainly based upon and directed by economic interests and there are not many opportunities for social stakeholders. This could easily lead to conflict over community interests. In the decade after the handover, community cultural development was insufficient, creating an identity crisis for teenagers in Hong Kong. Communities tend to resolve disagreements by conflict and not by dialogue and this could affect the long term stability of the society. Hong Kong should respond to the demand for a “Harmonious Society”, and develop role models for community development. This would be good for its social development as well.

2.4 Trends and Updates on Yunnan

2.4.1. Economic Performance of Yunnan

In January and February 2007, the economy of Yunnan performed well and there was faster industrial production growth and a thriving consumer goods market.

Table 2-7: Major Economic Indicators in Yunnan in January and February 2007

Economic Indicators	Total (RMB billion)	Year-on-year Growth
Total Retail Sales of Consumer Goods	20.5	15.9%
Trade Volume (USD billion)	1.1	28.3%
Budget Revenue	8.0	39.1%

Note: Local data is only preliminary and subject to further adjustments. This may differ from information released at a later date by the National Bureau of Statistics.

Sources:

Yunnan Statistics Website, <http://www.stats.yn.gov.cn>.

The growth in light and heavy industries reached 22% and 25.2% respectively and large-scale industrial enterprises reported a 23.3% growth of value-added to industry of RMB 23.88 billion. Such growth was among the fastest recorded in recent years. Six major industries have maintained stable growth except the sugar industry, which saw its value-added fall by 8.4%. Other major industries grew by at least 20%. The highest growth was recorded by the nonferrous metals treatment and compression industry which saw growth rates of 43.1%.⁴⁵

As a result of celebrations such as New Year's Eve, Chinese New Year, and Chinese Valentine's Day, retail sales of consumer goods continued to perform well and reached RMB 20.49 billion, representing a growth rate of 15.9%. The wholesale and restaurant industries saw remarkable growth of 36.5% and 20%

⁴⁵ "In January and February, Yunnan's industrial growth was 23.3% ("1-2 月我省工業增加值增長 23.3%")," Yunnan Statistics Website, 30 March 2007, <http://www.stats.yn.gov.cn/ynstjjwz/4685150987348869120/20070330/115747.html>.

respectively. The market was particularly hot for gold and jewellery, furniture, wooden products and other finished products.⁴⁶

As for investments, in January and February, urban investment in fixed assets stood at RMB 18.62 billion, growing by 19.6%, which was 17.6% below that of the last year. Growth in the primary industry was the highest at 139% and more investments were made in cutting edge resource industries and major construction projects. Investments in the non-metal mining and nonferrous metals mining industries reported growth rates of 38.1% and 182% respectively. Investment in the petroleum processing and nuclear fuel processing industry, and non-metal mineral products industry grew by 10.17 times and 2.47 times respectively.⁴⁷

2.4.2 Updates on Yunnan - Promoting Forestry Development

On 28 February 2007, Yunnan's Forestry Department announced that forestry output in 2006 was RMB 25.4 billion, which was 15.46% more than that in 2005. In 2007, the value of forestry output is expected to reach RMB 30 billion,⁴⁸ and output is expected to further increase to RMB 50 billion in 2010.

In 2006, Yunnan's share in national forestry output (totaling RMB 900 billion) was rather insignificant. In the 11th Five-Year Plan, Yunnan intends to have its forestry output increase by an annual average of 20%. However this target seems very ambitious as forestry is among the traditional agricultural industries and has always developed at a relatively stable pace. Furthermore the national forestry industry is planned to grow annually at 10% in the 11th Five-Year Plan.

⁴⁶ "In January and February, retail sales of consumers goods stood at RMB 20.487 billion ("1-2 月我省實現社會消費品零售額 204.87 億元"), Yunnan Statistics Website, 29 March 2007, <http://www.stats.yn.gov.cn/ynstjjwz/4685150987348869120/20070329/115368.html>.

⁴⁷ "In January and February, there was faster growth in Yunnan's fixed asset investments ("1-2 月我省固定資產投資適度較快增長"), Yunnan Statistics Website, 28 March 2007, <http://www.stats.yn.gov.cn/ynstjjwz/4685150987348869120/20070328/115286.html>.

⁴⁸ "Yunnan forestry output reached RMB 25.4 billion in 2006 ("雲南省去年林業產值達 254 億元"), the State Forestry Administration Website, 7 March 2007.

The Background on Forestry Promotion in Yunnan

Yunnan is one of the four major wood producers in China. Its forests cover 23.81 million hectares, which is 9.6% of the national figure, and ranks third in China, but forestry income amounts to only 2.8% of the national total. This discrepancy lies in the industrial structure of Yunnan's forestry.

Forestry is not restricted to wood logging. It includes primary production such as bamboo, tea, fruit plantation (e.g. apples), nuts (e.g. walnuts), oil (e.g. barbadonut), fragrances, medicine and mushroom plantations. Secondary production includes paper from wood and bamboo, and furniture and so on. Tertiary production includes service industries like eco-tourism in forests and wood transportation.

In 2005, the share of primary, secondary and tertiary activities in the national forestry industry was 52%, 41% and 7% respectively. The corresponding ratio in Yunnan was 71%: 26%: 3%. Basically, Yunnan has remained at the traditional and primitive plantation stage without the benefits of developing further primary product processing. In that year, primary forestry output in Yunnan was RMB 10.6 billion, which was 7.4% of the national total and the highest for all provinces. Yet much of Yunnan's primary products were transported to other provinces before entering the retail market and most of the added value was captured by others. As a result, Yunnan is credited with less value in the forestry industry overall.

Moreover, forestry is a special industry in itself. It is beneficial to society and represents a foundation industry, with ecological, economic and social benefits. It is responsible for the dual missions of supporting ecology and supplying forestry products. Therefore, the forestry industry should not be evaluated solely on the basis of economic value, but also on its ecological benefits. A Mainland academic, Professor Zhang Xunhua (張熏華), said that every tree planted was a product and although this product was not for sale, it served human beings in an ecological way. In this regard, wood is just a by-product from the cyclic process of the forest, with a value far below its ecological importance.⁴⁹ In the 11th Five-Year Plan, the Central Government paid a lot of attention to forestry and encouraged its ecological development.

⁴⁹ Jia Zhibang: "Speech at the meeting of provincial forestry department heads (賈治邦, "在全國林業廳局長會議上的講話)," State Forestry Administration Website, 23 January 2007.

Yunnan developed forestry in response to local conditions. Its mountain landscape is varied and there is a diversity of living plants which provide good natural conditions for forestry. Many districts are not suitable for human habitation and farming, as they are too steep and hilly. However, these districts can be developed into natural and commercial forests. The forestry industry occupies 60.43% of the area in Yunnan, and forest coverage is 44.3%.⁵⁰

Reasons Why Yunnan is Developing Forestry

Many of Yunnan's districts are located at the upper part of the river, which is ecologically weak. Together with factors such as forest coverage considerations, these districts are often listed as "prohibited or restricted (for development)". At the same time, China plans to increase the forest coverage rate from 18.2% in 2005 to 20% in 2010 and further to 23% in 2020. In 2050, the forest coverage area will stabilise at above 26%. The change in policy of the Central Government makes it more difficult for Yunnan to cut down trees from the existing forest areas, in order to expand farming or develop industries. All these factors have forced Yunnan to expand into new industries, in order to maintain its sustainable development.

As a major forest province in China, Yunnan lags behind in industrial development. When China decided to tackle its national ecological problems by planting trees, it decided to provide a Central Forest Ecological Compensation Fund. On average, each acre receives a subsidy of RMB 5. In 2006, the Fund increased from RMB 2 billion to RMB 3 billion, and the compensation area increased from 400 to 600 million acres. A total of 3.6 million farming households, and 20 million people directly benefited from the fund. In 2005, Yunnan successfully applied for RMB 129 million, among which compensatory expenses accounted for RMB 116 million and public expenses for preservation were RMB 12.97 million.⁵¹ With the assistance of national policy and funding, as laid out in the 11th Five-Year Plan, it is a natural and reasonable choice for Yunnan to advance its forestry industry.

⁵⁰ "Yunnan's Forestry ("雲南林情")", Yunnan Forestry Department Website.

⁵¹ "Yunnan increased its application to the Central Forest Ecological Compensation Fund ("雲南省加大森林生態效益補償資金申請力度")," Yunnan Electronic Government Net, 29 November 2005, <http://www.yn.gov.cn/yunnan,china/73466068433108992/20051129/1026602.html>.

Yunnan's Measures to Develop Forestry

In February 2007, Yunnan proposed the concept of the industrialisation of ecological construction and the ecological development of industries. It combined ecology and industry in the development of Yunnan's forestry, bringing about the "ecology is important, industry is essential" breakthrough, and the traditional separation of the development of ecology and industry. It brought ecological benefits to Yunnan, and created economic and industrial benefits too.

Under the new development direction, Mr. Li Jiheng (李紀恒), the vice party secretary of the Yunnan Provincial CPC Committee, pointed out at the Yunnan Village Leaders Working Conference that the forestry industry has to develop eight new related industries, namely, forest paper, wood processing, fibre boards, forest chemicals, featured commercial forests, non-wood resource products, bamboo products, the breeding and training of wild animals, and ecological tourism. Li also suggested speeding up the development of commercial forests, the further processing of forest products and fostering new industries such as bio-energy.

Yunnan's new strategy includes the diverse development of forest resources, raises the proportion of commercial forests, strengthens the processing of forestry products, utilises forest resources to develop service industries (such as eco-tourism) develops new applications for forestry products (such as bio-energy), and so on. This new trend is good for increasing economic benefits and preserving the ecology and the environment.

There is no necessary tradeoff between ecology and economic development. Take for example the project for returning farmland to forest. In 2005, there were 16.72 million acres of land, amounting to 18.3% of farmland, which needed to be converted to forest. However, steep slopes (over 25 degrees) accounted for 12.07 million acres. This land is not productive, and mainly used for growing potatoes and beans. Returning these farmlands to forest will not substantially affect the food consumption of farmers, but it will benefit the ecology, improving production levels and the productivity of existing farmland. It is leading an annual increase in the average unit food production of Yunnan from

453 catties (226.5 kg) in 1995 to 475 catties (237.5 kg) in 2005. In 2005, provincial grain production reached the historical height of 15.15 million tons.⁵²

The Industrialisation of Forestry

In Yunnan, among the eight selected industries, forest (bamboo)-paper integration, featured commercial forests, forest bio-energy and forest eco-tourism matched the unique features and advantages of Yunnan, as well as the needs of both domestic and overseas markets.

According to a research report by the State Forestry Administration, there is room for expansion in the Chinese paper production industry (including foreign investment) and it has become the manufacturing base for global paper production. There is a huge demand for raw materials for paper. Presently, China consumes a third of the raw materials for paper globally, and the import price is high. There is also a demand for forestry-paper integration. In 2004, an Indonesian company, Gold Light Limited (金光集團), acquired the Yunnan Forest View (雲景林) Paper Enterprise in Puer (普洱市) (previously known as Simao (思茅市)), to develop forestry-paper integration. However, in February 2007, Gold Light Limited was suspended from operating by the State Forestry Administration because it cut down protected forests.⁵³ There is a proposal for producing bamboo paper, but the scale is far smaller than wood paper. In the long run, forestry paper integration is a necessary trend, but Guangxi may develop faster than Yunnan, because its forest resources match the demand for paper production better.

Featured commercial forests should be more in line with the situation in Yunnan. The Provincial Development and Reform Commission has demanded that featured commercial forests increase from the present 6.8 million acres to 20 million acres in 2010, and output should increase from RMB 1.25 billion to RMB

⁵² Yunnan Forestry Department: “Yunnan has enough room to accommodate the large scale return of farmland to forest (“雲南省具備加大規模實施退耕還林的條件和空間”),” and “returning farmland to forest has not had a substantial impact on food production in Yunnan (“退耕還林工程對雲南省糧食產量影響不大”),” State Forestry Administration Website.

⁵³ “APP awaits for the final decision of the State Forestry Administration (“APP 將等待國家林業局的最終決定”),” *First Financial Daily*, 9 February 2007.

5 billion.⁵⁴ The Yunnan Forestry Department plans to implement featured commercial forests in 48 counties, with the planting of 2.85 million acres of commercial walnut forests. Rattan and precious material forests amount to 196,000 acres, whilst the short term industrial forest base accounts for 104,500 acres.⁵⁵ The Forestry Department will vigorously seek low interest policy loans from the country, and financial investment from all levels, to support these measures. Meanwhile, the provincial forestry fund will favour featured commercial forestry industry, and mobilise all social sectors to invest in the construction of featured commercial forests based on existing land, climate and ecological advantages in Yunnan. With the sufficient injection of funds at the initial stage, these are likely to become the leading industries in the mountainous area.

With regard to forest bio-energy, the Yunnan Forestry Department decided to develop two key products, bioethanol and bio-diesel. Among the new forest base of 19 million acres, nine million acres have been assigned for bioethanol and 10 million acres for bio-diesel (mainly tung-oil grease). By 2015, the production capacity of bioethanol is expected to reach 4 million tons and bio-diesel 600,000 tons, making Yunnan the largest bio-production base in China. Tung-oil grease may turn out to be a major area of production for Yunnan, because it is more suitable for the overall plantation and ecological environment. According to a study by the Yunnan Forestry Department, adding 10 to 20 litres of technology-treated tung-oil grease into every 100 litres of diesel hardly affects vehicle performances at all.⁵⁶

In 2005, the output value of forestry eco-tourism in Yunnan was only RMB 3.2 billion.⁵⁷ Relative to the RMB 8.3 billion national income from forestry eco-tourism from ticketing, RMB 75 billion overall income from tourism, and the creation of about 400,000 employment opportunities⁵⁸, the performance of Yunnan was rather ordinary. However, there is a great potential for development. Following the rising income levels of Mainland people, there has been a great

⁵⁴ The Yunnan Forestry Department: “Yunnan Development and Reform Commission suggests the development of featured commercial forests (‘雲南發改委要求‘四個結合’發展特色經濟林”),” State Forestry Administration Website, 1 February 2007.

⁵⁵ Bai Chengliang: “Speech at the provincial forestry department heads’ meeting (白成亮, “在2007年全省林業局長會議上的講話”),” The Yunnan Forestry Department Website, 27 February 2007.

⁵⁶ “In order to develop bio-energy, Yunnan’s forestry industry diverts into bio-energy (‘發展生物質燃料, 雲南林業全面介入生物能源”),” Xinhua Net Yunnan Channel, 6 March 2007, <http://www.bioindustry.cn/info/view/3707>.

⁵⁷ “The present position of the Yunnan forestry industry (‘雲南林業產業發展現狀”),” The Yunnan Forestry Department Website.

⁵⁸ “Chinese forestry facts in 2005 (‘2005年中國林業概述”),” State Forestry Administration Website.

expansion in middle-class consumption including eco-tourism. So long as Yunnan improves tourism and management, there will be greater growth, and with the advantage of culturally unique ethnic minorities, Yunnan should gain a greater share in this area.

Lessons for Hong Kong

The attention of China to the ecological environment will improve the development of the entire forestry industry. By reason of the small size of land area and insufficient infrastructure, Yunnan is not having a significant effect upon the Chinese forestry industry. At present, China imports 70% of wood from the far east of Russia. The quantity is huge, and dominates the Chinese market from north to south, with sales in Jiangnan (江南), Guandong and Fujin. Since the Central Government imposed a wood logging ceiling in China the wood supply has been limited, and the market now relies heavily on imports from Russia.⁵⁹ Yunnan's wood only accounts for a small proportion of national resources, and there is not much room for development. However, in the near future, the forestry industry will be able to improve the local economy of Yunnan, especially village development, enriching the local ecological environment and the income of residents.

The idea that the forestry industry more adequately serves the construction of the village economy is an important component of future village economic development. The forestry industry is not a backward industry. It can become a technological and capital intensive industry, such as has happened with the forestry industries in Canada, Finland and Sweden. The development of forestry industry has not been plain sailing in Europe. A few centuries ago, the whole of Europe suffered because of insufficient fuel and forest resources. Wood logging and the subsequent damage to the ecological system was severe. Fortunately, they found new forest resources in North America, which provided a breathing space in which to organise new planning arrangements and the plantation of forest resources. This forms the present scientific management of tree cutting and plantations in European countries. It also ensures the present source of wood supply, future sustainable development, and most importantly, ecological protection.

⁵⁹ According to a field study in Russia and Heilongjiang (黑龍江) in 2006 and 2007.

Back in the 1980s and 1990s, China had already realised that deforestation represented a serious problem. It prohibited wood logging and started a large scale movement for forest plantations and China has become the largest forest plantation country. At the same time, China imported raw wood from neighbouring countries, such as Malaysia and Indonesia, until their forest resources were almost exhausted. In the last five years China has switched to importing wood from Russia. However, Russia is now starting to develop conservation policies and from this year, Russia imposed a tax of 80% on exports of raw materials. Overall, China's demand for wood far exceeds supply, and recently China and the world have rapidly increased their demands for resources, especially those intensively utilising land resources and natural minerals. The change in supply and demand is also affecting changes in the relative bargaining position of finished industrial products versus resource suppliers, which may reverse the dominant position of industrialised countries in the market for more than a century. This may not work to the benefit of Hong Kong, which is good at trading in manufactured goods.

Faced with this potential crisis, Hong Kong businesses should adjust their strategic position. Firstly, they should change from the model of trade and processing, to further possession of resource products, and not merely the present purchasing of components from around the world for assembly in China. Since most countries have imposed protective policies covering the exploitation and processing of mineral resources, the further possession of agricultural and forestry products may be another option for Hong Kong businesses.

Policy Suggestions

At present, Yunnan is at the commencement stage of forestry product development. Hong Kong businesses may enter these relevant industries by using its capital advantage. Taking into consideration that forestry products have special local features, and Hong Kong companies are not very experienced in agriculture in general, Hong Kong companies should enter sectors that enjoy the benefits of economies of scale and globalisation, and with readily available commodities. Examples are natural oil and bio-fuel products, which are used by households and industries. Hong Kong businesses could also promote healthy oil products and gradually expand to other production sectors in the supply chain.

In future, Yunnan will promote featured commercial forests which are in need of substantial capital. Hong Kong companies and financial investors may

participate in these projects through investments and loans. There is no shortage of international financial aid for forestry development projects. These international co-operation projects are also appropriate for public institutional investors.

Besides, forest plantation is a CDM (Clean Development Mechanism) permissible item, and the Chinese “Guangxi Pearl River recreated forest” is the first carbon sink transaction in the world. Guangxi intends to create 4,000 hectares of forest land, and international institutes will purchase USD 2.2 million of the carbon sink over the 12 year project span. This will raise USD 21.1 million for farmers, will benefit 5,000 households and 20,000 farmers, and will create five million temporary employment opportunities.⁶⁰ Therefore, the local forestry industry may enter the international market through CDM projects. This also presents commercial opportunities for investment, loans and business protection. As a further step, considering the trends of Yunnan and other southwestern provinces and across the whole country, Hong Kong may follow the past suggestions of this report and establish a platform for CDM transactions, connecting the Mainland and overseas.

Eco-tourism in Yunnan is in need of a substantial amount of international management experience. This is an area for participation and investment for Hong Kong’s hotels and tourism professionals.

⁶⁰ “New forestry development channel: international carbon sink project first comes to Guangxi (‘開林業投資新渠道，國際林業碳匯項目首次落戶廣西’),” *Guangxi Daily*, 4 August 2006.

2.5. Trends and Updates on Guizhou

2.5.1 Economic Performance of Guizhou

In January and February 2007, most economic indicators for Guizhou still lagged behind other southwestern provinces and the national average. However on the whole, there was stable growth, and individual indicators grew rapidly.

Table 2-8: Major Economic Indicators of Guizhou in January and February 2007

Economic Indicators	Total (RMB billion)	Year-on-year Growth
Profit from Large-scale Industrial Enterprises	2.2	69.4%
Profit and Tax from Large-scale Industrial Enterprises	5.5	29.9%
Trade Volume (USD billion)	0.3	25.9%

Note: Local data is only preliminary and subject to further adjustments. This may differ from information released at a later date by the National Bureau of Statistics.

Sources:

1. National Bureau of Statistics Website, <http://www.stats.gov.cn>.
2. Liupanshui (六盤水) Statistics Website, <http://www.tjj.gzlps.gov.cn/>
3. Provincial Statistics Website, <http://provincedata.mofcom.gov.cn>.

In January and February, large-scale industrial enterprises reported value-added to industry of RMB 12.03 billion, up by 22.4%. The development of light and heavy industries are now in harmony. Value-added by heavy industry grew by 23% to RMB 8.1 billion, and the growth rate was higher than the 21.3% recorded for light industry. This industrial growth was mainly fuelled by electricity, drinks, nonferrous metals, tobacco and chemical industries. The total contribution of these five industries was 79.6%, among which the electricity industry made the largest contribution. With a growth rate of 29.1%, the electricity industry pushed industrial growth up by 7.2%.⁶¹

⁶¹ “Output by large-scale industrial enterprises grew by 22.4% in January and February (“1-2 月貴州規模以上工業生產同比增長 22.4%””, Liupanshui Statistics Website, 21 March 2007, http://www.tjj.gzlps.gov.cn/art_49227.html.

Profits from industrial enterprises in major industries grew rapidly. In January and February, the profit from large-scale industrial enterprises came to RMB 2.25 billion, representing a growth of 69.4%. Net profits reached RMB 902 million, among which drinks, electricity, nonferrous metals and tobacco industries contributed 88.9% to the total value.⁶²

As for foreign trade, the imports and exports value in Guizhou in January and February grew by 31.6%. A total of 70% of export products were resource or energy consuming products. Four major product groups (electrical, high technology, textile and agricultural products) added an export value of USD 32.76 million, which was only 20% of total exports. Thus, the structure of export products is in need of improvement.⁶³

2.5.2 Updates on Guizhou – Full Implementation of the Pollutant Discharge Licence System

In late 2006 and early 2007, news came out that in different localities and cities in Guizhou, pollutant discharge levies broke a historic record. In 2006, Liupanshui (六盤水) collected pollutant discharge levies totaling RMB 55.28 million, thus meeting 166.5% of their annual target of RMB 33.2 million, and breaking another historic record.⁶⁴ In 2006, money raised from the pollutant discharge levy revenue in Guiyang (貴陽) surpassed RMB 40 million for the first time, and totaled RMB 41.16 million.⁶⁵ In Bijie District (畢節), by 31 November 2006, the pollutant discharge levy had raised RMB 32.76 million, exceeding the RMB 21 million target, which represented a growth of 171.8% over the same period last year.⁶⁶

⁶² “In January and February, Guizhou’s large-scale industrial enterprises realised fast profit growth (“1-2 月貴州規模以上工業企業利潤實現高速增長”),” National Bureau of Statistics Website, 4 April 2007.

⁶³ “Guizhou import and export data in February 2007 (“2007 年 2 月貴州進出口數據”),” Provincial Statistics Website, <http://provincedata.mofcom.gov.cn/hotdate/disp.asp?pid=22146>.

⁶⁴ “In 2006, the pollutant discharge levy in Liupanshui raised RMB 5.5 million (“六盤水市 2006 年排污費突破 5500 萬元”),” Liupanshui Environmental Protection Department, 16 January 2007.

⁶⁵ “Guiyang strengthens efforts to collect pollutant discharge levies (“貴陽市加大排污費徵收力度”),” 9 February 2007.

⁶⁶ “Bijie District’s pollutant discharge levy reaches new level (“畢節地區排污費徵收再上新臺階”),” 11 December 2006, <http://www.gzhjbh.gov.cn>.

In late January 2007, the Guizhou Development and Reform Commission published the “The 11th Five-Year Specific Plan of Guizhou Province for Environmental Protection”, which announced eight missions for Guizhou’s environmental protection. The first mission was to implement controls on the quantity of pollutants released and full implementation of the pollutant discharge licence system. This requires that by 2010, the release of major pollutants will be kept within government parameters.⁶⁷

The Background to Guizhou’s Pollutant Quantity Control and the Pollutant Discharge Licence System

The pollutant discharge licence system in Guizhou was promoted vigorously because of the rapidly worsening environment in China. In 2006, the quantity of major pollutants increased rather than decreased. The sulphur dioxide (mainly air pollution) and chemical oxygen quantity (mainly water pollution) grew by 1.8% and 1.2% respectively relative to that in 2005. When compared with the 13.1% and 5.6% growth levels recorded in 2004, the growth of pollution did at least slow down last year. However although some progress in environmental protection has been made, overall environmental conditions are still worsening. For example in 2006, the amount of waste water discharged increased by 2.7% in Guizhou. Meanwhile the quantity of industrial waste water discharged fell by 3.4%, apparently as a result of the more vigorous collection of the pollutant discharge levy.

Premier Wen Jiabao, pointed out in the 2007 Government Working Report that pollution record levels for heavy industry, especially the big energy consumers, was growing too fast, and many backward production facilities were still operating in the market. Some localities and enterprises have not strictly implemented the environmental statutory requirements and standards. Premier Wen Jiabao stressed that the indicators put forward by the 11th Five-Year Plan on energy saving and discharge reduction were serious matters, they could not be modified, and must be implemented.⁶⁸

⁶⁷ “The provincial Development and Reform Commission compile the 11th Five-Year Plan for environmental projects (“省發改委制定“十一五”環保專項規劃)”, 22 January 2007, <http://www.gzhjbh.gov.cn>. The targets ordered by the central government include reducing pollution by 2% annually. If the standard could not be reached in 2006, it had to be reached over the remaining four years of the 11th Five-Year Plan, resulting in a total reduction of 10%.

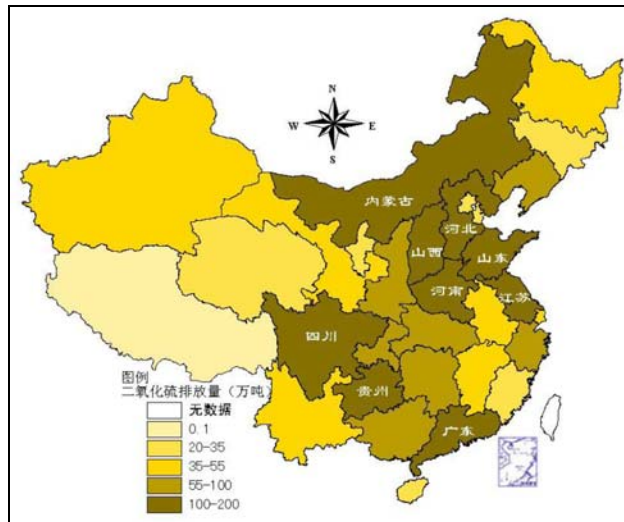
⁶⁸ “The 2007 Government Working Report” by Premier Wen Jiabao, 5 March 2007.

The Chairman of the State Environmental Protection Administration, Mr. Zhou Shengxian (周生賢) stated at the 2007 Provincial Environmental Protection Department Heads' Conference that the task of reducing pollution must be completed, and that a strict inspection system for reducing discharges must be introduced within a system which is accountable.⁶⁹

In 2006, the Chinese government sent pollution quantity control targets (mainly for chemical oxygen levels and sulphur dioxide) to the provinces, and signed letters of responsibility with local leaders (provincial chiefs and mayors, etc). All provinces passed on the pollution quantity control targets to counties (cities and districts) and major enterprises, and signed letters of responsibility with those in charge. It is apparent that the pollution quantity control targets will be a more important factor in the evaluation of officials and enterprises in the future.

As for Guizhou, it hosts coal, electricity and metal industries, which are energy-consuming, heavily polluting and responsible for discharging substantial quantities of sulphur dioxide. Therefore, the pressurised mission for reducing sulphur dioxide will be more difficult to achieve than the national average (see Figure 2-1). Against this background, it would be logical for Guizhou to choose the full implementation of compulsory measures for pollution quantity control and the pollutant discharge licence system.

Figure 2-1: Distribution of Sulphur Dioxide Pollution



Source: State Environmental Protection Administration Website, <http://www.sepa.gov.cn/download/2004zs.pdf>.

⁶⁹ State Environmental Protection Administration Website.

In August 2006, as part of the 11th Five-Year Plan, the state council confirmed that under major pollution discharge quantity control plans, Guizhou must reduce 15% of its sulphur dioxide emissions. This reduction is higher than the national average.

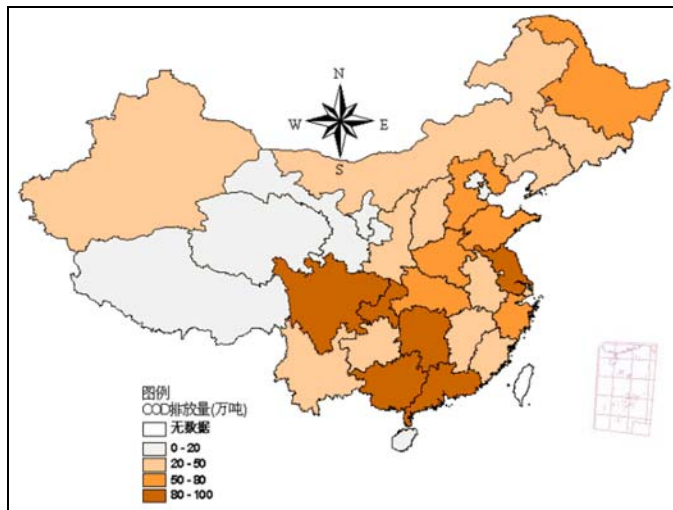
Table 2-9 : The Plan for Sulphur Dioxide Pollution During the 11th Five-Year Plan

Province	Discharge in 2005 (million tons)	Control Level in 2010 (million tons)		2010 Compared with 2005 (%)
		Total	From Electricity	
China	25.494	22.647	9.517	-11.9%
Guizhou	1.358	1.154	0.358	-15.0%
Sichuan	1.299	1.144	0.395	-11.9%
Guangdong	1.294	1.100	0.554	-15.0%
Shenzhen	0.044	0.035	0.028	-20.0%
Guangxi	1.023	0.922	0.21	-9.9%
Yunnan	0.522	0.501	0.253	-4.0%

Source: “The State Council’s response to major pollutant discharge quantity control plans during the 11th Five-Year Plan,” http://www.sepa.gov.cn/law/fg/gwyw/200611/t20061117_96183.htm.

As for the chemical oxygen discharge level, the indicators in Guizhou are lower than the national average (see Figure 2-2), and so the pressure is relatively lighter.

Figure 2-2 : Distribution of National Chemical Oxygen Discharge Levels in 2004



Source: State Environmental Protection Administration Website, <http://www.sepa.gov.cn/download/2004zs.pdf>.

The Main Content of Guizhou's Pollutant Quantity Control and the Pollutant Discharge Licence System

The pollution discharge quantity control represents the goal, and the pollutant discharge licence system is the means to achieve this goal. The evaluation will be carried out by the environmental department, under executive supervision, using a market mechanism, to achieve the goal of pollution discharge quantity control, and reduce the costs associated with treating pollution. The main content of Guizhou's pollution quantity control and pollutant discharge licence system is as follows:

1. Full implementation of pollution quantity controls - orders from the Provincial Government for indicators on pollution quantity control will be passed onto the polluters. Furthermore, pollution quantity control shall be a key criterion for project approvals. Veto power is given to the environmental protection department to reject projects.
2. For areas exceeding pollution quantity controls, or where damage to the environment is serious, or where the environment has not yet been fully restored, there will be suspension of approval for new projects which will likely increase pollution quantity levels or projects likely to have a substantial impact on ecology, until the environmental impacts have been properly managed.
3. The control over principal sources of pollution will be strengthened. Automatic supervisory facilities shall be installed in the following instances: 20% of major sources of provincial pollution, 10% of major sources of local pollution, and waste water treatment plants. Water function areas are designated to rivers that length exceeding 300 km, major industrial areas, concentrated water sources, and large- and medium-sized water reservoirs. Annual quantities of pollutant discharge, controlling and reduction were planned.⁷⁰

⁷⁰ “Guizhou's new pollution quantity controls and pollutant discharge licence system (“貴州：實施污染物總量控制和排污許可證制度”),” Xinhua Net Guizhou Channel, http://www3.xinhuanet.com/chinanews/2007-02/16/content_9327056.htm.

4. Full implementation of the pollutant discharge licence system. All polluters must apply for pollution permits, which may be cancelled if the polluter discharges more pollutants than their limit. The discharge of pollutants without pollution permits or excessive discharge of pollutants will be prohibited.
5. Pollution reporting and pollution levy software will be introduced to strengthen pollution reporting, and the management and collection of pollution levies. Problems such as false, inadequate and omitted collections will be investigated.⁷¹

The Chinese Pollution Levy System

The pollution permit system is an administrative measure whilst the pollution levy system is an example of a market mechanism, which internalises the external costs of environmental damage.

As early as 1982, there was a requirement for pollution levies. In 1997, Guizhou formulated the “Methods for Guizhou Pollution Discharge Registration and Management of Pollutant Discharge Permits”. However, the results were not satisfactory, and did not achieve the goal of controlling pollution. The main reason was that government officials at all levels cared predominantly about GDP and their short term interests, often at the expense of the environment. In addition, there were insufficient funds, technology and staff available. Local environmental departments were not capable of conducting widespread research and studies, and unable to handle the information relating to environmental capacity and sources of local pollution. As a result, it has been difficult to set reasonable local pollution control targets, or grant a reasonable quantity of pollution permits. This has adversely affected the formation of the market for pollution permits, and the realisation of pollution quantity control targets. Moreover, Mainland businesses often lack a keen sense of social responsibility for environmental protection, and together with an imperfect system of pollution permits trading, has led to a whole society lacking environmental sense or commitment to reducing pollution.

⁷¹ “Guizhou expedites the transformation from ordinary law enforcement to automated information (‘‘貴州省加快從常規執法手段向自動化信息化轉變’’),” State Environmental Protection Administration Website, 15 March 2007, http://www.sepa.gov.cn/info/gxdt/200703/t20070315_101642.htm.

As a result, on 1 July 2003, the Central Government enforced regulations such as the “Pollution Levy Collection and Usage Management Regulation”, the “Pollution Levy Standard Management Methods” and “the Management of Funds from Collection of Pollution Levy”, and established a computer system for the calculation of the pollution levy. Furthermore, there was a major adjustment to the levy standards including: change from exceeded pollutant quantity to total quantity; change from single concentration parameter to mixed concentration-quantity standard; from low levy standard to compensatory rehabilitation cost.⁷²

In order to encourage local governments to implement the pollution levy mechanism, the Central Government allowed local governments to collect pollution levies and divide the revenue in the proportion of 1:9 between central and local governments. Since 2003, the national pollution levy has risen considerably. It increased from RMB 7.09 billion in 2003 to RMB 12.32 billion in 2005 and further to RMB 14.32 billion in 2006.⁷³ In Guizhou, levy revenue increased by 145% between 2003 and 2005. This growth level was the highest, whereas the quantity came second in the four southwestern provinces/region (see Table 2-10).

Table 2-10 : Summary Environmental Protection Statistics in 2005

Province	Pollution Levy (RMB million)			Direct Economic Loss from Pollution (RMB million)	Penalty for Pollution (RMB million)	Compensation for Pollution (RMB million)	The Ratio of Penalties and Compensation for Pollution to Direct Economic Loss from Pollution (%)
	2005	2004	2003				
China	12,315.87	9,418.46	7,089.75	105.15	7.08	23.74	29.3%
Guangdong	959.07	740.02	684.75	61.28	0.55	0.17	1.2%
Sichuan	402.23	282.24	228.08	1.53	0.64	1.31	127.7%
Guizhou	339.62	222.68	138.71	0.58	0.34	0.28	106.7%
Guangxi	261.24	223.17	149.62	3.70	0.28	3.12	91.8%
Yunnan	194.15	153.52	91.48	2.22	0.24	2.61	127.7%

Source: State Environmental Protection Administration.

⁷² “The Chinese pollution levy system (“中國的排污收費制度”),”

<http://www.chinapower.com.cn/article/1072/art1072136.asp>.

⁷³ “In 2006, the national pollution levy exceeded RMB 14.3 billion (“2006年全國排污費徵收超過143億元”),” State Environmental Protection Administration Website, 11 January 2007.

In fact, there is an urgency and necessity to the implementation of the pollution levy system. Recently, there have been many serious pollution incidents, such as the more well known one in the Songhua River (松花江). The penalty and compensation for pollution far from covered the direct economic loss. For example, in 2005, penalty and compensation only accounted for 29.3% of the direct economic loss and the loss has yet to incorporate the indirect losses and consequential environmental treatment costs. The “penalty (and compensation) to loss” discrepancy was the most serious in Guangdong, where the ratio was as low as 1.2%! Pollution in Guangdong is believed to have been caused by the many dyeing, electroplating and leather factories, many of which are Hong Kong businesses. As a result, Guangdong has been vigorously dealing with its pollution problems in recent years.

The electricity industry has been the most affected by the new pollution levy system. According to the pollution levy standards effective from 1 July 2003, the pollution levy for every pollution unit of sulphur dioxide was RMB 0.2. The levy went up to RMB 0.4 on 1 July 2004 and further to RMB 0.6 on 1 July 2005. According to experts in the industry, when the new regulation came into force, the pollution levy paid by electricity enterprises increased by about 17%. For every kilowatt of electricity, the cost inflated by 4 cents. Adding up other pollution charges, the environmental protection costs of the electricity industry have increased by about 10 times. Thus, electricity enterprises have been made to pay a heavy cost for controlling pollution.⁷⁴

In April 2007, the National Development and Reform Commission published a report, stating that following the principle of polluter pays, the externality of environmental pollution costs would be internalised, so that during the 11th Five-Year Plan, the sulphur dioxide pollution levy will be gradually increased to cover treatment costs. The levy standard for other major pollutants will be adjusted in due course.⁷⁵ Once this proposal is implemented, it will affect all industries relating to electricity, steel, nonferrous metals, chemicals and coal. There will be an immediate impact on the electricity and nonferrous metals industries, which are the major industries in Guizhou. However, the proposal will benefit Guizhou in lowering the quantity of pollutants, and forcing relevant industries to reduce pollution levels by way of technological and managerial advancements.

⁷⁴ “The Chinese electricity industry has the tough job of environmental protection in the 10th Five-Year Plan (“我國電力工業“十五”環保工作難點透視”),” Thermal Dynamics Engineering Design Briefing, 1st edition, 2004.

⁷⁵ “National Development and Reform Commission: Increasing the sulphur dioxide pollution levy to match treatment costs (“發改委：二氧化硫排污費力爭提高到治污全部成本”),” Xinhua Net, 4 April 2007.

Moreover, according to the national pollution levy data from 2004, the gas pollution levy accounted for more than 50% (see Table 2-11), and sulphur dioxide was the major component of gas pollution. Industrial sulphur dioxide accounted for 83.9% of the national total discharge. It is apparent that the Central Government is determined to reduce gas pollution, even if it implies slower industrial growth and higher production costs.

Table 2-11 : The Components of the National Pollution levy in 2004

Items	Pollution Levy (RMB million)	Percentage to Total Pollution Levy
Total Pollution Levy	9,418.46	—
Air Pollution Levy	4,966.15	52.7%
Waste water Pollution Levy	3,431.68	36.4%
Noise Pollution Levy	683.47	7.3%
Solid Waste Pollution Levy	337.16	3.6%

Source: State Environmental Protection Administration,
<http://www.sepa.gov.cn/download/2004zs.pdf>.

Lessons for Hong Kong and Policy Suggestions

Recently, China and Guizhou implemented a series of measures for pollution quantity control and a pollutant discharge licence system, indicating the determination of the central and local governments to protect the environment. This is a stern warning to Hong Kong businesses regarding their present mode of operations in the PRD, and also to electricity companies in Hong Kong.

Hong Kong Manufacturers in the Pearl River Delta (PRD)

Although China presently focuses on gas pollution, it has not lowered its guard on waste water pollution. In consideration of the extensive impact of waste water in the upper reaches of rivers, the Central Government will focus on areas such as the southwestern provinces of Sichuan and Yunnan. The next target will be the replacement of waste water pollution in the lower reaches of the Pearl River and Yangtze River, which corresponds to the PRD and the Jiangsu-Zhejiang region. In fact, when people in those regions become more affluent, they will demand a better environment because while they enjoy more wealth, they will also

suffer from the effects of further environmental pollution, such as the salty tide affecting Zhuhai and Shenzhen.

Local governments will not be as lenient on manufacturers that pollute as they have been before. Instead, they will strictly control pollution permits and raise the pollution levy, in order to replace and drive out polluting businesses. Since the Central Government and local governments share the revenue from pollution levies by a ratio of one to nine, local governments have incentives to enforce measures against pollution. Therefore, Hong Kong manufacturers in the PRD will be subject to more pollution levies with no room for downward adjustment. When the Central Government asks Mainland enterprises to internalise pollution costs through the pollution levy and higher production costs, it puts pressure on Mainland enterprises to upgrade their technology. In the future, administrative measures arising from this thinking will keep emerging across the country.

It is impossible for Hong Kong manufacturers in the PRD to move polluting industries to other inland provinces, since the policy of the Central Government is a national policy uniformly applied across the country, regardless of the levels of regional development. Most small businesses in Hong Kong face severe environmental cost pressures. They are either unable or unwilling to advance their technology, and may be forced to close down. This will impact on the development of related industries and services, and will ultimately affect the Hong Kong economy, which relies on small and medium sized manufacturers focusing on exports. Of course, China and the world pay a lot of attention to environmental protection, thereby encouraging environmental industries to grow. Hong Kong businesses could seize upon these commercial opportunities.

The Hong Kong Electricity Companies

It is well known that 92% of sulphur dioxide pollution, 49% of nitrogen oxide pollutants and 51% of flowing particles are emitted from the two local power generators. In 2005, the Environmental Protection Department took action to impose an upper emission limit for local generators, and forced the electricity companies to take greater responsibility for pollution. However, this change is insufficient, when viewed from the wider perspective of China. The National Development and Reform Commission took a further step by establishing the principle that the polluter pays, and it may gradually increase the sulphur dioxide pollution levy to fully cover the pollution treatment costs. The Pilot Emissions

Trading Scheme represents only a short term commercial costing arrangement and has failed to deal with serious air pollution in Hong Kong. What Hong Kong really needs is a city characterised by low pollution, and reducing emission levels will benefit citizens over the long term.

Since air pollution can spread across regions, pollution may flow from one area to another causing the acid rain phenomenon. If Hong Kong neglects pollution from local electricity plants, it may affect nearby Guangdong and the PRD, causing an environmental conflict in the region, and raising Central Government concerns regarding Hong Kong's environmental protection efforts.

Appendix :

Appendix I : Statistical Data for the Pan-PRD Provinces/Region

Major Economic Indicators for Guangdong and the Four Southwestern Provinces/Region

Table 1 : Economic Performance of Guangdong and the Four Southwestern Provinces/Region, February 2007

Province/Region	Growth Rate of Industrial Value-added		Urban Investment in February (RMB 100 Million)		
	Feb	Jan - Feb	Jan - Feb (RMB 100 million)	Increase over the Previous Year	Proportion to National Total
National Total	12.6%	18.5%	6,535	23.4%	100.0%
Guangdong	10.0%	16.1%	550	8.1%	9.1%
Sichuan	15.7%	22.6%	354	31.6%	5.4%
Guangxi	20.9%	24.6%	181	47.2%	2.8%
Yunnan	10.0%	23.3%	186	19.6%	2.8%
Guizhou	20.3%	22.4%	82	10.2%	1.3%

Source: National Bureau of Statistics of China, <http://www.stats.gov.cn/tjsj/>.

Table 2 : Social and Personal Consumption in the Four Southwestern Provinces/Region, January to February 2007

Province / Region	Total Retail Sales of Consumer Goods				Consumer Price Index in Feb
	Feb (RMB 100 Million)	Increase over the Previous Year	Jan - Feb (RMB 100 Million)	Increase over the Previous Year	
Sichuan	315	15.1%	632	13.9%	103.2%
Guangxi	153	18.2%	311	15.4%	103.6%
Yunnan	100	16.7%	205	15.9%	104.1%
Guizhou	63	10.7%	130	10.5%	103.4%

Source: *China Monthly Economic Indicators*, Vol. 86, May 2007, p. 94, 112.

Table 3 : Total Value of Foreign Trade in the Four Southwestern Provinces/Region, January to February 2007

Province / Region	Total Value of External Trade			Total Value of External Trade by Foreign-Invested Enterprises	
	Jan - Feb (RMB 100 Million)	Proportion to National Total	Trade Balance (USD 100 million)	Jan - Feb (RMB 100 Million)	Proportion to Regional Total
Sichuan	17.2	0.6%	4.5	5.4	31.4%
Guangxi	10.7	0.4%	0.6	3.5	32.8%
Yunnan	11.0	0.4%	-0.6	0.8	6.9%
Guizhou	2.7	0.1%	0.5	0.3	9.4%

Source: *China's Customs Statistics* (Monthly Exports & Imports), Series No. 210, Feb 2007.

Appendix II : English-Chinese Glossary of Terms

Barbadosnut Bio-diesel	小油桐生物柴油
Biomass Fuel	生物燃料
Carbon Sink	碳匯
Clean Development Mechanism (CDM)	清潔發展機制
Clean Urban and Rural Areas Project	城鄉清潔工程
Eco-agriculture	生態農業
Ecological Forest Tourism	森林生態旅遊業
Featured Commercial Forests	特色經濟林
Forestry-paper Integration	林紙一體化
Harbour Area Treatment Scheme	淨化海港計劃
Harmonious Society	和諧社會
Husbandry	養殖

Intensive Processing	深加工
Methane Gas Tank	沼氣池
Reforestation in the Pearl River Basin of Guangxi	廣西珠江流域再造林
Renewable Energy	再生能源
Returning Farmland to Forest	退耕還林
Stone Desertification	石漠化
Sustainable Development	可持續發展
Small Hydropower-for-fuel Project	小水電代燃料生態保護工程
The 11 th Five-Year Specific Plan of Guizhou Province for Environmental Protection	《貴州省“十一五”環境保護專項規劃》
Ten Action Plans to Benefit the People	十大惠民行動
The Pilot Emissions Trading Scheme	排污交易試驗計劃
The Pollutant Discharge Licence System	排污許可證制度