When the Wells Ran Dry: A Treadmill Analysis of Political Capitalism and Environmental Degradation in the Minqin Oasis

By

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When the Wells Ran Dry: A Treadmill Analysis of Political Capitalism and Environmental Degradation in the Minqin Oasis

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Abstract

My dissertation is a case study examining how changes in land tenure and taxation policies created underdevelopment in the region worst affected by desertification in China: the Minqin oasis in the Gansu province. I argue that the tragedy of the commons occurred due to the significant decline in institutional credibility of land tenure in the oasis, driven by central-local tensions embedded in a tax farming system. My dissertation discusses the concepts of political capitalism and its application to the changing roles of the communist state on resource management during the collective and tax reform eras in China. I first examined the environmental history of the oasis, showing the intricate yet repetitive pattern of interactions between the state extraction policy and the ecology of the oasis from the 14th century to the communist collective era. I then used Weber's analysis of center-periphery relations to dissect the treadmill of production in a politically-oriented capitalist regime. I show that the institutional disarray in the 1980s created a fiscal crisis that pushed the central government to decentralize public goods provisions. Under constant pressure to increase tax revenues, the unitary bureaucracy intensified the collection of unregulated fees and levies from farmers. They also encouraged cash-cropping in massive land reclamation projects by contracting the rights for use of wastelands and the groundwater underneath. Local state agents prohibited the traditional customs of water-sharing among villagers and operated higher tax rates in mutually cultivated areas as compared to privately reclaimed areas. The disruption of productive relations reduced the institutional credibility of land rights among the peasantry and, together with the ever-increasing need to accumulate capital for industrialized farming, created the *homo economicus* and corporatist state in the ecological catastrophe. In conclusion, I discuss how the case study of Minqin adds to the vibrant literature about the treadmill of accumulation theory in environmental sociology, and the impact of institutional transformation in post-socialist societies on nature is

also discussed. The data came from an 18 month-long ethnography, 157 oral history interviews conducted with three generations of peasants living in the Minqin oasis, and 7,237 policy documents gathered from provincial and county record offices in northwestern China. Data gathering was completed in 2013.

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Chapter 1: Introduction

决不讓民勤變成下壹個羅布泊- We will never allow the Minqin oasis to become the next Lop Nor.

Wen Jia Bao, Former Chinese Prime Minister 2007

My dissertation examines how changes in taxation, land tenure, and procurement policies shaped the structure of incentives for the farmers in northwestern China and contributed to the severe desertification of Minqin County in northwestern China, which is the region most severely affected by desertification. This project explores the roles of bureaucratic control over the extraction of surplus value in structuring the dialectical relations between the productive relations of the peasantry and the deterioration of the local ecology. I discovered that desertification in the oasis was largely due to the changing rules of the game instituted by the central government, as well as the changed incentives for local cadre and local farmers. The problem requires a closer, Ostrom-style examination of changes in formal and informal governance institutions embedded in the fragile oasis ecology. This dissertation studies 1) how the taxation and agricultural procurement policies of the government shaped the divergent interests of the state bureaucrats and the peasantry before 1978; 2) how transformations in property rights in the Minqin Oasis since 1982 influenced norms and informal constraints in the farmer economy and how these transformations interacted with local communist bureaucracy and global markets; and 3) what the social, cultural, and ecological consequences of institutional reform were in Minqin when the Chinese state changed the rules. The objective of this research was to construct a consistent view of policy changes and to investigate the effects of these policies on the formal and informal institutions at the local level and on the responses of the officials and the farmers in the environmental history of Minqin.

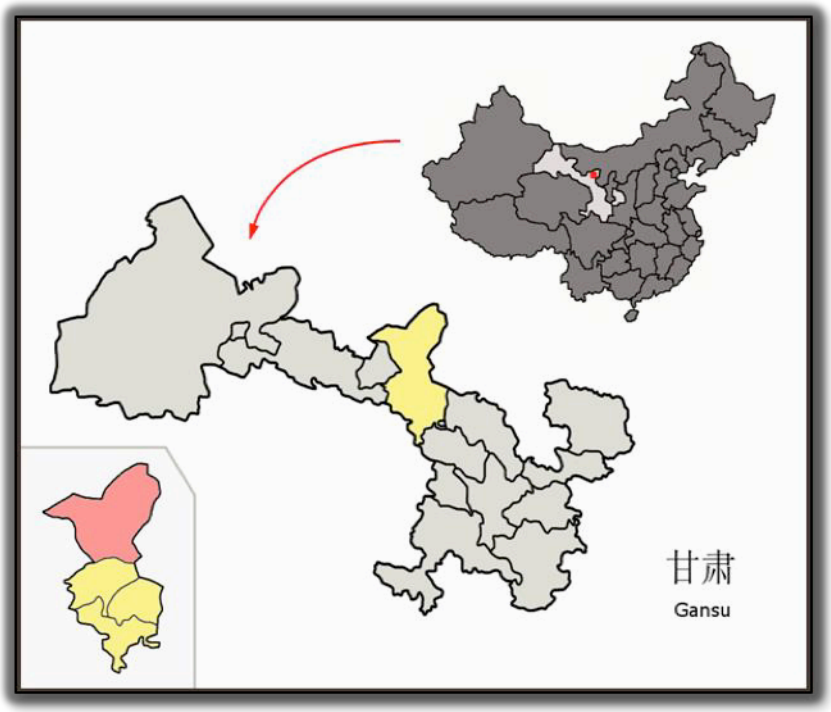
I have found that desertification in Minqin was closely tied to the Chinese Communist Party's decision to transform its policies. Under communist rule, taxation in rural China became much like that in the Roman tax farming regime. Within the bureaucracy, the higher ranked officials would contract out the tax obligations to the lower ranked state agents. As long as they fulfilled the quota, the lower ranked bureaucrats could keep the surplus revenue, and the central and provincial governments would only provide financial assistance for public service and state agents' salaries after the tax quota was met.

Since the mid-1980s, China reformed its fiscal system and stipulated the specific taxes that each level of government could extract. The central government reduced its financial support for public goods provision at the local level. The reform created a significant financial loss for local cadres and changed the criteria for promotion within the hierarchy. Over extraction of tax revenues from the central government exacerbated the local bureaucrats' rent-seeking behavior and led them to increase their efforts to collect unregulated fees and levies from the farmers. The predatory behavior of local state agents created mass rural disturbance and disrupted agricultural production and exchange. To facilitate extraction, the local government prohibited traditional customs of land and water sharing in the villages. In response to the new tax burden and the altered market incentives, the farmers turned to cash cropping and relied on high-interest loans to expand land reclamation projects. In need of the revenue brought by the special agricultural tax imposed on cash cropping, the local state agents imposed higher tax rates on originally cultivated areas as compared to the reclaimed land plots, which is in direct defiance of the environmental protection decree imposed by the central government. The price of the cash crops fluctuated widely during this period, in part due to the added supply in the market. Most of the peasants lost money, and tens of thousands hectares were deserted. With the natural and manmade vegetation

gone, the sand dunes moved in by 20 to 30 meters a year until 2002. This research, therefore, suggests that unsustainable development in the oasis was closely connected to conflicts over fiscal control between varied interests of the state at the center and peripheral region.

The Minqin Oasis

The studied area, Minqin County in the Wuwei Prefecture of Gansu Province, has been the county hit the hardest by desertification in China. Minqin Oasis, with a total area of 15870 km^2, is located in the lower reaches of the Shiyang River Basin in the He-xi Corridor of Northwest China. This area is surrounded by the Badain Jaran and Tengger deserts, the third and the fourth largest deserts in China, and about 91% of the total area is covered by the Gobi, saline, and deflation basin (Hu 2011). With 112 mm mean annual precipitation and 2582 mm potential evaporation from 1953 to 2006, Minqin is a typical oasis agricultural ecosystem that sustains livelihoods for close to 300 thousand people, especially small-scale farmers, who account for 77% of the total population and depended on meltwater from snow and glaciers in the Qilan mountain range. With scarce precipitation and strong evaporation, this region is one of the most arid in the world (Zhang 2001). Due to growing population, intensive agricultural activities, and poor water resource management, this region has experienced serious water scarcity, drought, and desertification in recent decades (Zhang, Wang and Yan 2008). In particular, a projected increase in surface air temperature in northwest China is expected to result in a 27.2% decline in glacier area and more severe water shortages for drinking and irrigation by 2050 (MOST 2007, Qin, Hou, Zhang et al. 2002). The water shortage in Minqin oasis and the subsequent process of desertification are among the most crucial issues determining northwestern China's stability.

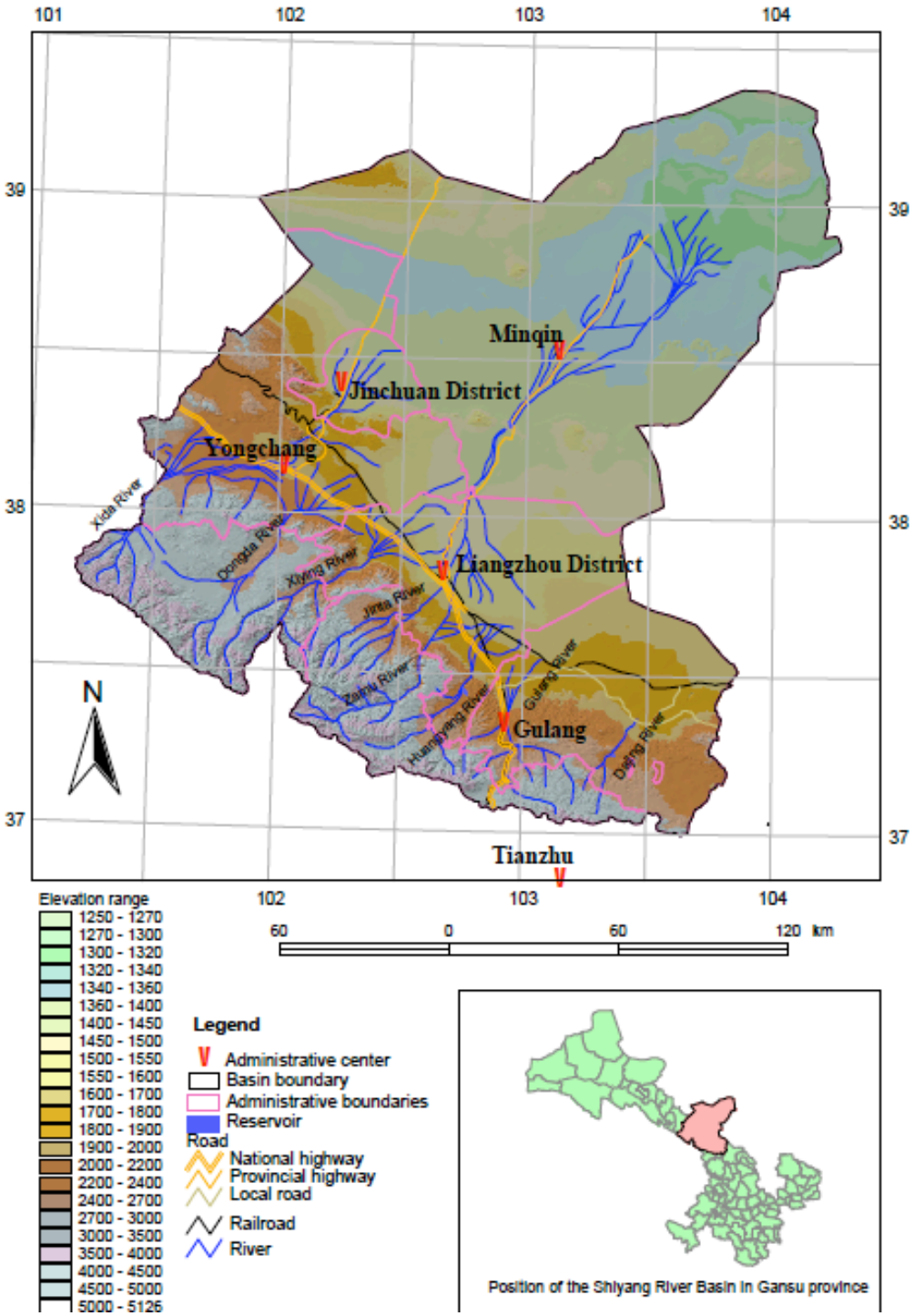


Source: National Key Laboratory of Agricultural Ecology in Semi-Arid Zones Lanzhou University 2011

Figure 1 Wuwei Prefecture and Minqin County

During the 1960's and 1970's, the Minqin Oasis was the model of success in *ren jing sha tui* (pushing the sand dunes (desertification) out of agricultural production) programs implemented under Mao's *lv hua zu guo* (Green Our Motherland) political campaign. Because of its geographical location in the Hexi Corridor, the Minqin Oasis was also listed as one of the most important sites for *san bei fan hu lin* (the Three North Shelter Belts) (Minqin County Annals 1985). Contrary to Shapiro (2001:15)'s suggestion that Mao's ideological fervor and political repression enabled China's war on nature, much resources and labor were invested in reforestation programs in Minqin during the collectivist era. Nevertheless, starting in the early 1990s, the Minqin Oasis experienced severe desertification, due to over-extraction of water resources and salinization. By the late 1990s, more than 30% of the total cultivated land in the Oasis was lost to desertification (Hu 2011). The groundwater level in Minqin's Dam Zone

dropped to 22 meters underground, and in the Lake Zone of:Minqin drinkable water can only be found 300 meters from the surface area.



Source: Project Concluding Report to the Department of Environmental Protection 2012 (Li 2012)

Figure 3 Desertification Type in Minqin

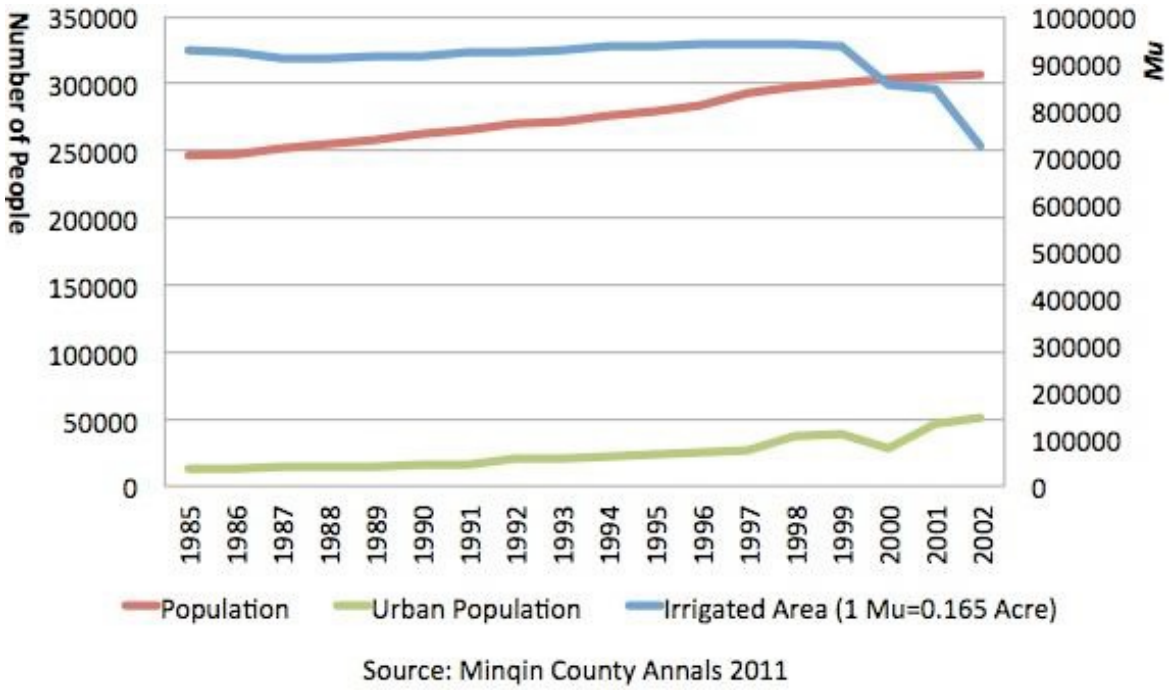
Table 1 Groundwater Depth by Location and Year

Unit: Meters

Year	Wuwei Oasis	Minqin Dam Zone	Minqin Lake Zone
1981 May	-5.226	-8.25	-1.402
1991 May	-6.005	-13.785	-1.819
2001 May	-8.78	-22.678	-2.344

Source: Gansu Provincial Development and Reform Committee 2007

On the surface, the collapse of the local ecology was a classic example of the tragedy of the commons and authoritarian economic development gone amok (Dietz, Ostrom and Stern 2003, Feeny, Berkes, McCay et al. 1990, Hardin 1968). However, it is puzzling why, given more than thirty years of research and mobilization on reforestation in the oasis, the state and the peasantry still chose to risk the sustainability of the oasis economy for short term profit even when a centrally commanded development plan was still in place. Moreover, rapid desertification happened at a time when there was no major flow of migration into the Minqin oasis. Most of the population growth between 1985 and 2002 came from the growth of the urban population while 91% of the water usage in the oasis was for agricultural irrigation (Minqin County Annals 2011:89). Short-turn profit maximization is not an adequate explanation either, given that technologies for drilling deep bore wells and land reclamation became available to peasants in Minqin in the early 1970s, but between 1982 and 2002, there was no significant increase in the total irrigated area, which remained stable.



Source: Minqin County Annals 2011

Figure 5 Population and Irrigated areas

Research on common pool resources (CPR) has repeatedly shown that overuse is not the inevitable path for resources in the public domain (Diamond 2005, Ostrom 2000, Ostrom 2008). Institutional norms, property relations, enforcement arrangements, cohesion of the community, global trade, and distribution of externalities all play into usage and management of common pool resources (Axelrod and Hamilton 1981, Copeland and Taylor 2009, Hansen and Libecap 2004, Li 2010, Libecap 2008, Ostrom 1990, Ostrom, Burger, Field et al. 1999, Ostrom 2005, Ostrom 2010). In addition, it must be asked why there was no resistance from the peasantry towards the destruction of environs and their long-term interests. Chinese peasants have never been passive objects to be manipulated by the officialdom (O'Brien and Li 2003:2-18). Instead, they have always been agents, actively negotiating with other interests groups during the process of economic liberalization in the last forty years (Bernstein and Lu 2003:230-46, Oi 1986a, Oi 1986b, Oi 1989, Oi 1992, Oi 2000, Unger 2002). Moreover, the Chinese state is in itself fragmented by varied interests among different levels of governance (Herbst 1989, Oi 1985, Oi

1986b, Oi 1994, Oi and Walder 1999). To defend their long term interests, the peasants could have engaged in what Gramsci (1971:229-39) calls the "war of position," probing the structure of domination to work the system to their advantage (Hobsbawm 1973:13, Scott 1985, Scott 2009). The causes of ecological disaster in Minqin were deeper than passive peasants exploiting short term profits when marketization happened in rural China, and therefore, it deserves a closer examination of changes in state-society relations embedded in the fragile oasis ecology.

Disasters are deeply rooted in the social, economic, and environmental histories of the societies in which they occur (Worster 2004 [1979]:2-15). They are processes that gradually unfold through time and created by causes deeply embedded in the path that is dependent social and historical occurrences. Institutional norms are powerful in shaping the interpretation of disasters because they provide cultural frames of reference (Button 2010a:8, Oliver-Smith 2009:23-28, Oliver-Smith 2010:4-7). People ascribe meaning and interact with natural events, which situate the empirical world in cultural and historical processes (Weber 1975:107-08). In this way, nature is "refracted" to become a carrier of cultural meanings and an impetus of social action (Foster and Holleman 2012). The inter-causality between environment and culture is best represented in Weber (1951:64) analysis of Asian hydraulic civilizations where the need to implement irrigation and maintain soil fertility created the foundation of a centralized state-patrimonial bureaucracy which, in turn, governed how nature was transformed by agricultural production. In hydraulic societies, power tends to be concentrated in the hands of technocratic elites, which may lead to a despotic rule that imposes strict control on both nature and labor (Wittfogel 1981[1957], Worster 1992:23). During the collectivist era, the Chinese Communist Party built extensive irrigation networks in the oasis to solidify its political and economic control of the rural populace. How would the related transformation in landscape and relations of

production during the collectivist years set cultural baselines for the exploitation of nature after 1982?

In addition, research has shown that when encountering environmental risk, people actively draw on values, ideologies, and institutional norms to construct apathy and denial as coping strategies (Norgaard 2006, Rosenberg 2000:135). The social construction and maintenance of risk and knowledge do not solely rely on individual perceptions of empirical occurrences, but are constituted by dynamic interplays of interests among social groups in specific historical and cultural contexts (Barnes 1974:2-18). Thus, the "world images" of the individual configure social relations and act as "switchmen determined the tracks along which action has been pushed by the dynamic of interest" (Nee 2000, Nee 2003, Swedberg 2003, Weber 1978:280). Actions and world images are enabled by the conditions of the possibility of structuration which refers to "the dynamic process whereby structures come into being and are reproduced

recursively through social practices via the duality of structure" (Giddens 1979:5, 64). Therefore, to understand why the tragedy of the commons occurred, it is important to analyze how development was signified to the peasantry, how political and economic domination of the growth regime was enforced, and how legitimation of local corporatism was formed during this period in Minqin. The answers to the abovementioned questions require further inquiry to explore how the state and peasantry's different economic interests were formed at the expense of nature.

Theoretical Perspective

I employed a critical human ecology (CHE) perspective which uses a materialist, dialectical, historical, and structural approach to analyze changes in environment-society relationships (York and Mancus 2009). I specifically utilized the treadmill of production

(Schnaiberg and Gould 1994) theories to dissect state-society relations in the environmental history of Minqin which spans from its settlement in Ming dynasty to post-1978 China. Continuing the New Ecological Paradigm's critique of the Human Exceptionalist/Exemptionalist ideas (Catton Jr and Dunlap 1978, Catton Jr and Dunlap 1980, Dunlap and Van Liere 1978, Dunlap and Catton 1979, Dunlap and Van Liere 1984, Freudenburg, Gramling, Laska et al. 2008), the CHE approach integrates human ecology with Marx's historical materialism to analyze "subsistence strategies, social relations of production, anthropogenic impacts on the environment, environmental constraints on social processes, the requirements for ecological and social sustainability, and socio-ecological crisis" (York and Mancus 2009). Historical materialism emphasizes that society is based on human's work on nature. The relationship of production is determined by property ownership which is dependent on succession in the modes of production and development in productive forces. Changes in productive forces transform existing relations of production (economic base) and consequently challenge established social, political, and ideological institutions. In Marx (1993:3) words, "society does not consist of individuals, but expresses the sum of interrelations, the relations within which these individuals stand."

Marx (1991) indicates that human consciousness is shaped by the material condition of their social relations (283-90). Marcuse (1973 [1933]) states that material activity not only reproduces objects and the corresponding social order, but also creates the subjective consciousness of the producer towards the material and social worlds. As such, one's labor produces one's existence in the natural system as well as production relations in the social realm. Labor thus humanizes nature and naturalizes human beings, and it represents the "the universal condition for the metabolic interaction (*Stoffwechsel*) between man and nature, the everlasting

nature-imposed condition of human existence" (Foster 2005, O'Connor 1999, Marx 1976:290). Labor as the interaction between human and nature is regulated by both the natural laws in the physical sphere and institutions controlling property relations in the social sphere (Foster 1999a, Marx 1991:949). Institutional norms governing social division of labor, extraction and distribution of resources,

are formed by historical developments in natural environments which, in turn, were shaped by human labor (O'Connor 1999). Therefore, "socio-ecological conditions at any given moment represent the historical geographical residue of previous eras" (Marx 1972:437).

The rise of capitalism created an unrecoverable rift in the metabolism between natural and social systems, which has perpetuated persistent ecological crises (Clark and Foster 2009, Moore 2000, Moore 2003). Inherent inwithin the capitalist system are the contradictions among productive forces, production relations, and production conditions, which will eventually result in the demise of the world ecology (Foster 1994, Foster 1995, Foster 2009, O'Connor 1994:9). As fetishism of capital propels endless accumulation, the commodification of land and labor becomes exploitative and unsustainable (Dickens 2004, Kovel and Michael 2002, O'Connor 1997). As the capitalist order rises, the world ecology and economy become entwined into a dialectical relationship in which nature and society co-evolute at any given historical period (Braudel 1992:30-3). Given that institutional norms governing property relations are historically and ideologically path-dependent, the expansion of capitalism means the expansion of a particular socially constituted consciousness towards nature. As capitalism becomes the world ecology, the production of nature thus becomes "transitory but identifiable socio-ecological moments" that are shaped by the ecological and social effects of capital accumulation at the local and global levels (Moore 2000, Moore 2003). In Marx's time, the emergence of capitalist agriculture during the second agricultural revolution not only depleted soil fertility and increased

peasants' dependency on chemical and imported fertilizers in Western Europe, but also chained monoculture farming to the mercy of the capitalist market and promoted the imperialistic exploitation of distant land and labor (Clark and Foster 2009, Foster 2011, Foster 1999a, Foster and Clark 2009, Foster 1999b). In the capitalist world ecology, the economy has to continue to produce and grow in order to generate profit. As competition increases, each firm has to produce "as if on a treadmill, running ever faster to stay still, while spewing out an unending stream of goods and environmental externalities (Gould, Schnaiberg and Weinberg 1996, Gould, Pellow and Schnaiberg 2008, Schnaiberg 1980:225-30, Schnaiberg and Gould 1994:69). With each technological breakthrough, the withdrawals of resources and addition of waste to the environment grow while unemployment increases (Barbosa 2009). The increase in productivity is harmful to the sustainability of both social and natural systems as nature and labor are transformed into only exchange values (Schnaiberg 2009).

Specifically, economic development in the peripheral regions is severely hampered by their fragmented political power against global capital and by the export commodity concentration in their trading relations with core regions (Burns, Kentor and Jorgenson 2003, Rubinson and Holtzman 1981). The ecological damages caused by the unequal trading relations and predatory development further weakens the political and social stability in the periphery (Grosfoguel and Cervantes-Rodriguez 2006, Smith 1994). The nation states, in their drive to survive in the global political economy, only focus on attracting more capital and become accomplices to the exploitation of workers and natural resources (Rudel, Robertsn and Carmin 2011). Modern state bureaucracies therefore become a determining factor in the creation of social and environmental inequalities and in the continuation of the socio-ecological epoch of capitalist world ecology (Barbosa 2009:3, Gould et al. 2008) The treadmill theory of production

and consumption focuses primarily on states located in the historical contexts of monopoly capitalism (Foster 1995:9). Nevertheless, the treadmill theory is applicable to both capitalist and state socialist societies (Schnaiberg 1980:230). The inherent drive for competition also exists in post socialist economy, "given the states' hegemonic projects of maximizing heavy industrial production and mandates from the central government for each factory to meet or exceed ambitious production goals" (Pellow 2009). Industrialized farming pushed by the authoritarian Chinese government has taken the form of local corporatism and state capitalism, both of which are shaped by China's position in the world economy and subsequently by the particular path of institutional transformation the Chinese Communist Party has chosen. Changes in social and economic institutions at the macro level in China, and the intensification of the world economy since the 1980's, have fundamentally altered the social and ecological interaction in Northwestern China, especially in the Minqin Oasis.

Institutional Transformation in China

Institutions are "congealed networks" of interpenetrating and juxtaposing social relations and interests (Granovetter 1985, Swedberg 2003:46). Institutions guide the formation and implementation of interests. They also enforce and sanction social interactions and relations in different "fields" of action (Bourdieu 2006). Specifically, economic institutions can mobilize resources for collective action (Granovetter 1985). The introduction of rational capitalism into formally redistributive or reciprocal economies usually results in the reconfiguration of the corresponding institutions and lessens the social dimension of economic decisions (Polanyi 2001:251-55). Nation-states from the former communist block often experienced "enormous political challenge to the social form of the modern state system" as the central planning system demolished the separation between economic and political activities (Rosenberg 2000:134) In

post-communist countries, transformations in economic and social institutions were path-dependent as "domestic political structures become part of the evolving transnational fabric of economic relations" (Schwartzman 1998).

After the death of Mao, the Chinese communist regime decided to abandon its failed centrally planned economy and gradually brought in free market mechanisms by dissolving the rural communes and establishing "Special Economic Zones" along its eastern coast (Dicken 2007:226). The unique aspect of economic liberalization in China is the strong association between institutional transformations and geography. In 1978, Deng proposed the promotion of "socialism with Chinese characteristics" in order to alleviate abject poverty across China. Instead of abandoning state socialism entirely (Shock Therapy), the Chinese Communist Party first focused on rural reform and limited introduction of a market economy from 1978 to 1984 (Rofel 2007:4). In the "state socialism" system, the economy was under the control of political actors within the communist bureaucracy, and there were no alternative social and economic institutions in the Chinese society (Nee and Matthews 1996). The re-introduction of the market to rural areas opened channels of upward mobility in addition to the ones dependent on the political hierarchy. Consequently, rural production increased two fold in the early eighties, and for the first time in the history of PRC, rural and urban inequality decreased (Walder 1989).

The spark of "four modernizations" has not only created strong economic growth (14% annual income rise) but has also contributed to the emergence of regional inequality (Harvey 2007:120). Globally, the confluence of neoliberal policies on trade with the United States and Western European countries created the opportunity for China to build its economy on export oriented industries (Harvey 2007:121). The economic transformation in China has more than opened up the internal market to foreign capital (especially oversea Chinese from Hong Kong

and Taiwan). As a process of restructuring of the corresponding political and social system according to a neoliberal framework, participation in global free market capitalism involves the gradual introduction of private property (as of 2015, land is still considered a "public" property people can lease), rule of law, certain forms of representation into the allocation of political power at the township level, and even legitimization of authoritarianism.

Since 1978, the Chinese communist regime has repeatedly used reforms to market economy to defend its legitimacy. The reform in rural areas was a direct attempt to reduce social strife after the Cultural Revolution (Bian 2002). It was only after six years of experimentation with a market economy that the regime lessened its redistributive policies in response to the high inflation occurring in urban areas (Walder 1989). Foreign direct investment was prohibited outside the "Special Economic Zones" until 1992 as a response to the issues raised by the 1989 student protests. In 1999, the regime allowed foreign and private partnerships as part of the conditions to be incorporated into the WTO (Whyte 2009). Moreover, in 2004, the capitalist class was finally incorporated into the communist party (Barbosa 2004).

The Chinese neoliberal turn has not happened in a vacuum devoid of environmental and social-historical factors. One of the unique developments in the neoliberal China was the replacement of the Maoist patrimonial forms of social organization in the Cultural Revolution period with a rational-legal bureaucracy capable of fostering market development (Walder 1989). The re-establishment of local bureaucracy was related to rapid decentralization of political power (Wei 2008:132). What appeared from economic reform and political decentralization became known as "Local Corporatism," in which "an institutional arrangement between plan and market emerged as a hybrid governance structure" (Nee and Matthews 1996). With the subsidence of the central redistributive state, provincial and local governments had to become self-reliant in terms

of revenue (Park 2008). When initial reforms began in socialist economies because of overproduction and debt, the ruling elite and bureaucrat classes within the Communist Party had advantageous positions to engage in global trade and solidify their class position (Bergesen 1992). This political and economical arrangement created opportunities for the local cadre to exploit alternative sources of rewards in a transitory market (Rofel 2007:12). The economic interests of local officials are often deeply entangled in the growth of the local economy. The performance-based promotions encouraged rent-seeking behavior and created an "agency" problem in which the benefits of local and state enterprises' administrations run counter to the long-term interests of the community (Morris 2008:55, Rofel 2007:9). Therefore, local corporatism has become a major cause of uncontrolled growth and environmental pollution in China, which contributed to the demise of the Minqin oasis during the studied era.

Extraction, Domination, and Governance

The spread of neoliberal capitalism since the 1980s has reshaped market-state relations by changing the contexts and rules of social action. Polanyi (2001:43-55), in *The Great Transformation*, states that the development of rational capitalism was intimately linked to the development of the nation state. He argues that the advent of rational capitalism has caused the economic sphere to supersede social and political influences (Polanyi 2001:71-74). Nation states therefore have to act as a "protection racket" for capital by subordinating society via administrative bureaucracy. Because of the increasing flow of capital, political regimes have become embedded in a global network and sovereignty has been redefined by the relative position of nation states in the world system (O'Rian 2000). To remain competitive, states have to increase their revenues and legitimacy by allowing the alteration of the economic institution and intensifying the capacity of extraction from the subjects (North 2005:27-35, Tilly 2009:1-3).

Given that agrarian societies have minimal tax potential for the state, modern regimes have to promote the growth of the market economy so they can expand their fiscal systems to draw from the intensification of exchange (Ardant 1975:165-66).

Institutions usually cannot be transformed rapidly because of the cognitive and cultural lag of the pre-existing social order (DiMaggio and Powell 1991). The informal rules and oppositional norms generated by the interest groups of old institutions can become barriers to transformation (Nee 2005:45). The resulting structural rigidity in economic institutions may become sources of corruption and may hamper the re-establishment of rules, even the soundness of the state (Nee 2005:45). Specifically, developments of fiscal systems are usually path-dependent processes; they are resistant to significant changes, even when the initial conditions that produced those outcomes no longer exist (Martin, Mehrotra and Prasad 2009:13). Being the source of life of capitalist states and compromises of classes, parties, and status groups in the society (Weber 1978:352), tax policy can be both the cause and consequence of macro transformation in the political economy of the nation-states. To extract resources from the subjects, the ruling elites and different interest groups have to achieve compromises in the best allocation of material and opportunities (Seligman 1909:1,9). As extractive relations between direct producers and ruling elites form the foundation of all social relations (Marx and Engels 1970 [1939]:64), negotiation over taxation becomes the foundation of governance and consequently institutionalizes the material base of social relations and the cultural inclination of group dynamics (Campbell 2009:263, Lieberman 2009:124). As such, the study on taxation helps to examine the formation and consequences of economic and political contingencies embedded in the historical context of institutional transformation (Martin et al. 2009:13, Wong 1987). It provides an impetus for analysis on the interplay between states and economic

development, which profoundly affects both the struggles between the ruling and the ruled, and the dialectical relationship between humans and nature.

Tilly (2009:177-78) states that the expansion of state capacity in resource extraction and distribution is crucial to the cohesion of the center-peripheral relation in any political regime. To stay in power, the central government not only has to establish dominance over the control and distribution of available resources; it also has to reduce competing regional powers' ability to coerce (179). To consolidate power, it is crucial to create and maintain resource dependency of subjects living in peripheral regions (Fischer 2012). Thus, central governments have to establish a bureaucracy capable of exerting a system of domination based on directives from the elite (Weber 1968:968). In the agrarian economies of empires, the central states have to rely on the cooperation from local gentry and landlord class (Tilly 2009: ix). Nevertheless, the rise of modern exchange economy has provided states the opportunity to "rationally organize authority relations" which facilitates extraction through "efficient coordination of collective action through coercion" (Antonio 1979:987, Weber 1968). The rational-legal bureaucratic structure is used to expand the autocratic domination of the ruling elite (Weber 1968:985). The objectification of formal rationality embedded in a top down organization often is counterproductive to the pragmatic needs of the ruled (Horkheimer 1974:1, Murphy 1994:29-30). The effectiveness of control from the center contradicts the efficiency of economic production and long- term sustainability of the status quo (Antonio 1979). Consequently, the interests of the central bureaucracy become subverted by patron-client relationships at different levels of governance (Antonio 1986).

Since the 1949 revolution, in order to achieve rapid industrialization, the Chinese Communist Party has systematically extracted surplus value from its peasantry by manipulating

procurement prices between its agricultural and manufacturing sectors (Unger 2002:12). To control the vast rural population without relying on a landlord class and a fully developed rational-legal bureaucracy, Mao developed the politics in command system by instigating endless political purges against class enemies and the formation of communes in the countryside (23). His tactic of domination proved to be extremely efficient as for the first time in history, the central government gained control over daily production in every corner of China (Shapiro 2001:47). Nevertheless, this structure of domination inhibited the correct valuation of goods and labor and subsequently, the possibility of having any sound fiscal policy based on the price system (Naughton 1995:22). As a result, the Chinese political economy since 1978 has demonstrated a tenacious hold on power by local elites and the collusion with the capitalist class in the "Local Corporatism" system. As the local bureaucrats and rogue capitalists consolidate political representation, the increasing rural-urban divide and disparate regional development became pressing issues confronting the stability of the Chinese "socialist" system. The central bureaucracy becomes deficient and loses administrative power against the rogue capitalist practices at the provincial and local levels. The jostling of power between the center and the periphery over extraction and distribution of surplus value directly resulted in the 1994 overhaul of China's taxation system (Jin, Shen and Zou 2012). The social and ecological consequences of this transformation are the crux of inquiry in my dissertation research.

Methodology and Data

The data for this study came from two sources: oral history interviews and policy documents from local and regional archives. In all, I conducted 83 oral history interviews with four generations of peasants in the Minqin oasis, as well as 45 oral history interviews with cadres working at different levels of the Chinese government in northwestern China.

Table 2 Professional Backgrounds of Interviewees

Profession	**Number**
Peasants	83
Village Cadres	7
Township Cadres	7
County Cadres	9
Prefecture Cadres	6
Provincial Officials	14
Central Government Officials	2
University Professors & NGO Activists	17
Cash Crop Vendors & Buyers	12
Total	157

I conducted an additional 17 interviews with scholars and activists who have researched the history of land reclamation in the Hexi Corridor in addition to 12 cash crop buyers, international and domestic who participated in the seeding melon boom of the 1990s. I used snow-ball sampling to recruit my interviewees from all townships in the Minqin County. From October 2010 to December 2012, I farmed in Zhang Mao village and established strong rapport with the locals. Therefore, I used snowball sampling to recruit my informants. Snowball sampling is useful to access valid testimonies from marginal groups as the intimacy and support

provided by in-group members create a trusting environment for the interviews (Johnson 2002). These interviews were recorded with the consent from my informants for later review and coding. I hired two graduate students at Lanzhou University who grew up in Minqin to transcribe the interviews. If consent to tape record was not given, notes taken during and immediately after the interviews preserved essential information.

I employed oral history interview because I wanted to understand how the bottom-up perceptions of environmental degradation in Minqin. Oral history interview is the "recording of personal testimony delivered in oral form (Yow 2005:3). It enables the qualitative researchers to examine empirical reality and historical events through the lenses of the informants (Somers 1994). Though personal memory can be unreliable, I made sure the core information of the events corroborated with other accounts. Moreover, memory of the individual can be influenced by collective memory, especially by recollection of people in the same social group. Therefore, I used oral history interviews to observe how events "are given meaning to" by group interaction and how meanings and interpretations of past events evolve as the baseline changes. Production of knowledge is always contingent on past frames of perception; changes in the configuration of social relations inevitably influence how new events are signified by the informants (Guba and Lincoln 1994:110-12). Moreover, the interpretation of disasters is affected by the cultural framework used and the expectation of control by the local community (Button 2010b:15-20). However, research on climate change issues often encounters the shifting baselines phenomenon as human perception and culture change when the surrounding environment is gradually transformed (Yin 2008). Therefore, to increase the validity of my data, I relied on historical records such as provincial and county annals to sensitize the influence of collective memory on individual testimony (Yow 2005:58).

I was aware that open-ended interviews are interactive encounters and might not be neutral tools of data gathering (Atkinson and Amanda 2002, Fontana and Frey 2003). Hence, when analyzing my interview data, I placed my informants' life histories in the contexts of gender, generational cohorts, and local culture.

Table 3 Gender and Age Composition of Interviewees

Age / Gender	20s	30s	40s	50s	60s	70s	80s	90s	**Total**
Male	1	12	42	31	10	9	2	1	108
Female	4	6	20	7	7	1	4	0	49

Through selective coding, I analyzed how my informants comprehended institutional transformation during their lifetime, and how they attributed meanings to ecological deterioration, agricultural production, and resource management. I compared how my informants recounted their responses toward state policies over the years. I paid special attention to my informants' attempts to make sense of their life events and how they selectively granted significance to events in order to integrate these experiences into their present interpretation of environmental degradation. I used macro-level institutional transformations as sensitizing concepts and situated each oral history account to the specific structural and economic relations in rural Northwestern China so I could identify and explore social contingencies which might influence my informants' perspectives (Lofland and Lofland 1984). I have shared my data chapters with five of my key informants to verify the validity of my interpretations. I password-protected the interview recordings. I also made sure to avoid using real names when quoting my informants in my dissertation.

Archival Data

My dissertation relied heavily on policy documents (7000+ pages) gathered from the Gansu provincial, Wuwei Prefecture, Liang Zhou District, and Minqin County record offices in 2011 and 2013. I conducted textual analysis on policy directives, party newspaper reports, official brochures, and biographies of party bureaucrats in the Minqin oasis and Gansu province. In addition to quantitative data on agricultural production, taxation, and water management, I paid special attention to internal policy documents which were used to establish ideological coherence within the bureaucracy. I was able to obtain immaculate records on agricultural production, procurement, land reclamation, and political suppression in regional and local archives.

Table 4 Policy Papers by Sources and Year

Decade / **Sources**	Before 1950	1950s	1960s	1970s	1980s	1990s	2000s	**Total**
Gansu Provincial Records Office	6	9	10	20	16	3	0	54
Wuwei Prefecture Records Office	0	22	13	39	29	18	5	136
Liang Zhou District (Wuwei County) Records Office	0	24	46	38	59	13	3	180
Minqin County Records Office	16	37	53	46	42	38	26	258

Drawing together original source information from disparate segments of the political apparatus can provide a detailed yet comprehensive overview of the historical contexts and the opportunity to explore social contingencies across an extended time span (Firebaugh 2008:35, Silverman 2006:153-56). Discourse in texts can be used as indications of how social actions are structured in specific cultural contexts (Abbott 1991, Charmaz 2006:37). In addition, I examined official explanations on the necessities of implementing changes in property relations, official ideologies

toward economic growth and environmental protection, and on how technology and global capital were portrayed by the communist party. I explored the trajectories of ideological changes to analyze mediation of conflicts between state and peasantry in addition to observing how these reports justified past policies. I coded perspectives on environmental protection, property action, and economic development in Excel and examined how these accounts reflect the interests of the state (Saukko 2003:99-108). The analysis offered insights into how prefecture and county bureaucrats, grassroots cadres, peasants, and the emerging bourgeois class conceptualized labor and nature, which influenced the state-society relation in Minqin.

Table 5 Archival Data by Types

Types of Policy Documents	No. of Policy Documents
Policy Announcements	232
Policy Implementation Reports	157
Investigative Reports	91
Annual Planning	56
Year-End Evaluations and Reports	34
Bureaucrats' Missives	43
Depositions	15
Policy Documents Total	628
Wuwei Daily (*Wuwei Ri Bao*) :	1982-2002
Minqin Daily (*Minqin Ri Bao*) :	1997-2001

Significance of Study

This case study provides a detailed analysis of the state-society, human-nature relations during a major period of institutional transformation in which property and social relations were reconstituted in NW China. I examined how the interests of state-agents at different levels such as the government, the emergent bourgeois, and the peasantry contributed to the exploitation of nature and the peasantry. I intend to provide a nuanced picture of the agency of the fragmented "state" and varied class interests in the peasantry when the local economy in Minqin gradually

integrated into the global capitalist market. The treadmill of production theory has largely focused on conditions in western industrial capitalist societies and has under-theorized the actions of different interests groups during periods of institutional transformation (Foster 2005). Using this case study, I refine the treadmill of production/consumption approach by showing greater sensitivity to the interests of the state and all economic classes involved.

Limitations of Study

Although I tried my best to balance the gender ratio in my interview samples despite the conservative gender scripts in rural northwestern China, only 32% of my interviewees were female. The unequal distribution prevented me from providing an ecofeminist perspective on how gender disparity played into the oppression of the peasantry and the destruction of the local ecology. In addition, due to time constraints, I could not provide more in-depth discussions on how China's negotiation with GATT and WTO shaped its macro fiscal policies, which had profound influences on the bracketed globalization in Minqin. I would also like to reorganize the chapters so that I can have more space to properly introduce the concept of institutional credibility to the discussion on legal transformations in China. Moreover, archival research in China can be a treacherous business because of the lack of clear regulations on access to the records office. My identity as a Chinese American officially prevented me from accessing any policy documents published after 1982. Though I tried my best to be thorough and comprehensive in collecting archival data, it is possible that my status as a Chinese/Taiwanese American might cause me to miss policy documents that provided an alternative description of historical events. Finally, I translated all the interview and archival data by myself, and I might have made mistakes in diction and tone. Though I have requested five key informants to verify

the details, I did not have the resources to enable everyone quoted to read the dissertation. I will address these issues when I revise my dissertation for publication in the future.

Chapter Synopsis

Chapter 1 is the introduction to the central research questions of the dissertation. It lists the theoretical framework, methodology, relevant literature, significance and limitations of my research.

In Chapter 2, I analyze the environmental history of Minqin up until the economic liberalization in 1978, which showcases the intricate yet repetitive pattern of interaction between the state extraction policy and the oasis ecology in Hexi. I show that historically, the central government viewed the region as ideal to produce surplus grain for military campaigns. Settled agriculture in Minqin could only become viable when the hydraulics were built and properly maintained through the military-style mobilization of the peasantry and mass investment from the center. Ironically, the central governments' need for mono-cropping and the cost of extraction tended to limit the tax base and potential surplus of agricultural production. I then demonstrate how Mao's collective system was similar to the dynasties in its center-local relations.

In Chapter 3, I inspect how the collectivist era transformed the landscape of the oasis and established a hydraulic society by damming the Shi-Yang River. I discuss how the disenchantment of nature and agricultural production occurred coincidentally as the traditional, patrimonial system of domination was demolished by the Chinese Communist Party. I explain in detail how the CCP, in its attempt to rapidly industrialize urban centers, established unequal property relations which expedited the exploitation of labor and nature in Minqin. I end the

chapter by analyzing how the collapse of the communes and the procurement system set the stage for the tragedy of the commons in later decades.

In Chapter 4, I show how the mid-1980s and 1994 tax reforms altered the fiscal relations among different levels of the Chinese state. I discuss the social, cultural, and ecological consequences of economic liberalization in Minqin. I will also discuss how corporatism based on political capitalism fundamentally transformed state-society relations in the oasis. I show the jarring interplay between the agricultural and environmental protection policies of the state and the informal institutions used by the peasantry to navigate the constraints imposed by the market and nature.

In the conclusion of my dissertation, Chapter 5, I highlight my research findings and explore how the treadmill of production was facilitated by the collusion of interests between local bureaucrats and the international capital. I point out that the "context," which structured socioeconomic actions causing environmental degradation in Minqin, was constituted by an interwoven web of fiscal obligations between different levels of government. These fiscal obligations shaped the material interests of the peasants and the cadres who were entangled in a zero-sum game of surplus extraction. When governance became subsumed with surplus generation to keep the unitary bureaucracy from disintegration, agricultural production became disembedded from its underlying social relations and ecology. A fiscal crisis of the state then occurred when the worsening ecological and social conditions kept elevating the real cost of production in the oasis.

Chapter 2: An Oasis Where Water Is Never Lacking

壹方黃土養壹方人，何處黃土不埋人- The unique features of a local environment always give special characteristics to its inhabitants.

Minqin Proverb

Mín Qǐng, Mín Qǐng Zòu Mín Qǐng! (Minqin bound!) From the front seats of their mangled shuttles, scrawny, swarthy drivers yell in the distinct Minqin dialect, markedly different from other regional tongues in Gansu. As their voices ring out in the regional bus terminal in Wuwei, the bustling prefecture city of Gansu, one can easily decipher the distinctive sounds of the Minqin dialect from those of neighboring counties. The desert highway connecting Wuwei with the remote county is paved by a gradual succession of accents. By the time the shuttles reach the county seat 110 km away, the changes in dialects become so profound that one might easily reach the conclusion that the Wuwei and Minqin oases are in different provinces altogether. Local dialect in Minqin stresses nasal consonants and intonation shifts abruptly downward at the end of each sentence, which creates an abrasive and halting sound (Wu 2006). The county annals in 1832 states that newly arrived officials often could not comprehend words spoken by the natives as the Minqin dialect was formed by a mixture of Shanxi and Henan (central plains) accents brought by migrants who were relocated by the central government in the early Ming dynasty (Pan 2010). Yet, a closer examination of the idioms and phrases used in the dialect would show that the use of repetitive words to express emotion is quite similar to the soft sounds of the Yangtze River delta where the first settlers of the oasis, Han soldiers, hailed from 700 hundred years ago (An 2010). Protected by the remoteness of the oasis, the Minqin dialect slowly absorbed and integrated idiosyncrasies of languages used by successive waves of migrants. The result of this linguistic and cultural convergence is an environmental history of state-driven migration into the oasis ecology of the Hexi Corridor: a people proud of their ability

to adapt to the harsh surroundings, a culture that encourages migration, and a land which has gone through continuous cycles of reclamation, desertification, and abandonment. The environment history of the oasis has been deeply entwined with center-local tensions embedded in a tax farming system. The imprints of this politically oriented capitalism can be found in the changing landscape and productive relations carved deeply into the ecology of the Minqin oasis.

The Hexi Dream

Human beings have long left their footprints in the oasis. What is barren desert today used to be an inland freshwater sea called Zhu Ye Ze. The earliest record of the sea appeared in Yu Gong written before 500 BC about the mythical account of Yu, the first emperor of the Xia Dynasty, who allegedly built the first irrigation system to start settled agriculture in China. According to Yu Gong, Zhu Ye Ze marked Yu's last endeavor of building irrigation projects to turn the north China steppe to farm lands (Wang 1970). From that point on, the present Hexi region has become the line of demarcation for two modes of production and culture: settled agriculture of the Hans and pastoralism of the Huns. The variability of water resources from the inland rivers caused repeated clashes between the Hans and the Huns. In 121 BC, the Han dynasty defeated the Huns in the battle of Qilian Mountain and extended its political control to the He-Xi Corridor (*Hexi Zoulang* corridor west of the Yellow river). To protect its frontier region and provide grain for the troops stationed, the Han dynasty started to encourage demobilized soldiers to farm in the area. In 68 BC, the central government established Wuwei (*Wuwei*: showing the force) county and officially incorporated present day Minqin oasis into the agrarian empire (Li 1989).

As military outposts, the size of settlements in the oasis always corresponded to the strength of the dynastical center thousands of miles away. As such, human interaction with the

oasis ecology became circular. When the center was strong, these settlements would benefit from efficient resource allocation and acted as major trading and military outposts of the empire. When the power of the empire ebbed, they were either sacked by the nomadic tribes from the Tibetan plateau and the Mongolian steppe or temporarily became independent fiefdoms. Both outcomes resulted in drastic reduction of local population as settled land was abandoned. The exposed land became barren as high seasonal wind stripped the soil away which altered the course of inland rivers (Li 1999). By 661 AD, when the Tang dynasty conquered Hexi, the inland sea was already divided into several large lakes and many canals dried up because of abandonment in earlier periods (Li 1998, 1989). The dry riverbeds then acted as conduits for the advancement of sand from the north, eventually burying human settlements and making the area inhospitable for human habitation (Li 2003a) Yet, after decades of desolation, the region would again become a site of fascination for settled agriculture. This was certainly the case when General Feng Sheng took his troops to the Hexi Corridor in 1372.

Born in the Yangtze River province of Anhui, Feng Sheng led peasants in his village to join the Han insurgency against the Mongolian rulers in his early twenties. By the time the Han insurgency conquered Da Du (present day Beijing) and ended the Mongolian dynasty (Yuan) in 1368, he was a major general (Ma 1988). In 1372, his troop, made of soldiers from the Yangtze River delta, decisively defeated the Mongolian army in the Hexi corridor and incorporated the major oases into the frontier region of the Min Dynasty (Pan 2010). Sandwiched between the high mountains of the Tibetan plateau and the vast Gobi desert, the oases in the Hexi corridor had long attracted the attention of Chinese agrarian states. The Hexi corridor was the most prominent passage way for the Silk Road connecting Xian to Xinjiang and thus, it served as the lifeline of Chinese expansion into Central Asia. Yet, to the Chinese rulers at the center of the

empire, the corridor represented far more than just a line of military defense; instead, the development of settled agriculture in the region was regarded as a triumph of the Han civilization over the "barbaric" lifestyles of the nomad (Li 2003b). Land reclamation and control of inland rivers symbolized the superiority of the Han culture in taming nature and thus, became models for the "barbarians" to assimilate into the Chinese empire. A prosperous Hexi Corridor also served as an escape valve for population pressure in the central plains. The vast arid region west of the Yellow River has fueled the expansionist imagination of Chinese rulers, which, in turn, has shaped the environmental history of the Hexi corridor in the last two thousand years.

The first settlers in Minqin were the 2000 soldiers stationed in the fortress of Cai Qi in 1374, which was located near the confluence of two rivers feeding the inland lakes in the oasis (Zhang 1988). The nomadic Mongolian tribes, which lost the tax revenue and grain extraction from the central plains a few years prior, had to rely on the grassland surrounding the inland lakes for survival (Dang 2001). For the next 270 years, the Minqin oasis stayed as a constant line of scrimmage between the Ming dynasty and numerous Mongolian forces. In fact, up until 1927, the official name of the oasis was *Zhengfan*: crush the barbarians (Zhang, Cheng and Chung 2003). Throughout the rule of the Ming dynasty, the agrarian empire never resolved the threats from the Gobi desert (Wu and Guo 1996). Instead, temporary peace was obtained through building of the Great Wall (2100 km) and by opening trading posts along the frontier. Both of these projects required a strong military presence and as a result, at the height of the dynasty, there were more than 110 thousand soldiers stationed in the Hexi corridor. Being 2221 km away from Beijing and without modern transport, the corridor created huge resource allocation challenges for the bureaucrats in charge of supply. As such, the dynasty was well aware of the importance of food security. "There is nothing more important than setting up self-sufficient

agricultural production for the garrisons" [Translated by author] (Zhong 1995). In Hexi, agricultural settlement always followed the expansion of military fortresses. In addition to turning 70% of the troops into soldier-peasants, from 1378 to 1528, the state recruited peasants in Henan and Shanxi to migrate to the Hexi Corridor. In these state sponsored "homestead" drives, the peasants were given 50 *mu* of land (3.33 hectares), necessary production materials, and exemption from agricultural tax for two years (Wu and Guo 1996). The discovery of salt mines in the fringe of the Minqin oasis in 1389 also pushed the expansion of the oasis. In exchange for the licenses to mine and military protection from the Mongolians, traders agreed to recruit peasants to migrate to this area and oversee grain production and provided 20% of the grain harvested as tax (Xie and Xu [1884] 1990). To encourage expansion in Hexi, the dynasty also stipulated that in addition to the 50 *mu* assigned by the state, additional land reclaimed by peasants would never be taxed (Wu and Guo 1996).

Frontier Society

If Max Weber had the opportunity to study the Hexi corridor, he probably would find the region as "meteorically precarious" and as "riparian in character" as Palestine (Weber 1952, Weber 1968). From the earliest written record to present day, the Minqin oasis has constantly suffered from erratic weather (Minqin County Annals 1994:64). Briefing through the county annals, one can easily find that in four out of five years, the oasis regularly suffered either from extreme draught or severe flooding. The high variability of rainfall combined with the arid climate of oasis ecology has made the human-made hydraulics crucial to the expansion of settled agriculture in the Hexi corridor. Sociologists and historians have long been fascinated with hydraulic systems as their emergence may shape the social organization of riparian societies (Weber 2003:97-98). The investment needed to build and maintain the irrigation systems favors

the establishment of centralized bureaucracies and patrimonial states (Foster and Holleman 2012, Weber 1968). The water systems integrate the "tiny worlds" of small yet independent subsistence economy into a larger system of extraction and distribution of wealth (Worster 1992). In time, power is either concentrated in the hands of family clans or the agro-managerial class as "domination of the priests" obliterates the belief that nature is "an intrinsically significant autonomous entity" (Marx [1867] 1976:649-50, Smith 1994). An inward-looking hydraulic society is formed when the state uses control over water as the primary regulators of production and as the ruling bureaucratic apparatus and its large hydraulic works become bondage of inertia for the society (Wittfogel 1981[1957]:24, Worster 1992:24).

In Minqin, the initial migration and settlement followed the expansion of fortresses, which lined the inland rivers so settlers could easily obtain water from nearby sources (up until 1396, the name of the oasis was *linghewei*-defense along the river) (Ma 1988). The settler's community centered on military organization. In order to centralize power, the Min dynasty abolished provincial governance in the frontier region and all of the "defense regions" were put under the control of the center. In the original plan for settled agriculture in the region, each fortress, acting as the support bases for the Great Wall, housed a hundred soldiers together with enough numbers of grain producing peasants**.** Even today, if one draws a line connecting all the location with names ending with the sound *pu* (fortress), one can easily trace the remnants of the Ming Dynasty Great Wall across the oasis. To prevent invasions from the nomadic tribes, the emperor assigned his sons to northern frontiers and throned them as lords. Due to its military significance, in addition to troops stationed by the imperial court, the northwestern frontier was put under the control of four lords (Li 2003b). Each of them was given serfs and large amount of land to generate enough income for defense and the daily governance. The grain and income

generated by the serfs were outside of the jurisdiction of the military bureaucracy (Minqin Irrigation History Editorial Board 1994:65). Authority did not only come vertically from the dynastical center; the centrally appointed bureaucracy had to work with the horizontal bases of power from the lords as well. Traditional and absolute power of the lords was firmly reinforced by the establishment of the Confucianism school five years after the first settlers arrived (Minqin County Annals 1994:12). Each fortress became a justification for patrimonial domination and a node of extraction by both the military bureaucracy of the center and the periphery lords. Even though the center stipulated low tax rate for settled areas, the peasants still dealt with myriad forms of taxation and servitude according to the discretion of the local lords (Xie and Xu [1884] 1990).

However, by early 1420s, population expansion in upstream Wuwei and Yong Chang oases made the inland rivers seasonal. The changing natural conditions forced a transition of productive relations. A more effective way of administration was needed to allocate water when the rivers were either dried up or flooding the surrounding farmlands. In his report to the imperial court, magistrate Zhang states that "90% of the land in the oasis is sandy and without irrigation, agricultural production is close to impossible. Since the founding of the garrison, there has been no official position dealing with irrigation and thus, the oasis is often inundated by floods" (Xie and Xu [1884] 1990). In 1429, the agrarian empire established a new bureaucratic position (*shuili tongpan*) for building irrigation canals and allocating water in the oasis. Interestingly, the issues facing the bureaucrats were primarily related to the variability and overflow of the inland rivers not the scarcity of the water resources (Li 2003a:30). During this time, the noted local handicraft was "leather shoes" which "helped the peasants to ward off the dense humidity of the oasis climate" (Xie and Xu [1884] 1990).The official rationalization of the

irrigation economy marked the start for the agrarian state to absorb the subsistence economy into a larger extraction and distribution network than that controlled by local lords. It also marked the beginning of concerted effort to transform the landscape and the emergence of third locus of power in the oasis: clans, whose influence reached its peak during the Qing dynasty.

The Ming dynasty fell to perpetual decline in the 16th century. Natural disasters decimated agricultural production and ideological cohesion provided by Confucianism could no longer support the top heavy patrimonial political system (Tian 2001). In addition, by the 16th century, oceanic vassals had replaced caravans as the primary means of trade between China and the West. With the decline of the Silk Road, the oasis economy in the Hexi corridor became concentrated on subsistence and on providing for the demands of the stationed troops. Money was seldom used as taxation and exchange were done through bartering (Wu and Guo 1996). In the Minqin oasis, the decline of dynastical power was detrimental to the sustainability of the socioeconomic system as the bureaucracy had to shift vital resources from irrigation to defend frequent invasion from the nomadic tribes. In last than thirty years, constant warfare reduced the population by 67% (Wu 2000). By 1582, the system of defense against the Mongolian and Tibetan tribes already expanded to 90 fortresses, up from 14 in 1392. Given that the inward looking economy left no alternative base of taxation for the increasing military expenditure, the lords and military bureaucrats had to increase tax associated agricultural production. In 1546, the first riot erupted over the new tax on land reclaimed by the peasantry and out migration started to appear (Xie and Xu [1884] 1990). As a result of outward migration, lack of labor power destroyed the garrison system. At the same time, the abandoned land and irrigation canals became easy conduits for sand dunes. Eight years later, the administrative township of the oasis

was buried by a fierce dust storm and not long after the Ming dynasty rule over the oasis ended (Minqin County Annals 1985:47).

The death spiral the Minqin went through in late Ming Dynasty represented the incompatibility between the expansionist drive of the agrarian empire and the arid ecology of the oasis. The dynastic center always viewed the Hexi corridor to be a fertile land to extract grain for military purposes. Through the manipulation of agricultural tax rates, the military bureaucracy aimed to solidify its control on the frontier region by increasing population and economic production. To the bureaucrats at the center of the empire, the introduction of settled agriculture in arid Hexi represented the superiority of the Han civilization over the "barbaric" lifestyles of the nomads. Nature thus was viewed by the center not only as an unlimited substratum for material production but also as a worthwhile obstacle to be overcome by the Han culture. As such, in addition to the production and extraction of grains, the successful implementation of settled agriculture in arid Hexi symbolized the strength and capacity of the central state even though the actual governance of the region was more dependent on the local lords and clans. The tension between the vertical and horizontal foci of power caused the unbalanced tax burdens between the peasantry and the lords, which, in turn, shaped economic organization and humans' relation to nature.

When the Center Held

The establishment of the Qing's rule in 1643 started another cycle of settlement and abandonment in the Minqin oasis. To increase economic production, which was decimated by the peasant rebellion and ethnic conflicts in the end of the Ming dynasty, the founder of Qing waived the first 10 years of agricultural tax for newly settled migrants into formally abandoned agricultural zone (Zhang 1988) It was during the Manchurian's rule when settled agriculture in

Minqin expanded to its present size. As a result, agricultural production became dependent on the codified rules of resource allocation and, more importantly, on the extraction of groundwater. Driven by increase in population, the pressure from the bureaucracy to subjugate nature for grain production in the oasis intensified, which increased the importance of clans in economic production governance.

In the early reins of the Qing dynasty, the Manchurian army was involved in a prolonged battle against the Tibetans in the Qinghai plateau. The need to provide food for military conquest elevated the political and economic importance of Hexi corridor in the minds of rulers in Beijing. Once again, military conflicts with the Mongolian and Tibetan became the main drivers for expansionist policies in the oasis. State-led migration into the oasis started in 1695, and the local bureaucrat implemented strict allocation rules of water (Wu and Guo 1996). From the beginning of summer in the lunar calendar (usually in early May) to the beginning of fall (usually in late August), the flow of the inland rivers was directed to the established canals. Each village had access to irrigation for a full 24 hours before water was directed to the next village. It would take 27 days to irrigate all of the villages in the oasis before water was sent to the first village again. In an average year, each village received four rounds of water during the growing season, and after the harvest, each village was allowed to access water freely until the beginning of the lunar winter when water returned to the rivers and fed into the inland lake (Gansu Local History Editorial Board 1990:129). The distribution of water shaped the production relations and the related social organization, which, in turn, reconfigured the natural environment in the oasis. Because of its military endeavor in the region, the central court in Beijing effectively exerted its control to agricultural production in the oasis for a period. Hence, the bureaucracy had sufficient political power to settle water conflicts among villages and between the upstream and the

downstream oases. When the center held, the state enforced its laws to protect the fragile balance between ecology and agricultural production. In fact, after realizing the importance of forest in moderating water supply during dry years, the state banned logging on the Qilian mountain range, stipulating that "since the effect of falling a tree on the Eight Treasure Mountain (Qilian Mountain) is no different from killing a person in the downstream oases, anyone who breaks the logging ban will be sentenced to death" (Minqin Irrigation History Editorial Board 1994:97).

To the Qing rulers, the primary function of settlement of Hexi was to enlarge population bases for taxation. In 1650, the meritocracy of the bureaucracy began tied to land reclamation and taxation; those who could recruit enough migrants to reclaim 100 *mu* became the top-positioned bureaucrats, so were the ones who increased tax collection for three straight years (Liangzhou History Editorial Board 1988:42). Contrarily, if a bureaucrat failed to complete his tax obligation for a year, 10% of his salary would be deducted. To increase the efficiency of tax collection, in 1725, the central state overhauled the agricultural tax system, folding the service burden of each peasant into the overall tax imposed on land. The base for tax calculation shifted from persons to areas of land thereby changed the relations of production between landlords and peasants. In the following year, to drastically increase the base for tax collection in the oasis, the central court designated the *liu-lin* lake zone in Minqin as a new site of settlement (Wuwei Annals Editorial Board 1983:21). The courses of two major inland rivers in the oasis were altered to provide water for the newly settled areas. Coincidentally, a new set of bureaucratic positions on water allocation were established, and taxation rules were strictly enforced around the same period. Under the new system, the amount of water allocated on each plot of land corresponded to the average amount of grain produced (and hence, the amount of grain extracted by the state) in the last three years. For every 250 *shi* (7,000 kg) of grain extracted, a full day of

irrigation water was given to the villages. Equating grain production on a set amount of land to tax collection and water allocation encouraged the development of intensive agriculture, which required a massive amount of labor. Ten years after the lake zone was opened for resettlement, the population in the oasis increased by 18,000. By 1825, the population in the oasis reached 180,000, which was later determined by scientists at the Chinese Academy of Sciences as the maximum ecological capacity of the oasis (Zhu and Tang 2002). The population in Minqin increased tenfold in the century after the tax reform in 1725, and sandwiched between two deserts, the planted area in the oasis expanded only twofold (Qian 2008). The ecological conditions worsened quickly, and the oasis became stuck in a poverty trap (Sachs 2002). It was not until the Great Leap Forward that the population and planted areas in Minqin exceeded this number.

An Empire Based on Clans

The changes on tax system in 1725 influenced the productive relations between labor and nature and, consequently, the social organization and the natural landscape in the oasis. The intensification of control and extraction from the center needed the cooperation from the local clans. According Fei and Liu (1982), "a Chinese clan is a self-contained socioeconomic functional group which has a hierarchical structure to facilitate the transmission of information and authority and to coordinate various functional related tasks." The survival and competitiveness of a clan depends on the balance between its size and efficiency in production (Freedman 1958). In agrarian societies, the increase of clan sizes generally corresponds to the increase in cultivated areas, and when clans grow to the point that the efficiency of production actually drops, a split and an out-migration become the most possible solution (Fei and Liu 1982). The expansion of the oasis was closely tied to the growth of local clans and the state's

interest in adding revenue. A politically oriented capitalism thus emerged when state contracted tax farming became the dominant source of profit making for the landed class (Weber 1978, Weber 1981).

The political influence of the clan was best exhibited by tax collection as the rigidity of the military bureaucracy lacked the ability to effectively extract surplus grain, maintain infrastructure, and preserve the ecology crucial to production. The center has to rely on local bureaucrats for extraction, which provided rent-seeking opportunities for the landlord class who constituted the majority of the lower echelons of bureaucracy. In one of the policy analyses submitted to the Hongzhi Emperor in 1497, Magistrate Yu noted, "Using the official state apparatus to collect taxation would make the cost to be prohibitive. The more effective way for tax collection is to utilize the local clans" (Wu and Guo 1996). Contracting grain extraction to locals was efficient for the empire because it provided stable revenue and reduced the transaction cost of taxation. All through the Ming dynasty, the official bureaucratic positions of local governance ended at the county/fortress level (*wei*), yet there were still four lower bureaucratic levels of tax enforcement positions comprised by those who were associated with the gentry. With the decline of the central power in the 16th century, the clans became prominent in maintaining the hydraulic system in the oasis, which resulted in the consolidation of wealth. As they took over the allocation of water, much like the patricians in the Roman ager publicus, the clan leaders exercised their power to transfer their tax burden onto the shoulders of the remaining peasantry, which facilitated massive land abandonment and consolidation of land holdings to the clan leaders. The majority of the peasants who remained were forced to become serfs for the gentry. As a result, by 1619, a typical landlord's complex in the Minqin oasis already occupied six acres and had 260 rooms (Xie and Xu [1884] 1990:128).

The Manchu also relied upon the clans for tax collection. A report from early Qing dynasty estimated that the peasantry survived on 30% of the grain produced and the center extracted another 20%, and the remaining half went to the pockets of lower-level bureaucrats, which significantly increased peasant burden (Xie and Xu [1884] 1990). Starting from 1702, the Manchu court officially incorporated clans into the decision over water allocation by creating positions in local bureaucracies for the "irrigation elders" (*shuili laoren*) (Pan 2010). The official rationale was to have the elders work with the local bureaucrats to fairly distribute water to each village as the clan leaders had the most detailed information on local production. The state also depended on the clan leaders for financial resources to extend the hydraulic system into newly resettled areas. Additionally, to accumulate enough funding for the irrigation projects, the government began to charge an interest for the loan of relief grain to the peasantry whenever there was a natural disaster. Most of the loans came from clan based granaries (Xie and Xu [1884] 1990). Although the original intention was to efficiently utilize local resources, the collusion between clans and local bureaucrats nevertheless exacerbated social stratification and destroyed the long-term sustainability of the oasis.

In the Minqin oasis, farming was always a collective enterprise. The reclamation of land and the maintenance of irrigation canals all depended on kinship ties to mobilize labor. Conflicts over water and land resources were often settled through armed scuffles between clans. Clans would also pull their resources together to influence the decision of bureaucrats in judicial cases related to water. The first contracts showing how the lake zones were settled clearly indicated that the state-led migration in 1726 was financed by resources shared by members of the same patriarchal clans. In addition, the demarcation of land ownership was decreed by clan elders, not by official bureaucracy (Zhao, Wu and Li 2003). In fact, because the meritocracy of the

bureaucracy was tied to the amount of land reclaimed and the length of canals built, clan leaders often held key positions in the local bureaucracy as only they could mobilize enough labor and resources to maintain the infrastructure. This created many opportunities for the clan leaders to privilege their own clan or to take bribes. According to the water rules set by the bureaucracy, the allocation of water to each village was timed by burning incenses, and both the irrigation elders and the bureaucrats had to be present to ensure the allocation was fair. However, by submerging the incenses into different mixtures of water and oil, the irrigation elders could control the amount of water allocated by reducing or accelerating the burn speed (Xie and Xu [1884] 1990). Moreover, the tax rules set by the central court required the peasantry to divide its tax payments to two installments: wheat in May and other grains in October. Most of the peasants had trouble turning in enough wheat or grain before harvest and had to borrow from the landlords. The interest rates charged by the clan leaders could sometimes reach 75% in a year (Xu 1964). All of these practices enabled the clan leaders to consolidate land resources as they helped the center to efficiently extract grain. It was not until 1940 that the Republican government attempted to use a legal rational system of governance to replace the "irrigation elderly" positions in the local bureaucracy (Liangzhou Tax Bureau 2011:24). All throughout the agrarian empire, below the county level, the rule of the empire depended entirely on the tacit compacts between the bureaucrats and the clans. Thus, as Weber stated, China had always been a "nation based on patriarchal clans" (Ye 2005).

Be Aware of the Wolf Girls

"The authority of the eternal yesterday" has to rely on customs and traditions, which constituted the base of traditional authority (Coser and Merton 1977). In Minqin, the traditional authority of the clans primarily came from fear against the enchanted. In Minqin, the livelihood of the peasants depended entirely on the flow of glacier water, which varied widely from year to

year. Surrounded by deserts and dealt with more than 120℉ differences in temperature in a year, the peasants lived precariously from natural disasters and the great unknown. According to the Minqin County Annals (1980), in the first 100 years of the Qing dynasty, there were 38 years of famine, and in many of these years, not even one bushel of wheat was harvested in the oasis. Correspondingly, in the same hundred years, 97 temples were constructed to worship different deities related to nature (Ma 1988). The needs to constantly appease nature formed the social bonds connecting the metaphysical assumption (hence, consciousness toward nature) of the peasantry to traditional social institutions in the oasis as only the patrilineal clans could mobilize enough resources for ceremonies and operation of the temples. According to an 1823 accounting book I discovered, to host the annual ceremony for Guang Sheng Di Jun, the god of benevolence and righteousness, the heads of the Yang clan distributed different tasks to different households in accordance with the ability of each family. In 1840, the Lu and Yang clans contributed 100 gold to establish the Temple of Dragon King, the god of water; parts of the temple can still be seen half buried in the desert northwest of the county seat. The traditional and moral authority the clans gained from the religious ceremonies strengthened their control over the hydraulic system, which formed the base for the moral economy of the oasis.

The enchanted world did not only exist in religious ceremonies headed by the clans; instead, every element of the natural world formed a coherent system of meanings, which were collectively interpreted by the peasants and, in turn, influenced the agrarian economy in the oasis. In the fables and folksongs of the oasis, dunes, wild animals, spirits, and various deities, all shared the stage, imparting wisdom on survival and imposing justice in the community. One of the more interesting stories recorded by the county annals of 1877 happened in the year of 1677 about a young peasant who wandered into the desert and fell in love with an attractive woman

who was actually the personification of a wolf spirit. The love story ended when the groom, in his attempt to protect his wife, mistakenly killed her instead. The ending paragraph of this story warned against explorations away from the settlements, stating that in the northern boundaries of the oasis, many young guys would lose their vitality by falling into the siren of wolf spirits (Miqin Cultural Bureau [1919] 1978). Another record in the county annals mentioned that three tinker men traveling between the Wuwei and the Minqin oases were ambushed by a group of jealous spirits living in the dunes whose curses turned gold into stones and tricked the travelers to suicide (Xie and Xu [1884] 1990). Discourses on gender and alchemy aside, one can easily note that, according to the historical records, during this period, many people were murdered by Mongolians or roving bandits on the paths connecting the oases and that tilling the land probably provided a safer livelihood compared with trade (Wuwei General History Editorial Board 2007:94). The moral, cognitive, and interpretive unity of the enchanted world in these fables reinforced the inward-looking tendency of the hydraulic society in the oasis and impeded the development of other forms of economy.

Requiem of the Oasis

Following the same path the Ming dynasty traveled, the collapse of the oasis economy in the Qing dynasty happened in accordance with the weakening of central power in the latter half of the 19th century. Driven by severe social stratification and ethnic conflicts, the Hui rebellion erupted in 1862 and lasted more than 16 years in the Shaanxi, Gansu, and Ningxia provinces (La 1994). As a Han settlement in northwestern China, the Minqin oasis was sacked and burned twice during the insurgency (Minqin County Annals Annals 1994:67). The introduction of the western goods, mass-produced in colonies in China's east coast, obliterated local handicrafts workshops. To pay for the goods and the heavy tax burden created by military endeavors, the

peasants were drawn to the global opium trade, which destroyed the fertility of the land and created ample extracting opportunities for local warlords (Gansu Local History Editorial Board 1989:217). In the next 70 years, the Qing and the Republican governments seldom had direct control over the region. Although the Republican government nominally regained control of the Gansu province in 1932, the central power was so weak that the provincial governor could not collect tax revenue outside the provincial capital, Lanzhou . Power was shared by different warlords whose constant conflicts depilated the irrigation network and decimated the population. Fortresses built by the landlords once again became the nodes of economic production and provided refugees for the remaining peasants.[1] A patrimonial system based on rich landlords and tenant farmers, whose debt and labor burden made their status close to serfs in the manors, persisted until 1950. The decaying semi-feudal society could not muster enough resources to maintain the hydraulics and to enforce the forestry laws. Production plummeted, famine ensued, and mass abandonment of formerly cultivated land again became the main drivers of desertification in the oasis.

The long environmental history of Minqin before the communist revolution demonstrated the coevolution processes between nature and society, between formal and informal institutions, and between the development of state apparatus of taxation and the individual consciousness toward nature. The expansion of settled agriculture in Hexi has always represented the expansion of the dynastical power and Han civilization over surrounding cultures and nature. Because the agrarian economy completely relied on the availability of water resources, the organization of power and the extraction of grains had to adhere to the productive relations and social organization in the hydraulic society. To allocate water and to extract tax effectively, the

[1] Interview #62

dynastical center had to collude with the interests of local gentries. Yet the effectiveness of taxation from the center contradicts the efficiency of the economic production and long-term sustainability of the status quo (Antonio 1979). Consequently, the interests of the central bureaucracy become subverted by patron-client relationships at the different levels of governance (Antonio 1986). Although the availability of water resources was crucial to food production, the repeated demise of settlement in the oasis was never solely due to the population pressure on land or scarcity of water. In fact, the continuity of the oasis economy primarily depended on the balanced division of fiscal income between the center and the local interests. Before the 1950s, limits of agricultural production in the oasis were determined by the lack of technology and institutional stability. All the village elders I interviewed recalled that when they were young, seeding in the spring was often delayed by too much groundwater in the field.[2] Thus, it was no wonder that in the 1970s, the communist party secretary of the county proudly proclaimed to his superior that "Minqin is an oasis where water is never lacking".[3]

A New Beginning

The downward spin of the oasis continued in the first part of the 20th century. For almost 30 years, the Muslim warlords had fought over the Hexi region. Constant warfare was the norm, and in 1926, tragedy once again descended on the oasis as bandits led by General Ma Junying overcame the town and killed thousands in the oasis (Pan 2010). As the central and provincial governments had no control over fiscal extraction and the flow of surplus, the rules and laws of the Republican government could not reach into the oasis. Under pressure from warlords and nature, agricultural production turned to bare subsistence as the local government could not maintain any political stability and provide the provision of public goods.

[2] Interview #58
[3] Interview #12

He JieFang who was born in 1932 remembers the times before the liberation as extremely difficult as the warlords forcibly enlisted youngsters as soldiers, and as a result, all of his five brothers had to leave the oasis to be hired as laborers working in Wuwei, Xinjiang, or Inner Mongolia.[4] His parents were working as tenant farmers for the local landlord who, in addition to owning more lands than the rest of the villagers, loaned grain to the peasantry to extract the surplus value. Because the warlords often imposed levies and fees in springtime, the peasants had to borrow from the landlords in spring and pay back in fall. According to He, the interest of these grain loans could reach 30%–45% of the amount borrowed. The local landlords could charge this exorbitant rate because "at that time, the *baozhang* and *xiangzhang* (administrators at the village and township levels) all came from landlords' families. They were the ones who were connected to the top. They were also educated and for us illiterates, even if we were given power, we would lack authority".[5] However, the political instability and the harsh condition for economic production proved to be challenging for the landlord class as well; in addition to constantly bribing the warlords, they had to divert surpluses to arm the villagers and build small fortresses to ward off the bandits. As the son of tenant farmers, He stated that "compared with landlords in other places, most of the landowning people in Minqin were less well off. They spent so much money trying to protect their assets, they did not have the money to spend on fixing irrigation and as a result, the times were really hard for everyone." Minqin oasis was a microcosm for China during the Republican time. All over China, the central state had no power to establish a sound fiscal system while fighting the Japanese and negotiating with western colonial powers. Small-scale modernization only happened in coastal cities, and the patrimonial system was on the verge of collapse. Nevertheless, a new form of domination set out to change

[4] Interview #32
[5] Interview #37

how the Chinese society was organized was about to emerge out of the desolate landscape of Northwestern China.

When Chairman Mao stood on top of Tiananmen and proclaimed the rise of new China on October 1, 1949, Minqin was still mired in a great deal of uncertainty as the oasis was only "liberated" a week ago. The communist takeover in Minqin did not start as a peasant revolution. The coup in the oasis started when young students who studied in the provincial capital Lanzhou and were fed up with over extraction and abject poverty in the oasis decided to push the warlords out (Wuwei Daily 2011). Working with business owners in the township, they expelled local armed force associated with the Hui warlords a month after the People's Liberation Army sacked the provincial capital. On September 23, 1949, the students and business owners went the banks of Hongshui River, the demarcation between Wuwei and Minqin oases, to welcome the communist troops. In a few months, the new order immediately mobilized the peasantry to plant trees and grass to protect the broken canals (*ibid*). The cadres knew the importance of irrigation and forestation to agricultural production in the oasis. They were also aware of the symbolic importance of reforestation, which represented the beginning of political stability and social cohesion in the oasis.

Yet the symbolic presentation of political stability was only the first step of establishing the new order. Mao aimed to turn China into a socialist utopia by remaking the mass into "socialist men," and the first steps were to eradicate alternative sources of power such as clans and religion (Li 1950). Thus, starting from the 1951 repression movement (*zheng fang*), Minqin was entangled in a series of political purges. Utilizing the revolution fervor of the young students, more than 860 "antirevolutionaries" were sentenced through 66 public struggle sessions (Minqin County Annals 1994:22). More than 8,000 believers of a Taoist sect (*yiguandao*) and

local Catholics (*shengmuhui*) were sent to makeshift labor camps and reformed through physical labor.[6] Soon after, the landlord class who had de facto governed the oasis and weathered political instability for almost a century met their demise.

Minqin did not have a huge land-owning class as years of instability since the late 19th century was detrimental to the landlords. According to one land reform document published internally for the county cadres, only about 1,064 households can be considered to be of landlord class (Minqin County Annals 1994:43). Instead, Minqin had a significant stratum of "middle farmers" who owned small plots of land for subsistence farming.

Table 6 Class Background and Land Ownership in Minqin in 1950

Social Class / **%**	Landlord	Rich Farmer	Absentee Owner	Middle Peasant	Peasant	Tenant Farmer	Other
Household	2.97	2.45	2.18	36.4	38.15	17.2	0.61
Land	18.2	6.37	4.5	44.5	20.5	4.11	1.34

Source: Minqin County Annals 1994

The land reform movement happened in two installments: through fiscal taxation and through confiscation of land. Beginning in 1950, the landlords and the affluent farmers were charged a punitive tax rate, and once the movement started in 1951, junior high students were used to go into each village and confiscate material wealth from the landlords and more affluent farmers who could afford to hire helpers during harvest season (Zhang 2010b). In addition, land co-owned by clans and temples were confiscated as the aim of the movement was to completely eradicate the influence of the clans. Eighty-seven -year-old Chai Yang remembers, "When the communist came, they first confiscated the land from the Xue and Liang families. The elders

[6] People's Government of Minqin #76 1956

from those families complained, stating that they should not be considered as landlords, but the communist killed a few of them. After that, their descendants lived a simple life, and my parents increased their share of land in the village. They farmed only a few years on that land until the people's commune took over".[7]

To transform the village identity to a new socialist one, the communist government had to repeatedly use political movements to mobilize the mass and create a collective identity (Ma 1950, 1951). Thus, starting in the early 1950s until the Cultural Revolution, almost every other year marked the beginning of a new political campaign in the oasis. Right after the land reform movement, the "three anti–five anti" movement began to purge communist cadres who were "corrupted by bureaucratic leanings" and small business owners who dodged tax (China Agricultural Annals Editorial Board 1982). In reality, this movement was really to eradicate the remaining bourgeois as, ironically, many of the carders and bureaucrats (including Chairman Mao) came from affluent farmers or urban intellectual backgrounds. During this period, the urban areas in new China started to experience shortage of grain and oil, while at the same time, many of the poor peasants who received land just a couple of years ago started to sell their plots because they lacked the means of production. The "two polarizations" alerted Mao, who decided to hasten the advent of the collective system (Naughton 2007:137). Mao wanted China to mimic the Soviets who consolidated land holdings and pushed for mechanized farming. However, the great helmsman overlooked the fact that Minqin oasis, like most of China, did not possess enough capital to leave subsistence farming. The result was the over extraction on land and people, and none of that was more tragic than the construction of the dam in Minqin during the Great Leap Forward era.

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[7] Interview #59

The New Socialist Nation

To Mao and the party central, changes in production relations in agriculture were central to the transformation of China from a feeble empire to a modern nation state because it creates the new socialist citizen. In his early writing, Mao (1937:282) interprets the dialectical materialist approach to be based on production relations between human and nature, and he claims that one can gain the insights on social relations only by understanding the interaction between human and rules of nature. Nevertheless, Mao's conceptualization of human-nature relations differed significantly from Marx and Marcuse (1992) as Mao believed that human is not a part of nature and the progress of human society depends on its continuous struggle against the constant development of natural condition (Mao 1981). Hence, to build a modern state in China, according to Mao, it was important to erase past rationalities associated with peasant societies, which incorporate and accommodate to natural laws. This may be the ideological foundation of what (Shapiro 2001) called Mao's war against nature in which the strength of ideological purity was perceived to be capable of overcoming natural constraints.

Yet Mao's war against nature did not only serve to unify the ideological underpinning of the new China. In reality, this "war" helped the party central to build a state apparatus and subsequently reorganize social lives to facilitate a more efficient extraction of resources. In a society that was more than 90% rural and no longer outsourced taxation to local agents, the functions of the state could be fulfilled more easily by creating external "threats," be it nature or imperialist powers, to mobilize the mass and quiet dissents. The battle Mao was really fighting was to alter the myriad state-society and human-nature relations in a peasant society (which according to Marx, 1844, form the human consciousness) to a streamlined production line able to channel the entire surplus to the centrally planned economy. The Mao-style "great

transformation" aimed to metamorphose 500 million Chinese peasants from vibrant social beings with low economic efficiency to the unit of production only driven by the commands of the totalitarian regime—a burlesque dream of modernity.

Much like the collectivization movements in the Soviets and the villagization in Tanzania, the collectivization movement in China relied on state coercion to push for a modernist project in which ideological fervor was thought as the panacea to shorten spatial and temporal path in development (Lieberthal 2003, Scott 1999). Mass mobilization was used to compensate ineffective bureaucracy. Thus, Maoist China was stuck in a vicious cycle: as the institutional inefficiency eventually slowed down the effects of ideological fervor, a bigger and more radical wave of mobilization was needed to stimulate development. The push for collectivization in 1955 could be viewed as the solution for the two polarizations in 1953; in turn, the Anti-Rightist campaign of 1957 was aimed to reduce resistance for the formation of village-based communes in 1956 when grain production was reduced by 36.9% in Minqin (Zhang 2010:165). And tragically, the Great Leap Forward was designed to be the ultimate fix of institutional failures in the first 10 years of the People's Republic. To Mao (1959), "socialism not only releases the producers and production material from the established order, it also releases the vast natural resources rendered unusable by the old society to economic production." In Maoist China, the correct political organization and ideology therefore became White ([1967] 2003) "power machine" whose capacity not only determined the distribution of land resources but also changed "man's relation to the soil" forever.

Ironically, although the Great Leap Forward movement was officially a struggle against class enemies, Mao, much like the emperors in the past, chose building large hydropower projects as the means of mass mobilization (Shapiro 2001). Near the provincial capital of Gansu,

tens of thousands of peasants and urban residents worked to divert the Yao River so the river could vertically climb nearly a thousand meters over the Liupan Mountain and become a "sky canal" to irrigate terrace fields near Lanzhou (Zhang 1996). Eight hundred kilometers away, the Great Leap Forward movement officially kicked off in Minqin on August 24, 1958, when more than 30,000 peasants were assembled to build the Hong Ai Shan dam, the first and the largest desert dam in China (Li 2013). Following the "Central Line" (*Zong lu xian*), the peasants were asked to "give hearts to the party, be organized militarily, act like in battle and live collectively" (Zhang 2008). According to Liu Yiwen whose parents were mobilized in 1958, the peasants were given only two buns a day and were not allowed to harvest their crops in fall.[8] Those who were fortunate enough to farm was told to "deep plow at least 3.33 meters so each *mu* can produce more than 5000 kg of grain" (Minqin County Annals 1994:673). The local propaganda poster asked the peasants to "humble the high mountains, make the rivers change course, we would rather lose meat (weight) but we will not delay the construction, level the black mountain top and build a man-made sea in the desert" (Zhang 2010a). The constant push to speed up construction eventually created irreversible tragedy: on Christmas Eve of 1958, the half-built dam could not withstand the added pressure of the frozen lake and collapsed. More than 1,500 houses in surrounding villages were submerged underneath icy water (Minqin County Annals 1994:12). Those who survived then endured two years of famine; according to the official data, close to 6,000 in Minqin were starved to death, more than 20,000 were severely malnourished as they survived on eating tree barks and chalk, and 30,347 fled the oasis to inner Mongolia (Minqin County Annals 1994:97). The real figure must be two to three times than the official record as the population of Minqin oasis inexplicably halved from 1958 to 1962, and almost every

[8] Interview #74

informant who were older than 50 years old during the time of interview recounted tales in which half of their villages died of hunger.

Although the official history of the Chinese communist party states that the 1958–1962 famine happened because of natural disasters, the consensus among scholars in the west shows that the over-extraction of grain was the true cause (Marx and Engels 2004 , Yang 2012:5). believed that the production and distribution of surplus shape the organization of society. As the communist party monopolized grain distribution by building the government procurement system-grain control system in 1953, the central state could finally get rid of the grain vendors (*douzi*) in the market, who often acted as contracted tax agents for the states (Minqin County Annals 1994, Bureau 1984, Xu 1964). "Before the revolution, harvest was based on class based social relations. After the revolution, harvest was based on state-society relations. State becomes a grain monopoly." In its effort to rapidly industrialize and urbanize, the Chinese regime learned from the Soviets and imposed the "scissor cut" on pricing, which artificially deflated the price of agricultural goods and inflated manufactured goods Oi (1989). The scissor cut generated over-extraction to the point that, during the great Chinese famine, 100 million urban residents had access to one-third of the food supply whereas the actual producers of grain, 600 million peasants, could only share the remaining two-third (Unger 2002). Even then, the central government, misled by the bureaucracy, still set higher grain quotas every year, and the lower-level cadres resorted to extreme coercion to extract. A 1959 internal report from Yanglu Commune to the county government in Minqin proudly stated how the cadres raided peasant households in the middle of the night, tied up the families, and "beat the sneaky class enemy to submission and discovered 0.8 kg of hidden grain".[9] Indeed, the great Chinese famine in the

[9] Yanglu Township 1959 # 45

Great Leap Forward movement was more a disaster caused by a faulty pricing system, an ineffective bureaucracy of extraction, and a complete failure of political institutions than natural disaster or Mao's ludicrous modernist dream.

New Regime, Old Business

Xu, Bennett, Tao et al. (2004) states that the expansion of state capacity in resource extraction and distribution is crucial to the cohesion of the center-peripheral relation in any political regime. To stay in power, the central government not only has to establish priority in controlling and distributing the available resources but also has to reduce the ability to coerce competing regional powers while increasing the resource dependency of subjects living in peripheral regions. To achieve that goal, central states have to establish a bureaucracy capable to exert a system of domination based on directives from the center Tilly (2009:179). In the case of People's Republic of China, by the late 1950s, the communist party already annihilated the gentry and landlord class and prohibited market economy, which tends to offer more tax potential for the state (Weber 1968). To maintain its system of extraction, the communist regime had to build and rely on a rudimentary bureaucracy at the local level.[10] Consequently, the over taxation negotiation (grain surplus) among different levels of government has shaped the institutional foundation of productive relations in the peasant society. In the dynastical history of China, local governments in the Hexi corridor never had the authority to set its own tax; instead, as previously discussed, the revenue of the local governments came from levies added on to agricultural tax. It was not until 1935 that the Republican government stipulated a three-tier taxation scheme in China when county governments finally had its own revenue stream (Gansu Tax Bureau 1984). However, the runaway inflation caused by the war against Japanese invasion

[10] Northwest Martial Rule 1950

rendered the entire scheme useless as the whole country descended to a patrimonial system based on warlords.

Building a system extraction was one of the first priorities for the communists once they took power in Northwestern China in late 1949 (Gansu Daily 1950). A directive from the Northwest Military Command reprimanded the low-level cadres for neglecting grain extraction because of "the false belief on benign governance".[11] A few months later, the People's Government of Gansu Province released the temporary rules for agricultural tax, which set the share of the central government to be 13% of the harvest and the local share to be 15% and in total; the total tax and levies could not exceed 80% of the production.[12] Interestingly, much like its predecessors, the party also allowed a three-year tax exemption for newly reclaimed land in Gansu (Liang District Tax Bureau 2008). Agricultural tax was paid in kind as surplus grain was needed to support the repression of the KMT guerrillas and the Korean War effort.[13] From 1949 to 1953, the central government determined all fiscal quota and expenditure for local and provincial governments; at the same time, all of the tax revenue was turned in to the central government (Ardant 1975:165–66). This extreme centralization created limited incentive for the peasantry and the local government to expand production and accumulate capital for urban industrialization. As a result, in addition to installing the procurement system to replace grain markets and to push for initial collectivization, the 1954 fiscal reform divided the revenue streams among different levels of governance. The county governments in Gansu got to keep all the sales taxes, and the Gansu provincial government retained 80% of the agricultural tax collected; 30% of which was given to county (Gansu Tax Bureau 1984, Liang District Tax

[11] Northwest Military Command 1950
[12] People's Government of Gansu Province 1950.
[13] Shaanxi Military District Report 1950

Bureau 2008). In 1955, agricultural tax accounted for 53.4% of the total tax revenue in Hexi, and total grain extracted increased by 6.7% compared with the previous year. In 1957 and early 1958, the central government stipulated that agricultural tax would not exceed 15.5% of the average yield of the previous five years. The county government would use the yield of 1956 as the baseline for the calculation of revenue and allowed expenditure (Liangzhou Tax Bureau 2011, Shi 1996:388). Clearly, the communist regime was on its path to establish a rational-legal bureaucracy.

However, the revolution fervor of the Great Leap Forward destroyed any hope to govern by numbers. To increase the efficiency of extraction and control, Mao pushed for rapid collectivization (*da bingtuan zuozhan*) and consolidated natural villages into communes. In Minqin, 547 natural villages were folded into 12 people's communes. The massive hydraulic and backyard furnace projects severely disrupted agricultural production. In 1961, the average yield per mu in Minqin was only 65 kilos, which was only 45.3% of the yield in 1956 (Minqin County Annals Annals 1994:165). In 1962, the average yield lowered to 49.5 kg per *mu* (Gansu Local History Editorial Board 1990:388). However, the communes still extracted surplus grain according to the extraction baseline set in 1957. The ensuing famine was a mass murder done by the colossal failure of the fiscal and procurement institutions, which eventually stopped to function as villages after villages were wiped out because of starvation. The shortage of grain was so severe that when the state's relief effort temporarily allowed grain to be traded in markets in late 1961, the price was more than 10 times than that set by the state (Gansu Local History Editorial Board 1995:308).

To save the entire regime from collapsing, in 1962, the party central loosened its extraction by clarifying the ownership structure of land and production teams (the original

natural villages) as the unit of production (Minqin County Annals 1994:322). Between the production teams and the commune, specific contracts of duties and obligations (*Sanbao yi gu ding*) were established. Agricultural production rebounded in 1964, and the people's communes survived only as administrative units (Gansu Local History Editorial Board 1990). However, up until Deng came to power, China was deeply mired in the vicious cycle of political and fiscal instability. Increase in agricultural production threatened centralization, which initiated massive political purges, such as the Four Cleanups movement and the Cultural Revolution, against the bureaucracy and the central government reformulated the tax code so it could have more control (i.e., changes in tax code 1968 and 1970). The overreaching center reduced the effectiveness of governance and transaction costs of tax collection surged, which pushed for another round of decentralization (i.e., fiscal decentralization in 1971–1973). The vacillations of the tax system accurately reflected the inability of institutions in the planned economy to properly distribute resources to promote agricultural production. Individual peasants stayed as underutilized innards of a broken machine, chained to ideological conflicts and rigid control on production materials. In Minqin, the lack of investment and technology combined with incessant pressure from the ever-increasing population impoverished the peasants.[14] The economic institutions of communes created no incentives for the peasantry who could only be driven by political mobilization. Ironically, the oasis ecology in Minqin was well protected during the Mao years. From 1953 to 1979, under Mao's Green the Motherland campaign, more than a million *mus of* oleasters were planted as shelter belts. Oleaster fruits even became a major export of Minqin to the international market (The Editing Commitee of Minqin County Annals 1994:69). In addition, a massive amount of labor was channeled to build irrigation canals (412). I will discuss in detail the

[14] Minqin Tax Bureau #149 1979

combined effects of changing the tax regime and the mass mobilization of land reconfiguration on peasants' consciousness toward nature in the following chapters.

Conclusion

The environmental history of Minqin up until the economic liberalization in 1978 showcases the intricate yet repetitive pattern of interaction between the state extraction policy and the oasis ecology in Hexi. In both dynasties and the Mao years, the central government viewed the region as ideal to produce surplus grain for military campaigns. Settled agriculture in Minqin could only become viable when the hydraulics were built and properly maintained through the military-style mobilization of the peasantry and mass investment from the center. Ironically, the central governments' need for monocropping and the cost of extraction tended to limit the tax base and the potential surplus of agricultural production. When the center was strong, military commands and political mobilization could temporarily sustain the war against natural laws—agricultural production in arid regions. When the center became weak, the extraction and the maintenance of economic system were outsourced to local state agents who had very different political and economic interests from the policies set by the center. For the local gentries, tax farming in the Hexi Corridor created stable and lucrative avenues for the primitive accumulation of capital. Since, political capitalism tend to inhibit the growth of rational capitalism, the political-economic institutions of production and extraction imposed by the center could not form a rational-legal bureaucracy and, consequently, had to rely on local gentries who lacked the necessary capital and jurisdiction to maintain hydraulics in the entire watershed, which eventually created severe stratification and social instability when the local ecology deteriorated.

The communist regime in Hexi was engaged in the same pattern of interaction with nature after 1949. The myriad changes in agricultural and taxation policies resulted from Mao's failed attempts to unify and modernize a disintegrated empire in one generation. Mao's monocropping policy to increase grain output (*Yi liang wei gang*) to fight the "imperialist enemies" echoed the push for grain in dynasties past. After he wiped out the gentry, Mao was left with the option to militarily reorganize the peasant society into production group, team, and brigades (communes), which reflected the inability of the planned economy to generate surplus. Within the commune system, power became based on political privileges in the hierarchy, which inadvertently positioned the local bureaucrats as the local elites. Although Maoist mobilization promoted grassland preservation in Minqin, the peasantry connection to nature also became broken in the process and could only be mediated by administrative and production commands from the communes. The eradication of all other forms of social organization created a vacuum of civic engagement in resource management, and ideological purity was blindly thought to be the only factor in shaping production relations. It was no wonder that in the late 1970s, the county party secretary proudly proclaimed that "the Minqin oasis is an oasis which never lacks water and therefore does not need any river water from the upstream Wuwei County. As long as we have the right conviction and social organization, we can extract groundwater forever".[15][16]An ominous statement foretold the ecological catastrophe waiting when the center started to retreat from the provision of public goods in the 1980s.

[15] Interview #127
[16] Wuwei Daily 1976

Chapter 3: Dazhai Spirit

農業的根本出路在機械化-The fundamental way out for agriculture lies in mechanization

Mao, Ze Dong (Mao [1959] 1999)

Lu still vividly remembers that fateful morning in 1962 even though it was almost half a century ago. Barely before sunrise, the village loudspeaker began to blare out orders from the county militia brigade: "Attention, all men under the age of 45, bring your shovels and report to your respective commune offices immediately".[17] As the head of the production unit, Lu was jolted awake and sprinted out of the door to gather his fellow villagers. Close to a hundred of peasants were already waiting when he and his men arrived at the commune office. "About time to let those thieves know what we are made of," people murmured. It wasn't until they boarded the trucks, Liu heard from fellow villagers, "we are going to bomb the dams of Wuwei".[18] The relationship between the Minqin and Wuwei oases had always been testy because, historically, the competition over water resources repeatedly generated clan conflicts between the upstream and downstream settlements. From 1722 to 1900, the central court in Beijing had to intervene six times to prevent major armed conflicts stemming from disputes over water allocation.[19] The bad blood between these oases even shaped the identities of the settlements. In the Minqin dialect, residents of the upstream settlement are casually referred to as "Wuwei Thieves" while the children in Wuwei are taught not to be as narrow-minded as the "Desert Rats" downstream (Chen 2001).[20] When the communists took over the He-Xi corridor, one of the foremost issues was to establish codified rules on water management between the oases. In 1951, Wuwei was

[17] Interview #31
[18] Interview #55
[19] Wuwei District Community Party Office 1951 #79
[20] Interview #133

ordered to fill up the springheads, stop building reservoirs, and let the Shiyang River flow free between January and early April in the lunar calendar[21] However, conflicts over water still erupted in 1956 and 1957 before the Great Leap Forward movement halted agricultural production.[22]

In 1962, after years of futile pleas to the provincial government, Minqin's chief magistrate, Zhang Shu Gang, decided to put the issue to rest once and for all by calling the county militia to take control over the springheads in Wuwei. Zhang's raid failed miserably as hundreds of Wuwei peasants thrashed the "invading bandits" on the banks of Shiyang River.[23] Nevertheless, the unrest forced the provincial government to intervene yet again and in 1963, representatives from the Wuwei, Minqin, and Yongchang oases entered into a long-term water sharing agreement.[24] At the same time, in Minqin, the first ever countywide irrigation meeting decided to allocate water based on available quantity, which in effect, abolished the two-hundred-year tradition of water allocation by time (Minqin County Annals 1994:211). The change symbolized how in dealing with natural resources and production, traditional customs were replaced by bureaucratic rules during the collective era. However, none of the agreements were followed as upstream deterioration forced even Wuwei oases to be without a steady flow of water. Instead, each oasis used their ways of finding water sources.[25] The fiasco of armed conflict and empty agreements accurately reflects the state of CCP governance in the He-Xi corridor from the 1960s to the early years of reform. Behind the facade of a totalitarian regime, murky jurisdictions and patronage relationships crisscrossed the bureaucracy. As political purges

[21] Gansu People's Government 1961 #37
[22] Gansu Provincial Ministry of Water Works 1963 #41
[23] Interview #68
[24] Gansu People's Government 1963 #174
[25] Minqin County Revolutionary Commission 1971 #9

destroyed the bureaucratic norms governing the cadre's behavior, rural governance was left to each commune that acted as patrimonial fiefdoms. The fragmentation of political power prohibited a comprehensive approach to agricultural production and water conservation. Since the dysfunctional bureaucracy could not support a rational approach to extraction, the ensuing chaos in fiscal relations detrimentally shaped peasants' relation to nature during the Dazhai movement years.

Beyond the Apocalypse

The colossal failure of the Great Leap Forward did little to dampen Mao's enthusiasm for rapid modernization. Though the 1961 amendments to the People's Commune Law (commonly known as the agricultural Sixty Articles) reversed his radical approach to collectivization by redirecting property rights to the administrative village, Mao did not give up his belief that science and collectivization will rapidly transform productive relations in rural China (Zhou 2009). By the mid-1960s, "the agricultural sixty" had temporarily stabilized food supply, yet the Chinese economy was largely in shambles. The clash with the "Soviet revisionists" had severely restricted the credit line, and investment in rural infrastructure dwindled (Song 2005). It was in these circumstances that Mao made the Dazhai Commune in Shanxi province a model of rural development in the totalitarian regime. According to the state media, under the staunch leadership of the party secretary, Cheng Yong Gui, the villagers in Dazhai Commune achieved self-reliance by protecting the local environment and transforming the hilly terrain into terrace fields (Chen 2008b). The success of the Commune showcased how the correct ideology would generate self-sustaining, productive relations that reduced food shortage in rural areas without any investment from the government. Nevertheless, the reality of the Dazhai model was that the central state passed the buck in agricultural investment to the communes while still attempting to

maintain its extractive apparatus. As Mao said to the planning committee of the third five-year plan in 1965, "…Agricultural development should rely on the Dazhai spirit, if you give them money, they will not achieve any. It is better for them not to receive support" (Song 2005).

In Minqin, the "agricultural sixty" restored agricultural production by releasing land rights and control of labor to the production brigades and teams (Minqin County Annals 1994:322). However, the peasantry could not choose what to produce because production goals were assigned to each *mu* of land, and all of the production tools were deemed collective properties.[26] The production committees would assign a small plot of land to each household and the outputs of it would not be taxed. Instead of receiving monetary rewards for their labor, each villager would be compensated by work-units (*gongfen*).[27] Work-units were evaluated by the head of the production team based on gender, age, and class statuses of individual villagers in addition to the types of tasks completed.[28] In general, a day's work would earn one work-unit for men, 0.7 for women, 0.6 for elderly and 0.4 for minors (Minqin County Annals 1994:167). After the harvest, grain would first be transported to the grain stations for tax-in-kind (*gongliang*), and the value of each kilogram of grain was set by the central economic planners at the beginning of every fiscal year. After tax, the remaining grain would be purchased by the state at different prices based on the grain quotas (*gouliang*) set by the economic plan. The CCP, like the dynastical rulers, viewed the He-Xi Corridor as a place to provide surplus grain for the nation and the central and provincial governments set high grain quotas for counties in the Corridor (Gansu Local History Editorial Board 1990). In addition to the assigned purchase quotas, the production teams were needed to meet "added purchase," (*chaogouliang)* "war-time reserve,"

[26] Minqin County Revolution and Production Commission 1968 #392
[27] Interview #99
[28] Interview #11

(*chubeiliang)* and, during the Cultural Revolution, "loyalty" (*zhongziliang*) quotas.[29] After the central and provincial governments had taken their share, the Minqin county and communes then charged the cost of production and depreciation (*shengchangfeiyong*), national trust fund (*guojiajijing*), collective fund (*gongjijing*), social security (*gongyijing*), collective management (*dadui guanlifei*), and water and electricity fees before dividing the remaining grains based on the population (80%-70%) and work-units accumulated throughout the year (20%-30%).[30] The high extraction rate impoverished peasants in Minqin and left little room for the accumulation of primitive capital. Li Ting Zhu remembered:

> Li: Back then, in my production team, the more you worked, the worse off you become. Since so little grain was produced, sometimes your work-units would have negative value after the communes took their shares.
> KRM: How could people survive on "negative values"?
> Li: You borrow work-unit values from the production team, and the borrowed amount would be deducted from next year's harvest. After the subtraction, the value of a day's labor was usually around 0.05 yuan.[31]

The official agricultural tax rates in Gansu were 6% from 1959 to 1966 and 2.07% from 1967 to 1973 and the administrative fees (*tiliu*) of the communes were not supposed to exceed 7% of the total output.[32]In reality, the average amount of grains left after tax and fees were less than 44% in 1970 (Minqin County Annals 1994:179). As the scissor-cut continued to keep the grain price below the cost of production, by the mid-1960s, production teams in Minqin began to operate in the red. The average production team deficit was 150 yuan a year, while some production teams had a debt of more than 2,500 yuan (*ibid:*180). Meanwhile, the amount of grain extracted by the central government in Minqin increased from 8.3 million *jin* in 1965 to 58

[29] Gansu Provincial Revolutionary Commission 1971# 56
[30] Wuwei County Agricultural and Forestry Bureau Records 1970 #22 People's Commune Grain Distribution Form
[31] Interview #8
[32] Minqin County Revolutionary Commission 1975 #92

million *jin* in 1976.[33] [34]The rapid increase in the amount of grain extracted occurred not only in Minqin but throughout the He-Xi Corridor, putting additional pressure on the peasants and local ecology. For example, Gu Cheng Commune in the upstream Wuwei Oases provided 97 thousand *jin* of grain to the central government from 1966 to 1970.[35] Encouraged by its success, the grain quotas in Gu Cheng were increased by 20% in 1971.[36] To provide surplus grain, the administrative village committees pushed the labor-hours of the peasantry to the extreme, which, ironically, lowered the values of each work-unit and made the peasants poorer.[37] Jiang You Huang recalled:

> Jiang: We were still small, but my mother had to work in the production team. She could not take care of us as she had to work in the field all the time. The head of the [production] team would knock on the door before daybreak. The only time she came back to us was during lunch, and then she had to leave again. They had meetings every night…
> KRM: What meetings?
> Jiang: It was during the Cultural Revolution. What else were the meetings about other than learning and struggling against each other?[38]

The Iron Ladies Platoons

The Wuwei District Revolutionary Committee[39] knew they had a problem going into 1971. The county economic reports of 1970 showed stagnant growth in grain, and for the third straight year, the district failed to harvest enough cotton to meet the quota. A report from the Wuwei County stated: "There are people who fail to understand the greatness of the 'grain link, full development' policies. They claim that grain and cash crop production are antithetical to

[33] 1 jin (斤) equals 0.5 kg
[34] Minqin County Grain Bureau 1976 #077
[35] Wuwei County Agriculture and Forestry Bureau 1970 #74
[36] Wuwei County Agriculture and Forestry Bureau Records 1971 agricultural tax assignment task form
[37] Wuwei County Economic Planning Team January 1966
[38] Interview #15
[39] In 1971, the Wuwei District covered Wuwei, Minim, Gulang, Tianzhu, and Yongchang counties

each other, saying that the cotton yield was too low. This is the best time to plant cotton, but we cannot give the seeds out." Worse still, "some people who had landlord class background deserted the communes and fled to Xinjiang during spring planting season.[40] They professed to others that there are many factory jobs available in Xinjiang." Another report to the District bluntly asked for a waiver on the cotton quota as "Hezhai Commune planted 43.3 *mu* cotton but harvested nothing, and they were not the worse ones."[41] At the same time, the Wuwei District was instructed by the Provincial Revolutionary Committee to "prohibit the collection of management fees by the communes and administrative villages so the peasants will be motivated when they see yearly increase in their income. The lower level governments must reduce the numbers of over-spending households (*chaozhihu*) and the families of cadre need to set examples by voluntarily turning in the grain they owed."[42] Clearly, by the early 1970s, the District had already hit a ceiling of surplus extraction, which threatened the survival of the commune system in the region.

Even after the "Sixty Articles," the proper valuation of labor in the communes continued to be one of the most challenging tasks in rural governance. To fulfill the promises of a socialist society, the central government stipulated that 70% to 80% of the available grain should be distributed based on the household size.[43] Nevertheless, since every production team had different population compositions and labored in varied soil and water conditions, the actual implementation of the distribution ratio was largely decided by the production team leaders. As recalled by 78-year-old Ma Ren, "those who could not work also had to live, every team had a different ratio. Some did a 70 [population]-30 [work-unit] split, and some did 40%-60%. The

[40] Wuwei District Revolutionary Commission Agricultural Bureau 1971 #44
[41] Wuwei Revolutionary Commission Agriculture Production Office 1971 #45
[42] Gansu Provincial Revolutionary Commission 1971 #56
[43] Minqin County Revolution and Production Commission 1972 #191

teams that produced more food tended to lean more towards population."[44] The production team leaders determined who received the work-units after a day's work as well. "For example, he may give you a .8 or .5, and whatever he said would be recorded. There was no negotiation."[45] Production team leaders became the foci of political power at the grassroots level of governance because they controlled resource allocation and definition of value, two essential components of the productive relations. The production team leaders were usually appointed by the party secretaries of the production brigades, who, in turn, were assigned to the positions by the commune party secretaries. As long as they fulfilled the grain and corvée quotas allocated by the county government, the grassroots cadres had high degrees of autonomy as information, and hence decision-making, was constricted within the small circle of commune governance. The relative insulation of power from external reviews was especially prone to generate a clientalist political structure where the preferences of the superior strongly shape the resource available for the underlings in the hierarchy (Oi 1985, 1989) because the power was based more on patronage than codified rules or abstract principles, rural China in the collective era resembled an unfastened network stringed together by tax obligations than a well-organized totalitarian machine.

At the beginning of the Dazhai Movement in 1964, few people envisioned it would evolve to the behemoth "left-leaning" mistake that defined the collective era in rural China. In his first public comments on the Dazhai Commune, Mao praised the commune as an advanced model of agricultural production and marveled at its spirit to achieve self-reliance (Zhou 2009). However, Mao's brief comments on the Dazhai spirit quickly turned into an official ideology once the Cultural Revolution began in 1966 (Ho 2003). All across China, rural or urban, the

[44] Interview #3
[45] Interview #26

"rebel faction" first struggled against the alleged "capitalist-roading" bureaucrats and, immediately afterward, against each other. Since no one was sure what constituted "right-leaning" tendencies exactly and political alliances in the center shifted from month to month, complete adherence to Mao's spoken words (often lifted out of context) was deemed the safest path to survival. Mao's cult of personality soon penetrated as widely into every corner of social lives in Minqin as did the little red book edited by Lin Biao.

The Cultural Revolution in Minqin started in 1967 as hundreds of county bureaucrats and teachers were sent to reform camps—the "Five-Seven Cadre Schools"—near the edge of the Badanjiling desert (Zhang 1992). The commotion reached its apex when two rebel factions, manned by high school students and peasants from surrounding villages, fought to control the county militia armory and destroyed several factories in town (Minqin County Annals 1994:36). Outside of the county seat, the Revolution instigated rounds of struggle sessions in the communes against known class enemies (offspring of the landlord class).[46] The political upheaval petered out as it reached the administrative village and production team levels as "most of the folks in the same village could trace their lineage to one or two extended families. Since everybody was equally impecunious, and nobody owned anything, what could you gain from struggling against your family?"[47] However, all cross the Wuwei District, Mao's cult of personality was used as a mobilization tool to accelerate production and tighten social control. For example, the Wuwei District Agricultural Office noted in August 1967, "The communes implemented the 'Three-Bring and Four-Study' orders during the summer harvest. They brought portraits of Chairman Mao, red flags, and slogan banners to the field in addition to reciting Mao Ze Dong thoughts while working, reporting to the Chairman before returning, and studied his

[46] Minqin County Revolution Commission 1968#8
[47] Interview #69

teachings every night.[48] We estimate that this summer's agricultural production increased 68.8% than the previous year".[49] In the alternate reality of the Dazhai movement, ideological purity was able to generate surplus productivity as long as the peasants followed Mao's words closely. The Iron Ladies Platoons in the Hong Liu Commune in Minqin had "been blitzing the obstacles of production while conducting nightly study sessions of the '*Lao San Pian*'[50] since February. Because the Ladies implemented the Chairman's teachings, they completed an irrigation canal in five days instead of eleven days as originally planned".[51] People's Daily (1972) recounted that "…determined to contribute to the glorious revolution, the Ladies walked into the desert…and after a winter's hard work, they successfully reclaimed more than 100 *mu* of land by planting shelter belts around the sand dune…which harvested more than twelve thousand *jin* of food. Born to be illiterate peasants, the Ladies not only changed the natural landscape, they also mature through struggle against nature and class enemies."[52]

[48] Wuwei District Revolutionary and Production Instigation Head Office 1967 #13
[49] Wuwei District Revolution and Production Instigation Head Office 1971 #78
[50] The Lao San Pian was three short essays written by Mao Zedong championing the selflessness and hard work of the Chinese communists. The essays were published before 1949 and became standard texts for all learning sessions during the Cultural Revolution.
[51] Wuwei County Revolutionary Commission Agricultural Bureau 1971 #44
[52] People's Daily March 5 1975

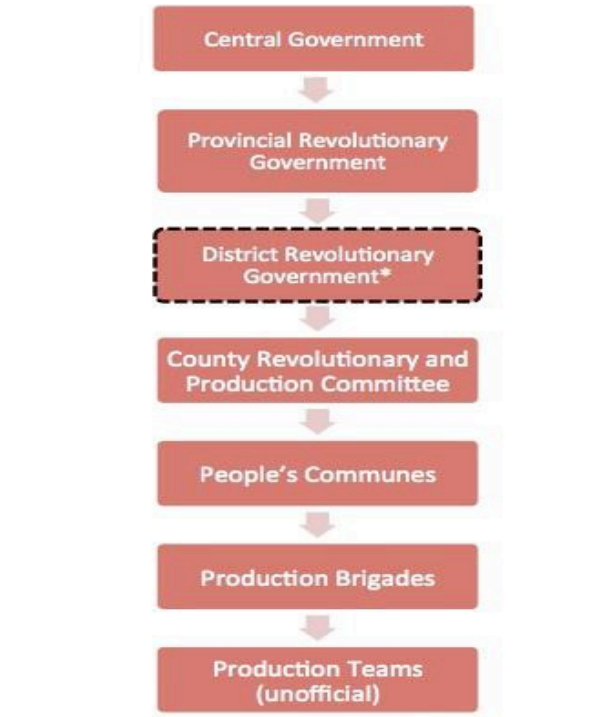

Figure 4 Administration During the Cultural Revolution

Unfortunately, the Dazhai nightly struggle sessions in Minqin quickly devolved to personal squabbles disguised as alleged ideological impurities.[53] One recurring theme of the arguments was the distribution of work-units between genders.[54] In communist China, rural women shouldered the majority of farm work as they often were assigned to repetitive and tedious tasks such as weeding, tilling, and harvesting. However, since men were perceived to be more physically able, their tasks, often seasonal, were defined to be more physically taxing and should receive more work-units. As described by Rou,

> In our production team, during the irrigation season, men were supposed to carry the heavy diesel pump down the wells and women had to rearrange the lynchets. It probably took the men an hour total to climb in and out of the wells. They just sat at the bottom of the well and chatted with each other, but they received full work-units. While we worked the whole day and received less than 70%."[55]

[53] Interview#27
[54] Interview #43,21,89,77,145,132
[55] Interview #112

A report to the Minim Communist Party Committee stated "women cadres were extremely dissatisfied with the compensation they got. They held a contest in 1976 during the harvest and finished at the same time as their male counterparts".[56] Another constant source of contempt in the struggling session was the assignment of temporary tasks, which had lower work-unit value, in the production team.[57] Since there was no institution established to redress the grievances and, officially, state's extraction could not surpass the basic grain ration given to the peasantry, the peasants had little incentives to increase their productivity. The Houko System then acted a double-edged sword in rural productive relations; since the peasantry and its labor value were chained to their specific production teams, the organization had little leaways to shed unproductive labor or deny access to rations of basic services (Putterman 1986, Rozelle 1994). Multiple initiatives were made by the District to motivate the peasants to pay back the grain "owed" to no avail.[58] Chen Yinan recalled his days as a production team leader, "I often had to yell at the loudspeaker for more than half an hour before anyone would respond to my order. It was particularly infuriating when they [production team members] talked back to me using Chairman Mao's quotes".[59]As the Cultural Revolution wore on, cadre-peasantry relations became more and more fraught with indignation. A missive from Xu Bai Commune pleaded, "Peasants were poisoned by the Gang of Four and had serious anarchist tendencies. They often contradicted orders even beat and scolded cadres. Some cadres became so afraid that they started to give every task the same work-units, which weakened the correct valuation of labor."[60] The Wuwei District also observed, "some of the grass roots cadres have three fears and three

[56] Minqin County Communist Party Office 1979 #10
[57] Minqin County Revolutionary Government Resettlement Office 1969 #11
[58] Wuwei County Revolutionary Commission 1971 #78
[59] Interview#87
[60] Minqin County Communist Party Office 1978#13

complaints: They are afraid of the draught which caused some insubordination, of the decreasing income and living standards in their teams, and of their supervisors' criticisms. They complained loudly against the sky for not raining, against the soil for not producing, and against their own fate for being chosen as team leaders. They had low morale and some refused to do anything".[61] In other words, the state bureaucracy recognized clearly how the "weapons of the weak" and the "little traditions" of the Chinese peasantry could sabotage the planned economy by engaging in a protracted battle with the perceived unfairness of the work-unit system (Scott 1985, Scott 2009, Scott 1976). As lamented by the Minqin County Party Secretary in 1978, "there was no individual responsibility for the production and no evaluation of one's labor.[62] The work unit valuation was dead long before it entered the team records." Nonetheless, the central government continued pushing for accelerated grain extraction even though the pricing and value system was fundamentally broken. In 1971, Wuwei District promulgated, "Following the great strategy plan of Chairman Mao, we…need to 'cross the Yellow River' of grain self-sufficiency by producing more than four hundred *jins* per *mu.* For springhead regions, the grain production needs to 'cross the Huai River.'[63] We need a Great Leap Forward to win the grain battle".[64] A new approach to increasing agricultural productivity was in order, and Minqin was certainly leading the pack in Hexi.

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[61] Wuwei County Communist Party 1971 #20
[62] Minqin County Communist Party Office 1978# 13
[63] In the 1957 Agricultural Development Plan, the Party planners stated that collectivization would drastically increase agricultural production and by 1967, regions north of the Yellow River would produce more than 400 jin per mu, regions in between the Yellow and Huai Rivers would produce more than 500 jin per mu, and regions south of the Hua River would exceed 800 jin per mu. During the Dazhai Movement, "crossing the rivers" became political slogans for increasing agricultural production. However, none of these goals were realized until 1982 (People's Daily 1999).
[64] Wuwei District Revolutionary Commission Agricultural Bureau 1971 #44

Crossing the Yellow River

The new approach to agricultural production was about changing how water was allocated in the oases. Much like the dynastical rulers, the communist bureaucracy in Minqin viewed the restoration and expansion of irrigation crucial to its legitimacy and, more importantly, governing strategies. In the oasis ecology, those who monopolize the access to water control the distribution of land as well as the rhythm of agricultural production, which constituted the spatial and temporal axes of productive relations in agrarian societies. However, compared with its predecessors, the Chinese Communist state was able to penetrate much deeper into the daily interactions of its subjects. Walder (1986), in his studies on neo-traditionalism in communist China, noticed that the most basic building blocks of organization in urban China, the work-units (*danwei*), were, in fact, the principle source of political authority (10). The communist bureaucracy could obtain compliance from the urban workers because the *Danwei*, acting as
small welfare states, monopolized the provision of public goods and access to political statuses (Won 2012). Since there was no labor and credible consumer markets, the workers became organizationally dependent on their superiors and the patron-client relations in the hierarchy (Gold 1984, Walder 1983). Similarly, since the middleman between state and society in rural China, the gentries, were annihilated in the early years of PRC and that the means of production were controlled by the state, the peasantry in Minqin had no choice but to become organizationally dependent on the bureaucracy. The dams, canals, and embankments built by the state not only constricted the flow of water; they were also a stringent form of social control in the oasis. Irrigation was a powerful political weapon for the Communist as the hydraulics transformed nature into be a component in the statecraft of domination. The enormous cost to change the landscape was in reality what Foucault (1977:92-102) termed “the political

investment of the body" because, by controlling the flow of water, the state could discipline subsistence peasants enough to turn them into farm laborers regulated by the center. Should the planned economy operate like a delicate pocket-watch, combining the works of distinctive parts to a synchronized whole, then the managed flow of Shiyang River must be the coil springs that timed and regulated the social and economic organizations of the agrarian society in Minqin.

That was why, from 1952 to 2005, there was not a year in which the county government stopped expanding its hydraulic system, even during the toughest time of the Great Leap Forward years. From the commune leaders in Minqin to cadres in the Gansu Provincial Government, putting the water system in the oasis under bureaucratic control was continuously regarded as the foremost priority of governance (Pan 2010:26-30). Barely three years into its rein, the Minqin County government began to mobilize the local peasantry to straighten the natural rivers and transformed them into a series of irrigation ditches. The expansion of these ditches eventually formed the main thoroughfare of the 91.7 kilometer-long Great Leap Forward Canal in the 1970s.[65] In 1962, the completion of the Hong Ai Shang Dam intercepted the flow of Shiyang River entirely, which coincided with one of the worst draughts the oasis had experienced. As the water started to fill the newly-built reservoir and the downstream Qingtu Lake began to dry up rapidly in the summer heat, the peasants in Minqin discovered that the water available for summer irrigation (*dapaishui*) was only half of the pre-1962 volume. As a result, the hundred-year-old tradition of allocating water by time could no longer function.[66] The conflicts over water allocation escalated in 1963, and subsequently, the first county-wide irrigation conference was called. "Under the guidance of district irrigation technocrats, using

[65] Gansu Department of Water Resources 1964 #814
[66] GanWei Ma 2001 "Autobiography of an Irrigation Cadre" Minqin Senior Monthly October

scientific measurement, [the county] devised a plan that used cultivated area in the communes to determine how water was allocated. Human replaced nature (*tian*) in water management" (*ibid*).

The changes in water allocation fit well with the Party's drive for collectivization and mechanization in the oasis. Eager to modernize China within a generation, Mao ([1959] 1999) viewed collectivization as the revolution of productive relations and mechanization as the revolution of productive means (216). The Great Helmsman once remarked, "the fundamental way out for agriculture lies in mechanization" (Mao [1959] 1999:247). In Minqin, collectivization and the hydraulic infrastructure allowed the state to meticulously calculate the amount of water needed for production on each *mu* of land.[67] By turning all productive inputs (labor, water, and land) into quantifiable factors in the planned economy, the state believed it could increase the utilization of resources, thereby maximizing its extraction potential for the "Grain as Key Link" (*yiliangweigang*) policies. The Party's emphasis on grain extraction started during the Great Leap Forward years when it feared mass starvation would result in regime collapse. The severe shortage of food debilitated the development of the heavy industry sector in the urban area as well (Ho 2003). In 1960, the Party's Central Committee stipulated grain production as "the fundamental of the fundamentals in economic growth," and that "the battle to increase agricultural output has to be treated as the foremost task of the whole Party".[68] The He-Xi Corridor was designated by the provincial government to be a crucial grain contributor in Gansu. Numerous hydrologists and geologists working at the national and provincial levels were sent to the Corridor to inspect its waterways.[69] A 1959 District report lamented that due to its

[67] Minqin County People's Commission 1964 #143
[68] Chinese Communist Party Central Committee 1960 #15
[69] Bureau of Hydro-Geological Engineering 1959 March

seasonal pattern, only 30% of the water flow in Shiyang River was properly utilized.[70] For grain production to "cross the Yellow River," the county government needed to "deepen the collectivization of land and production materials immediately so the peasants could transform the fields for mechanized farming".[71] In the high fever of the Cultural Revolution, the Wuwei District ordered the lower level governments to bear down on their peasants to usher in the modernization of agriculture. By the end of 1967, allegedly, the peasantry in the Wuwei District had "expanded summer plantation by 300 thousand *mu*, irrigated 330 thousand more *mu*, use 9 times more phosphate fertilizer, and increase the utilization of semi-mechanized tools by 184%, compared with 1966 levels".[72] Suffice it to say, the peasantry's organized dependence on the hydraulic system would be the quintessential factor for the state to overcome the resistance from individual production teams. Collectivization, mechanization, and the hydraulics constituted the holy trinity of bureaucratization of social relations in the oasis. The daily subjugation of the peasantry to the bureaucracy would, therefore, serve as the foundation of everlasting state power in the totalitarian regime. However, nature in the He-Xi Corridor had a different plan.

The Critical Juncture

In the early 1970s, the provincial cadres in Gansu ran out of options to spur production.[73] Rather than becoming self-sufficient as predicted by Chairman Mao, collectivization and the Dazhai movement instead caused many communes in the He-Xi Corridor to rely on relief grains (*fanxiaoliang*) (Wuwei General History Editorial Board 2007:43). Worse, in 1971 and 1972, the Wuwei District experienced record drought during the planting system. The flow of the Shiyang

[70] Shiyang River Management Office 1959 #56
[71] Minqin People's Commission 1964 # 143
[72] Wuwei District Revolution and Production Frontline Agriculture Office 1967 Agricultural Production Year-End Report
[73] Gansu Provincial Revolution and Production Commission 1972 #42

River and its tributary streams dwindled to drops.[74] Further, the hydraulics and shelter belts came under assault from the surrounding sand dunes as many of the technocrats were labeled as class enemies and sent to reform camps in the desert (Liu 2011). As a result, in Minqin, the cultivated area decreased from more than 90 thousand *mu* in 1960 to less than 60 thousand *mu* in 1974 (Minqin County Annals 1994:216).

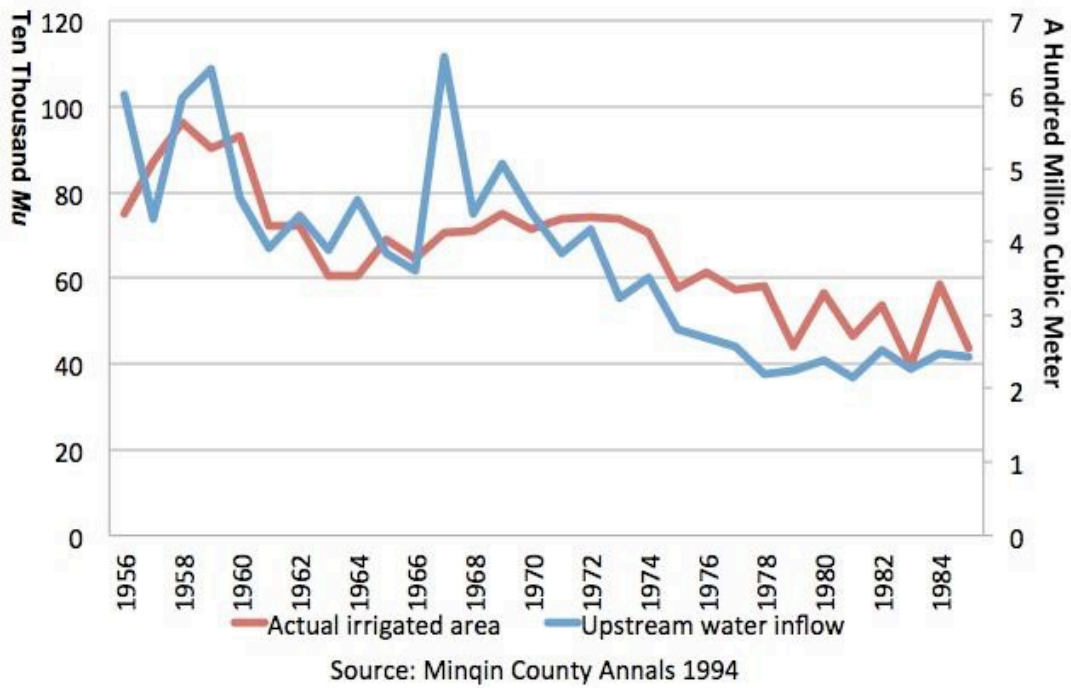

Figure 5 Changes in Shiyang River Inflow and Actual Irrigated Areas in Minqin 1956-1984

At the same time, the pressure to produce more grain in the Wuwei District increased dramatically. Beleaguered by political upheavals, the central government abandoned its national food supply systems and decreed that each province had to become self-reliant in grain in 1970. The economic planners in the Wuwei District had to come up with a policy alternative which would simultaneously increase agricultural production and adhere to the ideological purity

[74] Wuwei County Revolutionary Commission 1971#54

demanded by the revolutionary counterparts.[75] Fortunately, they found a solution in the meeting minutes of the 9th National People's Congress of PRC in 1969 and the Agricultural Conference of the North Regions in 1970.

The 9th National People's Congress marked the advent of the power of the Gang of Four faction in the CCP as Mao's cult of personality was institutionalized into the party structure (Song and Zhang 2006). In this meeting, the Party decided to speed up the Dazhai movement by ordering the construction of small-scale irrigation projects all around China.[76] In the Wuwei District, since the surface flow of the Shiyang River reduced dramatically in the early '70s, the center's call for small-scale irrigation projects were treated as an order to drill mechanized wells in the watershed.[77] Of all the settlements in the Shiyang River Watershed, the peasants in Minqin had the longest history of utilizing groundwater. Because of their geographical location at the end of the Shiyang River, as early as the mid-Qing Dynasty, peasants in the same clan would dig shallow wells, measuring 1-3 meters deep, to supplement river water during the peak time of summer irrigation. The shallow wells were seasonal, as the rising groundwater level in fall would naturally submerge the wells. In the 1950s, as the party expanded village cultivated areas, the peasants began to build rectangular-shaped sinkholes (*laochi*) about three meters deep. These sinkholes were compatible with pedal-powered waterwheels and could deliver water to wider areas than shallow wells. During the planting season, peasants in each production group would rotate between their field and irrigation tasks to ensure the steady supply of groundwater.[78]

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[75] To appease Mao while preventing complete anarchy during the Cultural Revolution, Prime Minister Zhou En-Lai pushed for the "grab revolution, promote production" (zhuagemin cushengchan) movement in late 1967. Every state entity was divided to the revolutionary and economic units so production could continue even during the massive purges (Zou 2010).
[76] Wuwei District Revolutionary Commission 1971 #98
[77] Minqin County Waterworks and Electricity Bureau 1970 #3
[78] Interview #123

Nevertheless, as the water conflicts between the upstream and downstream settlement escalated rapidly and as the Hong-Ai Shan Dam intercepted the natural flow of the Shiyang River in 1959, the sinkholes gradually lost its capacity to provide steady water supply for irrigation purposes. The Minqin government started to include the construction of, brick wells (*tujin*) 8 to 10 meters in depth, into the corvée labor of the production teams. At the same time, the county government petitioned to the provincial government for more technological assistance (Liu 2012). Soon, water extraction no longer depended on manual/animal power.

In 1965, the Gansu Ministry of Water Works tested out the first mechanical well in the Hexi-Corridor in the Datan Township of Minqin. The mechanized wells utilized a caldron shaped drill bit to reach 20 to 30 meters below the surface and relied on diesel pumps instead of pedal-powered waterwheels. Fittingly, the peasants named the invention "the caldron wells" (*guozhuijing*). The county government subsequently held a countywide meeting to demarcate boundaries of wells between each commune.[79] The news of the caldron wells' success spread like wildfire among the cadres. The construction of the wells meant not only added input to the production process but also significant political merit for the village and communal cadres because it stabilized grain production when the river water dwindled. Given the shortage of chemical fertilizers in the oasis, one can even argue that the most prominent reason for increases in grain output in Minqin in the late 1960s was the utilization of mechanized wells. The technological sophistication to construct and maintain mechanized wells exceeded the capabilities of individual production teams. Instead, the communes established year-round well-drilling task forces that were also responsible for fixing the rudimentary mechanized tools. In this way, agricultural production in the oasis became more bureaucratized. The lower the

[79] *ibid*

groundwater level dropped, the more sophisticated well-drilling became, the more complex the organization of production developed, and the deeper the involvement of the bureaucracy.

The interests of the provincial government were crucial to the rapid adaptation of mechanical wells in the Shiyang River Watershed. Minqin's breakthrough was held as a shining example of the new socialist countryside by the provincial government. The utilization of mechanical wells in Minqin was praised as "being resolute in controlling agricultural production." The provincial government further commemorated the county cadres for "not fighting with upstream oases [to get water] and not dependent on nature's giving." (Zhang 1992:29) In 1971, the Wuwei District Revolutionary Commission stated,

> The Minqin experiences proved that as long as we…stay proactive in finding groundwater sources close to the surface and extract deeper groundwater in a rational manner, we will take charge of the force to conquer any natural disaster. Consequently, we will eliminate our dependency on nature. Within a year, we will increase grain output substantially.[80]

A few weeks later, the Wuwei county government sent all of its commune and production team cadres to Minqin learning the "advanced well drilling and irrigation technology".[81] For once, the "desert rats" became the models for everyone to emulate in the District. Engrossed in the midst of political purges of the Cultural Revolution, the "complete implementation of the 9th National People's Congress' decision" soon carried a cloak of ideological fervor in Gansu. The Wuwei District ordered its administered counties to drill as many wells as possible because the expanding extraction of groundwater symbolized the triumphs of the Dazhai spirit over the insidious plots of Liu Xiaoqi.[82] [83] In order to showcase their political loyalty to the revolutionary

[80] Wuwei District Revolutionary Committee 1971 #98
[81] Wuwei County Party Committee 1971 #23
[82] Reformist Chinese communist who served as the Chairman of PRC before the Cultural Revolution.
[83] Wuwei District Revolutionary Committee 1971 #20

factions, the county governments in the District raced to drill as many wells as fast as possible. In 1970, upstream Huang Yang district first mobilized more than 7000 peasants to participate in the "irrigation battle against the revisionists".[84] In early 1971, the District ordered lower-level governments to assign quotas of wells constructed to each production team to achieve the year-end goal of one well-irrigated *mu* for every peasant in the District.[85] In a separate administrative order, the District stipulated that every commune needed to devote at least 60% of its members to build district-wide hydraulics after September. In addition, each production team had to assign 10% of its labor force and food rationing solely to drill wells and build the supplementary irrigation ditches any given time of the year.[86] The cadres in Wuwei County boasted in 1971 that because of the 160 thousand mobilized peasants, the county would finish drilling 1000 shallow wells (*tujin*) and 400 mechanized wells in 18 months.[87] Not to be outdone, the Minqin County government and the People's Bank branch in Minqin co-issued a missive stating that: "the most important goal of governance was to mobilize enough peasants in the battle of irrigation. We will do everything to achieve the 1000 new mechanized well quota of 1973".[88] The mobilization to drill mechanized wells was so successful in Minqin that, when the county Revolutionary Commission asked the provincial government for funding to bolster the Hong Ai Shan dam in 1973, the deputy governor of Gansu, Xi Hen Hang, stated, " Minqin has so many wells, why do they need the river water anymore" (Zhang 1992)?

[84] Huang Yang District Revolutionary Committee 1970#75
[85] Wuwei District Revolutionary Committee 1971 #020
[86] Wuwei District Revolutionary Commission 1971 #96
[87] Wuwei County Revolutionary Production Commission 1971 #102
[88] Minqin Revolutionary Finance Commission 1973 #49

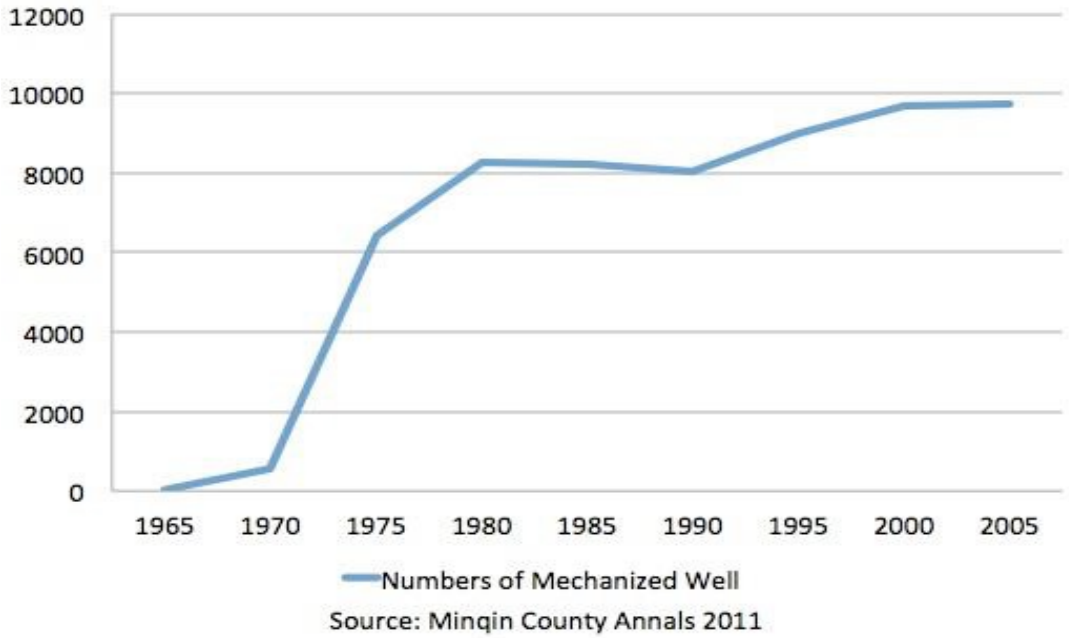

Figure 6 Numbers of Mechanized Wells in Minqin 1965-2005

The frantic pace to extract groundwater was only a major component of a larger movement to transform the rural landscape in the district. In the mid-1960s, Minqin County already began to alter the landscape under the banner of the "Socialist Five-Good Farm Projects" (*wu hao tian*).[89] The Five-Good projects planned to usher in modernity by changing the traditional, irregular-shaped plots to standardized rectangular farms (*tiao tian*).[90] For instance, the Shang Tang production team reported in 1971, "in a few years, we transformed three hundred plus fragmented small plots into thirty-six *tiao tians*, which constitute 84% of the total land in the village. With determination, we demonstrated the modern appearance of the new socialist countryside".[91] Regardless of the aesthetics of the modern bucolic scenery, records show that the

[89] The "Five-Good" refers to standardized plots, planed shelterbelts, supplementary ditches, electricity, and new village layouts.
[90] One tiaotian is usually 180-200 meters in length and 30-40 meters which equals to the size of 10 mu.
[91] Wuwei District Agricultural and Forestry Bureau 1971 #1

standardized farms were built to usher in mechanized agriculture to increase grain output.[92] As the 9th People's Congress established mechanization as a key policy in agriculture, political pressure increased for cadres in the Wuwei District, where only 16% of the arable land had been standardized. The new plan in 1971 called for achieving the standardization of all arable land in a few years.[93] Simultaneously, the rapid transformation of the rural landscape further eroded the last vestige of the pre-1949 land demarcations, which were, in actuality, the material testimonies of the myriad kinship and clan ties before the revolution. It was almost as, by changing the physical layout of the farms, the Party could permanently bureaucratize the amorphous social relations in the village into a rigid structure of production led by the Party's hierarchy.

Not surprisingly, transformation this large in scale and this convoluted in reach encountered much resistance from below. The District Revolutionary Commissioner stated in a public speech, "Many failed to recognize the importance of the Five-Good movement…They refused to change neither the irrigation ditches and practices nor the plots and demarcations. They execrated that if you change the physical layout of the land, you would have low crop yields for a decade".[94] The peasants were also resistant towards the "Greening the Motherland (*lv hua zu guo*)" campaign, which was started by Mao in 1958 and involved planting trees all throughout rural China.[95] After all, in the Minqin Folklore, the surrounding deserts, and seasonal sandstorms were the embodiment of the "Yellow Dragon." One could do all s/he could in tilling the land and plant trees, but all of that effort would be nil if the omnipotent Yellow Dragon decided to bury the villages.[96] Therefore, to mobilize the peasants, the cadres had to first turn the

[92] Wuwei District Agriculture and Forestry Bureau 1966 #8
[93] Wuwei County Agricultural Mechanization Bureau 1971 #1
[94] Wuwei District Agriculture and Forestry Bureau 1970 #92
[95] Wuwei County Revolutionary Commission Agricultural Bureau1970 #15
[96] People's Daily [1960] 2012

enchanted into the rational. The building of the new socialist countryside required the peasantry to subscribe the idea that natural resources, like their labor power, was only something calculable and explainable according to scientific principles. In this new era of rationality, neither traditions nor myths were usable in the calculated management of daily affairs. Since the perception of what constituted nature was refracted by the complex social relations embedded in the historicity of the oasis, the physical exertion to transform rural landscapes served the purpose to discipline both the peasantry and nature in accordance with the communist ideology. In this way, the new alternative modernity centered on the social relations construed by the Party bureaucracy (Li 2009). The Five Good Farm and irrigation projects were not only implemented to increase grain production, but, to a certain degree, they consittuted the bureaucracy's "symbolization of domination by demonstrations and enactment of power." (Scott 1990:45). As Chen Liu recalled,

> Many seniors regarded that the traditional plots and water-sharing customs as the percolated wisdom of our ancestors and they were secretly unnerved by the changes. My [the post-revolution] generation was more frustrated that we were always ordered to level land. All the digging and leveling created little in return for us, and we kept on wondering the cadres ordered these assignments just to deprive us any free time to engage in other activities.[97]

Yet, the wholesale transformation of such an immense empire carried an exorbitant price tag. Where would that money come from?

The Importance of Peitao

True to the Dazhai spirit, the cost of fighting the "irrigation and landscaping battles" was mostly delegated to the lower-level governments and the peasantry even though it was the CCP Central Committee, led by the Gang of Four, who first sounded the battle cry. The Wuwei District stated in 1971, "in terms of building the irrigation infrastructure; we need to implement the Central Committee's guideline, which stresses on local effort…and self-reliance of the

[97] Interview #92

production brigades and teams".[98] Even before the Dazhai movement, the cost of building and maintaining the hydraulic system in He-Xi had primarily been shouldered by the peasantry. In 1962, the Gansu Ministry of Water Works explained its rationale for collecting water fees as "…by extracting fees and materials from those who benefited, we can strengthen the maintenance of the irrigation system." The fee was set to be one *jin* of grain for every *mu* irrigated by river or spring water. The amount was added to the tax-in-kind quota of each production team, and the brigades kept 50% of the fee collected. The rest went to the coffer of the county irrigation office. Interestingly, no fee was collected for areas irrigated entirely by well water. [99] Given that, in the 1960s, most of the production brigades in Minqin operated on a deficit and had trouble to collect even the agricultural tax, it was not surprising that the water fee seldom materialized in the overall budgets of the lower-level governments. Worse, lower-level governments had to shoulder the added cost of mechanized farming since the bureaucratization of production had each commune to produce its own mechanized tools.[100] [101] As a result, once the "irrigation and landscaping battles" started in 1970, the county governments in the Wuwei District began to demand more and more corvée labor from the peasantry to offset the cost of well construction.[102] In many villages, the corvée duties reduced grain production, pressing the peasantry so much that the district government had to "…station special task forces in train depots to stop the blind flow of peasants before sending them to the Mao Ze Dong Thoughts Learning School in order to restore order of the community and rail traffic".[103] Contrary to the optimistic outlook on the effects of mechanization, the lower-level governments had to return

[98] Wuwei County Party Committee 1971 #20
[99] Gansu Ministry of Water Works 1962 #5
[100] Minqin County Revolutionary Production Commission Head Office 1975#9
[101] Minqin County Commerce Bureau 1976 #85
[102] Minqin County Revolutionary Commission Production Head Office 1971 #9
[103] Wuwei County Communist Party Committee 1971#14

more than 1.3 million *jin* of purchased grain and 660 thousand *jin* of water fee-in-kind to the communes lest the villagers died of starvation in 1971 (*ibid*). The district's endeavor to increase grain production already suffered its first setback within a year into the implementation of the 9th National People's Congress Guidelines.

Moreover, the expansion of mechanized wells severely strained the relations between different levels of government in the Wuwei District. In report after report, the Minqin and Wuwei counties complained loudly to the District and Provincial governments that their administered communes had no resources to build the ancillary facilities (*peitao*)-ditches or the diesel pumps/electric grid necessary for the wells to function. In Wuwei County, "of the 400 mechanized wells built in 1971, about 110 wells had no ancillary facilities".[104] The Minqin branch of the People's Bank of China sternly warned the communes that, to get investment for the mechanized wells, the lower-level governments needed to provide the funding for *peitao* so the investment given would become effective as soon as possible.[105] The lack of ancillary facilities became such a grave issue in the oasis that, in 1974, the county government hold a countywide mechanized wells *peitao* meeting to clearly separate fiscal obligations between the county, communes, the production brigades and teams (Minqin County Annals 1994:217). However, as the water table continued to drop, and the cost of mechanized wells continued to increase, the various polities in Minqin never reached a consensus on who should shoulder the expenses throughout the 1970s.[106] As the political purges wreaked havoc in the upper-level governments, the counties in the Shiyang River watershed relied more and more on direct

[104] Wuwei County Communist Party Committee 1971 #28
[105] People's Bank of China Minim County Branch/Minim County Revolutionary Finance Bureau 1973 #49
[106] Minqin County Commerce Bureau 1976 # 079, # 096, and #108

funding from the District to fulfill the political missions on well construction.[107] However, the lack of a market prevented the lower-level governments to purchase construction materials directly; instead, they had to wait for the District to assign the steel and concrete quotas, thereby significantly increased the cost of construction. By 1976, the subsidy provided by the District for the construction of *peitao* in Minqin already exceeded 4500 yuan per well at a time when one *jin* of grain cost only 0.176 yuan.[108] To pressure the production brigades and teams to cough out their shares of the overall cost, the county government stipulated that "the usage of well and *peitao* subsidies still need to follow the brigade and team self-reliance guidelines…more money will be given to brigades that open more wells than planned, and the brigades that fail to accomplish the well quotas will lose the subsidies" (*ibid*). Additionally, the production teams that failed to fulfill the required quotas suffered severe political consequences. A report from Shi Sheng Brigade stated,

> The brigade secretary believed that the peasants' failure reflected the struggle between two lines in the Dazhai movement. Even though the problems came from below, the causes were the conducts of production team leaders. Therefore, he initiated a meeting that brow-beat the blind arrogance and laziness of those cadres who failed to show the brave revolutionary spirits of the Dazhai warriors.[109]

The frequent quarrels between various levels of governance over expenses related to mechanized wells could be attributed to the collapse of the tax bureaucracy amid the chaos of the Cultural Revolution era. Once the initial wave of purges had passed, the Gansu provincial government attempted to regain its control over the revenue streams by requiring the lower-level governments turn in the full amount of tax collected. Starting in 1968, the lower-level governments in He-Xi had to relinquish their rights to hold on to their shares of the revenue;

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[107] Minqin County Revolutionary Finance Bureau Draught and Well Construction Office 1973#7
[108] Minqin County Taxation and Finance Bureau 1976 #110
[109] Gulang County Revolutionary Agricultural Production Investigation Report 1971

instead they had to request their budgetary expenses from their superiors. This approach ensured the Gansu provincial government could fulfill its tax obligation with the central government hence avoiding political retribution. However, it severely weakened the fiscal soundness of the lower-level governments. The Gansu provincial government soon realized its debilitated bureaucracy could not impose enough monitoring to avoid shirking at the local level (Li 1990). In the early 1970s, the central government decided to let provincial governments to keep all of the revenue (and be fully responsible for their operating cost) as long as they fulfill the tax quota to the center (Li 1990). Gansu, in turn, implemented the same fiscal structure to its administered areas while specifying that the provincial and lower-level governments would negotiate the division of extra-budgetary income every year. Though the ratio of revenue division stayed roughly the same (after the center's cut of 40-45%, the provincial took 25-30%, district 10%, and county 25%), the tax policies changed three more times before the installment of the Household Responsibility System. Consequently, there was the extremely low stability of fiscal relations between different levels of government, and the mercurial predatory behaviors of the center and provincial governments prohibited any resemblance of budget continuity at the lower-level (Li 1990). As a result, the lower the position was in the command chain, the more self-reliant the state agent had to be, and the more coercive and discretionary governance became.

In addition to the turmoil caused by the Cultural Revolution, another cause of the instability of fiscal relations was that the rigidity of the procurement system could not generate enough growth to support the weight of the bureaucracy. Levi (1988) states that the survival of every regime rests on the balance between its economic needs for the continuous supply of resources and its political desire to maintain order. In other words, the state has to maximize its extraction potential while at the same time, minimize the transaction cost of extraction (Levi

1981, Poulantzas 1980:269). Likewise, in building its extractive apparatus, the CCP had to weigh the contrasting demands of strengthening "the dictatorship of the proletarians" by putting every economic relations into the planned economy or increasing economic efficiency by letting other class and social interests to take a share of the pie. Mao apparently favored the former over the latter. That was why, even though the urban food supply had stabilized by the mid-1960s, the "Grain as Key Link" policies continued for almost another two decades. The Party's emphasis on grain production reduced its reliance on market forces, and the quota system freely exploited what, Seligman (1909), as cite in Tilly and Wood (2012:9) termed "the perceptual bias of taxation," to push for scissor-cuts in the planned economy.

Yet, by removing competition of other economic interests, the transaction cost of taxation ballooned as the regime had to build an exhaustive apparatus of extraction and exchange as well as paying the enormous costs of collectivization and mechanization. The tax codes became so convoluted that as early as the mid-1960s, the grain and tax bureaus in Gansu began to fight with each other over how and who should tax oil and food products derived from grain to the point that "it is hard to distinguish what can be exempted from taxes as every department has its own definition".[110] The tax and procurement bureaucracy became even more disorganized when the upper-level governments lost control of the planned economy amid waves of political purges.[111] The ensuing chaos further prevented the correct accounting of food and goods coupons at the provincial and district level.[112] As the central government printed more and more coupons to replace the missing circulation, the economic planners lost track of the real cost of production,

[110] Gansu Provincial Ministry of Grain 1965 #133
[111] Minqin County Bureau of Grain 1966 #145; Minqin County Revolutionary Resettlement Committee 1969 #11
[112] Minqin County Revolutionary Resettlement Committee 1969 #11; Minqin County Bureau of Grain 1975 #66; Minqin County Bureau of Grain 1966 #145

which then obfuscated the correct valuation of labor and natural resources. The wrong price signals from the center forced the lower-level governments to pay for out-of-plan productive inputs at a much-inflated rate and caused them to,

> not think about the cost nor accounting….because they could not fulfill their planned fiscal revenue and had to shoulder the deficit, they began to raise the prices of their products unilaterally, which greatly limited the national planning of price."[113]

To fulfill the rigid proposed production goals, local governance in Hexi soon became entangled in a vicious cycle of inflation and over-extraction, which further bankrupted the economic plans and hastened the disintegration of the national procurement and distribution system. Bartering soon emerged as the dominant means of economic transaction between different levels of governance.[114]

Thus, by the late 1960s, the Gansu provincial government began relying on the distribution of chemical fertilizers and industrial products to pay for the cash crop produced in the oasis. However, the county procurement cadres in Minqin often had to alter arbitrarily the amount and types of compensation to the peasants mid-year as the provincial prediction of factory productivity invaraibly faltered.[115] At the same time, the district and county governments in Wuwei had to invest more and more resources to engage in a cat and mouse game against those production teams who dared to obtain a more favorable compensation of their labor by bicycling produces to the county seats.[116] Lacking capital investment and human power to enforce the planned economy, strict ideological indoctrination became the only reliable

[113] Wuwei Prefecture Grain and Taxation Archives 1979 "Transcription of Duan Yun's speech in the northcentral, northwest, and northeast regional price conference".
[114] Minqin County Bureau of Finance 1961 #279, #653; Gansu Provincial Revolutionary Committee Production Head Office 1968 #245; Minqin County Bureau of Taxation and Finance 1975 #186
[115] Minim County Revolutionary Production Head office 1972#34
[116] Gansu Provincial Ministry of Finance 1961 #592; Gansu Provincial Ministry of Finance 1961 #695; Wuwei County Revolutionary Production Head Office 1971 #185

regulations on socio-economic behavior for out-of-sorts state agents. As stressed by the People's Daily (1972), "without the correct political standpoint, one simply does not have his soul. It is important to teach the production team members placing public interests before private ones (*xiang gong hou si*) (People's Daily Daily 1972). We are resolutely against peasants to engage in any commercial activities." Shi shared,

> KRM: As the brigade secretary in the 1970s, did you start any land reclamation project near Xuehe?
> Shi: You could not do anything without direct orders from the commune/county cadres. Anything without permission from the higher-ups was considered as capitalist-roading and was struggled against. After all, we could not even finish planting the plots in our village let along starting new projects. The ideological control were so strict that if it was discovered we used chemical fertilizer or planted cash crops on our preserved plots (*ziliudi*), we would be labelled as anti-revolutionaries. People had to find a way to sneak the fertilizer back home. [117]

Conclusion: the Faustian Bargain

In the first Regional Price Meeting since the early 1970s, the deputy minister of the National Planning Committee, Duan Yun, attributed the collapse of the economic plans to "the evil capitalist-roading Gang of Four" who, in their effort to build their sphere of patronage, arbitrarily raised prices and promoted free exchange of goods:[118]

> Once the equilibrium of price was established, the market mechanisms would bankrupt the economic plans and caused the nation to fall into anarchist conditions… Many *danweis* refused to implement the price set by the center but instead determine their prices. They even formed their alliance for bartering by setting a 'cooperative price' (*xie zuo jia ge*) for the preferred partners. In many districts, every level of governments added its own surcharges on the goods, which caused rapid inflation and severe discrepancies between the planned and market prices at the village level.[119]

Duan Yun acknowledged towards the end of the meeting that "though we recognize that we need to overhaul the pricing system, our nation simply does not have enough fiscal latitude and

[117] Interview #47
[118] Wuwei Prefecture Grain and Taxation Archives 1979
[119] Wuwei Prefecture Grain and Taxation Archives 1979 Transcription of Duan Yun's speech in the northcentral, northwest, and northeast regional price conference

resources to alter most of the unfair pricing at this point" (*ibid*). The center's decision to impose political control by monopolizing production and distribution created an economic system with high transactional cost and low efficiency. Further, since the center could only move the disorganized bureaucracy through mobilization based on ideology and that one's ideological purity could only be determined by those in close proximity, the exercise of power rapidly became constricted in localized social relations. Ironically, the bureaucratization of the proletarian dictatorship, in effect, turned the administrative hierarchy into thousands of independent fiefdoms constructed by millions of patron-client ties, which dramatically weakened state capacity and created what Ho (2003) described as the "general lawlessness of the Cultural Revolution Era."

In Minqin County, implementation of the central policies relied only on the annual "four-level cadre" meetings (*si gan hui*), during which lower level cadres from communes, production brigades, and teams would spent three days in the county guesthouse to recite the policies directives together (Qiu 2014). Other than the standard ritual of expressing loyalty to the dominant political faction in the center, every commune had to agree to the production goals set by the county government. However, "the calculations of land, labor, grain, and feed were thorough and detailed yet the numbers were either false or just plain fake. All of that effort was useless, and once the personnel and directives from the upper-level changed, everything [calculation] changed as well" (*ibid*). As pointed out by Libecap (1989) and Greif (2006), new institutions will emerge when prevailing ones lose their self-enforcing capacity and fail to generate economic benefits. The failure of the nationally planned economy made each bureau and levels of government to calculate its cost and benefits to ensure fiscal stability. In the Wuwei District, a decoupling of formal and informal institutions soon emerged over water resources. To

ensure their fiscal (thus, political) survival, throughout the Shi Yang Watershed, state agents in upstream settlements started to extract as much water as possible regardless the detrimental effects to the downstream oases.[120] The disintegration of the water-sharing agreement subsequently generated enormous rent-seeking opportunities for bureaucrats who had any authority, however remote, over water distribution. At the grassroots level, reports after reports described events such as "[redacted] village party members treated water work cadres to dinner so their villages had access to irrigation for four more hours than planned which generated strong protests from downstream villages and resulted in two armed conflicts, each involving more than 200 peasants".[121] These rents compounded with inflation and intensification of corvée labor crippled the fiscal stability of the production team. The Minqin Communist Party Committee bemoaned in 1978, "[the grassroots cadres] could not control spending related to debt interests, chemical fertilizer, and the cost of well water. The spending consumed all the agricultural funds and made the production teams powerless to pay back government loans and debts to their team members".[122] Further, "there was no way we could fulfill the grain extraction goals set by the center. It is hard to run agriculture, to be cadres, and to lead the peasants" (*ibid*).

In late 1978, the central government called the chief officer of the Minqin County Bureau of Forestry to Beijing and presented him the highest honor commemorating Minqin's effort to plant shelter belts stretching hundreds of kilometers from the oasis.[123] Absent from the minds of the Ministry of Forestry officials were what made the shelter belts possible, the countless hours of corvée labor, came from the same institutional arrangements that had slowly suffocated the

[120] Wuwei County Revolutionary Committee Production Head Office 1970 #20; Minqin County Revolutionary Committee 1971 #36; Minqin County Bureau of Water and Electricity 1977 #66
[121] Wuwei Revolutionary Production Head Office 1971 #127
[122] Minqin County Party Committee 1978 # 46
[123] Li Ke Xing 2002

material foundation of the proletarian dictatorship-the economic plans. As the cadres stood proudly on the platform thousands of kilometers away, agricultural production in the Minqin oasis decreased by more than 50% in 1978.[124] The mighty hydraulic empire finally buckled under its weight of success. Gone were also the social organization of the collective era which channeled human-nature relations through the political hierarchies of the communes and production brigades. When the gust of economic liberalization began to blow from the coast in the early 1980s, only the impenetrable material interests of the counter-bureaucracy remained standing in the oasis

[124] Minqin County Revolutionary Committee 1978 #13

Chapter 4 Enter the Empire

收税就是最大的政治-Taxation is the preeminent business of politics

Former Head of the Daba Township in Minqin

Most great story needs a heroic protagonist who, through devotion and willpower, not only achieves the impossible but also influences the lives of many others. Often, the heroes could do little to counter the hardship created by the adverse environment, yet their tragic defeats gave meaning to the mundane and affirm the existing norms and boundaries in a society. If we view Minqinese battle with desertification since 1949 as an epic story of human determination against nature's confinement, then Party Secretary Shi Shuzhu is undoubtedly the hero whose lifelong efforts to build shelter belts around his village has been revered by the locals and the state alike.[125] Born in 1938 to a poor family near Song-He village, a settlement right next to the Tengger Desert, Shi had a tough childhood as the encroaching sand dunes gradually destroyed the meager plots owned by his family. In 1952, his family had to relocate because their small hut was buried entirely during a sand storm. Merely a few years after the relocation, the new village was again under threat as the blowing wind removed the topsoil and fertility of the farmland. It was in this critical juncture, as the party secretary of the local Communist Youth League, Shi led the youths to plant shelterbelts around the villages. The early success promoted Shi to production brigade secretary at the age of 22. Starting in 1964, Shi led the villagers on numerous sand control projects. After 18 years of hard effort, these projects successfully turned the surrounding desert into a 22.5 km^2 collective woodland, which soon became an exemplar in state media (Yuan 2001).

[125] The Chinese Central T.V. made two documentaries on Shi's endeavor in 2001 and 2002. He also was awarded the provincial green forestry model and the 1995 and 2002 national model for forestry preservation.

In the Minqin idiom, sand control projects are called pressing the sand (*ya sha)*. The term is a literal description of the tactics used in the field before the 1990s. The mobilized peasants had to excavate clay manually from the riverbanks, transport it on mule carts, and pack it tightly onto the top of the targeted sand dunes. The added weight of the clay would temporarily halt the movement of the dunes, giving the peasants time to plant grass and shrubs in a diagonal, grid-like fashion (*cao fang ge*) to stabilize the sand. To avoid disrupting agricultural production, *ya sha* usually occurred in late fall and early spring, when the temperature hovered around -18 C in Minqin. Needless to say, without mechanical tools and sufficient grain rations, the physical exertion required in these sand control projects was immense. Shi naturally encountered many objections from his villagers. However, Shi's character garnered high esteem from his peers. Many people I interviewed recounted how Shi's charisma and fairness triumphed over doubts from below.[126] Shi was also a savvy political player in the regime, constantly using his connections to attract county and provincial funding for his production brigade (Sha 2001). He even used his political capital to protect irrigation and sand control technocrats in the tumultuous years of the Cultural Revolution. When I interviewed the 74-year-old retired cadre in his state-sponsored apartment in 2011, his political acuity still showed every time he adroitly spun my questions on the ecological destruction in Minqin to opportunities to generate more funding from the Chinese Academy of Sciences. It was no wonder reports after reports described, "No matter how hard the tasks were, the villagers of Song-He would always follow the deeds of their secretary" (Li and Zhen 1995). The 5500 *mu* of preserved grassland and 1500 *mu* of woodland surrounding the Song-He village stand as the "green memorial" of Shi's 47-year-long fight against the Tenggar desert.

[126] Interview #78

Shi's life story echoes many similar accounts of heroism in Minqin. Browsing through district and county newspapers,[127] one can discover almost every notable event in the Oasis' recent history came from the leadership of a particular village/brigade secretary. For example, the '70s land reclamation projects in Chang Sheng Township was directly tied to the dedication of Liu Xue Dong, and the industrialization of the Lake Zone in the mid-1980s could not be separated from the vision of Gao Zi An (Jiao 2013:36-54, Minqin Bureau of Propaganda 1993). Nevertheless, the seemly personal heroics of village cadres could not be separated from the historical contexts of the collective and early reform eras; the collective mode of production successfully eliminated any other interest groups in the oasis. The political dominance was reinforced by the state's monopoly on resource distribution and valuation of labor, which enabled the state's bureaucracy to penetrate into existing social relations. Since labor time and value were defined by the state, human-nature relations became mediated through the bureaucracy. As pointed out by Zhang,

> Before 1949, almost every village had a community forestry group (*chai hui*) which were based on local clans. The elders organized the building of the sand walls (*sha qiang*) and set rules to protect the surrounding shrubs. From the 1950s on, it was the village secretaries who organized conservation. Once we had the CCP, there was no need for other organizations. Our view of the surroundings (*zhou wei huan jin*) [nature] changed accordingly[128]

On the other hand, the commune system created little incentives for the peasants to fulfill their grain quotas. As a result, the bureaucracy had to rely on the village secretaries, who, in turn, had to utilize their kinship networks, to reduce shirking. Personal networks were also crucial for the village secretaries, as it helped them obtain the much needed subsidies from the bureaucracy.

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[127] I coded 20 years (1982-2002) of Wuwei Daily (Wuwei Ri Bao) in addition to all four years (1998-2002) of Minqin Daily published (Minqin Ri Bao).
[128] Interview #140

Subsequently, grassroots governance in Minqin became a hybrid of top-down commands enmeshed in the webs of personal allegiance and clan ties. Mao's hydraulic empire in Hexi was, in fact, supported by a loose foundation of grits (production brigades) coalesced by grain and statue labor quotas. During the 1970s, a chasm of material interests between county and commune/village cadres began to emerge as the bureaucracy lost its control on the planned economy. When the de-revolution of the communist system began to hasten the retreat of the state in the 1980s, new forms of taxation and procurement were created to maintain the extractive function of the bureaucracy. The legacy of the hybrid authority soon ushered in the era of local corporatism and rapid ecological destruction in Minqin.

Capitalist Roading

Though the Gang of Four met its demise in 1976, the Chinese countryside was still mired in the rigidity of the planned economy. Lacking, support from the military, Hua Guo Feng had to start another ideological battle in order to assert his authority over the fragmented bureaucracy. In Minqin, the years between the death of Mao and the collapse of the communes were marked with economic stagnation and a great degree of uncertainty. In 1976 and 1977 the central government, under Hua's leadership, pushed for another round of the Dazhai movement. Nevertheless, the collective system was already on its deathbed. No amount of mobilization and revolutionary slogans could resuscitate the fervor of the peasants and lower-level cadres. Though the slogans were as resolute as before, not much progress was accomplished in the oasis as the commune and brigade cadres could provide little incentives nor impose enough sanctions to the peasantry.[129] An investigation led by the District Party Committee discovered,

> Some state agencies unfairly shifted the cost of irrigation, infrastructure, and education to the production teams. The county, commune, and brigade generated 643,653 unpaid

[129] Interview #41

> work-units, which was equal to 63.8% of the total work-unit recorded by all production teams [in Minqin] in 1977. The total cost of these projects was 636,555 RMB, which equal to 86 yuan per person and was exactly the entire income of each peasant in 1977. Production team members were livid and expressed that "though the cadres described the great benefits of the movement, we could not shoulder the exploitation by each administrative level. If the exploitation stay the same, "agricultural development" will stay an empty phrase.[130]

However, in its report to the District Party Committee, the county bureaucrats still attributed the rapid decline in grain production to the "rampant pollution of capitalism," which lured peasants to various sideline productions.[131] Worse, since the first mechanical well was opened in 1974, the dependency on the aquifer had grown significantly, as inflow of the Shiyang River continued to dwindle.

Table 7 Inflow to Hong Ai Shan Dam by Decade

Unit: 100 Million Cubic Meters

Year	1956-1959	1960-1969	1970-1979	1980-1989	1990-2000	2001-2005
Annual Inflow	4.6	3.74	2.84	2.06	1.47	0.98

Source: Gansu Provincial Development and Reform Committee 2007

The lake zone in Minqin started to suffer severe and continuous drought.[132] The declining production caused debts to the county to increase rapidly. In 1978, the Minqin branch of the China Agricultural Bank could only recover less than 30% of the overdue loan.[133] Under the pressure from the county, commune cadres had to use all available agricultural funds to pay back the interests, further shortcutting well and irrigation maintenance.[134] To survive, production teams in the Minqin and Wuwei Oases began opening wells in the vicinity of their villages

[130] Minqin Communist Party Committee 1978#26
[131] Minqin Communist Party Committee 1978 #34
[132] Minqin County Bureau of Agriculture 1981 #120
[133] Minqin Communist Party Committee 1978 #40
[134] Minqin County Bureau of Finance 1981#195

irrespective of the demarcations established by the county government.[135] The overlapping boundaries of extraction caused continuous conflicts between villages, as well as between peasants and collective farms owned by the Gansu province.[136] The county government's adjudication had limited effects, as the inter-village conflicts slowly ate away the facade of the collective system.

Below the surface of stagnation, however, was the undercurrent of change. Even during Hua's rein, in 1977, the Chinese government already started to encourage the establishment of commune/village enterprises (*she dui qi ye*).[137] These rural enterprises were aimed to lessen the regional production gap of the inefficient state-owned industries (Naughton 1999). They were controlled closely by the local county, yet gradually became a major source of rural economic growth in the 1980s (Huang 2008). A year later, in the Third Plenum of the CCP's 18th Chinese Communist Party Congress, Deng Xiao Ping with the backing of the military and the reformers, soundly defeated the Maoist faction and ousted Hua from power. Soon after, the central committee passed the landmark No. 37 resolution returning the autonomy of daily production to peasant organized groups, which, in effect, started the de-revolution of the Chinese collectivist system.[138] By the time the wind of change reached Minqin in late 1978, the county bureaucrats were caught off-guard. "Merely a few weeks ago, we were writing missives ordering the production brigade cadres to watch for capitalist-roading peasants ruining the revolutionary spirits. Now, we need to make a bad village in collective economy (*jiti jinji*) a model (*yang ban*) for everyone".[139] Lacking precedents, in the rush of policy implementation, the county ordered

[135] Wuwei Dstrict Bureau of Water and Electricity 1979 #30
[136] Wuwei District Administrative Office 1979 #134
[137] Minqin Communist Party Committee 1977 #21
[138] Chinese Communist Party Central Committee 1977 #37
[139] Interview #63

the production teams to self-divide into groups based on the relative locations to wells utilized.[140] This decision inadvertently marked the first time that village social organization in the oasis became divorced from river irrigation; the "green revolution" of deep bore wells had altered productive relations. Symbolically, from this point on, the peasants in Minqin were no longer like their forefathers whose livelihoods were tied to the Shiyang River and its subsequent social organization (clan or collective). The new generation of Minqinese could traverse and produce as far as technology and capital took them.

To be clear, up until the late 1980s, there was sufficient well water to support agricultural production in Minqin. The rapidly declining grain output in the 1970s had more to do with the failure of the overall fiscal structure than any natural calamity. The Party Secretary of the Dongzhen Commune stated,

> Our commune always had steady increase in grain output, and overall life quality slowly improved as well. At its highest point, the reserve grain of our commune was 1.78 million *jin*… However, in the last couple of years, the more increase we had in grain production, the higher our grain quota became, which depleted our grain reserve and severely damaged people's willingness to produce...From 1965 to 1976, our grain quota increased by more than 10 times but the grain ration of each peasant decreased every year. In 1977 and 1978, grain production dropped rapidly, and the per person grain ration dropped to 376 *jin* a year. Once we subtracted 1 million *jin* owned to the county, each peasant only had around 300 *jin* of grain to survive for a year… Because of this [over-extraction], people could only maintain a very low standard of living[141]

Thus, by 1978 in Minqin, the collective system could no longer increase extraction in the oasis when the social control mechanisms built into the hydraulic system started to disappear with the dwindling inflow of the Shi Yang River. As North (2005) points out, new institutions tend to emerge when the prevailing ones lose their self-enforcing capacity and can no longer generate economic benefits because of changes in technology or organization. In other words, the

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[16] Minqin Communist Party Committee 1979 #21
[141] Minqin Communist Party Committee 1979 #10

increasing reliance on deep-bore wells was bound to transform productive relations in Minqin; the implementation of Resolution No. 37 only sped up the process. Nevertheless, the inertia of organizational beliefs could thwart the development of new institutions even if they offer more economic efficiency (Libecap 1989). The initial reforms in Minqin likewise encountered resistance from cadres and peasants alike.[142] Contrary to the wide and jubilant acceptance described in the county policy papers[143], the great majority of my interviewees remembered widespread suspicion as they vividly remembered how the slightest infraction of the party line could cause severe punishment during the Cultural Revolution.[144] The peasants' hesitation was based on practical economic concerns as well. Years of deprivation had incapacitated capital accumulation, and there were simply not enough production tools to be shared by the newly divided groups. Moreover, two decades of cultivation organized by administrative commands had destroyed the customary ties that supported the myriad activities crucial to farming in the semi-arid climate. Eighty two year-old Jiang fittingly described, "Initially, the younger generation did not know how to coordinate with each other without the curses from the village secretary's loudspeaker".[145] In addition, the division of production teams also damaged the established interests in the villages as the awarding of work-units were tied to the tasks completed and amount harvested instead of class and gender statuses, which made the relatives of cadres lose their political privileges[146] The new management by task quota (*ding er guan li*) system also

weakened the authority of brigade secretaries and team leaders because they no longer could

[142] Minqin Communist Party 1978 #27
[143] Minqin Communist Party 1979 #26
[144] Interview #9
[145] Interview #36
[146] Minqin Communist Party 1979#34

single-handily determine the valuation and timing of labor.[147] With the patron-client relations in grassroots governance on the wane, agricultural production and the value of each work-unit started to rebound in the fall of 1979.[148] Similar successes across China prompted the central government to continue its push for economic liberalization in the countryside. In Minqin, the reform soon altered the organization of productive relations and, consequently, the cadres and peasantry's relation to nature.

Grassroots Cadres

If, as Knight and North (1997) point out, institutions are sets of rules which structure the strategic choices of social actors by providing information and sanctions, then it can be argued that the transformation of institutions invariably involves the redefinition of social statuses and the material interests associated with each social-political role. From 1979 to 1985, in less than six years, rural governance in Minqin experienced the dissolution of the work-points system, the implosion of communes, and the re-establishment of a rudimentary market economy. Subsequently, the roles of grassroots state agents changed as well. Gone were the days when the production brigade and team leaders acted only as the task managers of a planned economy. In the era of new norms, rules, and complex division of labor, the (administrative) village secretaries and production team (or after 1984, the natural village) leaders needed to play three roles simultaneously. They first were the facilitators of institutional transformation, using their political savvy and connections to ensure the implementation of new rules. Starting in 1979, the Minqin County government imposed a series of new rules which increased resource utilization yet, unintentionally, hastened the demise of the commune system. For example, the water permit laws of 1979 and 1981 attempted to assert the state's authority in charging for well water

[147] Minqin Communist Party 1979 #37
[148] Minqin Communist Party 1979 #25 and #31

extraction.[149] Nevertheless, the new regulation exposed the state's inability to monitor the situation in a constant and effective manner. The 1981 Shelter Belt Conservation Regulation prohibited land reclamation and grazing in village shelterbelts but the ensuing confusion over land demarcation forced the county government to re-affirm villages' ownership of collective woodlands in 1982.[150] The 1984 decision of the CCP Central Committee to establish the category of "wasteland" nullified the legality of Minqin County's forest and grassland conservation regulations.[151] As the absolute state retreated, the grassroots cadres needed to protect the villagers from the unreasonable demands of the higher-ups (Sui 1989). They also had to jockey for the county funding as the "vertical relations of command- in which the state unilaterally controls production, resources, and pay scales" gradually dissolved (Unger 1989).

The cadres were also the arbitrators of resource division. The development of institutions happens because of conflicts over the distribution of surplus (North 1997). The goals of early reforms changed rapidly from "uniform cultivation" in 1979 to "submit to state's cut first, then keep the seeding for the collectives, and the rest would be the peasants" in 1983, to "market economy, open choice, and gradual development" in 1985.[152] To promote rural growth, the central government first increased the procurement price for grain in 1981 and eventually ended compulsory grain quotas in 1985 (Kung 1992). Correspondingly, in Minqin, annual grain output increased, in average, 8.4% from 1980 to 1984. Moreover, the county tax revenue increased from 35.89 million yuan in 1980 to 72.45 million yuan in 1985. As a result, the fair division of village land became the most important duty of the secretaries. At the beginning of the Household

[149] Minqin County Government 1979 #6 and 1981 #12
[150] Minqin County Government 1981 #9 and 1982 #25
[151] Chinese Communist Party Central Committee's Notification on Agricultural Work 1984
[152] 1979: tong yi zhong zhi; 1983: xian jiao guo jia de, liu zhu jiti de (zhong liang); 1985: shi chang jin ji, zi you zhong zhi, zhu bu fa zhan.

Responsibility System, the peasants would divide village plots into three grades based on soil fertility. Each household would have one plot from each grade for a year. Even after the 1984 law extended the leases to 15 years, the great majority of the villages I interviewed would still adjust lease contracts according to changes in household sizes every 2 to 3 years. In addition, the villages usually kept 5 to 8 % of the total village land as backups for annual adjustments. Since what constitutes property rights in China had always subject to interpretation, the rapid pace of the early reform opened up much space for grassroots cadres to develop and pursue local adaptations (*tu zheng ce*). The "deliberate institutional ambiguity" in reality empowered grassroots cadres' capability to arbitrate village disputes (Ho 2001). Different from Jowitt (1983) "lifeless mask of heroic vanguardism," these local adaptations allowed the cadres and peasants to circumvent ideological battles generated by tensions with the retreating absolute state. For example, a few weeks after the conclusion of the third plenum of the 1978 Party Congress, Da Ba village in Xiqu Commune already began to reward production with cash incentives.[153] Half a year later, Hong Shen village in Dong Zheng Commune decided to delegate sheep raising to each household in addition to implementing work-unit incentives for quarterly weigh-ins.[154] Yong Feng village's October report on the "individual incentives of cash crop cultivation" prompted the Minqin government to assign cash crop production to individual households in December 1979, three years ahead of the central government's *da bao gan* policy.[155] The improved efficiency and valuation of labor elevated the cadres' standing in the village immensely,[156] which set the stage for their third role: entrepreneurs of land reclamation.

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[153] Minqin Communist Party 1978 #43
[154] Minqin Communist Party 1979 #10
[155] Minqin Communist Party 1979 #20 and #37
[156] Minqin Communist Party 1979 #31 and #40

The changes in procurement price in the early 80s encouraged peasants to expand grain production. Ironically, within a few months of the 1984 "Wasteland Conservation" law, most villages in Minqin began clearing out the collective woodland they so meticulously protected during the Collective Era.[157] Lacking capital and mechanized tools, peasants in the same village had to pool resources and work together to reclaim land. As such, the village secretaries and production leaders not only had to coordinate joint labor, they also needed to balance the varied interests and demands of the peasants. Since, the majority of the water used for irrigation came from mechanized wells, dug and maintained by villagers, the authority of the grassroots cadres became simultaneously constrained and enabled by their personal bonds with the peasants. In other words, the village secretaries' power relied more and more on interpersonal and interfamilial relationships and became "paternalistic" (Womack 1991). For example, Zhu recalled early land reclamation in Tian Bin village as,

> Zhu: Roughly around 84 and 85, the production team held a meeting to discuss whether to open up land around the village. Back then, land reclamation was done by the whole village. Once the team met and decided on an area suitable for reclamation, every household would have a piece.
> KRM: How did the village meetings divide up the new plots?
> Zhu: It depended on the size of each household. For example, if you have five people in the household, your family would receive five shares. The team would work mark the plots in advance, and everybody work together to level the land. *Every household would have their shares of the new land* (emphasis added by the author).
> KRM: Did the villagers have mechanized tools? Did you need to pay a tax on the newly acquired plots?
> Zhu: No, it was all done manually. The agricultural tax was based on the size of the household, not by the plots you leased. So, the government did not even bother to regulate.
> KRM: So, would you ask the government to interfere if there was any conflict in setting up the plot boundaries between villages?

[157] Interview #81

> Zhu: There was no need. Once you open up a plot, everyone in the surrounding villages would respect that. After all, *most of the boundaries were first set up by our ancestors* (emphasis added by the author).[158]

Zhu's answers showcase the re-emergence of tradition and clan identities as factors in resource allocation during the early years of reform. In this context, every interaction becomes a part of a continuing series of exchanges (White 1989). The expectation of continuity stabilizes "the social group and its environment" because it reduces the likelihood for social actors to exploit long-term sustainability for short-term gains (Dietz et al. 2003). It was no wonder that most of my interviewees recalled the early reform period as a time of fair growth, and in many cases, the village secretaries could still mobilize enough peasants to maintain (even expand) the shelterbelts.[159] From 1979 to 1984, though the inflow to Minqin continued to decrease, the number of deep bore wells and actual irrigated area did not increase significantly (See Chapter 3 Graph 1 and 2). From the establishment of production groups in 1979 to the implementation of the Household Responsibility System in 1982 and the collapse of the commune system in 1983, every policy change in Minqin involved the reinterpretation of productive and social relations and was, in effect, a reconceptualization of state-society relations realized through a series of compromises between established habits of social control and improved efficiency in production. This institutional equilibrium was achieved through the re-emergence of paternalist relationships in the village networks and subsequently, in the actualization of grassroots governance. Yet, the "growing out of plan" nature of the post-1978 reform and the constant struggle in the center-local fiscal relations would turn grassroots state agents in Minqin into the foot soldiers of a growth-machine.

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[158] Interview #117
[159] Wuwei Ri Bao "Conservation and Village Spirit"1984 October 7

Three Western Zone Migration

Before the Great Western Development Project in the 2000s, the most important state-led development drive in northwestern China was the Three Western Zone Migration and Development Project [hereafter San-Xi Project], which lasted from 1983 to 2012. In all, more than 1.6 million people were relocated from eastern Gansu (*din xi*) and southern Ningxia (*xi hai gu*) to the Hexi- Corridor (Xinhua News 2012). The thirty-year project was the first regional poverty alleviation effort in China and was also the first World Bank-sponsored development initiative in China (Li 1993:69). In 1982, the western part of the Loess Plateau experienced the worst drought in history, and close to 2 million peasants in the region ran out of food (Mei 2000). The chair of the State Council's Agricultural Development Committee, Wang Li, visited the region, and was shocked by the profound poverty he witnessed. More than 75% of peasants in Dingxi lived below China's poverty line, which was only half of the standards set by the United Nations (Zhang 1994). In 1983, scholars from the Food and Agricultural Organization of the United Nations determined the arid ecology of the San-Xi region to be "unfit for human inhabitance" (Li 1991). Worse, from 1952 to 1982, the average frequency of severe drought in the region increased from every 4 years to 1.4 years (Ge 1993:5). The San-Xi region had been a major headache for provincial bureaucrats in Gansu and Ningxia as well. "The peasants there relied on relief grains (*fan xiao liang*) every year, which was a major drain on provincial financial resources. They would beg *en masse* in Lanzhou and Xi'an, which generated much social unrest".[160] Thus, the State Council of China decided to invest heavily to promote migration to the Hexi Corridor. According to the National Poverty Alleviation and Development Office, the Hexi Corridor had three major advantages over other regions in China: cultivable

[160] Interview #38

land, long daylight hours, and most importantly, ample water resources (Li 1993:18). The project planned to reclaim 5 million *mu* wasteland in addition to developing 100 million *mu* of grassland for grazing in Hexi. Regarding infrastructure, the project would expand an additional 4 million *mu* of irrigated plots, which would increase the total grain output of Hexi to 6 billion *jin* by 1992. Hexi would support the "Shipping Western Grain East" initiative (*xi liang dong yun*) by providing 2.5 billion *jin* of commodity grain to prefectures on the Loess Plateau (66). As such, "Hexi's current labor force is not enough to achieve this goal, we will need to move at least 200 thousand peasants in a few years" (57).

To receive the direct fiscal transfer from the central government, the local governments in Hexi had to pledge matching grants. Also, "all investment received had to prioritize irrigation and agricultural electricity projects. The migration settlement zones would receive first consideration of poverty-alleviation grants from the central and provincial government" (Ge 1991:47). The communist state learned from the playbook of the Qin Dynasty as well: "Every migrant would receive 300 RMB and lumber to construct their houses. All newly settled land would be exempted from agricultural tax, agricultural specialty tax, village-township surcharges until three to five years after the migrants produce any surplus grain".[161] Moreover, the Gansu provincial government gave prioritized credit lines in addition to short term loans to encourage the construction of deep-bore wells and supplementary ditches (Feng 2006). The state-led development project was successful. Within a decade, the poverty rate in eastern Gansu dropped to around 10 %, and, by 1994, Hexi was already producing more than 7 billion *jin* of commodity grain every year (Tong and Wang 1994, Zhao 2015). To be noted, most of the migration went to Zhangye and Jiuquan prefectures in the western parts of the Corridor. Minqin only placed less

[161] National Poverty-Alleviation and Development Leadership Committee 1991 #10

than a thousand migrants on the provincial farm in Cai Qi, and the San-Xi grants were used to improve rural infrastructure, forest preservation and anti-desertification projects in the oasis.[162] Though the population density in the oasis did not increase substantially, the San Xi Migration still profoundly impacted the oasis ecology. The insatiable desire for commodity grain made the peasantry in Minqin drastically expand wheat production, exhausting the diminishing water resources and soil fertility. Once unleashed, the flow of migration exceeded the state's regulating capacity and caused unplanned ecological degradation in the He-Xi Corridor (Zhao 2007). Moreover, before the San-Xi Project, Minqin directed most of the agricultural development fund to support its Township and Village Enterprises (TVE) to increase its prospective tax base. [163] However, since its grants and loans were earmarked only for irrigation and electric grid construction, the San-Xi Project unintentionally depleted the Center's funding to other poverty-alleviation projects in Minqin.

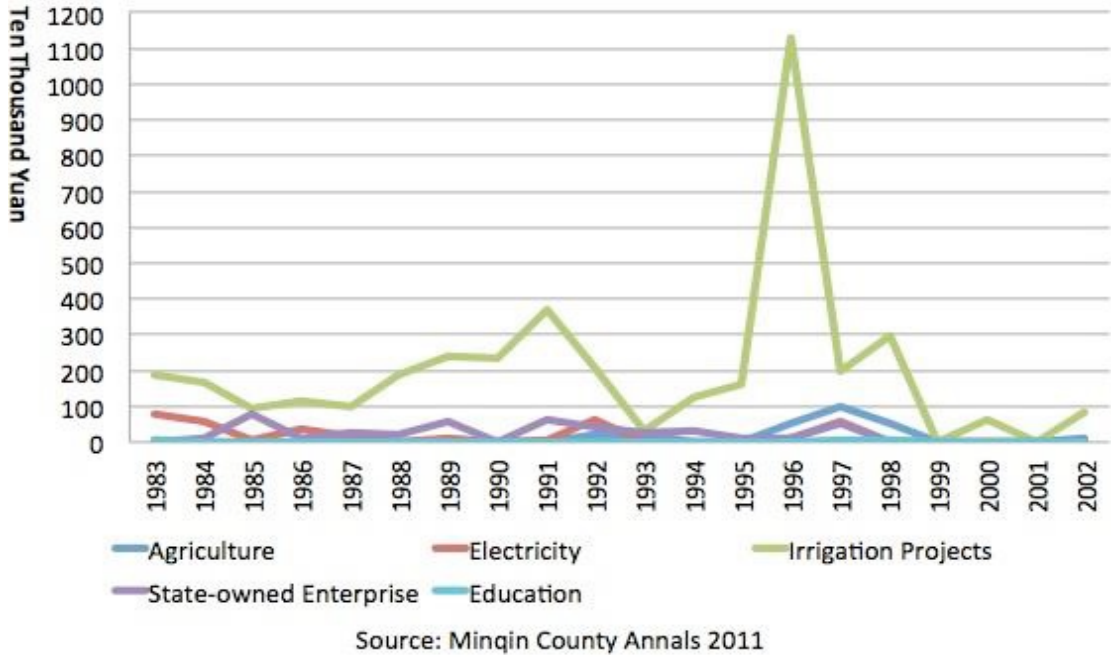

Figure 7 Changes in Poverty-Alleviation Subsidies to Minqin County 1983 to 2002

[162] Interview #97
[163] Minqin County Bureau of Finance 1982 #4

Receiving little support to improve the human capital and technological skills of the peasantry, the Minqin County government could only depend on the expansion of cash crop cultivation and the establishment of large county-owned enterprises to generate revenue for the San-Xi Project matching funds. For the next twenty years, this misplaced focus skewed Minqin's development trajectory and eventually torn asunder the fiscal soundness of the county.

Tax Reform in the 1980s

The development of local adaptations (*tu zhen ce*) in Minqin happened coincidentally with the rapid change of fiscal relations between the central and Gansu provincial governments. Though the harsh ecology limited its agricultural development, Gansu had always ranked high in total provincial revenue during the Collective Era. Wary of the impending invasion of foreign imperialists and domestic class enemies, Mao started the Third-Line Construction Initiative in 1964, which relocated much of China's heavy industry plants to interior provinces. By 1980, the communist state had invested 20.5 trillion RMB and transferred more than 4 million industrial workers to the Chinese hinterland (Wang 2008). Rich in mineral resources, Gansu benefited tremendously from the investment which had financed the construction of 4 industrial projects/cities in addition to numerous mines throughout the province.[164] The proceeds of these SOEs were shared equally between the central and provincial governments. During the 1970s, the SOE revenues constituted the majority of Gansu's tax return to the central government and were critical to the fiscal soundness of the provincial budget.

[164] These heavy industry enterprises/cities were Lanzhou Petroleum Refinery, Jiuquan Steel, Jinchang Nickel Refinery, and Baiying Copper and Coke Refinery.

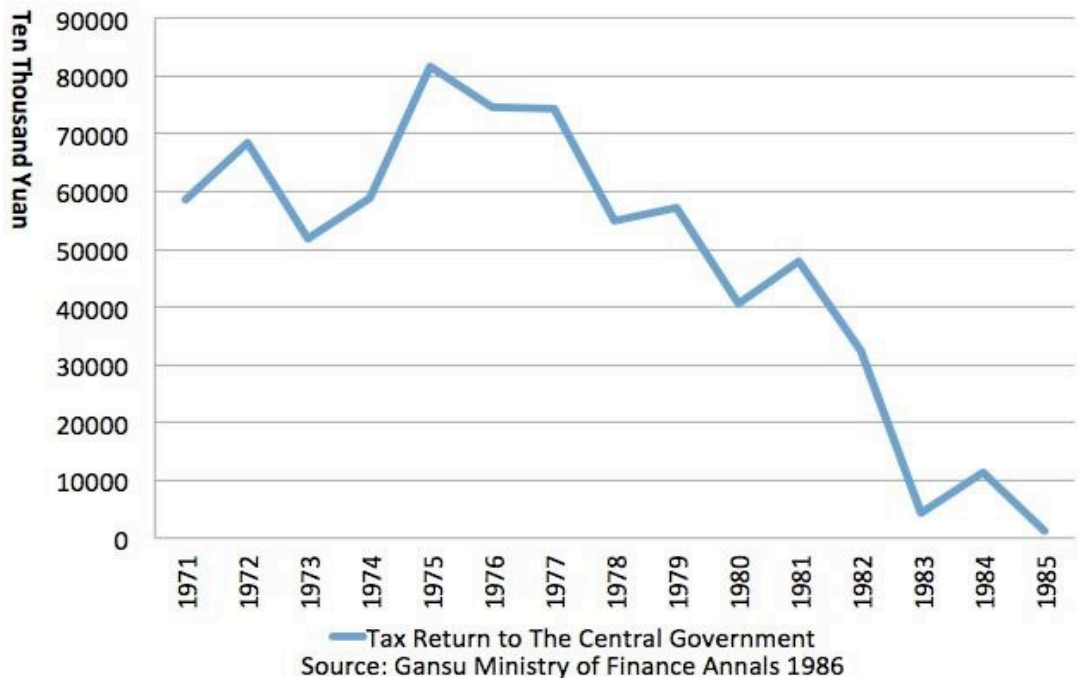

Figure 8 Gansu Provincial Tax Return to the Central Government

However, in 1981, the central government made these enterprises centrally-owned, and Gansu lost the majority of its industrial tax base (Gansu Local History Editorial Board 1990). Gansu immediately faced a fiscal crisis.

To compensate for the lost revenue, the provincial government increased extraction from its counties which led the local government to expand cash crop production.[165] This was a marked transition in the local governments' attitude to cash cropping during the collective era. In the 1960s and 70s, cash cropping was viewed as a hindrance to local self-reliance because it diverted labor from grain production. The local state agents had no incentives to increase cash crop cultivation because the quotas were used to earn foreign reserve and to support the national industry. For example, in 1978, the Gansu provincial government ordered the Wuwei District to increase the production of watermelon seeds for the export market in Hong Kong. Minqin was instructed to turn in 50% of the harvest to state-owned export companies in the district and 40%

[165] Minqin County Bureau of Finance and Taxation 1983 #21

to other provinces to fulfill the economic plan. The production teams could only keep 10% of the harvest for seeding in the coming year.[166] The central and provincial governments often had to use political sanctions to coerce local state agents to increase production. A 1972 order for Wuwei to increase wool production for export stated, "This mission was connected to Chairman Mao's revolutionary diplomacy. It will support world revolution and accelerate socialist development domestically. Its success is a crucial political mission for all involved".[167] However, in the early 1980s, the Minqin county government began to arbitrarily push the peasants to plant sugar beets. The beets were transported to the provincial-owned sugar mill in Huang Yang Township of Wuwei to pay for tax obligations. The county bureaucrats soon discovered how lucrative sugar was in the post-1978 dual-track pricing system and ordered the peasants to forgo crop rotation.[168] As a result, the soil fertility was exhausted rapidly, and, in 1984, Minqin's sugar beet crop was annihilated by *Rhizoctonia solanibecause* infection (Minqin County Annals 1994:332). As the inflow of Shiyang River continued to decrease, the downstream Lake Zone townships had to rely solely on well water for irrigation, which caused widespread top soil alkalization.[169] To survive, the peasants had to expand production to previously uncultivated land. Reclamation from the surrounding desert became the only option for the county to maintain its revenue streams.

Around the same time, the collective system (*da ji ti*) officially ended when towns and townships replaced communes as the basic unit of the bureaucracy.[170] Since the Household Responsibility System significantly reduced the grassroots cadres' role in the valuation of labor,

[166] Minqin County Bureau of Grain 1978 #23
[167] Wuwei District Revolutionary and Production Head Office 1972 #307
[168] Minqin Communist Party 1981 #24
[169] Minqin County Bureau of Finance 1984 #156
[170] Village secretaries are generally from the peasants and though they receive salaries from the state, they are not considered as members of the bureaucracy (gong wu yuan).

the assignment of work-unit and grain quota in economic plans became obsolete. On the one hand, the retreat of the central government from the management of local economy improved the efficiency of decision-making and drastically reduced its administrative cost. On the other, to stay competitive in the global economy, the center had to rapidly accumulate capital to upgrade its aging SOEs. Instead of rebuilding the collective extractive apparatus, the central government decided to sign fiscal contracts with provincial governments and use the parastatal procurement and marketing agencies to control the distribution of resources (Rozelle, Park, Huang et al. 2000). Lacking revenue, the Gansu provincial government, in turn, signed fiscal contracts with its county government.[171] In this system, lower-level governments acted as tax farmers for the bureaucrats immediately above them and were given a bonus if the tax extracted surpass the agreed amount between the two.[172] However, in the new system, the responsibilities to provide public goods were placed on the shoulders of the county governments which were responsible for their own annual expenditures.[173] As a result, each unit of the local state had to figure out a way to become self-sustaining and increase its contribution to the county coffers. The development of tax farming in the mid-1980s negatively affected the proper functioning of governance at the county level.

A major cause of the county's fiscal pressure came from the *"tiao tiao kuai kuai*" of the Chinese bureaucracy. The development of "*tiao tiao kuai kuai*" came from the compromise of governance during the collective era when the central government lacked the funding to support the bureaucracy (Pang 1983). Though the CCP aspired to form a totalitarian regime which would "impose rational management over social life by means of complex organization" and make the

[171] Minqin County Bureau of Taxation 1983 # 8
[172] Minqin County Bureau of Finance 1984 #16
[173] Minqin County Bureau of Finance 1983 #31

state as “one single bureaucratic system extended over the entire society,” the bureaucratic structure established was actually “the mirror image of the rational bureaucracy” as proposed by Weber (U 2007:6-9). As stated by U (2007:3), “CCP established multiple hierarchies of authority, status, and income as well as a labor force of poor skills subject to intrusive and arbitrary disciplines.” In this system, the daily operation of lower-level bureaus and agencies are under the leadership of both the vertical and horizontal chains of command.

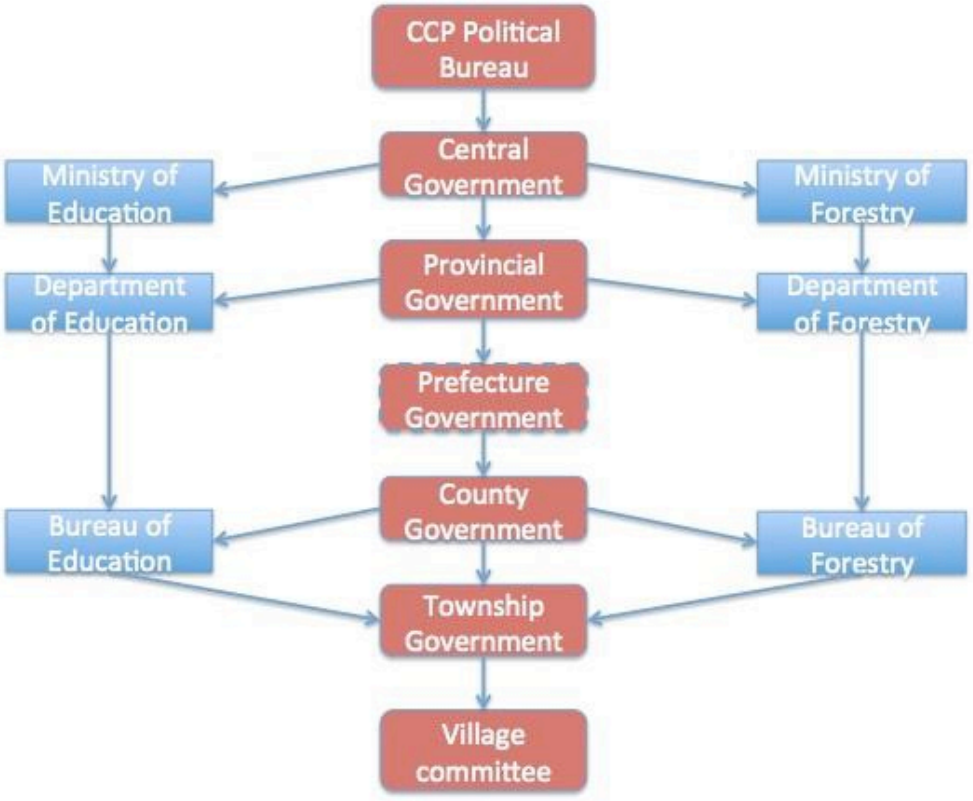

Figure 9 Counter Bureaucracy

For example, the head of the Forestry Bureau of Minqin reports to the Minqin County party secretary as well as the Gansu Department of Forestry. The county creates the budget to support daily administration of the bureau, and the provincial department provides fiscal payments to support the implementation of specific policies. As the center continued to retreat from local affairs, the lower-level state agencies in Minqin were fiscally abandoned by both the provincial

and county funding sources. In 1979, the Bureau of Forestry in Minqin were instructed by the county to find their own revenues to support the cost of administration (*zi qiu ping heng*) and in 1982, the county started to request a fiscal tribute from these administrative units (Minqin County Annals 1994:211). The Bureau of Forestry had to lease out 900 *mu* of conservation areas to generate cash, which constituted 90.4% of its revenue by 1985 (217). In a meeting of provincial taxation cadres, the provincial Ministry of Finance bureaucrats stated "Based on the policies from the central government, we destroyed the stereotypes that the administration of finance was only about receipts and pay-outs by putting the growth of agricultural production as the priority. We will insist on pushing for growth finance (*shen cheng cai zheng*)".[174] Minqin's representative proclaimed in the meeting, "we have uniformly outsourced (*bao gan*) fiscal responsibility to lower-level administrative units, and more than 90% of them kept the outsource quotas" (*ibid*). Soon, the county government began to demarcate "wasteland" boundaries for all of its administrative units so they could lease the reclaimed land either to peasants in surrounding villages or directly to employees (*zhi zhong*). In 1987, the Wuwei Prefecture Bureau of Forestry told the lower-level cadres,

> There are term limits for the heads of the forestry station, usually 3 to 5 years. In order to continue their terms, the station heads have to fulfill their responsibilities which are the major evaluation criteria for job performance…The Responsibility system can be implemented in three ways: 1) a 3-5 year lease to individuals who fulfill annual profit quotas and are responsible for production costs; 2) a yearly lease with the production quotas tied to rewards; or 3) a direct lease to groups in the station, again with rewards and fines-No matter which way is chosen, the station head needs to insist on upholding the socialist principles and properly deal with the relations between the state, the collective, and the individual-The stations [hence the administrative units] will keep at least 60 to 70% of the total revenue.[175]

For cadres in the lower-level administrative units in Minqin, the pressure of revenue growth was

[174] Gansu Ministry of Finance 1986 Notes of the Advanced Collectives and Individuals Experience-Sharing Meeting
[175] Wuwei Prefecture Bureau of Forestry 1987 #2

intense. They had to fulfill the revenue quotas that were set by both the county and higher-level officials, which increased every year.[176] Failure to do so created not only bad evaluations of their job performance but also the deprivation of livelihood of their underlings. As recalled by a former county Bureau of Forestry official, "This [revenue growth] was not just about my promotion. Given how tight-knitted the *danwei* was, your failure would ruin every social relationship you and your family had. I had 117 families to feed, watering the trees was the last thing on my mind".[177]

A Hard Place

The rapid increase in Minqin's tax revenue since the 1980s was directly related to the introduction and expansion of cash cropping in the oasis, especially the cultivation of black and red seeding melons.

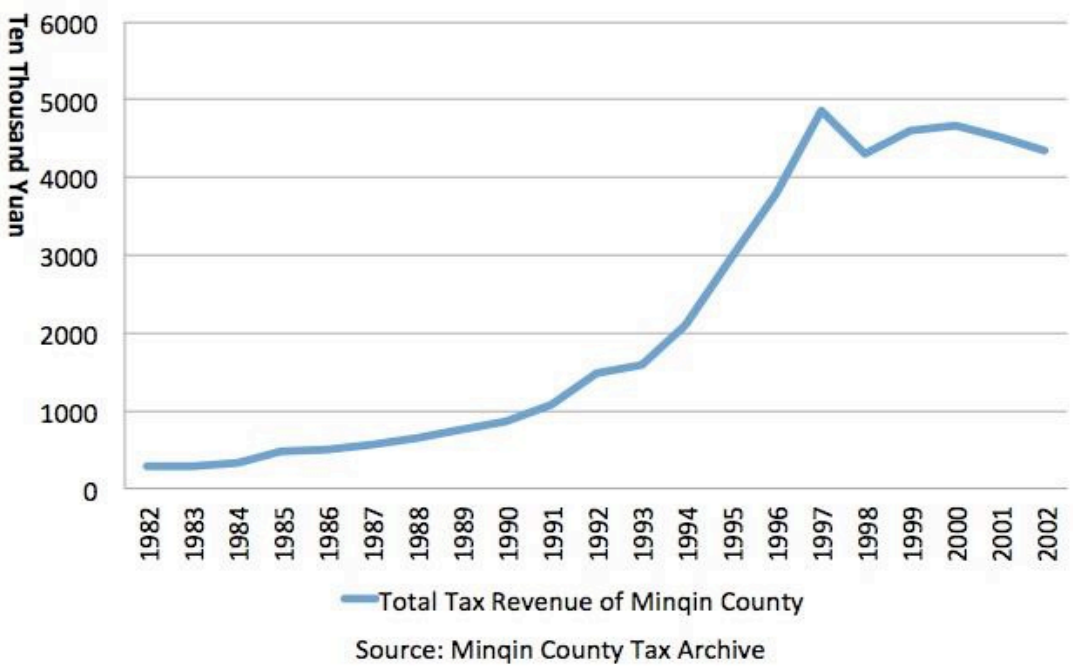

Figure 10 Total Tax Revenue of Minqin County

[176] Minqin County Bureau of Commerce 1987 #5
[177] Interview #22

After the 1984 epidemic, the bureaucrats in Minqin had to search for a new cash crop to rotate with sugar beets. They decided to introduce the Lanzhou seeding melon (*zi gua*), which was only cultivated in the provincially-owned Qin Feng Collective Farm, to the peasantry. *Zi gua* was particularly suitable for Minqin's sandy soil and dry climate, and its seeds (*da ban gua zi*) had a much larger export market and better profit margin than sugar beets and cotton.[178] As a result, its cultivation ballooned from less than 120 *mu* in 1983 to 90646 *mu* to 1989 (Minqin County Annals 2011:221). Until 1989, the county did not benefit directly from taxing the cultivation of seeding melons. Instead, the initial financial boom primarily came from the lease of reclaimed land which was assigned to lower-level administrative units to increase their budgetary solvency.[179] The expansion of cash crop cultivation generated few costs to the county. The bureaucrats used the San Xi Migration Project fiscal transfer as loans for the peasants to drill deep-bore wells.[180] It also charged more and more mandatory fees as water and land resources became scarce.[181] Most importantly, like its practices for many other government functions, Minqin County had long outsourced the cost of tax collection to the townships.[182]

One of the last steps of mid-1980s tax reform was the establishment of the township/town finance in 1985. The township/town finance was designed to resolve budgetary conflicts between rural counties and communes, an everlasting issue during the Collective Era. By setting up the township/town budgets, the Minqin County government agreed to forfeit its share of the pre-

[178] Interestingly, the cultivation of zi gua in the Hexi Corridor had a lot to do with Taiwanese organized crime syndicate. The opening of Xiamen as a Specialized Economic Zone in 1980 proliferated cross-strait smuggling by fishing boats. The smugglers would bring Taiwanese industrial products to Xiamen in exchange for PLA weapons, migrants, and agricultural products (Wang 1996) Ocean-Going S.
[179] Interview#83
[180] Minqin County Bureau of Finance 1987 #150
[181] Minqin County Bureau of Irrigation and Electricity 1989 #29
[182] Minqin County Bureau of Finance 1988 #105

1985 agricultural tax owed by the communes so they could relieve the county finance from the obligation to provide public goods to the peasants.[183] The county government also relieved itself from managing overdue loans by requesting the townships to turn in 70% of the agricultural revolving funds. The township governments would delegate tax collection to village secretaries and were allowed to keep 20% of the agricultural surcharge. [184] However, the township governments had to submit all of the tax collected before receiving their operating budgets. The refund received depended entirely on the percentage of tax quota completed by the township in a given year. If tax quota was fulfilled, the township government could keep a share of the profit. According to the Gansu provincial government, the linking of the township operating budgets to tax collection was designed to rapidly expand the tax base by promoting "the commodification of agricultural economy".[185] In the coastal provinces, the tax farming scheme accelerated the development of TVEs in the late 1980s. Nevertheless, for Minqin whose economic role was to provide commodity grain to the province, the few "tax bases" to expand were the numerous tax surcharges and administrative fees.

[183] Minqin County Bureau of Finance 1986 #102
[184] Minqin County Bureau of Finance 1986 #141
[185] Gansu Ministry of Finance 1986 Notes of the Advanced Collectives and Individuals Experience-Sharing Meeting

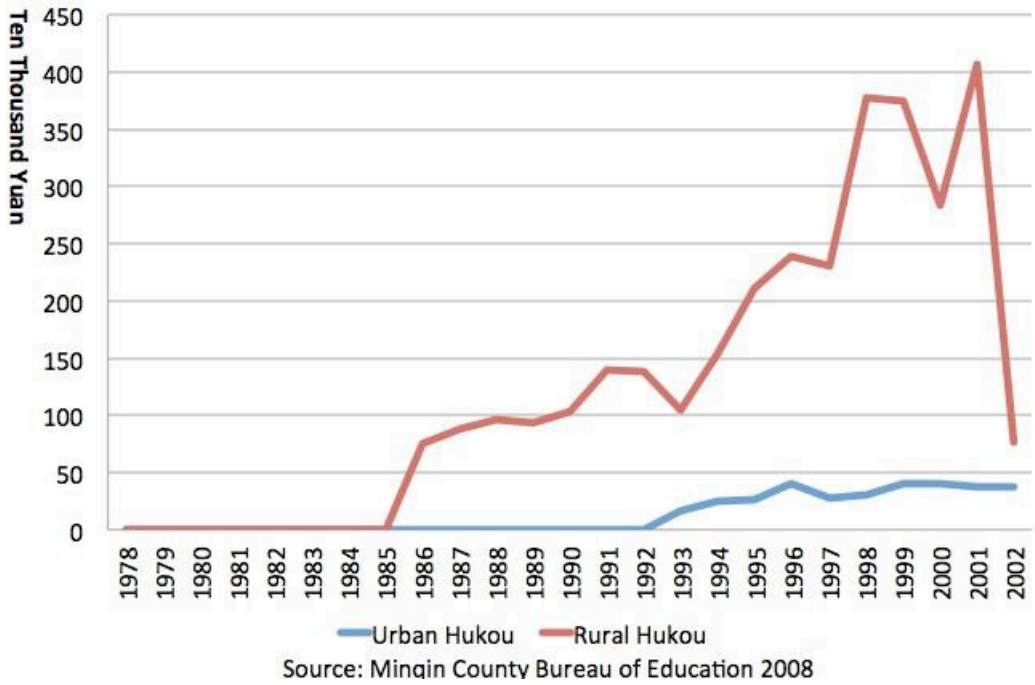

Figure 11 Changes in Educational Surcharge in Minqin 1978-2002

The township cadres and village secretaries found themselves between a rock and a hard place. The enormous costs associated with running a rural society and supporting the bureaucracy were placed squarely on their shoulders. Extracting enough cash from the peasants surpassed any other task in rural governance because the fulfillment of tax quotas would affect the promotion and termination of the cadres' positions (Li 2005b). The tax burden thus changed the norms and behaviors of village secretaries, which altered how water and land were distributed in the oasis.

In 1986, the Gansu provincial government began to strengthen its control over the extra-budgetary income of the lower-level governments.[186] The new rules, ironically, legitimized the collection of administrative fees in exchange for public services, which soon became the primary source of income for the operating budgets of the village committees. Under enormous pressure to generate revenue, the role of grassroots cadres rapidly changed from facilitators of agricultural production to enforcers of the growth machine. Contrary to the collaborative practices in the

[186] Gansu Ministry of Finance 1986 #45

early 1980s when initiatives to reclaim surrounding "wasteland" needed the approval from the whole village, by 1989, most village secretaries monopolized decision-making and auctioned the land to the highest bidder who could pay for the drilling of deep-bore wells.

> As recalled by Yeh: the decision to open land used to involve everyone. The fingerprints of every household head had to be on the loan documents. However, the government needed the money, and by late 1980s, it cost much more to drill wells than before, so land was given to those who could pay. The leaser (*cheng bao hu*) would sign a 5-7 year lease with the village committee before they spent any money to level the land, and they kept the revenue during that period of time.
> KRM: Did the government know this practice?
> Yeh: Yes, the contracts were only valid after the committee reported them to the township government. The leasers might be from another village or the surrounding townships as well.[187]

Du, who leased 120 *mu* of dry riverbed near Shuang Zi Ke Township in 1989 stated,

> Du: I made a profit when the price of melon seeds reached 9 yuan per *jin*, and I doubled-down my investment and opened up land. According to the terms of the contract, I could keep the "wasteland" for seven years and each year, I had to pay a management fee to the village committee.
> RKM: How much did it cost you to open the well? Did you take out a loan?
> Du: Close to 180 thousand yuan. It was a "hundred-meter well" after all. Loans were easy to get back then. Just tell the rural credit unions that you wanted to purchase productive materials like fertilizer, mulch film, or whatever….nobody cared.
> RKM: How did you plan to make that money back in seven years?
> Du: By planting as much seeding melon and pumping as much water as possible. The market crashed in 1989 though, and I ended up earning nothing in those years.[188]

The booming melon seeds market mentioned by Du prompted the Gansu provincial government to implement a 10% melon seeds agricultural specialty tax in 1989 (Minqin County Annals 2011:418). In less than two years, agricultural specialty tax accounted for 62% of the total county revenue generated by agricultural production (Minqin County Annals 2011:482). To properly assess the value of the cash crop, grassroots cadres from the villages and township levels would visit the plots in early summer and before harvest. The arbitrary assessments

[187] Interview #71
[188] Interview #56

created many conflicts between the cadres and the peasants who often employed personal networks to negotiate the tax quota.[189] The perceived shirking and the crash of the melon seeds market in 1989 forced the county government to implement the Township/Town Fiscal Responsibility Regulation in late 1989, which drastically cut subsidies to the townships/town and forced them to balance their annual budget by reducing expenditure. As a result, the townships had to invent taxable causes out of the blue.

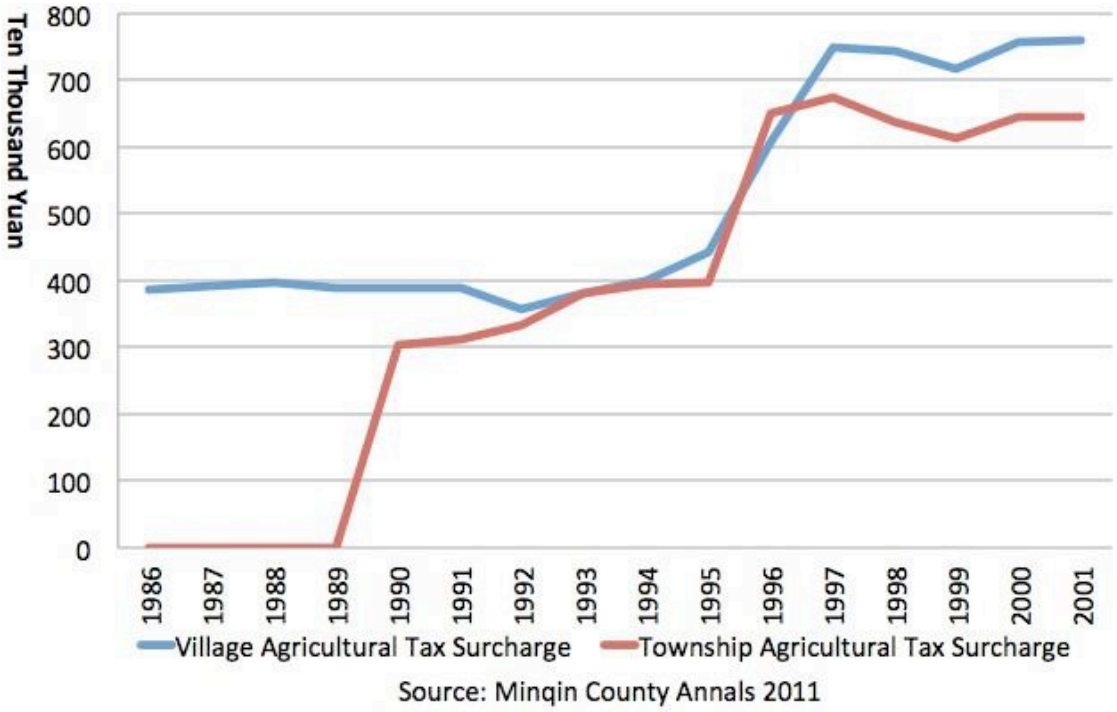

Figure 12 Village and Township Agricultural Tax Surcharge in Minqin County 1986-2001

The Minqin county government stated in the annual Township Taxation Meeting,

> In order to reward the advanced and discipline the rest, those townships who fulfill their tax quota before the end of September will receive a 300 yuan bonus, 200 yuan for the end of October, and for those who can't complete their assignments, we will deduct the November and December salaries of the major supervisors in the township. The experience from Daba Township, which fulfilled the quota two months earlier than expected, was to assign one township cadre to each village, one village cadre to each

[189] Interview #5

> production team, and one team cadre to each household and person. We need to uphold our patriotism and be clear about rewards and punishments.[190]

That September, the Gansu provincial government announced that compared with 1988, its tax and fee revenue increased by 19.64%. The county government then requested the counties to double the tax income related to agriculture in the 8th Five Year Plan (1990-1995).[191] The extraction of surplus value soon became so brutal in Minqin that the wife of a former head of township in Minqin said, "Back then, I always called him the captain of the beat-down, smash-up, and rob-all brigade (*da za qiang da dui*)" [192]

To improve the efficiency of agricultural specialty tax collection and to prevent the townships from stealing their share, the Minqin county government altered how melon seeds were assessed. Instead of relying on the township cadres, the county set up four check-up points on the only county road connecting Minqin to Wuwei. All trucks passing the stations needed to be weighted, and the county government would charge 8% of the per kilogram market price as tax. As a result, the county's tax revenue increased dramatically after 1992. However, the improved efficiency in extraction proved to be detrimental to the Minqin's ecology. For starters, the efficiency in taxation elevated the relative cost of tax evasion for the peasants and cash crop merchants. Thus, "once the government set up the 'No.1 Gate of the World" on Minwu Rd., we had to smuggle out the crops. We always put together a convoy consisted of several trucks, a tow truck, and a small bulldozer and drove the convoy through the deserts to Inner Mongolia at night"[193] Moreover, the checkpoints changed the ration of overall agricultural tax to township

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[190] Minqin County Bureau of Finance 1989 #116
[191] Gansu Provincial Ministry of Finance 1989 Collected Essays from the first Township/Towns Finance Meeting. September
[192] Interview #64
[193] Interview #123

and village surcharges. Before 1992, the township and village cadres had to assess each *mu* of melons planted. This practice allowed them to exercise surcharges on reclaimed land and village plots equally, thereby assuring the township government a share of melon seeds proceeds. After the county took over, the specialty tax was based on the total weight of the harvest and was usually levied at the crop buyers. To making up for the loss, the township cadres had to double-charge the village land. It therefore made financial sense for peasants to abandon their assigned plots and the subsequent double-surcharges in the villages in exchange for the large-scale land reclamation projects in the deep desert where they only had to pay the county a small fee to extract well water. Chen recalled,

> Large-scale land reclamation started to appear only after the county exercised agricultural specialty tax in 1992. Those who had the means would use bulldozers to open hundreds of *mu* in a few days and drill wells hundreds of meters deep. These people were the elites of Minqin because of the enormous cost and risk involved. The cash crop market was like a casino, and people could lose all they had with a bad harvest.
> KRM: Weren't there numerous regulations like the 1987, 1989, and 1993 laws prohibiting land reclamation?
> Chen: Yes but the county never interfered.[194]

As a result, the total cultivation area of seeding melons ballooned after 1992 and the numbers of deep-bore wells in Minqin started to rise again.

[194] Interview #105

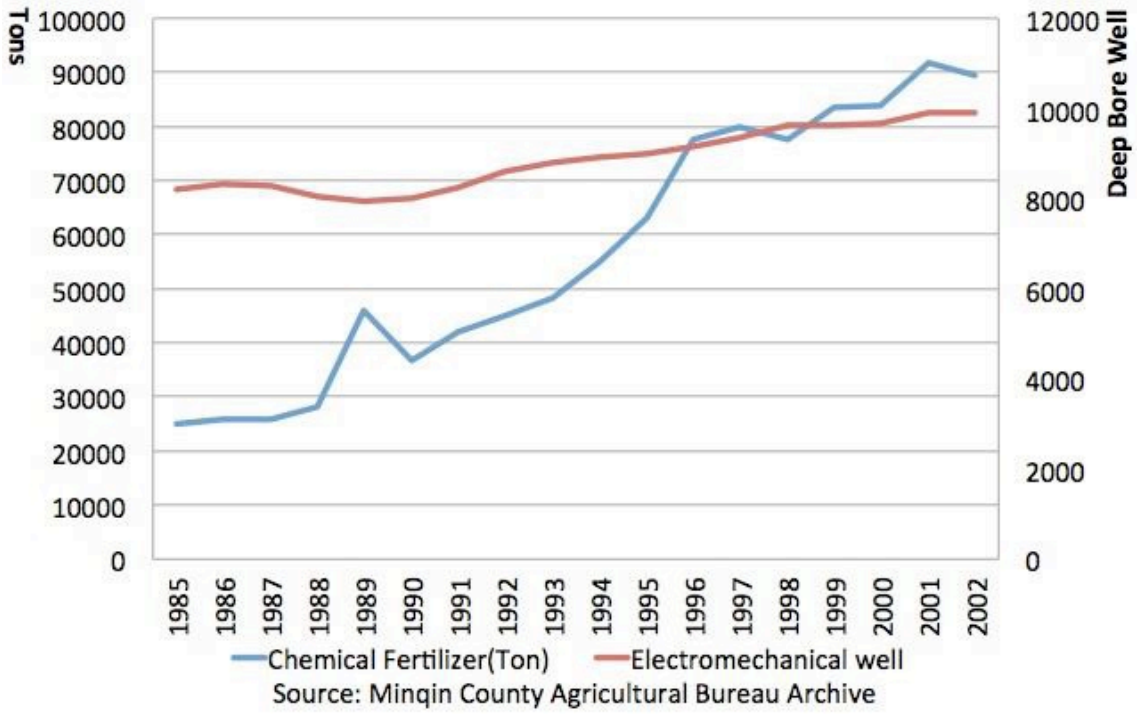

Figure 13 The Intensity of Industrialized Farming

"Small" Operations

In addition to the unfair tax burden, another enabler of the rapid expansion of reclaimed land in Minqin in the early 1990s was the rural credit union and agricultural banks (Sheng 1986). As China slowly integrated into the global market and received loans from the World Bank, its banking sector started to be influenced by the global financial system. The People's Bank of China increased its primary interest rates to 7.02% in 1985, 8.64% in 1988, and 11.34% in 1989. During the 8th Five-Year Plan, primary interest rates in China hovered around 10%. On the one hand, the high interest rate combined with the failure of the dual-track pricing system caused rapid inflation (10% in 1985, 20% in 1988, and 18% in 1989) across China, which was the primary cause of the 1989 political unrest (Zhao 1993). On the other, the interest rate created enormous pressure for cadres in rural branches of agricultural banks and credit unions to generate a profit because their salaries were tied to yearly quotas as well. In Minqin, the cadres viewed cash cropping as the major avenue to increase the return of loans issued. Under the

directives of the county government, the cadres started to invest in privately funded irrigation projects (*min jian shuili*) "agricultural technology (*nong ye keji*)."[195] Under the guidance of the county government, the credit unions started to provide 400 to 500 thousand loans (in RMB) to production teams and individuals who had land reclamation projects (Minqin Bureau of Propaganda 1993:27). The credit unions even directly financed county-led reclamation projects in Chengsheng and Deng Ma Ying Lake (28). Simultaneously, to promote the local cash crop market, the rural credit unions and agricultural banks in Minqin started the "Black Melon Seeds Battle" (*hei gua zi da zhan xuan feng*) providing 178 million RMBs credit to cash crop buyers from 26 provinces in 1991 and 1992 (38). As a result, the melon seed market started to boom in the early 1990s.

However, the easy access to credit and the rising prices of the cash crop did not benefit the majority of the peasants in Minqin. Inflation in the cost of production materials ate away most of the modest gains in income. Between 1988 and 1989, agricultural production costs increased 23.5% in Gansu.[196] In the 1990 Township Finance Meeting, the chief bureaucrat of the Provincial Ministry of Finance stated, "Our current productivity and supplies cannot support the construction of basic infrastructure and consumption, which made us to owe much national and provincial debts".[197] The central government was experiencing severe budget shortfall as well. To make up the shortfalls, state treasury notes (*guo ku juan*) and special fiscal bonds were issued by the central government and each level of government needed to fulfill its quota. The Gansu provincial government was assigned to sell 210 million worth of bonds. Wuwei District, in turn, had to come up with 9 million, and it promptly passed the bond obligations to its subordinate

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[195] Gansu Provincial Government 1989 Selected Essays from the 1st Township Finance Meeting.
[196] *Ibid*
[197] Minqin County Bureau of Finance and Taxation 1990 #180

counties.[198] In 1990, Minqin's success in providing tax revenue to the province earned it the recognition of being the "Most Advanced County in Increasing Production". Ironically, this award caused both the provincial and district governments cut its fiscal subsidy to the county and extended its high-extraction fiscal contract for another five years (Minqin County Annals 2011:16).

Doomed by its success, the bureaucrats in Minqin had to scramble to increase revenue sources. The county government's first move was to delegate all agricultural funds to the support of local township and village Enterprises which centered on the local cash crop market.[199] Suddenly, the county became flushed with state and bank issued high interest loans. In addition, owing to the state's over-extraction of surplus, the peasants in Minqin had no formal channels through which they could accumulate their profit for future investment opportunities. Instead, the rising price of cash crops lured the peasants to become speculators and middlemen of the seeding melon market. "Most of the village enterprises created by the high-interest loans were small-time cash crop buyers who relied on kinship networks." They were all small operations (*xiao da xiao nao*) and had little surplus-generating capacity," recalled a retired credit union cadre.[200]

[198] Wuwei District Bureau of Finance and Taxation 1989 #45
[199] Minqin County Bureau of Finance 1990 #7
[200] Interview #11

Table 8 Changes in Registered Enterprise in Minqin 1986-2002

Types / Year	Number of Enterprises		
	Collective	**Private**	**Individual (*Ge ti hu*)**
1986	60	0	210
1987	66	4	541
1988	64	52	1293
1989	66	45	965
1990	52	14	891
1991	59	14	811
1992	47	7	973
1993	49	10	984
1994	56	11	1276
1995	78	10	1372
1996	78	11	1564
1997	74	14	1770
1998	45	29	836
1999	47	55	908
2000	47	76	977
2001	43	90	1070
2002	37	94	1102

*Minqin County Annals 2011

The speculators made profits by interfering with the agreements between the growers and major Taiwanese buyers. When the market price was good, these village enterprises used inflated prices to encourage the peasants to break the previously signed contracts.

> The seeding melon markets were destroyed by the Minqinese themselves. When the market boomed in the early 1990s, the cash crop vendors stuffed the bags with dirt and grass to increase their weight. The Taiwanese were cheated so many times that they started to pay the farmers after they finished examining the goods in Lanzhou, and the peasants had to wait for several weeks before seeing any cash. Some of the buyers had political connections and monopolized the loans, and others had to pay them a surcharge for the access. A lot of these buyers accumulated their first barrel of gold (*di yi tong jin*) in this way and invested their profit to open more land.[201]

However, when there was an overproduction, these buyers often broke the contracts they promised the peasants who had to dump their crops way below the market value. In one extreme case, "a connected buyer embezzled almost 10 million RMB of loans he obtained through private channels and escaped to Sheng Zheng. He alone caused the crash of the melon seeds market in 1993. After he disappeared, nobody in Minqin had the cash to buy from the peasants"[202] As the cash crop market in Minqin became more and more risky and capital-intensive, the price fluctuations caused the mass abandonment of reclaimed land. Since there was no surface vegetation left, soil fertility became exhausted and the seasonal wind picked up the sandy top of the reclaimed plots. Minqin began to experience more and more dust storms, which drastically increased the maintenance cost of irrigation in the oasis.[203]

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[201] Interview #105
[202] Interview #132
[203] Minqin County Bureau of Water and Electricity 1989 #222, 1990#16, 1991 #205, 1992 #160; Wuwei District Bureau of Water 1992 #5

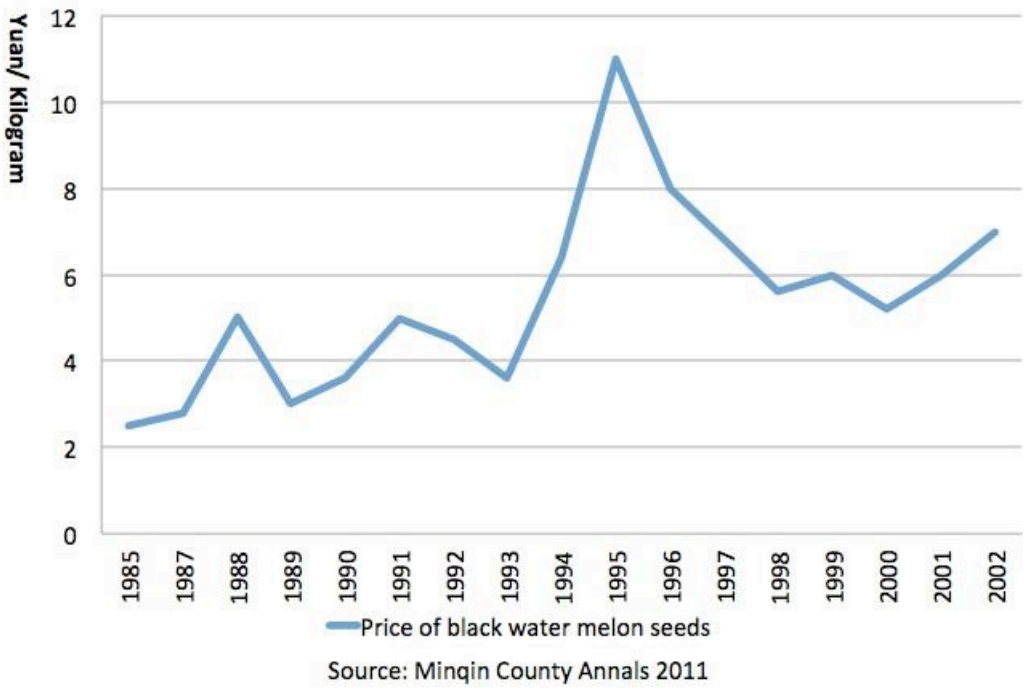

Figure 14 Price of Black Melon Seeds

At the same time, the parastatal procurement systems, which had provided stable revenue to the County, began to disintegrate as well. Based on the production and distribution quotas of the planned economy, the procurement stations were constrained by the dual-track pricing system.[204] They also lacked the acuity of the speculating capital and their losses piled up as the melon seeds trade became more and more lucrative. Moreover, Minqin was assigned to be the national base for commodity crop production in the second decade of the San-Xi Project.[205] Minqin was ordered to continue high level of grain production in addition to rapidly increase its production of cotton.[206]

[204] Minqin County Bureau of Commerce 1986 #83
[205] Gansu Provincial Ministry of Agriculture 1993 #128
[206] Gansu Provincial Ministry of Finance 1995 #49

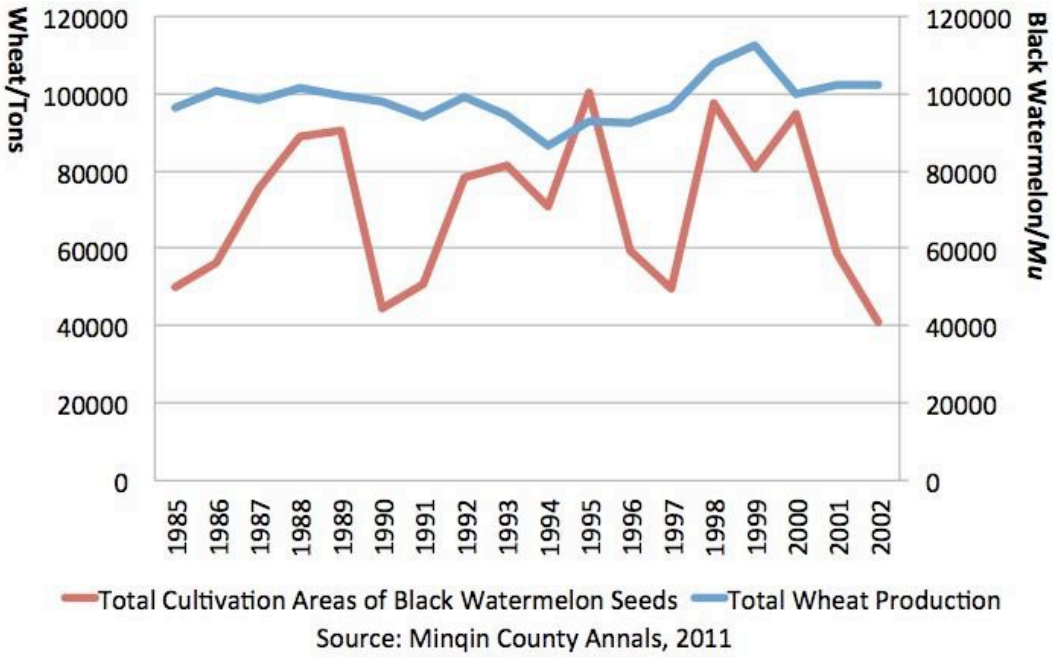

Figure 15 Total Cultivation of Water Melon Seeds and Total Wheat Production

To achieve this goal, Minqin had to come up with more than 11 million RMB of supplementary funding in the 9th Five-Year Plan to support the expansion of the irrigation and electricity networks.[207] To raise revenues, the County government started the "Raising the Dam Zone and Develop the Two Wings" Project (*xin ba ji hu, kai fa liang yi*). The county government borrowed heavily to start its land reclamation projects in the outskirts of the oasis and rapidly expand the county-owned enterprise (Minqin County Annals 2011:18-23, 25-36, 97-124).[208] These endeavors were supposed to increase the county's tax base and resolved the underemployment issues caused by the disintegration of the procurement system. Minqin also started to attract Taiwanese exporters to set up seed factories within the county limit by promising rapid increases in melon seeds production.[209] However, all of the initiatives were still

[207]Wuwei Prefecture Bureau of Agriculture and Livestock 1993 #18
[208] Minqin County Bureau of Commerce 1994 #19
[209] Minqin County Bureau of Commerce 1994 #24

based on surplus extraction from cash crop production. The changing macro-fiscal landscape in China soon destroyed Minqin's ambitious development plan.

The 1994 Tax Reform

The trend of decentralization after 1979 severely weakened the Chinese central government's ability to control the implementation of macro-economic policies (Wong 1997). Lacking effective monitoring, the central government's share of the tax revenue declined steadily throughout the 1980s and 1990s, reaching 22% in 1993 (Wong 2002). Worse, since its primary revenue source was the aging urban SOE sector which was debilitated by liberalization, the central government's revenue/GDP ratio eventually dropped to the low teens in 1996 (Wong 2000). By the early 1990s, the central government even had to borrow from coastal provinces to balance its budget (Zhou 2006). To modify the intergovernmental fiscal relations (and solidify its political control,) the Tax-Sharing System (*fen shui zhi*) was introduced in 1994, which established separate kitchens (extractive apparatus) between the central and sub-national governments. The reform aimed to increase "the revenue stream for the central government, but it also created a regressive tax system and a new set of problems for villagers as well as local government particularly underfunded mandates" (Kennedy 2013). In the new system, the central government takes all of the consumption tax and three-fourth of the Value Added Taxes tax, China's two largest revenue collecting taxes in addition to taxes on SOEs and banks (Chen 2008a). The provincial and local governments were left with agricultural tax, specialty agricultural tax, income tax, and proceeds from land leases (Takeuchi 2014). In addition, the new system also linked the amount of central government's remittance to the provinces to the tax revenue provided, compounded by the annual revenue growth targets of each province, which put poor provinces at a disadvantage (Kennedy 2013). Moreover, the 1994 tax reform left the

distribution of expenditures untouched, which put sub-provincial governments under more fiscal pressure to provide public goods (Park A 1996). For many governments, the remaining portion was insufficient to maintain their own budget, and thus they utilized money from government branches beneath them to balance this deficit. This practice has left township governments with the least amount of tax resources available as they had no governments beneath them (only rural citizens) to pull from, as well as, the largest tax burden as every layer of government was pulling from their funds. As the majority of taxes collected were going to the central government, subnational governments were forced to rely on extra-budgetary incomes, which had severely increased rural tax burden (Kennedy 2013). The central government's subsidies did little to alleviate rural tax burden, as most subsidies were based upon a tax rebate system that favored coastal provinces, and usually, the subsidies were earmarked for industrialization projects that seldom took place within rural townships (Fock 2008, Jikun Huang 2011).

The regressive nature of the 1994 tax reform was especially harmful to hinterland counties like Minqin as relatively well-off counties in poor provinces suddenly had to shoulder the most of the tax burden (Gang 1998). Moreover, as China continued its negotiation to join the WTO, the central government began to tighten the loans made to state-owned enterprises. Minqin's plan to use the lease income from reclaimed land to support the expansion of its county-owned SOEs backfired. Since these enterprises were built with high-interest loans, once credit access and subsidies dwindled, the SOEs could not support their interest payments.[210] Worse, since the local government could only extract 25% of the VAT and tax the enterprises' income, the tax base shrank rapidly as the county-owned SOEs' income was less than its accruing interests. From 1995 to 2000, twenty of the twenty-two county-owned SOEs went

[210] Gansu Provincial Party Committee 1996 #42

bankrupt (Minqin County Annals 2011:49). The most spectacular collapse came from the county sugar mill, an 8.7 million RMB project first initiated in 1987. To secure enough investment from the central government, the Minqin county chief magistrate went to Beijing 42 times and eventually garnered the support of the World Bank to build the largest sugar mill in Gansu (Minqin County Propaganda Bureau 1993). To ensure a steady supply of raw materials, the County government forced every peasant household to plant at least 1 *mu* of beets and encouraged mass planting in reclaimed areas.[211] Within a year of its opening, the County sugar mill fell behind on its interest payments. Instead of providing a stable stream of tax revenue, the sugar mill drained the county's reserve. Ma remembered,

> Instead of cash, the peasants received *baitiao* (government I-Owe-Yous) for the produce they turned in. People started to use *baitiao* to pay taxes and buy fertilizers, and the government, in turn, used *baitiao* to pay salaries. These *baitiaos* were almost identical to cash. It wasn't until 1998 when the government refused to accept *baitiao* as tax payments that people became aware that the government might never pay them back, and *baitiaos* started to depreciate rapidly.[212]

For a period of time, cash liquidity disappeared in the oasis and bartering was again on the rise. As a result, Minqin County government had an acute fiscal crisis.

Dance Around the Golden Calf

To fulfill its annual revenue growth goals during a fiscal crisis, the Minqin county government imposed the fiscal remittance system (*cai zheng fan huan*) which was first implemented between the central and provincial governments. Township and village cadres only received a certain percentage of the budget by the percentage of revenue they generated for the

[211] Minqin County Government 1994 #31
[212] Interview #113

county.[213] The changes in intergovernmental fiscal relations meant that every level of government in the province relied on the extra-budgetary income.[214]

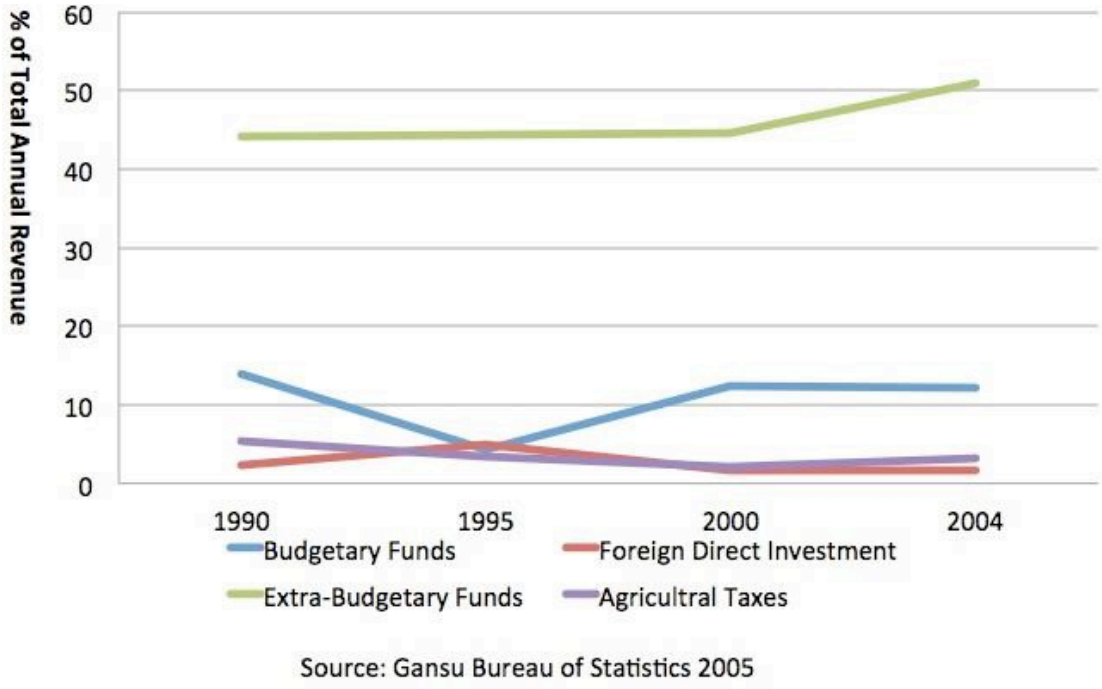

Figure 16 Comparison of Provincial Revenue Source in Gansu 1990-2004

Consequently, tax collection at the township and village levels became ruthless. In sharp contrast from their leadership/facilitator roles in the mid-1980s, grassroots cadres had to act as local agents of the predatory state. Gong, who worked in Cai Qi towns remembered, "After the tax reform, as we experienced more and more resistance from the peasantry, we had to utilize several administrative tools [imprisonment and forced auction] (*xing zheng shou duan*)".[215] Chen had a more vivid description,

> The township cadres would usually raid the villages with police and local thugs. They kicked your doors open and just removed everything they saw. If you refused to pay, they beat you up. Whenever kids saw their cars approaching, they yelled 'Here comes the

[213] Interview #153
[214] Wuwei Prefecture Government 1997 #26
[215] Interview #24

> *guizi* [derogatory term for the WWII Japanese invaders].” And we would carry our belongings and hide in the field.[216]

The incessant pressure on the grassroots cadres to generate fiscal income eventually planted the fertile soil for political capitalism where capital produces “predatory profits” from “unusual transactions with political bodies” (Weber 1978:164-165). According to Ganev (2009), “political capitalism emerges from the social and institutional disarray that hampers the more or less automatic reproduction of institutionalized political and economic practices… and the established routines and enforceable norms that constitute bureaucratic apparatus implode.” The transformation in intergovernmental fiscal relations pushed the disintegration of the grassroots bureaucracy to the point that many grassroots cadres in Minqin had to borrow from the *hei lao da* [bosses of local underground economy] to fulfill their ever-increasing year-end tax quotas.[217] Gradually, the authority of the county and township governments were replaced by the *ming jian li liang* [civilian powers/local hooligans] who used their collaboration with the cadres to accumulate capital. De-bureaucratization then turned norms governing resource allocation into discretions made by patron-client ties between the emerging bourgeois and bureaucrats who “behave as an uncoordinated multitude of self-interested agents pursuing immediate financial gratification” (Ganev 2009). Because of this, in a political capitalist system, decisions regarding resource distribution were often affected by institutional incapacity (Love 1986). The institutions in Minqin became so weak that even though the provincial and prefecture governments repeatedly tried to rein in unregulated land reclamation and groundwater extraction[218], the bureaucrats in Minqin and Wuwei still actively pursued expansion. The successive water and

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[216] Interview #99

[217] Interview #21, #78, #103

[218] Central Government Ministry of Water Works1994 #411; Gansu Provincial Government 1995 #9

forestconservation laws quickly became empty institutions in Minqin [219] Instead, it was the *hei lao da* who enforced the consensus on water usage. "Whenever conflicts over reclaimed land and water erupted between villages, we always called for Mr.X. The path he walked in the sand became the laws".[220] Weber's description (as quoted by Ganev) of the de-bureaucratization process of a unitary bureaucracy perfectly matches to the situations in post-1996 Minqin county:

> A wild dance around the Golden Calf, gamblers grabbing at every chance opportunity escaping through the pores of the bureaucratic system, the loss of every standard for any kind of business-ethical distinctions and inhibitions and an iron compulsion forcing everybody, including even the most conscientious businessman, either to join in and howl with the hyenas on this unique Golgotha of all economic ethics-or else be punished with economic destruction (Weber as cited in Ganev 2009).

Conclusion: the Treadmill of Taxation (in a political oriented capitalist system)

In the late 1990s, the Minqin county government recruited Taiwanese capital to start cash-crop plantations by conducting large-scale land reclamation projects in the outskirts of the oasis. However, the projects suffered immediate setbacks when hundreds of peasants from Wuwei and Minqin violently attacked the workers, destroyed the equipment repeatedly, and blockaded the only road connecting Nanhu to Wuwei and Minqin.[221] On the surface, the unrest was yet another conflict over the dwindling water resources. However, the violent confrontation showcased the deep divide between the state agents and the peasantry of Minqin. Though it did lift the average household income in the oasis, two decades of economic liberalization had caused severe ecological and social disorganization in Minqin. The rapid increase in Minqin's tax revenue did not help the authoritarian state to accumulate capital for state-led development; instead, the more tax revenue was collected, the higher the fiscal deficit of the local government

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219 Minqin County Bureau of Water Works 1995 #1; Wuwei Prefecture Bureau of Water Works 1995 #8
220 Interview #45
221 Interview #96

became (please see Figure 18 in Chapter 5). Similarly, the more money invested in irrigation and agricultural technology to improve productivity, the more soil fertility and environmental conditions declined in Minqin (Figure 19 in Chapter 5). By the end of the 1990s, black dust storms *(hei feng bao*) had become a regular occurrence in the oasis. The depletion of groundwater and the mass abandonment of reclaimed lands had triggered severe desertification in Minqin. As a result, more than 100 thousand people were forced to abandon their farmland and became ecological migrants.[222]

The Treadmill of Production theory relied heavily on O'Connor's (1973) article on the fiscal crisis of the state. In addition to being the facilitator of the accumulation of capital (surplus), the state is the only institution equipped to alleviate and (in some cases, regulate) the externalities of industrialized production (Schnaiberg 1980). Though dealing with the externalities of development, the state legitimizes the operation of the treadmill that requires more and more investment in technology to increase the scale of production and subsequently profit margin (Konefal and Mascarenhas2005). Unfortunately, the expansion of production causes the intensification of withdraws and additions to the environment, and the consequences were disproportionately concentrated among the disadvantaged. The state would have trouble to balance its roles in facilitation and legitimation, which eventually created a fiscal crisis characterized by large budget deficits and the business cycle (O'Connor 1973).

The environmental deterioration in Minqin fits well into the treadmill of production analysis. Driven by the incessant demands from the higher-ups in the counter bureaucracy, the local agents had to constantly increase its tax extraction and promote expansion in production, which was akin to the constant needs for capital accumulation in the treadmill model. The

[222] Minqin Daily 1999 April 3

expansion of production relied on investment in technological breakthroughs (deep-bore wells, chemical fertilizers, and the expansion of hydraulics) that changed productive relations and subsequently re-defined human-nature relations. The discretionary nature of the intergovernmental fiscal relations prompted rapid expansion of cash crop production and the intensification of additions and withdraws into the fragile semi-arid ecology. As the ecological condition worsened, on the one hand, the state had to divert more and more resources to maintain the scale of production (and extraction), thereby creating the intensification of capital investment in agricultural production. On the other, the state had to provide assistance and enforce compliance when the declining ecology and the vacillation of capital dispossessed the peasantry. Lacking unified rules and depending on patron-client ties, the counter bureaucracy became bloated as the enforcement and maintenance tasks had to rely on extra-budgetary (enterprise) staff and incomes, which further worsened the fiscal crisis of the state.

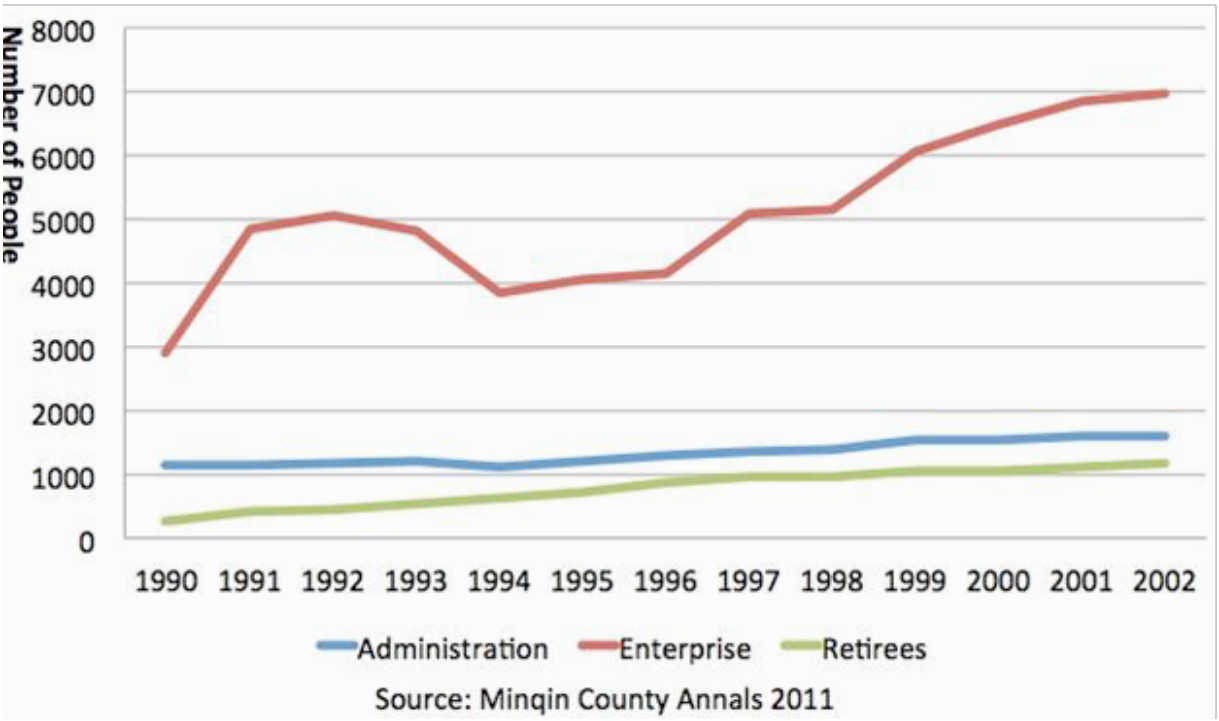

Figure 17 Changes in Fiscal Dependents in Minqin County 1990-2002

The crisis forced the grassroots cadres to abandon their legitimation duties and instead, they became agents of the predatory state who only focused on the surplus extraction and profit accumulation through collusion with capitalist interests. Since, the fiscal and political stability of the center was connected to the efficacy in the extraction of surplus by the patrimonial fragmentation of local governance, the suppression of dissents was brutal and arbitrative. Lacking countervailing forces to constrain the growth (and taxation) machine, the ecology of the oasis rapidly collapsed, and the peasantry was left exposed to the capricious nature of the international cash crop market.

Chapter 5: Conclusion

我們這一代的人就是拿著祖先的碗吃著子孫的飯-Our generation holds the bowls of our ancestors but devours the food of our offspring.

Minqin Peasant

"The deterioration of Minqin's ecology happened because the peasants were greedy and ignorant. They were blindly pushing for land reclamation for quick profits, which exhausted the groundwater" as recounted in the *Wuwei Ri Bao* article commemorating the 5th anniversary of the Shi Yang River Watershed Management Plan.[223] The Plan closed more than 3000 deep-bore wells in 2009, limited each peasant's cultivated area to no more than 2.5 *mu* in 2010, and pushed for the relocation of more than 200 thousand people by 2020.[224] Put another way, the Management Plan not only marked the ending of a fervor era for cash crops, for most Minqinese, but also signified the beginning of the end of the oasis' environmental history. Riding my motorbike through endless abandoned farmsteads in the Nan Hu and Chang Shen townships, I frequently marveled at the sheer determination, fortitude, and diligence of the owners, who, however transiently, tamed the Yellow Dragon and made the deserts bountiful. These entrepreneurs endured great risks for taking out high interest loans (which could suddenly become overdue when the political connections evaporated), opening wells reaching 300 meters deep (wells that collapse easily because of the instability of sands), and for the backbreaking labor to dig irrigation canals and plant hundreds of trees to form the shelter belt. Most importantly, I admired their intrepidity to join the notorious casino known as the international

[223] Sixty Years of *Wuwei Ri Bao* (2011:9)
[224] Gansu Provincial Development and Reform Committee 2007

cash crop market, knowing how capricious the weather, the flow of capital, and the institutional framework were.

These folks were indeed "the elites of Minqin," whose attributes were not that different from the Calvinist Weber studied. However, as stated by Xue Shu, "Only some of the peasants made a profit during the booming years of the 1990s. And all of our dreams came to an end after 2005".[225] The questions remain: Under what circumstances did the elites' calculated pursuits of instrumental rationality became detrimental to their substantive rationality (Kalberg 1980)? In other words, what cognitive limitations shaped the bounded rationality of these "social economic actors," which caused them to destroy the long-term sustainability of the oasis, the very foundation of their livelihood and prosperity? Why would the Minqin County and Gansu Provincial governments allow (even participate in) the destruction of the environment which had always been the priority of governance in the oasis? How did corporatism become so entangled into the fabric of local bureaucracy? To answer these questions, one needs to look into "the rationality and choice within the context of the institutional framework of a given society and historical epoch" (Nee 2003). My findings have shown that the "context," which structured socioeconomic actions causing environmental degradation in Minqin, was constituted by an interwoven web of fiscal obligations between different levels of government. These fiscal obligations shaped the material interests of the peasants and the cadres who were entangled in a zero-sum game of surplus extraction. When governance became subsumed with surplus generation to keep the unitary bureaucracy from disintegration, agricultural production became disembedded from its underlying social relations and ecology. A fiscal crisis of the state then occurred when the worsening ecological and social conditions kept elevating the real cost of

[225] Interview #33

production in the oasis. The vicious cycle continued until 2004 when the state changed its extractive methods, thereby altering the fiscal relations between the central and local governments.

Center-Local Relations in the Hydraulic Empire

The vast arid region west of the Yellow River has fueled the expansionist imagination of Chinese rulers, which, in turn, has shaped the environmental history of the Hexi corridor in the last two thousand years. In its environmental history, the size of settlements in Minqin always corresponded to the strength of the dynastical center thousands of miles away. When the center was strong, these settlements would benefit from efficient resource allocation and acted as major trading and military outposts of the empire. When the power of the empire ebbed, they were either sacked by the nomadic tribes from the Tibetan plateau and the Mongolian steppe or temporarily became independent fiefdoms. Both outcomes resulted in drastic reduction of local population as settled land was abandoned. The exposed land became barren as high seasonal wind stripped the soil away which altered the course of inland rivers. The manipulation of agricultural tax rates was used to solidify the dynastical control on the frontier region by increasing population and economic production. Nature was viewed by the center not only as an unlimited substratum for material production but also as a worthwhile obstacle to be overcome by implementation of the center's will. Thus, the environmental history of Minqin showcases the intricate yet repetitive pattern of interaction between the state extraction policy and the oasis ecology in Hexi.

Patrimonial State and Paternalistic Relations

Settled agriculture in Minqin could only become viable when the hydraulics were built and properly maintained through the military-style mobilization of the peasantry and mass

investment from the center. Ironically, the central governments' need for mono-cropping and the cost of extraction tended to limit the tax base and the potential surplus of agricultural production. When the center was strong, political mobilization could temporarily sustain the war against natural laws—agricultural production in arid regions. When the center became weak, the extraction and the maintenance of economic system were outsourced to local state agents who had very different political and economic interests from the policies set by the center. For the local gentries, tax farming in the Hexi Corridor created stable and lucrative avenues for the primitive accumulation of capital and establishment of paternalistic authority. Yet, the tensions between the patrimonial state and the paternalistic power of the clans continue to cause unbalanced tax burdens for the peasants, which, in turn, shaped economic organization and humans' relation to nature. The political-economic institutions of production and extraction imposed by the patrimonial state could not form a rational-legal bureaucracy and, consequently, had to rely on local gentries who lacked the necessary capital and jurisdiction to maintain hydraulics in the entire watershed. The monopoly of access to water and of power to extract eventually created severe stratification and social instability when the hydraulic system broke down, and the oasis settlement would enter periods of decline because of declining ecology.

Irrigation and Neo-Traditionalism of the Communist State

The communist regime in Hexi was engaged in the same pattern of interaction with nature after 1949. The myriad changes in agricultural and taxation policies resulted from Mao's failed attempts to unify and modernize a disintegrated empire in one generation. Mao's mono-cropping policy to increase grain output to fight the "imperialist enemies" echoed the push for grain in dynasties past. After he wiped out the gentry, Mao was left with the option to militarily reorganize the peasant society into production teams, brigades, and communes. Within the

collectivist system, power became based on political privileges in the hierarchy, which inadvertently positioned the local bureaucrats as the local elites. Although Maoist mobilization promoted grassland preservation in Minqin, the peasantry connection to nature also became broken in the process and could only be mediated by administrative and production commands from the communes. The communist bureaucracy in Minqin viewed the restoration and expansion of irrigation crucial to its legitimacy and, more importantly, governing strategies. In the oasis ecology, those who monopolize the access to water control the distribution of land as well as the rhythm of agricultural production, which constituted the spatial and temporal axes of productive relations in agrarian societies. However, compared with its predecessors, the Chinese Communist state was able to penetrate much deeper into the daily interactions of its subjects.

Since the middleman between state and society in rural China, the gentries, were annihilated in the early years of PRC and that the means of production were controlled by the state, the peasantry in Minqin had no choice but to become organizationally dependent on the bureaucracy. The dams, canals, and embankments built by the state not only constricted the flow of water; they were also a stringent form of social control in the oasis. Irrigation was a powerful political weapon for the Communist as the hydraulics transformed nature into be a component in the statecraft of domination. The enormous cost to change the landscape was in reality what Foucault (1977:92-102) termed "the political investment of the body" because, by controlling the flow of water, the state could discipline subsistence peasants enough to turn them into farm laborers regulated by the center. Should the planned economy operate like a delicate pocket-watch, combining the works of distinctive parts to a synchronized whole, then the managed flow of Shiyang River must be the coil springs that timed and regulated the social and economic organizations of the agrarian society in Minqin.

Counter-Bureaucracy and Resource Management

The turmoil of the Cultural Revolution incapacitated the taxation apparatus of the totalitarian regime. Another cause of the instability of fiscal relations was that the rigidity of the procurement system could not generate enough growth to support the weight of the bureaucracy. The center's decision to impose political control by monopolizing production and distribution created an economic system with high transactional cost and low efficiency. Further, since the center could only move the disorganized bureaucracy through mobilization based on ideology and that one's ideological purity could only be determined by those in close proximity, the exercise of power rapidly became constricted in localized social relations. Ironically, the bureaucratization of the proletarian dictatorship, in effect, turned the administrative hierarchy into thousands of independent fiefdoms constructed by millions of patron-client ties, which dramatically weakened state capacity.

The Gansu provincial government repatedly attempted to regain its control over the revenue streams by requiring the lower-level governments turn in the full amount of tax collected and required the lower-level governments to negotiate the division of extra-budgetary income every year. The extremely low stability of fiscal relations and the mercurial predatory behaviors of the center and provincial governments prohibited any resemblance of budget continuity at the lower-level of governance. As a result, the lower the position was in the command chain, the more self-reliant the state agent had to be, and the more coercive and discretionary governance became. Behind the facade of a totalitarian regime, murky jurisdictions and patronage relationships crisscrossed the bureaucracy. As political purges destroyed the bureaucratic norms governing the cadre's behavior, rural governance was left to each commune that acted as patrimonial fiefdoms. The fragmentation of political power prohibited a comprehensive approach

to agricultural production and water conservation. Since the dysfunctional bureaucracy could not support a rational approach to extraction, the ensuing chaos in fiscal relations detrimentally shaped peasants' relation to nature during the Dazhai movement years. In the Wuwei District, a decoupling of formal and informal institutions soon emerged over water resources. To ensure their fiscal (thus, political) survival, throughout the Shi Yang Watershed, state agents in upstream settlements started to extract as much water as possible regardless the detrimental effects to the downstream oases. The disintegration of the water-sharing agreement subsequently generated enormous rent-seeking opportunities for bureaucrats who had any authority, however remote, over water distribution. The overlapping boundaries of extraction caused continuous conflicts between villages, as well as between peasants and collective farms owned by the Gansu province. The county government's adjudication had limited effects, as the inter-village conflicts slowly ate away the facade of the collective system.

Institutional Transformation and Changing Productive Relations

When the de-revolution of the communist system began to hasten the retreat of the state in the 1980s, new forms of taxation and procurement were created to maintain the extractive function of the bureaucracy. The legacy of the hybrid authority soon ushered in the era of local corporatism and rapid ecological destruction in Minqin. As the absolute state retreated, the grassroots cadres needed to protect the villagers from the unreasonable demands of the higher-ups (Sui 1989). They also had to jockey for the county funding as the "vertical relations of command- in which the state unilaterally controls production, resources, and pay scales" gradually dissolved. The "deliberate institutional ambiguity" in reality empowered grassroots cadres' capability to arbitrate village disputes and allowed the cadres and peasants to circumvent ideological battles. From the establishment of production groups in 1979 to the implementation

of the Household Responsibility System in 1982 and the collapse of the commune system in 1983, every policy change in Minqin involved the reinterpretation of productive and social relations and was, in effect, a reconceptualization of state-society relations realized through a series of compromises between established habits of social control and improved efficiency in production. This institutional equilibrium was achieved through the re-emergence of paternalist relationships in the village networks and subsequently, in the actualization of grassroots governance. Yet, the "growing out of plan" nature of the post-1978 reform and the constant struggle in the center-local fiscal relations would turn grassroots state agents in Minqin into the foot soldiers of a growth-machine.

To stay competitive in the global economy, the center had to rapidly accumulate capital to upgrade its aging SOEs. Instead of rebuilding the collective extractive apparatus, the central government decided to sign fiscal contracts with provincial governments and use the parastatal procurement and marketing agencies to control the distribution of resources. Lacking revenue, the Gansu provincial government, in turn, signed fiscal contracts with its county government. In this system, lower-level governments acted as tax farmers for the bureaucrats immediately above them and were given a bonus if the tax extracted surpass the agreed amount between the two. However, in the new system, the responsibilities to provide public goods were placed on the shoulders of the county governments which were responsible for their own annual expenditures. As a result, each unit of the local state had to figure out a way to become self-sustaining and increase its contribution to the county coffers. The development of tax farming in the mid-1980s negatively affected the proper functioning of governance at the county level. The township cadres and village secretaries found themselves between a rock and a hard place. The enormous costs associated with running a rural society and supporting the bureaucracy were placed

squarely on their shoulders. Extracting enough cash from the peasants surpassed any other task in rural governance because the fulfillment of tax quotas would affect the promotion and termination of the cadres' positions (Li 2005a). The tax burden thus changed the norms and behaviors of village secretaries, which altered how water and land were distributed in the oasis. For example, once the county government started to implement the Township/Town Fiscal Responsibility Regulation in late 1989, the township cadres had to invent taxable causes to balance their annual budget by reducing expenditure. To making up for the loss, the township cadres had to double-charge the village land. It therefore made financial sense for peasants to abandon their assigned plots and the subsequent double-surcharges in the villages in exchange for the large-scale land reclamation projects in the deep desert where they only had to pay the county a small fee to extract well water. Land reclamation and deep-bore wells began to increase rapidly in Minqin.

The Treadmill of Production and the Disembedded Economy

The rapid expansion of reclaimed land in the oasis caused the crash of the melon seeds market and exhausted soil fertility. Owing to the state's over-extraction of surplus, the peasants in Minqin had no formal channels through which they could accumulate their profit for future investment opportunities. Instead, the rising price of cash crops lured the peasants to become speculators and middlemen of the seeding melon market. The speculators made profits by interfering with the agreements between the growers and major buyers. By inflating the contractual prices when the market was good and depressing the market when there was an overproduction, the speculators not only created wide price fluctuations which caused the mass abandonment of reclaimed land, but also inadvertently destroyed the parastatal procurement stations that lacked the acuity of the speculating capital. The bankruptcy of the procurement

stations left the county with no stable revenues, and institutional disarray began to emerge in the unitary bureaucracy. The Minqin County government chose to borrow heavily to open more reclaimed land. The generated income was directed toward the expansion of county-owned enterprises that were supposed to increase the county's tax base and resolve the underemployment issue caused by the disintegration of the bureaucracy.

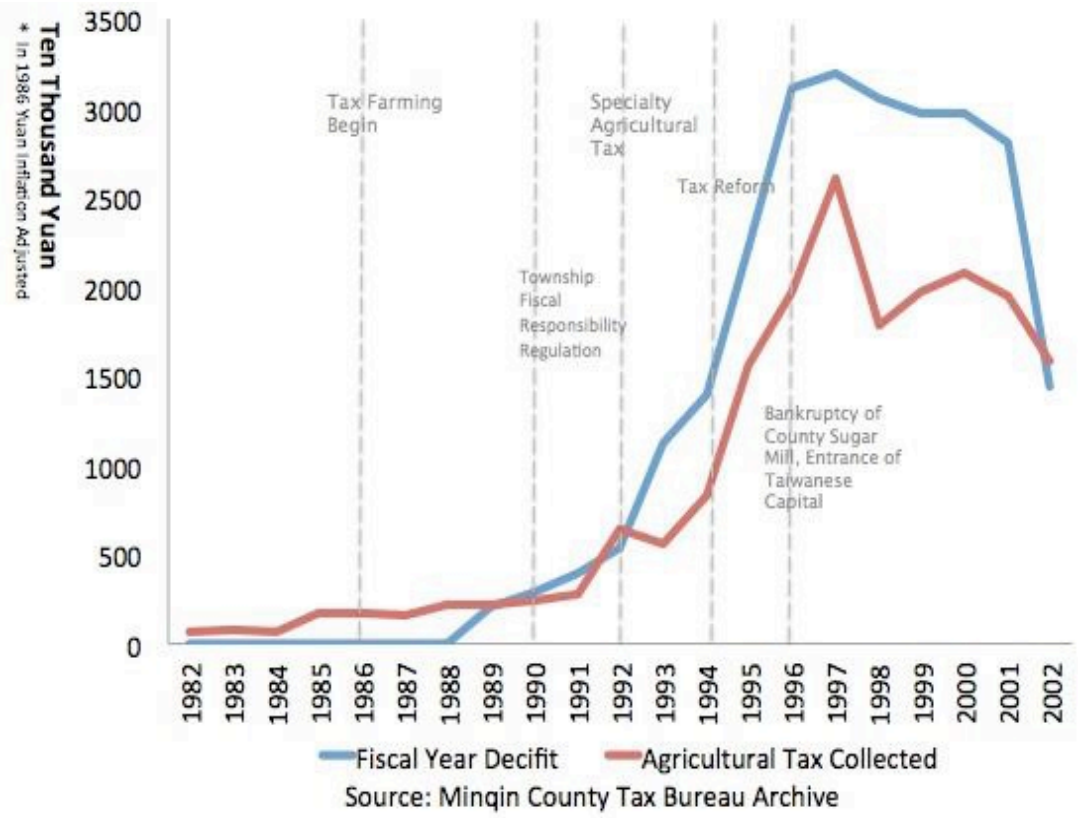

Figure 18 Taxation and Fiscal Deficit

Nevertheless, the 1994 tax reform, which wanted to reduce the center's reliance on the local extraction apparatus disrupted the 8th five-year plan in Minqin. The transfer of the 75% of the value-added tax to the central government's coffers deprived Minqin of the opportunity to industrialize. As a result, the county government set stricter and stricter tax quotas and heavier sanctions against grassroots cadres in the township and village levels. The unfair tax burden made more and more peasants in Minqin abandon their lease plots. At the same time, the sudden

rise in interest rates in China in the mid-1990s made the newly-built county-owned enterprise unprofitable. The collapse of the county sugar mill, an 8.7 million RMB project, bankrupted most of the remaining peasants who had been forced to plant sugar beets to generate income for the county. As the government I-Owe-Yous became the de facto currency in the oasis, cash liquidity disappeared in Minqin. To pay off the heavy interest, the county government recruited Taiwanese capital to start cash-crop plantations by conducting large-scale land reclamation projects in the outskirts of the oasis. Needless to say, the dispossessed peasants sabotaged the projects, and the authoritarian state had to spend more and more to control social unrest. The fiscal crisis of the state emerged when the price of social control, desertification, and water scarcity escalated production costs and disembedded productive relations from established social relations. As the ecology of Minqin continued to deteriorate, the government became more and more reliant on profit-making opportunities related to political privileges, which dramatically weakened the long-term sustainability of the oasis.

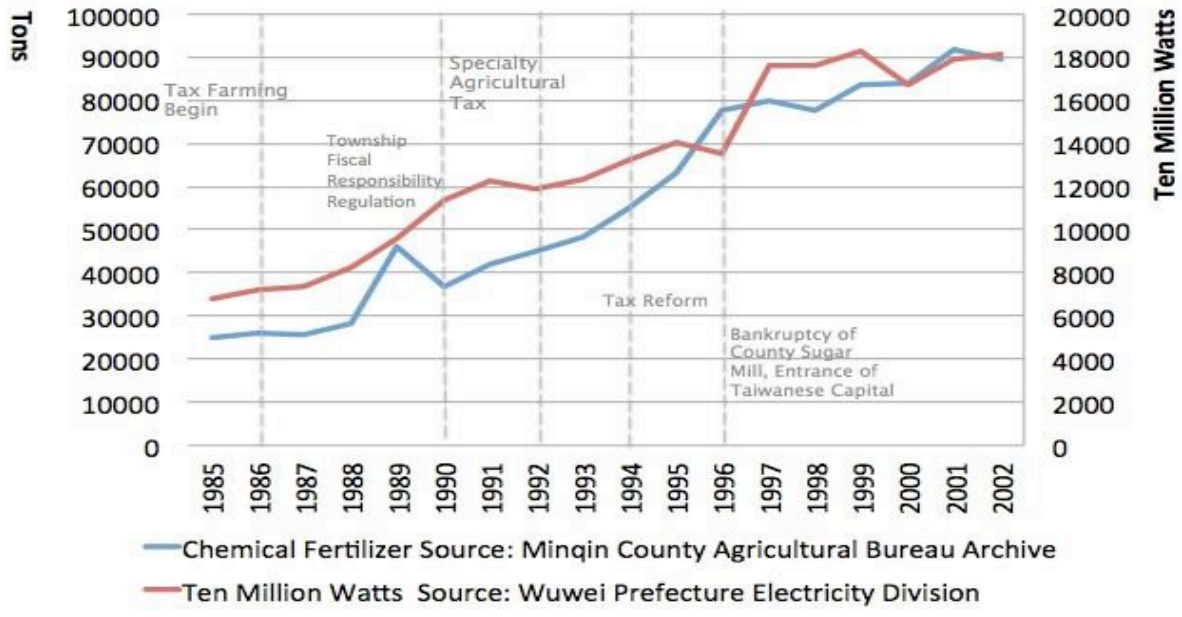

Figure 19 The Intensity of Industrialized Farming

Appendix A- Interviewee List

English Name	Gender	Age	Highest Professional Status	Location	Date Interviewed
A	M	34	County Level: Cadre	Changning Township	2011-2-15
bai1	M	43	Head of Township	Shuangcike Township	2011-6-6
chai1	M	45	Peasant	Daba Township Yongfeng Farm	2011-2-17
chai2	M	37	Peasant	Shoucheng Township	2011-2-18
chai3	F	54	Peasant	Shoucheng Township	2011-3-23
chai4	F	38	Peasant	Shoucheng Township	2011-3-23
chen1	M	62	Provincial Official Central Committee	Gansu Province	2011-7-24
chen2	M	76	Provincial Official Head of Ministry (retired)	Gansu Province	2011-6-29
chen3	M	36	Head of Local NGO	Gansu Province	2011-10-14
chang	M	66	Provincial Official: Head of Bureau (retired)	Gansu Province	2011-7-26
cao	F	64	Provincial Offical:Head of Ministry (retired)	Minqin County	2011-11-2
dou	M	47	Peasant	Daba Township Tianfu Village	2011-2-12
ding	M	59	Prefecture Official: Head of Bureau	Gansu Province	2011-7-25

dai	M	62	University Professor in Beijing	Beijing	2011-5-16
deng	M	63	Provincial Official: Head of Bureau	Gansu Province	2011-12-25
fang	F	47	Peasant	Changning Township	2011-3-25
fu1	F	26	NGO	Gansu Province	2011-10-16
fu2	M	54	University Professor in Lanzhou	Lanzhou	2011-5-18
fu3	M	58	Think Tank Analyst in Beijing	Gansu Province	2011-5-13
feng	M	52	University in Beijing PK EH	Beijing	2011-5-15
fang	M	69	Provincial Official: Head of Ministry (retired)	Gansu Province	2011-12-25
gou	F	64	Provincial Official: Head of Ministry	Gansu Province	2011-12-21
geng	M	57	Provincial Official: Head of Bureau	Gansu Province	2011-12-24
he1	M	54	Peasant	Daba Township	2010-12-7
he2	M	87	Peasant	Dongba Township	2011-3-28
hao	M	47	Prefecture Official Head of Bureau	Minqin County	2011-11-24
han	M	35	Head of local NGO	Gansu Province	2011-10-17
jiang1	M	82	Peasant	Daba Township Qinfeng Farm	2011-2-13
jiang2	M	42	Peasant	Daba Township Qinfeng Farm	2011-2-24

jiang3	M	47	Prefecture Official Head of Bureau	Gansu Province	2011-12-22
li1	M	43	Peasant	Datan Township	2011-2-12
li2	M	48	Peasant	Daba Township Tianfu Village	2011-2-12
li3	M	55	Peasant	Daba Township	2011-2-12
li4	M	37	Peasant	Jiahe Township	2011-2-14
li5	M	48	Cash Crop Buyer (Major)	Changning Township	2011-2-15
li6	M	43	Village Level Cadre	Changning Township	2011-2-15
li7	M	39	Peasant	Shoucheng Township	2011-2-17
li8	M	42	Peasant	Shoucheng Township	2011-2-19
li9	M	39	Peasant	Daba Township Tianfu Village	2011-2-21
li10	M	64	Peasant	Daba Township	2011-2-21
li11	F	47	Peasant	Jiahe Township	2011-4-10
li12	M	78	Village School Teacher (retired)	Shuangcike Township	2011-3-23
li13	M	49	Peasant	Shuangcike Township	2011-3-27
li14	M	27	Village Level Cadre	Dongba Township	2011-3-27
li15	F	45	Cash Crop Buyer (Major)	Sanlei Township	2011-10-19
li16	M	42	Cash Crop Buyer (Major)	Shoucheng Township	2011-11-25
li17	M	46	County Level: Head of People's	Minqin County	2011-10-30

			Assembly		
li18	F	54	Staff at Local NGO	Gansu Province	2011-10-16
li19	M	60	Provicinal Offical: Head of Bureau	Wuwei District	2011-6-18
liu1	M	76	Peasant	Shuangcike Township	2011-3-23
liu2	M	52	Peasant	Changning Township	2011-3-26
liu3	F	56	Peasant	Changning Township	2011-3-26
liu4	M	47	Cash Crop Buyer (Mid-Level)	Shangdong	2011-11-27
lu2	M	75	Peasant	Suwu Township	2011-3-21
lin1	F	42	Peasant	Sanlei Township	2011-7-21
lin2	F	46	County Level Official: Head of Bureau	Minqin County	2011-11-3
liao	M	52	Prefecture Level Cadre: Head of Bureau	Wuwei District	2011-7-22
liang	F	60	Provincial Level: Central Committee	Gansu Province	2011-12-20
luo1	M	54	Chinese Academy of Sciences Professor	Beijing	2010-11-15
luo2	M	52	Chinese Academy of Sciences Professor	Beijing	2010-11-17
ma1	F	89	Peasant	Shoucheng Township	2011-2-18
ma2	M	47	Peasant	Shoucheng Township	2011-2-18
ma3	F	46	Peasant	Shoucheng Township	2011-2-18

ma4	M	45	Peasant	Shoucheng Township	2011-2-18
ma5	M	69	Peasant	Shoucheng Township	2011-2-18
ma6	M	75	Peasant	Shoucheng Township	2011-2-18
ma7	M	78	Peasant	Shoucheng Township	2011-2-19
ma8	F	81	Peasant	Shoucheng Township	2011-2-19
ma9	F	74	Peasant	Shoucheng Township	2011-2-19
ma10	M	47	Peasant	Changning Township	2011-3-26
ma11	M	43	Township Level Cadre	Jiahe Township	2011-4-10
miao	M	48	University Professor in Lanzhou	Lanzhou	2011-5-12
nie1	M	58	Peasant	Minqin County	2011-11-15
nie2	M	62	Cash Crop Buyer (Local)	Dongzhen Township	2011-6-4
Naser	M	57	Cash Crop Buyer (International)	Minqin County	2011-11-27
pan	F	49	Peasant	Dongba Township	2011-3-28
qiu	F	47	Peasant	Dongba Township	2011-3-28
qian	M	54	Prefecture Level: Head of Bureau	Minqin County	2011-10-31
qi	M	47	Cash Crop Buyer (Local)	Daba Township	2011-9-15
shi1	M	76	Peasant	Xuebai Township Songhe Village	2011-2-12
shi2	M	51	Peasant	Jiahe Township	2011-4-10
shi3	M	43	Peasant	Jiahe Township	2011-4-10

shi4	F	38	Peasant	Jiahe Township	2011-4-10
shi5	M	39	Peasant	Jiahe Township	2011-4-10
sun1	M	57	Cash Crop Buyer (Major)	Minqin County	2011-10-10
sun2	M	54	Cash Crop Buyer (Major)	Sanlei Township	2011-10-19
sun3	F	49	Cash Crop Buyer (Major)	Shoucheng Township	2011-11-26
tang	M	59	Peasant	Quanshan Township Xiliu Village	2011-2-14
tian	M	54	University Professor in Lanzhou	Lanzhou	2011-6-13
wang1	M	42	Peasant	Nanhu Township	2011-2-12
wang2	M	47	Village Doctor	Suwu Township	2011-2-24
wang3	F	52	Peasant	Suwu Township	2011-3-22
wang4	M	39	Peasant	Shuangcike Township	2011-3-23
wang5	M	38	Peasant	Changning Township	2011-3-25
wang6	F	36	Peasant	Changning Township	2011-3-25
wang7	F	43	Peasant	Daba Township	2011-4-9
wang8	F	49	Peasant	Jiahe Township	2011-4-10
wang9	F	42	Cash Crop Buyer (Major)	Minqin County	2011-10-10
wei	M	60	Central Government Official: Head of Bureau	Gansu Province	2011-5-13
wan1	M	53	Chinese Academy of	Beijing	2010-11-16

			Sciences Professor		
wan2	M	59	Provincial Official: Head of Ministry	Gansu Province	2011-12-22
wen	M	48	University Professor in Lanzhou	Lanzhou	2011-6-12
xue1	M	41	Peasant	Daba Township	2011-7-14
xue2	M	62	Peasant	Daba Township	2011-7-15
xue3	M	74	Peasant	Daba Township	2011-7-19
xue4	M	40	Peasant	Daba Township	2011-2-22
xu1	M	47	University Professor in Lanzhou	Lanzhou	2011-5-10
xu2	M	32	University Professor in Lanzhou	Lanzhou	2011-5-11
xie1	M	56	Peasant	Daba Township	2011-2-21
xie2	M	43	Peasant	Shuangcike Township	2011-3-27
ye1	F	47	Peasant	Daba Township	2011-4-9
ye2	M	48	County Level: Head of Bureau	Minqin County	2011-11-24
ye3	M	53	Township Level Cadre	Shuangcike Township	2011-6-7
yang1	F	47	Peasant	Changning Township	2011-3-26
yang2	M	49	Peasant	Changning Township	2011-3-26
yang3	M	43	Peasant	Shuangcike Township	2011-3-27
yuan	F	56	Provincial Official: Head of Ministry	Gansu Province	2011-7-27
yi	F	56	Cash Crop Buyer	Wuwei District	2011-5-17

			(Major)		
zhan1	M	39	Peasant	Shuangcike Township	2011-3-27
zhan2	M	36	Peasant	Dongba Township	2011-3-28
zhang1	F	48	Peasant	Changning Township	2011-3-26
zhang2	M	52	Peasant	Changning Township	2011-3-25
zhang3	F	49	Peasant	Jiahe Township	2011-4-10
zhang4	M	56	Peasant	Datan Township	2011-7-12
zhang5	F	53	County Level: Head of Bureau	Minqin County	2011-11-4
zhang6	F	60	Provincial Official: Bureau Level	Gansu Province	2011-12-20
zhao1	F	47	Peasant	Jiahe Township	2011-4-10
zhao2	F	63	Provincial Official: Ministry Level	Gansu Province	2011-7-28
zhao3	F	68	University Professor in Lanzhou	Lanzhou	2011-6-14
zhen	M	41	Peasant	Jiahe Township Guodong Village	2011-4-9
zhong1	M	48	Township Level: Cadre	Changning Township	2011-3-25
zhong2	F	37	NGO head of the organization	Beijing	2011-10-15
zhou1	M	47	Peasant	Dongba Township	2011-3-28
zhou2	M	58	County Level: Head of Bureau	Minqin County	2011-11-24
zhu	F	62	Prefecture Level:	Minqin County	2011-11-1

			Head of Bureau		
li20	M	54	Peasant	Dongba Township	2011-3-28
ding	M	48	Village Cadre (retired)	Nanhu Township	2011-2-14
chen4		43	Peasant	Datan Township	2011-2-14
lu3	M	79	Village Cadre (retired)	Daba Township	2010-11-26
xian	M	42	Peasant	Suwu Township	2011-2-24
zhang7	F	37	Peasant	Suwu Township	2011-2-24
liu5	M	46	Peasant	Daba Township	2010-12-21
mo	F	48	Township Cadre	Changning Township	2011-9-28
dai	F	82	Peasant	Suwu Township	2011-9-30
yu	M	68	Township Cadre (retired)	Jiahe Township	2011-10-2
wu	F	39	Peasant	Shuangcike Township	2011-1-31
li21	M	78	Country Cadre （retired）	Quanshan Township	2010-11-15
ren	M	47	Peasant	Minqin County	2010-11-25
wang10	F	86	Peasant	Changning Township	2010-12-8
zhang8	F	27	Township Cadre	Daba Township	2010-12-9
zha	M	47	Peasant	Dongzhen Township	2011-3-4
bai2	F	43	Peasant	Xiqu Township	2077-3-9
wang10	M	51	Peasant	Shoucheng Township	2011-4-16
sun4	M	65	County Cadre (retired)	Shoucheng Township	2011-6-12

zhang9	F	26	Peasant	Suwu Township	2011-5-20
liu6	F	25	Village Cadre	Daba Township	2011-4-23
zhang10	M	92	County Cadre (retired)	Minqin County	2011-12-24

Appendix B Policy Documents Cited

Table 9 Policy Documents Cited in Chapter 2

Time	Author	Doc #	Title
1979	Minqin Tax Bureau	#149	关于调查填报《农业税实行起征点免税统计表》的通知 Guan Yu Diao Cha Tian Bao<Nong Ye Shui Shi Xing Qi Zheng Dian Mian Shui Tong Ji Biao>De Tong Zhi
1959	Northwest Military Command		西北军政委员会十一月十五日颁布惩治不法地主暂行条例 Xibei Jun Zhen Wei Yuan Hui 11Yue15Ri Ban Bu Cheng Zhi Bu Fa Di Zhu Zan Xing Tiao Li
1950	People's Government of Gansu Province	#21	甘肅省新解放區農業稅暫行條例施行細則 Gansu Sheng Xin Jie Fang Qu Nong Ye Shui Zan Xing Tiao Li Shi Xing Xi Ze
1950	Shaanxi Military District Report	#34	陕西军区工作报告 Shanxi Jun Qun Gong Zuo Bao Gao
1950	Yanglu Township	#64	關於整理一九四九年度公糧入倉的指示 Guan Yu Zheng Li 1949 Nian Gong Liang Ru Cang de Zhi Shi

Table 10 Policy Document Cited in Chapter 3

Time	Author	Doc #	Title
1951	Wuwei District Community Party Office	#79	第 79 号 Di 79 Hao
1959	Bureau of Hydro-Geological Engineering		地质对地下水开采的几点意见 Di Zhi Dui Di Xia Shui Kai Cai De Ji Dian Yi Jian

1959	Shiyang River Management Office	#56	关于召集武、永、民三县水利部门负责同志研究均水问题报告 Guan Yu Zhao Ji Wu, Yong, Min San Xian Shui Li Bu Men Fu Ze Tong Zhi Yan Jiu Jun Shui Wen Ti Bao Gao
1960	Chinese Communist Party Central Committee	#15	中共中央关于全党动手，大办农业，大办粮食的指示 Zhong Gong Zhong Yang Guan Yu Quan Dang Dong Shou, Da Ban Nong Ye, Da Ban Liang Shi De Zhi Shi
1961	Gansu People's Government		关于民勤武威两县对清水河，黄娘娘台，擂台胡等处的用水报告 Guan Yu Minqin Wuwei Liang Xian Dui Qing Shui He, Niang Niang Tai, Lei Tai Hu Deng Chu De Yong Shui Bao Gao
1961	Gansu Provincial Ministry of Finance	#592	省财政厅关于进一步加强农村集市税务征整工作的通知 Sheng Cai Zheng Ting Guan Yu Jin Yi Bu Jia Qiang Nong Cun Ji Shi Shui Wu Zheng Zheng Gong Zuo de Tong Zhi
1961	Gansu Provincial Ministry of Finance	#695	关于农村供销合作社，城、乡手工业合作组织，合作商店，个体手工业，小商小贩等征税问题的通知 Guan Yu Nong Cun Gong Xiao He Zuo She, Cheng,Xiang Shou Gong Ye He Zuo Zu Zhi, He Zuo Shang Dian, Ge Ti Shou Gong Ye,Xiao Shang Xiao Fan Deng Zheng Shui Wen Ti de Tong Zhi
1961	Minqin County Bureau of Finance	#279	自行车换羊只需缴税 Zi Xing Che Huan Yang Zhi Xu Jiao Shui
1962	Gansu Ministry of Water Works	#5	甘肃省水利厅征收 1962 年水费的通知 Gansu Sheng Shui Li Ting Zheng Shou 1962 Nian Shui Fei de Tong Zhi
1963	Gansu People's Government	#174	第 174 号 Di 174 Hao

1964	Gansu Department of Water Resources	#814	关于印发河西地区一九六四年水利工作总结和一九六五年水利工作安排与河西地区一九六四年秋季水利工作会议总计的通知 Guan Yu Yin Fa He Xi Di Qu 1964 Nian Shui Li Gong Zuo Zong Jie He 1965 Nian Shui Li Gong Zuo An Pai Yu He Xi Di Qu 1964 Nian Qiu Ji Shui Li Gong Zuo Hui Yi Zong Ji De Tong Zhi
1964	Gansu Provincial Ministry of Grain	#113	全国粮票变通发行 Quan Guo Liang Piao Bian Tong Fa Xing
1964	Minqin People's Commission	# 143	关于夏灌第一次苗水配水问题的通知 Guan Yu Xia Guan Di Yi Ci Miao Shui Pei Shui Wen Ti De Tong Zhi
1965	Gansu Provincial Ministry of Grain	#133	关于简发简化粮食纳税规定的几个问题解答的通知 Guan Yu Jian Fa Jian Hua Liang Shi Na Shui Gui Ding de Ji Ge Wen Ti Jie Da de Tong Zhi
1966	Minqin County Bureau of Grain	#145	1966 年 1 月 1 日起发行新版全国通用粮票 1966 Nian1Yue1Ri Qi Fa Xing Xin Ban Quan Guo Tong Yong Liang Piao
1966	Wuwei County Economic Planning Team		武威县太平滩农田水利规划说明书 Wuwei Xian Tai Ping Tan Nong Tian Shui Li Gui Hua Shuo Ming Shu
1966	Wuwei District Agriculture and Forestry Bureau	#8	武威专区农田基本建设“五好”规划队关于规划工作进展情况报告 Wuwei Zhuanqu Nong Tian Ji Ben Jian She "Wu Hao" Gui Hua Dui Guan Yu Gui Hua Gong Zuo Jin Zhan Qing Kuang Bao Gao
1967	Wuwei District Revolution and Production Frontline Agriculture Office		一九六七年农业生产工作总结报告 1967 Agricultural Production Year-End Report
1967	Wuwei District Revolutionary and Production Instigation Head Office	#13	武威专区八个月农业生产工作总结报告 Wuwei Zhuan Qu Ba Ge Yue Nong Ye Sheng Chan Gong Zuo Zong Jie Bao Gao

1968	Gansu Provincial Revolutionary Committee Production Head Office	#245	甘肃省革命委员会生产指挥部关于转发“国务院关于一九六八年度收购农副产品奖售标准的通知”的通知 Gansu Sheng Ge Ming Wei Yuan Hui Sheng Chan Zhi Hui Bu Guan Yu Zhuan Fa"Guo Wu Yuan Yu 1968 Nian Du Shou Gou Nong Fu Chan Pin Jiang Shou Biao Zhun de Tong Zhi"
1968	Minqin County Revolution and Production Conmission	#392	关于甘肃省专区下达一九六八年甘草棉花收购任务通知 Guan Yu Gansu Sheng Zhuan Qu Xia Da 1968 Nian Gan Cao Mian Hua Shou Gou Ren Wu Tong Zhi
1968	Minqin County Revolution Conmission	#8	关于抓好当前农业生产工作的几点意见 Guanyu Zhua Hao Dang Qian Nong Ye Sheng Chan Gong Zuo De Ji Dian Yi Jian
1969	Minqin County Revolutionary Government Resettlement Office	#11	关于当前下放安置共组中几个问题的通知 Guan Yu Dang Qian Xia Fang An Zhi Gong Zu Zhong Ji Ge Wen Ti De Tong Zhi
1970	Huang Yang District Revolutionary Committee	#75	黄羊区水利大会战的情况反映 Huang Yang Qu Shui Li Da Hui Zhan De Qing Kuang Fan Ying
1970	Minqin County Waterworks and Electricity Bureau 1970 #3	#3	关于武威超采我县泉水的报告 Guan Yu Wu Wei Chao Cai Wo Xian Quan Shui De Bao Gao
1970	Wuwei County Agriculture and Forestry Bureau	#74	关于洗同志讲话 Guan Yu Xi Tong Zhi Jiang Hua
1970	Wuwei County Agricultural and Forestry Bureau Records	#22	人民公社基本核算单位粮食分配表 Ren Min Gong She He Suan Dan Wei Liang Shi Fen Pei Biao

1970	Wuwei County Revolutionary Commission Agricultural Bureau	#102	关于迅速开展秋季造林工作的通知 Guan Yu Xun Su Kai Zhan Qiu Ji Zao Lin Gong Zuo De Tong Zhi
1970	Wuwei County Revolutionary Committee Production Head Office	#20	关于请示调查处理西营、金塔、黄羊河上游破坏水源问题的报告 Guan Yu Qing Shi Diao Cha Chu Li Xiying,Jinta,Huangyanghe Shang You Po Huan Shui Yuan Wen Ti de Bao Gao
1970	Wuwei District Agriculture and Forestry Bureau	#92	李坦同志在武威县双城改土现场会议的讲话 Li Tan Tong Zhi Zai Wuwei Xian Shuang Cheng Gai Tu Xian Chang Hui Yi de Jiang Hua
1971	Gansu Provincial Revolutionary Committee	#56	第 56 号 Di 56 Hao
1971	Gulang County Revolutionary Agricultural Production Investigation		泰山压顶不弯腰，平田整地掀高潮-新胜大队搞农田基本建设的调查报告 Tai Shan Ya Ding Bu Wan Yao, Ping Tian Zheng Di Xian Gao Chao--Xin Sheng Da Dui Gao Nong Tian Ji Ben Jian She de Diao Cha Bao Gao
1971	Minqin County Revolutionary Committee	#36	民勤县革委会对《武威地区革命委员会关于民、武两县泉湖使用问题的处理决定》的几点意见 Minqin Xian Ge Wei Dui<Wuwei Di Qu Ge Ming Wei Yuan Hui Guan Yu Min,Wu Liang Xian Quan Hu Shi Yong Wen Ti de Chu Li Jue Ding>
1971	Minqin County Revolutionary Committee	#9	关于新改外河引水渠的报告 Guan Yu Xin Gai Wai He Yin Shui Qu De Bao Gao
1971	Wuwei County Agriculture and Forestry Bureau Records		一九七一年度农业税征收任务分配表 1971 Nian Du Nong Ye Shui Zheng Shou Ren Wu Fen Pei Biao

1971	Wuwei County Communist Party	#20	关于传达贯彻地委二次全委扩大会议精神的情况简报 Guan Yu Chuan Da Guan Che Di Wei ER Ci Quan Wei Kuo Da Hui Yi Jing Shen De Qing Kuang Jian Bao
1971	Wuwei County Communist Party Committee	#14	武威县开展防寒抗灾斗争和安排社员生活问题的报告 Wuwei Xian Kai Zhan Fang Han Kang Zai Dou Zheng He An Pai She Yuan Sheng Huo Wen Ti de Bao Gao
1971	Wuwei County Communist Party Committee	#28	关于贯彻执行全省打井工作会议的意见 Guan Yu Guan Che Zhi Xing Quan Sheng Da Jing Gong Zuo Hui Yi De Yi Jian
1971	Wuwei County Party Committee	#23	关于印发“冼政委对武威县工作的指示”的通知 Guan Yu Yin Fa "Xian Zheng Wei Dui Wu Wei Xian Gong Zuo De Zhi Shi"
1971	Wuwei County Party Committee	#20	关于传达贯彻地位二次全委扩大会议精神的情况简报 Guan Yu Chuan Da Guan Che Di Wei Er Ci Quan Wei Kuo Da Hui Yi Jing Shen De Qing Kuang Jian Bao
1971	Wuwei County Revolutionary Commission	#54	《关于立即动员起来打一场抗旱夺粮人民战争的紧急通知》的意见 <Guan Yu Li Ji Dong Yuan Qi Lai Da Yi Chang Kang Han Duo Liang Ren Min Zhan Zheng De Jin Ji Tong Zhi>
1971	Wuwei County Revolutionary Committee	#78	武革发 （1971） 078 号 Wu Ge Fa (1971) 078 Hao
1971	Wuwei County Revolutionary Production Commission	#102	武革生字 第 102 号 关于抗旱生产的情况汇报 (71)Wu Ge Sheng Zi Di 102 Hao Guan Yu Kang Han Sheng Chan De Qing Kuang Hui Bao
1971	Wuwei County Revolutionary Production Head Office	#185	关于进一步加强市场管理的紧急通知 Guan Yu Jin Yi Bu Jia Qiang Shi Chang Guan Li De Tong Zhi

1971	Wuwei District Agricultural and Forestry Bureau	#1	上唐生产队大搞农田基本建设的调查报告 Shangtang Sheng Chan Da Dui Gao Nong Tian Ji Ben Jian She De Diao Cha Bao Gao
1971	Wuwei District Agriculture and Forestry Bureau	#1	武威县农机工作会议纪要 Wuwei Xian Nong Ji Gong Zuo Hui Yi Ji Yao
1971	Wuwei District Revolution and Production Instigation Head Office	#78	第 78 号 Di 78 Hao
1971	Wuwei District Revolutionary Commission	#96	关于立即掀起农田水利基本建设新高潮的指示 Guan Yu Li Ji Xian Qi Nong Tian Shui Li Ji Ben Jian She Gao Chao De Zhi Shi
1971	Wuwei District Revolutionary Committee	#20	武革发 （71） 020 号 Wu Ge Fa (71)020 Hao
1971	Wuwei District Revolutionary Committee Agricultural Bureau	#44	关于当前农业生产情况的汇报 Guan Yu Dang Qian Nong Ye Sheng Chan Qing Kuang Hui Bao
1971	Wuwei Revolutionary Committee Agriculture Production Office	#45	武威县革命委员会生产指挥部文件 Wuwei Xian Ge Ming Wei Yuan Hui Sheng Chan Zhi Hui Bu Wen Jian
1971	Wuwei Revolutionary Production Head Office	#127	关于西营河二干渠发生水利纠纷的调查报告 Guan Yu Xiyinghe Er Gan Qu Fa Sheng Shui Li Jiu Fen de Diao Cha Bao Gao

1972	Gansu Provincial Revolution and Production Commission	#42	关于进一步落实农村人民公社经济政策的若干意见 Guan Yu Jin Yi Bu Luo Shi Ren Min Gong She Jing Ji Zheng Ce De Ruo Gan Yi Jian
1972	Minim County Revolutionary Production Head office	#34	关于棉花、油品、甜菜等五种经济作物收购和奖售问题的通知 Guan Yu Mian Hua, You Pin, Tian Cai Deng Wu Zhong Jing Ji Zuo Wu Shou Gou He Jiang Shou Wen Ti de Tong Zhi
1972	Minqin County Revolution and Production Conmission	#191	关于分配公粮任务的通知 Guan Yu Fen Pei Gong Liang Ren Wu De Tong Zhi
1973	Minqin County Revolutionary Finance Bureau Draught and Well Construction Office	#7	关于增拨打井补助费，钢材，水泥的联合通知 Guan Yu Zeng Bo Da Jing Bu Zhu Fei, Gang Cai, Shui Ni de Lian He Tong Zhi
1973	Minqin Revolutionary Finance Commission	#49	第 49 号 Di 49 Hao
1973	People's of China Minqin County Branch/Minqin County Revolutionary Finance Bureau	#49	关于切实加强水利投资管理使用的通知 Guan Yu Qie Shi Jia Qiang Shui Li Tou Zi Guan Li Shi Yong De Tong Zhi
1975	Minqin County Bureau of Grain	#66	在文化大革命中群众组织借用免费，现金，粮票为依法收回一打三反运动， 按损失核销处理 Zai Wen Hua Da Ge Ming Zhong Qun Zhong Zu Zhi Jie Yong Mian Fei Xian Jin, Liang Piao Wei Yi Fa Shou Hui Yi Da San Fan Yun Dong An Sun Shi He Xiao Chu Li

1975	Minqin County Bureau of Taxation and Finance	#186	关于农村社队企业征收所得税问题的通知 Guan Yu Nong Cun She Dui Qi Ye Zheng Shou Suo De Shui Wen Ti de Tong Zhi
1975	Minqin County Revolutionary Conmission	#92	关于农村征税几个问题的处理意见 GuanYu Nong Cun Zheng Shui Ji Ge Wen Ti De Chu Li Yi Jian
1975	Minqin County Revolutionary Production Commission Head Office	#9	1973 年生产的 580 部上帝步犁比规定价 1973 Nian Sheng Chan De 580 Bu Shang Di Bu Li Bi Gui Ding Jia
1976	Minqin County Commerce Bureau	#85	关于购置潜水泵问题的报告 Guan Yu Gou Zhi Qian Shui Beng de Bao Gao
1976	Minqin County Commerce Bureau 1976	#79	购置抽水设备报告 Gou Zhi Chou Shui She Bei Bao Gao
1976	Minqin County Grain Bureau	#77	甘肃省民勤县粮食局文件 Gansu Sheng Minqin Xian Liang Shi Jv Wen Jian
1976	Minqin County Taxation and Finance Bureau	#110	关于分配新增五百眼机井及补助费的通知 Guan Yu Fen Pei Xin Zeng Wu Bai Yan Ji Jing Ji Bu Zhu Fei de Tong Zhi
1976	Minqin County Bureau of Water and Electricity	#96	打深井报告 Da Shen Jing Bao Gao
1976	Minqin County Bureau of Water and Electricity	#108	打深井一眼 70 米 Da Shen Jing Yi Yan 70 Mi
1977	Minqin County Bureau of Water and Electricity	#66	关于武威县继续装机提取我县河水的报告

1978	Minqin County Communist Party Office	#13	民勤工作简报 Minqin Gong Zuo Jian Bao
1978	Minqin County Revolutionary Committee	#13	民勤工作简报 Minqin Gong Zuo Jian Bao
1978	Minqin County Revolutionary Committee	#46	民勤工作简报 Minqin Gong Zuo Jian Bao
1978	Minqin County Revolutionary Committee	#46	民勤工作简报 Minqin Gong Zuo Jian Bao
1979	Minqin County Communist Party Office	#10	民勤县东镇公社当前农业生产和群众生活的情况调查 Minqin Xian Dong Zhen Gong She Dang Qian Nong Ye Sheng Chan He Qun Zhong Sheng Huo De Qing Kuang Diao Cha
1979	Wuwei Prefecture Grain and Taxation Archives		关于段云同志的讲话 Transcription of Duan Yun's speech in the northcentral, northwest, and northeast regional price conference
2007	Gansu Development and Reform Commission		石羊河流域重点治理规划 Shi Yang He Liu Yu Zhong Dian Zhi Li Gui Hua

Table 11 Policy Documents Cited in Chapter 4 & 5

Time	Author	Doc #	Title
1972	Wuwei District Revolutionary and Production Head Office	#307	第 307 号文件 Di 307 Hao Wen Jian
1977	Minqin Communist Party Committee	#21	第 21 号文件 Di 21 Hao Wen Jian
1977	Chinese Communist Party Central Committee	#37	中共中央关于转发湖南省湖南省湘乡县委报告的批示 Zhong Gong Zhong YangGuan Yu

1977	Minqin County Bureau of Grain	#23	第 23 号文件 Di 23 Hao Wen Jian
1978	Minqin Communist Party Committee	#26	现将重兴公社贯彻中央 37 号文件的初步调查材料转发，请各级领导同志一阅 Xian Jiang Zhong Xing Gong She Guan Che Zhong Yang 37 Hao Wen Jian de Chu Bu Diao Cha Cai Liao Zhuan Fa,Qing Ge Ji Ling Dao Tong Zhi Yi Yue
1978	Minqin Communist Party Committee	#34	民勤工作简报 Minqin Gong Zuo Jian Bao
1978	Minqin Communist Party Committee	#40	当前收回到逾期农贷的情况报告 Dang Qian Shou Hui Dao Yu Qi Nong Dai Qing Kuang Bao Gao
1978	Minqin Communist Party	# 27	我们贯彻中央三十七号文件的初步做法 Wo Men Guan Che Zhong Yang 37 Hao Wen Jian de Chu Bu Zuo Fa
1978	Minqin Communist Party	#43	西渠公社大坝四队试行现金奖励先进生产者 Xiqu Gong She Da Ba Si Dui Shi Xing Xian Jin Jiang Li Xian Jin Sheng Chan Zhe
1979	Wuwei Dstrict Bureau of Water and Electricity	#30	武威县地下水开采利用现状及今后发展意见 Wuwei Xian Di Xia Shui Kai Cai Li Yong Xian Zhuang Ji Jin Hou Fa Zhan Yi Jian
1979	Wuwei District Administrative Office	#134	关于民勤县湖区灌区在石羊河林场义粮谈林区打群井抽水问题的处理意见 甘肃省武威地区行政公署文件 Guan Yu Minqin Xian Hu Qu Guan Qu Zai Shiyang He Li Chang Yi Liang Tan Lin Qu Da Qun Jing Chou Shui Wen Ti De Chu Li Yi Jian
1979	Minqin Communist Party Committee	#21	按机井划分联系产量的作业组——双茨科公社在三杰大堆试点 An Ji Jing Hua Fen Lian Xi Chan Liang De Zuo Ye Zu-- Shuangcike Gong She Zai San Jie Da Dui Shi Dian
1979	Minqin Communist Party Committee	#10	民勤县东镇公社当前农业生产和群众生活的情况调查 Minqin Xian Dong Zhen Gong She Dang Qian Nong Ye Sheng Chan He Qun Zhong Sheng Huo de Qing Kuang Diao Cha
1979	Minqin Communist Party	#26	茂大队林场、农科队 实行任务成本包干、超产节约提成奖励 Mao Da Dui Lin Chang, Nong Ke Dui Shi Xing Ren Wu Cheng Ben Bao Gan,Chao Chan Jie Yue Ti Cheng Jiang Li
1979	Minqin Communist Party	#34	联系产量分组作业是加快农业发展的一个好方法 Lian Xi Chan Liang Fen Zu Zuo Ye Shi Jia Kuai Nong Ye Fa Zhan de Yi Ge Hao Fang Fa

1979	Minqin Communist Party	#37	县委落实农村经济政策试点情况简报 Xian Wei Luo Shi Nong Cun Jing Ji Zheng Ce Shi Dian Qing Kuang Jian Bao
1979	Minqin Communist Party	#25	口粮按公分分配加照顾也可以，好着哩！——收成公社附智二队决算分配试点情况 Kou Liang An Gong Fen Fen Pei Jia Zhao Gu Ye Ke Yi, Hao Zhe Li!-- Shou Cheng Gong She Fu Zhi Er Dui Jue Suan Fen Pei Shi Dian Qing Kuang
1979	Minqin Communist Party	#31	严格实行定额管理 坚决纠正平均主义——宙和大队劳动管理现状的调查 Yan Ge Shi Xing Ding E Guan Li Jian Jue Jiu Zheng Ping Jun Zhu Yi--Zhou He Da Dui Lao Dong Guan Li Xian Zhuang de Diao Cha
1979	Minqin County Government	#6	关于试行取水许可通知 Guan Yu Shi Xing Shui Xu Ke de Tong Zhi
1979	Minqin Communist Party	#10	民勤县东镇公社当前农业生产和群众生活的情况调查 Minqin Xian Dong Zhen Gong She Dang Qian Nong Ye Sheng Chan He Qun Zhong Sheng Huo de Qing Kuang Diao Cha
1979	Minqin Communist Party	#20	包产到组 立竿见影——永丰二队包产到组实现“七增一降 Bao Chan Dao Zu Li Gan Jian Ying-- Yong Feng Er Dui Bao Chan Dao Zu Shi Xian "Qi Zeng Yi Jiang"
1979	Minqin Communist Party	#37	县委落实农村经济政策试点情况简报 Xian Wei Luo Shi Nong Cun Jing Ji Zheng Ce Shi Dian Qing Kuang Jian Bao
1979	Minqin Communist Party	#31	严格实行定额管理 坚决纠正平均主义——宙和大队劳动管理现状的调查 Yan Ge Shi Xing Ding E Guan Li Jian Jue Jiu Zheng Ping Jun Zhu Yi--Zhou He Da Dui Lao Dong Guan Li Xian Zhuang de Diao Cha
1979	Minqin Communist Party	#40	农业劳动定额的管理 Nong Ye Lao Dong Ding E Guan Li
1981	Minqin County Bureau of Agriculture	#120	—湖区安种水浇不上，自留地大幅增加 Yi Hu Qu An Zhong Shui Jiao Bu Shang, Zi Liu Di Da Fu Zeng Jia
1981	Minqin County Bureau of Finance	#195	—打井辅助 Yi Da Jing Fu Zhu
1981	Minqin County Government	#12	关于批转水电局《关于试行水票制的请示报告》的通知 Guan Yu Pi Zhuan Shui Dian Jv<Guan Yu Shi Xing Shui Piao Zhe De Qing Shi Bao Gao> De Tong Zhi
1981	Minqin County Government	#9	保护天然植被和发展林木柴湾实行奖惩办法 Bao Hu Tian Ran Zhi Bei He Fa Zhan Lin Mu Chai Wan Shi Xing Jiang Cheng Ban Fa

1981	Minqin Communist Party	#24	第 24 号文件 Di 24 Hao Wen Jian
1982	Minqin County Government	#25	关于维持集体林地生态实施办法 Guan Yu Wei Chi Ji Ti Lin Di Sheng Tai Shi Shi Ban Fa
1982	Minqin County Bureau of Finance	#4	好—支农资金绝大部分用于乡镇企业的建设 Hao Yi Zhi Nong Zi Jin Jue Da Bu Fen Yong Yu Xiang Zhen Qi Ye de Jian She
1983	Minqin County Bureau of Finance and Taxation	#21	第 21 号文件 Di 21 Hao Wen Jian
1983	Minqin County Bureau of Taxation	#8	第 8 号文件 Di 8 Hao Wen Jian
1983	Minqin County Bureau of Finance	#31	第 31 号文件 Di 31 Hao Wen Jian
1984	Chinese Communist Party Central Committee's Notification on Agricultural Work	中共中央关于 1984 年农村工作通知-荒地承包期 Zhong Gong Zhong Yang Guan Yu 1984 Nian Nong Cun Gong Zuo Tong Zhi--Huang Di Cheng Bao Qi	
1984	Minqin County Bureau of Finance	#156	第 156 号文件 Di 156 Hao Wen Jian
1984	Minqin County Bureau of Finance	#16	第 16 号文件 Di 16 Hao Wen Jian
1986	Minqin County Government Bureau of Commerce	#83	西渠购销站（湖区）第一次出现亏损由于农付，畜产品，石油等经营业的划出，以及湖区农民经济收入减少 Xiqu Gou Xiao Zhan (Hu Qu) Di Yi Ci Chu Xian Kui Sun You Yu Nong Fu, Xu Chan Pin, Shi You Deng Jing Ying Ye de Hua Chu, Yi Ji Hu Qu Nong Min Jing Ji Shou Ru Jian Shao
1986	Gansu Ministry of Finance		Notes of the Advanced Collectives and Individuals Experience-Sharing Meeting
1986	Minqin County Bureau of Finance	#102	第 102 号文件 Di 102 Hao Wen Jian
1986	Minqin County Bureau of Finance	#141	第 141 号文件 Di 141 Hao Wen Jian
1986	Minqin County Bureau of Finance	#45	第 45 号文件 Di 45 Hao Wen Jian
1987	Wuwei Prefecture Bureau of Forestry	#2	第 2 号文件 Di 2 Hao Wen Jian
1987	Minqin County Bureau of Commerce	#5	第 5 号文件 Di 5 Hao Wen Jian

1987	Minqin County Bureau of Finance	#150	第 150 号文件 Di 150 Hao Wen Jian
1988	Minqin County Bureau of Finance	#105	第 105 号文件 Di 105 Hao Wen Jian
1989	Minqin County Waterworks and Electricity Bureau 1970 #3	#242	民勤县西凉镇三附改水淡化站工程运行情况总述 Minqin Xian Xiliang Zhen San Fu Gao Shui Dan Hua Zhan Gong Cheng Yun Xing Qing Kuang Zong Shu
1989	Minqin County Waterworks and Electricity Bureau 1970 #3	#222	关于 1970 年度灌溉意见的请示报告 Guan Yu 1970 Nian Guan Gai Yi Jian de Qing Shi Bao Gao
1989	Minqin County Government	#32	关于加强保护林木，树木，柴湾，草原的报告 Guan Yu Jia Qiang Bao Hu Lin Mu, Shu Mu, Chai Wan, Cao Yuan de Bao Gao
1989	Minqin County Government	#76	关于对毁林灰制备垦荒问题的处理意见 Guan Yu Dui Hui Lin Hui Zhi Bei Ken Huang Wen Ti de Chu Li Yi Jian
1989	Minqin County Government		《关于对毁林毁植被垦荒问题的处理意见》 <Guan Yu Dui Hui Lin Hui Zhi Bei Ken Huang Wen Ti de Chu Li Yi Jian, >
1989	Minqin County Bureau of Irrigation and Electricity	#29	第 29 号文件 Di 29 Hao Wen Jian
1989	Minqin County Bureau of Finance	#116	第 116 号文件 Di 116 Hao Wen Jian
1989	Gansu Provincial Government		Selected Essays from the 1st Township Finance Meeting
1989	Wuwei District Bureau of Finance and Taxation	#45	第 45 号文件 Di 45 Hao Wen Jian
1990	Minqin County Waterworks and Electricity Bureau 1970 #3	#16	关于下达民勤县八九年灌溉试验点总结的报告 Guan Yu Xia Da Minqin Xian 89 Nian Guan Gai Shi Yan Dian Zong Jie de Bao Gao
1990	Minqin County Waterworks and Electricity Bureau 1970 #3	#201	关于我县水源地遭受破坏情况的报告 Guan Yu Wo Xian Shui Yuan Di Zao Puo Huai Qing Kuang de Bao GAO
1990	Minqin County Bureau of Finance and Taxation	#180	第 180 号文件 Di 180 Hao Wen Jian

1990	Minqin County Bureau of Finance	#7	第 7 号文件 Di 7 Hao Wen Jian
1991	National Poverty-Alleviation and Development Leadership Committee	#10	国务院关于继续做好甘肃、宁夏“三西”地区移民工作的批复 Guo Wu Yuan Guan Yu Ji Xu Zuo Hao Gansu, Ningxia"Sanxi" Di Qu Yi Min Gong Zuo de Pi Fu
1991	Minqin County Waterworks and Electricity Bureau 1970 #3	#205	大滩乡东大村在总干渠第四泄水涧 蓄水池内开翁情况的报告 Datan Xiang Dongda Cun Zai Zong Gan Qu Di Si Xie Shui Jian Nei Kai Weng Qing Kuang Bao Gao
1992	Wuwei District Bureau of Agriculture and Water	#5	关于“武威地区 1991 年干支架及田间配套工程建设总结”的报告 Guan Yu"Wuwei Di Qu 1991 Nian Gan Zhi Jia Ji Tian Jian Pei Tao Gong Cheng Jian She Zong Jie"de Bao Gao
1992	Minqin County Bureau of Water Works	#160	关于《夹河只干分切工程施工预算》的批复 Guan Yu <Jia He Zhi Gan Fen Qie Gong Cheng Shi Gong Yu Suan>de Pi Fu
1992	Minqin County Government	#37	民勤第一轮土地利用总体规划 Minqin Di Yi Lun Tu Di Li Yong Zong Ti Gui Hua
1992	Minqin County Government		《关于加强林木种子、苗木市场的通知》 <Guan Yu Jia Qiang Lin Mu Zhong Zi, Miao Mu Shi Chang de Tong Zhi>
1993	Gansu Provincial Ministery of Agriculture	#128	关于对武威、张掖两市“国家级”商品粮基地建设总体方案的审查意见 Guan Yu Dui Wuwei, Zhangye Liang Shi"Guo Jia Ji" Shang Pin Liang Ji Di Jian She Zong Ti Fang An de Shen Cha Yi Jian
1993	Wuwei Prefecture Bureau of Agricultre and Lifestock	#18	关于报送《武威市一九九二年农业商品粮基地建设工作总结》的报告 Guan Yu Bao Song <Wuwei Shi 1992 Nian Nong Ye Shang Pin Liang Ji Di Jian She Gong Zuo Zong Jie>de Bao Gao
1993	Minqin County Government	#65	农用国有土地有偿使用办法 Nong Yong Guo You Tu Di You Chang Shi Yong Ban Fa
1993	Minqin County Government	#11	关于加强水土及林木植被资源管理的通知 Guan Yu Jia Qiang Shui Tu Yi Ji Lin Mu Zi Yuan Guan Li de Tong Zhi Shui Tu Ji
1994	Central Government Ministry of Water Works1994	#411	关于严禁印制和使用假冒“取水许可证”的通知 Guan Yu Yan Jin Yin Zhi He Shi Yong Jia Mao "Qu Shui Xu Ke Zheng" de Tong Zhi
1994	Minqin County Government	#21	关于加强水土以及林木资源管理的通知 Guan Yu Jia Qiang Shui Tu Yi Ji Lin Mu Zi Yuan Guan Li de Tong Zhi

1994	Minqin County Government	#42	民勤县林业管理和建设的意见的通知 Minqin Xian Lin Ye Guan Li He Jian She de Yi Jian de Tong Zhi
1994	Minqin County Government	#31	关于加快发展乡镇企业若干优惠政策的规定 Guan Yu Jia Kuai Fa Zhan Xiang Zhen Qi Ye Ruo Gan You Hui Zheng Ce de Gui Ding
1994	Minqin County Government Bureau of Commerce	#24	不断扩大黑瓜子加工生产规模 Bu Duan Kuo Da Hei Gua Zi Jia Gong Sheng Chan Gui Mo
1994	Minqin County Government Bureau of Commerce	#19	成立民勤县商业总公司 Cheng Li Min Qin Xian Shang Ye Zong Gong Si
1995	Gansu Provincial Ministry of Finance	#91	转发农业部、财政部《关于下达 1994 年扶持粮棉大县发展经济专项贷款贴息规模计划的通知》和《扶持粮棉大县发展经济专项贷款贴息办法》的通知 Zhuan Fa Nong Ye Bu, Cai Zheng Bu <Guan Yu Xia Da 1994 Nian Fu Chi Liang Mian Da Xian Fa Zhan Jing Ji Zhuan Xiang Dai Kuan Tie Xi Gui Mo Ji Hua de Tong Zhi> He <Fu Chi Liang Mian Da Xian Ji Ji Fa Zhan Zhuan Xiang Tie Xi Ban Fa de Tong Zhi >
1995	Gansu Provincial Bureau of Livestocks	#41	关于印发省畜牧局贯彻《决定》的实施意见的通知 Guan Yu Yin Fa Sheng Xu Mu Jv Guan Che <Jue Ding>de Shi Shi Yi Jian de Tong Zhi
1995	People's Government of Gansu Province	#9	甘肃省人民政府批转省水利厅省物价委员会关于加快我省水费改革有关问题的请示的通知 Gansu Sheng Ren Min Zheng Fu Pi Zhuan Sheng Shui Li Ting Sheng Wu Jia Wei Yuan Hui Guan Yu Jia Kuai Wo Sheng Shui Fei Gai Ge You Guan Wen Ti de Qing Shi de Tong Zhi
1995	Wuwei Prefecture Office of Waterworks	#8	实施取水许可制度加强水资源调控管理 Shi Shi Qu Shui Xu Ke Zhi Du Jia Qiang Shui Zi Yuan Tiao Kong Guan Li
1995	Gansu Provincial Minqin County Bureau of Water	#1	甘肃省 民勤县"九五"节水灌溉规划报告 Gansu Sheng Mingqin Xian "Jiu Wu" Jie Shui Guan Gai Gui Hua Bao Gao
1995	Minqin County Government	#11	有偿开发使用荒地管理办法 You Chang Kai Fa Shi Yong Huang Di Guan Li Ban Fa
1995	Gansu Provincial Ministry of Finance	#49	第 49 号文件 Di 49 Hao Wen Jian
1996	Gansu Provincial Party Committee	#42	关于进一步放开搞活国有小企业的若干意见 Guan Yu Jin Yi Bu Fang Kai Gao Huo Guo You Xiao Qi Ye de Ruo Gan Yi Jian

1996	Minqin County Government	#69	关于在全县木材市场实行经营（加工）许可证制度的通知 Guan Yu Zai Quan Xian Mu Cai Shi Chang Shi Xing Jing Ying (Jia Gong) Xu Ke Zheng Zhi Du de Tong Zhi
1997	Wuwei Prefecture Government	#26	关于全区进行乡镇财税合一试点 Guan Yu Quan Qu Jin Xing Xiang Zhen Shui He Yi Shi Dian
1997	Minqin People's Commission	#54	关于坚决制止惠林回执被打井开荒的决议 Guan Yu Jian Jue Zhi Zhi Hui Lin Hui Zhi Bei Da Jing Kai Huang de Jue Yi
1999	Minqin County Government	#12	关于加强林业建设步伐加强植被资源管理的意见 Guan Yu Jia Qiang Lin Ye Jian She Bu Fa Jia Qiang Zhi Bei Zi Yuan Guan Li de Yi Jian
1999	Minqin County Government	#16	关于坚决制止乱砍滥伐农田防护林树木的紧急通知 Guan Yu Jian Jue Zhi Zhi Luan Kan Lan Fa Nong Tian Fang Hu Lin Shu Mu de Jin Ji Tong Zhi
1999	Minqin County Government	#56	《关于加强林业建设步伐加强林木植被资源管理的意见》和《关于坚决制止乱砍滥伐农田防护林树木的紧急通知》<Guan Yu Jia Qiang Lin Ye Jian She Bu Fa Jia Qiang Lin Mu Zhi Bei Zi Yuan Guan Li de Yi Jian> He <Guan Yu Jian Jue Zhi Zhi Luan Kan Lan Fa Nong Tian Fang Hu Lin Shu Mu de Jin Ji Tong Zhi>
1999	Minqin County Government	#15	关于连古城沙生植物自然保护区范围内荒地退耕还林（草）的决定 Guan Yu Liangu Cheng Sha Sheng Zhi Wu Zi Ran Bao Hu Qu Fan Wei Nei Huang Di Tui Geng Huan Lin (Cao) de Jue Ding
2000	Minqin County Government	#32	民勤县 2001-2010 年生态环境治理综合规划 Minqin Xian 2001-2010 Nian Sheng Tai Huan Jing Zhi Li Zong He Gui Hua
2007	Gansu Provincial Development and Reform Committee		甘肃省发改委文件 Gansu Sheng Fa Gai Wei Wen Jian
2011	Wuwei Ri Bao		武威日报六十周年 Sixty Years of Wuwei Ri Bao

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