

# A CANADA/CHINA JOINT VENTURE IN GRASSLAND ECOLOGY<sup>1</sup>

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## ABSTRACT

Staff from the University of Saskatchewan (USASK) were asked for assistance by grassland scientists at Northeast Normal University (NENU) in efforts to better understand the reasons for deterioration of natural grasslands in northern and western China. The Canadian International Development Agency agreed to fund a joint venture in grassland ecology, and a program was planned bilaterally in 1982. This resulted in: study at NENU, led by 12 USASK staff, of 329 scientists and technicians from 25 provinces and autonomous regions; study at the University of Saskatchewan of 10 NENU staff; and training of staff at NENU in research techniques by USASK scientists. These activities were associated with 19 Chinese person-visits to USASK totalling 31.5 person-years and 28 Canadian person-visits to NENU totalling 25 person-months. More than 100 publications resulted from activities during the program period.

## KEYWORDS

Grassland ecology, China, overgrazing, desertification

## INTRODUCTION

Concern respecting the deterioration of natural grassland in northern and western China prompted the China's national education authority, in 1982, to arrange with Northeast Normal University (NENU) to upgrade knowledge of the ecology and management of rangelands among Chinese scientists and managers. After consultation with a delegation from the Canadian International Development Agency (CIDA), NENU requested assistance from the Department of Crop Science and Plant Ecology of the University of Saskatchewan (USASK). The objectives of the project were to upgrade grassland science in China, particularly in reference to deterioration of vegetation, by providing advanced training opportunities for Chinese professionals.

## METHODS

The project consisted of two components in China and three in Canada. The programs in China were comprised of five annual series of lectures by USASK staff, during 1984 to 1988, to grassland workers from various institutions throughout China, and training of NENU scientists in research techniques, during 1992 to 1994. The lectures were presented in English, with translation into Chinese; lecture notes were translated into Chinese, printed with illustrations, and distributed widely in China. Activities in Canada involved study at the USASK by junior staff members of NENU as Ph.D. candidates; study at the USASK by more senior staff members of NENU as scholars; and visitations by NENU faculty to Canada.

**Planning and implementation.** NENU made a direct request for assistance to USASK in 1982. Bilateral planning took place at NENU in 1983 during a visit of USASK scientists. The project began in April, 1984 and was funded by CIDA until January, 1995.

**Up-dating Chinese grassland specialists.** Lecture sessions of 5- to 6-weeks duration were presented annually for 5 years (1984-88). Twelve Canadian scientists participated; the Chinese clientele included 329 professionals and technicians from 25 provinces and autonomous regions.

**Up-grading capabilities of staff of the Chinese Institute.** Ten individuals studied at the Canadian institution for a total of 31 person-years (Table 1); 6 completed Ph.D. programs, and 4 visiting scholars

studied for shorter periods. Canadian scientists gave instruction in research techniques and planning — both during their 14 person-month residency in China as lecturers and during 7 person-months (7 person-visits) that were made for especially collaborative research and instruction.

**Improving infra-structure at the Chinese Institute.** Specialized items of equipment were sent from Canada, and instruction was provided on their use and maintenance.

**Familiarization tours during planning and review sessions.** NENU leaders gained knowledge of Canadian grasslands and research during 9 person-visits, totalling 6 person-months. Canadian leaders were in China for the same purpose for 4 person-months (9 person-visits).

## RESULTS AND DISCUSSION

These activities resulted in considerable improvement in understanding among Chinese scientists and rangeland managers, concerning the ecology of natural grassland. One of the most important results was their introduction to the concepts: that deterioration of the vegetation in semiarid regions results from superimposing grazing by livestock upon aridity — not from drought alone; and that, in the early stages of desertification, these effects can be arrested (and reversed) by improved rangeland management. Another important factor was the impetus given to development of grassland science at NENU.

Canadian involvement resulted in major support of the NENU Institute from Chinese sources. It grew from a section within the Biology Department to an independent Institute within the University, equivalent to a department. Also it was given national status by designation as the "National Laboratory of Grassland Ecological Engineering" — the only such grassland unit within the national education system.

The research capabilities increased greatly. Number of staff increased by 150% and research space by 400%; field station facilities were significantly expanded. The laboratories were well equipped through a loan from the World Bank. More than 100 publications resulted from grassland research at NENU during the term of the joint venture, many being coauthored with USASK staff. Achievements of the Institute were recognized by several special awards from national, provincial and regional bodies.

The scope of postgraduate teaching at NENU was widened by the addition of doctorate and post-doctorate programs. This is now one of only three units in China authorized to award doctorates in ecology. Many new undergraduate and postgraduate courses are offered.

The knowledge of Canadian participants was greatly expanded in respect to land management in semiarid regions, broadening their horizons and those of their Canadian students. Associations between NENU and USASK scientists are continuing, with funding for research at NENU from both Chinese and Canadian sources.

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**Table 1**

Summary of exchanges of personnel between the USASK and NENU

Purpose of visit	
<b>Chinese visits to USASK</b>	
Ph.D student program	
Number of students	6
Total length of visits (person-months)	351
Scholar program	
Number of scholars	2
Number of short-term research trainees	2
Total length of visits (person-months)	21
Familiarization/review/planning	
Number of person-visits	9
Total length of visits (person-months)	6
Total number of person-visits	
	19
Total length of all visits (person-months)	
	378
<b>Canadian visits to NENU</b>	
Lecture program	
Number of lecturers	12
Total length of visits (person-months)	14
Research training	
Number of person-visits	7
Total length of visits (person-months)	7
Review/planning	
Number of person-visits	9
Total length of visits (person-months)	4
Total number of person-visits	
	28
Total length of all visits (person-months)	
	25