

**Summary Report of NEASPEC Capacity Building
Programme-Training on Combating Desertification for
Mongolian Experts**

19-26, September 2011



Organizer: *United Nations Economic and Social Commission for Asia and the Pacific
National Bureau to Combat Desertification, State Forestry Administration, China*

Co-Organizer: *Institute of Desertification, Chinese Academy of Forestry
Forestry Department of Inner Mongolia Autonomous Region
People's Government of Erenhot Municipality*

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Abbreviations and acronyms

BFU	Beijing Forestry University
BUU	Beijing Union University
CAF	Chinese Academy of Forestry
DDG	Deputy Director General
DSS	dust and sand storm
ERG	Elion Resources Group
FDIMAR	Forestry Department of Inner Mongolia Autonomous Region
IBCAS	Institute of Botany, the Chinese Academy of Sciences
IDS	Institute of Desertification Studies
IMAF	Inner Mongolia Academy of Forestry
MNET	Nature Environment and Tourism
NBCD	National Bureau to Combat Desertification
PGEM	People's Government of Erenhot Municipality
SFA	State Forestry Administration
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific

In China, the total area of desertification is 2.6237million km², taking up 27% of the territory, located in 508 counties of 18 provinces. In Mongolia, 90% of land is vulnerable to desertification and land degradation, and 72.3% of Mongolia's territory is affected by the desertification, out of which 5% is very severely. Therefore, combating desertification is the problem faced by both China and Mongolia.

1. Brief Introduction of the Training

During 19-26, September 2011, the "NEASPEC Capacity Building Programme-Training on Combating Desertification for Mongolian Experts" was successfully held in Erenhot, Inner Mongolia Autonomous Region, China, which was organized by UNESCAP and NBCD, SFA, co-organized by IDSCAF, FDIMAR, and PGEM. 42 Participants attended the training workshop, including high level officials, scientists and experts from Chinese government, research institutes, universities and 19 participants from Mongolia. Thematic presentations and discussions with Mongolian participants were delivered in the topics of laws and regulations, strategies and policies, technology and experiences of combating desertification in China. One day field trip were organized

The overall objective of the training workshop is to enhance bilateral cooperation between China and Mongolia on combating desertification and land degradation, to share the knowledge and experience between Chinese and Mongolian experts.

Mr. Huang Jian, vice president of CAF, delivered an opening speech. Mr. Huang said, DSS was the common problem faced by countries in Northeast Asia. Irrational land use lead to destruction of vegetation, and the increasing of desertification sand resources exacerbated the occurrence of DSS. The Chinese government attaches great importance to combat desertification, and implemented a series of effective measures with remarkable results, not only improved the ecological status of desertification region in China, but also contributed to regional ecology and to mitigate the hazards of DSS. He highlighted the importance of this training workshop which created the basis for and enhance experience and techniques exchanges between two countries, for future cooperation.

In addition, Mr. Xu Qing, the DDG of NBCD, Mr. Qiao Yun, the DDG of FDIMAR, Mr. Bao Haikun, the vice mayor of PGEM, and Mr. L. Tumurkhuu, the secretary of Ulaanbaatar-Ministry of MNET made speeches at the opening ceremony.

In this training workshop, there are more than 10 experts and scientists from NBCD, CAF, FDIMAR, IBCAS, Government Erenhot, IMAF, BFU, BUU, IDSCAF made thematic presentations of policy and technology.

2. Brief Introduction of the Lectures

2.1 Policies, laws, regulations and general strategies

Mr. Xu Qing, DDG of NBCD, made a presentation on desertification situation and control strategies in China. Ms. Ding Rong, the director of Forestry Division, FDIMAR, introduced the main policies, laws, regulations and general strategies of combating desertification in Inner Mongolia. Mr. Sun Xiangdong, the vice mayor of Erenhot, made a special lecture on afforestation using reclaimed water in Erenhot.

The lecture of Mr. Xu Qing includes the followings four aspects: the status quo, harm of desertification and its causes in China; the measures, experiences, effects and problems of combating desertification in China; the importance analysis of combating desertification in China; the strategy thinking and countermeasures of combating desertification in China. Mr. Xu introduced emphatically on the guiding ideology, strategic objectives, basic principles of combating desertification in China, which are very important for Mongolia to make strategies and countermeasures of combating desertification.

Ms. Ding Rong's lecture introduced mainly in three aspects: the major policies of combating desertification in Inner Mongolia (the policy of capital investment; the policy of financial support and tax incentive; the policy of supporting and promoting the whole society to combat desertification); the main laws and regulations of combating desertification in Inner Mongolia; the general strategy of combating desertification in Inner Mongolia. Because Inner Mongolia is near to Mongolia, the partition treatment strategy, the key projects driving strategy, the industry driving strategy, the technological support strategy, the vegetation protection strategy and the whole society treatment strategy have important reference significance for Mongolia, which recognized widely by the Mongolian representative.

Mr. Sun Xiangdong made his special lecture of afforestation using reclaimed water on three aspects as following, the background, the main technological measures and the successful practices. He emphasized some technical details, the requirements of water resource, the setup of water intake, the pumping equipment, the main irrigation pipeline, the irrigation line in afforestation, the model and technology of afforestation and so on, which provided a good reference of afforestation using reclaimed water for Mongolia, especially for Zamiin-uud City.

2.2 Combating desertification of railway and road

Mr. Yao Honglin, the professor of IMAF, made a lecture about the application of protection technologies of railway and road in the desert region. Mr. Cai Denggu, the professor of CAF, made a lecture of Kubuqi Desert Model.

Firstly, Mr. Yao analyzed the important role of transportation in the national economy. Then, he introduced the overview and the trend home and abroad, and pointed out the guiding ideology of combating desertification for railway. Finally, he described in detail the rule of sand movement, the technology of biological control in sandy areas and the technology of preventing hazard of sand. With a large number of pictures and

examples, Mr. Yao introduced new material, new technology and new practices, which provided a useful reference for combating desertification of railway and road for Mongolian.

Mr. Cai Denggu introduced the distinctive and successful Kubuqi Desert Model created by ERG based on their 20 year experience in Kubuqi Desert. Four aspects of the model were delivered as followings: the background, the content, the major experience and the secret of success. The core contents of Kubuqi Desert Model are “three drivers”, that is the development of business driving by science and technology, the scale control of desertification driving by industry, the improvement of people’s livelihood driving by ecology. Especially, the construction of the road through Kubuqi Desert, which reflected the essence of “locking around, penetrating abdomen, dividing zone using road, treating separated zone, supporting by technology and driving by industry”, provided a fresh case to drive industry and to improve people’s livelihood using desert road. Meanwhile, the Kubuqi Desert Model attached great interest for Mongolia representatives.

2.3 Control and restoration of degraded grassland

Mr. Lu Xinshi, the professor of BFU, introduced the sustainable management of grassland and the improvement technologies for degraded grassland. Mr. Bai Yongfei, the Researcher of IBCAS, made a lecture of ecological problems, countermeasures and practices of grassland in Inner Mongolia.

Based on introduction of world grassland resources, Mr. Lu pointed out the degradation problem of grassland, and described the causes, the treatment technologies of degraded grassland. Finally, he provided the sustainable management system of grassland, which included the protection system of grassland resource, the cultivation and improvement system of grassland, the modern production and management system of grassland, the modern specialized production system of livestock, the dynamic monitoring system of grassland and the legal management system of grassland.

Mr. Bai made his presentation from five aspects as followings: the important function of grassland ecosystems; the status quo and the causes of grassland degradation; the impacts of climate change and human activities on the grassland; the development path of modern animal husbandry; and, the countermeasures and practices of development. Mr. Bai also introduced the demonstration work of Inner Mongolia Grassland Ecosystem Research Station of Chinese Academy of Sciences, which included the basic situation of the research station, the research directions and objectives, the research team, the equipment and the achievements, etc. The research station provided a good platform for China and Mongolia in the cooperation of grassland ecological research. With concrete case, Mr. Bai pointed out the fundamental way of grasslands was modernization of animal husbandry, and he also gave recommendations to the sustainable development of Mongolian grassland.

2.4 The utilization of wastewater and the technologies of combating desertification and afforestation

Mr. Yan Deren, the professor of IMAF introduced the afforestation using municipal wastewater. Mr. Lu Qi, the professor of CAF, introduced three trumps of combating desertification in China.

The lecture of Mr. Yan included two aspects: one was the process of utilization and treatment of municipal wastewater, another is afforestation technology using municipal wastewater, in other words, how to afforestation in arid region. Of which, Mr. Yan emphasized the afforestation technologies, include the drought-resistant afforestation technology, the covering afforestation technology, the time-adjust afforestation technology, the drilling deep afforestation technology, the planting directly afforestation technology, the afforestation technology using chemical product, the DJS afforestation technology and so on. He also pointed out the notice when using these technologies, provided the technological process of drought-resistant afforestation.

Mr. Lu Qi firstly introduced the status quo of desertification in China. Then, he pointed out the three trumps of combating desertification in China, which was lead by government, guaranteed by laws and regulations, supported by science and technology. Finally, with some cases, Mr. Lu introduced some practical technologies combating desertification, including the sand fixation technology of mechanical barriers, the sand fixation technology of chemical materials, the sand fixation technology of biological live barriers, the aerial seeding technology and the afforestation technology of combating desertification for railway.

2.5 Ecological tourism and planning

Mr. Wu En, the associate professor of BFU, made a lecture of eco-tourism development and management in Natural Park. Ms. Shi Jinlian, the associate professor of BUU, introduced the development and design of eco-tourism product.

The lecture of Mr. Wu mainly included three aspects: the content of tourism and eco-tourism in Natural Park, the factors affecting the quality of eco-tourism in Natural Park, the management essentials of eco-tourism management in Natural Park. Mr. Wu highlighted the environmental interpretation, environmental education, etc. and provided some unique perspectives and approaches.

In Ms. Shi's presentation, she firstly introduced the concept, the content and the background of eco-tourism, and then she introduced the philosophy of development and design of eco-tourism, pointed out the principles of conservation-oriented development of eco-tourism products. Finally, with cases, she explained the strategies of conservation-oriented development of eco-tourism products.

3. The cooperation fields and direction of combating desertification for China and Mongolia in the future

The Mongolian participants agreed that there are many similarities between China and Mongolia, especially in the aspect of combating desertification, because China and Mongolia are very near, particularly for Erenhot and Zamiin-uud, only 9 km from the interval between the two cities. Participant of this training workshop, allowed them heard the lectures of well-known experts and scientists in China, not only learned the strategies, the laws and regulations and the policies of combating desertification in China from the macro level, but also learned some technical details of combating desertification from the micro level. For example, the technology of combating desertification of railway and road, the afforestation technology using reclaimed water, the technology of management and restoration of grassland, and the technology of eco-tourism development. Meanwhile, the Mongolian participants said that if there were similar training and cooperation in the future, they would like to cooperate fully and participate actively.

In China, the Communist Party of China and the People's government attach great importance to combat desertification, and implemented a series of effective measures. In particular, these years, there were more effective measures, such as the control according to law, the lead by policy, the scale treatment, the full mobilization, the project control, and the integration into the international. After a long hard work, China has made important progress, such as the major breakthrough in desertification control, the construction of key projects to combat desertification, the significant progress of desert characteristics industrial and so on.

Each lecture in the training workshop embodied the advanced theory, the successful cases, lessons learned in combating desertification in China. The purpose was to exchange and discuss with Mongolian participants widely and deeply in the fields of combating desertification, to learn from each other, to exchange availability, to promote the development of the technology of combating desertification jointly, to promote the harmony between man and nature and to achieve sustainable development.

During the training, the experts, scientists and the Mongolian participants conducted in-depth and fruitful discussion, explored the fields and direction of further cooperation in combating desertification between China and Mongolia in the future.

3.1 Integrated management of grassland pastoral area

In this field, there are great potential to move forward cooperation on combating desertification between China and Mongolia.

Firstly, the exchange of information and collection of resources of pasture resources. In the past 30 years, China has bred more than 400 north grassland suitable grass seeds. And Mongolia also has grassland species for two countries, so China and Mongolia can strengthen cooperation in this field in the future.

Secondly, the common problem faced by China and Mongolia is how to solve the grassland productivity. At present, China has explored a lot of management techniques for degraded grassland, such as the restoration technology of fencing, the regionalization rotational grazing technology, the artificial grassland technology, the technology of captive with supplement feeding for grazing livestock, and seasonal animal husbandry and so on. The mutual learning and exchange of these technologies between China and Mongolia is an important aspect of cooperation in the future, for example, Mongolia can learn from China to establish some artificial grassland to deal with lack of grass, can determine different uses for different grassland with appropriate measures.

Thirdly, the cooperation can be in the field of ecological monitoring network. China's ecological monitoring network is relatively mature, relatively speaking, the basis of the network in Mongolia is weak. Thus, China and Mongolia can learn from each other and can have wide-ranging cooperation. In the future, Mongolia can also send technicians to the Inner Mongolia Grassland Ecosystem Research Station of Chinese Academy of Sciences to conduct investigations, to establish grassland and forests ecosystems monitoring network jointly, to provide services for pastoral grassland.

Finally, to carry out the study of ecosystem changes under the climate change of China and Mongolia. The Mongolian Plateau is the most sensitive areas to global change, especially has great response to the precipitation and global warming. Therefore, the potential of cooperation is great in this field for China and Mongolia. In short, it is our ultimate goal to build a sustainable grassland ecosystem, to balance between grassland and livestock, and to apply advanced technologies to transfer the grassland productivity to the livestock productivity.

3.2 The land resources utilization and the reusing of waste water

China has many success cases, especially the afforestation technology using reclaimed water in Erenhot. It is a typical case fully using municipal wastewater combined with afforestation technology, which has a great reference meaning for Mongolia. In the future, Mongolia and China may conduct in-depth cooperation in this field.

3.3 Sand control technology of railway and road

There are big room for China and Mongolia in the field of sand control technology of railway and road. On the one hand, both China and Mongolia are facing the railway and road sand hazards, on the other hand, there are many successful experiences of sand control technology can be referenced in China, such as the "five-belt one unit" control system of Baotou-Lanzhou Railway, the project of combating desertification of Jining-Erenhot Railway, and the Highway Project through Kubuqi Desert.

3.4 Mine reclamation

The mine reclamation is proposed in the discussion during the training workshop. With the leaping development of economy, the demand for mineral resources promotes the large-scale mining such as coal, metal ores and limestone, resulting in enormous damage to the ecological environment and natural landscape. Therefore

the mine reclamation and the operation and management of reclamation land are the problem faced by China and Mongolia. In this field, China and Mongolia can have extensive cooperation in the future. If there was opportunity in the future, Mongolia would like to introduce successful cases of mine reclamation to China.

3.5 Investigation and protection of wild animal

Because China and Mongolia are neighboring countries, there are many wild animals need to cross the border of China and Mongolia to migrate. Therefore, it is an important field for China and Mongolia to investigate and protect the wild animal, such as wild camel, gazelle and other wildlife in the future.

3.6 Eco-tourism

One of the eco-tourism connotations is the sustainable development of ecology, economy and society. It is very important for protecting environment and promoting development to develop eco-tourism. In this research class, there are many participants from Mongolia expressed the great interests in the lectures of Mr. Wu En and Ms. Shi Jinlian. Therefore, in the future, there are big room in the field of eco-tourism between China and Mongolia.

4. The Potential and Channels of Cooperation in Combating

Desertification between China and Mongolia in the Future

As China and Mongolia are sharing boundary and have similar geographic settings, both suffer from DSS. To control desertification need for regional joint cooperation, mutual learning, mutual promotion and common development. China and Mongolia have huge cooperation potential in the areas of technical and policy mentioned above.

In summary, the urgent issue is to identify the funding channel. At present, there are several channels as following: first, the fund support by Chinese government and Mongolian government; second, the fund support by the countries around, such as Korea and Japan; third, the fund support by international organizations, including UNESCAP; fourth, the fund support by the enterprises with a certain strength and keen to environmental protection; fifth, the other channels. Based on these available channels, we believe that further progress for northeast Asia dust sand mitigation could be made through better cooperation by improving the mutual communication with cooperation partners.

Annex A: List of Participants

No.	Name	Organization
1.	Xu Qing	Deputy Director General, National Bureau to Combat Desertification, State Forestry Administration
2.	Huang Jian	Vice President, Chinese Academy of Forestry
3.	Qiao Yun	Deputy Director General, Forestry Department of Inner Mongolia
4.	Bao Haikun	Vice Mayor, Government of Erenhot
5.	Zhang Jianxiong	Director, Erenhot Agriculture and Husbandry Bureau
6.	Ding Rong	Director, Inner Mongolia Forest Department
7.	Sun Xiangdong	Assistant Mayor, People's Government of Erenhot Municipality
8.	Cai Denggu	Professor, Chinese Academy of Forestry
9.	Yao Honglin	Professor, Inner Mongolia Agriculture University
10.	Shi Jinlian	Associate Professor, Beijing Union University
11.	Yan Deren	Professor, Inner Mongolia Academy of Forestry
12.	Wu En	Associate Professor, Beijing Forestry University
13.	Lu Xinshi	Professor, Beijing Forestry University
14.	Bai Yongfei	Researcher, Institute of Botany, the Chinese Academy of Sciences
15.	Lu Qi	Professor, Chinese Academy of Forestry
16.	Huang Jinhai	Director, Erenhot Agriculture and Husbandry Bureau
17.	Yu Chuntang	Project Manager
18.	Ge Yuhang	Project officer, Chinese Academy of Forestry
19.	Zhang Qun	Project officer, Institute of Desertification Studies, Chinese Academy of Forestry
20.	Li Siyao	Project officer, Institute of Desertification Studies, Chinese Academy of Forestry
21.	Wang Dongfang	Project officer, Institute of Desertification Studies, Chinese Academy of Forestry
22.	Wang Feng	Project officer, Institute of Desertification Studies, Chinese Academy of Forestry
23.	Jiang Lina	Project officer, Institute of Desertification Studies, Chinese Academy of Forestry
24.	L. Tumurkhuu	Trianee
25.	G. Amarjargal	Trianee
26.	J. Munkhtuvshin	Trianee
27.	Kh. Sergelenbat	Trianee
28.	T. Purevsuren	Trianee
29.	D. Natsagmaa	Trianee
30.	N. Bilegsaikhan	Trianee
31.	D. Ariuntuya	Trianee
32.	E. Gankhuyag	Trianee
33.	O. Azbayar	Trianee
34.	E. Byambajav	Trianee
35.	B. Enkhtuvshin	Trianee
36.	B. Orgilsaikhan	Trianee
37.	B. Oyunbileg	Trianee
38.	Ts. Belgudei	Trianee
39.	B. Tserensugir	Trianee

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No.	Name	Organization
40.	B. Doljidmaa	Trianee
41.	Ts. Dorjdulam	Trianee
42.	B. Batulzii	Trianee

Annex B: List of Presentations

1. Xu Qing, The Situation and Control Strategies of Desertification in China
2. Ding Rong, The Main Policies, Laws, Regulations and General Strategies of Combating Desertification in Inner Mongolia
3. Sun Xiangdong, Afforestation Using Reclaimed Water in Erenhot
4. Yao Honglin, The Application of Protection Technologies of Railway and Road in the Desert Region
5. Cai Denggu, Kubuqi Desert Model in China
6. Lu Xinshi, The Sustainable Management of Grassland and the Improvement Technologies for Degraded Grassland
7. Ba Yongfei, Ecological Problems, Countermeasures and Practices of Grassland in Inner Mongolia
8. Yan Deren, Afforestation Using Municipal Wastewater
9. Lu Qi, Three Trumps of Combating Desertification in China
10. Wu En, Eco-tourism Development and Management in Natural Park
11. Shi Jinlian, The Development and Design of Eco-tourism Products