Exploring on Forest Ecological Compensation (FEC) Mechanism of Beijing

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- Beijing is located in the northwest corner of the ecologicallyfragile North China Plain (N39° 56' & E116° 20').
- Water is scarce here. It borders on Tianjin Municipality in the southeast and the remaining part is surrounded by Hebei Province.



- Total area: 16,400 Km², percentage of the mountainous area:61.4%
- The north western part is higher than its south east; its west, north and northern east are surrounded by hills, while the south eastern part is plain.
- Summer is hot and rainy, winner cold and dry; average annual rainfall amounts to 585mm, mainly focuses between May and August.
- Primeval vegetation is deciduous broad-leaved forest of the warm temperate zone. Till the end of 2007, forest coverage rate was35.6%, greening rate is 51.6%.
- Till the end of 2007, the number of residents there reached 16.33million.



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- Miyun Reservoir watershed area is 15,788 km,2/3 of which is in Chengde City and Zhangjiakou City of Hebei Province, 1/3 is in Beijng(4,500 Km²);
- Total water storage amount is 4.375billion m³, 53% of which comes from Cicheng County of Zhangjiakou City
- It provides 60% of drinking water for urban Beijing





- Eco-environment for Beijing's sustainable development is fragile
 - Water shortage
 - Water environment deterioration
 - Forest quality and ecological functions in mountainous areas are not so desirable
- Eco-environment of its neighboring provinces and cities is in need of improvement
- Regional development is unbalanced
- Beijing's rapid social and economic development

- Eco-environment for Beijing's sustainable development is fragile
 - Water shortage
 - Beijing water resource amount per capita is less than 300 cubic meters, 1/8 of the national average, 1/30 of the world average



Eco-environment for Beijing's sustainable development is fragile

Water shortage



Major natural factors that constrain Beijing's sustainable social and economic development

- Forest quality and eco-function of the mountainous area are not so desirable
 - Mountainous forest is irreplaceable in containing water, conserving water and soil, cleansing water quality, etc.
 - Beijing's total forest area is 1,054 thousands hectares, 843 thousands hectares are eco-forest, taking up 79.9% of total forest area; mountainous eco-forest area is 769 thousands hectares, taking up 91.2% of the total eco-forest area.
 - Current eco-forest structure pure coniferous forest and young-medium age forest are high in percentage) is not reasonable, its quality is not high and functions like water source protection are undesirable



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- Eco-environment of Beijing's neighboring provinces and cities need to be improved
 - Neighboring Hebei and Shanxi, Inner Mongolia are cities located along the way of sand storm hitting Beijing from east and middle directions and are also sand source of Beijing
 - Zhangjiakou and Chengde area of Hebei are Beijing's northern gateway, serving as a key eco-screen in protecting Beijing from western and northern sand, and is also a key water collection centre for Miyun and Guanting Reservoirs.
 - Green effort in Zhangcheng area has a direct bearing on Beijing's air and water quality



- Unbalanced regional development
 - Beijing's mountainous area and Zhangcheng area are constrained in industrial growth due to water source and eco-environment protection; the social and economic development there are undesirable









Beijing's rapid social and economic development

Beijing GDP in 2007 topped 900billion Yuan , realizing 9 years' of doubledigit growth , its economic growth speed reached 12.3 % !



Data source: Beijing Municipal Bureau of Statistics

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Practice of the Main Part of FEC



Project Compensation

- Project of Beijing-Tianjin
 Sand Source Control
- Construction Project of Three-North Shelter Forests
- Taihang Mountain
 Afforestation Project
- Project of Protection and Control of Sand
- Construction of Green
 Channels of 5 Rivers and
 10 Roads
- Project of Eco-Restoration of Abandoned Mines
- Construction Project of
- Afforestation of the Second Green I





Implement Eco-Construction Projects

* Project of Beijing-Tianjin Sand Source Control

- Forestry Measures
 - Land Convert Program
 - Project of Enclosing Mountains for Afforestation
 - Project of Sapling Forest Nurturing
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- Agricultural Measures
 - Artificial Grassland
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- Water Conservancy Measures
 - Comprehensive Control of Small River Basins
- Ecological Migration

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Land Conversion Program

The project covers seven counties and districts with a population of 294,000 of 207,000 households. It is designed to complete between 2000 and 2004. The project covers an area of 70,000 hectares including 36,700 hectares of forests converted from cultivated land and 33,300

hectares of supporting afforestation on barren hills.



Land Conversion Program

- Land Conversion Program is mainly oriented towards building up eco-forests including a controlled area of economic forests.
- The project is concerned with a grain compensation of 129 million kg and a cash compensation of RMB 25.8 million yuan. The total project-oriented fund is RMB 420.88 million yuan including RMB 43.5 million yuan plan-invested by the Central Committee and RMB 170.98 million yuan by the municipal and county supporting funds.



Ecological Migration

> 40% of the mountainous areas of Beijing Municipality are situated in areas of incidental mud-rock flows.





北京市突发性地质灾害易发区划图

Combined with Under-the-Tree Economies



Forest-Poultry 株禽模式 Mode 林牧间作 正世校 Forest-Animal-Plusbanchy Pow Intercropping 1 823PM



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Eco-migration

- Eco-driven Relocation of Mountainous Residents of Beijing Municipality involved a population of 2,480 for 2000 ~ 2004;
- Relocation for 2004 ~ 2007 included a mountainous population of 30,585 of 11,340 households of the whole municipality.



Mountainous FEC Mechanism

- In August of 2004, Beijing became the first of our country to establish the mountainous FEC mechanism; on December 1st, 42990 eco-forest wardens formally went on duty in 103 townships of 10 districts and counties.
- The compensation, oriented towards a total area of 608,000 hectares of the collective-possessed eco-forests, is RMB 400 yuan for each person per month starting in 2004 and lasting up to 2010 (provisional deadline).
- The compensation fund is invested by the financial divisions at the level of municipality, district and county and given to the rangers directly by the town and the township financial departments by the principle of special fund for special purposes.
- Up to the end of 2007, there were more 46908 ecoforest rangers across the whole municipality maintaining an area of 674,000 hectares of eco-forests.

Mountainous FEC Mechanism

- Eco-forest wardens hold such duties as nurturing sampling forests, forest fire prevention and pest prevention and control.
- The mountainous FEC mechanism facilitates the transition of peasants from living on mountains to living on maintain afforestation, as has also speeded up the construction of the forest industry and improved the forest management, the mountainous economic development and social progress.





Employment Compensation

- Forest warden
- Water warden
- Rural Cleaners
- Rural Roads warden
- Land and Mine Resources Warden

Incomplete statistics up to the end of 2007 showed that the Municipality had provided as many as 100,000 ecology-related job posts for the peasants in the form of governmental purchase of public services.







Cross-province FEC

On October 11th, 2006, governments of Beijing and Hebei signed in Beijing the Memorandum of Beijing Municipal People's Government and Hebei Provincial People's Government on Consolidation of Cooperation in Economic and Social Development.

The Cooperation covered nine aspects: construction of the basic traffic infrastructure, protection of water resource and ecoenvironment, development of energies, industrial adjustment, industrial park zones, agriculture, tourism, labor service and public heath.



Cross-province FEC

- Beijing-Hebei Symposium on Deepening Cooperation in Economic and Social Development and Project Signing Ceremony Were Held in Beijing On December 4th, 2008.
- At the symposium, Mr. Guo Jinlong, mayor of Beijing Municipality and Mr. Hu Chunhua, governor of Hebei Province, respectively on behalf of Beijing Municipality and Hebei Province, signed the Memorandum of Beijing Municipal

People's Government and Hebei Provincial People's Government on Further Deepening the Cooperation in Economic and Social Development. Some enterprises and units of the two regions signed the project cooperation agreements.



Cooperation in Protection of Water Resources and Ecological Environment

- According to the Beijing-Hebei Cooperation Memorandum, Beijing Municipal Bureau of Parks and Forestry compiled the 2009-2011 Implementation Plan for the Project Concerning Construction of the Protective Forests for Eco-water Sources and Cooperation in Protection of Forests of Beijing and Hebei.
- The implementation plan consists of the Project of Construction of the Protective Forests for Ecological Water Sources in Beijing and Hebei and the Project of Cooperative Protection of the Forests in

Beijing and Hebei.



The Project of Construction of the Protective Forests for Ecological Water Sources in Beijing and Hebei

- The Project covers the four counties of Fengning, Luanping, Chicheng and Huailai of Hebei Province, the main water catchment area on the upper reaches of the rivers leading into Miyun and Guanting Reservoirs, and the first watersheds of the main watercourses of Chaohe River, Baihe River and Yongding River and their tributaries. The Project is planned to cover an area of 59,700 hectares.
- The Project outcomes will be 13,300 hectares of water source protective forests with the respective annual tasks of 5,300 hectares, 4,000 hectares and 4,000 hectares.
- Investment is designed to be RMB 7,500 yuan/ hectare.
- Construction Fund: the total investment is RMB 100 million yuan.



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Sketch Map of the Locations for the Project of Cooperative Protection of the Ecological Water Sources in Beijing and Hebei



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The Project of Cooperative Protection of the Forests in Beijing and Hebei

- The Project will cover the prefectures, municipalities and counties of Beijing and Hebei such as Fengning, Luanping, Xingnong, Chengde, Huailai, Zhulu, Chicheng, Laishui and Sanhe, etc.
- The Project construction includes improvement of the forest fire monitoring system, forest fire control and fighting commanding system, the necessary materials, equipment and facilities for the professional fire fighting teams, the joint control of the harmful animals against the forest woods and the cooperative mechanism of joint prevention and joint control of the bordering forests between Beijing and Hebei.
- Construction Fund: the total investment of the Project is RM 50 million yuan.







Cooperation in Protection of Water Resources and Ecological Environment

- Moreover, Beijing and Hebei will cooperate in the two-phase Project of Planting Such High Value-added but Low Waterconsumption Crops as Corn instead of Rice Paddies across an area of 12,200 hectares in Zhangjiakou and the Upper Reaches of Rivers Flowing into Miyun and Guanting Reservoirs.
- Beijing Municipality will compensate the peasants for the loss of gains for planting corn instead of rice paddies by RMB 550 yuan/mu/year.
- At present, the transformation of the 6,900 hectares on the upper reaches of Miyun Reservoir has been completed already.
- Self-generation of methane gas is encouraged and supported in Zhangjiakou and Chengde, as can protect the forestry resources and help improve the eco-environment.
- Beijing has planned RMB 100 million yuan for comprehensive improvement and control of the water environment pollution and development of water-saving industries across the upper reaches of Miyun and Guanting Reservoirs for the period of 2005 till 2009.



Problems

- The existing mountain area FEC system doesn't embody the essence of FEC for it only provide salary-based compensation to limited subjects ,that is the zoology supervisors.
- The system was made without sufficient scientific support and the compensational standards are too fixed.
- The term of compensation is too limited and not a long-term one.
- The government finance based FEC system is too simple with a low degree of marketization and social participation.
- The related regulations and laws are of lots of defects.

Next step

- We should build a FEC with long-term effects based on forest carbon-exchange profit to improve the existing FEC system.
 - We should make the standard of FEC scientific and rational by making forest carbon exchange the basic calculating tool and according to the social economic development and fiscal income.
 - Basic compensation should be realized in combination with collective forest system reform.
 - Increasing-effect compensation should be carried out in combination with forest management.
 - We should explore the Beijing carbon exchange model ,set up a carbon exchange market participated by government, business and individuals.
- We should strengthen the coordination with profit-concerned parties and improve river- FEC in inter-districts.

Thank you!