

Regulating Grassland Degradation in China:

Shallow-Rooted Laws?

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I. INTRODUCTION

Land degradation and desertification in China’s northern and western rangelands – defined here as non-arable land that is not forest¹– are increasingly serious economic, social and environmental

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¹ The definition of rangelands varies depending on the perspective taken: an ecosystem view sees rangelands as “open land defined by predominance of graminaceous [grassy] species”; an anthropocentric view sees them as “land unsuitable for rainfed cropping”: R. Blench & F. Sommer, UNDERSTANDING RANGELAND BIODIVERSITY 10 (1999). In this paper, “rangeland” and “grassland” are used interchangeably.

problems. Key Chinese strategies for addressing land degradation and its repercussions have been regulating grassland use by pastoralists, creating legally protected grassland areas and one specific desertification law.

However, effectively implementing these regulations has proven difficult, leading to laws with “shallow roots”, to borrow the metaphor of an official from China’s State Environmental Protection Administration.² Regulations operate against a background of economically marginal pastoralism in China’s poorest areas, ethnic tensions and potential instability on China’s fringes, reduced grassland productivity and the largely overlooked³ repercussions of decreased biodiversity. Further, they operate under a recent paradigm shift in the science of rangeland ecology, which throws into question the factual basis of much of the regulatory framework. Running through this complex situation are the themes of the rule of law in the context of economic reform, fiscal decentralization and the modernization of traditional minority cultures.

This paper discusses China’s legal approach to the degradation of its northern and western grasslands and analyses its effectiveness and the desirability of future reforms. Overall, this legal framework is found to have serious flaws deriving from its reliance on decentralized funding structures, insufficient emphasis on or even acknowledgement of biodiversity as a valid consideration, and a mismatch between centrally promulgated laws and local grassland conditions. Although recent changes are encouraging, the remaining flaws in this legal framework warrant reform. Part II briefly outlines key causes and effects of desertification and motivations for legal action. Parts III-V discuss three key components of China’s legal approach: the Grassland Law, the Nature Reserve Regulations and the Law on Desert Prevention and Transformation. Finally, Part VI reflects on appropriate directions for reform by placing China’s framework within a rule of law discourse, using a comparison to Australia’s struggle with similar problems of rangeland degradation.

² Richard J. Ferris & Zhang Hongjun, *Reaching Out to the Rule of Law: China’s Continuing Efforts to Develop an Effective Environmental Law Regime*, 11 WM. & MARY BILL OF RTS. J. 569, 589 (2002-2003).

³ John W. Longworth & Gregory J. Williamson, CHINA’S PASTORAL REGION: SHEEP AND WOOL, MINORITY NATIONALITIES, RANGELAND DEGRADATION AND SUSTAINABLE DEVELOPMENT XIII (1994).

II. LAND DEGRADATION IN CHINA: CAUSES, EFFECTS AND MOTIVATION FOR ACTION

Desertification is defined in both Chinese and international legal literature as land degradation in arid, semi-arid and sub-humid areas.⁴ It has been described by the media in China as “rampant...one of the most serious desert expansion problems in the world”.⁵ China’s annual growth in desertified land is 10,400 square kilometers and increasing,⁶ and its total desertified area is 2,674,000 square kilometers.⁷ Desertification manifests as decreased soil depth, organic matter and fertility and increased soil crusting, compaction and sandstorms⁸ and at the extreme, gravel or sandy deserts.

Desertification and land degradation reduce agricultural yields,⁹ justifiably generating concerns about food security in a country with

⁴ GOVERNMENT OF CHINA, CHINA NATIONAL REPORT TO IMPLEMENT THE UNITED NATION’S [SIC] CONVENTION TO COMBAT DESERTIFICATION (UNCCD) 31 (2002); United Nations Convention to Combat Desertification In Those Countries Experiencing Serious Drought And/Or Desertification, Particularly in Africa, Oct. 15, 1994, 1954 U.N.T.S. 3, art 1(f) [hereinafter “UNCCD”]. In this essay, the term “desertification” will be used to mean extreme land degradation.

⁵ *Desert Prevention Policy Planned*, CHINA DAILY, Feb. 27 2001, at <http://www.china.org.cn/english/2001/Feb/8157.htm>.

⁶ GOVERNMENT OF CHINA, *supra* note 4, at 2, 10: on the basis of an annualized increase between surveys carried out in 1994 and 1999.

⁷ *Id.* Such figures need to be viewed with caution, as there are large discrepancies between different reports (compare figures in text with a figure of 2,500 square kilometers increase in desertified land per year and total of 3.3 million square kilometers given in US Embassy Beijing, *China Adopts Law to Control Desertification*, Nov. 2001, at http://www.usembassy-china.org.cn/sandt/desertification_law.htm (last visited Apr. 28 2005), probably due to differences in definition. This paper uses China’s 2002 Report as the most recent official estimate and the most detailed in terms of breakdown: GOVERNMENT OF CHINA, *supra* note 4, at 9.

⁸ Leena Ninan, *Fighting Against Ourselves: Efforts to Combat Desertification and Land Degradation*, 2001 CURRENTS: INT. TRADE L. J. 65, 66.

⁹ *Id.* William C. Burns, *The International Convention to Combat Desertification: Drawing a Line in the Sand?* 16 MICH. J. INT’L L. 832, 837 (1994-1995).

1/5 of the world's population, but only 1/15 its arable land.¹⁰ The consequent direct financial losses in the areas affected and the much larger indirect financial losses flowing from the effects of sandstorms (such as salt deposition on productive land, sedimentation of waterways and flooding) cost the Chinese economy \$US6.5 billion annually.¹¹ Desertification and land degradation reduce rangeland resources,¹² deepening rural poverty and potentially destabilizing ethnic minority areas, some of which are politically antagonistic to Chinese rule.¹³ Desertification can further compromise security by damaging communications facilities, mines, defense installations and industry.¹⁴ Although little publicized, China's biodiversity is also threatened by degradation and desertification of grasslands, which now hold a reduced number, range and variety of animals; indeed, 15-20 percent of all Chinese species are estimated to be endangered.¹⁵

Desertification and land degradation also have the potential to cause urban unrest far from degraded areas. China claims that 60 percent of its population is living in areas affected by desertification, raising the specter of "dryland refugees".¹⁶ Land degradation is a contributor to major floods, including the 1998 Yangtze floods that were affected by desertification in Qinghai.¹⁷ Most immediately pressing are the increasingly frequent and severe sandstorms in urban

¹⁰ US Embassy Beijing, *China Adopts Law to Control Desertification*, *supra* note 7.

¹¹ *Id.* Burns, *supra* note 9, at 846.

¹² Longworth & Williamson, *supra* note 3, at 304.

¹³ Stanley W Toops, *Xinjiang (Eastern Turkistan): Names, Regions, Landscapes, and Futures*, in CHANGING CHINA: A GEOGRAPHIC APPRAISAL 411, 419 (Chiao-min Hsieh & Max Lu eds. 2004).

¹⁴ GOVERNMENT OF CHINA, *supra* note 4, at 8-9.

¹⁵ WORLD BANK, CHINA: AIR, LAND AND WATER 23-24, 32 (2001).

¹⁶ Burns, *supra* note 9, at 847; CHINA NATIONAL COMMITTEE FOR THE IMPLEMENTATION OF THE UN CONVENTION TO COMBAT DESERTIFICATION ("CNC"), CHINA NATIONAL ACTION PROGRAM TO COMBAT DESERTIFICATION (ABSTRACT) 2 (1996).

¹⁷ GOVERNMENT OF CHINA, *supra* note 4, at 1; US Embassy Beijing, *Yangtze Floods and the Environment*, Aug. 1998, at <http://www.usembassy-china.org.cn/sandt/flrpt.htm>.

areas, including Beijing; in 2001, 18 duststorms were recorded in total, compared to 70 between the third century BC and 1949.¹⁸ These effects carry particular significance regarded from traditional Chinese philosophy, which understands environmental disasters as a result of bad governance.¹⁹

Seen in this context, actions to prevent and control land degradation, including legal approaches, represent a push to maintain social and political order by addressing rural poverty,²⁰ territorial security and potential urban unrest. These motives carry international overtones through the transboundary effects on South Korea, Japan and the United States, of jet streams which carry sandstorm dust.²¹ The prospect of future concentrated international attention for the 2008 Olympics is also seen as a pressing motive for action, given that sandstorms can block highways and roads with sediment, slow traffic and close airports.²² However, fear of urban unrest by itself is seen as warranting a strong legal framework to address land degradation.²³ Indeed, some have argued that Chinese environmental laws in general are motivated by social order concerns.²⁴

¹⁸ GOVERNMENT OF CHINA, *supra* note 4, at 10.

¹⁹ In Imperial China it was thought that legitimate government authorities had a “mandate from heaven”, which ensured harmony between Heaven and Earth and therefore harmony in the natural and social order. Today this sentiment continues as a public expectation of “responsible domination over nature”: Dee Mack Williams, *BEYOND GREAT WALLS: ENVIRONMENT, IDENTITY, AND DEVELOPMENT ON THE CHINESE GRASSLANDS OF INNER MONGOLIA* 38-40 (2002).

²⁰ Peter Ho, *China’s Rangelands under Stress: A Comparative Study of Pasture Commons in Ningxia Hui Autonomous Region*, 31 *DEV. & CHANGE* 385, 385 (2000).

²¹ Ferris & Zhang, *supra* note 2, 575.

²² Elizabeth C. Economy, *THE RIVER RUNS BLACK: THE ENVIRONMENTAL CHALLENGE TO CHINA’S FUTURE* 66 (2004). *See also* Eric W. Orts, *Environmental Law with Chinese Characteristics*, 11 *WM. & MARY BILL OF RIGHTS J.* 545, 545, n 5 (2002 – 2003); *Sandstorms To Be Lessened in Beijing Before 2005*, *PEOPLE’S DAILY*, Mar. 28 2002, at <http://www.china.org.cn/english/SO-e/29704.htm>.

²³ *Desert Prevention Policy Planned*, *supra* note 5.

²⁴ Orts, *supra* note 22, at 545.

China's legal framework for desertification targets northern and western China, where desertification is worst and the extensive grasslands are substantially degraded. More than 90 percent of China's desertification occurs in Gansu and Qinghai provinces and the Ningxia Hui ("Ningxia"), Xinjiang Uygur ("Xinjiang") and Inner Mongolia ("IMAR") Autonomous Regions.²⁵ IMAR retains less than half of its grasslands as usable pasture.²⁶ The legal framework addresses the anthropogenic causes of land degradation, thought to have created one-third of China's deserts.²⁷ In China's northern and western rangelands, these causes are overgrazing and harvesting of wild vegetation, which cause soil erosion by wind and water. (Causes important in other areas of China are overcultivation, poor irrigation methods and deforestation).²⁸ China's legal and policy framework addresses these causes by attempting to control rangeland use, establishing protected areas and offering incentives for preventative and rehabilitative action.

III. LEGAL FRAMEWORK FOR RANGELAND PASTORALISM: GRASSLANDS, LAND TENURE AND OFFICIAL REALITIES

Pastoralism, the primary economic activity on China's rangelands, is often denounced as the major cause of grassland

²⁵ US Embassy Beijing, *China Adopts Law to Control Desertification*, *supra* note 7. Other provinces affected are Shaanxi, Liaoning, Jilin and Heilongjiang; Williams, *Beyond Great Walls*, *supra* note 19, at 24.

²⁶ Statistics for other pastoral provinces are given in WORLD BANK, *supra* note 15, at 23.

²⁷ US Embassy Beijing, *China Adopts Law to Control Desertification*, *supra* note 7, citing a 1994 survey by the Chinese Forestry Ministry (now the SFA). In some regions, anthropogenic desert expansion since 1960s exceeds natural expansion over previous 2000 years: Williams, *BEYOND GREAT WALLS*, *supra* note 19, at 27, citing He Bochuan, *CHINA ON THE EDGE: THE CRISIS OF ECOLOGY AND DEVELOPMENT* 24 (1991).

²⁸ For a more detailed explanation of causes, *see* Ninan, *supra* note 8, at 67-8; Burns, *supra* note 9, at 836-844.

degradation through overstocking.²⁹ China's Grassland Law (also translated as the Rangeland Law)³⁰ attempts to address this, but ironically may itself exacerbate grassland degradation through overlooking biodiversity considerations and by imposing biophysically and socially inappropriate property rights structures. This section describes how the Grassland Law seeks, but ultimately fails, to prevent land degradation: first, indirectly through property rights systems; and second, directly through environment-oriented sanctions on herb collection and land cultivation.

A. LAND TENURE UNDER THE GRASSLAND LAW

The Grassland Law (1985),³¹ revised in 2002, is the primary law regulating land tenure in grasslands. It decentralizes control from the state to rangeland users, responding to a fear of extensive rangeland degradation after communes were dissolved.³² The Law introduces the Pasture Contract System ("PCS"), an extension of the Household Contract Responsibility System for agriculture, to former communes in pastoral areas.³³ The PCS grants ownership of rangelands to the state or collectives, which may grant 50-year contracts (an increase

²⁹ US Embassy Beijing, *Grassland Degradation in Tibetan Regions of China – Possible Recovery Strategies*, Sept. 1996, at <http://www.usembassy-china.org.cn/sandt/final3.htm>; LONGWORTH & WILLIAMSON, *supra* note 3, at 169, 188, 214; Tony Banks et al, *Governing the Grasslands of Western China* (Paper presented at Contesting Development: Pathways to Better Practice: 3rd Biennial Conference of the Int'l Dev. Stud. Network, New Zealand, Dec. 5-7 2002) 2.

³⁰ This paper follows the translations provided by the State Environmental Protection Administration of China.

³¹ PEOPLE'S REPUBLIC OF CHINA, GRASSLAND LAW (adopted at the 11th meeting of the Standing Committee of the 6th National People's Congress, June 18, 1985, promulgated by Order No. 26 of the President of the People's Republic of China on June 18, 1985, and effective as of October 1, 1985) [hereinafter "GRASSLAND LAW"].

³² Peter Ho, *The Clash over State and Collective Property: The Making of the Rangeland Law*, 161 CHINA Q. 240, 241 (2000).

³³ Under the PCS, groups of households were allotted seasonal pastures, however individual households were allotted livestock and areas of "cutting land", used for forage collection: *see* Tony Banks, *Grassland Tenure in China: An Economic Analysis* 10 (Paper presented at the 2nd Int'l Convention of Asia Scholars, Free University, Berlin, Aug. 9-12 2001).

from 30 year contracts used before 1996)³⁴ and use right certificates to individual households for animal husbandry.³⁵ These set out individual household boundaries, seasonal pasture allocations, stocking rates to be enforced by Animal Husbandry Bureaus, pasture use fees, and a duty to sustain rangeland productivity.³⁶ Individualized, exclusive and transferable property rights and use fees sought to encourage users to view land as a production factor, not a free good, and to improve and sustainably manage the land and allow access to credit to make improvements.³⁷

However, practice has not borne out this theory. On paper, the PCS is well implemented, with official implementation rates of up to 90 percent in some provinces.³⁸ However, fieldwork observations record “a miserable failure”, “in the majority of pasture regions...not implemented at all.”³⁹ Although local arrangements vary, retained group tenure or open access (or common grazing) arrangements, rather than individualized tenure, are common management features

³⁴ *Id.*

³⁵ Grassland Law, art. 4, *supra* note 31. Although the Grassland Law provides for contracting to collectives or individuals, art 3 of the PEOPLE’S REPUBLIC OF CHINA, RURAL LAND CONTRACTING LAW (adopted by the Standing Committee of the National People’s Congress, Aug. 29, 2002), which applies to pastoral land, provides that “[c]ontracting of rural land shall adopt the form of household contracting within the collective economic organization”: Banks et al., *supra* note 29, at 5. Examples of pasture use certificates for Balinyou County, and Aluqeerqin Counties, IMAR are given in Longworth & Williamson, *supra* note 3, at 183, 230.

³⁶ Banks et al, *supra* note 29, at 3; Tony Banks, *Property Rights and the Environment in Pastoral China: Evidence from the Field*, 32 DEV. & CHANGE 717, 731 (2001).

³⁷ Ho, *The Clash over State and Collective Property*, *supra* note 32, at 260, n.58; Banks, *Grassland Tenure in China*, *supra* note 33, at 6-7.

³⁸ Ho, *The Clash over State and Collective Property*, *supra* note 32, at 242, n.6.

³⁹ *Id.* 259; Peter Ho, *Ownership and Control in Chinese Rangeland Management Since Mao: A Case-Study of the Free-Rider Problem in Pastoral Areas in Ningxia, P.R. China*, in BETWEEN STATE AND PRIVATE INTEREST: CHINESE RURAL COLLECTIVES AND VOLUNTARY PEASANT ORGANISATIONS 1 (E. B. Vermeer, W. L. Chong-Woerkom, & F. Pieke eds. 1998).

in reality in Xinjiang, Ningxia, Yunnan and IMAR.⁴⁰ In addition, stocking rates are poorly enforced and widely flouted,⁴¹ and overgrazing and land degradation are not uncommon. Areas of IMAR and Sichuan, where fencing is common, suffer particular problems. Encouraged by the PCS, the rich increasingly fence pastures but often enclose more that they have contracted, increasing stocking rates on the remaining publicly grazed land, a problem that is exacerbated since the rich often graze their animals in public areas to save their enclosed pasture for emergencies.⁴²

This implementation failure relates to pastoralist preferences, contradictory government policies and a lack of local resources for enforcement. For pastoralists, group tenure economizes herding labor (since one person can herd more than their household's livestock);⁴³ and fencing is expensive and tends to get stolen. Further, pastoralists and many observers argue that fencing and individualized agriculture-style land tenure under the PCS are too rigid in areas of high environmental risk, where stock must be moved in response to extreme conditions.⁴⁴ Ethnicity-based resistance to pronouncements

⁴⁰ For Xinjiang, see Longworth & Williamson, *supra* note 3, at 284 and Banks, *Grassland Tenure in China*, *supra* note 33, at 11-12; for Ningxia, see Ho, *China's Rangelands under Stress*, *supra* note 20, at 394 (in a study of four counties); for Yunnan, see Brian Schwarzwald et al., *Tenure and Management Arrangements for China's Forestland and Grassland Resources: Fieldwork Findings and Legal and Policy Recommendations*, 36-38 (November 2001), at <http://www.rdiland.org/PDF/Grass&ForestlandTenure.pdf>; for IMAR (Balinyou County), see Longworth & Williamson, *supra* note 3, at 171.

⁴¹ Banks, *Grassland Tenure in China*, *supra* note 33, at 13; this observation also made of Hebukesai County in Xinjiang in Longworth & Williamson, *supra* note 3, at 142.

⁴² Williams, *BEYOND GREAT WALLS*, *supra* note 19, at 126, 130. See also Wu Ning & Camille Richard, *The Privatization Process of Rangeland and Its Impacts on Pastoral Dynamics in the Hindu-Kush Himalaya: The Case of Western Sichuan, China 5* (Paper presented at the Int'l Rangeland Congress, Townsville Australia, Jul. 19-23 1999).

⁴³ Banks, *Grassland Tenure in China*, *supra* note 33, at 16.

⁴⁴ *Id.* at 17; J. Marc Foggin & Andrew T. Smith, *Rangeland Utilization and Biodiversity on the Alpine Grasslands of Qinghai Province, People's Republic of China*, in *CONSERVING CHINA'S BIODIVERSITY II* 247 (Johan Schei Peter, Wang Sung & Xie Yan eds. 1996); Ho, *China's Rangelands under Stress*, *supra* note 20, at 407; Schwarzwald et al., *supra* note 40, at 40. For example, common practice during snowstorms in northern Xinjiang is to temporarily relocate herds to lower

of Han officials is another incentive to disregard grassland policies in some areas.⁴⁵ In other areas, fear of land redistribution encourages unsustainable levels of production⁴⁶ and acts as a further disincentive to adhere to stocking rates or make improvements, although this is regionally variable.⁴⁷ In addition, accessing credit to make improvements is complicated by doubt as to whether pasture use contracts are transferable.⁴⁸

Further, influential provincial policies can contradict the national Grassland Law's aims. For example, in Qinghai, animal husbandry policy emphasizes livestock quantity over quality; anti-poverty measures minimize livestock starvation over winter, but increase stocking rates; and moves to sedentarize Tibetan nomads encourage animal husbandry by disrupting trade networks.⁴⁹ Xinjiang, IMAR and West Sichuan have comparable policies, which encourage increased grazing pressure or contravention of certain Grassland Law provisions, for example restrictions on goat production.⁵⁰ Officials are reluctant even to monitor stocking rates, given that penalties for overstocking are extremely harsh under provincial regulations, and given that they are likely to have long

pastures, the boundaries of which are adjusted accordingly: Banks et al, *supra* note 29, at 4.

⁴⁵ Williams, *BEYOND GREAT WALLS*, *supra* note 19, at 194-6.

⁴⁶ Ho, *Ownership and Control in Chinese Rangeland Management*, *supra* note 39, at 1.

⁴⁷ Williams, *BEYOND GREAT WALLS*, *supra* note 19, at 128. Compare the unstable Wulanaodu area of IMAR with a three-village study in Xinjiang: Banks, *Grassland Tenure in China*, *supra* note 33, at 11-12.

⁴⁸ The Grassland Law is silent on this, although the LAND MANAGEMENT REGULATIONS (1991) art. 4 specifies that ownership and use rights of rangeland must be regulated according to the GRASSLAND LAW; other national laws (LAND MANAGEMENT LAW, 1986; AGRICULTURE LAW, 1993) and some provincial-level Grassland Laws explicitly allow transfers: Ho, *The Clash over State and Collective Property*, *supra* note 32, at 251.

⁴⁹ Foggin & Smith, *supra* note 44, at 5-7.

⁵⁰ *E.g.* widespread policies of subsidizing feed. See Longworth & Williamson, *supra* note 3, at 290 (but note harmonious county policies at 173); Williams, *BEYOND GREAT WALLS*, *supra* note 19, at 51; Wu & Richard, *supra* note 44, at 7.

tenure (unlike county or township officials, who are better able to escape the results of unpopular actions).⁵¹

Shortages of resources for implementation are also common, due both to government preferences for industrial over pastoral development⁵² and also to the harshness and vastness of the geographic areas concerned. Even a special-purpose Grassland Police in Ningxia cannot effectively enforce the Grassland Law over its vast rangelands.⁵³

B. LAND USE CONTROLS UNDER THE GRASSLAND LAW

The Grassland Law directly addresses the environmental protection of grasslands by prohibiting and fining damaging practices such as reclaiming grasslands for agriculture, a practice which conventional wisdom holds leads to desertification; digging for medicinal plants except in certain areas with permission; and overgrazing (in addition to the PCS framework).⁵⁴ If overgrazing causes “aridity, degeneration or soil erosion”, grassland users must “reduce grazing and resow forage grass so as to restore vegetation.”⁵⁵ Further provisions relate to preventing fire and damage to grassland by vehicles.⁵⁶

⁵¹ *E.g.* in Alukeerqin County, IMAR: *see* Longworth & Williamson, *supra* note 3, at 217; and Ningxia: *see* Ho, *Ownership and Control in Chinese Rangeland Management*, *supra* note 39, at 19.

⁵² Ho, *Ownership and Control in Chinese Rangeland Management Since Mao*, *supra* note 39, at 218-219; Williams, *BEYOND GREAT WALLS*, *supra* note 19, at 87.

⁵³ Ho, *Ownership and Control in Chinese Rangeland Management Since Mao*, *supra* note 39, at 215.

⁵⁴ GRASSLAND LAW, arts. 10, 11, 19, 20, *supra* note 31. Ho questions the presence of a causal connection: *see generally* Peter Ho, *The Myth of Desertification at China's Northwestern Frontier: The Case of Ningxia Province, 1929-1958*, 26 *MODERN CHINA* 348 (2000).

⁵⁵ GRASSLAND LAW, art. 12, *supra* note 31.

⁵⁶ *Id.* at arts. 15, 16.

However, a failure to enforce these provisions compromises their effectiveness. In both Ningxia and IMAR, removing valuable medicinal plants and sod is a major cause of grassland degradation.⁵⁷ Despite this, political sensitivity to conflicts with the largely ethnic Hui harvesters discourages enforcement.⁵⁸ Similarly, although grain farmers encroach on grazing land in Ningxia, herders are reluctant to report it and officials prefer verbal cautions to fines.⁵⁹

C. BIODIVERSITY IN THE GRASSLAND LAW

Although the Grassland Law charges the State with generally improving the “ecological environment”,⁶⁰ it notably lacks any explicit reference to biodiversity or ecosystem health, despite major threats to these crucial aspects of ecology. The particularly rich biodiversity of the Tibetan Plateau, for example (in Qinghai, Gansu and Sichuan provinces), is “seriously compromised.”⁶¹ Rather, the focus is on productivity. Specific responsibilities relate to promoting grassland “development and rational use” and combating grassland pests,⁶² and environment departments have no part in administering the Law, which is the task of Departments of Animal Husbandry at several levels.⁶³

This productivity focus encourages biodiversity destruction through “insect and rodent control” programs designed to increase

⁵⁷ Ho, *China's Rangelands under Stress*, *supra* note 20, at 403; Williams, *BEYOND GREAT WALLS*, *supra* note 19, at 181.

⁵⁸ Ho, *China's Rangelands under Stress*, *supra* note 20, at 403.

⁵⁹ Ho, *Ownership and Control in Chinese Rangeland Management*, *supra* note 39, at 17.

⁶⁰ GRASSLAND LAW, arts. 1, 9, *supra* note 31.

⁶¹ Foggin & Smith, *supra* note 44, at 1-2, 4. The Tibetan Plateau provides habitat for endangered species such as the Tibetan antelope and snow leopard: C. Richard, *Rangeland Policies in the Eastern Tibetan Plateau: Impacts of China's Grassland Law on Pastoralism and the Landscape*, Issues in Mountain Development (2000), at <http://www.icimod.org>.

⁶² GRASSLAND LAW, arts. 8, 13, 14, *supra* note 31.

⁶³ *Id.* at art. 3.

forage. These programs target a plateau pika species, a small burrowing animal viewed by foreign scientists as a vital keystone species without which the grassland ecosystems would “crash”, but seen by Chinese scientists to be indicators of “grassland degradation” and “rodent damage”, although they agree that the Qinghai Tibet Plateau is ecologically unhealthy.⁶⁴ Further, programs encouraging pastoralists to “improve” pastures by replacing native grasses with perennial pasture, without any constraints or guidelines, also reduce biodiversity.⁶⁵ The legislation does not recognize that high biodiversity is related to high ecosystem stability (for example ability to cope with fire or drought),⁶⁶ a long-term productivity benefit for pastoralism.

D. REFORMING THE GRASSLAND LAW

The Grassland Law’s unenforced land use controls have, at best, failed to prevent grassland degradation. At worst, its PCS and unconstrained aim to increase productivity encourage land degradation and biodiversity loss. It is in need of reform.

Given that sustainable rangeland management requires greater livestock mobility than that afforded by individualized, fenced use rights areas, many commentators (and invariably local communities) argue that group tenure should be legitimized.⁶⁷ This would enable greater economic efficiency through labor savings, minimize environmental risk through flexible boundaries, and make enforcing boundaries easier by enabling groups to employ range guards, a strategy successfully trialed in Ningxia and Gansu.⁶⁸ This would

⁶⁴ Foggin & Smith, *supra* note 44, at 7; US Embassy Beijing, *Grassland Degradation in Tibetan Regions of China*, *supra* note 29.

⁶⁵ Blench & Sommer, *supra* note 1, at 18.

⁶⁶ *Id.* at 25.

⁶⁷ See e.g. Schwarzwald et al, *supra* note 40, at 42-43; Ho, *Ownership and Control in Chinese Rangeland Management Since Mao*, *supra* note 39, at 226-227; Richard, *supra* note 61, at 71; Banks, *Property Rights and the Environment*, *supra* note 36, at 737; Banks et al, *supra* note 29.

⁶⁸ For Ningxia experiments see Ho, *China’s Rangelands under Stress*, *supra* note 20. For Gansu experiment see Banks et al., *supra* note 29, at 4.

avoid the continued reliance on government enforcement of stocking rates despite decentralized control.⁶⁹

However, a barrier to successful formalized group tenure may be the social cohesion required.⁷⁰ That may be difficult to achieve in areas where the PCS process has caused “extreme wealth stratification”, resulting from differential access to fencing, equipment, loans and political sanction.⁷¹ Prejudice against minority pastoral practices may also discredit a return to group tenure. Although a draft revision of the Grassland Law envisaged group tenure, this is absent from the final version.⁷² Nevertheless, it is still possible for provincial regulations under the national Rural Land Contracting Law to provide for group tenure for grasslands.⁷³

Poverty alleviation measures should also be strengthened to effectively implement the Grassland Law. They could offer an alternative to poor farmers who illegally harvest fragile grassland vegetation. Measures could aim to create opportunities for economic diversification through education and credit, which is currently inadequate.⁷⁴ Such a strategy could also decrease the number of pastoralists and livestock to sustainable levels. However, providing education and vocational training over vast desert distances is a challenge.⁷⁵

Further, if overgrazing continues to be seen as a principle cause of land degradation (which new theories of arid grassland non-equilibrium ecology dispute, favoring dominant climatic

⁶⁹ Ho, *The Clash over State and Collective Property*, *supra* note 32, at 259.

⁷⁰ Ho, *Ownership and Control in Chinese Rangeland Management Since Mao*, *supra* note 39, at 204-205.

⁷¹ Williams, *BEYOND GREAT WALLS*, *supra* note 19, at 143.

⁷² Banks et al., *supra* note 29. The draft revision provided that “[g]rassland that is collectively owned or state-owned but used by collective economic entities in accordance with law may be contracted to individual households or group of households within the collective entity.”

⁷³ *Id.* at 5.

⁷⁴ Richard, *supra* note 61; Williams, *BEYOND GREAT WALLS*, *supra* note 19, at 134.

⁷⁵ *Id.* at 145.

influences),⁷⁶ effective stocking rates should be more flexible, reflecting changes in sustainable stocking rates with grassland condition, rather than relying on fixed stocking rates that do not always reflect optimum stocking levels.⁷⁷ However, further research into these new theories is required to determine if stocking rates are appropriate management tools.

Finally, the Grassland Law's productivity aims must be tempered by biodiversity goals to avoid the adverse effects on biodiversity of land degradation in general and "pest" eradication programs in particular. This should be combined with comprehensive information-gathering on the impacts of the Grassland Law on grassland ecology, currently scarce due to inadequate monitoring.⁷⁸ To this end, the State Environmental Protection Administration ("SEPA") should play a greater role in grassland management, though this appears currently unfeasible due to its limited resources and local offices.⁷⁹

IV. LEGAL FRAMEWORK FOR GRASSLAND NATURE CONSERVATION: GRASSLANDS, PROTECTED AREAS AND THE PROBLEM OF "PAPER-PARKS"

Establishing protected areas is a method often used to conserve biodiversity.⁸⁰ While the Grassland Law, China's main legal framework for grassland management, focuses primarily on agricultural productivity, in theory China's nature reserve system applies a conservation approach to grassland ecosystems.⁸¹ Indeed,

⁷⁶ WORLD BANK, *supra* note 15, at 26.

⁷⁷ Longworth & Williamson, *supra* note 3, at 191.

⁷⁸ Richard, *supra* note 61; Donald J. Bedunah and Richard B. Harris, *Past, Present and Future: Rangelands in China*, 24 RANGELANDS 17, 21 (2002).

⁷⁹ WORLD BANK, *supra* note 15, at 39-40.

⁸⁰ Blench & Sommer, *supra* note 1, at 39.

⁸¹ Protected Area Taskforce, *Protected Area Taskforce Report to CCICED 2004: Evaluation on and Policy Recommendations to the Protected Area System of China (Draft)* 6 (2004), at <http://www.chinabiodiversity.com/protected-area/full-report.doc>.

between 1978 and 2000, China's protected areas increased in area twenty-six times.⁸² Nature reserves (NRs) now cover 14.4 percent of China⁸³ and the total of 130 million hectares includes 3.5 million hectares of "prairie and meadow ecosystems", and 36 million hectares of desert ecosystems.⁸⁴ The Nature Reserve Regulations (1994) ("NRR") provide standards for the creation and management of NRs and set out legal responsibilities: no national legislation exists.⁸⁵ Although NRs have potential to help conserve biodiversity and prevent land degradation, insufficient funding and local participation and a poorly enforced legal framework trouble the system.⁸⁶

A. CREATING NATURE RESERVES

New Nature Reserves (NRs) must satisfy broad, vague prerequisites relating to ecosystems (which may be damaged but restorable), "typical" features, or rare wildlife.⁸⁷ The rank of NRs – national, provincial or county, derives from the level of disturbance and importance of ecosystems.⁸⁸ The lowest (county) level can

⁸² Zhu Guangqing, *Historical Development and Improvement of China's Nature Reserves* 51, 53 (Paper presented at IUCN/WCPA-EA-4 Taipei Conference, Mar. 18-23 2002, Taipei, Taiwan), at <http://www.cnps.org.tw/park-03/WPC-EA4-2002/0%20Plenary%20Session/P05.pdf>. The protected area system consists of nature reserves, heritage sites, forest parks and scenic sites. This paper will discuss only nature reserves, for reasons of space and also because they are the major type.

⁸³ As at the end of 2003: *Nature Reserves*, China Yearbook 2003-2004, at <http://www.china.org.cn/english/features/China2004/107045.htm>.

⁸⁴ Protected Area Taskforce, *supra* note 81, at 17. Note that this reference seems to use incorrect units – my figures accord with the order of magnitude of figures stated elsewhere, e.g. *Introduction to Nature Reserves of China*, at <http://www.chinagate.com.cn/english/530.htm>.

⁸⁵ In August 2004, China's Taskforce on Protected Areas reported that a new law for nature reserves was in preparation: Protected Area Taskforce, *supra* note 81, at 5.

⁸⁶ *Id.* at 18.

⁸⁷ PEOPLE'S REPUBLIC OF CHINA, REGULATIONS ON NATURE RESERVES, art. 10 (Adopted at the 24th Executive Meeting of the State Council, Sept. 2, 1994) [hereinafter "NRR"].

include a disturbed site “containing no flagship species or valuable ecosystems.”⁸⁹

Combined with national directives and quotas to create more NRs regardless of local conditions, these vague prerequisites enable local governments to create “paper parks,”⁹⁰ based on unrealistic boundaries or land availability, rather than conservation value⁹¹ or enforceability of the NRR. NRs often include officially illegal towns, farms, conflicting pre-existing land tenure rights and areas in which resources are unsustainably harvested.⁹² For example, grazing is prohibited but still occurs in the Yunwushan NR, a grassland reserve in Ningxia, because it is otherwise difficult to find pasture for stock.⁹³ Further, local governments tend to establish large “transition” zones in NRs rather than the more restrictive “core” zones, to maximize economic development opportunities.⁹⁴ For example, the Xilinguole NR, a grassland nature reserve in IMAR and UNESCO Biosphere Reserve, has a core area only 0.2 percent of its total area.⁹⁵ A further reason for the creation of ecologically unsuitable NRs may be that local productivity-focused agriculture bureaus, which often administer NRs, lack the knowledge and staff necessary to assess and recommend ecologically valuable sites.⁹⁶

⁸⁸ C. Y. Jim & Steve S. W. Xu, *Recent Protected Area Designation in China: An Evaluation of Administrative and Statutory Procedures*, 170 THE GEOGRAPHICAL J. 39, 41 (2004).

⁸⁹ *Id.*

⁹⁰ *Id.* at 39.

⁹¹ Protected Area Taskforce, *supra* note 81, at 12, 26.

⁹² *Id.* at 19-20.

⁹³ Ho, *Ownership and Control in Chinese Rangeland Management Since Mao*, *supra* note 39, at 208-109.

⁹⁴ Jim & Xu, *supra* note 88, at 47.

⁹⁵ *Xilin Gol* (2002) UNESCO: MAB Biosphere Reserves Directory, at <http://www2.unesco.org/mab/br/brdir/directory/biores.asp?mode=gen&code=CPR+05>.

⁹⁶ Jim & Xu, *supra* note 88, at 44. The field study focused on Shimentai Nature Reserve in Guangdong.

A more effective approach would restrict new NRs to ecologically justifiable areas and aim to protect all biogeographical regions, particularly grasslands, which despite recent efforts to protect the significantly degraded Hulun Buir Grassland (China's largest),⁹⁷ are still underrepresented.⁹⁸ To better reflect on-ground conditions, a new range of NR types could include some that permit non-damaging pre-existing uses.⁹⁹ The abolition of existing quotas, which mandate the creation of an astounding 401 new nature reserves (of unspecified ecological character) by 2010,¹⁰⁰ would facilitate this by discouraging the hasty designation of unsuitable but convenient areas.

B. MANAGING NATURE RESERVES

The NRR provides for complex management arrangements for NRs, which largely place the funding burden at the local level, compromising effective implementation. While SEPA retains overall responsibility,¹⁰¹ nine individual departments are responsible for relevant NRs under their jurisdiction.¹⁰² Grassland NRs are not managed uniformly, for example both the Helanshan (Ningxia) and Xilinguole (IMAR) NRs cover grassland regions, but are managed by agriculture and environment protection departments, respectively.¹⁰³

⁹⁷ *Hulun Buir Grassland Builds 29 Nature Reserves*, PEOPLE'S DAILY, Apr. 4 2001, at http://english.people.com.cn/english/200104/04/eng20010404_66803.html. Twenty-three per cent of this Grassland is affected by desertification: Zhang Tingting, *China's Grasslands Need Crucial Eco-Protection* CHINA.ORG.CN, Jun. 27 2004.

⁹⁸ WORLD BANK, *supra* note 15, at 33.

⁹⁹ Protected Area Taskforce, *supra* note 81, at 25.

¹⁰⁰ Jim & Xu, *supra* note 88, at 43, citing the State Council's *Planning Framework for Nature Reserve Development in China 1995-2010*.

¹⁰¹ NRR, art. 8, *supra* note 87.

¹⁰² Protected Area Taskforce, *supra* note 81, at 16; *Regulations of the People's Republic of China on Nature Reserves 1994* art 8. For example, forestry bureaus are usually responsible for forest NRs: Jim & Xu, *supra* note 88, at 43.

¹⁰³ *Helanshan (Ningxia) and Xilinguolecaoyuan (Inner Mongolia)*, China Species Information Service, at <http://www.chinabiodiversity.com/>.

The Forest Inventory and Planning Institute develops Master Plans for individual NRs.¹⁰⁴ However, they are managed on the ground by special management bureaus.¹⁰⁵

On-ground management includes enforcing restrictions on activities in NRs. Grazing, gathering medicinal herbs and reclaiming land for agriculture – major problems in grasslands – are prohibited in all areas, and further activities are restricted according to one of three zones.¹⁰⁶ Fines and even criminal liability may apply for contraventions.¹⁰⁷ However, a heavy reliance on local governments or even management bureau themselves for funding endangers effective enforcement.¹⁰⁸ Only a few high-profile NRs receive national funding and World Bank funds have not included grassland areas, instead targeting only forest and wetland ecosystems.¹⁰⁹ Local governments have insufficient funds to support NRs, particularly in poor northern and western grassland provinces. For example, Xinlinguole Biosphere Reserve's management bureaus, which raises 43 per cent of its total funds, works with only five per cent of the national average expenditure on NRs.¹¹⁰ Local governments often raise funds by allowing officially illegal developments such as hotels within NRs, compromising conservation aims.¹¹¹ Local governments can also

¹⁰⁴ Protected Area Taskforce, *supra* note 81, at 7.

¹⁰⁵ NRR, art. 21, *supra* note 87.

¹⁰⁶ In the core zone, no person is allowed; in the buffer zone only scientific research is allowed; and in the experimental zone tourism and rare wildlife breeding is permitted. *Id.* at art. 18.

¹⁰⁷ NRR, arts. 26, 35, 40, *supra* note 87.

¹⁰⁸ *Id.* at art. 23.

¹⁰⁹ Protected Area Taskforce, *supra* note 81, at 20; Rural Development and Natural Resources Sector Unit, East Asia and Pacific Region, *Implementation Completion Report (TF-28301) On A Grant From The Global Environment Facility Trust Fund In The Amount of SDR 12 Million To The People's Republic of China For A Nature Reserves Management Project*, THE WORLD BANK, Report No. 24807 (2002).

¹¹⁰ Chinese National Committee for MAB's Case Study Research Team for the Sustainable Management of Xilingol Biosphere Reserve, *Biosphere Reserve Promotes the Restoration and Sustainable Development of Degraded Grasslands 4* (Jun. 2002), at <http://www.unesco.org/mab/qualityEconomies/China.PDF>.

downgrade the status of NRs to enable legal but damaging developments.¹¹² Funding is so tight that 40 per cent of NRs have no management bodies (which the NRR mandate) to enforce the NRR.¹¹³ Where management bodies do exist, staff may be poorly trained and lack understanding of ecological principles needed for decision-making, leading to poor management standards – a criticism also made of the Forest Inventory and Planning Institute.¹¹⁴

Created in response to the NR crisis, China's Taskforce on Protected Areas (TPA) suggests that the beneficiaries of a NR's ecosystem services¹¹⁵ provide funding, for example through taxing downstream users of potable water and visitors.¹¹⁶ This may not provide sufficient funds for grassland NRs however, which lack big-ticket draw cards such as pandas. A sustainable solution to NR funding is vital – inadequate funding jeopardizes the system's ability to alleviate grassland environmental degradation through profit-making development pressures and sheer lack of resources for training, hiring staff, monitoring and enforcement.

Greater involvement of local communities may contribute to solving the resources problem by encouraging compliance and providing additional resources. While management bureaus are not required to involve stakeholders or locals, they must consider local production activities and the “everyday life” of local residents in creating and managing the reserve.¹¹⁷ In practice, local people are “rarely involved” in on-ground NR management or planning; indeed

¹¹¹ Protected Area Taskforce, *supra* note 81, at 20.

¹¹² Downgrading occurred in Kalamaili Reserve in Xinjiang, which covers arid desert ecosystems. *Id.* at 25.

¹¹³ NRR, arts. 21, 22(1), *supra* note 87; Zhu, *supra* note 82, at 53, 55.

¹¹⁴ Protected Area Taskforce, *supra* note 81, at 18.

¹¹⁵ Ecosystem services are defined as ‘the conditions and processes through which ecosystems, and the species that make them up, sustain and fulfill human life’: G. E. Daily, NATURE’S SERVICES: SOCIETAL DEPENDENCE ON NATURAL ECOSYSTEMS 3 (1997). Ecosystem services applicable to grasslands include erosion control, protection of biodiversity, genetic resources and climate regulation: Protected Area Taskforce, *supra* note 81, at 41.

¹¹⁶ Protected Area Taskforce, *supra* note 81, at 7.

¹¹⁷ NRR, art. 5, *supra* note 87.

they are seen as a “major problem.”¹¹⁸ Excluding local communities from NRs may worsen their poverty and counter-productively reduce local interest in long-term stewardship.¹¹⁹ At the extreme, resettlement provisions in the NRR have been used in grasslands, for example to relocate 7,679 local residents in two Tibetan prefectures to allow for grassland rehabilitation schemes.¹²⁰

Nomadic and other ethnic minority pastoralists living in grasslands are often popularly viewed as culturally primitive and environmentally irresponsible, or in the eyes of one group of Han scientists, possessing “a lower level of culture, technique and productivity” and given to laziness.¹²¹ Although increased local participation, for example through a new category of “Community Managed Protected Areas” could contribute to overcoming insufficient government resources,¹²² prejudices against economically and politically marginal minority groups, ironically those most threatened by land degradation, may prevent improved local participation in grassland NRs.¹²³

C. REFORMING THE PRC REGULATIONS ON NATURE RESERVES

In view of the problems described above, the TPA has recommended a broad, new “Protected Area Law”, providing for

¹¹⁸ Protected Area Taskforce, *supra* note 81, at 7, 29; Jim & Xu, *supra* note 88, at 48.

¹¹⁹ Marcus Colchester, *Indigenous Peoples and Protected Areas: Rights, Principles and Practice*, 7 *NOMADIC PEOPLES* 33, 35-36 (2003). The *Dana Declaration on Mobile Peoples and Conservation* is a declaration made by 27 international social and natural scientists, at <http://www.danadeclaration.org>.

¹²⁰ NRR, art. 27, *supra* note 87; *Degenerate Grassland in West China To Enjoy Recess from Grazing*, Xinhua News Agency, Apr. 16 2003, at <http://202.130.245.33/english/environment/62501.htm>.

¹²¹ Williams, *BEYOND GREAT WALLS*, *supra* note 19, at 31-32. See also Dawn Chatty, *Mobile Peoples and Conservation: An Introduction*, 7 *NOMADIC PEOPLES* 5, 7 (2003); HO, *China's Rangelands under Stress*, *supra* note 20, at 386.

¹²² Protected Area Taskforce, *supra* note 81, at 9.

¹²³ Williams, *BEYOND GREAT WALLS*, *supra* note 19, at 53.

prohibited activities, flexible protected area categories accounting for pre-existing land tenure, clear agency roles, including local poverty alleviation, and mandating local participation.¹²⁴ In the grassland context, this should be accompanied by secure funding independent of local governments, better biodiversity monitoring systems (including inter-jurisdictional cooperation in information-sharing) and programs to ensure local people who may suffer ethnicity-based stigma are included in co-management.

V. THE NEW LAW ON DESERTIFICATION

The 2001 Law of the People's Republic of China on Desert Prevention and Transformation ("LDPT")¹²⁵ is the world's first special-purpose desertification law. It responds to China's obligation under the *United Nations Convention to Combat Desertification* ("UNCCD") to enact or strengthen existing legislation to combat desertification.¹²⁶ The LDPT seeks to prevent desertification, rehabilitate desertified areas and promote "sustainable development"¹²⁷ through both command-and-control planning tools formulated by central and local governments and also market-based incentives aimed at land-users.¹²⁸ It also advances the social goals of poverty alleviation, basic local participation and action.¹²⁹ The LDPT addresses these goals in three ways: through plans for desertification efforts, preventative and rehabilitative land use measures supported by information-sharing provisions, and responsibilities and incentives for land users. While the LDPT improves on the Grassland Law and

¹²⁴ Protected Area Taskforce, *supra* note 81, at 31-33.

¹²⁵ LAW ON DESERT PREVENTION AND TRANSFORMATION (P.R.C.) (adopted at the 23rd meeting of the Standing Committee of the 9th National People's Congress, Aug. 31, 2001) [hereinafter "2001 LDPT"].

¹²⁶ UNCCD, *supra* note 4, art. 5(e)

¹²⁷ 2001 LDPT, art. 1, *supra* note 125. The translation used is that available from SEPA at <http://www.zhb.gov.cn/english/chanel-3/detail-3.php3?chanel=3&column=1&id=48>.

¹²⁸ US Embassy Beijing, *China Adopts Law to Control Desertification*, *supra* note 7; 2001 LDPT, *supra* note 125, art. 3.

¹²⁹ 2001 LDPT, *supra* note 125, art. 3.

NRR in many respects, like these laws it largely ignores ecological factors such as biodiversity, which are not perceived to carry benefits for productivity. This section describes the main provisions of the LDPT and given the law's novelty, speculates on likely future implementation issues.

A. PLANS FOR CONTROLLING DESERTIFICATION

Under the LDPT, the central government must establish plans and targets for desertification prevention and control and participate in international anti-desertification efforts.¹³⁰ The LDPT provides that China's overarching planning document is the central National Action Plan for Combating Desertification ("NAPCD"), formulated pursuant to its obligations under the UNCCD.¹³¹ The NAPCD is organized by the Forestry Bureau and approved by the State Council.¹³² All activities that seek to control or prevent desertification, and development and construction activities in desertified areas, must comply with the NAPCD.¹³³ The NAPCD in turn complies with requirements of the UNCCD and its regional implementation annex for Asia.¹³⁴

The main part of China's NAPCD sets out three phases until 2050 and contains corresponding strategic objectives and "main projects", focused on large developments, land rehabilitation,

¹³⁰ *Id.* at arts. 4, 7.

¹³¹ *Id.* arts. 11-13. Local governments also formulate and implement subordinate desertification plans.

¹³² *Id.* at arts. 2, 5.

¹³³ *Id.* at art. 10.

¹³⁴ UNCCD, *supra* note 4, arts. 10(2)(e) & 10(2)(f). The UNCCD requires that NAPCDs include long-term strategies, a preventive approach, institutional frameworks for cooperation between domestic governments and communities and effective public participation in policing planning, decision-making, implementation and review. The regional implementation annex for Asia emphasizes socio-economic issues, including poverty and related production systems and consultative public participation. (*See id.* at Annex II arts. 2(c),(d), 3(2), 4(1)(b),(d)).

afforestation and reservation.¹³⁵ For example, 34 million hectares of degraded rangelands will be revegetated in the current 2001-2010 phase.¹³⁶ Development projects include “economic development of waste sand lands”, and creating large, high-productivity fodder areas.¹³⁷ Low interest loans, “improved food production bases”, “dissemination of know-how”, alternative livelihoods and resettlement programs will aim to improve living standards.¹³⁸ The NAPCD provides for mostly passive community participation, such as receiving technical extension services and making suggestions for working plans and policies, rather than more active decision-making roles.¹³⁹

Ecological concerns have a much lower profile in the NAPCD than economic development and social measures – the main ecological aim is to create NRs for various ecosystems, including deserts, steppes and meadowlands. However, as noted above, targets for creating NRs may actually hamper their effective protection. Further, since the NAPCD itself acknowledges that domestic resources for implementation are insufficient,¹⁴⁰ and since international assistance is only sporadic, economic and social development projects which produce financial returns are likely to be favored over ecological targets.

B. LAND USE MEASURES TO CONTROL DESERTIFICATION

The LDPT also sets out land use measures to both prevent desertification and rehabilitate desertified areas; responsibility for each of these is clearly divided between local-level bureaus. For

¹³⁵ CNC, *supra* note 16, at 4. The phases are from 1996 to 2000, 2001 to 2010 and 2011 to 2050. These periods were chosen to coincide with China’s National Economic and Social Development Plan.

¹³⁶ *Id.* at 5.

¹³⁷ *Id.* at 8, 11.

¹³⁸ *Id.* at 5, 13.

¹³⁹ *Id.* at 12-3.

¹⁴⁰ *Id.* at 13.

example, forestry bureaus must establish “anti-wind and sand-fixation forest nets” and animal husbandry departments must promote rotational grazing and control animal numbers.¹⁴¹ These responsibilities are an important step in encouraging accountability and action. They may prevent officials from different departments taking no action by denying responsibility, a problem which Yunnan experiences with watershed management issues.¹⁴²

The LDPT also prohibits damaging activities, such as damaging desert plants on enclosed land; cultivating land in “desert margins, woodlands and grassland”; carrying out construction in desertified areas without an environmental impact assessment; and immigrating to and settling in enclosed areas.¹⁴³ Rehabilitation measures include afforestation, grass seeding and enclosing sandy lands with special “ecological needs.”¹⁴⁴

Explicit vertical and horizontal information-sharing provisions support these land use measures. Local governments must report their anti-desertification activities and their plans to People’s Congresses; meteorology bureaus must warn animal husbandry departments of forecasted sandstorms; and forestry bureaus must report desertification monitoring results to local governments and upper-level administrative departments.¹⁴⁵ The latter must then act “in a timely manner”, or face fines¹⁴⁶ – forcing them to take potentially costly and inconvenient actions. These reporting provisions, absent from both the Grassland Law and the NRR, are vital in a framework of decentralized environmental management, to ensure macro-level issues are locally addressed.¹⁴⁷

¹⁴¹ 2001 LDPT, arts. 16, 18, *supra* note 125.

¹⁴² Mairi Dupar & Nathan Badenoch, ENVIRONMENT, LIVELIHOODS AND LOCAL INSTITUTIONS: DECENTRALIZATION IN MAINLAND SOUTH EAST ASIA 58 (2002).

¹⁴³ 2001 LDPT, arts. 17, 20-22, 38, *supra* note 125.

¹⁴⁴ *Id.* at arts 12, 23, 35. Compensation is payable to people who have rehabilitated an area that is later enclosed.

¹⁴⁵ *Id.* at arts. 4, 11, 14, 15.

¹⁴⁶ *Id.* at arts. 20, 22 (prohibition provisions), 34, 44 (fine provisions). Fines also apply to agencies that approve prohibited activities or fraudulently use anti-desertification funds.

C. RESPONSIBILITIES AND INCENTIVES TO COMBAT LAND DEGRADATION

In addition to government-level responsibilities such as plans, land use measures and reporting requirements, the LDPT also imposes positive obligations and offers incentives to land users in combating desertification. However, these may prove ineffective since they lack both clarity – particularly in the grassland context – and biodiversity considerations.

In addition to individual responsibilities to protect desertified land, which local governments may insert into land use contracts,¹⁴⁸ general obligations also apply. Under art 6, holders of land use rights must prevent desertification of their land and rehabilitate their desertified land. Article 25 obliges land use right holders of already desertified land to undertake control activities and improve their land quality or contract this work to others;¹⁴⁹ if they breach art 25, causing “serious” land desertification, land rehabilitation measures may be ordered and in the case of state-owned land, their land use rights may be withdrawn.¹⁵⁰

Enforcing this obligation will be difficult, since “serious desertification” is undefined and China’s variable desertification statistics suggest that either no commonly accepted definition exists¹⁵¹ or that monitoring is unreliable – issues which also pose problems for achieving meaningful reports under the reporting provisions. Secondly, only art 25 (and not art 6) is enforceable. Thus the obligation to act only applies after degradation has already taken place – a reactive approach that fails to recognize that preventing degradation is cheaper and more desirable than fixing it.

These problems are compounded in grazing areas. There, the land user whose activities may cause degradation, is often not (or not

¹⁴⁷ Dupar & Badenoch, *supra* note 143.

¹⁴⁸ 2001 LDPT, arts. 17, 26-28, *supra* note 125.

¹⁴⁹ *Id.* arts. 6, 8, 25-29.

¹⁵⁰ *Id.* art. 39.

¹⁵¹ Dee Mack Williams, *The Desert Discourse of Modern China*, 23 MODERN CHINA 328, 330 (1997). There are more than 100 definitions of desertification in use in academic literature; Williams argues that desertification is subjective and that the perception of desertification is culturally dependent.

only) the person holding the land use right – a situation that the LDPT does not foresee. If a land user causes desertification on land over which they have no land use rights, it is unclear whether they may be subject to a land rehabilitation order or whether their land use rights to other, non-desertified land may be revoked. This arises where land is used collectively but individually allocated, where herders illegally enclose and use pastures to which other herders have land use rights, and where grazing land is only partially allocated. Causation problems also ensue from scientific uncertainties surrounding the relative influence of climatic change and human activities.¹⁵² This is implicitly recognized in the LDPT, which defines the causes of desertification as both climatic change and “human activities.”¹⁵³ It may be difficult to prove that grazing practices caused “serious” desertification, or to isolate particular activities on collectively grazed lands.

These difficulties are further exacerbated by the insufficient ability and motivation of local governments to enforce these obligations. First, monitoring the remote activities of millions of herders is a sheer impossibility (as shown by difficulties in enforcing the Grassland Law). Second, without concurrent poverty alleviation and alternative employment measures, strict enforcement would severely endanger the livelihoods of most subsistence-based herders.¹⁵⁴ Finally, it would threaten the short-term, historically high, contribution of animal husbandry to the economy.¹⁵⁵ Thus, in addition to definitional problems and legal ambiguity, enforcing obligations to prevent and control land degradation under the LDPT would be difficult due to uncertain science and significant disincentives to enforcement.

Fortunately, the LDPT also provides incentives for land users to combat desertification, extending China’s focus on market-based environmental instruments from emissions charges and trading for

¹⁵² See Pt. III D.

¹⁵³ 2001 LDPT, *supra* note 125, art. 2.

¹⁵⁴ Wu & Richard, *supra* note 42, at 9.

¹⁵⁵ Animal husbandry contributed 31 percent of agricultural output in 2002, double the rate at 1978. Maria Opalinska-Mania & Ivan Roberts, *Agriculture in China: Production, Policy and Trade Developments*, 11 AUSTRALIAN COMMODITIES: FORECASTS AND ISSUES 453, 455 (2004).

polluting industries to the issue of grassland degradation.¹⁵⁶ Local governments can bestow honors and awards for notable achievements in combating desertification.¹⁵⁷ Perhaps more alluring, they can also provide compensation for desertification control activities, cash donations, land and free technical guidance, providing operators meet technical standards.¹⁵⁸ These factors standardize programs that have paid local tree-planters in desert regions since the 1980s.¹⁵⁹ Further, local governments may offer “preferential policies” such as financial subsidies, tax discounts or land use rights of up to seventy years for those who conduct “desertification prevention and control” activities on state-owned land.¹⁶⁰

However, “desertification prevention and control” and local governments’ obligations to “protect and improve ecological quality”¹⁶¹ are undefined, enabling local governments to channel funds to financially productive projects rather than activities for environmental benefit. Further, funds directed towards the latter may be used ineffectively by planting inappropriate trees in unsuitable areas and overlooking follow-up management, which have led to poor survival rates in the past.¹⁶² The LDPT’s emphasis on “local conditions,” technical guidance and requirements, and the need to obtain local government approvals may address this.¹⁶³

¹⁵⁶ See Sun Changjin, *Paying for the Environment in China: The Growing Role of the Market*, 4 CHINA ENV'T. SERIES 32 (2002). The article provides an overview of emissions instruments.

¹⁵⁷ 2001 LDPT, *supra* note 125, art. 25.

¹⁵⁸ *Id.* at arts. 24, 31.

¹⁵⁹ See Tak-Ho Fong, *Anti-Desert Warrior Triumphs over Adversity: A Widow from Shaanxi Wins Kudos for Raising Forests on Barren Sandy Land*, SOUTH CHINA MORNING POST, Mar. 20 2003, at 8.

¹⁶⁰ 2001 LDPT, *supra* note 125, arts. 25, 33, 34.

¹⁶¹ *Id.* at arts. 4, 5, 9, 14.

¹⁶² Yuanchun Shi, *Reflections on Twenty Years' Desertification Control*, SCIENCE AND TECHNOLOGY DAILY (May 11 2002), at <http://www.china.org.cn/english/2002/May/32353.htm>.

¹⁶³ 2001 LDPT, *supra* note 125. See art. 3(1) (adapting NAPCD to local conditions); arts. 24, 26, 32 (desertification sub-projects in other areas, e.g. poverty

These incentives have yielded results. Ningxia's preferential tax arrangements and subsidies for tree planting reportedly earned one herder 500,000 yuan annually.¹⁶⁴ Private tree plantations constitute one third of the planting in forestation areas in Huocheng County, Xinjiang.¹⁶⁵ Similarly, fruit trees cover 50,000 hectares of formerly desertified land in Anhui.¹⁶⁶ These policies have produced vast commercial, monocultural plantations of fodder and fruit trees, rather than biodiverse plantations with higher ecological benefits but lower economic returns. For example, one agricultural technology corporation's farm in Ningxia comprises 4000 hectares of mulberry trees, with plans for a further 330,000 hectares.¹⁶⁷ Unfortunately, such vast monocultures could have the effect of compromising biodiversity if they replace native grasslands.

Although enforcement will be difficult, the LDPT significantly improves on the Grassland Law and the NRR. It clearly specifies government-level responsibilities and information-sharing channels, important for encouraging local accountability. It also offers a legislative structure for China's comprehensive plan to implement the UNCCD – its NAPCD. However, despite the international influence, China appears to be repeating the failures of early international efforts on desertification (notably the 1977 UN "Plan of Action to Combat Desertification"), caused by insufficient funding and an over-emphasis on fast-return development projects such as agricultural development rather than long-term rehabilitation programs.¹⁶⁸ Further, the law's assumption that the PCS applies universally ignores

alleviation, should be based on local site conditions); arts. 40, 41 (penalties apply for failing to adhere to technical standards).

¹⁶⁴ Qingxin Cui, *West China Witnesses Growing Interest Among Private Sector To Combat Desertification* XINHUA NEWS AGENCY (Jun. 17 2004), at http://english.people.com.cn/200406/18/eng20040618_146715.html.

¹⁶⁵ *Id.*

¹⁶⁶ *Fruitful Control of Desertification in Anhui*, CHINA DAILY (Aug. 3 2000), at http://english.people.com.cn/english/200008/03/eng20000803_47211.html.

¹⁶⁷ Cui, *supra* note 164.

¹⁶⁸ Burns, *supra* note 9, at 851-854. The preamble of the UNCCD states that "despite efforts in the past, progress in combating desertification...has not met expectations". UNCCD, *supra* note 4.

the continuing social reality of collective tenure. Should the Grassland Law be amended to legitimize collective tenure, corresponding amendments must be made to the LDPT to ensure it can be effectively enforced.

VI. THE RULE OF LAW, ENVIRONMENTAL LAW AND GRASSLANDS IN CHINA AND AUSTRALIA

It has been argued that China's environmental law system increasingly adopts practices associated with rule-of-law systems, such as increased public and civil society participation, transparency, and freer access to government information.¹⁶⁹ However, this seems less apparent for grassland regulation, which is usually seen as an agricultural issue, as demonstrated by the management of many grassland NRs by agriculture ministries. Further, China's motivations for addressing land degradation are grounded in social order and economic productivity, suggesting an instrumentalist approach to law,¹⁷⁰ rather than a system based on rule-of-law theories such as controlling official behavior.

Clarity is an additional key feature desired of rule-of-law-systems – a feature lacking in China's legal approach to land degradation, as shown by the legal ambiguity in the LDPT obligations on preventing desertification and the vague legal prerequisites for NRs. However, the dominant reasons for implementation failures are practical issues of decentralized funding, the absence of biodiversity

¹⁶⁹ See, e.g., State Environmental Protection Administration's ("SEPA") *Circular on Issuing the "Management Methods on Administrative Transparency in Environmental Protection Authorities"* and the proposed draft *Measures of Shenyang Municipality for Public Participation in Environmental Protection*. Ferris & Zhang, *supra* note 2, at 597. *Contra* Palmer, who suggests that China's willingness to embrace international influences is an "anti-democratic impulse" stemming from a reluctance to engage with indigenous NGOs. Michael Palmer, *Environmental Regulation in the People's Republic of China: The Face of Domestic Law*, 156 THE CHINA QUARTERLY 788, 807 (1998).

¹⁷⁰ For a discussion on instrumentalism as a key component of pragmatic legal theory in China, see Xingzhong Yu, *Legal Pragmatism in the People's Republic of China*, 3 COLUM. J. ASIAN L. 29 (1989). See also YuanYuan Shen, *Conceptions and Receptions of Legality: Understanding the Complexity of Law Reform in Modern China* in THE LIMITS OF THE RULE OF LAW IN CHINA 20, 25 (Karen G. Turner, James V. Feinerman & R. Kent Guy, eds. 2000).

considerations in favor of socio-economic objectives and the imposition of unsuitable pastoral land tenure systems under the Grassland Law.

Interestingly, similar practical issues also thwart effective rangeland regulation in Australia, regarded as a rule-of-law-country. Australia too struggles with effectively regulating its vast rangelands, which cover three quarters of the country and harbor extensive pastoralism (though commercial rather than subsistence-based), rich biodiversity and Aboriginal minorities.¹⁷¹ As in China, overgrazing by stock and feral species is a cause of major grassland degradation and reduced biodiversity (although changed fire regimes and clearing for cultivation also contribute).¹⁷² Indeed, arid and semi-arid rangelands have the highest extinction rate of all Australian ecosystems, and grasslands are Victoria's most threatened ecosystems, harboring thirty-one per cent of endangered species.¹⁷³

Despite this threat, unlike China, Australia lacks a specific legislated obligation to adhere to sustainable stocking rates. Where this could be implied in broader obligations not to cause land degradation, it is ignored due to the topic's political sensitivity, in favor of the more popular enforcement area of agricultural pests;¹⁷⁴ unpopular coercive measures would be seen to contravene graziers' "right to farm." As a consequence, Australia, like China, is experimenting with market-based incentives to prevent land degradation.¹⁷⁵

As in China, rangelands are underrepresented under Australia's national and state legal frameworks for nature reserves.¹⁷⁶

¹⁷¹ *Managing Rangelands*, at Australian Gov't Dept. of the Environment and Heritage, <http://www.deh.gov.au/land/management/rangelands/index.html> .

¹⁷² *Id.*

¹⁷³ *Id.* Blench & Sommer, *supra* note 1, at 28-29.

¹⁷⁴ For example, Victoria imposes a general obligation on landholders not to cause degradation. Catchment and Land Protection Act, § 20(1) (1994), at [http://www.dms.dpc.vic.gov.au/Domino/Web_Notes/LDMS/PubLawToday.nsf/0/0a4656cebf8d1967ca257007000e883e/\\$FILE/94-52a032.pdf](http://www.dms.dpc.vic.gov.au/Domino/Web_Notes/LDMS/PubLawToday.nsf/0/0a4656cebf8d1967ca257007000e883e/$FILE/94-52a032.pdf). For comments on enforcement, see Rebecca Nelson, *Legislation for ICM: Advancing Water Resources Sustainability?* 22 ENVTL. & PLANNING L. J.96 (2005).

¹⁷⁵ Shane Wright, *Rural Australia Being Ripped Apart over Native Vegetation*: CWA, AAP Newsfeed, Jul. 29, 2003.

While clearly not “paper parks,” alpine plains national parks undergo grazing, albeit controversially, despite scientific evidence of damage.¹⁷⁷ Australia’s funding shortfalls for protected area management are also increasingly met by private commercial operations.¹⁷⁸ Moreover, with the exception of headline parks such as Kakadu and Uluru Kata-Tjuta, implementation of rhetoric advancing indigenous natural resource management is recognized to be a work in progress. However, an important difference is that Australian legislation and policy embrace biodiversity as a crucial issue, a valid constraint on productivity in the grassland context at least in theory. For example, the *National Strategy for the Conservation of Australia’s Biodiversity* (1996) aims to “[a]chieve the conservation of biological diversity through the adoption of ecologically sustainable agricultural and pastoral management practices.”¹⁷⁹ The fact that Australia faces similar problems to China in effectively implementing laws for grassland degradation suggests that the practical issues mentioned above should be the primary considerations in future reform, rather than abstract rule-of-law theories that seem to pervade discussion of legal reform in China.

VII. CONCLUSION

Several practical factors seriously compromise the effectiveness of China’s legal approach to degradation in its northern and western grasslands. These include a mismatch between grassland management arrangements in reality and the perception of full PCS implementation under the NRR and LDPT; desperate rural and minority poverty; severe resources shortages due in large part to fiscal decentralization;

¹⁷⁶ *Managing Rangelands*, *supra* note 171.

¹⁷⁷ *Men from Snowy River Ruining High Plains: National Trust*, AAP NEWSFEED, Nov. 5, 2003.

¹⁷⁸ Scott Emerson, *National Parks to Bank on Business*, THE AUSTRALIAN, Jun. 9, 2004, at 6.

¹⁷⁹ National Strategy for the Conservation of Australia’s Biological Diversity: Objective 2.2 (1996), at <http://www.deh.gov.au/biodiversity/publications/strategy/chap2.html>. See also Environment Protection and Biodiversity Conservation Act (1999), at <http://www.deh.gov.au/epbc/>.

contradictions between national regulation and local government policy; and the absence of explicit biodiversity considerations in legislation. Further rangeland ecology research is needed to investigate whether stocking rates are useful management tools in grassland regulation.

Despite these overall criticisms of the system, the recent LDTP shows significant improvements compared to the Grassland Law and the NRR. It emphasizes the social causes of desertification, rather than seeing desertification as a purely technical issue to be solved by physical measures alone. Accordingly, it offers incentive-based measures to complement the traditional command-and-control approach, which are proving effective to an extent. It also provides a legislative basis for comprehensive desertification plans and attempts to increase integration between different departments and levels of government to increase efficiency and accountability.

However, reform is warranted to enhance the effectiveness of these laws. Poverty alleviation measures should be strengthened and made appropriate to remote minority communities, to provide an alternative to unsustainable harvesting of grassland vegetation. Legitimizing group tenure could further decrease the burden on individual households. New, more securely funded NRs should protect a greater portion of genuinely valuable grasslands and involve greater community participation to alleviate resource shortages and minimize community conflict. Lastly, biodiversity and ecosystem health considerations should be applied to measures for increasing productivity under the Grassland Law (particularly pest control), and incentive structures under the LDTP.

The common difficulties experienced by China and Australia in rangeland regulation may signify that in this small segment of the environmental sphere, rule-of-law rhetoric is not as important as sufficient funding; meaningful local participation; political will; and an understanding of biodiversity as part of land degradation. These are all areas on which both China and Australia should reflect to ensure successful regulation for grassland degradation. In light of China's growing rate of desertification and prospective international scrutiny during the Beijing Olympics, reforms should occur sooner rather than later to enable China's grassland laws effectively to take root.