

AFRICA-ASIA DROUGHT RISK MANAGEMENT PEER ASSISTANCE NETWORKS



Third Africa-Asia Drought Adaptation Forum 14 –21 August 2013, Xinjiang, China



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LIST OF ABBREVIATIONS AND ACRONYMS

AADP	Africa-Asia Drought Risk Management Peer Assistance Network
AADAF	Africa-Asia Drought Adaptation Forum
ADDN	African Drought Risk and Development Network
CAS	Chinese Academy of Sciences
CICETE	China International Center for Economic and Technical Exchanges
DDC	Drylands Development Centre
DRM	Drought Risk Management
DRR	Disaster Risk Reduction
IDDP	Drylands Development Programme
IWRM	Integrated Water Resource Management
NDMA	National Drought Management Authority
NGO	Non-Governmental Organization
NRM	Natural Resources Management
SSC	South-South Cooperation
TAC	Technical Advisory Committee
UNDP	United Nations Development Programme
XIEG	Xinjiang Institute of Ecology and Geography



INTRODUCTION

Background

Both in Africa and Asia, awareness of drought impacts has been heightened in the past decades as one of the most significant natural disasters in terms of spatial extent, duration and long-term socio-economic and environmental implications, which pose a serious impediment to the achievement of sustainable development goals. The United Nations Development Programme's Drylands Development Centre (UNDP DDC) established the [Africa-Asia Drought Risk Management Peer Assistance Network \(AADP\)](#) in late 2010 under the framework of flagship Integrated Dryland Development Programme (IDDP) with the budgetary support from the Government of Japan through the Japan-UNDP Partnership Fund. Leveraging the increased awareness and political commitments to drought risk management (DRM) in the two regions, AADP aims to mitigate the risks of drought and improve human livelihoods in Africa and Asia by providing an enabling environment for inter-regional knowledge sharing as well as by facilitating the up-scaling of proven DRM best practices among drought-prone countries.

AADP builds on the pool of experiences and expertise of the [African Drought Risk and Development Network \(ADDN\)](#), a region-wide initiative to promote DRM peer learning and capacity building, which has been facilitated jointly by the UNDP-DDC and the UN Office for Disaster Risk Reduction since 2005. The AADP's stocktaking report, [Drought Risk Management: Practitioner's Perspectives from Africa and Asia](#) (2012), highlights the important similarities in DRM challenges and capacity gaps observed across Africa and Asia and the key priority thematic areas to which the inter-regional south-south cooperation (SSC) could contribute to. Based on this understanding, a range of communication and learning tools and modalities have been developed, including, among others, the organization of annual Africa-Asia Drought Adaptation Forums (AADAF), issuance of monthly newsletters to over 2,000 subscribers and organization of in-field exchange events.

Among other AADP partners, the Government of China has been demonstrating a high level of commitment to the series of the network activities as a leading promoter of inter-regional SSC and technology transfer. It is in line with the Sharm el Sheikh Action Plan adopted at the Fourth Ministerial Conference of the Forum on China-Africa Cooperation in Egypt in 2009 and the Memorandum of Understanding signed between China and the UNDP to foster SSC in 2010.

[AADAF2012](#), which was held on 1-2 October 2012, and the subsequent [1st AADP study tour](#) on 3-9 October 2013 in Kenya helped reassure that there are tremendous opportunities for China-Africa peer-learning and assistance to address various commonly observed drought related challenge. A strong recommendation was made to explore these potentials further and continue the discussion on how to take advantage of well-established and tested DRM practices in one country to support other countries efforts. Building on the inter-regional partnership bridge paved through the AADP to date, the Government of China agreed to host the AADAF2013 back-to-back with the field study tour in the Xinjiang region where a semi-arid to hyper-arid climate prevails.

Scope of the AADAF 2013

AADAF2013 was organized on 14-21 August 2013 with the financial support from the Government of Japan and AusAid. The forum was facilitated jointly by the UNDP DDC and the China Country Office, the China



International Center for Economic and Technical Exchanges (CICETE) and the Xinjiang Institute of Ecology and Geography (XIEG) of Chinese Academy of Sciences (CAS). The overall objective of the AADAF 2013 was to strengthen strategic and practical SSC among theselected drought-prone countries in Africa (i.e., Ethiopia, Ghana, Kenya, Mauritania and Namibia) and Asia (i.e., China and India) by providing the DRM decision-makers, practitioners and experts from these countries with the opportunities for focused knowledge sharing, applied discussion and networking.¹Capitalizing on existing drought related initiatives and lessons learnt at national, sub-regional and regional levels, the forum aimed to help plot the future course of action for up-scaling inter-regional DRM collaboration towards the common goal of creating drought resilient communities.

The event combined the desk-based discussion sessions in Urumqi (14-16August) and the field study tour (16-21 August) in Xinjiang Uygur Autonomous Region in Northwest China. It allowed the participants not only to share/listen to various DRR initiatives, programmes and projects through presentations and discussions but also to be actually exposed to some of these initiatives on the ground thus gaining an in-depth understanding of applicability of different models to different local contexts. The detailed programme of AADAF2013 and the list of participants to the discussion session are available in Annex 1 and 2 respectively. Annex 3 illustrates the route of the study tour in Xinjiang.

Based on the questionnaire undertaken by the participants prior to the event (Please see Annex 4 for the key results of the forum needs and expectation questionnaire) as well as the findings of the AADP stocktaking report mentioned above, AADAF2013 placed the special focus on the following three themes:

- Water harvesting, conservation and management
- Land rehabilitation, restoration, fertility management
- Policy and institutional framework

Lively discussions in the meeting room and the field were expected to help:

- Clarify the strengths and weaknesses of the participating countries in terms of DRM knowledge, expertise, technology, etc.;
- Identify the specific DRM capacity support needs of mutual interest as well as the opportunities to respond to these needs; and
- Agree on the specific target areas for bilateral/multilateral inter-regional DRM SSC initiatives as well as the ways and means to translate the ideas into concrete actions, which are to be pursued under the future framework of AADP and through other channels.

All the presentations made during the discussion sessions and study tour are available on the AADP website at http://www.undp.org/content/undp/en/home/ourwork/environmentandenergy/focus_areas/sustainable_landmanagement/drought_risk_management/aadp/third-africa-asia-drought-adaptation-forum.html.

¹ The countries participating in the AADAF2013 will be selected on a demand-driven basis with a diverse set of criteria. They include, among others: the dryland sub-regional representation, demonstrated government commitment to DRR; willingness, as demonstration countries, to lead the sharing of Africa-Asia SSC experiences and transfer of the applied DRR techniques and technologies further to neighbouring communities and countries; and complementarity and continuity of support with track record of UNDP disaster risk reduction/climate change adaptation initiatives having been implemented through the IDDP and the Japan-funded Africa Adaptation Programme, etc.



DISCUSSION SESSIONS PROCEEDINGS

Opening Session

Remarks: Fu Chunli, Director, Xinjiang Branch, CAS
Xiao Fenghuai, Deputy Director General, CICETE
Pang Jinwu, Deputy Chief Engineer, Ministry of Water Resources
Chair: Lei Jiaqiang, Deputy Director & Professor, XIEG, CAS

Mr.Chunli highlighted the drought vulnerability as well as the experiences and achievements made to date in DRM in Xinjiang region including the fields of reforestation and land rehabilitation. He expressed the willingness of CAS to be engaged proactively in the process of technical cooperation and academic exchange with African countries to learn from each other's knowledge and expertise.

Mr Fenghuai outlined the unique and dynamic characteristics of Chinese aid, particularly the government's increasing support to African countries within the framework of SSC. He noted the key shift of Chinese assistance model from infrastructure to livelihood sector, taking advantage of various successful technical, scientific and policy approaches applied in the country. He welcomed the opportunity to exchange DRM ideas, real-life experiences, planning and management techniques between China and Africa, which include both successes and failures to help address the complex and daunting drought-related challenges together.

Mr.Jinwu informed the forum that meteorological disasters loss takes up 61 per cent of the total natural disaster loss in China and drought accounts for about 55 percent of total meteorological disaster loss. He shared the decade of the nation's efforts to tackle hydrological drought uniting multi-sectoral approach which combines engineering (e.g. water diversion, water storage facilities, water conservation, etc.) and non-engineering (e.g. policies, laws, regulations, institutional arrangements, etc.) tools. He also briefed on the government plan to combat drought hazards in the future and stress the importance of south-south peer learning and assistance acknowledging the similarity of the issues facing Asia and Africa.

Following the opening of the Forum, participants introduced themselves.

Introductory Session

Keynote Speaker: Lei Jiaqiang, Deputy Director & Professor, XIEG, CAS
Presenter: Yuko Kurauchi, Programme Specialist, UNDP DDC
Chair: Yang Fang, Assistant Country Director, UNDP China

In his keynote speech, Professor Jiaqiang presented the status and impacts of desertification in Xinjiang region and outlined the key measures to control and mitigate the impact of desertification successfully. About 40 percent of the desertification land of China, i.e. 1.07million km², lies in the region, where the average annual precipitation is limited to 100-200mm in the north and 20-70 mm in the south. Multi-faceted approach has been adopted in the country to address a number of desertification associated challenges with three main pillars: 1) laws and regulations; 2) organization and management; and 3) science and technology. The presentation provided the detailed information on how this trinity approach has been integrated into sectoral planning both at macro, intermediate and micro level using several practical examples such as green belt initiative along the Taklimakan Desert highway, shelter-forest along the Gurbantunggut Desert canal and flood water irrigation in Xinjiang Cele Oasis.



Ms. Kurauchi provided the participants with the overview of AADP and AADAF2013. She introduced a range of channels offered through the network to link the providers and potential users of numerous DRM related knowledge, experiences and lessons and highlighted the key role that AADAF 2013 is expected to play for plotting the future course of action and specific areas of inter-regional DRM technical collaboration between China and the participating African countries in the forum. In this regard, the subsequent presentations in the panel sessions will:

- Present time-tested, proven techniques, approaches or measures vis-à-vis the participants' interests and expectations expressed through the questionnaire in each topic theme;
- To provide measurable "evidences" of success and their impacts; and
- To analyse key conditions/factors for the success and their replicability.

Panel Discussion Topic 1: Water Harvesting, Conservation and Management

Panellists: Zhao Chengyi, Division Head & Professor, XIEG, CAS

Themba Gumbo, Director, Cap-Net

Sunya Orre Morongei, Director for Technical Services, National Drought Management Authority (NDMA) in Kenya

Yang Tao, Professor, Xinjiang Academy of Agricultural Science

Chair: Zhang Ning, Division Chief, CICETE

Professor Chengyi shared the research experience of the Akesu Water Balance Experimental Station on soil water and salinity movement under drip irrigation in Tarim River Basin. The study demonstrated the comparative analysis on the feasibility and efficiency of the new water saving technology of drip irrigation under mulch to oasis croplands with different degree of salinity in terms of agricultural productivity and ecosystem health.

Dr. Gumbo presented the three examples of successful water harvesting initiatives conducted in Africa and Asia to maximize the use of blue and 'green' water, i.e., water contained in the soil including moisture. They include FanyaJuu terracing in Makanya, Tanzania (Box 1), rainwater harvesting and storage practices in Limpopo Basin and watershed development programme in Maharashtra Province, India. Three typologies of water harvesting techniques are used in these cases: 1) domestic rain water harvesting; 2) in-field rain water harvesting; and 3) ex-field water collection and storage in reservoirs. Cap-Net website hosts further information on these and other proved water management measures and provides various integrated water resources management training materials at www.cap-net.org.

Presentation by Mr. Morongei discussed a number of the

Box 1: FanyaJuu Terracing Technique

FanyaJuu design is one of the most common soil conservation methods practiced in both high and low rainfall areas in East Africa. The structure is mostly made manually by digging a trench along the contour and heaping the soil uphill to form an embankment. It is perceived to be the most appropriate measure on slopes between 15-30 per cent and proven to be useful in semi-arid areas to harvest and conserve limited rainwater.



key soil and water conservation methods and structures adopted in arid and semi-arid lands in Kenya, such as micro-catchments, external catchment systems and floodwater farming, and how these practices have contributed to manage erosion problems, improve crop farm production and enhance rural livelihoods (Box 1). He emphasized the importance of robust policy and legal frameworks as the key to ensure the sustainability in soil and water conservation investments and hence sustainable agricultural productivity.

Professor Tao talked outlined the results of the recent research conducted by Xinjiang Academy of Agricultural Sciences on the optimal use of fertilizer in irrigated cotton farmland in arid zone. The presentation showed how the different use of irrigation water and chemical/organic fertilizer results in changes in agricultural water use efficiency and cotton yield. It concluded that the cotton production can be increased by 10 per cent nitrogen leaching can be reduced by 28.32 kg/hm² in five years through the application of the combined irrigation and fertilizer technology.

The subsequent interactive discussion session focused on the reliability and transferability of water harvesting/conservation techniques and structure from the perspectives of labour intensity for initial investment and community engagement for long-term maintenance. The panel members stressed the need of mechanisms to share the cost and benefit not only among the direct users but also by the indirect beneficiaries depending on the local contexts. In some regions, merry-go-round approach to rotate the maintenance responsibilities worked well, while in other regions monetary incentives mechanisms were provided by the government such as cash for work or national trust fund/subsidy arrangements, etc.

The participants also discussed the need for the effective use of underground water and different means to practice drylands agriculture to respond to high evapotranspiration rate and address the issue of proven approaches for managing soil salinity. In China, besides a number of desalination techniques, such as chemical/biological fertilizers and crop rotations, introduction of the plants which reduce salinity and soil-tolerant species has been piloted. The discussion underlined the importance of multi-agency engagement to address efficiently and sustainably the cross-cutting nature of water-soil related challenges.

Panel Discussion Topic 2: Land Rehabilitation, Restoration, Fertility Management

Panellists: Asher Nkegbe, Regional Director, Environmental Protection Agency – Upper West Region, Ghana

Li Gangyong, Professor, Animal Science Academy of Xinjiang

Felix Romeo Humphries, Control Agriculture Extension Technician, Ministry of Agriculture, Water and Forestry in Namibia

Alioune Fall, National Consultant Expert, Ministry of Environment and Sustainable Development in Mauritania

Chair: Guan Kaiyun, Deputy Director & Professor, XIEG, CAS

Mr. Nkegbe presented Ghana's efforts in promoting integrated natural resources management (NRM) both in protected and natural regeneration areas, with special focus on Upper West Region. Based on the in-depth analysis on human-environment interaction at local level, a range of land and water resources management technologies have been applied on the ground including compost use, stone lining, half moon and zaifarming, minimum tillage, mukuna cropping, etc. Positive impacts of those measures have been clearly demonstrated through improved soil fertility, vegetation cover and crop yields. A variety of livelihood support initiatives have also been implemented in the region with favourable results in local food security and some of the successful cases have been up-scaled and transferred to other communities.



Presentation by Dr. Gangyong provided the comprehensive overview of the features and the status of grassland ecosystems in Xinjiang region and various techniques and technologies utilized for the continuous monitoring and analysis of grassland vegetation types and conditions. In view of the increasing threats of grassland degradation in the region as a result of overstocking, overgrazing and excessive-cultivation, a number of state-financed grassland restoration and conservation projects have been implemented. Positive impacts have already been witnessed in the project sites, with reduced pressure to the ecosystems while helping increase and diversify income sources of grassland populations: i.e., (agro-)pastoralists.

Mr. Humphries made the presentation on how the DRM measures have been carried out in Namibia under the comprehensive policy, legal and institutional frameworks formulated both at national and local levels. He shared the achievements as well as the challenges and capacity gaps observed in implementing different drought-related activities such as integrated NRM, sustainable livestock management and community-based eco-/cultural-tourism development and conservation agriculture, providing the forum with the important insights on the possible areas of future China-Africa DRM SSC.

Mr. Fall presented Mauritania's long-term strategic and programmatic road map to mitigate impacts of drought and desertification being under implementation for the past few decades. Under this road map, Special Program to Protect Nouakchott City has been carried out since 2010 which intends to address the sand encroachment challenge through mechanical sand dunes stabilization and biological fixation techniques. Designed and implemented with the technical backstopping support from XIEG, CAS, the programme provides some practical insights on the scope and mode of China-Africa south-south technical cooperation.

In the second interactive discussion session, the forum participants were divided into two working groups to provide more concrete views and opinions on the key thematic areas and peer-learning modalities to be pursued for the future China-Africa DRM SSC in water and land sectors. Some of the inputs and recommendations generated from the lively discussions are listed as follows:

Water sector

- Based on the presentations and subsequent interactive sessions, it is evident that there are tremendous opportunities for south-south learning in the field of water harvesting (not only on rain/surface harvesting but also ground water harvesting). Information on ground water is largely missing in the African countries participating in the forum.
- Further focus should also be placed on the issue of water quality improvement.
- Strong interest has been expressed in intra-/inter-regional cooperation, particularly by organizing the follow-up results-oriented exchanges and joint scientific research to increase the knowledge base on ground water and better understand the adoptability of different plant species for combating desertification in Africa.
- It is critical to engage communities and other key stakeholders in the process of China-Africa SSC to maximize the impacts and ensure the sustainability of such efforts (e.g. private sector as a supplier and provider of information and communication technology tools, etc.). One example shared to enhance the community ownership of water harvesting and conservation is the Mother Cellar Project implemented in China with the support of UNDP, whereby the Government provides 50 per cent subsidy for the households to construct rainwater harvesting structures, or 'mother's cellars'.

Land sector

- Mutual learning should be enhanced in the field of early warning-early action, focusing not only on how to convey the warning information with user-friendly tools but also on how to share the responsibilities for the utilization of the information.



- Policy and decision-making process must build on the solid scientific basis and thus stronger emphasis should be placed on SSC in research. It is also of critical importance that researches and studies will be undertaken on a demand driven basis and with the proactive participation of affected communities.
- Support is also needed in technology to share and transfer knowledge, experiences and lessons on land rehabilitation, conservation, desertification control, etc. beyond the forum, for example by utilizing online discussion forums or organizing more focused discussion sessions on specific best practices to deliberate further on their pros and cons.

Panel Discussion Topic 3: Policy and Institutional Framework (Chair: SunyaOrreMorongei)

Panellists: **Xiao Fenghuai, Deputy Director General, CICETE**
Pang Jinwu, Deputy Chief Engineer, Ministry of Water Resources
MulunehWoldemariamDendena, Logistics Case Team Coordinator, Disaster Risk Management & Food Security Sector, Ministry of Agriculture in Ethiopia
Felix Romeo
Chair: **SunyaOrreMorongei, Director for Technical Services, NDMA in Kenya**

Mr.Fenghuai explained the key nature and trend of Chinese south-south support to Africa 2012, which are guided by the White Paper on China Aid to Foreign Countries. Chinese foreign aid focuses broadly on policy, research and project fields and targets both infrastructure and livelihood sectors. Support has been delivered mainly in the forms of grant, technical transfer and exchange of experts. He reiterated the willingness of the Chinese government to boost the partnership with African countries in the field of DRM and stressed the importance of engaging communities and other non-state actors, such as private sector and civil society, in the implementation process.

Mr.Jinwu provided the holistic overview of drought in China, including the historical trend of drought disasters and the transformation of drought management strategies from temporary reactive to proactive preventive ones based on the National Drought Plan adopted in 2011 and subsequent regulations, plans and mechanism established at national, regional and local levels.He noted the unique characteristics of China’s DRM approach, which harmonizes the structural and non-structural measures building on the solid scientific knowledge bases.Special emphasis was made on the effort of the government in water sector to establish a water-saving society and build the culture of sharing responsibilities based on the deep understanding of water availability, including rainfall, floodwater and groundwater, and scientific and rational pattern of water consumption.

Mr.Woldemariam discussed the comprehensive policy and institutional frameworks for DRM in Ethiopia. A standardized system to assess the disaster risks was established in the country, which plays the central role to inform the risk reduction planning, early warning and contingency planning processes. In addition, the DRM Strategic Programme and Investment Frameworkhas been put in place to enhance multi-sectoral and actoral engagement for the long-term reduction of disaster/drought risks and impacts. This is complemented by the National Incident Management System which aims to strengthen the capacity of different DRM-related actors and their coordination in the country.

The third interactive session was organized to exchange views, comments and questions by each country group. Some of the key discussion topics include:



- Level of enforcement of drought-related policy and regulations in different countries such as the shared challenge of translating the drought early warning information to early action,
- Extent of transboundary cooperation realized to date in addressing the drought related risks and impacts, which often extend beyond national borders
- Scope of China foreign aid particularly in DRM related sectors.

The discussion reiterated the importance of combining top-down and bottom-up approaches as the key to the long-term sustainability of DRM as well as the need for the policy support mechanism to encourage the up-scaling and replication of proven, time-tested practices. The participants also underscored the critical roles of the non-state organizations, including the UNDP, in linking the countries and strengthening the bilateral and multilateral partnerships both at intra- and inter-regional levels.

The hard copies of the presentation, entitled “Manual on Drought Management in India”, which was to be made by Mr. P. G. Char Chakrabarti, Additional Secretary and Adviser, Inter-State Council Secretariat, Ministry of Home Affairs, Government of India, were circulated to the participants as the important reference document. Mr. Chakrabarti was not able to attend the forum due to the unavoidable exigencies. The full presentation is viewable on the AADP website at

http://www.undp.org/content/undp/en/home/ourwork/environmentandenergy/focus_areas/sustainable_landmanagement/drought_risk_management/aadp/third-africa-asia-drought-adaptation-forum.html.



SUMMARY OF THE STUDY TOUR SITES VISITED

16 August (Urumqi)

Fukang National Field Scientific Observation and Research Station for Desert Ecosystems

The Station was established as part of the Chinese Ecosystem Research Network representing typical temperate desert ecosystem in 1987. It is located at the southern fringe of the Junggar Basin, the eastern Tianshan Mountains with highest Bogda Peak and the well-known Tianchi Lake. The Station is 86 km from Urumqi, with the 200 acre of study area covering 87°45'– 88°05'E and 43°45'–44°30'N.

The distance is only 80 km from the Bogeda Peak (5,445 m above sea level) to the Gurbantunggut Desert (460 m above sea level). In that distance the altitude decreases about 5,000 m, creating a landscape gradient from alpine glacier-snow, through mountain meadow, forest, and grassland to desert or oasis. An oasis already existed during the Han Dynasty 2000 years ago, while the new ones are only about 50 years old.

The study area covers old and new oases and the native vegetation. Three hundred and sixty nine plant species and 150 animal species have been recorded in the area, in which 25 animal species are on the national list of endangered species. The plain area experiences a typical continental arid climate, with hot-dry summers and cold winters. The highest recorded temperature is 46°C, while the lowest is -41.6°C. Annual precipitation is around 150 mm and annual pan evaporation is around 1,000 mm. There are about 170 frost free days per year. Research Fields are: (1) Adaptation, acclimatizing and responses of plants to desert environment; (2) Salinization control and water saving in the oasis areas; and (3) The carbon cycle in the arid zone, especially in the saline/alkaline land.

After the introductory presentation and the short discussion, the study tour team had a brief tour of the study area, where various research activities are ongoing including the local desertification trend monitoring and the groundwater drip irrigation agriculture using various food species such as cotton, tomato and maize.



17 August (Urumqi -Korla)

Turpan Eremophytes Botanic Garden

Turpan Eremophytes Botanic Garden, Academia Sinica, is affiliated with XIEG, CAS, and located 10 km southeast of the centre of Turpan in Xinjiang, with the altitude of -95~-76 metres below sea level. The area is located in warm temperate zone, characterized by continental arid desert climate and the improved shifting-sand land, where the annual average



temperature is 13.9 °C with the average minimum temperature of January at -9.5°C (extremely minimum value at -28.0°C) and the average maximum temperature of July at 32.7°C (extremely maximum value at 47.6°C). The maximum temperature of sand surface in summer reaches as high as over 80°C. It is situated in the hinterland of Turpan Basin which is the second lowest ground in the world and has long been known as the “Wind Pool” and “Flaming Land”. The annual average precipitation is 16.4 mm, the annual evaporation is 3000 mm, and average relative humidity is 41.0 per cent. The mean frost-free period is 268.2 days.



The garden was established in 1974 with the purpose of conserving various arid desert plants and studying the characteristics of desert flora (e.g., medicinal, food and industrial uses, etc.). In particular, it has become the research base for the germplasm resources migration and diversity protection of eremophytes in arid desert region of China. There are more than 400 species of eremophytes in the garden.



The garden also serves as the demonstration site of “Karez”, the unique indigenous irrigation system being practiced for generations as the life source of Turpan region. Karez systems are very delicate irrigation systems made up of vertical wells, underground canals, above-ground canals and small reservoirs. Generally, a karez is 3 km (1.9 miles) with the longest being 20 to 30 km (12-19 miles) with several dozen vertical wells. Sometimes the number of vertical wells exceeds 300. Until today, the shortest karez found is only 30 meters (98 feet) long. The vertical wells are for ventilation, digging and maintenance of the karez. The bottoms of all the vertical wells are connected so that water can pass through. The underground canal is about 2 meters (6.5 feet) high and covered with earth to resist the heat. The surface canals, connected to the underground ones, are not more than 1 meter (3.2 feet) wide with trees planted on both sides to prevent evaporation.

Often referred to as 'the underground Great Wall' which, Karez is among the three ancient major irrigation projects with the other two being Ling Canal and Dujiangyan Irrigation Project. According to records, the history of the karez in Xinjiang dates back to 103 B.C. At its peak, the karez irrigation system exceeded 5,000 km (3,106 miles) and was also. Karez have been found in Iran, the Sahara, etc., but the ones in Turpan are the most complete. Currently there are still over 400 systems under operation.

18 August (Korla - Tazhong)

Tarim Desert Highway and Ecological Green Shelterbelt

The Taklimakan Desert, located in the middle of the Tarim Basin in northwest China is one of the largest drift sand sea in the world. Tarim Desert Highway was opened in 1995 to transport the oil and gas from the centre of Taklimakan Desert. It is the longest desert highway in the world with the length of 562 km.

In view of the limited impacts of the purely mechanical approach



to control sand encroachment, the XIEG established an ecological green shelterbelt along the highway, which runs 436 km in length and 72-78 meters in width with the total forest area of 3,128 hectares. Both mechanical and biological techniques are used to grow the sand-stabilizing and soil-tolerant plants through which to block and fix the moving sand and the encroachment. Solar/generator power plants are located every 4 km along the shelterbelt to transfer the pumped-up underground water to the forest area through the drip irrigation systems. Tarim Desert Highway is the world's the first green ecological engineering construction in desert.

Taklimakan Desert Research Station/Tazhong Botanical Garden

The Taklimakan desert belongs to non-appropriate forest area in "three north shelter forest districts" of China. Wind erosion, sand burial, arid hot wind and high salinity water are all restricting factors for plants survival and growth. A decade of scientific and technical research since 1992 successfully identified the sand-stabilizing plants which can adapt well to the severe environmental conditions of the Taklimakan Desert, including the Tamarix, Haloxylon, Calligonum, etc. This research provided the solid scientific basis for the Tarim Desert Highway ecological projects.



During the process of the plant introduction and selection, the Taklimakan Desert Research Station and the Tazhong Desert Botanical Garden occupying an area of 20 hectares was jointly established by Tarim Oil Company and XIEG, CAS, in the hinterland of the Taklimakan Desert. In the past, the survival of only 80 plant species was recorded in the region. Among nearly 400 plant species introduced to the garden, more than 200 species have settled down in the local environment. Currently, the Tazhong Desert Botanical Garden serves not only as the base for desert plants research, seed cultivation and biodiversity preservation but also as the place for the oil company workers to relax and the new tourism destination. Today, some animal species, such as gerbils, rabbit and fox are also becoming the regular visitors of the garden. It acts like a green island embedded in the yellow sand, becoming a true portrayal of the conquest of the life restricted zone.



19 August (Tazhong - Cele - Hotan)

Hotan Prefectural Government Office

The study tour team made a courtesy call to the Hotan Prefectural Government. In the meeting, a presentation was made on the ecological and environmental overview of Hotan Prefecture and the progresses made to date in integrated anti-desertification and economic development.

Hotan prefecture is on the northern slopes of the Karakorum Mountains at the southern border of the Taklimakan Desert in the far south of Xinjiang. It is located in the severe natural environment, with large area of desert accounting



for 63 per cent, as opposed to oasis only 3.7 per cent, shortage of water resources, sand encroachment and soil salinization. Hotan is in the warm temperature continental climate zone characterized by hot summer, warm winter, long hours of sunshine, low rainfall (35mm per annum) and high evaporation (2,480 mm per annum).

From early 1980, the farmers started to use the machine ploughed path to plant grapes. This activity has been undertaken for decades based on viticulture study and generating tangible social and economic benefits as well as important environmental impacts to protect the farmlands and improve the ecosystem health. It contributed to the increase in income of local farmers and the number of domestic and foreign visitors. Today, the length of the Grape Corridor is more than 1,500 km.



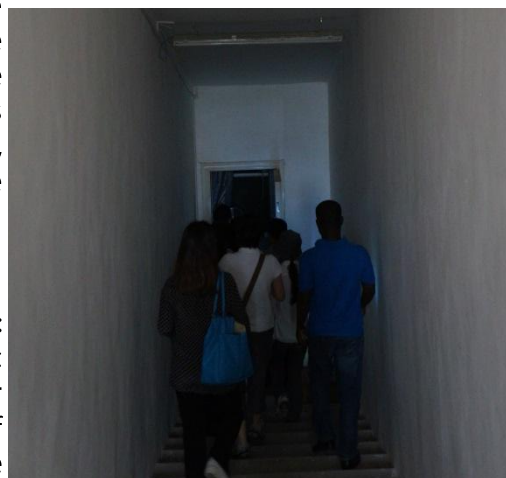
The meeting also focused on the Cele National Field Research Station for Desert Grassland Ecosystems, including the station's current research fields, achievements thus far in control desertification and the future directions.

Cele National Field Research Station for Desert Steppe Ecosystems, XIEG, CAS

The station was established as a part of the XIEG in 1983 in Cele County, 10 km from Hotan city, on the southern fringe of the Taklimakan Desert. It stands at an altitude of 1,318.6 m and covers an area of 100 km². The Station is situated in the transition zone between desert and oasis, which provides an optimal location for studying the fragile ecosystems. With over 100 long-term observational points, the station continuously monitors the underground water depths and water quality around the oasis. The research conducted at the Station contributes to sustainable management of the desert and oasis ecosystems and helps stabilize the process of desertification. The vegetation in this area is dominated by the herbaceous legume *Alhagisparsifolia* (Fabaceae), the salt cedar *Tamarix ramosissima* (Tamaricaceae), the poplar tree *Populus euphratica* (Salicaceae) and the herbaceous perennial *Kareliniacaspica* (Asteraceae).



Research Fields of the Cele National Field Research Station are: ecological processes of desert ecosystems and their dynamic mechanisms; ecological processes of oasis ecosystems and their stability mechanisms; and integration and demonstration of technology to control sand disasters. The team was given the guided tour of various experimental sites in the station to learn the ongoing researches on plant adaptation to environmental stress, plant root growth observation and vegetation restoration and climate observation.



20 August (Hotan - Urumqi)

Farmland Wind Shelter of Hotan Prefecture

In order to protect the oasis and farmland from the threats of frequent sandstorm, sand encroachment, land degradation and desertification, "Three-North" Green Belt project has been implemented since 1978 to reforest the total areas of 21.3 ha. The project combines engineering forestation and mandatory planting schemes. Under the former scheme, various techniques have been introduced: e.g. utilization of flood irrigation technology, designing of 10-15 km wide belt for wind prevention and sand fixing, etc. Under the latter scheme, general citizens (men with the age between 18-60 and women between 18-55) plant and manage 3-5 trees per year based on the national law requirements.

From early 1980, the farmers started to use the machine ploughed path to plant grapes. This activity has been undertaken for decades based on viticulture study and generating tangible social and economic benefits as well as important environmental impacts to protect the farmlands and improve the ecosystem health. It contributed to the increase in income of local farmers and the number of domestic and foreign visitors. Today, the length of the Grape Corridor is more than 1,500 km.

Greenhouse

The study tour team visited the greenhouses in Hotan city which are managed jointly by the technical task force, the partnership among the government, researchers, private sector and the local communities. Growth of the dozens of plant species has been monitored, using the new technology of "impermeable soil", a special soil through which water has difficulty flowing.

The team also visited the wind preventions and sand fixing belt built in the oasis and discussed how the initiative has been implemented and produced the harmonized ecological, economic and social benefits to the local communities.



CLOSING SESSION: KEY OUTPUTS AND WAY FORWARD

The closing session summarized several key themes and messages emerged as result of the stimulating presentations, rich discussions and insightful field visits to set the agenda for the future. The forum stressed the need to translate the enthusiasms generated from the forum into concrete actions. It was hence agreed that each country team would compile the ideas of future China-Africa DRM SSC into a concept in view of the unique local needs and interests vis-à-vis a number of established and time-tested experiences, technology and expertise as demonstrated through the event. These ideas shall be discussed further between China and the respective countries with the support of the UNDP for future implementation though the China foreign aid and/or financial support from other donors.

Among numerous opportunities, the representatives of the country teams as well as CAP-NET (AADP's Technical Advisory Committee member) made the short remarks to highlight some of the provisional priority thematic areas for inter-/intra-regional cooperation to be pursued as follows:

Country	Provisional Focus Areas
Kenya	<ul style="list-style-type: none"> • Transfer of Irrigation technology particularly utilizing the untapped drylands underground water resources • Joint research on drylands plant species for food and fodder use • Further learning on effective legal framework with particular focus on enforcement to combat the challenges of desertification, land degradation and drought
Ethiopia	<ul style="list-style-type: none"> • Academic collaboration for scientific and policy research with African Centre for Disaster Risk Reduction • Support in sustainable and efficient underground water utilization • Adoption of renewable energy such as solar and wind power in drylands • Introduction of botanic garden approach to collect scientific information on various plant species • Collaboration in sedentary drylands agriculture research and project
Namibia	<ul style="list-style-type: none"> • Academic collaboration and research on adaptability and tolerance of different plant species using botanical garden system • Learning on ground/underground water saving and utilization techniques • Application of engineering/non-engineering approaches and biological/chemical tools for sustainable drylands management
Ghana	<ul style="list-style-type: none"> • Support in the development of tailor-made flood and drought management structure and strengthening of drought/disaster early warning system • Exchange programme between DRM researchers such as retention of gasses and moisture within the soil profile • Learning on water use efficiency enhancement, for example through the improvement of drip irrigation system
Mauritania	<ul style="list-style-type: none"> • Continuation and strengthening of existing scientific and academic partnership with XIEG, CAS • Translation of the research inputs into concrete practices
China	<ul style="list-style-type: none"> • Commitment in south-south cooperation and mutual learning • Support on the demonstration basis in the process of transferring and adapting the well-tested experiences and proven technology • Continuous contribution to the China-Africa DRM cooperation under the framework of



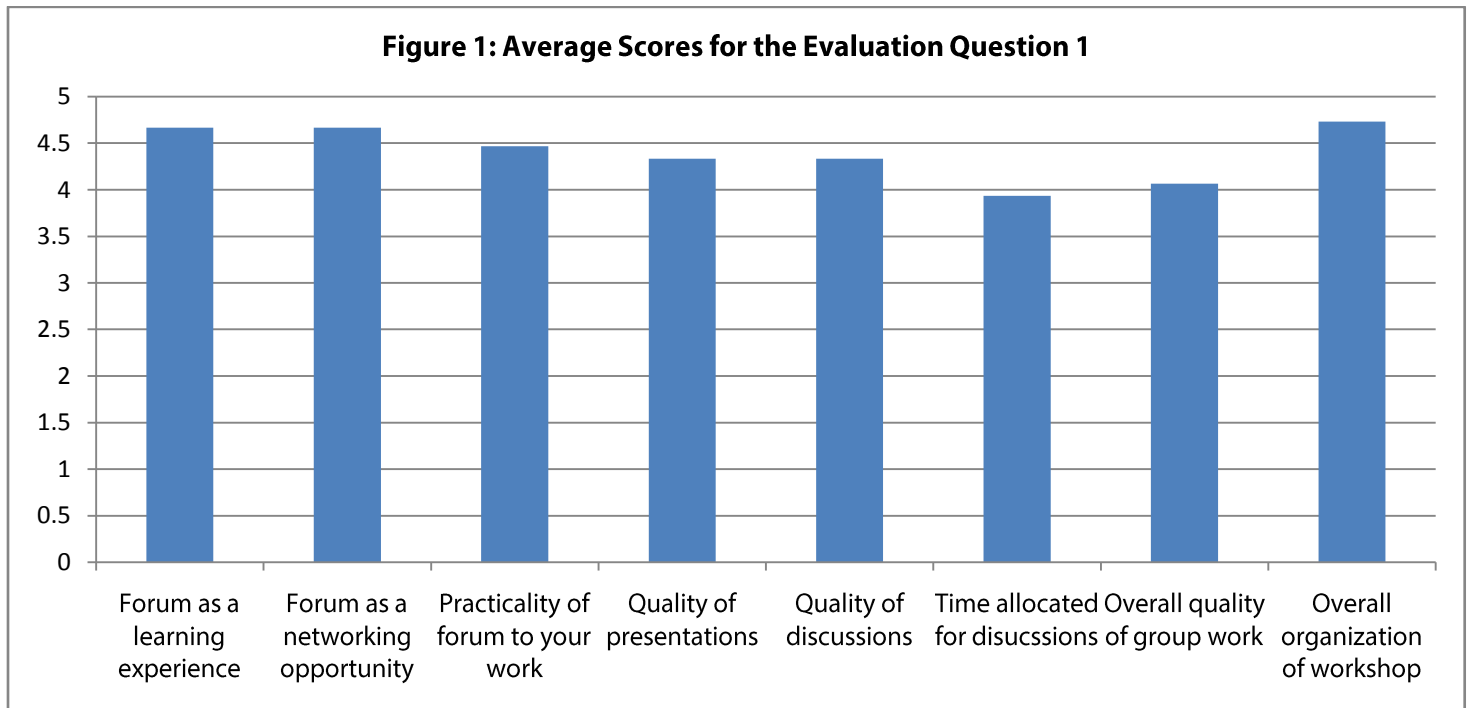
	AADP
CAP-NET	<ul style="list-style-type: none"> • Participation of the research institutes in China, including XIEG, CAS, in CAP-NET to strengthen the global knowledge base for sustainable water management and improve the scientific foundation of integrated water resource management efforts in the world.

The forum stressed the importance of the platform which helps the interested practitioners to exchange, discuss, transfer and apply DRM knowledge beyond national and regional boundaries and deeply acknowledged the host government, the donors and the forum organizers to bring together the key resource persons with rich experiences who will carry forward the innovative ideas of inter-regional technical cooperation. A strong recommendation was made that the UNDP DDC and the country offices should provide the drought affected governments with the short-/long-term follow-up support under the framework of AADP to continuously learn from each other, share challenges, progresses and lessons in their efforts in drought field and implement collaborative initiatives on the ground.



FORUM EVALUATION

An evaluation questionnaire was administered at the end of the forum (Annex 4). A total of 15 completed forms were returned by all the participants from Africa, namely Ethiopia, Ghana, Kenya, Mauritania and Namibia. The delegates from China did not participate in the evaluation exercise, since they were considered as part of the AADAF2013 organizer team. A summary of participants' responses to Question 1 is illustrated below in Figure 1.



Overall, the event was evaluated highly positively. All of the participants provided the scores of either excellent (i.e., 5 on the five point satisfaction scale) or good (i.e., 4) to the questions on the forum as a learning experience (Average score: 4.67); forum as a networking opportunity (Average score: 4.67); and overall organization of workshop (Average score: 4.73). The forum was also largely perceived as very practical to the participants' fields of work (Average score: 4.47). Furthermore, the respondents rated relatively highly the quality of the presentations (Average score: 4.33) and the discussions (Average score: 4.33). Some of the positive narrative comments are as follows:

- The event was well organized and informative, covering the diverse thematic aspects relevant to DRM;
- It was the great learning experiences for the technical practitioners working in arid and semi-arid lands with the discussion building directly on the decades of practical experiences;
- The practice-based structure of the forum allowed the participants to identify the specific areas for future collaboration.

Meanwhile, a number of respondents productive inputs to the questions on the time allocated for discussion (Average score: 3.93) and the overall quality of group work (Average score: 4.07) as follows:



- Future forum should better address the issue of language barrier with the simultaneous interpretation services or provision of translated hand outs, etc., at least during the plenary discussion.
- More organized translation support should be provided to promote smooth and effective discussion and communications (both formally and informally)
- Limited time was allocated for exposure and discussion due to the long distances between the sites to be visited for the study tour. Future tour may be organized in smaller-scale in terms of tour areas to be covered or alternative modes of transportation may be utilized to reduce the travel time.

The summary of the narrative feedback to Question 2 regarding the most beneficial aspects of the forum sessions/activities is listed below:

- Combination of the desk-based discussion sessions (e.g., presentations and subsequent interactive sessions) and the field study tour (e.g., exposure, demonstrations) made the learning and discussions very effective and interactive and helped make rich conversations on the concrete areas of future collaboration;
- The forum placed the well-balanced focus on science and practice and demonstrated the roles and potentials of research in DRM, which are often overlooked in policy and decision-making process in Africa (e.g., ecological and non-engineering solutions as opposed to mechanism, chemical and engineering solutions, etc.);
- Many presentations and demonstrations are highly practical and inspirational with detailed background and contextual information;
- Diversity of the participants, in terms of the agro-ecological focus and sectoral expertise, etc., contributed to the broad, comprehensive and rich discussions;
- The discussions and visits responded adequately to the needs and interests of the participants (e.g. drip irrigation and use of underground water; desertification control; drylands demonstration botanical gardens) as the result of the development of the programme based on the prior needs assessment questionnaire;
- The participants were extremely thankful and impressed by the hospitality of the host government. The forum clearly showed the commitments and passion of the government of China in combating drought and desertification and support in SSC in this field.

The summary of the narrative feedback to Question 3 regarding the suggestions for the future forum is listed below:

- Continuous targeted follow up support should be provided to promote more applied discussions, exchange and cooperative actions both by soft (e.g., email) and hard means including the organization of the subsequent forum in one of the other participating countries on the same subjects.
- Extra support is needed to ensure the smooth and productive interactions such as simultaneous interpretation and timely verbal/written translation services both during the desk-based discussion sessions and the field study tour.
- Cost-effective analysis may be reviewed for the development of the future programme in terms of the number of countries to participate, types of the participants (i.e. technical personnel, researchers or more senior decision-makers), distance to be travelled, time allocation for presentations/Q&A/discussions, etc., to maximize learning and knowledge sharing.



ANNEX 1: AADAF2013 Programme

13 August, 2013 (Tuesday)

Time	Session
TBC	Arrival of the participants in Beijing

14 August, 2013 (Wednesday)

Time	Session
Morning	Introductory Meeting at UNDP China Office Patrick Haverman, Deputy Country Director, UNDP China Merriden Varrall, Assistant Policy Advisor, UNDP China
Afternoon	Flight from Beijing to Urumqi

15 August, 2013 (Thursday)

Time	Session
Opening Session (Chair: Lei Jiaqiang)	
9:00 - 9:50	Registration
10:00 - 10:40	Opening Remarks Fu Chunli, Director, Xinjiang Branch, Chinese Academy of Sciences (CAS) Xiao Fenghuai, Deputy Director General, China International Centre For Economic and Technical Exchanges (CICETE) Pang Jinwu, Deputy Chief Engineer, Ministry of Water Resources Round of Introduction
Introductory Session (Chair: Yang Fang)	
10:40 - 11:10	Keynote Speech <i>Desertification and Its Control in Xinjiang, China</i> Lei Jiaqiang, Deputy Director & Professor, Xinjiang Institute of Ecology & Geography (XIEG), CAS
11:10 - 11:30	Background and Overview of AADAF2013 Yuko Kurauchi, Programme Specialist, UNDP Drylands Development Centre
11:30 - 12:00	Group Photo and Tea Break
Panel Discussion Topic 1: Water Harvesting, Conservation and Management (Chair: Zhang Ning)	
12:00 - 13:20	Soil Water and Salinity Movement and Management of Farmland in Tarim River Basin Zhao Chengyi, Division Head & Professor, XIEG, CAS Water Harvesting: Some Field Examples from Cap-Net Themba Gumbo, Director, Cap-Net Water Harvesting and Management for Agricultural Production in Kenya



	<p>SunyaOrreMorongei, Director for Technical Services, National Drought Management Authority in Kenya Effects and Technique of Water-fertilizer Coupling of Cotton in Arid Zone</p> <p>Yang Tao, Professor, Xinjiang Academy of Agricultural Science</p>
13:20 - 14:00	Q&A and Interactive Session
14:30 - 15:30	Lunch Break
Panel Discussion Topic 2: Land Rehabilitation, Restoration, Fertility Management (Chair: Guan Kaiyun)	
15:30 - 16:50	<p>Integrated Natural Resource Management In The Upper West Region Of Ghana Asher Nkegbe, Regional Director, Environmental Protection Agency – Upper West Region, Ghana</p> <p>Integrated Grassland Management in Xinjiang, China Li Gangyong, Professor, Animal Science Academy of Xinjiang</p> <p>Land Rehabilitation, Restoration, Fertility Management: Tested Techniques in DRM Felix Romeo Humphries, Control Agriculture Extension Technician, Ministry of Agriculture, Water and Forestry in Namibia</p> <p>Mauritania: A Solid Experience in Combating Desertification Alioune Fall, National Consultant Expert, Ministry of Environment and Sustainable Development in Mauritania</p>
16:50 - 17:30	Q&A
17:30 - 18:00	Tea Break
18:00 - 19:00	Interactive Session
19:00 - 19:30	Wrap up
19:30 - 21:00	Reception Dinner

16August, 2013(Friday)

Time	Session
9:30 - 9:45	Recap of Day 1
Panel Discussion Topic 3: Policy and Institutional Framework (Chair: SunyaOrreMorongei)	
9:45- 10:45	<p>Potential South-South Cooperation between Africa Countries and China Xiao Fenghuai, Deputy Director General, CICETE</p> <p>Drought Management in China and Its Changes in the Future Pang Jinwu, Deputy Chief Engineer, Ministry of Water Resources</p> <p>Policy and Institutional Framework for Effective Disaster Risk Management in Ethiopia MulunehWoldemariamDendena, Logistics Case Team Coordinator, Disaster Risk Management & Food Security Sector, Ministry of Agriculture in Ethiopia</p>
10:45 - 11:15	Q&A
11:15 - 11:45	Tea Break
11:45 - 12:45	Interactive Session
12:45 - 13:00	Wrap up
13:00 - 14:00	Lunch
Day Field Trip	



14:00 - 20:00	Field Trip to Fukang National Field Scientific Observation and Research Station for Desert Ecosystems, XIEG, CAS Visit the Dripping Irrigation System in Farmland Presentation and Discussion: Introduction to Fukang Desert Ecosystem Station (CAS) and Its Long- Term Monitoring Activities
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17August, 2013(Saturday)

Time	Session
Study Tour (From Urumqi to Korla)	
9:00 - 20:00	Visit: <ul style="list-style-type: none"> • TurpanEremophytes Botanic Garden, XIEG, CAS • Desert Landscape

18August, 2013(Sunday)

Time	Session
Study Tour (From Korla to Tazhong)	
9:00 - 18:00	Visit: <ul style="list-style-type: none"> • Taklimakan Desert • TarimDesert Highway and Ecological Shelter • Taklimakan Desert Research Station/Tazhong Botanical Garden
18:00 - 20:30	Presentation and Discussion: Introduction to Taklimakan Desert Research Station: Techniques and Demonstration of Forestation Irrigated by Saline Groundwater along Desert Highway in Taklimakan Desert XuXinwen, Division Head & Professor, XIEG, CAS

19August, 2013(Monday)

Time	Session
Study Tour (From Tazhong to Cele and Hotan)	
9:00 - 17:30	Visit: <ul style="list-style-type: none"> • Hotan Prefectural Government Office for presentation and discussion: <p>Cele National Field Research Station for Desert Grassland Ecosystems: Introduction of Basic Situation and Some Achievements in Controlling Desertification ZengFanjiang, Deputy Director, Cele National Field Research Station</p> <p>Green Belt Construction and Future Development in HotanPrefecture Wang Haipeng, Forestry Bureau, Hotan Prefecture</p>
17:30 - 19:30	Visit:



	<ul style="list-style-type: none"> • Cele National Field Research Station for Desert Steppe Ecosystems, XIEG, CAS
19:30 - 21:30	Banquet

20 August, 2013 (Tuesday)

Time	Session
Study Tour (From Hotan to Urumqi)	
9:00 - 12:30	Visit: <ul style="list-style-type: none"> • Farmland Wind Shelter of Hotan Prefecture • Greenhouse
12:30 - 13:00	Lunch
13:00 - 16:00	Flight from Hotan to Urumqi

21 August, 2013 (Wednesday)

Time	Session
Closing Session	
9:00 - 11:00	Wrap up of the forum
11:00 - 12:00	Visit the Museum of XIEG, CAS
Afternoon	Flight From Urumqi to Beijing
	Departure

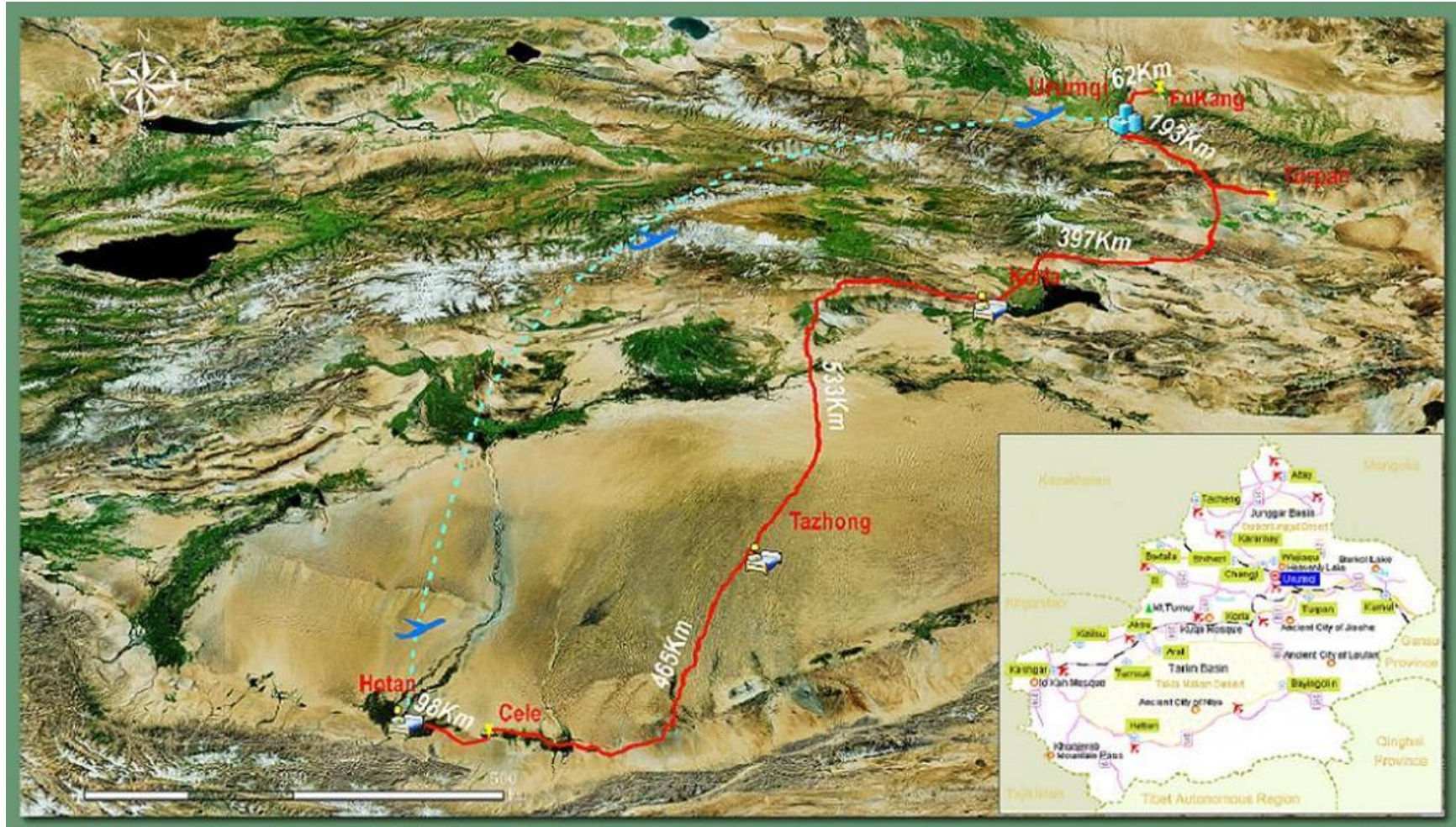


ANNEX 2: LIST OF PARTICIPANTS TO THE DISCUSSION SESSIONS OF AADAF2013

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#	NAME	TITLE	ORGANISATION	PHONE CONTACT	EMAIL
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24	Yang Tao	Professor	Xinjiang Academy of Agricultural Sciences		
25	Li Gangyong	Professor	Animal Science Academy of Xinjiang		
26	Fu Chunli	Director	Xinjiang Branch, Chinese Academy of Sciences (CAS)		
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30	XuXinwen	Director & Professor	XIEG, CAS		
31	Zhao Chengyi	Division Head & Professor	XIEG, CAS		
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ANNEX 3: AADAF3013 STUDY TOUR ROUTE



ANNEX 4: ADAF2013 NEEDS AND EXPECTATIONS QUESTIONNAIRE RESULTS

Question 1: In each forum theme area, please kindly describe some of the key capacity constraints witnessed.

Topic	Theme	Participating Countries				
		Ethiopia	Ghana	Kenya	Namibia	India
1	Water (e.g., WRM, harvesting, conservation, irrigation, etc.)	<ul style="list-style-type: none"> • Topography of the land impeded expansion of irrigation • There was a huge initiative for water harvesting, but the structures in some areas did not hold water for long • Some of the irrigation structures/ canals not properly maintained and often fail to provide sustainable result and the irrigation methods were traditional/furrow (sprinkler, drip, not widely used) • Inadequate water management & maintenance capacity • Salinity problem • Flood hazards <p>Positive developments include:</p> <ul style="list-style-type: none"> • Introduced wind, solar energy, • started the huge renaissance dam from the Blue Nile 	<ul style="list-style-type: none"> • Restricted funding • Inadequate development of irrigable areas • Inadequate protection of buffer zones of rivers / dams • Inadequate holding capacity of dams • Influx of alien aquatic weeds 	<ul style="list-style-type: none"> • Limited water harvesting and conservation technological knowhow, e.g., the use of water pumps which require electricity mean high cost of Operation and maintenance (O&M) consequently frequent break down affect water supply to consumers.. • Limited knowledge and skills on protection of water catchment areas, water conservation, monitoring on water system and basic operation and maintenance (O&M). • Inadequate sound governance structure at local level 	<ul style="list-style-type: none"> • Limited water management capacity for key players at the local level: e.g., regional councils and traditional authorities. • Local end users at community level do not understand fully the water management framework especially at the basin management level. • Poor understanding of community roles and responsibilities in end users payment concepts. • Limited capacity and skills in decision process and support institution for managers and water point committee members. • Limited awareness on IWRM across sectors and communities. • Poor funding allocation on internal water resources management compared to regional water bodies. 	<ul style="list-style-type: none"> • Excess drawls of ground water. • Inadequate rain water harvesting. • Lack of access to advanced water harvesting technologies.

Topic	Theme	Participating Countries				
		Ethiopia	Ghana	Kenya	Namibia	India
2	Land (e.g., rehabilitation, restoration, soil fertility management, etc.)	<ul style="list-style-type: none"> • Inadequate resource (finance, manpower, materials) particularly insufficient national budget for agriculture compared with its potential (85% of the population earn their living from Agriculture) • Shortage of heavy duty machineries to develop the infrastructure • Insufficient integration of climate change adaptation, disaster risk reduction and sustainable land management • Despite huge potential of the agriculture sector, food security is unattained goal in some part of the country • The country where 40% of the land mass was covered with forest has now went down to 3% • Massive deforestation caused erosion of farm land and decline of soil fertility • Absence of land use planning • Despite huge potential for wind, solar, hydro power potential renewable energy is not developed to the required level • Rural electrification is very low and communities are dependent on fire wood and charcoal for energy <p>Positive developments include:</p> <ul style="list-style-type: none"> • Initiation of SLM, investment programme • Developed a multi -agency agricultural growth joint programme, established Agricultural Transformation Agency • The reforestation programs planted millions of seedlings every year and survival rate of the planted trees are encouraging. 	<ul style="list-style-type: none"> • Inadequate vet extension staff • Lack of periodic visits and provision of inadequate veterinary services • UN System in Ghana in collaboration with the government of Ghana is implementing a joint Programme on RESILIENT LANDSCAPES FOR SUSTAINABLE LIVELIHOODS with focus on long term food security. The Programme seeks among others things to: <ul style="list-style-type: none"> ✓ Strengthening SLM aspects of Government policies ✓ Building institutional capacity within the food and agriculture sector to promote and implement SLM, particularly with respect to climate change adaptation skills ✓ Documenting and publicizing successful SLM interventions ✓ Investing in field-based programmes and projects focused on agricultural land management, community tree planting programmes, integrated watershed management, drought management and mitigation environment for SLM. 	<ul style="list-style-type: none"> • High cost of restoration and rehabilitation of degraded lands • Inappropriate land use practices e.g. over grazing • High cost of inorganic fertilizers • Unsustainable exploitation of natural resources. 	<ul style="list-style-type: none"> • Limited capacity to maintain ecosystem services functions in all land use systems is a challenge especially at different level such as communities, individual and institutions. • Capacity for communities to understand the integrated approach to land management is poor in some communities. • Majority of communities depends on the subsistence and rain fed agriculture for their livelihood. The capacity challenge is for them to trust new technologies and concepts to improve their production lands and sustaining them for future years to come. • Limited financial resource to manage and implement programmes of land management especially at community level. 	<ul style="list-style-type: none"> • Farmers are reluctant to keep their land fallow for rehabilitation of soil • Average use of fertilizer (per ton per ha) is low

Topic	Theme	Participating Countries				
		Ethiopia	Ghana	Kenya	Namibia	India
3	Policy and institutional framework for effective DRM (e.g. Policy support, warning-response linkage, sectoral & national-local coordination, etc.)	<ul style="list-style-type: none"> • The previous DRM Policy was response orient and reactive • There was no legislation to enforce effective implementation • Institutional integration of DRM and CCA needs improvement <p>Positive developments include:</p> <ul style="list-style-type: none"> • Developed Climate Resilient Green Economy Strategy, Growth and Transformation Plan, Productive Safety Net Programme linked with multi donor trust fund • Upgraded EPA to the level of Ministry of Environment and Forestry • Developed a multi hazard & multi sectoral DRM policy and DRM SPIF. The policy is now approved and following that SPIF will be launched soon • Introduced district risk profiling and early warning system • Established Emergency Coordination Center • Established DRMTWG, sectoral task forces, cluster groups to promote inter agency coordination and collaboration • Established African Center for DRM in order to institutionalize DRM research, training and education 		<ul style="list-style-type: none"> • Multiplicity of legal and policy frameworks related to DRR and climate change risk management which is not well linked would hinder effective governance for DRR which is essential to mobilize desired actions of the diverse stakeholders to promote effective DRR concerns. • Weak technical and administrative capacity of the principal DRR institutions to have adequate human and financial resources so as to execute the mandates effectively. • A gap exists between the information provided by the Early Warning about the impending drought (alert) and the ability of stakeholders to respond to the threats, which is delay in time between early warning and early response. 	<ul style="list-style-type: none"> • Capacity to implement the DRM policy and drought policy is challenge. • Financial resources to fully support the four phases for DRM are insufficient. • Capacity varies among established institutions for disaster risk management to provide for an integrated and coordinated disaster management approach. • Capacity to carry out quality need assessment when a disaster strikes. 	

Question 2: In each forum theme area, what are the participants from your country interested to learn from China and other participants? Specific techniques, approaches, projects or set-up? Please share your views and thoughts.

Session	Theme	Participating Countries				
		Ethiopia	Ghana	Kenya	Namibia	India
1	Water (e.g., WRM, harvesting, conservation, irrigation, etc.)	<ul style="list-style-type: none"> • Knowledge on water harvesting and use of adaptive technology at local community level • Build capacity on water management and maintenance of water schemes • Opportunities for resource mobilization (funding and technical and equipment support) • Best practice in post construction management and sustainable use of the structures • Rainwater harvesting and flood control • Appropriate solutions for salinity challenges • Innovative technologies/practices for water efficient irrigated agriculture for small holders 	<ul style="list-style-type: none"> • Sources of funding • How to assure and ensure project sustainability • Techniques used in water management 	<ul style="list-style-type: none"> • Innovative technologies for water efficient irrigated agriculture: e.g., Controlled Alternative Partial Root zone Irrigation (CAPRI) with the aim of maximizing the crop growth and yield while minimizing water use. • Rainwater harvesting and conservation techniques: e.g., 1-2-1 project 	<ul style="list-style-type: none"> • Affordable water harvesting technologies for local communities, their usage and conservation measures. 	<ul style="list-style-type: none"> • Chinese technologies of WRM, system of transfer of technologies to the farmers and extent of application of the technologies by the farmers
2	Land (e.g. rehabilitation, restoration, soil fertility management, etc.)	<ul style="list-style-type: none"> • Wetland management • Watershed management techniques • Organic fertilizers for small holders • Soil nutrient testing for optimum use of fertilizers • Sustainable land management and increase of productivity • Climate smart food Security program implementation • Integrated soil and water conservation intervention 	<ul style="list-style-type: none"> • Traditional land management Techniques • Climate-Smart Agriculture: resilience for Food Security • Carbon finance – how small holder farmers benefit from it 	<ul style="list-style-type: none"> • Techniques for sustainable optimization of land productivity • Soil fertility testing and management technologies • Management of resource use conflicts at local level 	<ul style="list-style-type: none"> • SLM technology transfers to improve the land for various production systems. 	<ul style="list-style-type: none"> • Indigenous methods of land rehabilitation in China, their documentation, use and application
3	Policy and institutional framework for effective DRM (e.g. Policy support, warning-response)	<ul style="list-style-type: none"> • Legislation development and designing process (enforcing mechanism to effect the implementation of policy especially accountabilities of government stake holders) • How volunteers are organised, setting up the system, etc., during disaster times • Mainstreaming of DRM in relevant Government sectors. How it is integrated in the policy, strategy and program of sectors. 		<ul style="list-style-type: none"> • Concept of multi- hazard Early warning in China • China's Actions for Disaster Prevention and Reduction • Drought Monitoring Operational System and early warning in China Meteorological administration • Linking early warning systems to early and appropriate response 	<ul style="list-style-type: none"> • Build a strong integrated coordination system. • Resource mobilization for capacity development and other resources required during the disaster. 	<ul style="list-style-type: none"> • We want to have a comprehensive briefing about the Chinese policies, strategies and institutional framework for drought risk management.

	linkage, sectoral & national-local coordination, etc.)	<ul style="list-style-type: none"> • The integration of Disaster risk reduction and climate change adaptation and poverty reduction strategy • How to capacitate communities in order to play their role in the planning, execution, monitoring, and evaluation of disaster risk management projects • DRM education & Training/curriculum • Appropriate technology for small holders (food processing, chicken brooding etc) • Best practices in operationalizing Early Recovery cluster approach 				
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ANNEX 4: ADAF2013 EVALUATION FORM

1. How would you rate the following (please place a check mark in the appropriate column)?

Poor	Fair	Average	Good	Excellent
1	2	3	4	5

	1	2	3	4	5
a. Forum as a learning experience					
b. Forum as a networking opportunity					
c. Practicality of forum to your work					
d. Quality of presentations					
e. Quality of discussions					
f. Time allocated for discussions					
g. Overall quality of group work					
h. Overall organization of workshop					

Further comments (Optional)

2. What aspects of the sessions/activities did you gain the most benefit?

3. Have you any suggestions about how the forum could be improved in the future?

