Wetland conservation in China and Asia:
Protection, management, and restoration

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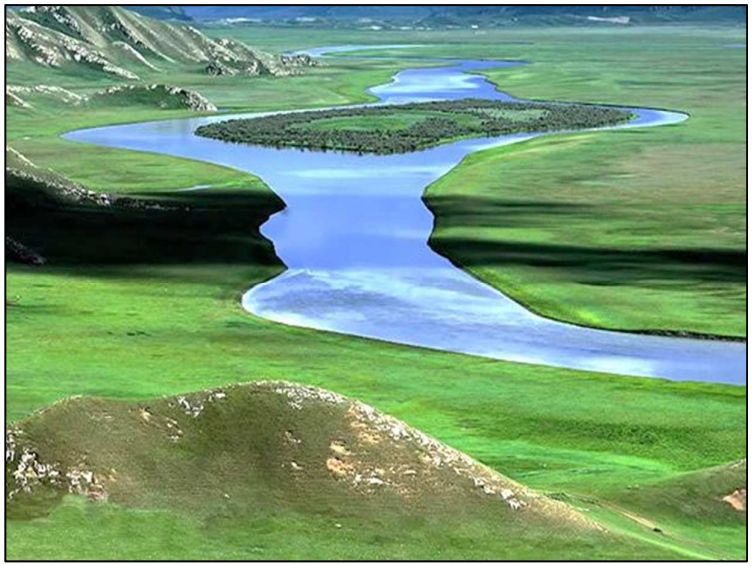
Presentation planned for the "Wetland Biodiversity Conservation of Northeast Asia Forum" in Shuangyashan, Heilongjiang.

Starting with title of the forum, our focus is not only on "wetland biodiversity" but rather with a focus on "wetland biodiversity conservation." And conservation is not only about biology and ecology, or even about proper government policy and regulations. It is about people, and about behaviour and behavioural change.

Conservation is as much a social science as it is a natural science.

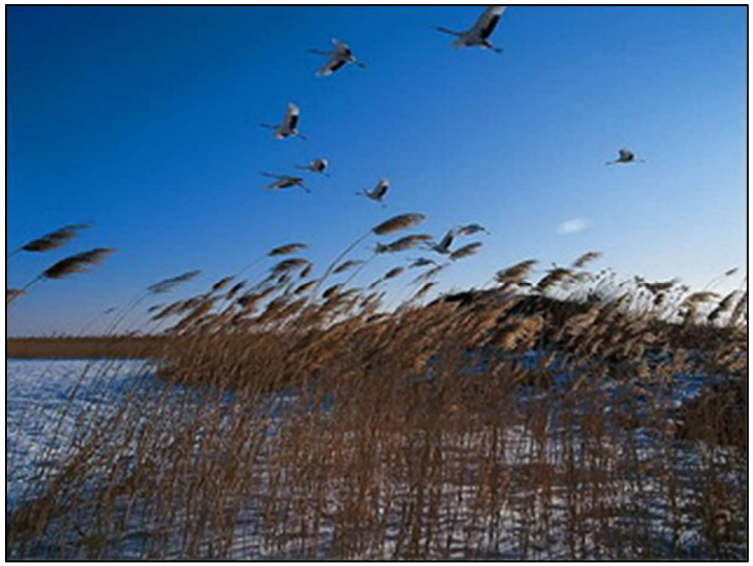
In this presentation, I will focus on "co-management" as a tool that may be used for conservation goals.

Spanning the whole country, from Qinghai Province's Sanjiangyuan region to Heilongjiang Province, and also learning about the Altai Mountains and Wetlands in Xinjiang Uyghur Autonomous Region earlier this summer –learning from some of China's northernmost and highest regions – it has become increasingly clear to me just how important are the country's major rivers' and their headwaters, and the country's large, diverse wetlands. And here, in the Sanjiang Plains' wetland region – this is no exception.



As low-lying floodplain at the confluence of the Songhua, the Heilong (Amur) and the Wusuli (Ussuri) rivers, the “Sanjiang” wetland area is famous across the country and in NE Asia. The Sanjiang Plain covers a vast area, including China’s largest area of wetlands. These wetlands support (according to ADB documents) in total 37 ecosystems, 1000 plant species and 528 vertebrate fauna, including 23 globally threatened species – 10 species of which are waterfowl such as cranes, storks and swans that require extensive, undisturbed wetlands during their migration and breeding seasons.

However, the wetlands have shrunk by about 75% since the 1950s as the Sanjiang area has been transformed and developed into one of the country’s richest grain growing areas. Now less than 1 million ha (10,000 km2) of wetland remains.



Several important nature reserves have already been established to help protect the unique biodiversity found in this part of NE Asia. Yet, for example, as the Sanjiang Nature Reserve covers only a relatively small portion of the remaining wetlands, less than 20 percent, conservation action must be considered now both within and outside of the formal Protected Areas (PAs). In addition, with several different PAs in the region – including two RAMSAR sites (Sanjiang NR and Honghe NR) – it would be wise still to further develop more a landscape-oriented approach to PA management, incorporating the cluster of PAs in the area as well as mainstreaming environmental concerns into broader development planning.

What is conservation?

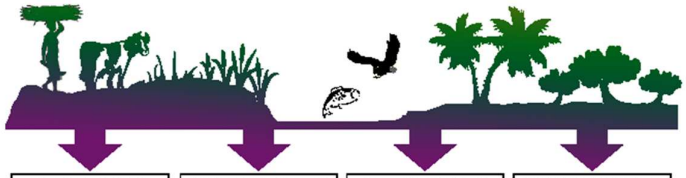
- The **conservation** of habitats and ecosystems is as much a **social engagement** as it is a 'technical' (or so-called 'purely scientific') enterprise.
- Conservation is comprised of 3 components:
  - **Protection** of the **natural resources** incl. wildlife
  - **Management** of **people's behaviours** (both local communities' and government decision makers' perceptions and goals with regard to wetlands)
  - **Restoration**, cf. not only **technical aspects** *but also* people's **mindsets** (i.e., what we want to achieve) and **behaviours** (i.e., local perceived needs, cost-benefit analyses, sense of community ownership, etc.)

Considering a landscape approach to conservation raises the matter, or question, of what in fact is Conservation?
- It is not only knowing about biodiversity.
- Conservation also is not only PA management, although this is a significant part of the remit of conservation practitioners.
- Conservation equally is not just a technical exercise, although technical knowledge in a variety of disciplines is of course very important.

Significantly, conservation must include consideration of *the Human Factor*. For without truly considering the needs and interests of the people involved in wetland protection – whether these be government leaders, development planners or policy makers, or they be local resource users – then all our various theoretical conservation plans rarely will succeed in the real world.

The 3 main components of "conservation" are: (1) **Protection**, mostly a matter of limiting access or extent of natural resource use; (2) **Management**, a matter of deciding and agreeing amongst stakeholders the extent and timing of resource use; and (3) **Restoration**, concerned with the recovery of wetland biodiversity and ecological function … but, as with Protection and Management, this also is not just a technical exercise but requires consideration of people's mindsets and their behaviours – once again, *the Human Factor*.

Figure 1: Total Economic Value of Wetlands



DIRECT VALUES	INDIRECT VALUES	OPTION VALUES	NON-USE VALUES
Production and consumption goods such as: Water, Fish, Firewood, Building poles, Thatch, Wild foods Medicines, Crops, Pasture, Transport, Recreation, *… etc …*	**Ecosystem functions and services such as:** Water quality and flow, Water storage and recharge; Nutrient cycling; Flood attenuation, Micro-climate, *… etc …*	**Premium placed on possible future uses or applications, such as:** Agricultural, Industrial, Leisure, Pharmaceutical, Water use, *… etc …*	**Intrinsic significance of resources and ecosystems in terms of:** Cultural value, Aesthetic value, Heritage value, Bequest value, *… etc …*

From Emerton 1999

While the importance of wetland biodiversity already is widely recognized, both in the general public and amongst development planners and leaders, still many hard choices – often economic choices– must be made. And in this context, short-term gains often win over longer-term value, and sustainability. Therefore it can be very helpful to quantify the economic value of the environment, and in particular (in this situation) the economic value of wetlands including biodiversity and ecological functions.

There are many different values – including direct and indirect economic values, as well as option values (i.e., possible future uses) and non-use values (e.g., cultural or aesthetic values, leading to people's sense of well-being; which itself can translate into an "economics of health") – and such values can be quantified as part of an "economic valuation exercise" undertaken either for individual PAs, or for the cluster of PAs in the Sanjiang Plains, or for the wider landscape.

Wetland restoration/management – the additional value of carbon sequestration

"Wetlands, especially peatlands, are the **biggest store of carbon on land**. The draining and degradation of wetlands turns them into a net source of greenhouse gas emissions.

[Conversely] the restoration of damaged wetlands can halt emissions of carbon dioxide and even reverse them, causing carbon removal from the atmosphere. Emissions of nitrous oxide and methane can also be reduced or halted by restoration…

[Therefore] wetlands restoration can overall neutralize the GHG budget or create a net sink."

Source:
Background paper produced by Iceland for the *AWG-KP 6, Part I* meeting in Accra, August 2008

Significantly, we should also note that wetlands constitute, overall, the largest store of carbon on land. Hence, the loss or degradation of wetlands will lead to net carbon emissions; whereas the preservation of wetlands maintains the current carbon balance, and the restoration of degraded wetlands can even serve to remove carbon from the atmosphere. Therefore the conservation and restoration of wetlands could (and perhaps should) equally be included within broad national strategies for the reduction of carbon emissions, as well possibly as carbon trading.

- In addition to localized values, there are also a number of more regional to global values… For example:
  - Upstream/downstream impacts (e.g., pollution, overuse, changed seasonality with dams, etc.)
  - Wetlands as breeding habitats or as layovers on bird migration routes
  - Water flow regulation
  - Fisheries

As is well known, there also are more regional issues – in particular up- and downstream – regarding the value and/or the impact of wetland conservation. These include the negative impact of pollution upstream from wetlands; also downstream effects (whether positive or negative) of maintenance or the disruption of water flow patterns; the value of wetland habitat for migratory birds, both as breeding habitat and as stopover points along long-distance migratory routes; the role of wetlands in fisheries; etc.

Wetland Conservation

Main strategies adopted in Canada

- Strategy 1: Increase Public Awareness & Public Commitment
- Strategy 2: Improve Wetland Science, Data and Monitoring
- Strategy 3: Secure Wetlands
- Strategy 4: Create, Reclaim, Rehabilitate & Manage Wetlands
- Strategy 5: Strengthen Legislation, Policies, Agreements, Compliance
- Strategy 6: Strengthen Local Planning & Commitment to Conservation
- Strategy 7: Improve Coordination between Conservation Partners
- Strategy 8: Evaluate the Program

Source: https://www.ec.gc.ca/tho-wlo/default.asp?Lang=En&n=B5CB7A0F

In Canada, eight main strategies have been adopted nationally in order to help preserve its important or critical wetland habitats. China equally has considered most of these concerns already, in various forms.

Here/now, I want to focus in particular on three of these strategies – those that related most closely to the social or societal elements of the proposed suite of strategic actions.

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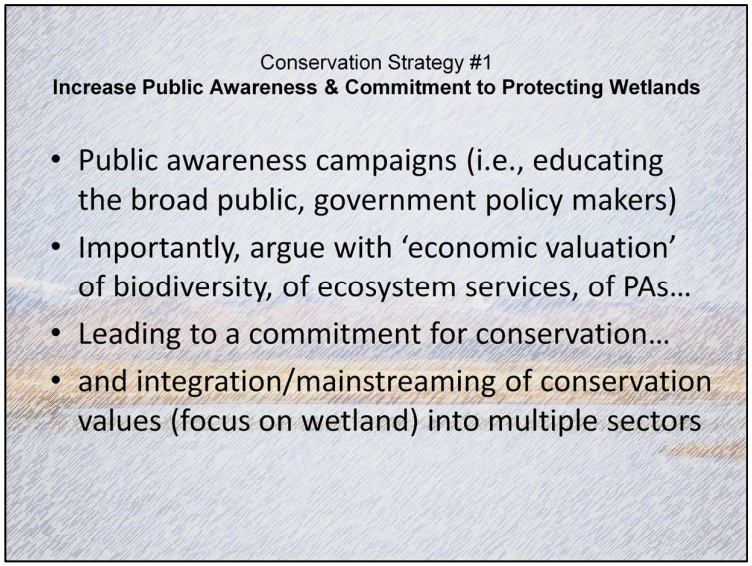
[Focusing on the 'public' or 'human' elements of conservation, including **community participation**, **ownership**, **co-management**.]

From the perspective of "Sustainable Development," these strategies revolve around the topics or themes of Community Participation, Ownership, and Co-management.

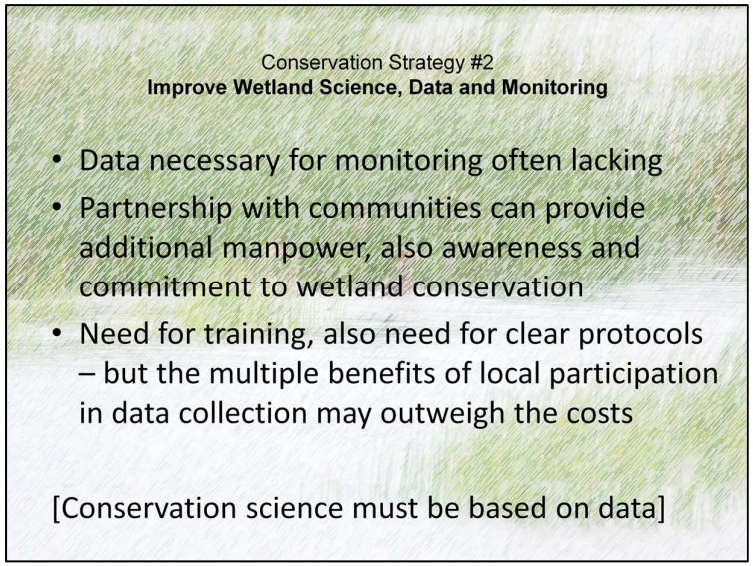
From the perspective of "Biodiversity Conservation," these strategies overlap with the themes or approaches of integrated landscape-wide management, and with enhancing the effectiveness of PA management by partnering more closely with local communities through co-management.



With regard to the first strategy (in Canada), the public may increase its engagement with the agenda of wetland conservation through public awareness campaigns. This may be assisted by conducting comprehensive economic valuations of specific or regional wetland habitats.

When the public's understanding and valuing of wetlands increases, its commitment to conservation increases.

In addition, the subsection of the public that may most influence the conservation or degradation of wetland – namely, policy makers and other government leaders – also is influenced both by awareness campaigns and by economic valuations of the products and services provided by wetlands. Environmental conservation values can then begin to be better integrated, or mainstreamed, into other development sectors.



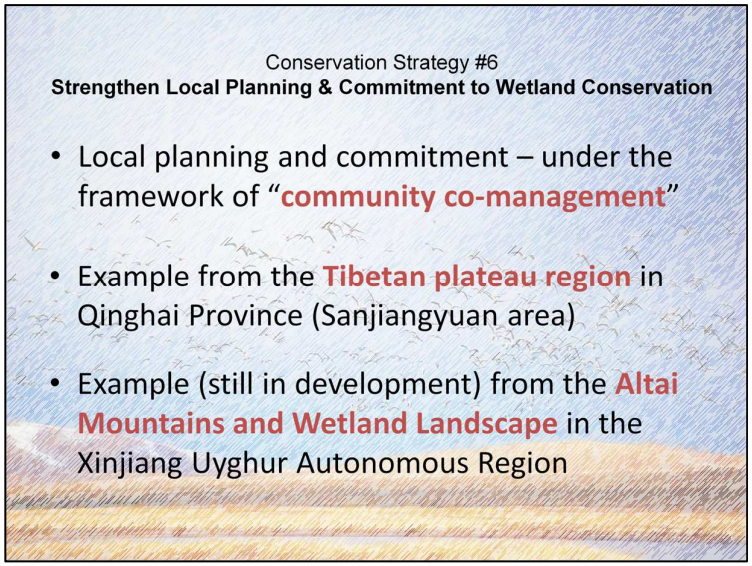
Regarding the second strategy (in Canada), it is most noteworthy that conservation programmes and activities should be based on sound data. Yet so often such data are missing. But with local people and communities in or near the wetlands, there is opportunity for genuine partnerships to be developed that promote both awareness and a means by which sound data are gathered; these data being the necessary foundation for sound management decisions, but often so elusive due to limited budgets or manpower.

Some additional training may be needed to engage local communities in sound and systematic data collection, yet the multiple benefits are likely to far outweigh costs.

In the third conservation strategy shared here (the 6th in the Canadian list), it is most important to note that national strategies – especially in large and ecologically complex countries – should always also be localized. That is to say, the local or regional context, including both the natural and socio-cultural contexts, should equally be considered in detail; in order to develop and apply the most effective conservation strategies possible.

Focusing our efforts at this more local scale allows for proper contextualization of the broader, national level guidelines and policies.

Working in collaboration with local communities also allows for better engagement with local stakeholders – the main resource users – including, potentially, the development of partnerships for practical data collection as well as for assessing and addressing local threats to conservation, and if necessary also the development of alternative livelihoods.



Working with community and nature reserve partners within a framework of "community co-management" since 1998, we have learned several important lessons for effective conservation.

Two case studies are briefly presented here.

With regard to the Tibetan Plateau region, with focus on the Sanjiangyuan area in southern Qinghai Province, it is noteworthy that the plateau's high altitude grasslands are, over vast areas, also wetlands; for the Tibetan Plateau constitutes the headwaters of several major Asian rivers, including the Yellow (Huanghe), Yangtze (Changjiang), Mekong (Lancangjiang), Salween (Nujiang) and Brahmaputra (Yalung Zangbu) rivers.

In northern Xinjiang Uyghur Autonomous Region, the Altai Mountains encompass both the alpine sources of two significant rivers – the Ulungur and Ertix rivers, which provide water for both the traditional and modern economies of the region – and the wetland habitats themselves, with their own biodiversity as well as their large store of carbon trapped in rich peatland.

Both of these case studies includes a co-management component.

Looking at the recent development of co-management in western China, one can note that it began largely with local community-based conservation initiatives, which later were recognized by national nature reserves … and then incorporated into the nature reserves' management plans. The initial successes demonstrated locally, in some parts of the very large (152,300 km2) Sanjiangyuan National Nature Reserve, now will be further developed and trialed – and if successful, replicated and extended across the reserve, and perhaps more widely too.

This "co-management approach" recognizes that
- "managing natural resources involves understanding complex systems containing both human and natural components";
- "collaboration among multiple stakeholders is crucial for successful resource management";
and
- "to manage these systems, groups with divergent interests must (learn to) work together."

In southern Qinghai Province, several variations of "co-management" have been tried, including development of contracts with local communities including explicit rights and responsibilities, as well as the development of local organizations and herders cooperatives; but the bottom line is that multiple stakeholders, often with divergent priorities, must as much as possible learn to work together!

The first formal “community co-management” workshop was held in Suojia, a remote township of western Zhiduo County, in October 2005; with community members (i.e., local herders who wanted to participate in wildlife monitoring activities) and nature reserve staff as well as Plateau Perspectives staff.

Contributions made and benefits received by local communities and conservation authorities

COMMUNITY CO-MANAGEMENT	Actions taken by communities; of benefit to conservation authorities	Actions taken by conservation authorities; of benefit to communities
Direct contributions	Wildlife monitoring, anti-poaching patrols, environmental awareness-raising activities, etc.	Payment for services rendered
	Sustainable land use, cf. maintenance of ecosystem services/function	Payment for Ecosystem Services (PES) or other forms of eco-compensation
Supportive actions	Local governance — Development of local decision-making and financing tools or mechanisms (e.g. herders’ cooperatives, trust funds, etc.), which may assist in the development of new economic ventures (e.g., community-based ecotourism)	Regulatory — Development of a clear legal framework (e.g., for community-based ecotourism in protected areas, public-private partnerships, etc.), which could assist in the creation of new alternative livelihood options, traditional legal framework and by-laws for the country.

Based on the subsequent several years’ work together, including wildlife monitoring focused on snow leopard, wild yak, wild ass (or kiang), and wetland birds including in particular black-necked crane; this outline of what exactly is “co-management” has been proposed.

Note in particular that a partnership should be a two-way dialogue, a two-way street! with exchange of ideas and responsibilities and benefits. Not just more-or-less free labour from local people, for the benefit of nature reserve authorities, without commensurate payments or other forms of support for local community interests.

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In exchange for their services (such as wildlife monitoring, or other forms of environmental monitoring), local people and communities that partner with nature reserve or other conservation authorities could, for example, perhaps receive some form of financial compensation for their efforts.

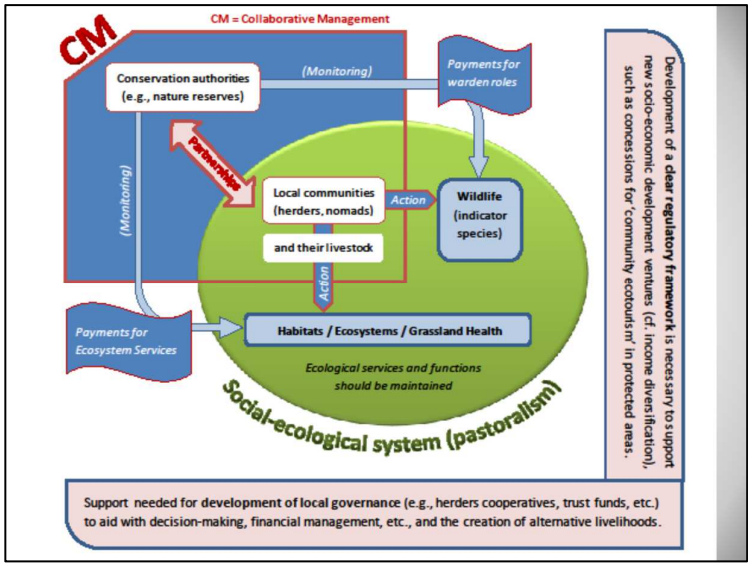
But at an *even deeper and more comprehensive level*, if a community can demonstrate that it uses its natural resources in sustainable ways (to be demonstrated through an agreed monitoring programme), then there is possibility also of seeking some financial support at this group or community level.

Funds in support of such community level conservation action (or for the maintenance of an area's ecological integrity) could in fact come, for example, from national funds such as funds ear-marked for "Payments for Ecosystem Services" (PES).

Such broad support for local communities, in exchange for their demonstrable conservation endeavours, could also have a multiplier effect: for example, such PES funds could serve as seed monies necessary to develop or launch alternative livelihoods, which in turn could help reduce people's dependence on sparse or endangered natural resources, and help reduce poverty.

Yet, to adequately support such a multiplier effect with development of alternate/new economies, some supportive actions also would be most beneficial, such as government assistance in the development of appropriate community-level financial mechanisms including herders' cooperatives or rust funds.

Enhanced clarity about what development opportunities may be permissible for local people and communities within protected areas, such as the Sanjiangyuan National Nature Reserve, also would be helpful. For example, the development of tourism plans for protected areas, particularly if oriented e.g. toward 'community ecotourism', is a supportive action that a nature reserve could take, with respect to local communities living in or adjacent to the protected area.



Here is the same information as the previous table, but in diagrammatic form.

Note in particular that many if not most ecosystems are in fact coupled social-ecological systems; and for their conservation it is key to consider the social as well as the natural/environmental component. In pastoral areas of Qinghai Province, it has proven important therefore to consider such issues as the development of rural cooperatives, community trust funds, etc. to assist with alternative forms of income generation.

- The experiences to date in the Tibetan Plateau region – trialing 'community co-management' – now are being brought into a new phase of testing, and eventual replication / extension across the Sanjiangyuan region
  - through the provincial PA network
  - under the provincial Forestry Department
  - imminent start of the UNDP GEF Qinghai Project: *Strengthening the effectiveness of the protected area system to conserve globally important biodiversity*

[N.B. Vast areas of the Plateau are peatlands/wetlands]

Now, based on initial trials, this ***community-centred approach to conservation*** is being expanded, under the guidance of the provincial Forestry Department, facilitated by the GEF-funded project, "Strengthening the effectiveness of the protected area system to conserve globally important biodiversity in Qinghai Province."

In our experience, from 1998 to the present, the key lessons learned are simple:

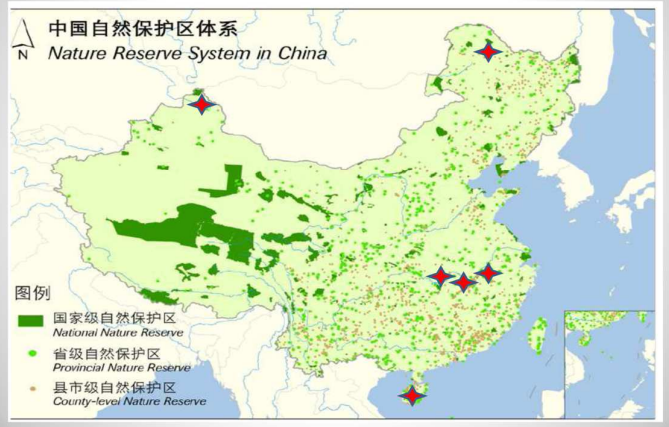
1) It is important to engage as many stakeholders as possible, including local stakeholders; and this, as early in a project cycle as possible.
2) It is important to work on appropriate timescales, not only according to formal project plans (which are generally externally driven) but also according to local communities' timeframes, including both seasonal schedules and according to the time necessary for *behavioural changes* to take place.
3) Finally, it also is extremely important to adopt a framework of "*adaptive management*," which allows for plans to change through the lifespan of a project according to new information as it becomes available, and according to lessons learned, either locally or globally, within relevant fields of work.

2. UNDP's Main Streams of Life (MSL) Programmatic framework

- Wetlands are increasingly recognized as of great importance in China – for biodiversity, for ecological functions, for economic value
- A programmatic approach builds synergies, allows for learning across different contexts, provides a solid basis for development (or revision) of appropriate legislation and of relevant/helpful guidelines for managers

The second case study presented here, also briefly, is a GEF project (still in development) in northern Xinjiang; this is one of the sub-projects being developed within the framework of the Main Streams of Life (MSL) Programme of UNDP China.

The MSL Programme's 6 sub-projects



The MSL Programme extends across the country, with six sub-projects (shown on the map).

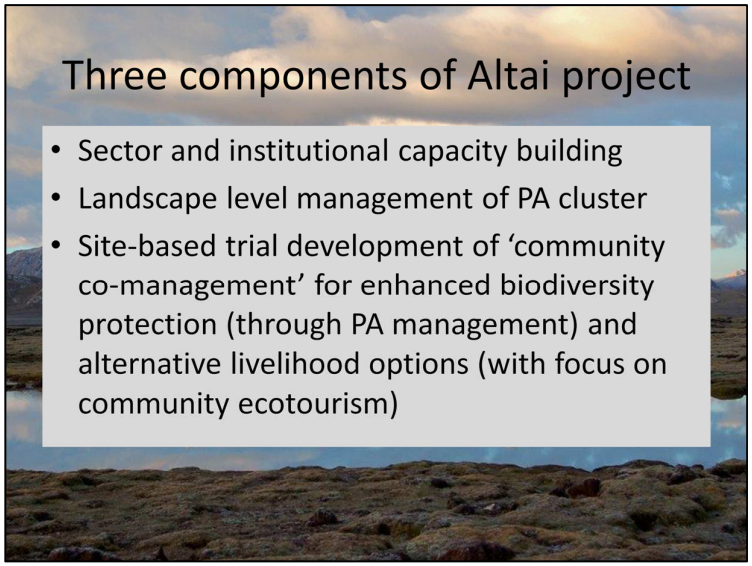
A *programmatic approach*, such as proposed in the UNDP's MSL Programme…

1) can help to build synergies and provide cost-savings;
2) allows for learning across different socio-economic and geographic contexts and through working with different partners;
3) provides a solid basis for the development (or revision) of appropriate legislation; and
4) helps in the development of relevant guidelines for local protected area managers, that may later also be applied more widely across the provincial and national PA system.

MSL Xinjiang Altai sub-project

- Strengthening the Management Effectiveness of the Protected Area Landscape in the Altai Mountains and Wetland Landscape (AMWL)

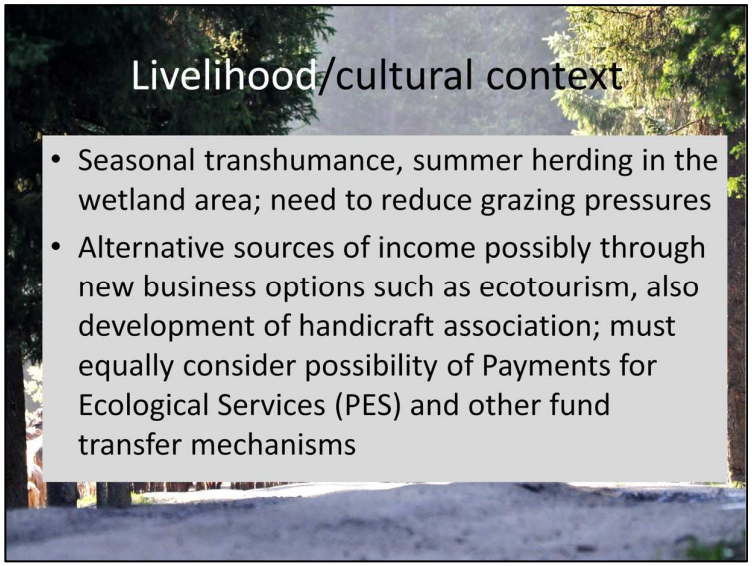
In the Altai Mountains and Wetland Landscape (AMWL), the site focus is on critical wetlands that comprise the headwaters of the two rivers that provide water for all northern Xinjiang, and thus are source of life for a large portion of the region's human population. Most of the main tributaries of these two rivers are included in the Liangheyuan Nature Reserve; and the project seeks to develop "co-management" within its long-term outcomes – including development of alternative livelihoods, such as community tourism.



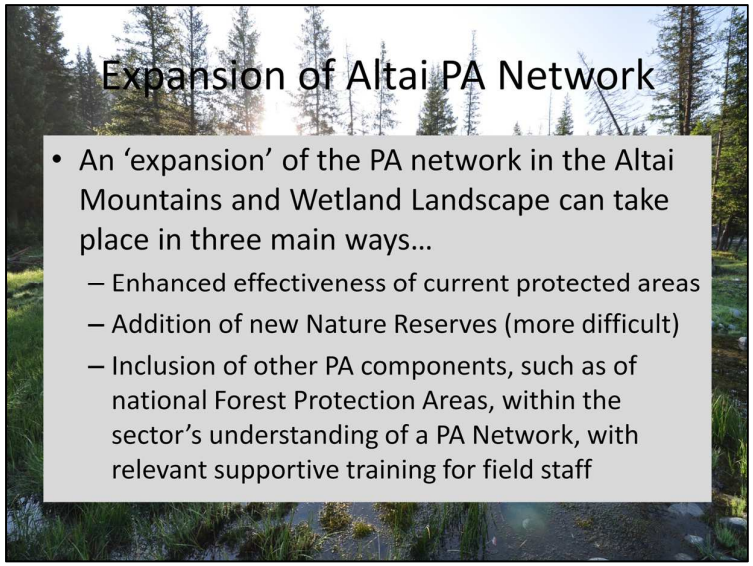
Working at three levels this project seeks to mainstream ecological and conservation perspectives in the general public awareness and in government decision-making, across all development sectors.

At provincial level, there is sector and institutional capacity building; at a landscape level, the development of more systematic monitoring systems for biodiversity and ecological health and more effective management of the PA cluster in the Altai Mountains; and at site level, project interventions will focus on Liangheyuan Nature Reserve with its specific conditions, threats, and opportunities.

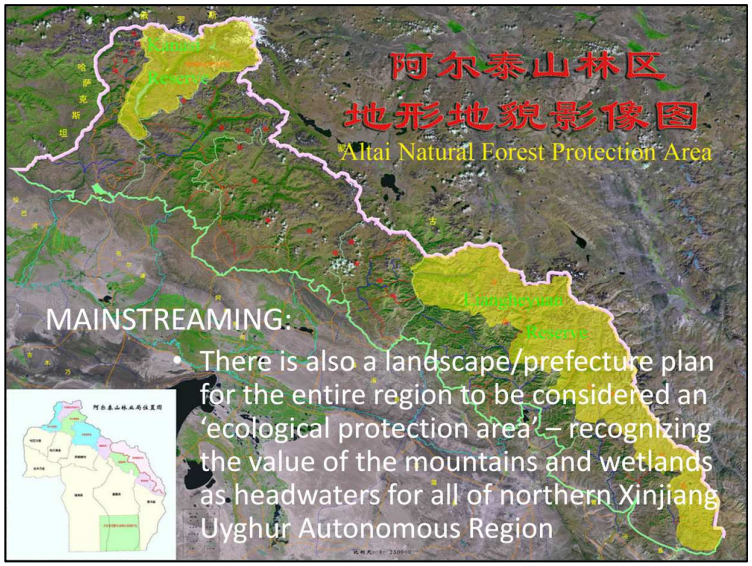
At the same time, this project seeks to consider and respect local community and cultural interests; including traditional seasonal herding practices of local Kazakh communities.



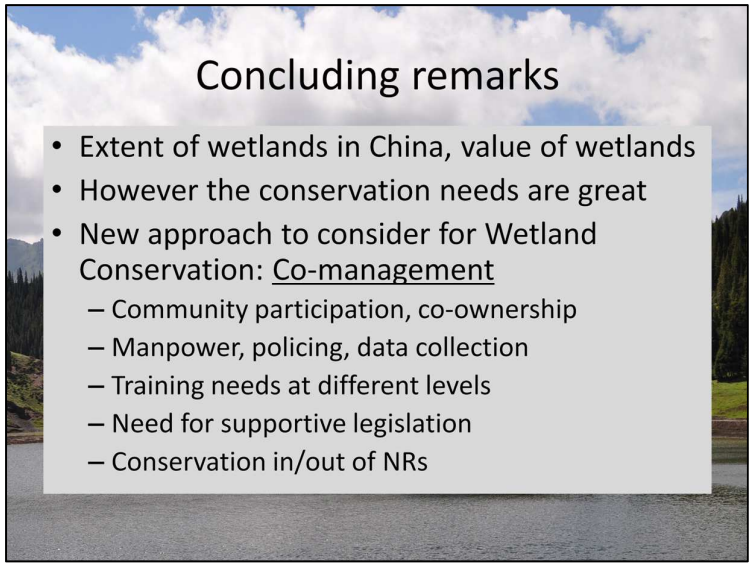
Several significant challenges do remain, however; but providing opportunities for dialogue and exchange and support for the development alternative livelihood options appear to be laying a good, solid foundation for this new approach to the conservation of wetlands in the Altai Mountains – including exploration of the use of PES (Payments for Ecological Services) in the Chinese context.



In order to expand, in effective terms, the regional or landscape-level system of Protected Areas, one may also engage not only with official Nature Reserves, but also with other categories of land management. In the context of the Altai Mountains, this includes for example the national Forestry Protection Areas.



In addition, when the value of wetlands are better understood, for example through economic valuations or with various awareness campaigns, then a "mainstreaming" can begin to take place, with an integration of conservation concerns into other sectors of government. In this regard, not only should more appropriate sector regulations or guidelines then be developed, but also more supportive co-financing of the protected area system and for conservation in general.



Now in closing, stepping back from these two case studies…

Although only a brief introduction, these two studies do demonstrate how local participation and a co-ownership of conservation goals can lead to enhanced manpower, which is useful for data collection and environmental monitoring, and to broader integration/mainstreaming of wetland conservation in public awareness.

Many forms of training may be necessary, at different levels, to achieve these goals. And there will also be need for supportive legislation. But with such community- or people-centred approaches to conservation, greater levels of preservation and/or sustainable use of wetland habitats may be achieved; both inside and outside of formal protected areas.

By partnering with all segments of society, we can achieve greater sustainability, conservation, and long-term socio-economic development.

One significant key to a long-term conservation strategy is to include, explicitly, *the Human Factor* – not as an incidental matter or an unfortunate threat or challenge to conservation, but as a ***strategic opportunity!***

This may be achieved under the umbrella of the approach known as "***collaborative management***." Let us together explore this approach in more detail in the future.

Thank you everyone, for your kind attention.

J Marc Foggin
Director, Plateau Perspectives