



# Integrated Ecosystem Management Approach and Application

Proceedings of the International Workshop

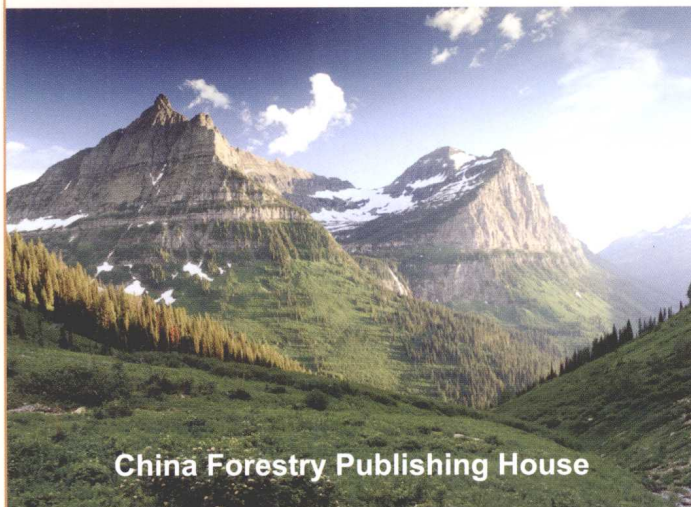
Jiang Zehui



PRC-GEF Partnership  
on Land Degradation  
in Dryland Ecosystems



Global  
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# **Integrated Ecosystem Management Approach and Application**

**Proceedings of the International Workshop on Integrated Ecosystem Management  
Approach and Application held in Beijing, November 6-7, 2008**

**Jiang Zehui**

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## Foreword

Land is the most essential environmental element in the earth ecosystem and the fundamental human beings are dependent on. Land is called 'the Mother gestating human beings'. Global land degradation has been worsening due to excessive development and unsustainable management of land resource. Land degradation has caused vulnerability of some land ecosystems, dramatic reduction in agricultural and animal husbandry productivity and has directly threatened food security and ecosystem health of the world. As a major environmental issue threatening human beings livelihood and development, land degradation has increasingly received great attention from the international community. Land degradation control and safeguarding of the security of the ecosystem to achieve sustainable development are not only wishes of the local communities but also holy responsibilities of all governments and a common task for all human beings.

China is one of the countries suffering from most severe land degradation which has been a particularly outstanding issue in the arid and semi-arid areas in West China. Therefore, land degradation control in West China is not only one of the fundamental programs and a major measure for China's implementation of its West China Development Strategy and achievement of sustainability in economic and social development, but also an important part and a key step for safeguarding the security of global environment and acceleration of the sustainable development of the internationalization process.

The PRC-GEF Partnership on Land Degradation in Dryland Ecosystems is the first partnership on land degradation control of the Global Environment Facility (GEF). It aims to use the Integrated Ecosystem Management (IEM) concept as direction to develop a new approach that addresses the root of land degradation by setting up a cross-sector, cross-department and cross-region institutional framework for sustainable natural resource management. Positive achievements have been obtained thanks to great attention paid by the Ministry of Finance (MoF) and the State Forestry Administration (SFA) of China and their coordination, strong support from GEF, Asian Development Bank (ADB), national and international consultants and great efforts made by the Central Project Management Office (CPMO), Provincial Project Management Offices (PPMOs) and the communities in the Project areas since the inception of the Partnership. These achievements have strongly enhanced reform of China's traditional land degradation control and ecosystem rehabilitation techniques and models, and are of global value for land degradation for other countries.

To present and extend the achievements of the Partnership, strengthen exchange of experience with other countries in natural resource management, in particular, in land

degradation, and to enhance the development of the Partnership and the collaboration with other partnerships, the Ministry of Finance (MoF) and the State Forestry Administration (SFA) of China jointly organized an International Workshop on IEM Approach and Application in Beijing on November 6-7, 2008, which GEF and ADB gave strong support. Over 200 participants including government officials, researchers and representatives from relevant ministries, the 6 Project Provinces, GEF, World Bank, ADB, other international organizations and well-known scholars from national and international institutes attended the Workshop. All discussions were held over relevant topics, resulting in good outcomes.

This collection of the Proceedings of the International Workshop on IEM Approach and Application has been prepared to ensure the outcomes of the Workshop are extensively shared. It collects the main results of various researches that were shared at the Workshop, including presentations and academic papers prepared by national and international experts, which covers theory and practice of various sectors including laws and policies, strategies and plans, monitoring and evaluation and pilot sites for land degradation control as well as land degradation control and climate change. The proceedings have been divided into 5 parts: Part I includes opening addresses of government officials and the keynote speech; Part II presents the achievements of the Partnership on land degradation; Part III presents the achievements of the Capacity Building to Combat Land Degradation Project; Part IV displays the practices and application of the IEM approach; and Part V gives good description on climate change and land degradation.

These proceedings are crystals of wisdom of many national and international decision makers, managers, practitioners and professionals. They are also a large collection of the achievements and practical experience of land degradation control by many countries. It is expected that the publishing of these proceedings will further enhance extension and application of the IEM approach and provide useful experience for land degradation control in other areas in China and other countries.

Compliers  
November 19, 2009

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# CHAPTER I

## Opening Addresses and Keynote Speech

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## 1. Opening Address by Ministry of Finance

**Mr. Zhang Tong**

Assistant Minister of Ministry of Finance

**Distinguished delegates, Ladies and Gentlemen,**

Good Morning!

It's my great pleasure to participate in the International Symposium on Concept and Practice of Integrated Ecosystem Management (IEM). First of all, on behalf of the Ministry of Finance of the People's Republic of China, I would like to offer my sincere congratulations on the opening of the symposium and the successful implementation of the GEF project and the achievements made so far, and express my heartfelt gratitude to the Global Environment Facility, the Asia Development Bank, the World Bank as well as other international organizations, governments of relevant countries and friends from home and abroad who have been continuously caring for and supporting the ecological development and environmental protection of China.

As is known to all, in the past over one century, with the global population boom and improved productivity, while making great achievements in economic development, the mankind has also destroyed and used the natural resources without restraint to the point that the natural resources are running out rapidly and the ecosystem is deteriorating and the survival and development of human beings are hence threatened by such disastrous consequences as energy crisis, environmental pollution, water resource shortage, global warming, desertification, and the extinction of a large number of species of wild fauna and flora. Therefore, it has drawn great attention from the countries all over the world to strengthen ecological improvement, enhance environmental protection and establish a harmonious society, which has become significant to realize the sustainable social and economic development of a country or a region.

China is the biggest developing country, and its resources and environment have always been key factors that constrain its sustainable social and economic development. The Chinese government has been attaching great importance to the protection of ecosystem and the sustainable social and economic development. Since the beginning of the 21<sup>st</sup> century, following the scientific outlook on development, China has made a series of strategic decisions, including building up resource-conserving and environment-friendly society, building an innovating country, establishing a harmonious socialist society and constructing new socialist rural areas. Especially at the 17<sup>th</sup> National Congress of the CPC in 2008, China, viewing from the strategic perspective of China and the world, made a strategic decision to build ecological civilization and determined that China shall be turned into a country with sound ecology by the year of 2020. Ecological civilization is a new type of civilization along the history of human civilizations. Based on the respect in nature and maintaining the nature, it aims to realize the harmonious co-existence of human beings, the nature and the society, pursuits the establishment of sustainable mode of production and consumption, and leads to sustainable and harmo-

nious development. To build ecological civilization is a strategic measure to carry out the scientific outlook on development, which is one of the actions China takes to improve the global ecosystem, facilitate mankind progress and human civilization and to implement the international conventions and fulfill the millennium goals of the United Nations.

Among all the ecological problems confronting China, land degradation in arid zones especially in Western China is one of the most serious problems. According to the 3<sup>rd</sup> national survey on land desertification, there are currently a total of 2.6362 million m<sup>2</sup> of desertified land and 1.7397 million m<sup>2</sup> of sandified land, accounting for 1/3 and 1/5 of the national land respectively. The sandification in some areas is still growing. The direct economic loss caused by land sandification amounts to as high as over 50 million yuan. Nearly 400 million people across country are threatened by land desertification and sandification. Half of the poverty population is living in those areas. Land desertification has become China's another great concern after flood and drought.

The Chinese government has attached great importance to the control and management of land degradation and desertification. As early as the end of 1970s, China launched the "Three-North Shelterbelt System Development Program". Since the late 1990s, China has initiated and implemented such national key ecological programs as the Natural Forest Protection Program, Program for Converting Farm Land to Forest, Program for Combating Sandification in Areas in Vicinity of Beijing and Tianjin, Grassland Development and Protection Program, Protective Farming Program, and Water-Saving Draught-Resistant Agriculture Program. The Chinese government has input huge amount of money in this regard. Take the Program for Converting Farm Land to Forest as an example, by the end of 2007, an accumulation of over 160 billion yuan from the national budget has been injected in this project, of which 62.5% has gone to Western China. Of the over 23 billion yuan of funding that has been allocated this year in particular, 61% goes to Western China. Another example is the arrangement of the national poverty alleviation project, in which the Chinese government also favors its support to the western region. Of over 44 billion yuan of poverty alleviation funds allocated from 2006 to 2008 alone, over 62% has gone to the western region. The prominent achievements made in these key programs and poverty alleviation projects have effectively kept the key sandy areas from being further sandified, greatly improved the ecology and enhanced the local economic and social development. However, as land degradation in China is widely distributed with large area affected, plus the influence of global warming and human activities, China is still confronted with severe land degradation problem and has a long way to go to combat land degradation and desertification.

The causes that lead to land degradation in dry ecosystem are rather complicated, which involve both the natural factors and human factors. To combat land degradation is therefore a long-term and complex systematic project. It needs highly advanced science and technology as well as improved laws and policies; it also needs the concerted efforts and close cooperation of domestic departments of agriculture, forestry, environmental protection, water resources and land resources as well as the full support of the international community. The Chinese government attaches great importance to the international cooperation and exchange in combating land degradation and has

established the cooperative partnership to combat land degradation with GEF in 2002, namely PRC-GEF Partnership on Land Degradation in Dryland Ecosystems.

PRC-GEF Partnership on Land Degradation in Dryland Ecosystems is the first partnership that GEF established with a government in the field of ecology. The Partnership aims to establish an integrated management mechanism across sectors and regions, and to coordinate the policies, laws, programs and actions through the concerted efforts of relevant departments so as to realize an integrated management of land degradation in Western China especially in ecologically vulnerable areas and to achieve the goals of reducing poverty, maintaining ecological sustainability and facilitating the sustainable social and economic development.

The Capacity Building to Combat Land Degradation Project is the core project of the Partnership. Since the four-year implementation of the project, with the guidance of the steering committee and the joint efforts of the Ministry of Finance, the State Forestry Administration, the central project member departments and the provinces involved in the project, the project has made great achievements, playing a positive role in establishing and improving the framework of technology, policies, laws, and organizations in combating land degradation in the arid zones of Western China, furthering the Partnership on Land Degradation, and setting a good example for the global land degradation combating.

The Partnership marks a new change for GEF's traditional project-based practice. This large-scale cooperation with detailed steps and plans also sets a landmark in the history of the exchange and cooperation between the Chinese government and the GEF. The successful implementation of the Partnership has promoted the application and development of the concept and approaches of IEM in China. Through enhancing the understanding and application of the approaches of IEM by the participating departments and provinces, the Partnership improved the framework of combating land degradation from the perspectives of laws, policies, technologies, information and demonstration, accelerated the progress of land degradation combating in arid zones of Western China, effectively promoted the rehabilitation of the vulnerable ecosystem and the protection of biodiversity in arid zones of Western China, and contributed to the improvement of the global ecology.

Currently, the IEM is still a new concept and approach in China, which needs to be improved by more practice and innovation based on the achievements made in the last phase of capacity building project so that it could be further extended and applied in the global land degradation combating. Based on the new strategic goals and direction of GEF, the Ministry of Finance is trying to make a better coordination between land degradation combating and biodiversity protection and addressing climate change, in a hope to promote and strengthen the China-GEF Partnership through the deepened cooperation between the Chinese government and the GEF.

This symposium provides us a good opportunity for the international exchange and a good platform to explore the practice of combating land degradation. I sincerely hope that through this symposium we can exchange views with each other, learn from each other, and share our knowledge, information and experience so that our capability to

combat land degradation can be improved and the IEM corresponds to and fits better the reality of China be explored.

Ladies and gentlemen,

The successful implementation of PRC-GEF Partnership on Land Degradation in Dryland Ecosystems and the achievements made so far marks a new step for the co-operation between the Chinese government and the GEF. I truly believe that with the great support and cooperation of the international organizations including the GEF, ADB and WB, the relevant departments of the Chinese government and the provinces that implement the project, the Partnership will develop in depth in more fields and make a greater contribution to land degradation combating in China and the whole world.

To conclude, I would like to wish a great success of the symposium!

Thank you!

## 2. Opening Address by State Forestry Administration

**Mr. Li Yucai**

Deputy Administrator of State Forestry Administration

**Distinguished delegates, Ladies and Gentlemen,**

Good morning!

With the concerted efforts and preparation of all parties concerned, the International Symposium on the Concept and Practice of Integrated Ecosystem Management jointly hosted by the State Forestry Administration and the Ministry of Finance now opens at this beautiful autumn. First of all, on behalf of the State Forestry Administration, I would like to confer my congratulations on the opening of the Symposium, extend my warm welcome to the guests and friends present today, and express my heartfelt gratitude to the international organizations, foreign governments and friends from all walks of life for your continuous care for and support to the ecological improvement and forestry development in China.

This Symposium is held under the context that the PRC-GEF Partnership on Land Degradation in Dryland Ecosystems has been implemented for four years and achieved significant success for the current stage. It is an important meeting to break new ground for the future implementation of the Partnership. The experience and achievements obtained from the four-year implementation of the Partnership prove that the Partnership guided by the concept of Integrated Ecosystem Management (IEM) is one of the most efficient approaches to combat land degradation.

The combination of national planning framework and long-term national planning established by the Partnership ensures that the complicated problems of land degradation could be managed in a long-term, sustainable and integrated way. The improvement of the laws, regulations and policies has solved the land degradation problems fundamentally caused by human factors. The integrated strategies to combat land degradation and the action plans have enhanced the coordination of relevant departments and the effective use of funds. The ameliorated public participation mechanism and incentive policies, and the community based participatory land use planning has mobilized the rural inhabitants and private sectors to invest in land degradation combating.

This Symposium aims to provide a platform for us to learn from each other, to exchange views with each other and to draw lessons and to reflect on the practice, in a bid to further summarize the successful examples and experiences in combating land degradation with the IEM concept and to further explore the models and approaches to combat land degradation with the IEM concept, so as to contribute to the development of the concept and innovation of the approaches of the IEM and to play bigger role in combating land degradation in western arid zone and in continuous improvement of the ecological status in western region.

Ladies and Gentlemen,

The past 30 years since the reform and opening-up has witnessed a rapid economic



growth in China, on the other hand, China confronted with huge ecological pressure. Due to the climate change and human activities especially, China has always been one of the countries in the world that has a large and widely-distributed area of desertified land and suffers from desertification most seriously. At present, the area of desertified land in China totals 2.6362 million km<sup>2</sup>, amounting to one third of the total land area, and the area of sandified land totals 1.7397 million km<sup>2</sup>, accounting for one fifth of the total land area. Land sandification not only threatens directly the existence and development of over 100 million people in China and influences the living environment and quality of over 400 million people, but also causes a direct economic loss up to 54 billion yuan, severely constrains the all-round, balanced, and sustainable economic development of China, threatens the safety of national land and ecological security, and has become another great concerns of China after flood and drought.

The Chinese government has always attached great importance to land degradation combating and desertification control, and has always set land degradation combating especially desertification control as an important strategic task. Centered on the task of forest and grass vegetation rehabilitation in arid and semi-arid areas, China started to develop farmland shelterbelt forest and sand-fixing and wind-breaking forest as early as in the 1950s, and implemented the "Three-north" Shelterbelt Development Program and the National Desertification Combating Program in the 1980s and the 1990s respectively. Since the beginning of the 21<sup>st</sup> century, a number of key ecological programs have been launched, including the Land Conversion Program, Natural Forest Protection Program, Program for Sandification Control in Areas in Vicinity of Beijing and Tianjin, Graze Land Conversion Program and Program for Comprehensive Micro-basin Management. In the mean time, the Chinese government promulgated and implemented the Desertification Combating Law and the National Program on Desertification Combating, issued the State Council's Resolution on Further Enhancing Desertification Combating, and convened the National Conference on Desertification Combating. Entrusted by the State Council, the State Forestry Administration has signed Duty Agreements on Desertification Combating Target with provinces and autonomous regions with heavy tasks of desertification combating. Through the above-mentioned significant measures, land degradation and desertification combating conduction has yield great results, playing very important role for the improvement of China's ecological status.

However, due to natural factors and the impact of human activities, land degradation, even sandification, remains severe, which is demonstrated by serious expanding of sandified land in some areas, the difficulties for controlling sandification remains great, the achievements of desertification combating is still weak, and the hidden threat caused by human activities is still large. Therefore, to combat land degradation and accelerate the control of desertification is still an arduous task, which requires our continuous and strong efforts.

To combat land degradation and accelerate desertification control is a long-term task and a complex systematic project as well. It depends not only on projects implementation with sufficient funds as guarantee, but also on scientific concepts and advanced technologies as guidance and support. It requires both the coordinated strength from relevant