Land Conservation and Urban Farmers Livelihoods. A Critical Pair in an Urban Strategy in Gyantse, Tibet Autonomous Region, P.R. of China

INTRODUCTION

Arable land resources in Tibet Autonomous Region (TAR) are scarce.[i] Urban land acquisitions on a large scale and urban expansion both from the public and private sectors are main threats to a land conservation policy. This paper addresses the challenge of conservation of arable land as main condition for urban farmers' livelihood improvements in Gyantse, South TAR. The future challenge, which is very much a concern of the government, is improved livelihood for the overall population. This is in accordance with the overall, long term policy of the Chinese national government to develop non - costal regions (Fleisher and Chen Jian, 1996). The 11 Five Year Plan, 2006 – 2010 is innovative in terms of addressing the contradictions between economic growth, resource conservation and environmental approach. Development is also promoted by relying on a people centred approach (Ma Kai, 2006).

The main question asked is: How to keep agricultural land for the urban farmer in front of urban expansion?

The national Chinese government also recognises the importance of conserving agricultural land, and they apply this to TAR. However, new urban grid towns are extensive in their consumption of agricultural land. A challenge is therefore threefold: to apply land-use change restrictions on agricultural land at the urban fringes, to densify the use of existing land and improved use of its urban infrastructure, and to make strategic land use planning mainly with expansion on non agricultural land.
A continued up keeping of an agricultural resource base both in terms of land and agricultural practices in this marginal natural environment, is absolutely essential for improved livelihood conditions for the urban farmers and their cultural continuity.

Organisation of the paper

This paper addresses the role of planning at township level within a county of TAR. Have planning been applied to develop new areas of the town and to control urban sprawl? What has been the situation of the past? And what are future scenarios in terms of planned development in a perspective of the change in land-use? There is planned an extension of the railway connection to Lhasa, between the Chinese mainland and India. This extension will pass Gyantse County.

First we will give background information related to place, and its people. The central issue, as we see it, is conservation of arable land resources in front of future urban developments and also livelihood conditions and land use rights of the urban farmers.

We want furthermore to give a brief introduction to a multidisciplinary theory base and an urban ecological framework for our analysis based on understanding of the place specific territorial links, the quest for cultural continuity and an understanding of overall importance of an eco-developmental approach.

We also want to address the policy frameworks for land use conservation in China, land ownership policies for rural and urban areas, and urban planning policies. In brief what is the normative framework essential for the administration and for the people to relate to in challenges of urban development of TAR today?

What is the planning framework as it functions in Gyantse? Who are the stakeholders, and what are the land use plans and practices?
How can land use practice in terms of its present urban structure be analysed? How can different parts of the town be understood and how are they changing?

We are concerned with improved practices of implementation and monitoring of planning. How can land use under stress of urban expansion be managed better?

Last we ask what would be the strategy with its objectives and means to work towards an urban sustainable future for Gyantse? And how could the local authorities bring good practices and experiences of the past into future planning – in the interest of arable land conservation and sustainable livelihood conditions for the urban farmers?

CONTEXT

A Place in Transition

Gyantse town is located at a high altitude, plain valley (approx. 4000 meter above sea level) surrounded by chalk mountains. The contrast between the plain areas of the Valley and the mountain landscape is impressive. In spite of the high altitude this is a granary for the region with rich barley cultivation. Irrigation facilities have contributed to improved harvests. This farmland is the main resource and there are extensive animal husbandry activities.

The Gyantse Valley has a significant history, with past monuments from 14th and 15th centuries (Ricca and Lo Bue, 1993) and contemporary, living culture. These rich heritage resources are closely linked to the agricultural practices and skills, and the up keeping is dependent on improved livelihood conditions.

This is historically a centre of a rural county and market town between the southern border to India and Nepal, and the way to Lhasa. Today Gyantse is a tertiary, rural based town of TAR. The Gyantse County is administratively under Shigatse prefecture.

The figure 1 shows land settlement and land relations in the 1930ies and at present. This high altitude plateau with plain fields had some few old settlements which were located nearby the monastery and fort on the mountain foot. Here the altitude is higher than at the plain area. This location was both to save valuable farmland and also to avoid flood risk from the nearby river. The traditional settlement is highly concentrated.

The traditional settlements have mainly been expanded to the east and south. It is remarkable that the new Tibetan housing areas are still on the mountain foot along the slope, mainly on non farmland area. The land is generally quite intensively used by low rise Tibetan new houses. However, some new educational institutions consume large areas of land. The other main characteristic is the new grid structure market town to the south east which is located mainly on irrigated farmland. This part of the town was built mainly for trading, commercial purposes and for government institutional buildings. However, there are also some prime services such as hospital and educational facilities.

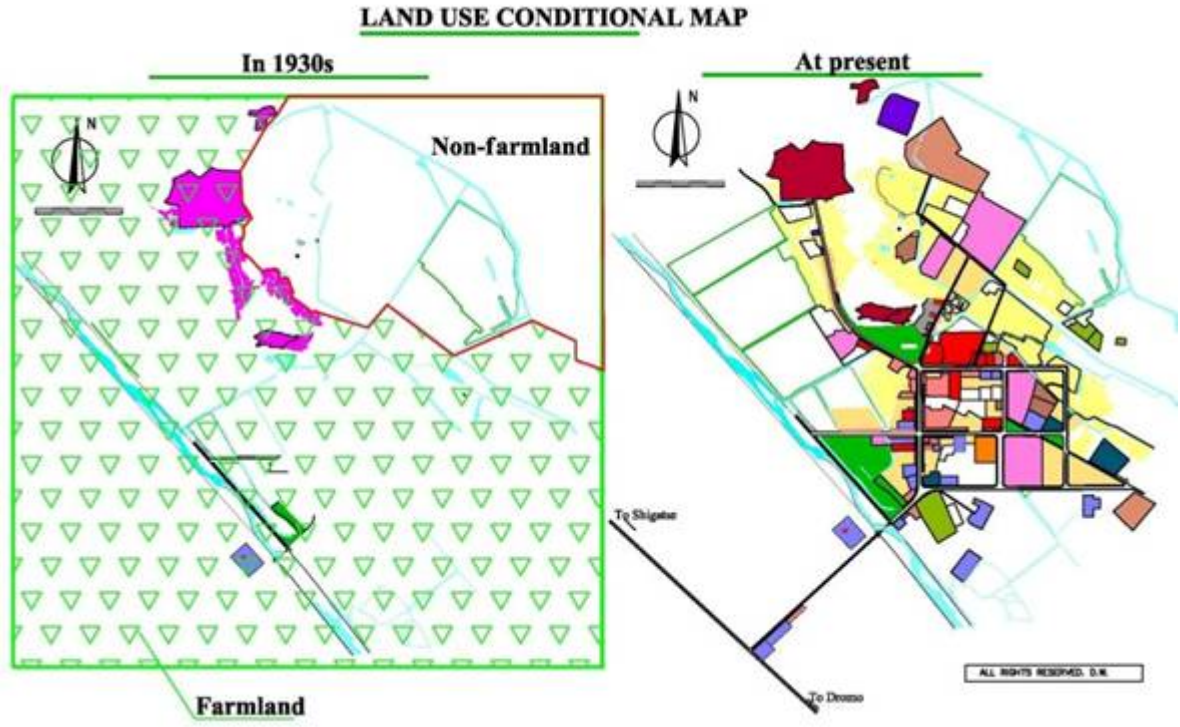


Figure 1 Arable land loss in Gyantse (Dawa Tsering 2007)

People of Gyantse

Here you find a mix of urban farmers, merchants and craftsmen. Most are of Tibetan origin and are farmers, some are Han Chinese. In 1959 the population of Gyantse County was approximately 30 thousand. By the end of 2000, the population had grown to the double or 61 497. Of this 53.939, or 88 percent, were within the farming and animal husbandry. The non agriculture attached population was limited to 7.558. Of the total population 10.544 were classified as urban citizens while 50.953 were belonging to the farmer group. (The Peoples' Government of Gyantse County (2004) Gyantse County Local Official Chronicle page 71).

An issue for the farmers is registration or what in China is called Hukou[ii]. Many have roots in villages outside the urban area. On the one side they need registration in the town to get access to urban citizens' privileges within health and education. On the other side their land entitlements in the surrounding villages depend on their formal belonging there.

As elsewhere the livelihood conditions are diverse within the traditional villages of Gyantse. However, there are female headed households and single, senior women who struggles most.

For farmers future livelihood conditions better education and skill developments are essential. This will reduce the farmers total dependence on farmland. However, our observation is that most of the households live with subsistence farming. There is a main dependence of agricultural food grains and animal husbandry.

Gyantse has a strong traditional religious significance. The Kumbum, the stupa, is in mandala form and represents five different Buddhist religious sects. (Peoples' Government of Gyantse County (2004), Gyantse County Local Official Chronicle, pages 80 - 81). In this way Gyantse was a centre of religious activity, and communication between different Buddhist directions. A main local cultural activity is Gyantse Damang (local horse racing festival) . This is one of many activities which keep the community alive with all its strong local characteristics.

THEORY

Arable land – a prime resource

Settling in the traditionally nomadic Tibet was mainly a result of competition in access to scarce arable land resources and the need for defence. During the last forty years new agricultural land resources have been developed in Tibet Autonomous Region (TAR) with the introduction of irrigation. However, arable land is a strictly limited resource in TAR as in overall China. The arable land / population ratio is decreasing directly affecting livelihood conditions of the farmers. This calls for precaution in expansion of urban settlements on arable land and improved efficiency in use of existing urban land.

Arable land resources are first of all important because they are limited. Secondly, the arable land is shrinking on a large scale and third arable land is absolutely necessary for local food security and a locally sustainable future.

The arable land and its sustainable cultivation are necessary conditions for social security and cultural continuity.

There is not much information on land use policy and arable land conservation policy for TAR. However, this is an area of national concern in China. China is a national member of the International Institute of Applied Systems Analysis (IIASA) . One main area of research of IIASA within Environment and Natural Resources is Land Use and Agriculture. Fisher (2005) writes in the official publication of IIASA: "Although China has a large agricultural resource base and solid record for productivity increases in past decades, human changes in its national food policies are needed to ensure future food security,

accommodating changing urban food preferences, mitigating widening rural-urban and regional income disparities, and prevent massive environmental pollution".

An article from IIASA (IIASA, 1999) is titled: "Can China Feed Itself?" The arable land changes from 1988 – 1995 have been comprehensively mapped. There was an overall loss of 1.4 million hectares of arable land. However, it should be noted that not all is irreversible change. A part is conversion to more intensive cultivation for horticulture and also to forestry land. See figure 2 below.

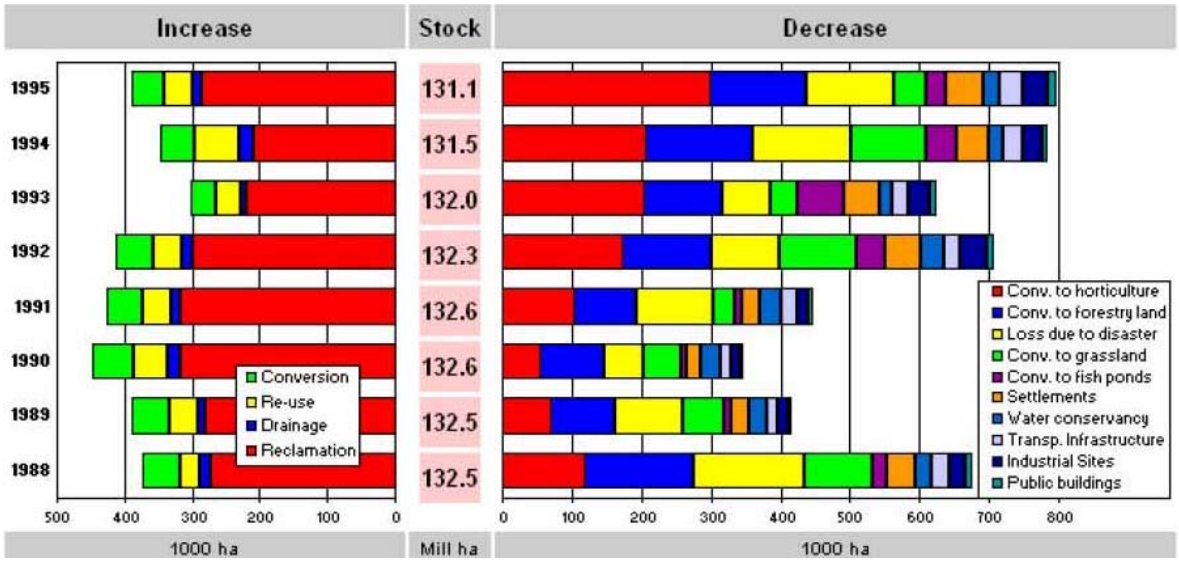


Figure 2. Increase and decrease in stock for cultivated land in China, 1988 – 1995 (IIASA, 1999)

In conclusion IIASA (1999) arrives at four ,main factors causing land use change in China: (i) China's economic restructuring and changing food and crop demands; (ii) extensive development activities and construction both in urban and rural areas; (iii) reforestation of previous cultivated land; and (iv) natural disasters (flooding and draught).

Brown (1995) lists five factors which cause loss of cultivated land in China: (i) Expansion of forests; (ii) expansion of pasture land especially in non costal regions; (iii) state sponsored construction; (iv) township and village construction; and (v) farmer's own construction activities.

As figure 2 signals, there are significant annual variations, and it is difficult to rank the importance of different factors. However, as TAR is exercising same land use policy and regulations as in mainland China, factors contributing to loss of farmland may be similar. Our case might give some indication on this in relation to the local conditions of a township in TAR. Our task is to understand the various patterns of urban expansion and measures taken both to control and guide urban growth and the use of arable land for urban use.

A multidisciplinary challenge

Based on the above understanding of multiple causes of land use change and the consumption of agricultural land for new purposes, we are evidently faced with a multidisciplinary challenge. The two main sides to be handled are the resource management side, and the consumption side.

On the resource side the main challenge is sustainable agricultural development. Here the Institute of Geographical Sciences and the Natural Resources Research of the Chinese Academy of Sciences and the Chinese Agricultural University is involved with international support by the Land Use Change Program of International Institute of Applied Systems Analysis (IIASA) and the Centre for World Food Studies of Free University of Amsterdam, the Netherlands (see internet reference CHINAGRO).

Land Use management is also closely linked to watershed management. It is remarkable that while 45% of China's farmland is irrigated, it produces an estimated 72% of total grain output in 2000 (Fisher, 2005). This implies also a main concern for environmental impacts. China is faced with severe long term, non reversible land and water-resources degradation (Johnson and Lewis, 1995).

Our concern is the consumption part in terms of construction in urban and rural areas. Approximately 22 % of the consumption of arable land (1987 – 2000) was lost to construction. However, serious is the long term scenario. "Expansion of construction land to 2030, especially in highly populated urban fringes, will contribute to farmland loss of 6.7 – 9.1 million hectares (i.e., 5-7% of total farmland in 2000), with great regional variation: 17-25% in the south, 12 – 17% in the east, 6 – 8% in the north, and 5% or less in other regions" (Fisher, 2005).

These points to a very important fact. The main challenge is in the urban fringes. The transformation of rural land to residential use by its "natural" forces can be understood from the cultural context of the farmers attachment to their land resources, from fragmentation due to entitlements like inheritance, fragmentation which is demand driven e.g. for primary housing needs and from land readjustment and residential plot formation (Subba, 2003, pages 179 – 190). Subba's case is from Nepal, where land use changes in the fringe are mainly individually driven, and there are limited structure plan initiatives in terms of using infrastructure development as a tool to guide urban growth and land use changes. These are mainly informal processes which might not be so significant within a context of planned land use changes and developments in China. However, in the Chinese case it is possibly of importance to understand the different contexts as suggested by Brown (1995). He makes a distinction between state sponsored constructions; township and village construction; and farmer's own construction activities.

This directs us to three areas of theory. The first is Public Land Acquisition in China and the significant traditional roles and responsibilities of the public sector in different sectors (e.g. health and education). This will not be specifically addressed here [iii]. However, of relevance is understanding of national land policies, and impacts on local rural – urban transformation. We will therefore under policies address Land conservation and land use management system in China and TAR, Land ownership transformation in TAR and Local government framework towards conservation of farmland.

The second, township and village construction and change is directly related to our study. Here is land – use planning, as exercised by the government essential. At its most basic level land use planning is likely to involve zoning and transport infrastructure planning. In most developed countries, land use planning is an important part of social policy, ensuring that land is used efficiently for the benefit of the wider economy and population as well as to protect the environment. However, there is also the current interest in addressing issues of A Sustainable Urban Form. Jenks, Burton and Williams (96) and Jenks and Burgess (2000) have brought forward Compact Cities both in industrialised and developing countries. This is relevant literature for the densification of new grid towns of China and TAR.

The third is the local in front of the global. The farmers, and the locality's own strength is brought forward both in development and conservation initiatives. Here are several frameworks of analysis which could have supplementary importance. One is the framework of "Another development" with references to Territorialism, Ethno-development and Cultural Pluralism and Eco-development (Hettne 1995). Another, but closely related is Urban Ecological Planning (Bjønness and Corneil,1998) A third is the introduction of a new framework of sustainable livelihoods, where the terminology of human, social, natural, physical and financial capital is introduced. Both the Department of International Development (UK) (1997) and the World Bank (Grootaert, 1998) are behind this initiative.

Global impacts – local challenges

What happens of global impacts of values of "development" on traditional towns? Is there something to be done locally to counteract an increasingly *"glocal"* reality? (Bjønness 2006 a,b). (Here "glocal" is defined as global impacts on the local).

Global, Glocal and Local relationships

	• Global	• Glocal	• Local
•Market •Functional relations	**World City System** 'Space of Flows'	**(G)Local – Global interaction** 'Place matters'	**Local control of** • Natural **resources** • Agroeconomy • Local prod. (SMEs)
•Policy	**State globalisation** 'Scale decides'	**New (G)Localism** "Think globally and act locally"?	Local governance and national support for **equity, env.sust., civil society, work opport., culture.**
•Territorial relations	• **Multinational ownership** of natural resources. • Foreign ownership / Lease of land and buildings. • No local commitment	• **Local - multinational co-operation** on access to natural resources • Lease/ local ownership of land • **Corporate responsibility**	**Build local strength:** •Household focus, •Institution building, •Skill devevelopment, •Local land ownership and security, •Quality of public spaces •Nature and culture regions,

Figure 3. Global, Glocal and Local relationships in a matrix with market and functional relations, policy and territorial relations (Bjønness, 2006 a, b)

How to best understand and interact with the accelerating local transformation and change of territorially based values? These are issues we are dealing with within *urban ecological planning* (Bjønness and Corneil, 1998) both in Nepal and Tibet Autonomous Region (TAR) of China. We are in search of how to strengthen territorial relationships of diverse historical townships. And understand how they best can resist, negative global impacts – hostile to their value base of existence.

POLICIES

Land conservation and land use management system in China

Overall natural resource conservation is an essential part of the 11th Five Year Plan for National Economic and Social Development (2006 – 2010) . Official figures show that China's per capita possession of arable land is less than 40 percent of the world average (People's China Daily, March 14, 2006). The national policies for China generally mainly apply also in TAR. However, there are regional level regulations for TAR, but they are generally made according to the national land use law. But for the idle fee, or "penalty tax" for not developing land, the level of the fee is decided at prefecture level.

After establishment of the Chinese government in 1949, the central land management body was established under the Ministry of Agriculture and it was called Land Reform Bureau (LRB). It was responsible to manage the whole country's land reform. In 1954, the LRB was abolished and the State Bureau for Land Use (SBLU) was established under the Ministry of Agriculture. After large-scale economic development, urbanisation and construction from 1978, problems appeared such as the absence of exact records of land resource, unclear ownership and use-rights, and abuse of occupation and use of land.

In his thesis Dawa Tsering (2007) reviews the evolution of the land – use management system in China. His finding that the Ministry of Agriculture right from the beginning has had a central role is not unexpected, but important for safeguarding the overall interests of arable land resource conservation in China. Furthermore, he stresses the efforts to have one, unified policy, and different levels of land management systems.

He writes: "In 1982, the State set up the Land Management Bureau (LMB) again under the Ministry of Agriculture, Animal Husbandry, and Fishery. LMB exercises the power authorized by the State Council for national land management, in the function of a unified land management institution in the combined pattern of unified and separate management. However, the pattern is still imperfect for a unified land management system and therefore needs to be reformed on an overall scale.

In 1986, the National Land Management Bureau (NLMB) was established to manage national land and land institutions in cities and towns on a unified basis. The efforts led to creation of unified management systems from the Central to local governments at county and township levels. Land management branches and personnel were established at township level. A five-level land management network in the state, province, prefecture, county and township level has been formed (China gate, 2002)

In April 1998, the State Council revamped its structure, and combined the NLMB, the Geological and Mineral Ministry, the National Ocean Bureau and the National Survey Bureau into the Ministry of National Land Resources. This is a mile stone improvement to manage natural resource s efficiently. It symbolized that China has finally begun a unified management of national land resources". (Dawa Tsering, 2007, op. sit. page 36).

Land ownership transformation in China and TAR

The People's Republic of China practices the socialist public ownership of land. This is the overall rule. However, according to article 10 of the Constitution "land in the rural and suburban areas is owned by collectives except for those portions which belong to the state in accordance with the law, housing sites and privately farmed plots of cropland. Hilly land is generally owned by the state. Land in the cities is owned by the state." (China Daily, 8th of May, 2006).

At present, there are two types of land ownership in mainland China - national ownership and collective ownership. The former applies to towns and cities, and the latter to the rural areas. No individual or establishment can occupy, trade, lease, or transfer rights on land by means not allowed by law.

Before 1959 there were four types of land owners in TAR - the monasteries, which owned most of the farmland; the government, which also owned some land for their purpose; the aristocratic estates such as nobles and landlords; and the individual peasants.

In 1959 the preparatory committee of Tibet autonomous region convened a plenary session and passed a resolution to confiscate land from the land lords and redistributing it to the masses.

From 1959-1965, Chairman Mao introduced collective farming, which was called people's commune system of farming. The government collected land from individual farmers as well as livestock like cows and sheeps. The individual farmer could only have a small piece of land for farming vegetables for everyday live. From 1959 to 1962, there was an activity called the Great Leap Forward, which was initiated and led by Mao with the aim to use China's vast population to rapidly transform mainland China from a primarily agrarian economy dominated by peasant farmers into a modern, industrialized communist society by making use of the massive supply of cheap labour and avoiding the import heavy machinery. A huge amount of labour, resources and money were put into steel production in China, while in Tibet farmers developed farmland on mountains like in Daching in Mainland China. The Great leap Forward strategy led to famines both in China and Tibet.

After ten years, the period of the Cultural Revolution had started. Land policies stagnated and there was disorder. The peasants were busy working on different kinds of political activities organized by the local government. During that time in Tibet, many monasteries and historical sites suffered damages.

In 1978, the economic reforms were initiated. In 1980, the household contract responsibility system was established. Individual farmers needed a contract with government if they wanted to farm by themselves. The aim was to clarify responsibilities and benefits between state and individual contractors. However, such reforms were implemented within the framework of traditional state socialism without making any significant changes to the existing ownership structure. The reform was not fully based on the bargaining between local government and individual contractor. This resulted sometime in that the contractor mainly being interested only in short tem profits rather than long term responsibility. If the contractors had losses or went bankrupt, the final responsibility still rested upon the state. This challenge has led to land reform in 1984.

In 1984, people's communes were finished. Land was redistributed to individual farmers. Individual farmers got more freedom to farm what they liked and could sell extra grain and other products in the market. They could also have some extra earning from work at home. This policy promoted the individual farmer's enthusiasm to work and generally succeeded in increasing farmers' income.

By the year of 1993 the Land Use-Right Policy was adopted by Chinese government. This implies that the individual farmers only have land using rights. Ownership still belongs to the state.

According to Li Hongyan (2002) discussing "Impact of Land Tenure Transformation on Physical Development of Drum Tower Muslim District, Xi'an, China" , use – right to land is practiced. The use right can be sold, and transferred, and / or inherited. This also in general applies to TAR. The term selling of land is used, but in reality it is the transfer of use-right. The public ownership system is still new to the farmers of Tibet, and the awareness of their rights and duties is limited.

Local government framework towards conservation of farmland.

According to land laws the local government divides farmland into two main categories: a basic farmland and general farmland[iv]. Basic farmland is cultivated land with production of food grain, and other main food crops like vegetables and cash crops (cotton, oil seeds etc). General farmland has less productivity e.g. grazing land. There were introduced ceilings on how much land can be converted into urban use. For basic farmland this ceiling is 35 hectares. Land use change above this has to be approved by the State Council of the Central Government of China. For general farmland the threshold is 70 hectares. With the experiences from other countries with the struggle to implement land reforms, we know that land ceilings are easily avoided by subdividing properties and the implementation of development initiatives.

Locally, efforts are made for the effective use of land for agricultural purposes. Dawa Tsering (2007) observes that "for protecting farmland in the basic zone the local government practices the contract system. County land use government makes contract with village committee to manage basic farmland and the village committee makes contract with the individual farmer to manage basic farmland" (op.sit. page 61).

Gyantse Basic Farmland Protection Plan (1996 – 2010) published by The Peoples' Government of Gyantse County (1996) addresses the conservation of the prime category of farmland in terms of its quality. It also addresses population growth projections within the period of the plan. The Plan stresses that Land Use Law has a special regulation for conservation of basic farmland. The Plan also stresses the importance of agricultural produce for the national economic development. The plan has an explicit strategy on how to implement farmland protection.

First (i) it stated the need to improve local announcement informing about protection of arable land. This is essential to strengthen the general awareness related to self-protection of arable land. Secondly (ii), the emphasis is on organisation of groups to protect the farmland, leadership in contact with higher levels of governance, and on plan implementation. Third, (iii) the normative perspective is addressed with the creation of new regulation for protection of arable land, strict implementation, and monitoring. The promotion of sustainable land use practices is also stressed. (iv) Furthermore, to facilitate the development of new farmland (with necessary machinery etc), and (v) to use some projects to improve infrastructure (irrigation facilities etc) to continue to develop farmland are addressed. Finally and important (VI) is the statement that new farmland should be developed if an arable area is converted from farmland to urban use. The same amount as lost should be developed again.

To reduce speculation in converting farmland to urban developed land there is an idle or vacant land fee if the land is not developed. (This starts after five years).

A penalty tax for occupation of farmland for urban use has been introduced in Gyantse from 1987. The target group is mainly the urban citizen. (The Peoples' Government of Gyantse County (2004) Gyantse Compiled County Local Chronicle, page 467). We find that the penalty is modest (one Yuan or approximately 15 cent of a US dollar per square meter land) compared with the market value of use – right to the land.

According to the Land Management Law of the People's Republic of China and related regulations, there should be full compensation (by land reclamation, farmland consolidation, or rehabilitation) for farmland converted into construction land. However, the expense makes the feasibility of this approach rather questionable. The cost is approx. 0.122 million Yuan per hectare, or with an annual investment of 33 billion Yuan required to achieve the planned aim of 0.25 million hectares of farmland per year from 2001 – 2010 (Fisher, 2005).

PLANNING PRACTICE

Planning policies and framework (urban land use planning)

It is important to recognise that land-use planning for the purpose of conserving agricultural areas is generally implemented in China. This is seen by the national government as essential towards a policy of overall sustainable land use practices. In Xi'an, in Shanxi province in 1997 the new master plan was not approved by the central Chinese government because of over consumption of arable land

(Personal communication with Prof. Tang, Xi'an University of Architecture and Technology quoted in Bjønness and Corneil, 1998)

Xiaohui Hao (no date) suggests the "setting up of basic arable land reserve regions" as a measure to protect a minimum quantity of arable land resources in China. However, our view is that every region with urban settlements should have the obligation to address the need to address arable land conservation within their boundaries. Sometimes too much focus is on supplying urban land without thinking in terms of long term food supply situation and farmers livelihoods.

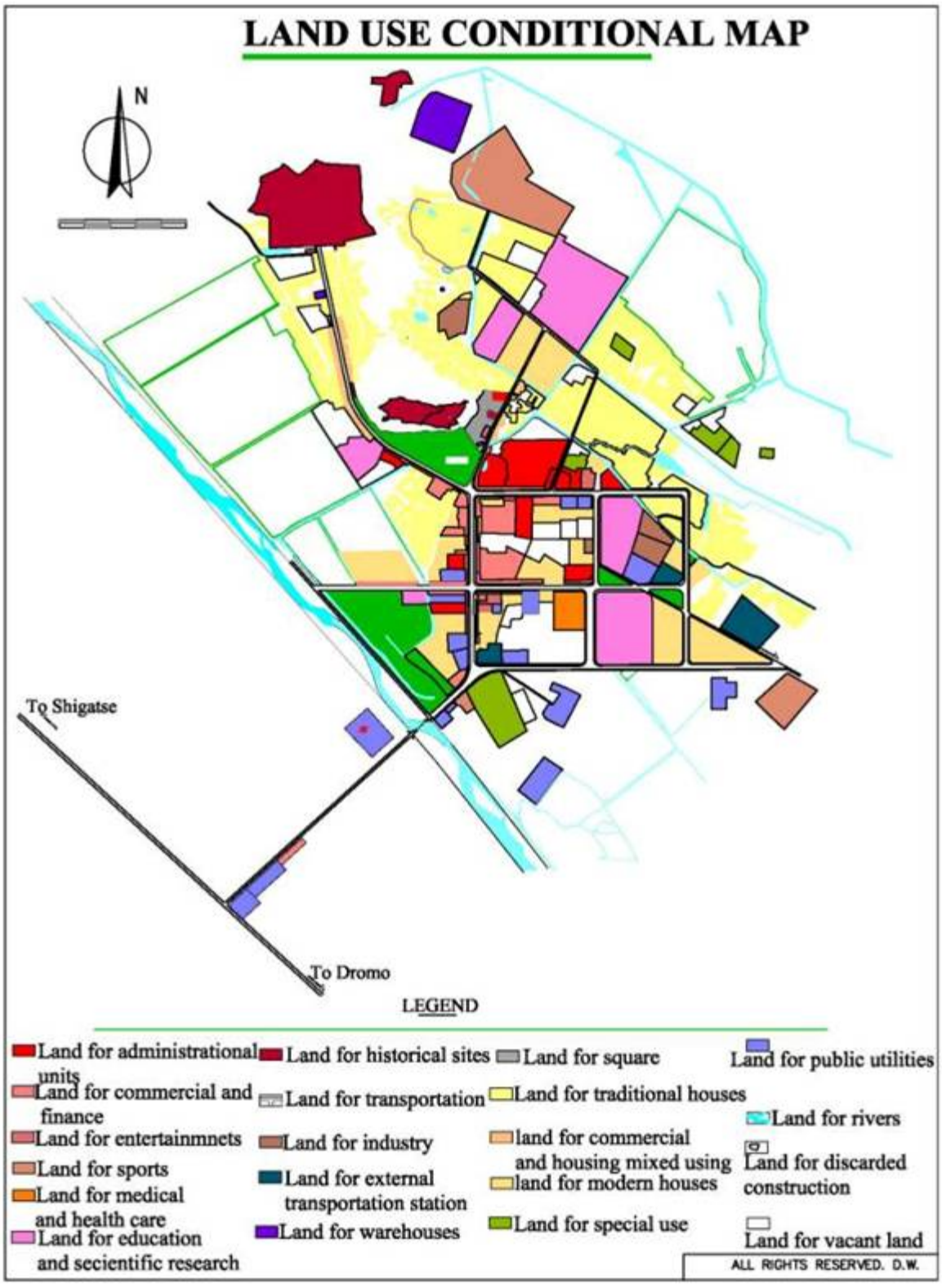
Land use map for Gyantse 1995 – 2010

A land use general map was produced in 1995 for the expansion of the town until 2010.
The map clearly distinguishes between three main areas of the town. One is the historical sites of the monastery and the fort. The other is a land use map for the traditional and modern housing areas and the modern grid town, and then it is a large urban expansion area.

It is important to note that there is no urban expansion area between the historical sites and the main road to Gyantse. This is an important and well thought out intention as the link to the traditional landscape is essential not only for the monuments, but also for the Jaree - Jab village between the monuments. The traditional villages have no preservation status today.

The expansion area to the south east of the present grid town is mainly for industry, but in between the present grid town and the sites for industry, there are sites for markets or distribution of goods. There is also a large site for expansion of public services with educational buildings and sport centre.
What is interesting to look into is what has happened in the field. Has the conservation of land in front of the monuments been successful? Has the land use plan guided developments? And what has been self grown?

See page 13 for Figure 4. Land use map as locally checked in 2006 (Dawa Tsering 2007)


LAND USE CONDITIONAL MAP
N
To Shigatse
To Dromo
LEGEND
Land for administrational units
Land for historical sites
Land for square
Land for public utilities
Land for commercial and finance
Land for transportation
Land for traditional houses
Land for rivers
Land for entertainmnets
Land for industry
land for commercial and housing mixed using
Land for discarded construction
Land for sports
Land for external transportation station
land for modern houses
Land for medical and health care
Land for warehouses
Land for special use
Land for education and secientific research
Land for vacant land
ALL RIGHTS RESERVED. D.W.

Map analysis of different urban fringe land relations in Gyantse

From map analysis we have identified four main different situations in Gyantse regarding expansion of settlement into the agricultural land:

(i) South – west of Jaree - Jab village. New settlement after 1980 on the plain area between the Dzong and the Kumbum area. The expansion is for domestic and farming purposes.
(ii) West and east of the New Town "guided land development" where road infrastructure is constructed first to "guide" future construction. Here the expansion is for mixed land use, housing, government administrative functions and commercial.
(iii) Northern area of settlement expansion of housing, school and utilities (store-house for barley) into grass land.
(iv)South – east of New Town where the regular road alignment is established, and there is a subdivision of land for industrial purposes.

Our finding is first that expansion is mainly kept within planned areas according to the Land-use map of 1996 – 2010. However, the overall impression is that expansion in reality has fortunately been much less than expected on agricultural land in this period. It is also noteworthy that new housing areas mainly with Tibetan houses have expanded in on sloping grassland. However, the main grid town has not expanded as much as expected, but there are signs of incremental land subdivisions to the south east for transportation, utility and industry.

It is noteworthy that the open landscape with irrigated barley fields, and protected forestry area to prevent flood next to the river, in front of the monuments are kept. New road construction has not taken place to the degree planned, and the expansion has been less than expected. This has possibly had the positive effect that new construction, especially for housing, has mainly been within existing serviced areas. The new Tibetan housing areas are self-grown in terms of the construction activities on the individual plots, but there are area lay out plans with varying degrees of regularity and planning. That it has been allowed for variation of neighbourhood units gives the individual areas character and make liveable housing environments.

Area analysis of different sub-areas and building types of Gyantse

In more detailed map and field analysis the following have been found within housing areas: (i) Self planned individual houses in clusters like Jaree - Jab and Latse villages. (ii) Planned as extension to existing settlements especially west of Jaree - Jab village and new housing area south of the Dzong. (iii) Planned based on an overall area development plan with clusters and community school with houses of individual design. An example of this is a new area in the upper north – eastern side of the town where the houses are well situated in a slope towards south – west. There is a single lane (comb) between the houses. Some of the houses have courtyards with entrance from both sides. (iv)Planned with single lanes in exact east west direction but with houses with individual house designs.

The monuments in Gyantse are significant and important for the residents as well as main attraction for visitors. (i) The Pelkor Chode area is the 14th century monastery site with Tsaklakhang (the main monastery building), the Kumbum, the most significant mandala style stupa in Tibet, and a significant earth fortification with towers for "thankas" during Buddhist festivals (ii) the Dzong or the main fort, (iii) the Rase Nonnery, and (iv) Latse village site has in its northern part a site which looks as if it has been used for a stupa. As mentioned above the context of the monuments is important both in relation to built environment (the Jaree - Jab and Latse villages), the barley fields in particular to the south and the overall, barren landscape.

Within the government administration the following areas and building types have been found: Government administration is a part of the new town both facing the street and inside the large open areas of the new town. These are public utilities like the hospital, post office, theatre, TV – station, police station. In addition comes local government offices from Land and Resource Bureau of Gyantse County.

For the commercial sector and market: (i) Market activities are mainly along the street of the New Town, and also in part along the entrance to Jaree - Jab village. (ii) There is extensive land use for open air markets, for hotels, bank, for storage etc.

Figure 5 Proposal for densification (Dawa Tsering 2007)

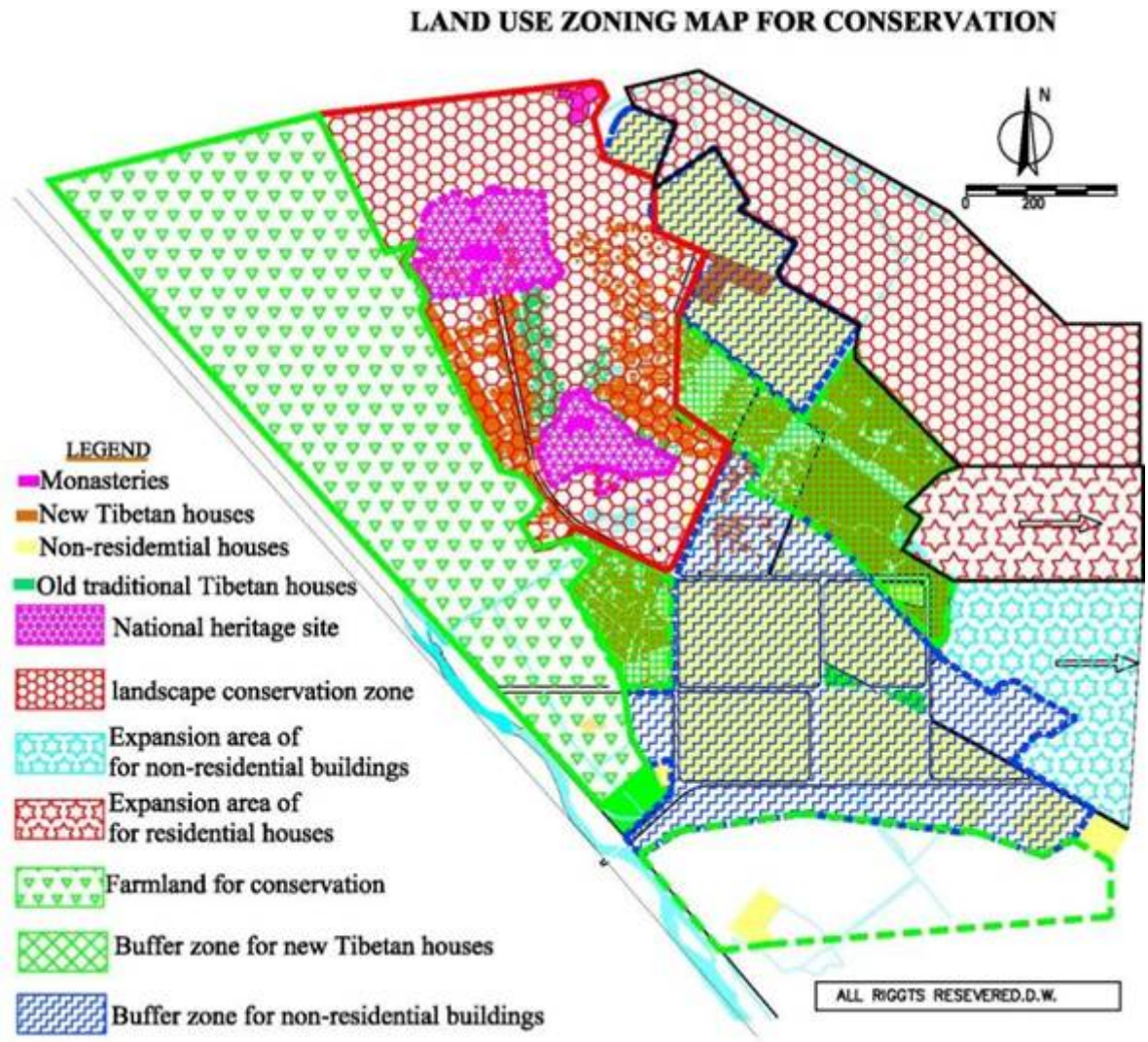


Figure 6 Proposal for land-use zoning for Gyantse (Dawa Tsering 2007)

STRATEGY

To establish a strategy for future action we need to propose and discuss overall goal for development and conservation. The elements of “another development strategy” should be considered in terms of addressing territorial relations including their resource base, the people’s cultural strength and ecological perspectives of planning and development.
Also the means or tools for implementation need to be discussed, and it would be fruitful to bring alternative scenario thinking to the forefront. It is essential to understand what are conservation and developmental issues which the different stakeholders want to address, and how it is possible to create a consensus on how to make arable land conservation, farmers improved livelihood conditions and cultural continuity main goals.

As a basis for the strategy to be developed it must be recognized that the main actor in rural to urban land transformation is the farmer. Secondly, that the main challenge lies in the rural – urban transition zone, and third that a key to improved functioning of a town is densification and economical use of exiting infrastructure. Fourth, a planning framework bringing the stakeholders together in a constructive effort is needed. And finally it is important to recognise that the local government is both the actor and the controller in land transfers and land use changes from rural – to urban.

The farmers

What are conditions for a sustainable future for the urban farmers? We think access to, conservation of and proper use of all farm land resources are the main conditions. All farmers should also enjoy the rights both being rural and urban citizens. Rural rights would be access to land and to cultivate land. Urban rights would imply equal rights as urban citizens in access to urban primary services within education and health. The general public and the local government should recognise the essential link between up keeping of agricultural land resources and farmers improvement of their livelihood conditions.

The local government should also support the farmers with training of new skills and general education for extra employment opportunities. This would reduce their dependence on farmland. The farmers of Gyantse and their improved livelihood conditions are essential to support activities for cultural practice, events (e.g. annual horse race) and continuity in Gyantse

For the future land use planning process and the public land acquisition process, the farmers should have equal right to attend to and to be heard. And land compensation should be paid to farmers when victimised by public land acquisition. The local government should also seek support from the national government and TAR for land reclamation of lost land.

In the efforts of the local government towards recognising the importance of and addressing who the local stakeholders are, there should be a start with the farmers. Furthermore the functioning of rural based institutions in an urban context should be addressed. This would apply to understanding of roles of farmers as rural / urban citizens, to village committee (rural area) / residential committee (urban area) , to interest group committees like farmers' organisations and women's organisations, to area based committees like neighbourhood / street committee, to role of government staff's work units and work unit enterprises (e.g. Gyantse hotel) , and to different level of governance from the national government to TAR government at prefecture level, county and township levels.

Rural – urban transition zone

The main challenge to control and guide development change is in the rural – urban transition zone. First this implies a main land conservation goal as a part of an urban land use policy and plan upgrading. The present land – use plan for Gyantse is from 1996 – 2010 and will soon be upgraded. To bring forward this overall goal as part of land –use planning strategy will be essential.

When it comes to the transitions zones, there is an urgent need to monitor the developments, which at present could be ad hoc. We know too well from contexts with less control, like Nepal, that good infrastructure and access leads to land increase and an incremental development and change.

In discussions on Chinese cultural heritage authenticity, the significance of the place is brought forward [v]. Secondly, the natural beauty of a landscape is important. Both the Kumbum and the Dzong are monuments under national Chinese cultural heritage protection. It is the local governments' role to take care of the context, the natural landscape and the traditional villages. Our proposal would be to conserve the very valuable irrigated land south-west of Jaree - Jab village not only to the canal / river but up to the road going to Shigatse. This will be of importance to keep the landscape relations of the old Jaree - Jab settlement, the arable and irrigated barley land and the Dzong and the Kumbum, Monastery / Gumpa and the Dromola Lhakhang monastery as well as the fortification walls of the monastery. Figure 6 with proposal for land-use zoning for Gyantse (Dawa Tsering 2007) shows a fan formed agricultural land conservation area here.

Densification

Work towards a diversified strategy recognising site specific conditions (areas with potential for densification with compact, efficient use of land, areas for expansion, understanding the topography) and finding a sustainable urban form. Dawa Tsering (2007) through his studies reveals there are many vacant plots and extra open spaces in the town, especially in the new grid town, but also elsewhere. These should be used since farmland is a very precious natural resource. If due to financial or other reasons these can not be used for urban construction, then at the moment they could be used for urban agriculture to improve the quality of life. Land – use could also be mixed i.e. land can be used for a mix of residential and commercial use. In addition, it is also possible to make the land more compact by increasing property taxation. However, some privileges should be given to the local community to build their own houses.

Towards a planning framework

A main challenge is to constitute a Land – use planning practice which is continuous., and which is both being based on overall knowledge of all stakeholders and also targets special issues in rural – urban transition zones. For the plan revision an understanding of the people, their communities and settlement structure (culture, social organisation, believes, urban traditional and new built environments) is the first step. Here possibly Tibet University can have an advisory role. Interpreting the morphology and typologies of different parts of the towns with its traditional settlements, new residential settlements with Tibetan houses, the new grid town is a necessary basis for revisions of the Land Use Plan from 1996. Another challenge is how to conserve and upgrade historical villages. And an overall discussion should be related to improvements of the process of local plan making involving different stakeholders and the farming community and the citizens, formalisation and approval.

Challenges of plan implementation

First it is essential to recognise the limited institutional capacity from the local government side. However, there is also a professional challenge to improve understanding of stepwise land use changes and transformation especially in the fringe area as implementation issues of a more formal land use plan.

Experience from other places tell that formalisation of land entitlements is beneficial both for the beneficiaries and for the local government. Issue of land-use right certificate also giving the certified use of the land to the urban farmers will also commit them to cultivate. This will help to identify and secure essential farmer and community resources.

To build up archive on cadastral maps should be done for all the different title holders of use rights (national government institutions, local institutions, farmers' communes, work units, farmers, and individuals). This should improve land use management. And give better understanding Gyantse as many villages and a grid town, but also give a clear understanding of public open spaces and what is vacant land for densification purposes. It should also assist in decreasing land speculation and the collection of idle land fee.

The local government

Finally it is important to recognise that the local government is both the actor and the controller in land transfers and land use changes from rural – to urban. This dual role of both being an actor in terms of planning, implementation and controlling could be difficult. In the struggle for development and conservation in meeting urbanization and expanding urban services, there is always useful to get advice.

A proposal is therefore a separate and formalised community based land monitoring organisation addressing of land use change on the ground, land use planning and implementation**.** There should be public representative staff, local community rep. and representatives from Local People's Congress [vi]. This monitoring is urgent because of increasing population pressure.

There should be initiated a process for revision of the master plan where the stakeholders are involved from the beginning. This will improve the validity of the plan. The approved Land use plan should be published and the community made aware of how to make more efficient use of land. Arable land in urban fringe should be put in farmland protection zone as strictly protected.

Concluding remarks

Our focus has been on understanding the place with its specific issues and challenges, its people in search of social and livelihood security and their resource base – as a necessary platform for addressing the main challenges of arable land conservation and sustainable use with sound agricultural practices of this essential resource.

This is closely linked to cultural continuity. Much of the local unique features exist in the form of traditional culture, knowledge and wisdom socially rooted in the place giving local vitality and makes the place distinct. Therefore, any development strategy should consider traditional skills e.g. in building techniques, and to integrate vernacular architecture and materials into local development.

We have furthermore recognised the sound practice of continuation of high density / low rise settlements with new buildings in traditional Tibetan style, as the main continuation of housing environment. It is important to recognise Tibetan building traditions as giving sound and safe living environments in TAR (Guo Hongwei, 2007)[vii] The continuation of building traditions relying on local materials and skills contributes to a locally sustainable economy.

In a process of local confidence building it is essential to give importance to peoples involvement in the planning process and in concrete action to improve local environment (e.g. garbage collection, storm drains and sewer). The local government also need to closely interact with the community to understand their situation and for solving people's problems. This also makes planning and implementation relevant, addressing locally felt and agreed issues. Eco-development addresses each situation as unique, so there is a need for particular solutions. For Gyantse at the moment farmland, local culture and landscape protection, and overall livelihood improvements, are important issues. All these need a locally based method.

Acknowledgements

The focus of studies has been on understanding the place in terms of its urban structure and diversity, and also the significance and change of the historical villages next to the monuments, the monastery, the stupa and the fort (dzong). This general knowledge developed about the place, its genuine people and its transformation was important as a basis for the research. This has been a collaborative activity with Tibet University students and faculty, and with participation from Tribhuvan University, Institute of Engineering, Nepal and the Norwegian University of Science and Technology. Professor Guo Hongwei's constructive support and participation has made this co-operation possible. He is the head of School of Engineering of Tibet University.

Of significant importance in terms of understanding the overall town of Gyantse and its transformation, was the further research and fieldwork in 2006 by Dawa Tsering addressing in a systematic way the national arable and county land conservation policies, the rural and urban land use policies, and planning and changes for the overall Gyantse town on the ground (Dawa Tsering 2007). He defended his M.Sc. in Urban Ecological Planning thesis at the Norwegian University of Science and Technology, in June 2007.

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Endnotes:

[i] China is the third largest country in the world with 9.6 million square kilometers of land area and containing one fourth of the world population. Arable resource only comprises 13.8 percent of its total land coverage. Compared to the huge population the arable land resource is quite limited. The area of TAR is 1.23 million square kilometres. Arable land covers only 2.25 thousands square kilometres or less than 2% or the total land area. Most of the landed area is covered by grass-land and forest. Its population increased form 1.15 millions in 1951 to 2.6163 millions in 2000. Land use management system is the same as mainland China.

China's economy is growing dramatically after the economic reforms from the 1980ies. A continuous struggle is to pull the inland regions into the development process. Livelihood conditions are different and there is a severe Coast-Noncoast Income Gap (Fleisher and Jian Chen, 1996)

[ii] *Hukou* refers to residency permits (household registration) issued in mainland China. A household registration record officially identifies a person as a resident of an area and included personal information, but also refer to a family register. Persons without a residency permit have much less access to education and government services, and in several respects occupy a social and economic status similar to illegal immigrants in some other countries.
See short description on the *Hukou* at Wikipedia encyclopaedia
http://en.wikipedia.org/wiki/Hukou

[iii] Another issue is what happens when urban and rural based practices meet each other in urban growth areas. Chengri Ding (2005) in his paper on "Policy and praxis of land acquisitions in China" writes: "Land acquisition is the primary means used by governments to meet increasing land demand driven by rapid economic and urban growth in China. Since development is prohibited on non-state-owned land, land acquisition in which landownership is converted from collective communes to the state shall take place prior to any construction". He concludes that "land acquisition (i) has been used heavily by local governments to fuel urban development and finance infrastructure provision and (ii) has resulted in increased social tension and injustice that may impose a long-term threat to stability and sustainable development".

[iv] In addition to these two main categories, the following three areas are (3) production areas for vegetables, (4) Experimental plots for agricultural scientific research and teaching, and (5) other cultivated land that should be included protection zones as prescribed by National State Council of China.

[v] Discussion at The International Conference on Traditional Architecture and Mural Conservation in Lhasa in 2004 and at Tongji University, 2006 with Chinese colleagues by Bjønness.

vi All should be well informed in terms of land use policies, planning formulation and implementation, land use law and regulations. The Local peoples congress should have the power to recommend / or object to the revised land use plan before it is send from local government of the county to the Shigatse prefecture level. The local people's congress should also have the power to participate in the overall planning process. And they have to make an annual report on land use changes and position of plan formulation and implementation to the higher level of government (prefecture level) and to the local government. The monitoring body could also receive complaints from the general public.

[vii] Professor Guo Hongwei is stressing the importance of "local-style dwelling houses". He writes "Local-style dwelling houses, where ordinary people live, are of large number, and because they meet the basic need for living by investing the least fund, they reflect the basic natural and cultural characteristics of a community, a region, and a nation".

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