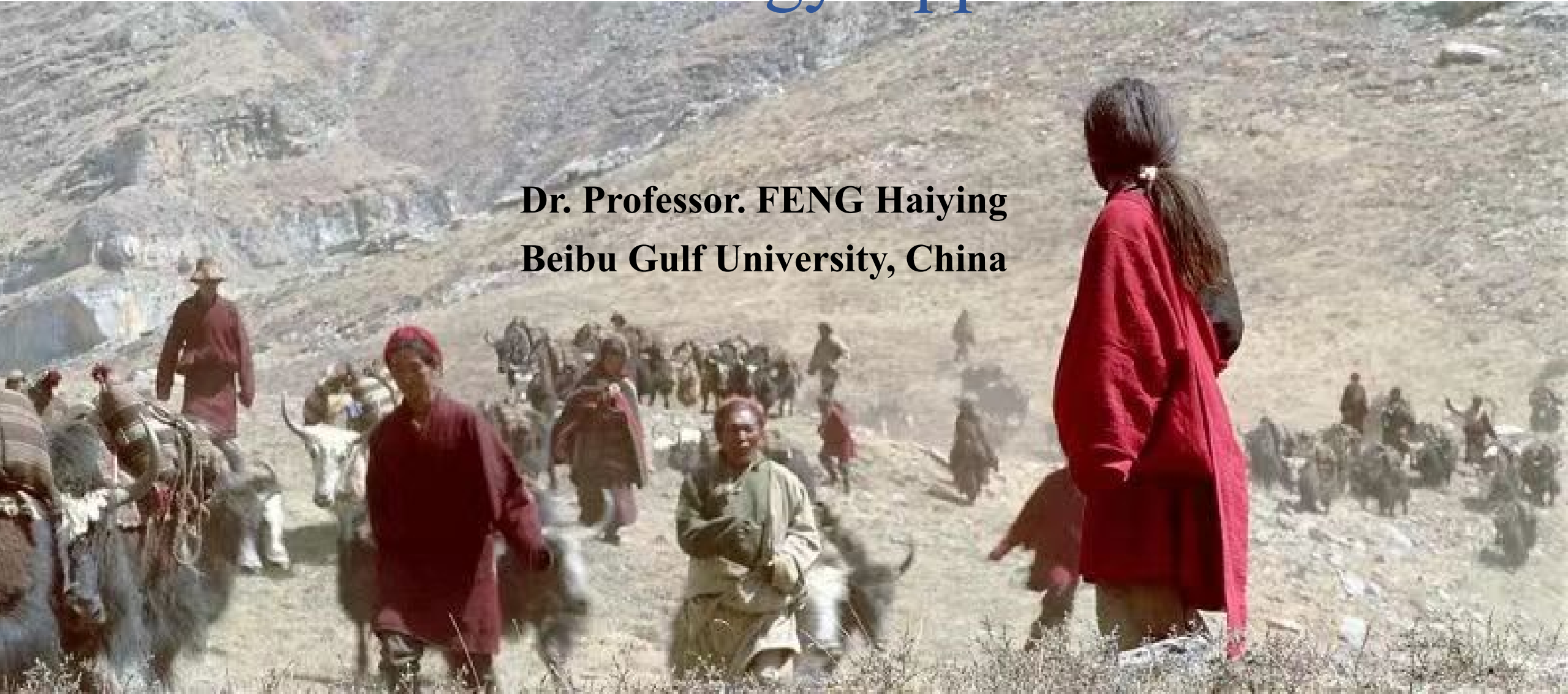


The Impacts of DLD and Climate Change: a Socio-ecology Approach

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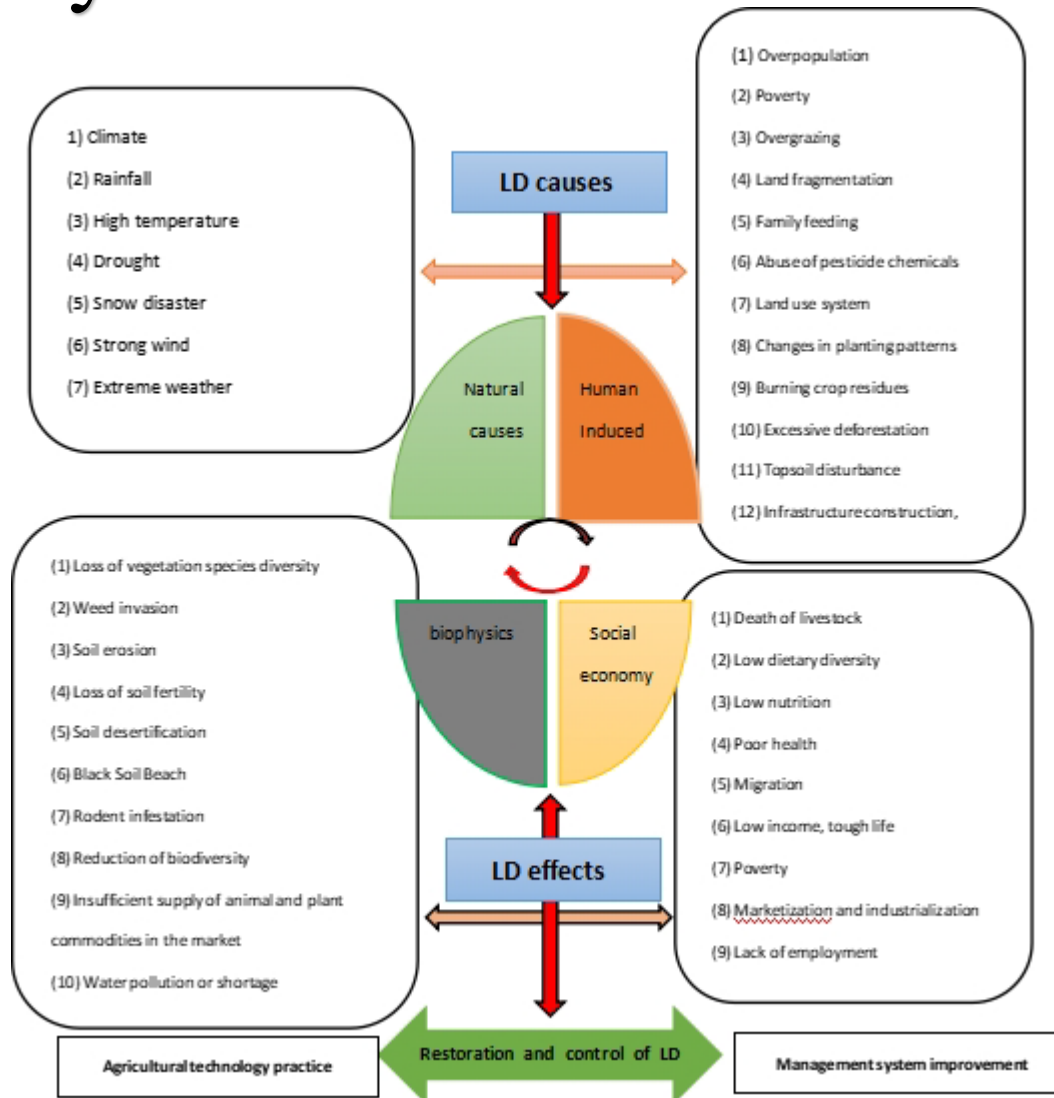
How can the socio-ecological approach arrest and reverse land degradation ?

Coupled human and natural systems C.H.A.N.S.

- ▶ CHANS is a systematic approach that includes all of the key components of the coupled human and land-based ecosystems in order to develop sustainable management practices for climate adaptation and economic development.

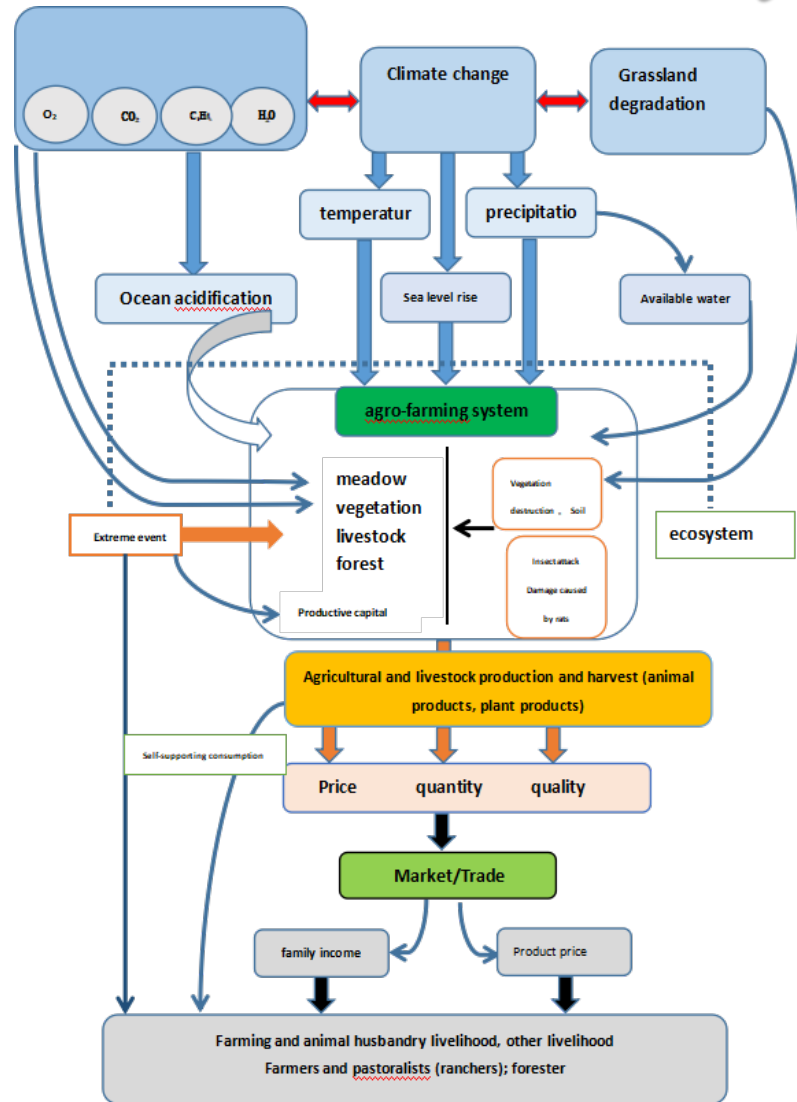
If you are not part of the solution to DLD then you are part of the problem!!

What are the impacts of DLD on coupled human and natural systems ?



- DLD has two categories of causes and about 12 these are listed in the chart.
- Biophysical systems are affected by DLD and the consequences are often severe. They affect the flow of ecosystem services which spills over to the social economy.
- People whose livelihood depends on the land can be badly affected (see chart)
- DLD has impacts on social and economic systems and may spill over into policy and politics.
- Restoration of degraded land and control of DLD has depended in the past on application of technology with some neglect on the part of those who are given responsibly to oversee projects and interventions. Often there is little or no involvement with land users and other secondary groups like veterinarians, road transport businesses and those who sell agricultural fertiliser, seed etc

What are the impacts of Climate change on coupled human and natural systems ?



Climate change is very complex. As it involves atmospheric, terrestrial and aquatic subsystems.

Agro-farming systems are directly affected. And they have key linkages to the supply of marketable produce, fibre, in a market economy the level of sellable output is not consistent. Climate variability adds to the complexity of the interplay with CHANS.

Why the socio-ecological dimension analysis is important ? (I)

How important is the knowledge of socio-economic dimensions in the study of land degradation, restoration management and improvement of Households' livelihood?

Raising awareness of the importance of socio-economic dimension will help effectively promote the realization of multiple goals of land degradation and livelihood improvement.

6 main effects

First, we recognize multidimensional interfaces such as biophysical, socio-economic and human. But it is also a carrier of "man-grass-animal-ecology-culture". its livelihood function is not only a reflection of the social attributes of land, but also an expression of ecological functions and production functions .

Second, DLD occurs as a result of human impacts on livelihood activities.

Third, in land resource management, socio-economic factors can influence the success of specific technical and policy interventions.

Fourth, for example, pastureland does not exist in isolation from non-pastureland systems in either biophysical or socioeconomic dimensions.

Why the socio-ecological dimension analysis is important ? (II)

Fifth, the homogenization of agriculture can be seen everywhere. It includes the unification of production methods to meet mainstream commodity standards, the abandonment of traditional methods and local breeds of livestock types, etc.

Sixth, the institutional capacity for change is a powerful socio-economic factor affecting land management. Successive institutional changes over the past 70 years have tended to affect the use of land, but lack of awareness of the environmental and socio-economic constraints that land users face in their operations has led to marginalization increased inequality, and declining resource conditions.

On the other hand, institutions that are responsible or assume responsibility for the management and development of ecosystems and the society they support are often ill-equipped to cope with the enormous changes that are bound to take place in the coming decades

Experience has shown that where social groups agree on how to manage the scarce common property resources (eg. collecting wood, animal dung for fuel) water, biodiversity, medicinal plants including caterpillar fungus (*Q. sinensis*) can lead to more equitable outcomes.

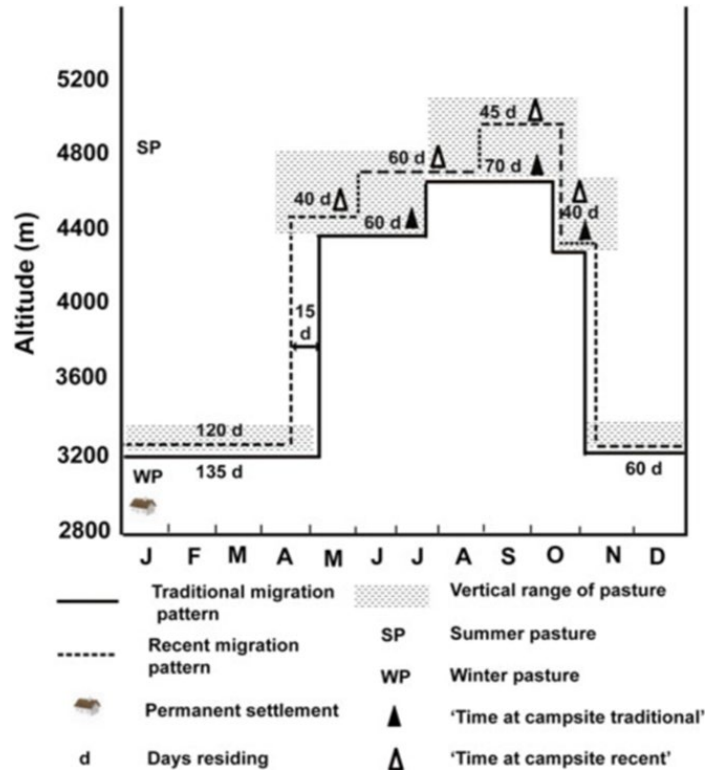


Community-based management is such an approach.

Success in arresting and reversing DLD and adapting to climate change will depend on winning the hearts and minds of all stakeholders not only land users.



My experience in the QTP over the 10+ years that the herders and other land users are adapting to changing climatic economic and policy environment.



Traditionally, pastoralists migrate to higher elevations in the summer and return to lower elevations in the winter pastures at around 3,000 meters above sea level.

The timing of seasonal grazing by herders and the vertical range of pastures have changed due to the warming climate (see Figure). And because of the warming trend, the growing season of plateau plants was extended. Herders stayed in the highlands longer, and herders moved their summer grazing sites more frequently than before.

For example, there is willingness to embrace new technology such as clean energy source as an alternative to burning yak dung for heating and cooking. There are implications too for carbon capture to reverse the current trends where degraded grassland have become net carbon emitters instead of carbon sinks.

How can the application of socio-ecological analysis minimize the impacts ?

Cause and effect, identify the root cause –due to treating the symptom instead of the disorder

The individual householder make decision every day and collective decision-making lead to the problem of over-utilization

How can the present approach to DLD be modified to ensure better outcomes ?

The role of Nature-based Solutions is being advocated by many including NEASPEC. Put simply, Nature-based Solutions (NbS) seek to maximize the ability of nature to provide ecosystem services.

- Nature-based remediation to rehabilitate degraded landscapes must involve the key players. And not just regard them as targets of the projects.

- Today I have only been able to touch on some impacts and its responses by stakeholders, policy-makers and the householders who daily make decisions like what crop to plant, where to graze their livestock etc.

It is clear that rural sociologists should be part of EACH project team in order to capture the benefit of **the local ecological knowledge** and better understand **the mindset** of the people in the project area.

T HANK YOU
FOR YOUR TIME!

