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Too many people ,too many animals for too little grass-a Canadian perspective

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Abstract Canada's agricultural land base contains 15 .39 million hectares of rangeland defined as natural land for pasture . Some 87% of this range is in the three Canadian Prairie Provinces . This production region encompasses roughly 57 million hectares situated within the Mixed and Tall-grass Prairie , Aspen Parkland , and Boreal Transition eco-regions . The eco-regions overlie some of the most agriculturally productive land in North America and are one of the most highly altered and fragmented ecosystems in the world . Institutional participation by government and NGO's is a very significant in rangeland conservation and management . For example , in the highly fragile rangelands of Southwest Saskatchewan , institutional land control affects up to 46% of the total range . A national immigration policy in the early 20th century for settlement of western Canada had scant appreciation of the fragile nature of the landscape . The result was too many settlers who lacked the appropriate agricultural skills situated on land areas not suitable for cultivated agriculture with the available technology and knowledge . An economic , social and ecological disaster ensued within about two decades . The road to recovery was long and arduous

Canada's experience in balancing the needs of society , livestock production and range landscapes parallels the challenge in other parts of the world of "too many people , too many animals for too little grass" . Appropriate use of rangeland in the prairie region is one of the best expressions of sustainable agriculture in Canada today . Four phases characterize the evolution of sustainable rangeland development-initial development and settlement , social disruption precipitated by economic and environmental crises , period of reclamation followed by an emphasis on range and livestock productivity increases and , most recently , a broadened institutional approach based on technology and policy adaptations . A major response to the drought and economic impacts of the 1930's was the creation of the Prairie Farm Rehabilitation Administration (PFRA) Community Pastures . This program has evolved into an internationally acknowledged model of sustainable land management integral to the achievement of Canada's biodiversity objectives . The program rehabilitated and conserved nearly one million hectares of severely eroded and drought prone lands representing Canada's largest reclamation efforts of native prairie . Today native vegetation dominates about 85% of the PFRA rangelands that are uniquely valued as some of the largest remaining tracts of contiguous native grasslands .

The carrying capacity of western Canadian rangelands (private and public) continues to improve in response to institutional and technological innovations . At the same time , societal demands have increased with respect to the additional public goods arising from healthy rangelands such as biodiversity , research sites , ecosystem conservation , C sequestration , endangered species habitat , and recreation . Rangeland managers are challenged to accommodate such additional and competing societal goals while maintaining farm level profitability . Broadened demands on rangelands have fostered innovations in science technology , institutional partnerships and tools for improved education and awareness to enhance range productivity and biodiversity conservation . Recent institutional approaches and successes are outlined .

Canada's experience with people , livestock , grasslands and policy innovation has played a direct role in international development cooperation projects . The China-Canada Sustainable Agricultural Development Project Phase II seeks to support Global Environment Fund targets for land degradation reduction , biodiversity and climate change . However , in the context of "too many people , too many animals for too little grass" , significant institutional innovation will be required to replicate Canadian successes in land reclamation and adaptation of new knowledge . Particular focus will be required on policy and institutional arrangements affecting land tenure , independent farmer associations , effective rural financial services and public investment in extension and awareness systems at the local level . As in Canada , the ultimate success will lie in the ability of farmers and ranchers to realize the complementarities between social , economic and environmental goals for rangeland and biodiversity protection and conservation .