Development, Society, and Environment in Tibet

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DEVELOPMENT, SOCIETY AND ENVIRONMENT IN TIBET

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The papers brought together in this volume provide an account of social and environmental change in Tibet over the fifteen-year period between 1980 and 1994. In itself this was a time of economic development. All the same, two sets of processes operating over longer time-scales need to be taken into account to explain the form of these changes. The one is physical and operates over a geological time-scale. This is the extremes of topography and climate of the highland Asian plateau which set physical constraints to economic development not found in the more rugged or ‘elastic’ environments found in China’s temperate lowlands. The other type of process operates over a human time-scale. This is the broad historical and socio-political background to the administrative incorporation of Tibet within the Chinese polity, especially during the second half of this century. The local-level interplay of these two sets of processes has generated modern change in Tibet.

Half of the papers are case-studies and as such are necessarily localised in time and place. This introduction in the first place sets out the wider historical and natural context, which as such the case-studies cannot address directly themselves. Secondly, this introduction serves to draw out the various development issues raised in common by the papers on development, and to link these to social and economic change from the local and wider perspectives. These issues include the persistence of traditional social forms; values and the environment; land conversion and degradation; grain production; planning in current policy and from a perspective of environmental economics. Thirdly, this introduction also points to related over-arching issues raised by development in Tibet that are significant in a global debate on conservation and progress. One is the balance between rapid growth from using a standard external blueprint of economic planning, and preserving natural and human diversity to maintain the resilience of the physical production systems on which they rely. An economist or financier might term this a ‘trade-off’ between the rate of growth of an investment, and its security. The other is the balance between the adaptation of traditional social forms and knowledge to help reach modern goals and manage technology, versus their straightforward replacement by new external forms of management system.

There have been close cultural and economic interlinkages between Tibet and China since at the least the eighth century of the Christian Era (CE). As between Tibet and India some of these links were religious, and in this case others were political. The late eighteenth and first half of the nineteenth centuries were the height of the Manchu Empire, and the historical period when the ascendancy of China over Tibet was at its maximum. In 1791 China fought a war with Nepal on behalf of Tibet. Following that control over day-to-day movements on the main roads east from Nyelam into central Tibet and onwards came under Chinese military jurisdiction. Some sixty years on after China had fought further such wars again with Nepal and then with Kashmir, the Western estimate was of 4,000 Chinese troops in Tibet (Markham 1876). The Englishman Thomas Manning’s 1811 diary of travels from India to Lhasa provides an account of Han-Tibetan relations at that time. Manning had stayed at the Chinese Court in Beijing before coming to British India, and understood Mandarin. Though sketchy, his diary is vivid, human
and informative. We learn from his troubles that transport was ordered through staging posts a day's travel apart by horse, where possible located at existing settlements. These were centres of Chinese material culture run by Han 'postmasters' or 'magistrates', who also acted as government authority and local traders. They were relatively sophisticated people. Many came from western Sichuan; some acted out the traditional role of a superior, distant, overlord; others were more open and even married Tibetan women and settled down permanently. Manning remarked that all who lived in the central valley region whether Han or Tibetan were cosmopolitan. Yet though all had an outer form of proper conduct, he contrasted a general Han (perhaps really a trader) adroitness to a Tibetan directness in inner human relations. Despite both the military presence, and the take-up of Chinese material culture by Tibetan elites, there was little change to the form of life away from the few major towns and road staging post system. Round communications from Lhasa to Beijing would take six months or more, and the highland environment and sheer physical distance served as insulation from any systemic change. Tibet maintained economic and social forms separate from and different in kind to those of lowland Asia.

In the second half of the twentieth century the situation on communication changed; but there still may be some instructive parallels between the early nineteenth century and the modern era. They key new factor is that China has introduced modern technology to Tibet. This promotes the penetration of economic goods and services, and also a centralised, bureaucratic management. In China as a whole, industrial forms began to take hold earlier and then spread inland from the eastern seaboard. In this volume Winkler's paper reminds us that industrial forestry in the highland valleys off the Tibetan plateau in western Sichuan dates, not from the economic reforms of 1978, nor even from the establishment of the People's Republic in 1949, but from the beginning of this century. It took up to 1980 for these industrial forms to begin to become more than outposts in the highlands of the Tibetan Autonomous Region. For China as a whole, 1978 marks the general beginning of that period of economic reform and the rise of Western market ideology. Up until 1989 this was a period of general openness and relative flexibility; but the socio-political stresses that came resulted in a political tightening and administrative reigning-in (Howell 1993). China's longer-term political history contains other such cycles of loosening and growth, followed by a reigning-in and centralised control (Stiefel & Wertheim 1983). Current measures from the mid-1990s in Tibet have attempted to carry out the two processes together in parallel, combining a Dengist economic 'open-door' with political controls for state unity. It is in the fifteen-year period from 1980 that economic and administrative reforms began to take hold in the TAR.

Considered more broadly, changes in Tibet have been part of a wider global twentieth century cycle of change in which industrial forms of modernity have taken hold. Where these have met a pre-modern civilization there have been upheavals in ideology and culture, levels of technical competence, and institutional and economic forms. It follows that the industrialisation and market-led economic changes that have taken place are neither inherently, nor in ultimate origin, Chinese. The taking on of such forms itself has been China's reaction to external contact, and whether considered militarily or economically the West and capitalism have been an intrinsic part to this process. The West's opium wars with China date from 1840, and foreign military incursions and the establishment of extra-territorial enclaves continued on well after the end of the nineteenth century. The British expedition into central Tibet under Yunnghusband in 1904 was part of this process, as were the later invasions on the north-eastern seaboard from Japan. Along with these incursions from technologically more-advanced empires there came Western cultural models for industrialisation, trade and progress. Together, this presence and these ideas triggered lengthy periods of internal disorder through which the Chinese state only just survived sovereign and intact. In this process China itself began to awake to Western ideas of progress, of
universal values and of nationalism. Traditional, hierarchical, expressions of social order and rank began to be overlaid by new ideas: material development; the common human spirit of socialism; and a territorially unified sovereign state.

This modernity had to have ramifications for the socio-political linkages between Tibet and China. These began to lose their pragmatic complementarity, and also any underlying religious rationale. The scale and sequence of this modernity has resulted in political paradoxes. These can have an overt symbolism, such as in the summer of 1997 when a banner welcoming the return of Hong Kong to the motherland flew over the Jokang (Jo Khang), the eighth century Tibetan cathedral in the heart of Lhasa. In the first half of the twentieth century military technology threatened the Chinese state, then once assimilated allowed it to remain territorially sovereign. In the second half of the century the same technical and economic forces gave a renewed surge to the integration of Tibet within the Chinese polity. For the West, whereas the nineteenth century idea of progress had legitimated colonial incursions into Asia, the twentieth century idea of economic growth allowed a retreat from empire, allowing the rise of indigenous nationalisms and the wider political extension of the independent nation-state.

In the latter half of the twentieth century, there has been a rise of Western Environmentalism the ideas of which contradict that idea of material progress in the world's own most affluent centres of consumption. Many Westerners who have grown up post World-War II with adequate food, warmth and shelter, now look for values beyond ‘mere’ material provision. For some Westerners, Tibetan Buddhism if not the very people and very land of Tibet itself has come to symbolise that quest. Yet over this same period the mass of the people of Asia have grown up still close to a peasant existence. For them any security of material provision and affluence, if felt at all, is a more tenuous and recent find. They are ready to embrace those earlier Western material norms of progress without much reservation. They may think of Tibet as a backward, undeveloped, area. Taken altogether these ideas may be part of one cycle, but it is a further paradox of lack of synchronisation that in terms of economic base and power its is the West which is still dominant. The earlier idea or model of the spread of progress, radiating outwards from Western urban centres around the World, now seems to belong more to a bygone Age of Empire than it reflects the complexities of globalization and local diversity of the late twentieth century.

This historical analysis raises one further question. That is to what degree China and Tibet are merely historical vehicles for a universal vision and process of development, and to what degree China has introduced a particular cultural and political vision of modernity to the physical particularities of highland Tibet. In terms both of development and conservation, the issue is whether traditional local social forms are historical curios which will fade under an effective, standard, model of progress; or whether any future progress will need local specialist knowledge and institutions, suitably adapted to modern technical requirements.

### Ideas of Development, Progress, and Diversity

In the last fifty years the West has promoted an idea of development that centres on economic growth. This idea derives from a conception of universal progress of the nineteenth century, a period which used the ideas of progress, evolution and development almost interchangeably (Nisbet 1994). These ideas followed on from the Enlightenment, an intellectual movement in principle intended to extend empirical discovery and the reason of science universally, and through such understanding allow control and so bring general human betterment. The Enlightenment brought material progress, but in practice it also brought into play some contradictions. It made an empirically-based study of natural diversity; but the knowledge that resulted both en-
abled and legitimised the expansion of ever homogenous uniform capitalist and socialist industrial empires that, in the name of growth, removed local diversity.

In social theory, the contradiction between ideas of diversity and uniformity was resolved through an idea of progress in which difference was seen to reflect temporal position in a universal sequence. Whereas earlier ages had explained differences between peoples as a result of an inborn matter of kind, as a reflection of a God-given, socio-political order, that notion of immutability now was challenged. Differences began to be seen as a reflection of a peoples' stage of development along a unilinear path through a known set of stages which was thought to be the common fate of all humankind. So other societies were thought necessarily to have to recapitulate the West's own technological and social history. In this way imperial presence became associated with a civilising mission, and change became seen by its agents not as a matter of local choice or as an external colonial imposition, but rather as a benign hastening of historical inevitability in the interests of all humanity, including that of the recipients.

Social evolution was widely presumed to follow the of the evolution of nature. However, biological thought is not linear in that overall way. A Darwinian model of evolution does allow local progressions to be laid out according to formal notions of complexity; but there is no overall model of linear development through such stages for natural evolution, and biological thought concerns as much natural variation or diversity sui generis as it does linear progression. It has grown out of a natural history that emphasised local description and observation of adaptation and relations between natural varieties in taxonomic relation to diverse habitats or 'niches', not the prescription of a universal sequence of development. Evolution implies a covariation of complementary species/habitat systems, and a multiplicity of disparate paths, not the same path or sequence of stages for all kinds of system. Parallels across species for early embryonic growth to one side, there is no general recapitulation by one species of the past of another.

Other modern disciplines, such as geography and social anthropology also have a basis in localised empirical description, and also produce social and natural accounts that emphasise diversity of systems. Along with natural science and economics these disciplines too are products of the Enlightenment. Yet science and economic development occupy a special place in the history of the twentieth century, as they have maintained the earlier idea of global progress. Again, this has been a process initiated from the West and then taken up by other powers, such as Japan and now China. Again, the focus has been the attempt to improve material life, now through the extension of Western-derived models of industrialisation. The application of technology and capital, along with specialisation and division of labour, intensification of production, and trade, are held to give rise to gains in economic efficiency. Their wide application today follows earlier US investment programmes that were designed to help Europe reconstruct physically and economically after the destruction of World War II. The original plan succeeded, in part because of the common culture, institutions and historical experiences of Europe and the US. Subsequently, the international and bilateral aid institutions that grew up in the 1950s to solve widespread problems of food, warmth and shelter, have brought an essentially similar form of economic development to the rest of the world. Their 'developmental model' has been taken prescriptively as a blueprint that all societies should try to approach, rather than as a descriptive model of the world that might be usefully prescribed under a particular ranges of conditions.

Over this period there have been counter-movements to Western models of economic development. In particular there have been Marxism and Dependency theory; but these too largely depend on industrialisation and follow the same overall linear evolutionary idea of progress. All the same, it has to be recognised that at least in their own terms, the application of technology
and capital have been responsible for notable and widespread successes of growth, and also in many situations for the basic provision of food, warmth, and shelter. However, as such economic development does not directly address questions of value other than growth and consumption, nor does it take much account of qualitatively differing local factors or systems in processes of change. Global indices, such as comparative assessments of per capita GNP and standard of living, implicitly act to universalise the economic model of material progress. Their prescription as universal desiderata helps to bring about an end-state that approximates the developed economies of the Western world. Similarly, economic ideas of ‘imperfect markets’ or ‘market distortions’ are normative around a western prototype. In their prescription they imply that ‘perfect market competition’ is an underlying state of nature, rather than a socially-constructed fact which may be more or less informative and applicable to the issues at hand.

Even within their own material terms of value, there are still further problems. One is a short-term outlook with two aspects. One is that economic development does not take into account the physical basis of the systems which produce the goods it values, but instead assumes capacity for their replication or replacement through scientific innovation as a stable, continued, return from investment. Many natural scientists see this as a gamble. The other concerns the related principle of a compound level of ‘discounting’ of the future value of resources for present investment decisions. According to such principles, the public good might be better-served by clear-felling a forest, utilising the proceeds in a cash economy, and then investing the returns in scientific research for wood substitutes, rather than in conserving any of the original forest against its future reproduction or use. The assumption is of potential substitution not just for minerals but for any depleted resource irrespective of physical base. Hence the modern critiques of environmentalism, and the rise of ideas of sustainability.

Another is that institutional and cultural factors may vary away from the Western historical experience post-Word War II. These can be underpinned by physical difference. Away from the more stable temperate lowlands, increasing levels of output pose potential risks to the continual physical base of the systems involved. If local natural resources are to be used and there is little possibility of cost-effective substitution, then it is local social and natural pre-conditions, not centrally-defined technology and investment, that need to be placed centre stage. The point is not that economic growth is either a bad or a good thing of itself but that the formal idea of growth alone is not enough. It does not address the underlying material and socio-cultural base to progress, that is the availability of natural resources and the capacity for human institutions to manage these effectively. Beyond rate of growth there is a need for resilience, a quality which has to be assessed in the terms of those social and physical systems rather than in economic theory. Yet much conventional economic policy largely assumes that adequate institutional, cultural and environmental pre-conditions exist and are stable, or else treat them as non-critical ‘externalities’. Examples of major such physical assumptions are: physical conditions for agricultural production as in the temperate lowlands; low-cost infrastructure for transport and communications; open access to markets and flows of information; ethics of individualism and market competition; and disinterested government. In the past have been taken as of universal value and unquestioned desiderata, or assumed to be the ‘natural’ outcomes of economic investment, or as a background norm. In development planning it is only more recently that institutional assessments and environmental parameters have begun to be taken as preconditions for approval of project investment. Tibet itself differs from the Western historical example in that it is neither a temperate lowland, nor has coastal access or the possibility of low real-cost transport; it also has its own civilisation with a complex of values and institutions which do not always centre on material need.
The key issue is the general trade-off between a high rate of growth through the application of a uniform model of economic growth, and a greater security that comes through diversity of investment and conservation of natural resources for resilience. For example, all might agree that in the Galapagos islands the biological value of conservation of the rare species outweighed any direct increase of economic value by the islands conversion over to cattle ranching. Similarly, all might agree that in the Indian Punjab the economic value of investment in irrigation for grain production has far outweighed any possible biological value of their physical conservation as common, semi-arid, scrubland. Such extremes are easy to assess. Overall Tibet stands in between, but with a decided tilt towards a diverse and rare natural and cultural system. In biological terms, at least one region of the TAR, the far south-east, is of global biological significance in terms of its primary forest cover and biodiversity, an area universally biologically considered important enough to qualify for international conservation funding from the Global Environmental Facility (GEF). This indicates the continuation of universalism of values in assessment.

In the West, the 1960s saw the rise of Environmentalism. This began with a scientific questioning of the idea of inexhaustible resources and expansion against an endless frontier and the ethics of consumption. This critique was felt as particularly salient as it came from natural science, the discipline that had provided the positivist paradigm for modern economics. Like Marxism and Dependency theory before it, Environmentalism began in elite intellectual circles, but then came to have a populist base in ‘Green’ movements such as the ‘Wilderness’ movements of the US, and the ‘Chipko’ movement of north India. Most such populist movements also in a practical way accept the Enlightenment goal of universal progress. Often they point to a continued focus on industrial growth as responsible for basic material deprivation, and the increasing gap between rich and poor. In a more principled way these movements espouse ideas of conservation, balance and survival along with nature. They often take on cultural values from traditional Asian cultures such as those of India, Tibet, and pre-modern China. In this there are echoes of material denial or asceticism such as found in the ideals of Tibetan Buddhism.

In intellectual circles in the West there always has been a level of disbelief in economic planner’s regular treatment of issues of human value, commitment and choice, as reduced to indices of material progress. Technically and politically pragmatic they may be; but once away from issues of meeting basic material needs, and stripped of its technical cost-benefit language, there is little logical basis for equating material level of consumption with progress. These attempts can appear to lack common human understanding, to be naive both of the literature or political philosophy that preceded the Enlightenment, and of the discoveries of twentieth century psychology and other human sciences that arose alongside economics. All of these give full credence to human spiritual complexity and diversity.

Clearly, in Asia as elsewhere there are market economies with values that parallel the Western developmental experience, and where conventional economic investment has helped to raise material living standards. In this formal economic area even now there are common developmental objectives, such as privatisation, removal of state subsidy, and governmental reform. At the same time, a shift has begun a change in the development mainstream away from the model of the direct transfer of capital and technology. Rather than economic growth and its supporting institutions per se defining improvement, donor development programmes now appear to take on a more local, people-oriented, focus. They have begun look at local power, responsibility, distribution and goals as locally-judged. There are analogies in other domains. In financial markets such balanced assessments of rate of return against risk always have had to be made. In development economics, such ideas have come through in the rise of substantive studies of household decision-making, with ideas of diversification as local insurance against risk. The rising view in development theory is that decisions of balance ultimately are questions of value. As
such are best decided in open political process by the main local ‘stakeholders’ (that is the principal long-term actors) concerned. This in itself indicates a shift from universal conceptions of value towards local and relative judgements on what is progress. Here, rather than assumed to be a direct recapitulation of our own Western history, development – to a degree – also comes to be considered in terms of local systems and valuations.

Sustainable Development and Highland Asia

The idea of sustainability accepts the idea that some natural resources are renewable and that others are non-renewable, and distinguishes between investment which is desirable and has the potential to leave productive natural resources intact in the long-term, and investment which is undesirable as it does not. The term sustainability itself now has been taken on more widely than in discussions of natural resources, and is applied to other public discourses besides the environment. In economic development it is used to indicate financially viable change, and in the sociology of development politically stable change. In public discourse it has become a popular political ‘good’ – just how could anyone argue publicly for non-sustainable development? Despite this decreasing lack of technical specificity the key analytical features of sustainability remains, namely that planning needs to take account of a finite and varied base to resources, which are only renewable in some times and places. Hence market-led models of substitution may apply for high-value minerals, and for agro-development in temperate lowlands; but a substantive natural resource assessment, with inventory and valuation, becomes a primary consideration with agro-development in highland, arid and semi-arid areas such as Tibet.

The example of Lake Kokonor (mTsho sNgon Po) illustrates what can happen on the Tibet-Qinghai plateau if lowland models are taken directly as blueprints for development. Five industrial fisheries were established around the Lake after 1958; between 1961 & 1975 large numbers of individuals also came to fish at the Lake in the winter agricultural off-season both from grain producing areas in north-eastern Qinghai and from further east in China. The Qinghai administration noted depletion to stocks; regulations to restrict fishing were put in place by 1975, and were said to be beginning to take hold. However, after the economic reforms of 1978 the catch again increased, and between 1982 and 1984 the official estimates were of a catch of 7,000 tonnes per year (Government of Qinghai 1989); informal estimates were of more than 10,000 tonnes per year. Stocks were severely depleted, and though in 1986 further new regulations came into place these were too late; by then the Lake also had other problems, including a receding shoreline and possible industrial contamination. By 1989 only the one fishery on the southern shoreline was left in operation, and estimates of the size of the annual catch at that time had dropped to around 1,900 tonnes, that is of 1,200 tonnes for the fishery and 700 tonnes privately (Clarke 1989).

The Qinghai Fisheries Research Institute understood the problem as follows. A species of fish (‘naked carp’) had adapted to the saline/alkali lakes of Qinghai. At low altitude these reached a mature size in some three to five years; but in the extreme cold of a lake at more than 3,000 metres, they required seven to nine years to grow to the same size. Hence a rate of fishing which lower down would be sustainable, at this altitude resulted in the Lake being stripped of fish. Extrapolating from figures from the lowlands was not useful. In this case, despite the scientific understanding of the issues by the Qinghai administration, despite the provincial regulations put into place, the change in the wider institutional order to a market economy with open population movement predominated. The financial pressures that resulted made the Lake into an ‘open access’ resource for anyone, and it became depleted.
The example illustrates both the wide impact of economic reform policy, and how the natural conditions in Tibet diverge from those of lower altitude and temperate climates. Other similar examples can be found with inappropriate figures on the technical selection of materials in the construction industry, and for the use of lowland figures of rainfall, rates of evaporation and calculation of reservoir volume in dam specifications. There are also illustrations in which wider, non-economic choices come to the fore. In agricultural development, the case-studies presented here suggest that grain production in alluvial valley bottoms can follow the renewable paradigm of the lowlands, that is with a few cautions on wind, aridity, and biomass content of soil. However, that area is small. Osmaston's analysis in this volume indicates that the topsoil of many areas of central Tibet is a fertile layer of loess, that is a wind-blown glacial deposit of silt. Once the surface is broken erosion proceeds to the rock below, from which in principle the topsoil cannot renew. These geomorphological and the extreme climatic conditions carry over a great deal of Tibet, and imply that much forest, grassland and rough-grazing in all practical terms may be a non-renewable natural resource (China Environmental Science Press 1990: 142).

In some cases applied science can supply technical solutions. But with reforestation on open land, the lack of existing cover and a long growth cycle, may make them economically unviable or 'unsustainable' in highland areas. Other examples of financially unviable solutions would be the import and general application of frost retardant chemicals to raise the altitude at which crops can be grown; the fencing and policing of remote forest by state agencies; pumping up water to irrigate remote pasture. Hence for investment to be sustainable it should plan according to the best estimates of local physical and human conditions. Assessments of environmental feasibility and risk are not an externality to planning, but a precondition to planned investment. Along with resource assessment, inventory and valuation, goes the complex task of community and institutional assessment, and then interventions.

The papers presented in this volume are either case-studies of such a changing base to pastoral and grain production, or analyses of wider socio-economic processes. They state much which is factually new; the implications they contain for policy are common to all, and contain much that now is becoming more familiar to environmental and social planners. The papers do not advocate the maintenance of past traditions unchanged, nor of the adoption of lowland economic models as they stand. Rather they point to the need for a creative assimilation and accommodation between the two, with a shift in balance towards understanding of local diversity, and for a planning that takes account of these local conditions.

**Tibet's Natural Diversity**

There are substantial human and physical differences between highland Tibet and China's lowlands. The western half of China's land mass is a semiarid highland with only ten per cent of China's population, and many of the indigenous so-called 'minority-peoples' are fully concentrated in these regions and the wetter south. In the TAR over 90% of the population is Tibetan; the areas are vast and the overall population density is low, around one per cent of that of Yunnan. The topography of Tibet contains extreme internal contrasts, the land having its own range of zonal physical variation laid out in space from north-west to south-east. Like many other highland areas of Central Asia northern and western Tibet is semiarid; but like adjacent monsoonal areas of South Asia, south-eastern Tibet has extremely high rainfall. The types of vegetation best-suited to the different areas of Tibet are limited by physical factors, including extremes of rainfall, temperature, wind and insolation; there also are varying soil conditions. Some
typologies distinguish between ten general ecological areas according to just such features of climate, topography and vegetation (Xu Guohao 1991).

Though the agricultural base is in part arable like that of lowland China, grain production in the TAR is localised largely in southern river-valleys between the Hirala and the Tsangpo, areas which constitute just 0.022% of the land cover (from Léve & Clarke 1992). This arable production is surmounted on top of a more general animal husbandry, based on extensive use of pastoral grasslands. These wide alluvial valleys between Shigatse and Gyantse are a mixed arable and pastoral area, with land watered by rainfall and snow-melt, and in some cases by man-made irrigation schemes.

The north-east is a semiarid plateau in many ways similar to south-western Mongolia and Xinjiang. This region has a low human population density and is important as a wild-life reserve for locally-adapted high-altitude species, including the wild yak (Bos grunniens/ Poephagus grunniens) and various ungulate species. Today, forests are found in the east and south of Tibet, and in his paper Winkler reviews the history of that forest cover. He indicates that juniper forests originally extended continuously from south-eastern Tibet north to Nag Chu, and beyond Lake Kokonor (see Map 2). Literary records, archaeological findings and other physical evidence confirm the presence of trees in the area, but such qualitative methods alone do not indicate the scale or full distribution of such vegetation. From the north to the east the plateau descends through open valleys, grassland and arable areas to the loess-soil region of Gansu, and the evidence on whether these areas to the east of the Tibet plateau originally were or were not forested is inconclusive. Semi-aridity, poor soils, past dominance of certain kinds of shrubs, and the absence of much tree pollen, suggest grassland with some shrubs. One view is that the open savannah and desert of the far northwest gradually closed in to river-valleys which contained a complex primitive mosaic of vegetation, with the forests along rivers varying in type from hardwood to coniferous and scrub largely as a function of altitude and slope direction (Menzies 1994). This pattern of vegetation is apparent in photographs from the 1920s and 1930s (Roeck 1956), and still can be detected in some modern photographs of north-eastern Tibet and Gansu.

Early photographs also document erosion on hillsides well before economic modernity. Today, there are large-scale movement of sands in the loess-soil regions of Gansu which, despite a large-scale World Bank financed land conservation project of the 1980s, still encroach on agricultural land. There also are the 'hanging deserts' of Tibet, that is the shifting vertical slopes of sand that extend up mountainsides along the banks of the Tsangpo. Together, these phenomena indicate that not all land degradation is from modern, or even from traditional, human impact. Erosion can be a natural phenomenon, and much of this northern area is semiarid and as such naturally susceptible to desertification. That natural context understood, a high altitude ecology that already is subject to great climatic extremes and erosion, and is stable under intervention only within narrower limits than its low-altitude, temperate, counterpart. This lack of resilience or ruggedness an ecologist might term 'fragility', an economist a 'lack of elasticity'. Analytically, the issue is land degradation in which underlying systemic instability forms the context or a contributory factor to the effects of human intervention.

The upper waters of four of the major Asian rivers well rise to the north of the Himalayan mountain chain in Tibet. To the east the land descends through a more alpine landscape to south-east Tibet, Sichuan, and Yunnan; further to the south they cut their way through the highlands which they split into steep, parallel, north-south valleys, giving rise to highly-

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1 These observations are corroborated by the personal observations of Michel Peissel on existing forest stands in that area, and historical assessment by Namgyal Gonpo Ronge.
localised extreme variations of altitude. These south and eastern areas have a high seasonal rainfall. Air flows upwards north-west in the reverse direction to river flow, up from the focal area of the monsoon in the Bay of Bengal over this southern region to the high altitude plateau. The result as one moves north-west is a gradually decreasing level of humidity. Overall, as the plateau slopes down from north-west towards the south-east, local areas become progressively less homogenous and wetter, with great daily and seasonal extremes of temperature. Preliminary research suggests four separable ecological areas in the band of land between north-east Sikkim and west Chengdu as classified by rainfall figures (Brauning 1997). The result is a natural diversity of locally-adapted flora, presented in a highly-variegated mosaic in which each locale is different, and related to others, as one of a set of variations on a wide number of physical themes.

It is from this wider area, known variously as the north-eastern Himalaya, Nepal, Sikkim, Bhutan, southern Tibet, south-west China, and Yunnan, that many diverse plant species have been collected for the botanical gardens of Europe. These valleys which arch south towards Arunachal Pradesh and Burma are difficult of access. The wetter of the south-eastern gorges with a localised altitudinal variation from 600 to 7,700 metres are of global significance. This is both in terms of their biodiversity, and overall systemically as a rare historical survival of a full primitive vertical stratification of flora by altitude, from humid tropical evergreen rainforest up to arid frigid alpine permafrost desert (Kingdon-Ward 1956, Sun 1983). The first all-weather road in Nyingchi (Nying Khri) Prefecture south from the bend of the Tsangpo/ Brahmaputra River around Namche Barwa (gNam I gcags 'Bar Ba), was built only recently, and has yet to stabilise. It connects to Metog (Me Thog), the last county within the PRC to receive an all-weather road connection. Though the 1990s have seen a practical regional understanding, full agreement is still awaited between India and China on the exact border here between Arunachal Pradesh and Nyingchi Prefecture which overlap in their northern and southern extension. Paradoxically, the history of military conflict and political disagreement over this area has helped maintain the primary forest cover. In the 'no man's land' between the two states administrations. Here there is no clear and effective administrative control. Hence there has been no road construction, no economic investment, and no logging industry.

Tibet contains plants of pure scientific, and medical and economic importance, with both a direct significance for local development, and stand as a global reservoir of biodiversity. There are a large number of unique sub-species of barley which are highly cold-resistant and adaptable, with a larger spike, larger granule and a higher crude protein content than the more common varieties. Fauna is also important, and in terms of wildlife Tibet contains 120 of the wild animals species ranked overall in China as requiring a primary or secondary level of protection: these include Przewalski's Wild Ass (Equus kiang), the Snow Leopard (Panthera uncia), the Brown Bear (Ursus arctos), and various ungulates.

Though concern with human development and betterment means a focus other than the conservation of past societies as a museum, one also has to note that this is an area of great ethnographic diversity. Many of the examples of matrifocality and cross-cousin marriage referred to by modern theoreticians of kinship are from the Himalaya, eastern Tibet, and related hill-peoples of northern Burma and Thailand. Ethnographic material from this area also was used in an earlier anthropological debate on the general historical precedence of matrilineal over patrilineal systems. On this point in terms of the local history of the area to the south-east of Tibet, one should note that patrilineality was enforced on local indigenous peoples such as the Nakhi by the Manchu administration from 1723 onwards (Jackson 1979: 16).

There is one further physical characteristic of high altitude, semi-arid and arid systems of great relevance to planning, that is the extremely large areas and low population densities. The
access and transaction costs to such remote areas are high; they become higher still when
considered as service delivery costs per capita. Costs are also high in variegated mountainous areas
such as the south-east. Though these may have higher population densities, they are even more
difficult of access, and the high variation between enclaves within a local area results in a com-
plex micro-mosaic of small 'recommendation domains', making intervention expensive. The
physical separation decreases both the relevance of markets for wider social integration, and the
capacity of the state to directly manage local affairs and resources in a cost-effective manner. It
has been argued that, as a matter of policy, in such contexts, much of the responsibility for local
environmental management has to be taken on by the local communities themselves, as only
they have the time and localised knowledge for monitoring (Ostrom 1990). Here the role of the
state needs to be limited to local technical support and some finance, rather than to direct man-
agement.

**Changes in Long-term Historical Relations to the State**

It has been commented that the geographic peripheralisation of pastoral peoples is not a natural
fact, but a social and historical fact that reflects the rise of centralised state politie (Bonte
1981). Globally, pastoral peoples have been disadvantaged by the historical expansion of cen-
trally-organised states, which usually are based on settled agriculture around trading towns pro-
tected by standing armies. Yet until the advent of industrialisation the mobile pastoralist on
horseback maintained some military power, especially in mountainous areas.

In his paper Gelek makes the point that nomadic pastoralism continued longer in Washu
Serthar and Tibet than in many other regions. The Tibet plateau escaped much of the expansion
and colonial resettlement that marked Han expansion into western China. It seems that even
during the late Ming and early Manchu dynasties there was no history of natural resource ap-
propriation or colonisation of the highlands of central Asia. Indeed, the earlier establishment of
the Yuan (Mongol) dynasty over lowland agrarian China and the general rise of Mongol power
in central Asia suggests the reverse, namely that the political balance favoured more the pastoral
over the agrarian civilisations in the region. The critical point appears to be the relation between
natural factors of land and climate, and the existent technology. In central Asia, the extreme
highland topography 'hard-wired' in political relations that elsewhere in the world, such as the
lowlands to the south of the Sahel in Africa and river valleys of the Amazon basin, could be al-
tered by early industrial technology such as that of the nineteenth century. In Tibet, extreme
physical constraints prevented the systemic upward expansion of the agrarian-based state; until
the twentieth century China had mainly a trading and military presence with a higher-level po-
itical presence through the *At Ban* in Lhasa.

There had been earlier contacts for at least two millennia, since the Han Dynasty, between
pastoral peoples from Tibet and agrarian settlements along the banks of the Yellow river (rMa Chu)
close to Xining. Here, as in Yunnan and northern Burma, there were economic exchanges
between small-scale, relatively independent, highland communities and more hierarchically in-
tegrated lowland communities. In an idealised sense, the river-fed lowlands were rice cultivating
and the uplands more pastoral; the political balance between the two forms varied according to
the internal stages of cycles of growth, collapse and replacement of those forms (Leach 1954).
The lowland society often was the remote outpost of a centralised, agrarian, state. These territo-
rial states often were based on patrimonial elites and kinship ties. In Asia these often were em-
bedded within a hierarchical social order that radiated out from capital-city, court, and king.
These could have a religious base, and in the case of China form a bureaucracy. Such a state
typically would expand its control when there was unitary order, leadership and purpose. This
area of authority would shrink on internal fission or outside invasion when the more peripheral groups would assert greater autonomy. This second clearly was the case for the Sino-Tibetan borderlands, Kham and Amdo, during the decline of Manchu power, that is from the latter half of the nineteenth century onwards to the 1950s.

In the case of China, a further western expansion of the state was super-imposed on top of such cyclical dynastic fluctuations. This progression took place largely from the Ming dynasty onwards. It came about largely through military conquest followed by Han arable settlement. It has been argued that the key factor which allowed this growth was technical. The earlier territorial limit to state management was the upper boundary of communications and wet-rice cultivation along the valley bottom. Then in the late sixteenth century highland crops introduced from south America allowed a systemic expansion of rainfed cultivation westwards and upwards, onto the hillsides, with a corresponding displacement of indigenous peoples (Ho Ping Ti 1959). Whatever their immediate military logic versus the Dzungar kingdom, as Rong Ma notes in the early eighteenth century (1720) armies of the Manchu Emperor Kangxi passed westwards through the Sino-Tibetan borderlands. There were two, the one on a southern route to Lhasa, the other north to Lake Kokonor. The military balance between Mongol, Tibetan and Han began to alter. Arable, town-focused, economies began to extend beyond the immediate river valleys to the rain-fed agricultural areas of the hills above. At the time, control of communications and transport along valley bottoms was a prerequisite to such routine integration by trade.

Yet though these armies passed through, there was little permanent migration onto the plateau itself. Rock’s accounts of his travels indicates that even in the 1920s and 1930s, the dominant military force in the Sino-Tibetan borderlands were rifle patrols on horseback. This is the warrior-horseman as epitomised by the Washu Serthar Golog here described by Gelek and Levine, not a state-standing leavec or standing armies. The extreme mountain highlands and the remote Tibet plateau itself were too high even for many of the ‘new-world’ crops. Unlike hill Sichuan or north-eastern Qinghai, and as is clear from Manning’s account (loc.cit.) military detachments in central Tibet in the early nineteenth century were not followed by Han agrarian settlement. The reasons for this are not entirely apparent as the river valleys of southern and central Tibet always were regions for grain production. However, the in any case the central city-states of Lhasa, Gyantse, and especially to the south a Shigatsé bordering on Nepal, continued with the management of surrounding agriculture and trade, now under Han military backing. As well as an agrarian they had a pastoral economic base. There were still traces of a nomadic capital and court, reflecting what in part traditionally was a pastoral political base.

Gelek traces the founding myth of the Washu Serthar back to the seventh century Tibetan culture hero, Songtsen Gampo (Srong bTsan sGam Po) The conquest of the region south of Washu Serthar in the early nineteenth century, like the pastoral organisation further north from the fifteenth century onwards, reflects not a sedentary, agrarian order and standing armies, but the wider military organisation of the Mongols into calvary units of tens, hundreds and thousands. The next attempts at external imposition of order in western Sichuan came at the turn of the twentieth century with a Manchu army to the south of Washu Serthar (Norbu 1986). There was political and economic inter-penetration; but up until modern times the boundaries between Tibetan and Han settlement in these Sino-Tibetan borderlands followed largely the lines of altitude, and reflected localised differences between mixed pastoral arable and pure arable production systems. Even up to the second half of this century political authority in the east of Tibet, size of the local lineage (Plate 1.1). The other was the moral authority of religion, expressed through Tibetan Buddhist priests and spirit-mediums, which were part of a wider cultural form continued to have two foci. The one was force, expressed through numbers of horses, rifles and in part existed as independent mountain enclaves outside central hierarchic control. Regions like
Plate 1.1 – Eastern Tibet, Arnye Machen (A Myes rMa Chen) region: Tshang rGur mGo Log and their travelling tent; two rifles lean against the tent on the right. Joseph F Rock, 1926

Plate 1.2 – Central Tibet, Drigung [Bri Gung]: travelling tent close to road; a bicycle leans against the tent on the left. Graham E. Clarke, Sept 1990
Washu Serthar were affected by the pre-modern, centralised state; but until the second half of this century the dominant secular political form here was still the semi-nomadic pastoral group.

In central Tibet the telegraph was the harbinger of modernity. In 1904 a line of copper wire snaked up from the plains of India as a temporary telegraph in the tracks of Younghusband’s advance to Lhasa. Since the founding of the People’s Republic of China in 1949, modern technology has been applied to change the terms of access and presence to the Tibet plateau. In the 1950s, the telephone, roads, buses and trucks, and aeroplane and even the lowly bicycle have brought a wide capacity for exchange with the lowlands from the plateau (Plate 1.2). It was much the same with Kazakhstan, Kirgizistan and Mongolia under Soviet rule earlier this century. As recorded by Gelek and Levine for Washu Serthar, outside access by road and the technology brought changes to society. Political authority no longer devolved at all from control of the pasture by a group of horsemen. The specification of life and identity was less nomadic, and had a less purely kinship base: the people were becoming more territorially localised and based. Today, authority devolves down a territorially-fixed administrative hierarchy, from Beijing to the provinces, through the prefectural main towns on through ‘county’ seats (Chin. xian) to local ‘rural townships’ (Chin. xiang). Economic infrastructure has brought a spatial integration. At the same time as in the former Soviet republics, historical ethnic identities have begun to find expression in modern forms of nationalism, a process which appears to have its own logic and course.

China’s Idea of Progress and Tibet

The varying physical characteristics or natural endowments of different areas of the PRC are well-recognised as such in China in modern times. However, discussions of physical diversity are more usually seen by the Chinese state as a rationale for additional investment in technical control, rather than for the accommodation of goals and plans to local circumstances. This is a similar outlook to that of conventional planning in the West, in which nature is to be controlled by technical knowledge along a known path of human progress. In the PRC scientific knowledge occupies a key institutional position as the Science and Technology Commission, which is above ministerial level at national-level. This has a TAR establishment in Lhasa, largely concerned with energy, mining and natural resources. Planning up until at least the early 1980s was primarily a result of central physical planning, that is was still a ‘top-down’ process, and with similarities to Western ‘top-down’ models. For example, in agriculture as described by Osmaston, the results of trials from prefecture-level agricultural institutes are tried with local ‘model farmers’, with the intention that these ‘innovators’ will lead the way in local diffusion of scientifically-discovered practices.

The other main civil planning institutions at provincial administrative level at the time were the Economic Planning Commission, and the Commission of Agriculture which at that time was constituted by Arable Agriculture, Animal Husbandry, Forestry and Water. More recently, Animal Husbandry, Forestry, and Water have separated, but they are still exceedingly well-coordinated locally. Overall planning and land-use allocation was made through the Economic Planning Commission. The four units of the Agriculture Commission each had a two-way division into bureaus concerned with administration, and institutes concerned with research, between which staff might circulate. Though a commission and having an important political role, the Nationalities Commission did not have the same status as strategic planning body.

In one rendition of Marxist theory local differences, such as those of ethnic identity or nationality are taken as significant, but only at an early stage in human development. As society progresses these are supposedly absorbed into class relations and the growth of a commodity
consciousness. Though the underlying ethic is of a human universalism rather than any intrinsic inferiority, as there is a paternalist slant to many publications on indigenous peoples, as there was with ideas of 'natives' that rose alongside Western empires in the nineteenth century. They emphasise the help the local need; they focus on culture as custom and 'folk tradition' with an emphasis long on song and dance, and short on local knowledge, organisation, and indigenous technology. There can be a protective attitude, as if their indigenous peoples were weak and emotion-driven children, rather than just other peoples. The more recent market models now make a counterpoint to this ordered vision, remove any 'affirmative action' campaign, allowing both migration and competition.

The existence of natural difference is seen as an impediment to progress rather than as a sign that different paths and end-points exist. Differences in material standards between eastern and western regions are seen not as qualities inherent to an efficient adaptation to local natural circumstances or differing local valuations, but as reflecting a temporary imbalance in position along a universal progression. The eastern seaboard and Han peoples are taken as the progressive element that will show the way; the western region which includes all Tibetans and other indigenous minority nationalities are seen as backward areas which need guidance, and here knowledge from science also will help speed the way along the path of material progress. It is not that 'backward' (Chin. luo hou) nationalities are to be helped to formulate their demands, but that the progressive nationalities and regions, here the Han and the Eastern Seaboard, will show the way forward. In practice, Chinese development policy comes to focus on the goal of western areas, including Tibet, to match eastern areas in terms of levels of economic output and consumption. The moral imperative for the people of the western regions is not to find their own way, but to catch up.

Such ideas are expressed in speeches and public ceremonies similar to those once used by the West, such as the 'conquest over nature' used by Britain in an Age of Empire, and the 'application of good, old-fashioned, know-how' used by the US to convey their technical mastery in the decades after World War II. For example, the Sichuan-Tibet and the Qinghai-Tibet highways were arranged to be completed to Lhasa on the same day, December 25th 1954. Some thirty years on in 1983, a commemorative photographic essay was published with the title Golden Bridges. It begins with pictures that depict nature as beautiful, powerful and untamed, and moves on to China's solicitude for this primitive Tibet through images of construction. This is depicted as a battlefield in which treacherous nature is conquered by Han and Tibetan who together surmount physical hardship, and then produce bridges, trucks, trains, factories, even permanent houses for nomads follow as images of progress (See Plate 1.3). The volume ends with visual metaphors for progress of joint Han/Tibetan climbing expeditions 'scaling peaks' and of lorries 'speeding ahead' (Namgyai P G et al 1983). No doubt visions of progress and selfless duty motivated many Han and Tibetan, as they have many other peoples before them in other ages also bound up with such a linear vision of progress.

These attitudes are culturally institutionalised: a so-termed 'natural or self-sufficient economy' (Chin. zi ran jing ji) as such is inherently backward, that is unprogressive. For a China committed to acquiring modern technology and management, the idea that the traditional values of an old civilisation or rural communities might be of use to the new, or that any form of that old society might be better than an industrial, commodity-based modernity, is difficult to take in. The wider socio-political truth and value of progress is difficult to question, and asking whether or not material progress is 'good' to some will appear as a nonsensical contradiction. The suggestion that normal adults might as a matter of choice diverge from the mainstream, can be interpreted as a denial of common humanity. Questioning material progress can be seen as politically divisive and threatening: along with the idea of progress as a universal comes that of
unity, with an emphasis on uniformity and as a corollary the suspicion of diversity and individualism.

At the same time in practice, and precisely because these terms are an ideological reflex, their acceptance as intellectual context does not imply any particular argument to hand. In this volume Lobsang’s paper routinely refers to Tibet using the expression ‘backward’. Similar expressions are common in many modern Chinese accounts of Tibet and as applied to minority nationalities. The term does not necessarily mean inferior in kind, but has the general sense of ‘unprogressive’ or ‘undeveloped’. As used by these Tibetan and Han writers, the idea of backwardness does not imply any inborn or necessary inferiority or deficit; rather it is a shorthand reference to historical circumstance which can be changed by training and education, that is by progress. For example, Wang & Bai’s (1986) economic analysis of the mid-seventies economy again as a matter of routine uses the expression ‘backward quality of human resources’ to refer to Tibet. The book is not based on that expression the sense of which is taken as an incidental given. The core argument of the book is its analysis of economic institutions, which indicates that much of Tibet’s growth is as a dependent economy; this is an argument is quoted directly by Osmaston, Rong Ma, and Schwartz in this volume who have no such linear evolutionary agenda.

Besides the unitary purpose in progress, external historical contact has brought another idea to Chinese ideas of modernity, namely the idea of political stability as expressed in territorial integrity and unity. There is a fear of slipping backwards into pre-modern institutions and ways, of a return to the older political chaos and incipient regional fission which almost allowed the domination of foreign powers earlier this century. For example, the ‘return to the motherland’ of Hong-Kong to China for 1997 is publicly marked out as a recovery by a state damaged by Western incursions over a century before. In this context, Tibetan nationalism is not seen as the natural expression of the wish for self-determination by a people, but as an externally-inspired threat to sovereign territorial integrity as in the first half of twentieth century, that is an attempt ‘to split the motherland’ in which China is not being treated as an international equal but as in the colonial era.

These underlying ideas have implications for relations between Tibet and China. As in earlier historical periods of contact between the two there have been strategic dimensions to China’s programme of modernisation. In the China of the 1950s, economic development was carried out with Soviet technical assistance with a focus on heavy industry. Investment was directed to create self-sufficient industrial economies inland at provincial level, away from the vulnerable eastern coastline where most industrial capacity was located (Kirkby & Cannon 1989). At one level, this strategy of a mechanical replication of capacity across the PRC implies decentralisation. Here, the key consideration was to provide in-depth strength in the face of a further possible invasion. The memory of foreign incursions in the preceding hundred years into to China’s territory was still much to mind, and after the mid-1960s China saw itself as confronted militarily, by US and then the Soviet Union in Asia.

At that time the highlands of the TAR were still remote and separate. Up until 1959 the area was beyond the routine centralised programme for modernisation. Even after that date there was no overall programme of industrialisation within the TAR. A railway was planned but not built, in part for reasons of technical difficulty and in part for reasons of cost. There was investment in main roads and a number of strategically well-placed state-farms, sawmills, and other settlements close to roads and borders with India and Nepal. This was in contrast to most of Kham and Amdo which had been assumed into the administrative provinces of Sichuan, Qinghai, (Xikang), Gansu and Yunnan from 1951, and which had their own industrialisation programmes.
Even so industrial investment in essence is urban, and many such Tibetan highland areas were left to one side.

Yet at the same time the socialist Chinese state also had an in-principled ideological concern with the rural, with equity, and traced its origins to mass movements in the countryside. The propaganda of the 1960s put forward romantic idealisations of the rural village, both as a model of revolutionary simplicity and progress. There is a historical obligation to the former ‘revolutionary’ bases in the countryside which gave support during the ‘Long March’, under which heading some Tibetan cultural areas of western Sichuan receive special social and economic assistance. Though major state civil expenditure in the TAR has been for urban supplies and costs of transport, in principle a programme of social redistribution for grain reached rural areas. The allocations of subsidised grain which now are made to pastoral areas initially were fixed at this time. More recently, the entire TAR has been targeted under the 1986 ‘poverty alleviation’ categorisation.2

From this it might be thought that the concern with rural areas matched the trends of modern Western development. Yet though all popular campaigns and movements are necessarily participatory, this is only in the limited sense that they bring about mass rural participation. Here policy does not originate from the ‘bottom up’ but is ‘top-down’ much in the manner of models of government and progress of the Empires of the West. The actual techniques of mass mobilisation were developed earlier this century during the revolution. Nowadays, campaigns are piloted locally on selected communities and tested for their effectiveness before being blueprinted for wider use in a province, much in the way of an advertising campaign. These campaigns follow nationally-determined policy, are usually initiated from the national centre and disseminated outwards and down the regional administrative hierarchy. Even today, exhortation through slogans and advertising hoardings as well as local campaigns supervised by officials play a role in setting out the desired administrative line and is for political as well as economic goals (Plates 1.3 and 1.4).

Popularly, the commune and countryside were widely regarded as inferior to towns. In the mid-1960s the direction of authority was very much ‘top-down’. Rural collectives had little power to initiate policy, and the industrial model for progress devolved outwards through administrative posts in towns. A full commune centre (Mi dMangs Grong Sa) was not a self-governing village community, but an urban outpost of the state administered an area more than half a present-day administrative county; below that level local-level administration in sparsely populated pastoral areas often was carried out through minor administrative outposts that also carried out trade (Chus). Some still exist, at least in physical form and the minds of villagers, even if not as such in the modern administrative hierarchy. Towards the end of the collective period the accounting units became the smaller production teams (Ru Khag, Chin.xiao dui) which were more akin to village communities; but even these did not initiate policy which was still very much ‘top-down’. In the 1990s, implementation and local follow-up of political campaigns in the TAR is still carried out from the centre outwards through the efficient party and state apparatus, that is from national through provincial, prefecture, county and rural township (Chin.xiang) level down to households.

The collective programme was not fully implemented at higher levels in the TAR. And by the late 1970s China abandoned the developmental model of internal regional self-sufficiency. Instead, the sixth and seventh five-year plans began to follow a more conventional economic

2 In part this is a statistical anomaly for pastoral areas, as one criterion for eligibility is a less than 200kg per capita level of grain production
Plate 1.3 – Central Tibet, Lhasa: propaganda poster with Chinese legend (Tibetan terms in brackets):
'Strngthen (Consolidate) and Develop (Promote) new Socialist Relationships between the Nationalities based on Equality, Unity and Cooperation'. Graham E. Clarke, October 1991

Plate 1.4 – Central Tibet, Lhasa: propaganda poster with Chinese legend (Tibetan terms in brackets):
'Strive to become a Socialist Citizen with (Long-Term Goals, Cultural) Ideals, Moral (Behaviour), and (Law-Abiding) Discipline'. Graham E. Clarke, October 1991
model of regional differentiation and specialisation along lines of comparative advantage, linked horizontally by trade and exchange. This model had an implicit sequence in which economic development was first to take place on the eastern seaboard and the special economic zones, fuelled by raw materials from the inland and the far west, utilising foreign knowledge, technology and capital. The effects and experience of this growth subsequently were to 'trickle down' or otherwise be more directly transferred to the inland and far western regions. There was one major constraint to the application of this model. It requires a great degree of inter-regional administrative, economic and population interchange across a PRC of intercontinental scale. This is still a constraint in the late 1990s and there was a very low-level of communications and transport infrastructure in the 1980s.

Throughout, there has been a problem in the supply of manufactured goods and raw materials to highland Tibet, that is the TAR. A pipeline had been constructed to Lhasa from Golmud (Ker Mo) to be used for liquids such as oil; there was air cargo from Chengdu, and after road construction some materials could pass up through Nepal. Materials also came along the tortuous southern mountain highway from Chengdu; but in practice almost all heavy materials were and still are brought in and out along a massive arc from the north by truck. Goods travel up north from Chengdu and join those coming west from Lanzhou and Xining, travelling parallel to the railhead at Golmud; then all move down south by truck to Lhasa, a distance of some 2,800 km. In strategic political terms the problem of supply was solved; but the economic problem of high transport costs still remains; these costs, along with the lack of internal economic base and dependence on external subsidy, are a key issue to Wang & Bai’s (1986) account of the 1970s. In the 1980s TAR economic growth began to take hold in the informal sector, but on a subsidised base of imports. Transport costs still form a major constraint in the 1990s.

Allowance for the diverse local conditions of the TAR has been made only within the overall framework of material progress, and largely through a subordinate discussion on means. These go beyond economic markets and state purchasing, and also include traditional political methods of dissemination and mass mobilisation through ‘top-down’ campaigns, which have political, economic or environmental goals and effects. For example, the campaign against the ‘four olds’ was directed not just against the mountain citadels and multi-storey buildings that were seen to symbolise the old Tibetan order, but also against far more mundane target. Some of the juniper trees at Reting, trees which in all likelihood began to grow in the previous millennium, were cut down for construction as a result of that campaign. There were production campaigns to ‘take grain as the main key’ which were intended to promote crop outputs in the 1960s and 1970s. Such campaigns are still used routinely to implement state-level economic policy. For example, there is the such as village take-up of bank loans for house reconstruction and purchase of hand-tractors for Chushu county in the mid-1980s, as documented in Osmaston’s paper, a programme which appears essentially the same as contemporary programmes on the eastern Chinese seaboard (Clarke 1992a). There are also local economic and environmental campaigns, such as those for the planting of tree shelter-belts alongside grain-producing fields in the river-valleys of Lhasa Municipality, both under the World Food Programme project (WFP 3357) and directly by the offices of Lhasa Municipality.

In the 1980s, after Hu Yaobang’s and Wang Li’s visit to culturally Tibetan regions, the Central Committee of the Chinese Communist Party enacted a series of liberal measures in which some allowance for difference and the development of Tibet according to its ‘special characteristics’ was made (see Clarke 1987, Wang Yao 1994). The Governor of the following decade was Wu Jinghua (Jinguang), a senior cadre but a Yi rather than a Han national; there was limited repatriation of Han and training and promotion of Tibetan nationals; there was large-scale
investment direct from Beijing, and a removal of taxes on Tibetan producers. Towards the end of the decade, approaches for assistance to international agencies which until then were made only through Beijing began to be made direct from Lhasa, or were forwarded on with the advice that development agencies should not ignore the far-west.

The fifteen-year period up to 1994 also witnessed a minor cultural resurgence in which the Tibetan language was used to communicate modern rationality and the culture of the twentieth century into Tibet. School textbooks in Tibetan were produced on Pythagorean geometry and chemistry as well as on China’s history. The prefectural cinema circuit featured US ‘B’ movies some of which were dubbed into Tibetan. In 1985 nomads visiting Shekar (Shel-dKar/ New Ding-Ri) county seat off the plateau could drop-in and see William Shatner star as ‘Mr No Legs’, a disabled but violent hoodlum making car and wheelchair chases in Florida. Those in Lhasa could take-in Superman and views of New York. Two of the three television channels were mainly in the Tibetan language, and one could experience a Chinese performance of Macbeth in eighteenth century European Court costume, and a nineteenth buccaneering century adventure from the deep south of the US, both dubbed into Tibetan.

Beyond economic subsidies, local affirmative action for Tibetans, and cultural promotion of modernity, the differences between Tibet and the western areas of lowland China also came up in policy and planning discussions within the region. In August 1991, a conference on Development in Western China was held in Qinghai. The papers pointed to the abundance of some natural resources and the absence of others. Arid physical conditions, low population density and high transport costs, were noted as the main factors in which highland regions differed to the lowlands. The increasing differences in economic standards between the two regions after reform were noted. Some participants suggested these were an artefact of indices of growth that recorded only industrial output, and ignored increases in production and informal exchange in the non-state agricultural/ subsistence sector. There was also note of the damage to pasture in Qinghai, and that this may have come from processes put in play by economic reform and growth. Figures suggested a change in farming practices with a reduction in the size of per capita grassland holdings over the fifty-year period since full records had been collected in Qinghai. That data could only in part could be explained by population increase: the underlying point was that the grassland available for grazing had reduced by some 25% since 1940, largely due to salination and erosion. The conference accepted that the fragile highland ecology was always going to be one economic mainstay of the region, and that this resource had to be looked after with a long-term in view. This might imply a need to limit economic output on the grassland. Discussion also raised social and nationality issues, as the grassland was the region where non-Han peoples worked and lived. Suggestions were for investment in secondary processing of agricultural products, and other local off-farm employment for Tibetans and other minority nationalities.

All in all, the period of reform after 1980 had one over-arching policy, the idea that general material prosperity, promoted if needs be by a large state subsidy, would come to make political dissent based on differences of nationality irrelevant. However, in the TAR of the late 1980s there was nationalist demonstration and protest. Political campaigns to promote national unity, socialism and progress were the reaction, and even before 1989 some forms of economic growth such as the accumulation of capital by the monastery organisation up to then outside the direct state purview were controlled (Schwartz 1994). One view was that policy allowance for local difference when taken together with a central economic subsidy, had not so much closed the

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3 With the exception of the area directly bordering Xinjiang, the bulk of the Han population in Qinghai are concentrated in the lowlands which are to the north and east around Xining (Clarke 1994).
Economic gap between the TAR and lowland China, but had helped fuel a nationalist-inspired separatism. In his paper Rong Ma considers the application of this ‘nationality melting pot’ economic integrative theory of the Western theoretician Hechter. He concludes that it had not applied so far in Tibet. At the time, the wider global rise of local nationalisms such as with the USSR raised further doubts within China’s leadership on the formula of payment of money in return for ethnic harmony. Accordingly, local latitude for economic decisions was reduced. Wu Jinghua returned from Lhasa to Beijing to Head the Nationalities Commission, and there was clearer national-level direction of policy and planning for the TAR through State Council. Control over requests for international investment then had to be fielded from the TAR onwards through Beijing, largely through either the Science and Technology Commission, or the Ministry of Foreign Trade and External Relations. As elsewhere in China progress was to be through ‘market-based socialism’, and in 1990 the slogan ‘water does not flow uphill in Tibet’ was used to communicate a renewed uniformity in policy to the lowlands of the PRC. Economic development in the TAR was still to proceed with central subsidy, whether through the hands of Tibetans or others, but now was to follow from centrally-defined norms and models. Overall, this policy resulted in an increase in the interdependence between Tibet and the eastern regions. Behind this still is the belief that a transition to a commonly-shared modernity, ultimately, is inevitable.

In central Tibet in 1990, large-scale state investment for irrigation and agriculture started under the ‘One River – Two Streams’ programme, that is the area around Tsangpo (GTsang Chu), the Lhasa River (Kyi Chu) and the Myang Chu. In 1992 central Tibet was designated as a minor ‘special economic zone’. The result was light industry in the corridor between the airport and Lhasa, and urban investment in tourism infrastructure and entertainment industry. In the late July of 1994, the Third National Forum of the Central Committee of the Communist Party of China and the State Council on Tibet was held in Beijing. It was attended by more than 190 people, including party, army and the most senior government leaders from Beijing (led by secretary-general Jiang Zemin), the TAR and other provinces. The emphasis was on the need to ensure political unity and accelerate the application of economic models already tried and tested in lowland China. Plans for an approved list of sixty-two investment projects were presented, of which one-quarter in financial terms were to be funded and managed directly by a twinning with lowland provinces. The balance was to be met from Beijing state-level investment. The model is of a blue-printed transfer of technology and capital for economic development, now from the state level and provincial lowlands which would use their personnel, capital and models for development in highland Tibet. And within that basic policy and on-top of that organisation, there is still an ‘open-door’ for further funds from international sources. The allowance for local conditions that remains takes on more form of budgetary allocation for state-linked religious ceremony and other cultural preservation for tourism, than it does the pursuit of different socio-economic forms. In the late 1990s, following the example of Kunming and Xining, Lhasa is growing the tertiary sector, in tourism and the entertainment industry.

**Overall Economic and Social Changes**

The five case studies of Gelek, Levine, Manderscheid, Clarke and Osmaston are field-based and territorially-localised. They cover the effects of administrative and economic reform in three pastoral and one grain-based local area since 1980; Gelek’s account also covers the collectivisation of the 1960s and the 1970s which he witnessed directly. Though no a longer politically

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4 Lhasa, along with Kunming in Yunnan and Xining in Qinghai was to become a ‘yellow city’.
dominant form, pastoralism and other forms of agriculture still economically predominate. The figures for eastern Tibet are difficult to isolate, but in the TAR for 1990 agriculture still accounted for some 80% of the Gross Output Value of the economy. This figure compares to around 50% for other provinces of western China. Hence the continued significance of this set of studies on the rural agricultural economy.

Recent growth in communications and transport has been a highly important and visible component in these economic changes. From the late 1950s up to the beginning of the implementation of reform in the TAR in 1980, transport was carried out almost exclusively by subsidised, state-owned trucking service. The tables presented in Rong Ma’s paper indicate an overall fivefold increase in tonnage of imports over the period of the 1970s. This transport capacity was used for the import of grain. The tables presented in Schwartz's paper indicate that between 1974 and 1984 amounts imported fluctuated between 41,000 and 106,000 tonnes per annum. This grain was to supply both the growing major towns and rural areas with their state ration or entitlement. Taken at face value these figures are revealing. Shortly after the beginning of reform in 1983 annual freight capacity into the TAR was 190,000 tonnes, of which some 125,000 tonnes was supplied by the state transportation bureau. This involved losses of 47 yuan a ton (Wang & Bai 1986: 124). From these figures it follows that importing grain tied up around 70% of the TAR official trucking capacity, and that importing this grain was costing the state around 5.87 mln yuan per annum on transhipment into the TAR alone.

Since 1980 there has been an almost exponential increase in private trucking, with vehicles bought by small-scale farmers/entrepreneurs many of whom are Tibetan, as well as by enterprises. This is illustrated by the pastoral case-study of Damshung in this volume, from longitudinal data on Namtso (gNam mTsho), and from casual observation over the decade in the Lhasa area and west of Xining. In the summer of 1986 a pastoral village and former production team just down from the ridge at Namtso took delivery of their first ten-tonne lorry. By 1997 informal reports were of over twenty lorries operating from that linking area down to the road. There are other such nodes and the plain to the north of Lhasa and Yangbajain was dotted with lorries as well as yak and sheep as truck culture took hold on to the pastoral lifestyle. The private network and especially growth in ‘sideline production’ provides for external trade and links rural to urban areas. These have been important factors in increased livestock production and sale, and in timber collection and supply to towns, as well as the collection and supply of grain, salt, and other commodities. This informal economy is inherently difficult to quantify, especially from the types of record held in a command economy. However, it is clear that there has been a great increase in peri-urban linkages on spurs from settlements off the northern arc from Chengdu to Lhasa, with the incipient creation of a market-based economy and culture by the roads and towns such as Golmud (Ker Mo), Nag Chu, Damshung (‘Dam gZhung), Yangbajain (Yang Pa Chen), and a degree of commodity-based trading beyond. Similar linkages exist from Aba (rNga Ba) ATP in the east down to Chengdu, and between Nyingchi and Lhasa. Now a new type of trading entrepreneur has arisen, based on trucks rather than the old yak caravans.

The trucking services run at a profit for their operators; yet the costs of vehicle purchase, road construction and maintenance, fuel and repairs, are subsidised by the state, and to import grain by truck clearly is still a more expensive option than importing fertiliser and growing more locally. In the early 1960s investment in large-scale collective farming was seen as the way of increasing grain production, but for various reasons this did not work. Between 1982 and 1993 administrative reform and market liberalisation initiated general economic growth, and the data tables presented by Rong Ma, and Schwartz and Osmaston indicate an increase in grain production. Osmaston’s paper looks at the benefits from reforms in a primarily arable village with strong urban-rural linkages, just some 36km outside Lhasa along the road towards the air-
port. Inherent uncertainties in data on grain production and sales make quantification difficult. It may well be that greater increases in grain and fodder production are available from irrigation on the deep alluvial soils of wide valleys in central Tibet, such as that of the Myang Chu in Pa Nam (Pa sNam) between Shigatse and Gyantse where the European Union has been preparing an agriculture-based development project since 1991 (Löże & Clarke 1992).

Immediately following 1980, economic growth was a ‘spring-back’ effect from an earlier collectivised period when the economy was so repressed and inefficient that any change was likely to be economically beneficial. Much underlying internal growth still is a response to market opportunity by local farmers who traditionally carried out just such small-scale and domestic-based production. The move to a specifically household responsibility itself is a reversion to the traditional Tibetan social unit, one well-adapted for arable agriculture in the region. In part growth also has come about because the state has supplied Western-style support services to local small-holder producers. There have been subsidised agricultural inputs of fertiliser, new seed types, loans, technical advice and most importantly irrigation control. The state also has provided incentives to increase production for sale by direct access to the market-place, as well as to state trading corporations. Other institutional factors associated with this growth have been long-term leases for agricultural land (though these cannot be bought or sold), targeted capital loans, permission for labour employment and petty ‘sideline’ contracting in towns.

In this period there also has been an increased urban consumer demand in Tibet, and an inflation in market prices, in part fuelled by the above state supply-side subsidy, and in part by increased demand from growth in the size and market economy of the main towns. There also has been a rising external demand from the growing cities of lowland China as they themselves undergo market-based reform. Following on her pastoral case-study Manderscheid refers to this steadily increasing consumer demand from growing lowland towns for livestock produce, inferred from China-wide statistical sources. Her account stands alongside other more general analyses of the increased economic importance of the livestock sector in China, which point to an increasing urban demand for high protein milk and meat products to supplant grain, and an increased use of wool to supplant cotton (Longworth & Williams 1993; Longworth & Brown 1995). In China as a whole increase in demand has led to increased sales of livestock and a corresponding increase in rural stocking levels. In some cases this has been accompanied by husbanding of the pasture, with a supply of winter fodder, fencing, and other measures for conservation. In others it has not and there has been degradation of the pasture. The factors behind this are complex, as discussed presently below.

As well as growth and pressure on natural resources there is also the question of the relative balance of benefits between town and country, which raises the question of urban-rural economic linkage or ‘dualism’ division. Schwartz’s paper addresses the terms of trade for rural grain producers to the urban or formal economy. He emphasises the sensitivity of the flow of benefits to rural producers to the prices paid for inputs and produce set by the state, and illustrates the negative case through the example of refugee households. Other case-studies and material from within Tibet is positive, and indicates longitudinal increases in material living standards of Tibetan farmers. Some Tibetans are sharing in an increased wealth, and almost all prefer the present economic situation to that of the collective period. So far the Tibetan people have not been converted en masse into a new poor. At least in the short-to-medium term, those in rural areas of Tibet have not been excluded from access to wealth, but have been encouraged to take a major role in commodity production and increased consumption. It appears that peoples in pastoral areas of the plateau have survived relatively well thus far into a market economy, without the creeping peripheralisation that historically globally has marked economic relations to the agrarian state for many traditional peoples, world-wide. Gelek’s paper even describes a
reinvigoration of the traditional social order and religious customs, at least in the short-term, due
to this economic prosperity. However, there is an underlying issue of the cultural form of this
modernisation that is whether increases in consumption are always a good thing. There is also
the question of the environmental sustainability of medium to long-term economic changes, and
the wider economic and political interdependencies and incorporation that economic these ex-
changes create.

As well as the issue of Han Tibetan ethnic relations, Rong Ma's paper concentrates on
growth in the urban economy. He examines official records of imports and exports and cash
flows for the TAR, and the findings he presents confirm those earlier put forward by the two
economists Wang & Bai (1986). Much economic growth in Tibet has been underpinned by a
state subsidy on imports, and it is this which boosted consumption and supported inefficient
secondary industrial production. Subsidy underpins the structure. Subsidy can be of transitional
support; but it also can give rise to distortion, especially in the urban economy where supply
creates its own demand and, to use the Chinese idiom, 'business feeds off business'. More re-
cent informal observations strongly indicate that post-1994 growth, too, appears to be borne up
by cheap investment loans, for imports and construction and to a booming tertiary service sector
industry, in the main cities, as well as a continued infra structural subsidy. Yet for a transitional
strategy to create more than dependency structural reforms have to be put in place at the same
time. A parallel can be made with the Republic of Mongolia or Nepal as to what happens when
petroleum subsidy is withdrawn without such adjustments having been carried out, as discussed
presently below.

Over the fifteen-year period since reform there have been population increases in towns.
Some are from internal growth, and some are from internal and external immigration. The latter
includes almost all Han demographic growth which essentially is an urban and ‘road-based’
phenomena. The 1990 census figures record Lhasa urban area (Chin. Che Guan Qiu) as having
a population of some 140,000, of which some 96,000 are ethnic Tibetan; some 40,000 of the
45,000 Han nationals recorded for the entire wider Lhasa Municipality (Chin. shi) are recorded
as in the urban area. Though few in numbers over Tibet as a whole, Rong Ma's research has in-
dicated a Han spatial and professional concentration in major town centres, administration,
business ventures such as construction and tertiary services in entertainment and restaurants
Most of these come from Sichuan, and if not as a direct matter of policy then are drawn as a re-
sult of an economic pull along the lines of existing informal networks (Clarke 1994). There is a
longitudinal increase in material benefits for Tibetans. There have been economic benefits for
the Han resident in towns, and there are economic differentials between Han and Tibetan overall
in the TAR. However, this gross comparison would appear to mask an underlying urban-rural,
formal-informal, economic divide. With a more recent post-1994 increase in large-scale, subsi-
disised, ventures in the few large towns, there are now commercial partnerships between Han and
Tibetan, with ventures for access to state credit for construction, import and distribution of
manufactured goods, and services from the lowlands. Hence some Tibetans too benefit from the
modern, subsidised, urban economic sector. Yet for at least the period up until 1994, Rong Ma
makes the point that Hechter's overall 'integrative' model has not applied. Han and Tibetan
groups are largely spatially and socially separate, and there has not been a 'melting pot' with a
mixing bowl of ideas and peoples in Tibet.

In their work on the modern economic condition of pastoral peoples of the PRC as a whole,
Longworth & Brown (1993) make a series of related ‘dualistic’ points. These centre on the fact
that more often than not, livestock is cared for by traditional pastoral peoples who are both mi-

nority nationalities. Yet, the divisions between formal and informal sectors, and Han and Tibetan nationalities, all may be analogous to urban rural division; but empirically they are not quite the same. There is only to a degree a separate, closed-off, urban flow. We should be wary of a simplistic or short-term depiction of dualism as a boundary, especially when there are major exchanges across the same whether economic, cultural or ethnic (Barth 1969). Equitable progress implies a linkage and a two-way flow. The large distances, low population density and degree of 'enclaving' of communities themselves make for a lack of integration and linkage between town and country. However, there is still an increasing flow of goods, ideas, and finance outwards to rural areas. And there is a growth in traditional, cyclical, seasonal, temporary migration inwards to towns by rural Tibetans. It is the relative dominance and terms of the exchanges across the boundaries which is the key issue, that is the overall use that rural and urban areas make of each other through two-way flows of produce, investment, energy, cash, people and ideas.

The Modern Adaptation of Traditional Social Forms

The pastoral case-studies both indicate the flexibility of local-level pastoral social organisation, and that many such practices are well-adapted to environmental local conditions. They are flexible and well-adapted because of the persistence a number of traditional management features. The most important are extensive grazing cycles with transhumance or migration rather than fixed settlement, and rural/rural trade between arable and pastoral farmers without intervening rural/urban trade. These practices give little rise to localised pressure on grazing and land degradation, such as is occurring today around towns. They also are economically efficient in the use of human labour on the grassland. Management and trade operated primarily through extended kinship, or domestic and local community groups. The size of management units and place of residence changed in relation to climate directed grazing opportunity, in which varying numbers of people looked after different sized groups of livestock according to season or chance rainfall event, on different territories as needed.

These points are well-illustrated in Manderscheid's case-study, which she carried out in the county of Dzam Thang adjacent to Washu Serthar in the early 1990s. Her paper indicates how traditional cycles of pastoralism continue in modified form today for both nomadic pastoralists (‘Brog pa) and semi-nomadic pastoral groups (Sa ma ‘Brog). The account of the linked but separable annual cycles of main and subsidiary tents of core and extended families also indicates how an economically adaptive division of labour is latent in the wider familial grouping. There are cycles of dispersion and coming together of the domestic group which take seasonal advantage of local grazing resources. Similar points on seasonal movement and adaptation still hold for Damshung in the early 1990s, linked by seasonal migration to the contiguous upland plateau area of Namtso, as described by Clarke (this volume & 1987). There are some changes. Yet the seasonal perseverance of traditional village community 'common property resource management' and other 'kin-based' joint social forms allows a flexible and efficient base to the pastoral management group according to local seasonal conditions, from sub-domestic through wider kingly group to territorial community.

Though not in itself a case-study, Lobsang's paper has great value as policy summary from a senior PRC administrator concerned with livestock management, and with great local experience of pastoralism. He, too, recognises the need for measures for protection of the grassland alongside those for increased pastoral production. He suggests education, the formation of local associations or co-operatives, and a 'semi-nomadic' social adaptation, as the way to introduce a successful commodity-based economy. Lobsang uses the Chinese term ding ju lun mu to refer to
this type of social adaptation. This term sometimes incorrectly is glossed as sedentarisation, but it has the same sense as the Tibetan term Sa Ma 'Brog. That is, a 'semi-nomadism' or 'semi-pastoralism' in which people move away from a main house to utilise different areas of grazing according in sub-groups according to season, and grow fodder or other crops at the lower main house where they winter as a whole. Such semi-settlement may be a way to adapt traditional livestock management forms for modernisation. Support of this relatively predictable vertical transhumance, and building on existing part sedentarisation by supplanting winter grazing with locally-grown fodder, may well be viable just off the southern and eastern edge of the plateau. Here there are relatively greater population densities, residential territories traditionally are fixed, and there are relatively predictable seasonal cycles of rainfall.

Regular vertical seasonal migration contrasts to the less predictable horizontal movements required by a successful adaptation to the open flat grassland regions of central Asia such as the Tibet plateau itself. Here local fluctuations of climate and the corresponding local rainfall events result in highly localised grass growth, and fluctuations in the numbers of livestock that can be supported. Over the long-term in a wide area, the overall limit on numbers of livestock and the number of tents that could be accommodated and the ratio of tents to livestock numbers may be reasonably constant. However, at local level the spatial pattern of rainfall is not repeated each year, and movement and/or social reorganisation is needed to follow local climatic events. This makes the mobile grazing strategy of traditional nomadism advantageous for local-level groups, a grazing strategy that has been termed 'climatic opportunism' by Miller (1996). The strategy both avoids localised land degradation and sustains a high level of production through taking advantage of the available good pasture of a wide area. In principle it appears as a diversification of supply or 'insurance', that is a corollary to 'risk reduction'. Here, the overall socio-economic viability of a unit is not based on standard annual repetition of numbers of livestock, people and places, according to norms of bureaucratic or industrial management. The essence of socio-cultural opportunism is flexibility, that is a set of organisational and migrational tactics to adapt to a range of climatic events. Overall sustained increases in production appear not in isolated local units, but on the average in the long-term over a wide area.

Traditionally, rights to grazing were maintained or changed by a display of force through a mobile, and more competitive, lineage order. Gelek's paper cites the descriptions of Rock and Guibaut from the first half of this century. These, along with his own more recent observations on the Washu Serthar, suggest the traditional political dominance of such lineage-based order in eastern Tibet. This idea is further reinforced by accounts of the people of Nyarong further to the south, some of whom are descendants of the Washu, who were at one time divided into four major tribes (Norbu 1986: 33, 75). Like many such pre-modern clan-based peoples, the Washu Serthar have the same double specification of social order through a 'local-lineage', that is at once by territory and kinship. As possibly with other modernising nomads, the old kinship or 'tribal' order comes to be subsumed within a territorial, sedentary, expression of that specification. The overall picture given by Gelek is of a relatively isolated, patrilineally defined, nomadic group, raiding and trading with lowland, settled, arable-based village. Levine provides an analysis of the politics of traditional resource allocation and describes the way efficient economic competition of rival groups works its way through traditional land tenure and dispute mediation. As with Nilotic peoples, the Washu Serthar traditionally come together in wider groups for periodic ceremonies and in the face of outside conflict, have their disputes negotiated by religious elders, and have a scale of compensation for blood injury as an inverse function of social distance. She highlights the way that kinship organisation allowed efficient adaptation to varying demographic and material circumstances, with the occasional conflict between lineages and neighbours over rights to pasture allowing for redistribution of territory.
Levine's account also portrays a transition from mobile herding to animal breeding or ranching, and suggests how today new private ownership rights to territory at the level of the household are coming to replace the more fluid, nomadic kin-based structures. Levine further indicates that privatisation and fencing alone do not imply good range management. There has been a policy of allocation of long-term land rights including pasture smaller, household units. Such division into small units can give rise to problems as 'dis-economies of scale'. Percentage fluctuations statistically increase with ever-smaller units. The attempt to maintain statistical norms of production divided up among smaller fixed territorial units misses one key point of efficient management on the plateau, which is to be flexible and opportunistic in relation to variation. Clearly a system in which households take on contracts, and individuals have rights to use of arable land, forest and pasture, is less flexible in the face of demographic and climatic fluctuations than one in which rights are owned or managed by larger units. There is a stability or insurance against short-term variation that comes from the larger scale of an enterprise, traditionally latent in the extended family, local-lineage, and wider local village group. Levine concludes that planning to increase output needs to include measures to protect the natural environment in the face of demographic and climatic events, analogous to the old lineage-based accommodation. In part, this set of issues is implicit in the expression used in the region by planners for pastoral development of the 'contradiction between livestock and pasture', referred to in Clarke's paper.

Levine also suggests a parallel to with the environmental problems attendant on sedentarisation of the pastoral nomadism of the Masai of east Africa. Clearly, there are wider sociological comparisons still waiting to be made on the bases of civil order of a pastoral society in eastern Tibet, and structurally analogous forms elsewhere. These would include the so-called 'predatory lineages' of the Nuer and other Nilotes of north-east Africa (Sahlins 1961), and the role of priests or 'saintly lineages' as settled mediators between such warring groups in Cyrenaica (Evans-Pritchard 1949). Here, preliminary regional comparison of Tibetan cultural examples of pastoralism under differing ecological and political conditions would help to refine the underlying principles prior to wider comparison.

In this wider regional context, the above patterns off the plateau in the Sino-Tibetan borderland areas appear similar to the traditional transhumance of Himalayan semi-nomadic groups of Tibetan culture in Nepal and Ladakh. The regional picture of Tibetan pastoralism off the edge of the plateau, whether extended towards lowland China or India, has the following key feature as underlying local socio-economic adaptation. A vertical differentiation of agricultural production zones by topography and climate, with extreme local variations of altitude and a relatively predictable seasonal water supply from monsoon and snow melt. Here, social life takes on a cyclical, annual form marked by communal religious ceremonies that focus on the lower semi-permanent or 'winter' (dgum-sa) settlements. The result is a semi-pastoralism, a vertical altitudinal transhumance in an 'alpine' pattern. This social form also contains latent two linked transitions. The one is economic, to a more settled, arable base that utilises only the lower zones. The other is social, to a village membership fully-defined by a territorial order that encompasses kinship.

In both the above cases of vertical and horizontal migration, the flexibility of domestic group organisation, whether through competition or cooperation, is a key feature of environmental adaptation. Movements of pastoral peoples are not just an unplanned or primitive displacement as a reaction to unexpected local problems. They are often efficient and institutionalised systems of socio-economic and adjustment to natural conditions. In terms of climatic opportunities and disasters there are two main and complementary local-level processes. First, an absolute increase of livestock numbers leads to expansion into new territory areas through a splitting-off of sub-
sidiary seasonal tents into ‘patrifocal’, relatively-independent, nuclear units, each of which can grow to accumulate enough livestock to form an efficient extended domestic management group. Such a split can be linked to a predatory move to other’s pasture and capture of their flocks as suggested by Sahlin’s metaphor of the ‘predatory patriline’ (loc.cit.). Or as Winkler’s eastern Tibetan and the southern Himalayan examples suggest, this can be linked to the opening up and conversion to pasture of previously-forested slopes of mountainsides. Second, the opposite process is a collapse of herd size. This could come about as a result of predation with direct loss of livestock, or indirectly from loss of territory. In winter, livestock death also comes from extremes of climate as indicated in the term ‘snow disaster’ also used by pastoral planners in the region. The traditional response to collapse of herd size is a concentration of herds together to reach the size for viable management. Along with this contraction in Eastern Tibet there comes a human consolidation through reversion to residence around or in tent of birth, that is a ‘matrifocality’, an extended rather than a nuclear family, and a reduction in the overall numbers of households in the unit (Clarke 1992b; Corlin 1978).

Wide issues of sedentarisation for central Asia have been looked at by Humphrey & Sneath (1996). One of their points was that the policy of the former Soviet and Chinese Empires was to promote sedentarisation and urbanisation. Their example of Mongolia indicated the following. A shift away from nomadism to a semi-fixed base; a shift away from group to individual decisions; an increasing market orientation with a reduction of pastoral movements, and a corresponding emphasis on short-range migration directed by market differences of prices of fuel, fodder, and other goods and services. The implication is that a regional integration of markets and use of manufactured consumables is likely to further reduce mobility, with corresponding further dependencies on the market place. They conclude that full sedentarisation and urbanisation are unlikely to be environmentally adaptive. They suggest that any successful modern form of pastoralism will have to take into account local geographical conditions, and build on traditional pastoral organisation as well as market privatisation.

More generally, Clarke & Osmaston’s papers presented here suggest that sedentarisation and the funnelling effect of grazing in fixed locations along the road corridor without clear land rights is one main natural environmental pressure. Some of the further problems linked to efficient, long-term, commodity production for markets are legal and to do with civil institution, and the need for clear ownership to such natural resources is discussed later. In economic terms, efficient use of the local comparative advantage of an extensive resource base requires moving livestock to pasture, rather than a factory paradigm of concentration and moving fodder to livestock. That stated, controlled sedentarisation, with stall-feeding and motorised delivery of fodder may be a viable strategy work in immediate peri-urban areas for urban supply. However, for reasons of transport costs regular modern service delivery to remote areas in this or any other sector is unlikely to be a financially viable strategy for pastoralists on the plateau itself.

Here Humphrey and Sneath have a further suggestion. This again is of bringing people to the town in temporary migratory cycles, rather than trying to extend towns out to the people in remote areas. Future towns might exist alongside a mobile if not fully nomadic animal husbandry. There could be an increase in rural-urban interlinkages without year-long sedentarisation through short-term cycles of urban migration, that is a continual circulation of rural producers through towns. This might allow rural groups cost-effective access to modern services such as those of health, education, markets, and entertainment, which almost by definition are urban. This has parallels with traditional migrations of pastoral peoples to Lhasa and other urban Tibetan cultural areas in winter. Even in the early 1990s, Lhasa appeared to have just such a large transient population of nomads and such cyclical migration. This also is the traditional Tibetan cultural pattern of winter migration to centres such as Bodnath in the Kathmandu Valley.
Though such increased centralisation of market linkages and pastoralism may still give problems of pressure on natural resources, there may be a potential in adapting this traditional social form to meet modern requirements.

**Traditional Values and the Environment**

It is a belief of a number of popular Western groups that Eastern philosophies such as Buddhism lead people to live in harmony with nature. Underlying this belief is the clear issue of to what degree different cultures predispose different environmental attitudes and behaviours. Historically, there may be such differences in typical cultural outlook between Han and Tibetan peoples. Yet these do not seem to have a single cause, but to be contingent on a number of simultaneous factors. One is the differing dominant forms of agriculture. Han are primarily arable and as such usually live in tightly clustered fixed settlements. Tibetan are pastoral as well as arable, and besides living in nucleated settlements are found at ease on remote, open pasture in isolated surroundings. These differences, too, may have implications for environmental management. However, one cannot move precipitously from such contingent associations to conclusions about 'natural' characteristics of peoples, which would be a form of racism. Clearly, this issue has to be approached with a caution.

In southern Tibet and the Himalaya, the practical agriculture of Buddhist peoples relies on their local knowledge and work by hand on cultivation. Irrigation channels and terracing on fields have to be constructed, and repaired each year after the monsoon; crops have to be weeded regularly. Today modern practices of intensive planting with additional irrigation and fertiliser exist alongside older methods. Much work is still traditional and manual, especially for rain-fed agriculture where repetitive and culturally standardised have not been supplanted. The traditional focus of concern here is not so much innovative technique as expressive. Religious ideology is still the social medium of overall concern. Ceremony is both social expression of concern over and direct all-important climate events on ripening crops, such as rainfall and hail. It is also a social expression and indicator of social position and standing in the local community. Public ceremonies that follow the annual seasons still are common, and are directed towards bringing 'this-worldly' (Jig rTen) prosperity in crops and trade. For example, in many southern Tibetan agricultural settlements the land is purified (gTsangs) before annual ploughing and sowing. This is for 'material fortune' (rTen-Brel), and also so indirectly the more transcendent 'blessing' (Byin-rLabs). Typically, in these ceremonies land is consecrated by an annual procession of priests which marks the outer bounds of the village territory carrying representations of traditional deities of the locality (variously Yul Lha, Sa bDag, kLut). In the collective period, it has been recorded that statues of China leaders and the red flag accompanied those of the Tibetan canon in religious procession. Of course, in modern scientific terms these actions are not technical acts of control, but are expressive.

Such practices also are associated largely with pre-modern and conservative land management. Yet over a longer historical time-frame, there also was a consistent expansion of indigenous Tibetan agriculture, and a number of innovations. Tibetan society expanded into primal forest areas on the southern slopes of the Himalaya and in eastern Tibet, creating alpine pasture, farmland and settlements. As mentioned above, Winkler’s paper argues that forest on the southern facing slopes of Tibet was converted to alpine pasture by an extension of pastoralism well before the modern era. In the adjacent areas of the far north-eastern Himalaya, in Arunachal Pradesh, Yunnan, and northern Burma, there is a large literature on the ‘slash and burn’ agriculture of Tibetan and related peoples. In north-east Nepal Tibetan peoples also cleared alpine pasture, cutting down trees for timber for housing, fodder, and firewood. People of Tibetan cul-
ture also put virgin soil under hoe with traditional crops such as barley. In Mustang (gLo sMon Thang) carbon-dating establishes that the wood for local temples and house-construction came from clearing local forest stands well before modern times (Schmidt & Gruhle 1997). There is no reason to suppose that the origin of timber in other temples and towns of southern and central Tibet is any different. As mentioned above, when new world crops came to India and China, there was a take-up of potato by Tibetan Buddhists in the Himalayan region, such as that which allowed an economic expansion in Solu in eastern Nepal (Fürer-Haimendorf 1964). In Tibetan cultural areas which also extended down to lower altitudes, such as Yolmo in northern central Nepal, there also was an expansion of extensive stone-terracing down the hillsides to accommodate maize. Religious sanction and blessing was needed. But the reason these agricultural practices did not expand up to the plateau had far more to do with the extremes of climate than they ever did with Buddhist prohibitions on disturbing the soil.

Similarly, changes to landscape from traditional human activity took place generally in India and as described before for China. There Buddhist civilization was not a firm barrier to disturbing the land, or to the taking of animal or human life. There were major changes in land use before any Western contact, linked to increase in population, warfare and internal migration. Then as now burning down a forest was both a way of conducting war against an indigenous population and of clearing land for agricultural settlement (Menzies 1994). Commentaries from the Manchu Dynasty record how the agriculture that followed such expansion led to soil erosion and flooding. For example, there are reports of environmental damage in the late eighteenth century from the fresh opening up hill land in part of Sichuan

... from time to time there were torrential rains which washed down the soil and choked rivers and streams. After consecutive planting for more than ten years none of the fertile topsoil was left and the soil was utterly exhausted. Now in such places ... mountains are reduced to bare rocks ...

(Yu Yong Chao from Wu Ning: 1775)

It is incorrect to assume that just because they were Buddhist, people did not change the landscape. Buddhist societies had cultural cautions on disturbing the land. Intervention might require the sanction of a ritual specialist. However, the religious institutions were closely linked to the state and also relied on agriculture for their own upkeep. The critical difference between modern and traditional agricultural practice may be found in three points: technical focus; industrial power to alter the environment extensively and rapidly; and economic pressures for growth. Traditional agriculture by Buddhist Tibetans did not have had the technical innovatory focus of modern agrarian practice. Extensive expansion was gradual compared to rapid modern changes, and transformed the landscape only over a longer time-scale. This itself may have helped in the sustained use of natural resources at high altitude. In addition, attitudes towards the land as well as capacities may well have differed between the two, as they did between pre and post-enlightenment Europe. However, this does not indicate any traditional prohibition on environmental change.

Gelek describes how among the pastoralists of Washu Serhar of the early 1990s there is a reinstatement of religious customs that may be seen, in former technical contexts, environmentally conservative. It may well be that changes in ideology which accompany socio-economic changes have some bearing on a communities' environmental practices. However, whatever the past linkage between the two the evidence is that there is no necessary link between a resurgent

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5 Other contemporary accounts can be found in Lin Ze Xu (1785-1850) and We Yuan (1794-1856); quoted in Ho Ping-Ti, 1959: 137-148, 229.
form of Buddhism and environmental conservation; any more, that is, than there is a direct causal link between economic growth and land degradation. The wider institutional context, economic pressures, with an accompanying 'secular' ideological context also appear as significant factors in change. Traditional balance here appears to have depended more on low population density, the absence of industrial technology, and the form of local social organisation for production, than on any particular system of ethics alone, which in isolation is not a determinant of change. Neither Gelek's nor Manderscheid's papers explicitly focus on changes in the condition of natural resources. All the same they do record a modern change in local economic culture towards material consumption and commoditisation. Levine's paper on the same region, as Clarke's and Osmaston's on central Tibet, indicate that pasture is under environmental pressure from modern, market-led practices.

Cultural associations are part empirical and historical, part projection and idealisation. Moreover, they change in relation to new ideology and circumstances, and by no means characteristic of ethnic groups or nationalities rather than other types of groupings of human beings. Today, one will find Tibetans who are completely at home with the Han values of lowland cities. One will also find Han born in Tibet since the late 1950s who feel ill-at-ease when they leave the plateau and move to the lowlands of China. Today, perhaps even more so than in the nineteenth century as described by Manning, roads carry with them their own global truck culture of movement, markets, trade and one night culture. These twentieth century staging posts also give rise locally to stores, bank, restaurants and rest-house, as services move down to the roads themselves. These act as foci of commoditising activity for their hinterlands, and as in the case of Damshung can leave even former collective headquarters as ghost towns. New strip settlements grow out along from intersections, formed by walled clusters of households that now look inwards to courtyards rather than outwards to nature, for Han, Muslim, and Buddhist trader alike.

These images of market modernity are powerful to the stage-stopping traveller along the road, and the development tourist. Yet away from the roads and urban loci, the changes they indicate are not yet of general significance. Besides Gelek's account of religious revitalisation for the Washu Serthar, Clarke on Damshung also describes the perseverance of traditional forms of village social association, and the continued managerial significance of indigenous classification of the grassland.

**Human and Natural Aspects of Land Conversion**

Three linked issues which in part have been covered under earlier headings also fall under the heading of human and natural influences in land conversion. The main point is that there have been general changes in land cover. These are historical, but change their form and become more rapid and localised in modern times. One question is to what degree these changes are land degradation, a process which here is characterised as an irreversible change to a land use form which has a lower sustained productive capacity rather than just as a conversion or change in land use. Early historical changes from forest to alpine pasture appear as conversion. However, in peri-urban areas it is difficult to view modern changes in land cover other than as land degradation. Another question is to what degree such environmental changes come from human or from natural causes. One important factor here is the increase in agricultural production by many farmers since economic reforms and trade, at least in peri-urban areas. At the same time one has to allow a wider contextual influence, from a natural ecological fragility, and long-term climate change on forest and pasture.
Changes in pastoral areas, grain producing areas, and forested areas, do not all follow the same form. There are also added complexities from local and regional spatial interactions. Hence the importance of the empirical case-studies in this volume. Winkler's paper discusses conversion from forest to pasture in eastern Tibet; Osmaston's and Clarke's papers consider the impact of changes in arable and pastoral farming in central Tibet. One point is that intensification of grain production as practised in alluvial river-valleys with deep soils may make for few environmental problems. Here, modern intensive techniques with irrigation can realise large increases in output and immediate environmental risk factors appear low. Hence in the sense of realising the maximum sustainable increases in output, traditional arable practices may not be economically optimal. Though there is a question mark over the real market costs of irrigation and fertiliser inputs, such intensive techniques may be both cost-effective and not lead to land degradation in this alluvial river-valley context.

Another point concerns livestock farming. Clarke's paper on pastoralism in Damshung lays out two key concerns of regional administrations on pastoralism that reflect the overall problem of balancing a policy encouraging immediate increases in market production, against one needed for environmental conservation. These are the 'spring death' of livestock from late snows and absence of sufficient fodder, and the related 'contradiction between livestock numbers and grassland'. Though increased production is profitable in the short-term, local increases in intensity of grazing can bring about unsustainable pressure on biomass. This comes both from over-grazing, and directly in collection of biomass for energy and construction use, especially in peri-urban areas and near roads. Osmaston refers to the potentially disastrous impact from the over-use of hillsides north of Lhasa for rough grazing. A similar point is repeated in observations on the physical condition of pasture in changes by the road at Damshung. As the data in his and Clarke's papers detail, the general problem is increased local pressure on pasture from the concentration of livestock in road and peri-urban locations before sale, given the wider channelled access to these areas from increased rural-urban trade. Osmaston observation is of a topsoil made up of covering of a thin layer of loess, that is wind-blown a silt quite different from the underlying rock substratum. In the highlands above Chushu and Lhasa, the sparse rangeland vegetation which keeps this topsoil in place is broken through trampling and over-grazing. Once started, this process can lead to gully and sheet erosion down to the underlying granite, and is not reversible. A similar point probably could be made for forestry. Clear-felling at high altitude in any practical sense is not reversible, and there is little possibility of reforestation.

Traditional, direct rural-rural trade between pastoral communities on the plateau and grain producing villages to their south and east by their nature had a distributed impact and produced little in the way of such concentrated local environmental pressure. By contrast, the modern system in which products pass in and out of nodal points at the towns gives rise to localised environmental pressure points. The spatial pattern of increased transport infrastructure and market-led demand has led to a concentration of grazing and exchange close to roads, and in peri-urban areas. Where this spatial pattern overlaps with a fragile ecological system, such as rough-grazing for livestock on hillsides along roads, severe and for all practical purposes irreversible land degradation takes place. Post-1978 reforms have provided an increased opportunity and economic incentive for the mass of private households to take up new rangeland management practices, which indirectly and inadvertently has promoted the use of rangeland and forest in a non-sustainable way.

Comparison with other pastoral rangeland areas of China is relevant. Agricultural economists have ventured that all of the official pasture of China is to some extent degraded, and that one third of the pasture which itself is one-third of the land area of the PRC is irreversibly de-
graded. In quantitative terms this implies that around 11.5% of the total land area of the PRC now is desertified pasture (Longworth & Williamson 1993). They view land degradation as a symptom of socio-economic and institutional problems. Such problems have not all developed since reform. Land conversion can be traced to earlier times. Substantial areas of pasture were destroyed in inner Mongolia in the last century, and more recently during the ‘Great Leap Forward’. It is, of course, a truism that an economist will look for economic causes, and a geographer for physical causes. Whereas Longworth, an economist, tends to the human influence and market explanation, Georg Miehe, botanist and geographer, has suggested natural climatic change as a key factor in explaining changes in land-cover. In central Tibet as noted above shifting sand and a general drying out lead to a loss of productive top-cover land. Alkalisation and sand erosion are widespread processes in western and northern China, as they are nowadays elsewhere in Central Asia. To some degree these processes reflect a change towards a drier climate that may well have been taking happening for a long time, millennia rather than centuries. Though it is likely that human impact can help lead to land degradation, at the same time it is to some degree likely that environmental change is a natural process irrespective of human presence, that is in anthropological (but not geographic) terms a result of ‘nature’ as distinct from ‘culture’.

Winkler’s paper indicates that the traditional difference in forest cover observed between north and south facing slopes is the result of a combination of natural causes and human activity (Plate 1.5). He also indicates other processes of natural change that can increase and elaborate forest cover. Once established, the cover provided by pine stands enables their eventual replacement by other species. However, the time-scales for such changes are large in human terms, especially at high altitude. In ecological terms, it is the overall species/habitat interaction which generates the system, and that human ‘cultural’ practices are in these terms part of a ‘natural’ cycle. This is a useful insight into local systemic relations, and possibly also into pre-modern history. Yet to include human agency within natural cycles may not be so useful in policy formulation. In terms of the Western Enlightenment paradigm of overall betterment, humankind as actor stands outside the natural cycle, and makes rational choices based on empirical discovery. To understand modernity there is a need to separate out, in the above anthropological sense ‘culture’ from ‘nature’. In Tibet as in other erstwhile pastoral areas in the PRC, recent changes in land-use have taken place from pasture to arable cultivation, and there has been pasture degradation tripped by over-grazing by human managed flocks around towns. The economic growth allowed by industrial technology and promoted by market reform here is a significant new factor. In particular, it is the nexus between market intensification under economic reform and the fragility or inelasticity of non-renewable highland natural biomass on which the energy demands of modernity have become established, is a significant new modern dimension to change. Rather than appear to legitimate encourage a type of fatalism in the name of nature, the human challenge is to formulate developmental policy that makes responsible choices for the future that takes account of this natural context.

**Grain Production and Procurement Policy**

One important general economic feature of the plateau region is the high transport costs. Correspondingly, one key underlying aspect of modern policy is for a local regional increase in grain production and distribution to replace state imports necessary in the collective period. Osmaston, Schwartz, and Ma Rong, provide a critical discussion on agriculture and in particular figures for grain production and imports from two sources. Field and household surveys which provide interesting new data, and official statistics. According to the official figures, annual grain production
Plate 1.5 – Eastern Tibet, Amnye Machen (A Myes rMa Chen) region: view up sTag So valley with densely forested north-facing and bare south-facing slopes, from 3,320 metres. Joseph F. Rock, 1926

Plate 1.6 – Eastern Tibet, Aba (Nga Ba) ATP: forest cuttings on hillside above river and ruins of Chiangpa watchtower. Daniel J. Miller, Summer 1994
between 1974 & 1984 varied between 41,000 and 106,000 tonnes. However, there are problems in the calculation of overall supply and production. The relation between records of production, state purchases and sales, imports and sales into the region and in local market-places is not transparent. There also is a great variation in practice at local and household level. The residual uncertainties of the bases of measurement, in standardisation, and in the interpretation of categories from administrative records, imply a need for caution in making extrapolations and comparisons (Clarke 1992b).

Though there is grain production in the far south-west, most grain production is in central and eastern Tibet, in particular the river-valleys east of Shigatse. In their accounts, Osmaston’s and Schwartz’s household data show that calculations on production and supply are not just a question of working from recorded sales. Besides quotas, and above quota and contract sales and disbursements by the state, there are also market sales and barter, and private imports and exports. These different modes of exchange are residues of earlier forms of production and exchange dominant before 1981 and 1959. Central command purchase, though now through contract rather than quota, is still in place. There is still state distribution of grain at controlled prices. All these are old aspects of grain policy. New policy measures since reform are support for increase in sales through markets, with incentives for additional production through state purchases. Irrigation schemes, in particular the large-scale ‘One River – Two Streams’ agricultural irrigation programme in central and southern Tibet, also follows on as a new measure for state investment under the general policy to increase grain production.

The studies here also include some reference to the collective period and previous barter exchanges, but one form of exchange on which we have little data is that of agricultural rent to landlords prior to 1951/1959. Incidental data collected in 1990 from central Tibetan villages in the Drigung (Brigung) area indicates that traditionally, rent was paid through labour on monastery land for two to three days out of five. Subsequently, that system was abolished, and land was redistributed. During the collective period the quota system of grain production was not in place uniformly. The quota system for grain procurement of Lhasa municipality was not levied in that form if at all, in Shigatse Prefecture (Loze & Clarke 1992). Many highland rural areas of the TAR do not grow grain but produce livestock. Now as nominally poor areas they receive subsidised grain rations, at the same levels of supply that nominally were in place in the collective era. More widely, Sichuan, Qinghai and Gansu differ from the TAR in their history of bureaucratic incorporation and taxation regimes from 1950 until at least 1980, and rules here on quota and contracts differ.

Viewed from the perspective of a single household the varying modes of exchange today represent the choices open for sale. For example, grain-producing households in the Myang Chu river valley at Pa Nam (Pa sNam) carry out all three in parallel: local barter, direct state contracts and market sales. In the barter of grain for salt and meat there is a continuity of past social relations. They trade some grain with pastoralists from the south of Pa Nam to obtain meat for domestic consumption, people with whom they have been in such exchange relations for generations. Similar annual barter and transhumance patterns seem to obtain between pastoralists of the plateau and arable communities north of Reting (Rwa sGrengs), the pastoralists supplying meat, salt and livestock to help in threshing in late summer. This pattern is broadly comparable to that recorded across the Himalaya to Nepal and India in the south, and in Ladakh (Crook & Osmaston 1994).

In Tibet, grain producers make contract commitments for sale of grain volumes at controlled prices to the state. Now, these are linked to the purchase of fertiliser and availability of credit from state agencies. They also contract for private sales to agents who visit them, and sell direct
or through intermediaries at market in Shigatse. Overall, they make a rational market calculation and spread of risk between different spheres of exchange. One line of exchange ensures basic domestic supplies of meat and salt. Another ensures good relations with the local state marketing and supply organisations who provide them with subsidised agricultural inputs. The third form of exchange is more for a speculative cash income.

Schwartz's paper concentrates on possible continuities with the old central planning system of quotas. He suggests that the taking on a grain-producing contract in a political economy in which the producer relies on the state for credit, water, subsidised fertiliser and other goods, is similar to a traditional quota. He also raises the issue of whether the Tibetan farmer benefits from increased production. Analytically, this depends on whether or not the marginal increase in production is greater or less than the marginal increase in procurement by the state. The household data presented from across the wider Tibetan region indicates high local variation in procurement rates and practices. It is difficult to reach any conclusion from this variation and the unclarities of the official statistics. However, the following general point can be made. When closed, small-scale systems of arable production and local barter exchange open to markets, socio-economic differentiation into rich and poor is common. There are economic 'losers' as well as 'winners'. A priori, a sample of refugees is likely to include more of the former than the latter. As indicated above, case-studies carried out in the TAR itself with field records of household expenditure and income suggest that material standards have increased since the collective period of the 1970s. In Jangte (Jang sTod) village in central Tibet, Osmaston notes that the sum of the current household grain contracts is equivalent to the size of the old collective quota. Taken together with the modest increases in production he also notes, this suggests local material benefits. This data corroborates the casual observation of household rebuilding and investment that would be made by any observer who has driven along the road from Shigatse to Gyantse both before and after reform. In the early 1980s two-storey buildings were a rarity; in the early 1990s well-maintained two-storey buildings are the norm.

There is a greater degree of choice now than existed prior to 1980. Yet Osmaston's finding that all people take out loans for the same item at the same time, whether for house construction or tractor purchase, indicates that the individual choice that Western economists and many political analysts see as critical to efficient markets and civil society are not fully present. However, civil institutions clearly are changing, and are likely to spend at least some period in transition. Furthermore, all political economies whether capitalist or socialist usually allow some opportunity for if not compulsion, then patronage and heavy-handed persuasion. The model of the well-informed individual making his own rational economic calculations and voluntary choice in decisions to buy and sell may be a useful 'ideal type' for economic analysis. Taken alone, it cannot characterise the overall situation of a society undergoing change.

Another set of factors, the broader terms of trade of the household, also will affect the distribution of any marginal increase in overall benefits from increase grain production. Whether these accrue to rural village farmers depends not just on the prices they are paid for grain, but also on the prices they have to pay for manufactured goods and services which of course includes agricultural inputs such as fertiliser. And here the debate on grain production returns to the general debate on balanced developmental growth between urban and rural areas, and Han and Tibetan, that is the issues of equity and integration introduced above and discussed by Rong Ma.
Markets, Subsidies, and Environmental Economics

In principle in China, developmental changes now are governed by the application of technology and principles of economic reform. Perfect competition assumes a regional integration of markets, which itself depends on low transport and communication costs, and open access to markets. In Tibet the large distances and low population densities give high transport and per capita delivery costs, and discourage a regional integration of markets. It is only in the case of commodities that are available on the open market, which are usually at higher prices than state-subsidised goods, that there is open competition.

The wider state-directed economy is still apparent in what may be a time of transition. State marketing and supply organisations continue to occupy central roles in the allocation of subsidised new resources, such as fertiliser, credit, and fuel. State purchasing schemes for grain, now under contract, often follow the central purchasing quotas which formerly were in place down to production team level. Schwartz makes the point that the allocation of land under the responsibility system went hand-in-hand with the acceptance of such contracts by households. Here reform has not resulted in a 'pure' market system; rather it has resulted in a political economy which embeds both markets, and also older institutional and community-based forms of exchange. The change has been brought about by the introduction of the new avenue of market sale alongside traditional barter and state contracts, and those who increase their production above base contract levels, exercise increased choice.

Divergences from a market model may be termed by some economists as 'policy distortions'. These come from an implicit cross-subsidy from state-supply to market-led sectors. State provision of fertiliser, fuel, machinery and credit at fixed prices allow the successful farmer to increase output to the point at which there is a surplus for market sale. In practice, as implied by Schwartz's argument on procurement, two-way linkages develop here between the timely availability of inputs for use by the farmer against contract agreements for sales by that farmer to state. These are not all negative for farmers. The continuation of state-institutional patronage feeds into the market economy and traditional community exchanges: linkages from state-subsidised production to sale at market, together with increasing urban demand, both ensure local profitability and increased production. The wiser farming households in the river valley of the Myang Chu south-east of Shigatse towards Pa Nam and Gyantse, both spread their risk and cross-subsidise from one sphere of exchange to another, by trade through traditional barter, state purchase, and on the open market.

Market linkages can increase production but also can increase natural risks to the environment. In a market model price signals are important, both so farmers have an incentive to vary the crop, area sown or type of animal kept for sale according to demand, and also to reflect any wider environmental constraints and long-term costs of production. One successful example of successful pick-up of market signals and innovation comes from within the peri-urban areas of central Tibet. Here, growing of vegetables with irrigation under polythene tunnels along the irrigated valley bottom west of Lhasa has been achieved by technical assessment of climate, and economic assessment of input cost, demand, and returns for vegetables in these towns relative to grain. In the mid-1980s many vegetables were imported by from eastern Qinghai or from Kathmandu, and were for supply mainly for high-ranking hotels, restaurants and state bodies. Now they are common. Even if the farmer has to purchase grain at market for fulfilment of contractual grain obligations to the state on the land, growing vegetables is still more profitable than growing grain. Due to the good soils and the inherent value of peri-urban irrigated land there is little danger of land degradation.
The example of market signals and pastoralism is mixed. Markets have been an economic success for many producers, but as described above this has been at the expense of long-term degradation of highland grazing for at least some major peri-urban areas. Longworth & Williamson (1993: 310) give a general analysis of pastoralism in China, and depict the effects of moves towards market systems including their implications for extensive grazing systems. The account concerns the effects of the difference in institutional regimes for the production of wool and cashmere on farm small-holder production and the environment. The former is a sub-sector in which state contracts have persisted, the latter is one in which they have not. Ideally, the producers should respond to the signal of changing prices by adjusting their production towards the most profitable mix of commodities. Pastoral households do change their production; but since one commodity is inside and the other is outside the market system, this leads to a distortion. Despite the various market-oriented reforms introduced between 1985 & 1988 the price relativities between cashmere and wool continued to be dominated by central purchase-price fixing for low-grade wool. The state paid high procurement prices for these low grades of wool, which were produced in a traditional manner. Yet this was of limited use for a modern manufacturing industry. There was no switch to production of the higher grades implicit following the signals of the market model. Despite the fact cashmere prices on open market rose eight times between 1984 and 1989, cashmere simply was not available at market. This is termed by economists a ‘distortion’ of the market.

Longworth and Williamson point out that the policy concern with immediate equity and material rewards for rural farmers through distribution of wealth, had taken priority over economic efficiency. This had bad economic effects, in that the relatively high guaranteed purchase prices for low quality raw materials reflected neither the costs of inputs, nor the relatively higher market value of higher quality merchandise. The issue of rural-urban equity in income distribution had been addressed through an increase in purchase prices. Rather, it should have been addressed through a separate and subsequent welfare programme for the poor. The result appears as overall economic inefficiency, with an ‘opportunity cost’ from not putting in place an industry that could compete internationally. The policy excluded the possibility of a long-term economic growth from a shift in production, with corresponding eventual possibilities of redistribution that growth for equity. This is valid economic criticism of policy. One also should remember two points. First, there is an inherent difficulty in reaching conclusions from this type of speculation which analytically is termed ‘a hypothetical counter-factual’. Commonly, it is illustrated through the example of explaining why a dog did not bark. The logic is particularly problematic in poorly-defined or non-standard contexts. Here there is a logical problem in terming a change which has not taken place as normal, and referring to a continuation of prior historical situation as a distortion, where there is no empirical evidence of any kind of any change to explain. Second, there are comparisons that can be made close to home. In the developed world similarly ‘inefficient’ fixed-volume purchase price subsidies to farmers by the state are common: one need look no further than the Common Agricultural Policy of the European Union.

The example still is informative. It suggests what may go wrong in planning even if the issue of equity in benefits for rural producers that Schwartz raises for Tibet is dealt with by the state, if the procurement system is not economically efficient. It also has a negative environmental side. The policy of benefiting small-scale rural producers through improving their terms of trade to the towns itself appears to have helped lead to over-grazing and natural resource degradation. Longworth and Williamson point out the bad environmental effects of subsidy. This ‘policy distortion’ lead to attention to quantity rather than quality of wool by farmers, in wool production. People over-stock on sheep to produce the maximum amount of wool, so as to receive the
maximum subsidy: the consequence is overgrazing. The production of higher quality wool would require lower stocking levels and fewer over-wintering animals (or increased imported per capita feed levels). Hence this particular policy of benefits for the rural producer helped degrade the natural resource of the pasture.

This situation is different to Tibetan pastoralism. Here there is indirect subsidy for production, but no such direct support to rural groups through subsidised purchase prices, and prices for meat vary on the open market. However, the market process itself still results in local land degradation. To a degree this because of a supply-side subsidy to the transport sector by the state; but as we shall see below there are other factors as well, to do with capital undervaluation of natural resources. The analysis illustrates the complexity or diversity of relations between state investment subsidy, markets, local communities and the environment. Land degradation cannot simply be laid at the door of urban or rural, or market or state regimes in isolation. Clearly, state purchase price and subsidy can be useful features of regimes in transition, but can only be assessed within a wider context of what changes actually are taking place. And in the present state of knowledge, this implies that one has to work out the physical and socio-economic implications for each type of intervention for each local system empirically.

Looked at more widely, there is nothing markedly unusual about a programme for economic investment that uses economic subsidy by centrally-planned states. Lack of efficiency through shielding from market forces, and mis-directed investment leading to increased consumption and inflation, and undervaluation of capital resources, all may be common aspects of state-directed economies when they move towards markets. There are some particular features of such regimes in some comparable highland regions of Asia. A subsidy may be a sensible transitional support strategy. But a structural adjustment package it is normally a ‘stop-gap’ to help in a period rebuilding internal capacity, planned to lead eventually to a market-led growth. Removal of subsidies on manufactured goods and the proper valuation of non-renewable resources may give rise to immediate problems. Stopping subsidising transport and chemical fertiliser now would result in an immediate reduction in grain production. Subsidies in transport as in other sectors may be of initial use as a start-up incentive for promoting development investment in remote areas. However, a continued dependence on the import of subsidised oil (piped from Golmud) and fertiliser (truck from Golmud & Xining), cheap loans, and consumer goods does not appear as a sustainable long-term financial strategy.

Similar such central subsidy was removed in the Republic of Mongolia on the collapse of the Soviet Union: the result was an extreme inflationary cycle in the costs of fuel, kerosene and all other imports, with disastrous consequences for small holders who had begun to depend on that urban market economy for their livelihoods. A similar inflation in urban market prices appeared temporarily in the Kathmandu Valley of Nepal at the time of India’s trade and transit embargo in the late 1980s. State reserves of subsidised cooking oil and kerosene rapidly dwindled. There were queues, rationing, and rapid inflation on the open market, which hit small-scale producers and households beginning to depend on the formal economy. In the Kathmandu Valley of Nepal the subsidised distribution of goods has created a disposable, consumption-oriented, and dependent culture buttressed by foreign aid which is used in practice for regular, recurrent, expenditure. This is without creating much in the way of relevant local technical capacity. China’s lowland provinces and Beijing in some ways occupy a structurally analogous position in regard to Tibet. That is, they sometimes may put in place economically and technical solutions which are appropriate only for lowland problems, and subsidise recurrent costs in the name of development investment.
Besides the issue of subsidy, present development policy also has to take on board the results of earlier phases of investment. Here the legacy of the remote ‘otherness’ of what today is the TAR carries over into the modern period. In part this is positive. Unlike any other provincially-sized unit the TAR still has no railway, nor much in the way of heavy industry apart from a handful of cement factories. It is ironic. Lowland Chinese cities today have to cope with outdated, inefficient, polluting, heavy industry put in earlier according to a Soviet model of industrial progress. In Lhasa it is the very obverse, and the lack of that earlier investment and resultant ‘clean slate’ is now seen as an advantage. The cleanliness, quality of air and cool climate now are viewed by the TAR Government in the late 1990s as an advantage for the growth of the Chinese and Asian tourist industry. The TAR Environmental Bureau now is upgraded to an Agency, and has been given the job of cleaning up the main old polluting cement factories. A similar point on the environmental advantage of a low historical level of investment applies to the extensive ‘nature reserves’ of the north-west. Their success may depend more on remoteness and the absence of roads, than it does to the conscious implementation of a conservation policy.

Another important factor that encourages environmental degradation in areas open to economic development has been the use of conventional Western models of national accounting which treat natural products such as salt, grassland, and forests as ‘free-goods’, that is without any intrinsic value. This means, for example, that forests have no value as capital when they are standing and only acquire economic value by being processed, that is when felled or when labour is applied. This implies a zero costing in economic calculations for production, without taking account of either the opportunity costs of short-term consumption, or the possibility of a need for investment in long-term renewal. The current wisdom in environmental economics is for capital valuation of natural assets such as forest and grassland in national accounts. Private ownership through market sale, and ‘common-property resource management’ by local communities along traditional line, are both thought to be solutions. These both imply the wider context of a secure institutional base for a civil legal framework of contract (Pearce 1995; Panayatou 1993). The idea is to lower the possibility of creating modern ‘open access’ regimes during the flux of change through the creation of a secure long-term outlook by the people, one in which they will invest and husband resources with a view to sustained future use. The problem is that societies in economic and other forms of political transition often are undergoing changes to precisely that framework of civil institutions. This is more likely to give rise to ‘open-access’ regimes that use up natural resources in the short-term than ever was any traditional society. China’s radically changing civil history over this century is precisely such rapid institutional change. It has left the unfortunate legacy among large segments of the rural population of a short-term outlook for investment, with perceived insecurities to rights to land and property. Policy changes will not alter people’s memories of the cycles of change of the last two generations overnight, but they would be a step in the right direction. It also seems reasonable to limit economic investment to enterprises which are likely to be able to cover their own recurrent costs of operations and maintenance from income on open markets, that is those which are sustainable in the sense of being financially viable.

In Tibet at this time in practice rights to use of rangeland are inheritable. Land management can be contracted out for short periods, and some small-scale labour can be contracted in. However, there is little underlying legal and institutional basis for such provision. Land-titles which can be simply bought and sold, with such title and transfer backed up by civil courts are a key contextual institutional feature of a market model. Yet in the Chinese regime monopoly licenses of state enterprises held by industry cannot easily be transferred, and hence have no direct market value. Household land is held on lengthy leases which cannot be directly bought and sold. In principle this implies that neither a venture which is failing, nor a household in decline can re-
alis a market value of the land and other fixed assets by sale, and then move on. In theory this has two negative aspects. First, it encourages a residual ‘mining’ of the land, such as by the chopping down of the last tree or overgrazing before moving on. Second, it means that if people do move on then despite there continued nominal responsibility, then the asset effectively is abandoned and there is little prospect of it being used productively in the future. Human calculations of material gain take into account financial liquidity and long-term security, and it is financially rational for to invest in assets which can easily be bought and sold, such as livestock and transport, rather than make expenditure on fencing, wells and other fixed items on nominally private leased land, capital value of which cannot be realised at market. If present in Tibet, if present this market mental set should be apparent in peri-urban areas, which are main areas of change and also locations of major environmental problems. This is an issue for further empirical research.

According to these principles, under some institutional conditions economically sustainable production competitive at market prices can promote the conservation of the environment. However, if natural capital assets are undervalued it is less likely to do so. Clearly, planning according to environmental economics which places capital value on natural capital represents an improvement over conventional planning in which any cutting down of trees, even a wasteful prime lumber extraction from clear-felling, represents economic growth. This problem is more general than Tibet or China, and the overuse of natural forest happens in many areas globally. Winkler’s paper serves to remind us that the underlying industrial forms and accounting procedures used for forestry in China originated in the Western world. Policy advice from a forester is more likely to be sector specific with intervention for investment, taxation or subsidy for forestry as such (e.g. Menzies 1994: 43). However, unless the wider contextual issues are first addressed, any such sector-specific move is more likely to generate further ‘distortions’ and leakages of the kind noted above as the economy moves generally to market, than it is to result in sustainable change.

Economists and political scientists may make policy prescriptions for wider features in the establishment of competitive markets and the legal and civil institutions of contract that approximate to the Western context. They often see the solution in terms of a withdrawal of the source of market imperfections and introducing only policy interventions that help the presumed ‘natural’ market state come into play. However, as indicated above, such an analysis assumes a single, common, substantive, universal model for successful economies, very much in the western ‘open-market’ image. Inefficient state institutions are one problematic feature, but pressures for profitability from market reform may be another critical factor. Given the natural diversity and other special physical conditions of the Tibet plateau this is unlikely to be the case, and there has to be a balance of growth against risk that reflects these natural conditions. A priori, there is no simple way of categorising policy interventions as distortions rather than as adaptive policy measures.

In China, at national level the ideology of environmental protection has begun to change to more modern models in which the private sector now exercises some role, alongside state management, and continued older community or collective forms of relationship. At lower levels of the administration, environmental management is still predominately viewed as the job of the state rather than of the private sector or local communities. To declare an area of great environmental importance implies direct state management. Here control through enclosure, fencing, and exclusion of all people, local or industry are the conventional measures. Yet in practice and especially in remote areas, the capacity of the state to directly manage extensive natural resources such as grazing is limited. The effectiveness of indirect management through markets cannot yet be fully assessed. Even if this model were to be effective in such natural conditions
as Tibet, one would reasonably expect a lengthy period of overlays and historical residues. Civil laws of contract have yet to fully crystallize, and the state has a continued role as an overarching administration.

The other model that has been raised besides that of the market for environmental management is that of ‘common property resource management’. This is often interpreted as a cooperative of village users, or a traditional community as depicted by an anthropologist. Certainly there are lessons to be learnt from such models, but there are differences to today. First, people no longer often live in such administratively isolated communities but in the context of a centralised state administration. Local systems or management cannot operate quite exactly in the same way as they may have done in some distant anthropological past before the rise of the centralised state, especially the modern state. Rather now they have to adapt to the realities of wider culture, civil order, and market. Second, there are problems in conveying this idea of preserving past useful forms in a China which wishes to move on both from what it conceives of as a backward past, of both minority nationalities and the era of collectives. Yet come form of allocation of local common management responsibility and associated rights may be an important way forward for natural resource management in remote areas, give the high transaction costs for access and complex mosaic of local variation.

There may be varying places in policy formulation for efficient markets, with private rights and civil contracts, common property resource management. The residual role for direct state intervention and management remains to be worked out. A successful formula in any instance, as with the earlier practice of natural history, geography and anthropology is more a process of local knowledge and empirical discovery, and communication and interpretation, than it is deduction from the purview of any single discipline. The case-studies presented here make it clear that, despite changes to household ownership and markets, extensive pastoral production has many positive organisational continuities to the past. In practice, older forms of traditional common-property if not collective management, with some modifications, still are in place. These are rational management strategies both because market exchange is still embedded within a wider political economy, and because of their inherent logic of efficiency and equity for production systems which do not lend themselves to stable partition. Groups already in place have the local knowledge, they depend on the long-term on these resources, and no-one is in a better position than they to monitor their use (Ostrom 1990: 58-102). What such groups primarily need from the state is authorisation, and co-operation in observation and technical support. In Western development policy environmental assessments that utilise local groups and knowledge are no longer an economic externality, but are becoming a precondition to planned investment. Along with resource assessment, inventory and valuation, there goes a complex task of community and institutional assessment, followed by a joint devising initiatives that can take account of these issues.

In much of Tibet away from towns there is still a traditional belief in local territory, and there is investment in jointly-owned and managed natural resources by community households. This occurs despite the lack of possibility of realisation of capital value of such market investment by individuals and households that is inherent in an individualistic, profit-maximising ethic. Such societies may represent merely a transitional continuation on the way to the evolution of markets. Or, the special physical characteristics, the low population densities, high ‘transaction costs’, and ‘thin’ markets of Highland Asia and Tibet may be a permanent constraint to the emergence of viable markets. Hence remote areas may be especially good candidates for imaginative forms of natural resource management that utilise the knowledge and good practices of traditional forms for modern ends.
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