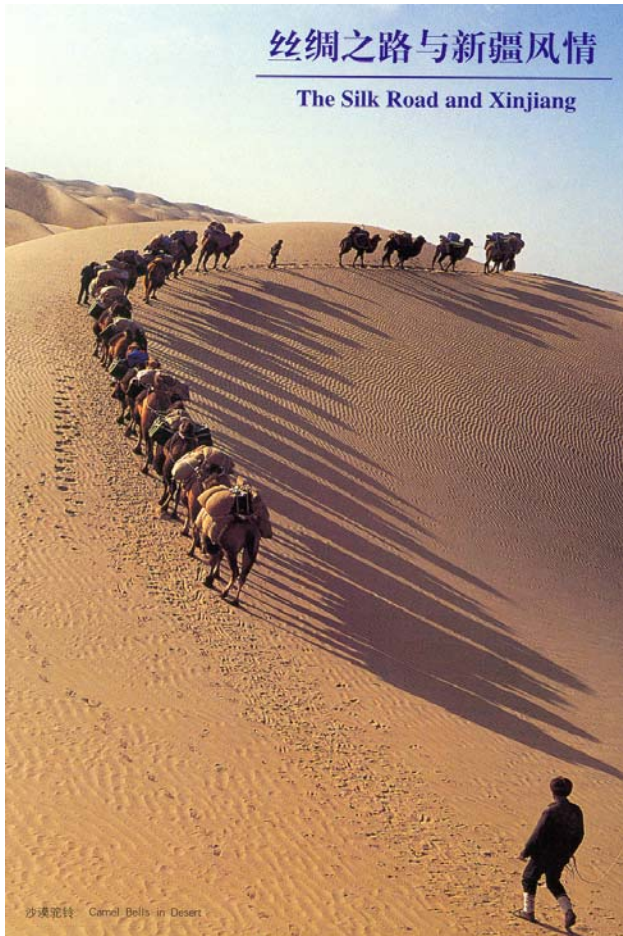


## DEVELOPMENT OF A DESERT AFFAIRS CENTER IN WESTERN CHINA



Camel caravan in desert, from *Tour in Xinjiang*, Xinjiang People's Publications, photo by Ding Xiao Lun, 2000.

The image above portrays the popular view of the old Silk Road that passes through western China into Central Asia. And such an image exists today in parts of Xinjiang Uygur Autonomous Region. However, the region is in the midst of rapid development, as is much of China.

During 2002, Xinjiang University in Urumqi, China, and NCAR's Environmental and Societal Impacts Group (ESIG), and Colorado State University researchers worked together to propose a plan for the development of an **International Center for Desert Affairs (ICDA)**. This plan was given official approval by the government of the Xinjiang Uygur Autonomous Region, and on 18 October 2002 an inauguration ceremony was held on Xinjiang University's campus. ESIG and CSU representatives were present.

Professor Xiaoling Pan, Dean of the College of Resources and Environmental Sciences at Xinjiang University, and Dr. Michael Glantz, NCAR Senior Scientist, will act as Co-Directors during the Center's startup phase. Dr. Qian Ye, Scientific Visitor to ESIG, will act as the Center's Executive Director. The development of ICDA was fostered in large measure by Dr. Wei Gao at Colorado State University.

The Center's program is focused on what we refer to as the 4 "Ds": Drought, Desertification, Development and Diversity. **Drought** issues involve but are not limited to the harmonious development of natural resources in arid and semiarid areas in the context of global change; **Desertification** issues will focus on patterns and approaches to oasis stability and research on the rehabilitation of degraded ecosystems; cultural **Diversity** involves sociological and anthropological research on cultural cooperation and conflict in arid and semiarid areas; and **Development** issues will center on the development and pursuit of sustainable strategies relating to water, land, and energy exploration and use.

The initial activities of ICDA are as follows: to establish a series of graduate and undergraduate educational courses on a range of desert issues such as desert science, human impacts on desert environments, the policies, laws and politics of the development of arid and semiarid lands, the costs and benefits of the development of fragile desert environments, and the ethical and equity issues related to the development of arid areas. Scientists from countries in the Greater Central Asian region will be brought together for an exchange of ideas and research on sustainable development prospects for the region. The Center will convene multidisciplinary workshops and planning activities to share information and technologies for regional development. Education and training on desert affairs will be a high priority.

China has been aggressively pursuing development strategies in the last two decades. As part of this national strategy, in 1999 the Chinese government announced a Western Region Development Strategy (WRDS) to develop the western part of the country within the next decade and to establish a "new western China" by the middle of the 21st century. A major component of the WRDS is the sustainable development of its arid and semiarid regions. The goal is to enable **all** people in the region to enjoy economic prosperity, social stability, ethnic unity, and an

ecologically healthy and sustainable landscape. To achieve this, China has already begun to speed up the building of infrastructure in the western region.

Many observers are concerned about the potential impacts on the environment and minority cultures in the region. It is not yet clear to what extent the government will pursue economic development opportunities and maintain environmental protection, preservation of natural resources, and cultural diversity.

Xinjiang University in Urumqi is situated between the Taklimakan Desert to the south, and the Gobi Desert to the east. Much of the desert is uninhabited, with a large ecotone (i.e., transition zone between adjacent ecological systems) between the Tian Shan Mountains, a major source of water in the region, and these deserts. Within the ecotone lie oases, which are rich in natural resources but are very fragile ecosystems. The entire region is vulnerable to climate change and climate variability. Rainfall is highly variable from year to year and from place to place, as is the case in arid and semiarid areas. The annual rainfall in the northern part of Xinjiang Province is around 150 mm and around 50 mm in the southern part. Much of the region has suffered in the past decades from drought.

### **Ancient Irrigation System**

The karez irrigation system (*kar* means well and *ez* means underground in Uygur) is an ancient series of wells and underground channels that transfer water from the glaciers of the Tian Shan Mountains to oasis communities in the area. Putting the majority of the channel underground reduces water loss from seepage and evaporation. Construction started around 2,000 years ago; most activities were begun during the Han and Qing Dynasty. Many cities on the ancient Silk Road, some as far west as modern Iran, still rely on this irrigation system as a primary supply of water. In the oasis city of Turpan, there are more than 1,000 of these irrigation systems. Urban centers are growing in spatial extent and in population (e.g., Urumqi has a population of about 2.2 million people).

### **First Steps for the New Center for Desert Affairs**

The overriding goal of the International Center for Desert Affairs is to develop regionally focused research, education, and training programs to address problems of common concern in the Xinjiang region and in Greater Central Asia (see *ESIG Alert # 1* for the Greater Central Asia report). There is a need to:

- Establish an international network of natural and social scientists, decision-makers, and educators.
- Implement an interactive website to facilitate exchange among these groups.
- Convene a national and a regional (Greater Central Asia) conference of researchers on arid

and semiarid lands to discuss plans to prevent, mitigate or adapt to arid and semiarid land hotspots.

- Identify other areas that have successfully transformed such areas into productive land-use activities, such as those in California and Israel.
- Develop a set of courses that gives undergraduate as well as other students a multidisciplinary background in Desert Affairs in order to further the next generation of researchers.

Although the key phrase is “Desert Affairs,” it is well understood that the range of issues will encompass not only the hyper-arid desert regions, but the surrounding mountains as well. They are the sources of water to oases and provide the resources needed for settlements to develop in an otherwise harsh environment. There is considerable interaction on a seasonal basis for below-sea-level basins to the highest elevations of, for example, the Tian Shan Mountains in Xinjiang. The same is true for other arid and semiarid areas in Greater Central Asia and elsewhere.

For more information about ICDA, Desert Affairs, or the interdisciplinary project at Xinjiang University, please contact Michael Glantz or Qian Ye at the US National Center for Atmospheric Research; email [glantz@ucar.edu](mailto:glantz@ucar.edu) or [ye@ucar.edu](mailto:ye@ucar.edu). A website will be available in the near future at [www.esig.ucar.edu/desert/](http://www.esig.ucar.edu/desert/)



ESIG/NCAR  
3450 Mitchell Lane  
Boulder, CO 80301  
[www.esig.ucar.edu](http://www.esig.ucar.edu)

### **干旱半干旱区可持续发展国际研究中心成立大会**



*The inauguration of the Desert Affairs Center at Xinjiang University, Urumqi, China, 18 October 2002. Participants included the President of the University and the Governor of the Xinjiang Uygur Autonomous Province.*