Case Study

Building resilience in the fruit and nut forests of Central Asia to adapt to a changing climate

Developing a climate change adaptation plan at the site level in Tajikistan

Key words: climate change adaptation, forest, local community, Tajikistan

Critically Endangered endemic pear *Pyrus tadshikistanica*

Synopsis

Tajikistan has been identified by the World Bank as the country most vulnerable to the adverse impacts of global climate change in the Europe and Central Asia region, with very low adaptive capacity. FFI and its project partners undertook a planning process to assess the likely impacts of climate change, and identify adaptation responses, at our project site of Childukhtaron in southern Tajikistan.

Location

The project site, Childukhtaron Zakaznik (State Nature Reserve), is located 270 km to the southeast of Dushanbe in Muminabad district, Khatlon province, and is one of three sites in Tajikistan which contain the country's most valuable walnut-maple ('fruit and nut') forests. The poorest people in the country reside here in Khatlon, where 78 per cent of the rural population lives below the national poverty line.

Central Asia's fruit and nut forests are of global conservation importance, are crucial to local livelihoods, and provide vital ecosystem services, yet are suffering serious degradation due to unsustainable use and inadequate management. Forest degradation, and limited natural regeneration, is caused by (over)grazing of livestock, tree cutting, hay-making and other human impacts, as well as pests and diseases. The project's overall goal is for the forest to be sustainably managed by local stakeholders, maintaining a healthy forest ecosystem providing biodiversity goods and services including income for local communities. FFI is building the capacity of the local forest service, promoting sustainable livelihoods and addressing specific threats through collaborative conservation actions.

Background to FFI's climate adaptation planning approach

There is now strong evidence for the reality of climate change as both a current phenomenon and as a future threat, and it is clear that many natural systems will be seriously affected. Although significant impacts from climate change may be some decades away in many areas, climate change adaptation planning is being seen as increasingly important, to enable local stakeholders to formulate practical 'no regrets' measures that reduce potential risks to natural landscapes and the goods and services they provide. The aim of climate change adaptation planning is to build and enhance resilience to change, through a process that teases out key impacts that are likely to be experienced and deducing which of these can be actively managed, and how.

Fauna & Flora International (FFI) has put together a package of resources and developed a tool to specifically assist site-level climate adaptation planning. We are convinced that while high-level predictive modelling and policy change is essential to tackling the global issue of climate change, so too are small-scale, local level initiatives, to help people make informed decisions in their immediate environments.

> "*At this workshop I liked most of all accessibility and definiteness of the climate adaptation materials. Almost all sections of the workshop could be used during the process of working with local people on climate adaptation reactions.*"
> Tillo Boboev, Ganji Tabiat NGO

This work has been moving forward as part of FFI's work within the British American Tobacco Biodiversity Partnership (BATBP). Over the five years 2011-2015 FFI is piloting the climate adaptation planning tool at site level, and refining the approach specifically in the context of complex agricultural landscapes. This is

with the aim of building stakeholder capacity at the local level to increase landscape resilience and maintain biodiversity and natural systems.

Climate adaptation planning process for Childukhtaron

The first stage was data collection: both on the project site and on climate change. Available information was gathered on predicted climate scenarios for Tajikistan, and current thinking on likely secondary impacts. A situation analysis for the project site of Childukhtaron was developed at a workshop involving FFI staff, partner NGOs, and representatives from the local forest service (site managers). Information was also collected using participatory tools in group discussions with the local community on livelihood strategies, agricultural practices, stakeholder roles and relationships, resource use, and dependence on ecosystem services within the complex fruit and nut forest landscape mosaic.

A climate adaptation planning workshop, with participants from FFI, government agencies, academic institutions, NGOs and the local forestry unit, started to explore the likely impacts of climate change at Childukhtaron. The group was introduced to the climate adaptation planning project process, the Sustainable Livelihoods Framework and key climate adaptation concepts such as vulnerability and resilience. The key features of the site were agreed (habitats, species, ecosystem services, livelihood strategies and agricultural activities), and threats and vulnerabilities identified for each. A specialist from the Government Hydromet office gave a presentation on climate trends, scenarios and secondary consequences, after which the participants mapped out the potential impacts of identified likely climate change factors (e.g. increased temperature, more extreme weather events etc.) at the site and considered the impact on each of the key biodiversity features and livelihood strategies at the project site.

A series of community discussions using tools such as hazard mapping, seasonal calendar and vulnerability matrix explored the issues with local women and men in the villages in Childukhtaron, assessing the vulnerability to potential changes in climate, and secondary consequences such as floods or droughts. Following this, a second climate adaptation planning workshop with a more focused group of participants (FFI staff and partners familiar with the project site) took place over two days, using the FFI developed planning tool. The group reviewed the climate predictions, situation analysis and outputs of the previous workshop which had been updated to include the results of the community consultation, and revisited the likely impacts of climate change at the project site. Using cards on the wall, participants then explored how the most immediate impacts of climate change interact with the current situation (represented by the situational analysis), affect local people's agricultural and other livelihood activities, and hence impact biodiversity. Possible adaptation responses were then identified, grouped into strategies, evaluated and prioritised. Additionally, potential actors and stakeholders who could implement the activities were identified.

The climate adaptation plan document, based on the workshop outputs, was later shared with the local forestry service and relevant district government representatives at a dissemination workshop. Following a presentation, including discussion on the likely impacts of climate change, a small group activity considered the relevance of the identified adaptation strategies and how and by whom they might be taken forward on the ground.

Results

Biodiversity and people at the project site appear vulnerable to expected climate change. For example, the high level expected changes of 'increased temperature' and 'likely decrease in summer rainfall' would mean more droughts, which might lead to increased fires, erosion and habitat degradation. Also the higher temperature is likely to mean increased pests and diseases, and reduced health, productivity and harvest of crops, pasture, livestock, and forest products leading to reduced income, and possibly greater dependence on forest products or increased labour migration. There is also concern about increased incidents of intense rainfall leading to floods, debris flows, and erosion. Frost hazard, resulting in reduced harvest, may increase due to bud-breaking date shifting to earlier in spring.

A number of knowledge gaps were identified during the planning process, some of which might be addressed through desk research and contacting appropriate specialists. There is of course still uncertainty regarding future climate change, which is difficult to predict with the country's mountainous terrain, as well as how this will affect plant phenology, including timing and length of the growing season. Further research on growing season, bud-breaking date, and the effect of drought on key tree species is required.

There is a national level climate change programme in Tajikistan: one of the 'Pilot Programmes for Climate Resilience' with Climate Investment Funds focusing on capacity building, climate-proofing key water management and hydroelectric infrastructure, and supporting land management measures to increase resilience. This is not yet however visible at our project site, and there is still a need to assist local decision makers understand and integrate climate impacts into their plans and programmes.

The plan produced for Childukhtaron by this project proposes various response activities, grouped under the following strategies:

Creating nurseries for reforestation purposes and using tree species more resilient to climate change.	Strengthening the technical base of the leskhoz and improving legal norms of forest resource management.
Raising awareness on environmental issues, conservation and climate change.	Effective management of pasturelands.
Capacity building on integrating climate adaptation issues into local programmes and plans.	Introducing alternative energy sources.
Development of income-generating activities on collection, processing and sale of forest resources.	Adapting agriculture to climate change.
Conducting research on climate change impact on forest ecosystems.	

These adaptation actions should now be integrated into project plans and/or site management plans. FFI is building the relevant activities, and their justification, into our project plans and future project proposals for Childukhtaron, but it is more challenging to influence the plans and actions of other agencies.

Follow-up already underway includes further discussions with local stakeholders, including the community, to verify the suggested actions and discuss how they might be taken forward. We now need to look for funding to support local action to implement the activities, and ensure we share the plans with others with responsibilities in the area.

Lessons learnt

Internal lessons about how we managed the process include the importance of building capacity within FFI's in-country teams and identifying a coordinator responsible for driving forward the planning process. The time required to collect relevant information, contact specialists and others engaged in climate adaptation, and follow up identified knowledge gaps between planning workshops, should not be underestimated, and is an important component to ensure the plan is credible and based on best available information. Additionally our planning process was spread over too long a time period, meaning momentum was lost between workshops and stakeholder engagement was more difficult to maintain. As would be expected, given this was a pilot site project to refine and trial the adaptation planning tool, the whole team was learning throughout the process with objectives becoming clearer and the methodology being improved, which affected smooth implementation.

The actual planning workshops work best with a small group who know the site and issues well, although this will need to be preceded by and followed up with meetings with specialists and experts in climate predictions, plant or animal biology, agriculture etc. It is also important to explore issues with local communities at the project site to ensure identified adaptation measures are locally appropriate and will be supported by local stakeholders.

There are also challenges inherent in a project which only has funding for the planning process, without funds to support implementation of the identified adaptation measures, including the danger of raising the expectations of local stakeholders. The adaptation plan is a valuable tool for FFI to inform current and

future project plans, to ensure our projects have appropriately considered the impact of climate change on biodiversity and people at the site when designing interventions. Whether it has a wider application will differ depending on each site context, the presence of other actors and our influence on them.

Want to find out more?

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