Pilot, Scale-up and Advocate Solutions:

People-Centered Ecosystem Management

Rural Development Fund

IESD

Prayatna Samiti

AIPP

PAFID
Philippine Association For Intercultural Development, Inc.

НАЦИОНАЛЬНЫЙ СОЮЗ АССОЦИАЦИЙ ВОДОПОЛЬЗОВАТЕЛЕЙ КЫРГЫЗСКОЙ РЕСПУБЛИКИ

NATIONAL UNION OF WATER USER ASSOCIATIONS OF THE KYRGYZ REPUBLIC

Kyrgyz Jayity

JASIL

INTERNATIONAL LAND COALITION ASIA

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People-Centered Ecosystem Management

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India	Prayatna Samiti
India	South Asia Rural Reconstruction Association (SARRA)
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Kyrgyzstan	National Pasture Users Association of Kyrgyzstan (Kyrgyz Jayity)
Kyrgyzstan	The Union of the Water Users' Associations of Kyrgyzstan (UWUA)
Kyrgyzstan	Kyrgyz Association of Forest and Land Users (KAFLU)

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- Sagatadi Village community members
- Aravali, Udaipur
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Foreword

Communal management of land and natural resources has a long tradition in Asia. These management practices have been exercised in different countries through different regimes, with established and accepted customary rules. Since the users themselves managed the resources, these users have ensured their preservation, regeneration and sustainability. Customary practices at large tend to ensure fair access to resources and equal benefits shared from their use.

In 2017, the International Land Coalition launched 10 Commitment Based Initiatives (CBIs) including CBI-6 on Locally Managed Ecosystems: *Pilot, Scale-up and Advocate Solutions: People-Centered Ecosystem Management.* CBI-6 brings together partners at local and sub-regional levels with common interests related to sustainable use and management of forests, pasture and water resources addressing the erosion of community land rights in ecosystems management. With this initiative, ILC hopes to strengthen tenure security of communities in managing environmentally sensitive ecosystems by documenting, replicating and advocating people-centered land governance in government policies and programs.

This publication compiles case studies documenting knowledge and practices of communal management of resources among ILC members and partners. This will serve as basis in creating a platform for different community approaches as well as promotion of successful cases to influence policies and decision-making. Organizations from Kyrgyzstan, Kazakhstan, Mongolia, India, Cambodia, Thailand and Indonesia made significant contributions in collecting information and preparing the case studies for this publication.

We express our gratitude to ILC in providing a platform for discussion of the diversity of community-based initiatives and dissemination of the evidences to influence supportive discourse on communal tenure and its benefits for society and environment. We are grateful for members of the communities in sharing their experiences in communal management practices. We thank our partner members in the CBI-6 for their participation in consultations and in writing the case studies.

Your feedback and comments on this publication would be much appreciated and welcomed. Also, if you have good case studies on locally managed ecosystems, please, write to Rural Development Fund, e-mail: general@rdf.in.kg.

We hope that this publication of good practices will bring in a positive change in policy and legislation for local and national governments to recognize and uphold locally managed ecosystems towards strengthening community land rights.

Kuluipa Akmatova
Director
Rural Development Fund

List of Acronyms

ADB	Asian Development Bank
AK	Aiyl Kenesh
ANGOC	Asia NGO Coalition
CBI	Commitment Based Initiatives
CDN	Collector Drainage Network
CFE	Cooperative Farm Enterprise
CFM	Collaborative Forest Management
CPA	Community Protected Area
CPAN	Community Protected Area Network
CSO	Civil Society Organizations
DDWM	District Department of Water Management
DoE	Department of Environment
DSD	District Support Department of Water User Associations
DWRR	Department of Water Resources and Reclamation
ELC	Economic Land Concession
FA	Forestry Administration
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
GDP	Gross Domestic Product
GIS	Geographic Information System
GKR	Government of the Kyrgyz Republic
HRS	Hydro-Reclamation Systems
HTC	Hydro Technical Construction
ID	Irrigation and Drainage
ILC	International Land Coalition
IWRM	Integrated Water Resources Management
LSG	Local Self-Government
LSGB	Local Self-Governance Bodies
MAFILR	Ministry of Agriculture, Food Industry and Land Reclamation
NGO	Non-Government Organization
NRM	Natural Resources Management
NFP	National Forestry Programme
NTFP	Non-Timber Forest Product
MoE	Ministry of Environment
MAFF	Ministry of Agriculture Forestry and Fishery
OSCE	Organization for Security and Co-operation in Europe
PACPA	Phnom Anlongsvay Community Protected Area
PAFID	Philippine Association for Intercultural Development, Inc.
PDR	Pool of Daily Regulation
PIS	Payment for Irrigation Services
RDF	Rural Development Fund
RGKR	Resolution of the Government of the Kyrgyz Republic
RSD	Regional Support Department for Water User Associations
SCWMLRKR	State Committee for Water Management and Land Reclamation of the Kyrgyz Republic
SF	Social Fund
SK	STAR Kampuchea
SMART	Spatial Monitoring And Reporting Tool
SRS	State Registration Service
STI	State Tax Inspectorate
UNDP	United Nation Development Programme
UWUA	Union of Water User Associations
VG	Voluntary Guidelines
WB	World Bank
WC	Water Code
WMC	Water Management Council
WUA	Water Users Association

Southeast Asia

Recognizing the Rights of Lua and Karen in Thailand and their Knowledge on Seed-Banking

Asia Indigenous Peoples Pact (AIPP)

ABSTRACT

Seed saving or community seed-banking is especially important for indigenous peoples, particularly in achieving their self-sustenance and overall food security. But due to ethnic discrimination and criminalization of their traditional practices, their seed-banking knowledge and practices, among others, are under threat.

The challenges they face to ensure such sustainable traditional knowledge are rooted from the general concern of climate change and the structural barriers within the government of Thailand. There is a huge gap with regards to having targeted strategies and policies that facilitate and foster involvement of indigenous peoples in the use, access, governance, and management of natural resources for food security and adaptation to changing environment as impacted by climate change.

This study has shown experiences of Lua and Karen people on community seed-banking and related knowledge systems and practices that contribute to achieving food security and sustainable land use and management systems.

Introduction

The intricate connection of indigenous peoples to their lands and resources largely affects the diversity and security of their food systems. For indigenous peoples, the strong relationship with their ecosystem and environment is an enabling factor that allows them not only to survive, but also enjoy a 'simple' life that sustains their needs and allows them to share the fruit of their labor with others.

This relationship of indigenous peoples to their environment allows them to possess and practice rich and diverse cultural knowledge, language, values, traditions, customs, symbolism, spirituality, forms of organization, standards of living, world views, and conceptions of development. These elements are the building block of indigenous peoples' identity and allow them to interact with and exercise their economic, social, and political dynamics in the communities they belong. The unique knowledge of indigenous peoples flourishes in the natural environment. Threats to these traditional knowledge systems impact indigenous communities' heritage and way of life.

As such, indigenous peoples are among the most vulnerable to climate change. These communities rely primarily on agriculture for sustenance; hence, indigenous communities all over the world bear the brunt of the impacts of climate change, particularly on food security.

As defined in the report of the Intergovernmental Panel on Climate Change in 2014, a food system involves all processes and infrastructure in satisfying a population's food security, including gathering/catching, growing, harvesting (production aspects), storing, processing, packaging, transporting, marketing, and consuming of food, as well as disposing of food waste (non-production aspects). It also includes the food security outcomes of these activities related to availability and utilization of, and access to, food as well as other socioeconomic and environmental factors.[1]

Increases in global temperature of 4°C or more above late 20th century levels[2], coupled with increasing food demand, would pose large risks to global food security. Additionally, the policy brief by the RSiS[3] describes climate change impact scenarios by 2050 wherein "…water stress will likely be sustained and heat stress can impact some crops in the temperate regions due to higher surface temperatures". The text goes on to mention that, "…without adaptation by 2050, crops and livestock are likely to experience significant reductions in production".

By 2030, heat stress could cause significant reductions in rice production quantity in South and Southeast Asia. Incidents of warmer night temperatures have a greater negative effect on rice yield. A difference of 1°C above critical temperature (> 24°C) may lead to 10% reduction in both grain yield and biomass.

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[1] http://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-Chap7_FINAL.pdf

[2] Climate change Impact Scenarios by 2080/2100 shows that with increases of 4 degrees C above current levels, crops are likely to reach their biological limits in current producing limits. Based on the Policy Brief (may 2015) by RSiS

[3] RSiS S. Rajaratnam School of International Studies

Noting the impact of climate change on food security, indigenous communities are likewise applying their indigenous knowledge and systems to cope, survive and sustain life in the community.

> In Bangladesh, adaptation mechanisms addressing livelihood challenges are evident. To overcome the seasonal food crisis, the para communities in Mong Nue Headman Para and Long Thang Khumi Para in Bandarban have established 'rice banks' with 500 kg of paddies. When a jumia faces rice shortage, paddy can be borrowed from the 'rice bank' and paid back after the harvest.[4]

Communal ownership has also been important in ensuring food and livelihood security, and for allowing indigenous communities to adapt to changing contexts from their own cultural foundations.

> "In the two villages (Sungratsu and Chuchuyimpang villages) studied in India, 80 percent of the farmers interviewed responded that while shifting cultivation did not fetch them bulk cash income as compared to other forms of land use, it continues to be a major provider of rice and food security, as well as a reliable and constant source of cash income." (Jamir, 2015)[5]

The importance of shifting cultivation or rotational farming plays a relevant role in providing livelihood and food security in many communities.[6] Shifting cultivation does not just benefit communities economically—it also helps in the preservation and protection of forests. Shifting cultivation also called swidden farming or rotational farming is an agricultural system that can be done in many forms as the various indigenous peoples who practice it. It includes removal of the natural vegetation (usually forest or shrub land), in most cases by cutting and subsequent burning, an alternation between a short duration of cultivation and a comparatively long duration of bush or forest fallow and in most cases cyclical shifting of fields.[7] This practice is still being contested or being stopped through government policies and laws since it is considered a primitive and destructive form of land use.[8] However, for many indigenous communities whose knowledge and relationship with their land and territories are intricate, shifting cultivation is an important practice that is worth implementing. As confirmed by the seven case studies[9] conducted in Bangladesh, Cambodia, India, Indonesia, Laos, Nepal and Thailand that despite profound changes taking place in indigenous communities across Asia and the overall decline of shifting cultivation, it still plays an important role in providing livelihood and food security in many communities. For these communities, the importance of shifting cultivation goes beyond mere economic concerns.

Furthermore, women play an important role in indigenous communities. Case studies showed that indigenous women are always part of sustainable resource management and in maintaining

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[4] For reference: Sudibya Kanti Khisa and Mohammad Mohiuddin (2015) Shrinking jum and changing livelihood in the Chittagong Hill Tracts of Bangladesh. In C.E. Shifting Cultivation and Food Security (1st ed. P 68). Bangkok: FAO, IWGIA, AIPP

[5] For Reference: Jamir, A. (2015).Shifting options-a case study of shifting cultivation in Mokokchung District in Nagaland, India. In C.E. Shifting Cultivation Livelihood and Food Security (1st ed.pp.161-197). Bangkok: FAO, IWGIA, AIPP

[6] http://www.ccmin.aippnet.org/attachments/article/1261/Briefing%20papper%20Shifting%20cultivation%20%202014.pdf

[7] http://www.ccmin.aippnet.org/attachments/article/1261/Briefing%20papper%20Shifting%20cultivation%20%202014.pdf

food security and they perform 70% of work related to shifting cultivation,[10] contributing to sustainable resource management and maintaining food security.

Indigenous women's agricultural duties involve the selection of seeds, weeding the fields, and gathering, processing, and selling produce. Meanwhile, men do the identification of land suitable for shifting cultivation, as well as the hard physical work in land preparation. Nonetheless, both men and women work together to help in clearing the lands, making firebreaks, harvesting produce and conducting rituals during the shifting cultivation cycle.

> "As exemplified by the Kmhmu of Laos and Naga of Northeast India, indigenous women possess a rich knowledge on seeds, crop varieties and medicinal plants. There are at least fifty (50) varieties of grains, tubers, vegetables, legumes, fruits herbs and medicinal plants grown during the cultivation cycle in shifting cultivation. In the case of the Kmhmu of Lao, they grow at least eighteen (18) types of native rice varieties. As a result of multiple and staged cropping of a broad range of plant varieties, the harvest of food crops continues even long into the fallow period."

Clearly, the above experiences demonstrate how indigenous peoples relate to their land, territories and resources in order to satisfy their need for food and livelihood.

STATEMENT OF OBJECTIVES

The issue of food security is closely linked to agricultural production and growing local varieties of seeds among indigenous peoples. This study attempts to:

- Document the knowledge of indigenous peoples in rotational farming and its significance to preserve, protect and restore forest ecosystem;
- Highlight the significance of the seed-banking system of indigenous peoples in selected communities as integrated in their rotational farming system; and
- Influence the policy that will foster recognition of indigenous peoples' rights and capacity to govern and manage their land, territories and resources in general and their forest ecosystem in particular.

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[8] https://unfccc.int/resource/docs/2012/smsn/ngo/235.pdf

[9] The case studies are the result of FAO Regional Office in Asia and the Pacific (FAO-RAP) and the regional Indigenous Peoples' alliance Asia Indigenous People Pact (AIPP) signed an agreement on the project 'Regional Support to Indigenous Peoples for Livelihood and Food Security'. The objective of the project was to address key challenges and opportunities faced Indigenous Peoples in the region in achieving and maintaining livelihood and food security.

[10] Ibid.

METHODOLOGY

To fulfill the abovementioned objectives, this study was guided by a participatory action research approach that places emphasis on the participation of the community to understand and analyze their situation. Through this approach, both the researchers and the communities collaborate to examine the issues under study and come up with recommendations to address problems affecting said communities.

A desk review of documents and information was done to gain a general sense of the communities' practices. To further understand farming systems and natural vegetation, the researchers conducted field visits involving transect walks in the community. Field observations and initial interviews with some members of the community were also conducted.

Context

STUDY AREA

A. Ban Hor is officially a recognized village located in Moo 6, Tambon Pang Hin Fon, Amphur Maejam, Chiangmai. This community was established under the leadership of Mr. Heingso's[11] family along with three other families. The four families fled from the war during Khun Loung Wisanggar's regime. The Lua people, on the other hand, escaped from Chiangmai City, and have since settled in the mountain area until present. The community formed a sub-village called Ban Hor Mai (meaning New Ban Hor). In terms of population, there are 112 households composing the community.

Rainforests surround the community. The largest forest areas are located at the southern part at the left side of the Ompi River. Part of this area was used for rotational farming. Since then, it has grown into a thick forest which the community has given back to the government. The northern portion of the rainforest serves as the watershed for the community.

The community is rich in water sources, enjoying six water bodies throughout the year, namely: Ompi River, Huay Pha Stream, Huay Mor Stream, Huay Ban Stream, Huay Kao Stream and Huay Sae Stream. This rich forest ecosystem has contributed to its rich biodiversity, which has allowed the community to hunt wild animals for food.

In terms of infrastructure, the community accesses Changmai City through its road networks. Electricity is also available only last year. A primary school has also been established since 1981.

[11] This is a Lua indigenous name, which last name is not necessary.

The main source of livelihood of the community is rotational farming. Most of the families grow onions, corn, cabbage, red bean, nuts, black sesame, white sesame, cucumber, pumpkin, eggplant, native chili, and millet as an immediate source of cash. To augment the family income, others raise cows and pigs which are sold in the market. Other members of the community, however, earn income through paid labor in the city and by opening small shops or businesses, such as mini-grocery stores, in the community.

B. Ban Hak-kia is a traditional Karen community which is called "To Lo Pu" in Karen language. The name "To Lo Pu" is derived from the lowland language, "Tong, Lom" meaning, "quagmire" because there is a paddy field that occupies a large portion of the marshland. The name "To Lo Pu" in Karen however does not have any meaning.[12] This community was established 115 years ago under the leadership of Mr. Naboy who moved from Ban Pakluey Khunya which was 10 kilometers away, so he could live closer to their cultivation areas. The families of Mr. Nadichi and Mr. Takuelue followed, and others later moved into the area.

Presently, there are 50 households with a population of 196 villagers; 95 are male and 101 are female. The community still practices traditional livelihood systems, which includes rotational farming. Like the Lua people, the Karen people practice agriculture for family consumption and they also sell some crops in the market like corn, vegetables and rice. Animal raising is also integrated in their agricultural farming system. After the harvest season, some of Karen people seek short- or long-term employment opportunities in the lowland.

INDIGENOUS PEOPLES

Indigenous peoples population in Thailand is found mainly in three geographical regions of the country: indigenous fisher communities (the Chao Ley) and small populations of hunter-gatherers in the south (Mani people); small groups on the Korat plateau of the north-east and east; and the many different highland peoples in the north and north-west of the country (the ChaoKhao)[13]. There are nine so-called "hill tribes" that are officially recognized - the Hmong, Karen, Lisu, Mien, Akha, Lahu, Lua, Thin and Khamu. In the data of the Department of Welfare and Social Development, there are 3,429 "hill tribe" villages with a total population of 923,257 people.[14]

The indigenous/tribal peoples in the north have been practicing rotational farming for hundreds of years. Such practice is notable among the Lua and Karen people, whose populations comprise the majority among the hill tribes. They rely on their natural ecosystem like the forest for their survival and livelihood primarily on subsistence basis, gathering timber, fuel wood, bush foods, and medicinal plants, among others. In addition, they have been practicing a self-reliant agricultural system being transmitted from generation to generation. This is testament to the knowledge, skills, philosophies, and values accumulated and developed by indigenous peoples with long histories of interaction with their ecosystem.

[12] The name is a sort of transliteration that when translated in Karen, it has no meaning.

[13] https://www.iwgia.org/images/documents/indigenous-world/indigenous-world-2018.pdf

[14] Ibid.

IMPORTANCE OF ECOSYSTEM: THE LUA AND KAREN PEOPLE AND THEIR RELATIONSHIP TO THE FOREST

The importance of the forest ecosystem among Lua and Karen is evident in their way of living. As expressed by a Karen leader, the forest is like their supermarket where they can walk inside and find everything they need. The rainforest is their source of food, shelter, clothing, and medicine, and its destruction would severely disrupt their lives. The gathering of forest resources is guided by a principle which helps maintain harmony with nature: gather what is enough for the day and leave enough for the future.

This deep understanding of the forest system has led to its proper treatment by the Lua and Karen people, especially when they practice their rotational farming activities. Thus, rotational farming is practiced, to protect and preserve their forest, while sustaining the needs of the community. They designate areas for their farming cultivation located in their forest ecosystem. For the community, land demarcation is a way to secure their land from the risk of land grabbing. This is in a way an instrument for them to assert their claim over their land or territories and also as a part of the community's management scheme. In the view of the government, it assures them that there will be no encroachment in the watershed area. Both implement a fallow system that ensures regeneration of the soil to help it regain fertility, ensuring the productivity of future cycles. Furthermore, rotational farming meets a cultural and social need—aside from agricultural activities, farming cycles provide space for kinship relations, spiritual practices and social relationships.

PRESSURES AND CHALLENGES BEING FACED BY LUA AND KAREN PEOPLE

In the study conducted by Trakansuphakon[15], rotational farming does not leave any significant impact to forests. Instead, intervention by the state and other institutions in Thailand (e.g. policy and other means) have disrupted rotational farming activities of indigenous peoples including that of the Lua and Karen people. For instance, the fallow period being practiced by the Lua people was shortened from 7-8 years to 6 years. This shortened fallow period inevitably disrupts the cycle, as the soil is not able to regain its nutrients and fertility within this time. This expedited farming cycle leads to reduced crop yields, affecting their livelihoods of the communities.

The enactment of Forest Laws has deprived indigenous peoples of the power to manage and control their forests. Throughout the country, authority over forests is placed in the hands of the central government through the Royal Forestry Department (RFD) and the Department of National Parks. This problem is further aggravated by policies promoting cash-cropping, which reoriented indigenous communities from subsistence-driven farming to enter increasingly into market-oriented economies.

In a study conducted by Boonchai (2016), when the government demarcated forest protected areas in Karen lands, rotational farming became illegal and indigenous peoples were prohibited from accessing and using their forest resources. The practice of the usual fallow period they used to do is also prohibited, resulting in land degradation, biodiversity loss, and food insecurity. The restriction has also forced the Karen people to resort to unsustainable merchant agriculture, which is more destructive to the forest.

The government has also failed to recognize the rights of indigenous peoples, particularly to self-determined development, including Free Prior and Informed Consent (FPIC) whenever there is an area being declared as National Park. FPIC[16] is a mechanism, founded on indigenous peoples' right to self-determination whereby indigenous peoples and indigenous communities are able to conduct their own independent collective decision-making on matters affecting them[17]. Oftentimes, the consent of the people from the community is being neglected. It distills the good practice of consultation in general and the basic principle of recognizing lands, territories and resources of indigenous peoples from evolving international laws. One of the major problems relating to land conflicts in Thailand is the 1961 National Park Act that provides ultimate power and authorities to officials of the Department of National Park to identify the areas for national park without any consultation with indigenous peoples and recommend to cabinet for approval[18]. Most of the national parks identified and declared in the last three decades, overlaps with areas where indigenous peoples have been living and depending on their livelihoods for centuries, even before the declaration of national park and the establishment of national park act.

OPPORTUNITIES

On a positive note, some districts have local ordinances that recognize the right of indigenous peoples to their land. One example is the municipal ordinance on natural management by community adopted in Ban Loung Municipality Sub-district, Chomthong District, where Hak-kia village is located. There is also a related regulation on resource management of Maeya-Mapon river basin network which, support the community to manage their own resources. However, not all districts have these local policies.

At the national level, there is a cabinet resolution (August 2010), which is a guide policy to revive the Karen indigenous peoples' way of life which contain five elements: 1) Ethnic identity and culture; 2) natural resource management; 3) citizenship rights; 4) transfer of cultural heritage and 5) education.

Article 70 of the Constitution stipulates that state shall promote and protect ethnic groups to live peacefully according to their culture, custom, and traditional way of life. The UN Declaration on the Rights of Indigenous Peoples also supports the claim of indigenous peoples of their rights to identity, culture, ownership, governance and management of their lands, territories, and resources.

[16] By virtue of this right, indigenous peoples should freely determine their political status and pursue their economic, social and cultural development, including having the right to autonomy or self-government in matters relating to their internal and local affairs, as well as ways and means for financing their autonomous functions. Submission of Asia Indigenous Peoples Pact (AIPP) for the 11th Session of the Expert Mechanism on Rights of Indigenous Peoples' (EMRIP11) Report on Free, Prior and Informed Consent (FPIC)

[17] Training Manual for Indigenous Peoples on Free, Prior and Informed Consent (FPIC) accessed from https://aippnet.org/wp-content/uploads/2014/11/FPIC_Manual-Small.pdf.

[18] https://www.bangkokpost.com/opinion/opinion/1486238/respect-rights-of-the-karen

Case identified on governing local ecosytem: Seedbanking

GOOD TRADITIONAL PRACTICES

Crop rotations

Rotational farming is the system of growing different crops on the same land, ensuring that no plots are planted with same crop in successive seasons. The practice is designed to preserve the productive capacity of the soil, minimize pests and diseases, reduce chemical use, and manage nutrient requirements, all of which help to maximize yield. Crop rotations further enhance soil structure.

Indigenous woman cultivates land for farming

Seeds diversity

Growing many plants of different species in the same area to increase plant biodiversity is another way to ensure harvest variety. A diverse crop production can support a diverse and balance diet. Other advantages include adaptability to climate variability and extreme weather events, as well as crop resiliency from pests and diseases.

Women's involvement is highly regarded in seed collection and seed-saving as they are known to be more knowledgeable on plants, and are so-called "food providers" in the family. Seed collection is done in intervals over a period of time (such as a year) in different times. This activity usually involves young girls, who learn about seeds and seed-banking from their mothers.

Karen women selecting their collection of seeds before planting for the next 3 days

Natural Resource Management

The system of agro-forestry, which is the deliberate protection and conservation of trees as integrated in the rotational farming of the two communities, helps crops to grow robust. With this approach, the temperature, sunlight exposure, susceptibility to wind, hail, and rain are taken into account to help the crops grow in the farms. A diversified range of products such as food, fodder, firewood, timber, and medicine are likewise being enjoyed while improving soil quality, reducing erosion and storing carbon.

To ensure crop diversity and maximize land use, both communities practice intercropping or mixed cropping, where more than two crops are planted at the same time. This technique also reduces the risks associated with single crop failure. Apart from this, intercropping reinforces biodiversity because this system allows beneficial and predatory insects to minimize pests, increase organic matter, fumigate the soil and suppress weed growth.

Knowledge on natural resources present in the vicinity, such as the type of trees that are thriving in the community, also guide the people in the use and management of their resources. For instance, Lua people have identified species of trees to be exclusively used for house construction.

PRESSURES ON TRADITIONAL PRACTICES

Ban Hor

As said by an Arabic proverb, “A tree starts with a seed.” The Lua people in Ban Hor, as a self-sustaining community that practices rotational agriculture, is keen on the idea of sustaining their community seed-banking practice, as this is the key to the cultivation of variety of crops. Community seed banks among the Lua people are stored in pots placed in sheds, the family granary, or the kitchen shelf. For the Lua people, seed-banking is a family knowledge where women take the lead in selecting and saving seeds. They also play the role in raising awareness on the diversity of traditional seed varieties not only to the family but to the members of the community as a whole.

Aside from ensuring diversity of crops, community seed banks also serve as an emergency seed supply when other members in the community experience shortage of seeds due to failure or destruction of crops, or damage due to calamities, pests, and disease.

Seeds are not only needed as input for farming, but also as a source of food. For instance, when rice or maize are sold to generate income, this can help provide families with access to other needs to improve their livelihoods.

Indigenous woman displays her farm produce

Community seed banks provide farmers with access to seedlings for next planting season. In this way, people in the community do not need to buy seeds from external buyers, and it helps them diversify by cultivating several crop varieties adaptable to their ecosystem. The community observes and practice seed-sharing/exchange to enable access to seeds.

With the government's new policy to change the number of years for rotational farming, the people in the community experienced the difficulty of restoring the health of their land for next planting season. However, they have no choice but to comply. During the recent visit in the community, the community leader shared that the local government is implementing an Order called, Public Disaster Prevention and Mitigation Act[19] where it restricts the villagers to plant few days after burning. With the current government policy, the villagers will have to wait for 60 days after burning before planting. Following this rule, the people in the community are aware that this will prevent them from optimizing their rice cultivation and other crops grown in the area. As of this writing, it was observed that some areas remained 'untouched' (not planted) because of the policy.

Ban Hak-kia

Among the Karen in the Ban Hak-kia community, half of the community members are still dependent on rotational farming. However, because of state policy pressure, the rotational period cycle from 6-10 years is being reduced to between 3 and 5 years. With this reduction of the fallow period, it directly impacts the growth and productivity of some seeds. Moreover, the diversity of food plant varieties is declining because many plant varieties cannot grow on land which has been fallowed for less than 3 years. Some plants require charcoal and ash to grow better, hence burning is important for land preparation. Additionally, some plants grow well when intercropped with rice or other crops.

The planting policies mentioned above have gradually changed farming methods due to adjustment of the fallow time. At the same time, the condition of the natural environment and the soil has begun to deteriorate because of repeated use of the land and intensive use of chemical fertilizers and pesticides. Because of these changes taking place, some local plants are under threat of extinction or have already disappeared.

The community recognized that due to changes of farming practices like use of pesticides and fertilizers to compliment the lost nutrients in the reduced fallow period, some plant species in the community disappeared. These include:

Various Plant Species		
Rice Species (10)	Local Species (6)	New Species (5)
Bue kor pae	Por ngor	Red bean
Bue su	Por bor	Passion fruit
Bue mue po'	Sui	Shallots
Bue ki	Pae se boi	Corn
Bue kor lae lu	Lae por	Peanut
Bu a mae		
Bue kow pae pi e		

Currently, the members of the community were able to still document the following local species:

Documented Local Species		
6 different species of rice seed planted in paddy field	3 kinds of sugarcanes	6 kinds of taro
5 different species of rice seed planted using rotational farming	12 kinds of pumpkins	3 kinds of ginger
7 different kinds of vegetables	7 kinds of chili	2 kinds of sorghum
11 kinds of onions	11 kinds of eggplants	3 kinds of sesame

Knowing the impact of the state policy and the importance of food security and diversity, people in the community contribute to the preservation of those plants and seeds by planting them within their own backyard.

[19] The order prohibits the burning within 60 days in 9 provinces in the northern part by using the Public Disaster Prevention and Mitigation Act, 2007 (B.E. 2550) (Article 15 (4). The provinces are Chiang Rai, Chiang Mai, Lampang, Lamphun, Mae Hong Son, Phrae, Nan, Phayao and Tak.

ADAPTATION PLANS

Apart from coping with the changing policies affecting access, use, governance and management of Lua and Karen people over their land, the indigenous communities are also coping with the impact of climate change. Based on community's observation, climate change is real as they felt and observed shifts in the environment and climate, and have also experienced disasters, among others.

With all these changes occurring, both Lua and Karen communities are building their adaptive capacity to be able to maintain their day-to-day ways of life and ensure that their collective well-being can cope with any changes to their environment.

While adaptation measures by indigenous peoples are not exhaustive in this study, some basic intentions and incremental adaptation actions are evident. The following practices, for example, are being undertaken:

- Land Management Plan: Communities are observing sustainable land use and management while promoting environment-friendly cultivation system. They are, however, pushing for the recognition of community land ownership.

- Development of co-managed natural resources: The communities are increasing their cooperation with other communities, national parks, and local organizations to boost collaboration in managing natural resources in the community (e.g. recognize and understand fallow period).

- Development of alternative livelihoods: The communities are increasingly re-assessing other income-generating avenues that will not leave significant impacts on their land use. Both Lua and Karen people are now looking into further developing community-based products that they can further develop to market outside their communities (e.g weaved products).

OUTCOME

Community seed-banking is a primary approach of indigenous peoples to save food for the future and sustain a healthy ecosystem for the next generation. As shown in the above experiences of Ban-hor and Ban hak-kia communities, seed-banking has contributed a lot in their agro-forestry system. It is evident that community seed-banking has the following impact:

- Community seed-banking is a good initiative to protect extinction of species from climate change and disasters

- Seed-banking maintains genetic diversity and healthy crops and biodiversity

- A robust and rich forest ecosystem that enables a sustainable community life to persists and depend for their social, cultural, economic and political life and well-being.

Analysis

PRESERVATION OF TRADITIONAL PRACTICES

Community seed-banking is an integrated practice in the life of Lua and Karen people in Thailand and it is embedded in their rotational farming in particular and way of life in general. The role of women is inevitable in community seed-banking and this is still true up to this time as the communities in Lua and Karen highly depends on the knowledge of women when it comes to choosing the healthy seeds and enriching the land to make it more productive.

Indigenous knowledge in community seed-banking is through seed saving, storage and exchange allowing for continued plant breeding and diversification of crops. This wealth of information mobilizes and sustains a dynamic ecosystem that sustains a tremendous biological diversity beneficial to indigenous peoples living in the area.

Through this practice, the communities have clearly demonstrated collective economic, socio-cultural, and political systems that can sustain harmonious relations not only among themselves, but most importantly, with their forest ecosystem that they depend on for life and sustenance.

This close relationship among members of the community is a key to their strong cohesion and collective identity. Related traditional ceremonies and practices reinforce the solidarity within their social structures and these cannot be isolated with the use and access of their lands, territories and resources. Hence, it is mandatory to recognize the fundamental right of indigenous peoples to their land, territories and resources not only by the government but the whole mainstream society.

ENHANCING PUBLIC AWARENESS

It is critical to educate the general public on the importance of implementing rights of indigenous peoples especially on their access, use, governance and management of their lands, territories and resources. The understanding of the situation of indigenous peoples in many aspects, is not only limited to their culture, but also on their socio-political and economic systems, among others. The understanding that land is the heart and soul of indigenous peoples is vital as this is closely linked to their identity and survival.

INFLUENCING POLICIES

Another major challenge is the gap between policy and practice. Some indigenous peoples are being apprehended (i.e. evicted) due to land issues. The role of indigenous peoples in conservation still needs to be recognized. It must be noted that indigenous peoples' dependence on their environment or ecosystem for food, shelter, identity, and survival has resulted in deep respect for their land, thus, it is essential for them to protect and sustain it. Indigenous peoples have developed a set of conservation measures that are passed down from generation to the next. Given this, it is crucial to make policies and programs that are supportive of these practices.

Recommendations

Without land, indigenous peoples have no livelihood, identity, or means of survival. In this context, the government and other stakeholders need to respect the rights of indigenous peoples. Indigenous peoples need to be consulted on the use of their land and included in development processes.

The role of indigenous peoples in relation to conservation and sustainable land use has been proven to be crucial. As indicated in the initial findings of the study, the system of community seed-banking is a demonstration of an integrated approach in the access, use, governance, and management of a forest ecosystem, especially among indigenous peoples. A seed for indigenous peoples means a life for the forest. As expressed by an elder, "a seed represents a generation, a death of such is a death of a generation".

The following recommendations are needed to scale up good practices and promote community-based initiatives:

- Legal recognition of indigenous peoples' citizenship, and recognition of their right to their land, territories and resources. Enabling policies and programs must facilitate such recognition of rights to avoid eviction cases among indigenous peoples;

- Promote native plant cultivation or community seed-banking that is appropriate to the context and situation of indigenous peoples;

- Promote and strengthen co-management initiatives and programs based on access to and use of local knowledge, systems, and practices;

- Engage and support exchange learning between communities and relevant representatives of government ministries, including the Ministry of Natural Resources and Environment of Thailand; and

- Further research and documentation to show more stories and diversity of practices among indigenous peoples, as well as consolidation and cataloguing of existing studies and catalogued into a database.

References

Asia Indigenous Peoples' Pact (AIPP) and the International Work Group for Indigenous Affairs (IWGIA), Chiang Mai 2014. *Shifting Cultivation, Livelihood and Food Security: New and Old Challenges for Indigenous Peoples in Asia.*Bangkok.
Retrieved from
http://www.ccmin.aippnet.org/attachments/article/1261/Briefing%20papper%20Shifting%20cultivation%20%202014.pdf

Kritsada Boonchai. *Rotational Farming: Cultural Rights for Ecological and Social Practice*
Retrieved from
file:///C:/Users/misty-eye/Documents/WORK2018/ENworks/Rotationlfarming%20by%20Boonchai.pdf

Erni, C (2015). *Shifting Cultivation, Livelihood and Food Security: New and Old Challenges for Indigenous Peoples in Asia.* Bangkok: FAO, IWGIA and AIPP

International Alliance of Indigenous and Tribal Peoples of Tropical Forests (IAITPTF) *Rotational Agriculture of Indigenous Peoples in Asia.* Nepal: IAITPTF

Jamir, A. (2015). *Shifting options-a case study of shifting cultivation in Mokokchung District in Nagaland, India.* In C.E. Shifting Cultivation Livelihood and Food Security (1st ed.pp.161-197). Bangkok: FAO, IWGIA, AIPP

Paul P.S. Teng., Caballero-Anthony, M., Tian G., Lassa J. (2015). *Impact of Climate Change on Food Production: Options for Importing Countries*

Pierce Colfer., Dudley, R.G. (2015) *Shifting Cultivators of Indonesia: Marauders or Managers of the Forest?.* FAO

Porter, J.R., L. Xie, A.J. Challinor, K. Cochrane, S.M. Howden, M.M. Iqbal, D.B. Lobell, and M.I. Travasso, 2014: *Food security and food production systems. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects.* Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L.White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 485-533. Retrieved from http://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-Chap7_FINAL.pdf

Drivers of Deforestation: Facts to be considered regarding the impact of shifting cultivation in Asia Submission to the SBSTA on the Drivers of Deforestation by Asia Indigenous Peoples Pact (AIPP) and International Work Group for Indigenous Affairs (IWGIA) Retrieved from https://unfccc.int/resource/docs/2012/smsn/ngo/235.pdf
https://www.iwgia.org/en/thailand

Respects rights of the Karen. June 16, 2018
Retrieved from https://www.bangkokpost.com/opinion/opinion/1486238/respect-rights-of-the-karen

Interviews with

From Ban Hor
Ms. Buagaram Sakkonantakun
Mr. Petch Sakkonnantakun

From IMPECT
Jantanee Pichetkulsampan- Environment Coordinator
Kulsawaruk Pooyee-Field Coordinator
Warisara Yeepoo, strengthening IPs movement program secretary.

Community Protected Area (CPA) in Cardamom Mountain, Cambodia

STAR Kampuchea

ABSTRACT

This paper examines the value of ecosystem services provided by local forest resources in support of people's livelihoods in 6 Community Protected Areas (CPA) in Phnom Oral Wildlife Sanctuary in Kompong Chhnang province. The study combines a literature review and the results of ILC-NES project report in 2018 held with the local villagers.

The ILC-NES Project was intended to understand the contribution that the local forest makes to people's livelihoods in the study area. Specifically, it aims to: (i) identify those key ecosystem resource in CPA sites, (ii) identify and give value to those eco-tourist system services related to people's livelihoods, and (iii) study the Community Protected Area Network (CPAN) member's right, role, and terms of their participation in forest resource conservation activities. The study explains the best practices by CPAN members and provides the description about people's livelihoods and their dependency on the forest ecosystems.

Introduction

The case study is intended to demonstrate the involvement of local communities in accordance with the policies of the Royal Government of Cambodia by claiming ownership of local forest owners. The Forestry Law of the Ministry of Agriculture, Forestry and Fisheries (MAFF) and the Protected Areas Law of the Ministry of Environment are fully responsible for the preservation of forest resources that are lost due to forest crimes, aggression, and illegal seizure of forest land. Environment officials and the Forestry Administration (FA), along with local authorities, do not fully implement the law, impact to challenge with the ruling political context in country. Meanwhile, the lack of understanding limits locals' capacity to protect natural resources, even as few NGOs work to increase their awareness and capacity.

In 2017, STAR Kampuchea (SK) set up a three-year project (2017-2019) for the Community Protected Area Network protecting areas of Phnom Kravanh, which is located in the two provinces of Kampong Chhnang and Pursat. In selecting the Community Protected Area (CPA), the following were chosen: 18 communities with 162 community network committee members in two sanctuaries and one national park, namely Oral wildlife sanctuary, Phom Samkok wildlife sanctuary and Cardamon Central Park. SK has provided training on laws and legal frameworks, writing letters to forestry network officials, community organizing, advocacy, organizing public forums between the local community and authorities, budget allocation, and preventing forest crime. Following a one-year program (July 2017 to August 2018), community networks have fully participated in protecting their forest resources, preventing corruption of government officials, and preventing a large number of crimes in the sanctuaries. The locals have also understood the rights of forest owner and the demand for timber forest product is very high that is invested by private sector and administrative officials through government, who usually supported the legality in community base management in Cambodia.

OBJECTIVES

The case study is intended to:

- Demonstrate that local communities have exercised their rights and role as citizens in their efforts to conserve, protect and develop their local natural resources sustainably; and
- Show that local forest governance is strengthened through cooperation and partnership with government officials and local authorities at all levels to effectively enforce law enforcement.

METHODOLOGY

STAR Kampuchea utilized two methods to collect data in writing this case study:

1. Based on the results of interventions by SK: collection of progress reports, analysis of results and monitoring report from community members, with the participation of local authorities and officials of the Department of Environment of Kampong Chhnang province; and

2. Group interviews with six CPA committee network members and individual interviews with five people in the community.

SCOPE AND LIMITATION

This case focused only on 6 CPAs in the Phnom Oral Wildlife Sanctuary in Kampong Chhnang Province. It did not study the CPA in Pursat province as a whole. All the data were collected from July 2017 to August 2018.

Context

STUDY AREA

This study focuses on the Phnom Oral Wildlife Sanctuary of CPA in Kdol Senchey, Kbal Teuk and Chieb communes, Teukphos district, Kampong Chhnang province. Member CPAs are places where people become vulnerable if their ecosystems are not protected. Ecosystem degradation would lead to them losing their water sources, and timber and non-timber forest products, on which they rely for livelihood. 80% of the population relies on forest resources, while the remainder relies on agricultural crops and small trades in communities.

As shown in Table 1 is the List of CPA member and their forestland size;

Table 1: List CPA member and forestland size.

No.	Name CPA	No. of Villages	No. of Family	CPA size (has)	Commune Name
1	Phnom Anlang Syay	4 villages	482	2,122	Kbal Teuk
2	Prey Thom Anlong Thmar	1 village	221	890	Kbal Teuk
3	Phumi Sleng	1 village	340	897	Kbal Teuk
4	Phnom Cheung leang	1 village	285	762	Chieb
5	Malong	1 village	168	532	Chieb
6	Sre Ampil waterfall	4 villages	870	840	Kdol Senchey
	Total	12 villages	2,366	6,043	3 communes

IMPORTANCE OF ECOSYSTEM

The main study is related to the relationship of available ecosystem resources and the local people's level of well-being (their livelihoods). The study shows that natural forest products are closely linked to well-being of the people in the area in terms of livelihood and are closely associated with low unemployment rate among the subjects. It confirms that people in the study area depend heavily on forest ecosystems, and that these services make an important contribution to local households' economic statuses. The relationship between dependence on forest resources and household income appears to be strong. Based on the correlation between total households' incomes and total forest related incomes, the forest ecosystem in the study area provides positive benefits and supports a large proportion of household economies.

In 2010, the National Forestry Program claimed that changes in forests use can have a significant impact on existing ecosystems and decrease household incomes, especially for households which depend on forest timber products and non-timber products to survive. The results of this study support this claim — people's livelihoods in the study area are likely to be adversely impacted by a loss of income if forest resources dwindle.

PRESSURES AND CHALLENGES

Over the last year, the community has experienced ecological damage in many areas, caused by the lack of a clear land use plan by the government, as well as the surging population. Considering the high demand for forest land by external buyers, there are no mechanisms in place to protect natural resources. This has led to overcrowding, which oftentimes happens during the national election or Commune/Sangat election, because it is a good time to exploit forest land because the local authorities and environmental officials are unwilling to enforce the protect area law because they are concerned about the impact of the voice of election result. Of the political party, which is a big pressure for local officials, all of these factors are triggered by corruption. It is politically relevant and an applicable to legal and technical officials at the sub-national level.

Although CPAN members have been recognized by provincial authorities and environmental departments, community members have not been able to adequately categorize responses through the use of maps, forest patrol methods, communication skills, reports and written proposal skills, and the writing of formal complaints in the event of a dispute. SK has helped train the community but it is not enough as the needs are enormous.

The Phnom Oral Wildlife Sanctuary is about 80 kilometers away from Phnom Penh, a city of footwear and apparel industry that needs thousand tons in day to supply their mechanical machinery to the factory. This causes many brokers to buy cheese from people living in and near the protected forest at affordable prices, which causes people to resort to illegal logging, fearing or even bribing environment officials, despite the involvement of CPAN members.

THE COMMUNITY PROTECTED AREA

There are six CPAs in Phnom Oral Wildlife Sanctuary, which is part of Cambodia's cardamom mountain landscape. The objective of the CPA remains the same that is guaranteeing local communities the exclusive right to sustainable use of natural resources in return for management and patrolling of the area.

This formal legal status has been created to avoid land grabbing by national or foreign private sector companies investing in large-scale agribusiness or carrying out mining operations. As such, CPAs provide local communities with secured land rights, though not ownership, and improved socio-economic conditions through the legal and managed access to natural resources. Organized community patrolling work allows the protection of the forest against illegal activities as well as the implementation of a management plan with ecological safeguards.

Management plans of these CPAs, currently sized between 700 to 900 hectares, foresee three management zone types. Firstly, a customary using zone, in which the extraction of non-timber forest products such as honey, bamboo and mushrooms is allowed and cattle may pasture. Secondly, a conservation zone in which no domesticated animals or cattle is allowed. Thirdly, a reforestation zone in which luxury wood whose occurrence became very rare due to illegal logging is being replanted. Illegal logging is still an important challenge to be tackled in the wildlife protected area. The CPAN members are being provided a monthly patrol plan. In addition to that, the Cambodian government agreed on a payment of USD 1,000 per CPA.

The Community Protected Areas expand sustainable agrarian possibilities for local communities that in most cases own land surrounding their villages. Mr Nuth Heng, chief of the Phnom Anlong Svay CPA, established in 2005, says, "Me and my villagers are thankful for the organizations' support and for being the only ones who may legally access the CPA. Protecting and patrolling this land does also accord to our wishes. We would even like to receive more regular trainings on patrolling, forest management and harvesting and marketing of non-timber forest products".

ASSESSMENT OF IMPACTS OF INTERVENTIONS IN PHNOM ANLONG SVAY CPA (PACPA)

Biodiversity Impacts

The United National Development Programme (UNDP) has supported the Phnom Anlong Svay Community Protected Area (PACPA) in the protection of natural resources in forestland site. SK surveys from 2017 revealed that the ecosystem's continued existence in the southern plains of Cambodia. With support from the Committee, SK now helps protect the water source, wildlife, and other key species in the region. SK also employs a team to build the capacities of PACPA committee members in understanding and managing their project plan. These activities provide reliable information regarding increases or decreases in key wildlife populations. In 2017, SK staff managed the project and developed the ecosystem existing in wildlife protected area through sustainable natural resource management and climate change project.

Comparing data taken from SK's monitoring and a 2016 report by Arc GIS, forest growth in forestland and wildlife have increased in Phnom Oral Wildlife Sanctuary in the area. The PCPA has reached out to the community to increase awareness of these threatened water infrastructures. Through the Committee, the community has committed to the conservation of the wide variety of national threatened large birds and animal found at Phnom Anlong Svay.

The approach chosen by the community for the conservation of local populations through tourism enterprise has since been extended to ecotourist sites in Kompong Chhnang province, with intensified planning. The forests of the southern plains also support many other threatened ecosystems. The conservation agreements made between PACPA and the community have helped to protect endangered wildlife and forest resources. The Committee and community members have assumed full legal responsibility for the management of the wildlife and land around the village, and as a result, deforestation rates have declined and encroachment into key wildlife areas has ceased, as community now abide by defined land use boundaries.

Socio-economic Impacts

The development of tourism in PACPA, based on the conservation of rare wildlife and waterfall, has made a dramatic difference to the income of community members, by providing employment opportunities and a source of revenue for the village's development fund. Tourist numbers at PACPA have increased by an average of 15% annually since 2017. Over the same period, revenue increased by an average of 20% ($250) in 2018. Villagers have improved service quality, allowing them to raise prices, and have diversified the range of services they provide in order to capture a greater proportion of the tourism value chain.

In total, therefore, around 20% of the village's families have been involved to some extent in the initiative's activities. UNDP's support to the community fund has been used to help pay for an activity involving the development of its ecotourism enterprise. Some of the profits were used by the committee to pay villagers for local patrols. Money has also been used to repair and maintain tourism facilities, including replacing the tourist's project including the road construction, waterfall road by walk, shopping, and car park.

Traditional and cultural norms in rural Cambodia dictate that women and young girls are responsible for many time-consuming household tasks—among siblings, sons are prioritized and sent to school before the daughters. This results in poor educational attainment for girls due to lack of opportunities.

PACPA only has one primary school, and few children go on to attend high school. Although the Committee remains male-dominated, an effort has been made to include women in its activities and governing body. The ecotourism committee is democratically elected and currently includes female representatives.

Case Identified on Governing Local Ecosystems

EXPERIENCES

Local communities living near or within forest ecosystems play an important role in the implementation of government policies. Meanwhile, the Ministry of Environment said empowered communities by establishing them as Protected Area Communities, authorizes them to manage their local ecosystems. The status of protected areas is dependent on the performance of their corresponding CPAs. In areas where organizations are inactive, the more vulnerable they are to encroachment; degradation and seizure by private company through Economic Land Concession (ELC) apply for land investment. Another factor is the weak enforcement of environmental laws, due partly to underfunded government agencies and local authorities. Based on these experiences, STAR Kampuchea has developed a program to work directly with local communities to encourage community-based initiatives to protect their areas through partnerships with local ecological agencies. Aside from this, STAR Kampuchea has allowed the community to identify its needs in line with the principle of sustainable use for the next generations.

PRINCIPLES

In implementing the project, STAR Kampuchea followed the following principles as shown below.

- CPA networks are created by local people living permanently in or near the protected areas or national parks;
- The CPA network must comply with governmental policies and legal agreements;
- The network must not be affiliated with any political party;
- Members of the network must not engage in forestry offenses or benefit from any form of criminal activity committed within its jurisdiction;
- The CPA network must participate in the protection of natural resources throughout all the protected areas and national parks; and
- The network must implement all initiatives with the cooperation of government official and local authorities at all levels.

GOOD TRADITIONAL PRACTICES

STAR Kampuchea has coordinated with CPA network members to encourage the following good traditional practices:

Volunteer, Time, and Resources: The Protected Area Community, coordinated by STAR Kampuchea in wildlife Protected Areas, is adhering to the principle of self-sacrifice, devoting time and resources to a high degree of affection for its natural resources by securing the area, patrolling day and night, resolving all kinds of obstacles and devoting their resources, such as motorbikes, diesel fuel and food to protect the natural resources for the next generation. Although there is no support for STAR Kampuchea to all protected communities, the members in the village pay monthly contributions voluntarily according to the ability of each family.

Community Solidarity: Community members of the Protected Areas always help each other during crises. Through a unified effort, the people in the community help combat crime and engage in environmental advocacy work.

Traditional beliefs: The community members have maintained their traditional beliefs in the preservation of forests and their ecosystems since their ancestors first settled in the area. For instance, a monument to the tree of worship has been established so the locals can hold ceremonies commemorating the preservation of their forests during the festival.

MAIN OUTCOMES

Legal Recognition and Respect for Community Roles and Duties

Six CPAs have been recognized by the Governor of Kompong Chhnang province as Phnom Oral Wildlife Protected Areas. Meanwhile, four CPAs have been recognized by the Ministry of Environment, and have signed a CPA management plan along with an agreement to ensure their right to ownership and use of natural resources in the area. These CPAs have set up a community-based protected area network (CPAN) to lead and coordinate the protection specifically to prevent illegal encroachment of the whole forest in the sanctuary, in partnership with the authorities. This community network is the first of its kind in Cambodia, with 72 committee members of the CPAs recognized by the Department of Environment of Kampong Chhnang with equal rights. These members operate without community network leaders, and have a manual of operation status in their practical application. (Annex 1 CPAN document endorsement recognized from DoE-Kompong Chhnang province).

Maintenance of the Ecosystem for Improved Community-Based Livelihood

Three ecotourism sites have been set up in Phnom Anlong Savy, Srey Ampil, and Phnom Cheungleang CPAs. These areas are home to diverse wild and plant life and main water sources, thus creating the need to draft and enact natural resource management plans. Through the development of their ecotourism enterprise, the communities enhanced their livelihoods and encouraged sustainable resource management, minimizing instances of deforestation. This approach is the first in Kompong Chhnang province.

The community gets clean water for purposes of hygiene from the volcanic mountains in the community forest, reducing dependence on water sources in the forests, and discouraging the use of forest resources as a whole.

From July 2017 to August 2018, Phnom Anlong Svay ecotourism site have attracted a total of 1,969 visitors during Khmer New Year, 14th to 16th April 2018, earning an income of $360.

Law Enforcement and Forestry Protection

From July 2017 to August 2018, STAR Kampuchea cooperated with six members of CPAN with full participation of local environmental officers in Kampong Chhang Province to crack down 74 forest crimes.Commune authorities are also able to coordina te with district authorities in the process of resolving disputes. The forestland area that has a total of 180,670 hectares is closely guarded by the local community as it is the final area for ecological protection and management in Kampong Chhnang. The community understand that without their participation in the conservation, their natural resources will be susceptible to forest land grabbers and illegal logging.

The community participation showed positive response to the protection efforts in the area. Shown below is the result of CPAN protection.

Result of CPAN protection efforts	
Logging Description	N# Cases
Land Encroachment	15 cases (total land size of 23 ha)
Land Encroachment	9 cases
Wildlife Hunting	15 cases
NTFP's collection and illegal wildlife hunting	35 cases

Analysis

LESSONS LEARNED

The CPAs are aware of the multi-generational impacts of deforestation in wildlife sanctuaries as well as the merits of cooperation with environmental officials and local authorities in preventing forest crimes, so because of this, they are willing to work with the authorities. It has the full respect, participation and cooperation of environmental officers and the Department of Environment officials. The CPA network members have also been working to prevent forest crimes in various communities to reduce internal conflicts caused by illegal activities perpetrated by their own people with this, when they work to capture offenders in the village, the perpetrators do not resist arrest. Moreover, potential areas for eco-tourism development are emphasized in the empowerment of the communities within the protected areas, the CPAN members provides technical and legal support to improve their standard of living.

CAPACITY BUILDING NEEDS

The CPA Network believed that in order to provide empowerment and technical capacity, the members also needs capacity building through training in order to meet the demands of NRM at the grassroots level. The CPAs need skills enhancement in the following areas but not limited to:

Capacity Building and Skills Training	
Topic	Status
CPA Legalization	Two (2) out of six (6) CPAs in Oral Wildlife Sanctuary not yet recognized by the Ministry of Environment. Trainings to be delivered are: (a) Training of Trainers, Facilitation Skills and CPA Introduction; (b) CPA Organizational-Institutional/Legal Aspects, (c) Conflict Management, (d) Participatory Mapping for CPA, (e) CPA Management Planning 1 and (f) PA Management Planning 2.
Forestry/ Protected Area Laws	Forestry and Protected Area Laws are intended to protect resources and prevent forest clearing, logging, hunting and collecting NTFP. However, CPAN needs to improve their knowledge because there are no clear limitations set within these laws, whether in practice or the legal framework.
Forestry Patrol Strategy Skill	The Spatial Monitoring and Report Tool (SMART) is an open source, non-propriety, and freely available tool. This approach works in the long term through collaboration and is based on a set of common principles for improved site-based conservation effectiveness, to enable future development and adaptations to meet the evolving needs of users. CPANs need SMART, as it enables them to collect, store, communicate, and evaluate ranger-based data on patrol efforts, patrol results and threat levels.
Public Administration	CPAN, while closely working with government agencies, have limited knowledge in relation to negotiations, grievance handling, personnel administration and contract administration. However, it is comprised of people willing to provide organizing leadership, and dispute resolution and reporting and proposal writing to government agency and donors.

ADVOCACY PLANS

SK has been working by closely with CPAN to prepare their advocacy plan as enumerated below:

- Organize consultation meetings with stakeholders to revise the CPAN regulation;
- Build capacities by strengthening CPAN members;
- Provide legal support to CPAN members;
- CPAN Meeting of Community Members;
- Support CPAN members' patrols;
- Arrange meetings or forums dialoged in the protected areas;
- Organize a Learning Route to share local experiences; and
- Support to CPAN network to help two CPA be recognized by MoE.

Recommendations

Based on the study and discussions with local authorities and CPAN members in Teukphos district, Kompong Chhnang province, the following recommendations are forwarded:

1. Alternative livelihoods approach: A key problem faced by the local people in 6 CPA sites has been the over-exploitation of the local forest, with logging activities conducted mostly to generate income and to make way for agricultural production. As a result, alternative livelihoods within the local economy should be encouraged with the support of donors, providing local people with the skills and knowledge needed to generate an income from sources other than the forest;

2. Clarification of the land tenure system: Given the increasing demand for land in support of paddy production from both local villagers and outsiders, land titles should be given out in the village area, as this will help protect the forest from clearance due to the expansion of cropping activities;

3. Provide support to the CPA: The community in Phnom Oral Wildlife Sanctuary has a very important role to play in making sure any logging activities that take place do so within the regulations and rules. However, at the present time, it is isolated from any donor activities. This isolation should end and the local community is encouraged to participate in such activities;

4. Local government support to CPA: The protection, conservation, and grassroots development of the Phnom Oral wildlife sanctuary is the government's direct responsibility. Increases in budget, materials, and capacities of the Department of Environment and CPAN members are needed to prevent illegal logging and strengthen their NRM practices;

5. Local ecotourism development: The government should recognize and support the local community's ownership of the ecotourism enterprise in Phnom Anlongsvay CPA, and help initiate other high-potential ecotourism sites in Phnom Cheungleang and Sre Ampil CPAs, to bolster the protection of the local ecosystem and improve the people's livelihood; and

6. Politician should avoid the defending the illegal logging, land encroachment during propaganda's day because the activity it to impact the fasting to loss of forestland in protected area, and the government staff and local authorities should put effort on law enforcement by strengthening the people and illegal activities in community.

References

Minutes of meeting/training

Table list participant SK activity July 2017-August 2018

CPAN Persons Interviewed

DoE consultations/FGDs conducted

Linked to YouTube name: chybobta for more information with CPAN activity to practice in community.

Linked to Facebook Khmer name to បណ្តាញសហគមន៍តំបន់ការពារធម្មជាតិជួរភ្នំក្រវ៉ាញ for more information with CPAN activity to practice in 2018.

Locally-Managed Conservation Area of Peat-Swamp Forest in Tanjung Pusaka, Tanjung Taruna Village, Central Kalimantan, Indonesia

Jaringan Kerja Pemetaan Partisipatif (JKPP)

ABSTRACT

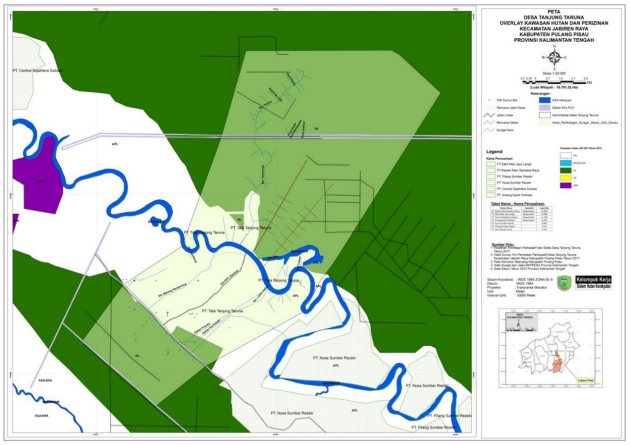
Tanjung Taruna, a village mostly inhabited by fisherfolks whose livelihood is highly dependent on the ecosystem, is being under threat due to expansion of large-scale plantations, and illegal logging and fishing (not environmentally friendly) by outsiders particularly in the north and south parts. Most of the protected forests in the west side of the village have been converted into palm oil plantations, mixed gardens and some private property. Based on Ministry of Forestry Decree No. 529 of 2012 on Forest Area Designation in Central Kalimantan, the village is a protected forest (HL) and a non-forest area (APL). The APLs are mostly used for settlements, large-scale plantations, and mining and other development activities while the HL is a peat swamp forest.

Peat swamp forest is a water-logged forest usually located behind a river embankment (backswamp). It is composed of peat or organic soil (histosol) which serves as a habitat for many tree species i.e. belangeran, tumih, pulai, tarantang, ramin, mahang, as well as medical herbs utilized by the community. Due to its sponge-like characteristics, peat soil stores water better than most soil types. This has made the area a suitable habitat for many kinds of freshwater fishes such as climbing perch, striped snakehead, giant snakehead, catfish, Sasapat, Miau, Karandang, tampala, saluang, kalatau, kakapar and many more.

These areas are locally managed by the community, thus, government-supported initiatives to enforce land use status are important in preserving these areas.

Background

Tanjung Taruna Village in Jabiren Raya Sub-district, Pulang Pisau District, is situated in the Kahayan-Sebangau and Kahayan Kapuas peatland hydrological area. This village is a priority site for Indonesia's Peat Restoration Agency's (*Badan Restorasi Gambut* – BRG) Ecosystem Restoration Program.[1] According to Ministry of Forestry Decree No. 529 year 2012 concerning Forest Area Designation in Central Kalimantan, the village area consists of *Protected Land, Other Land Use Area (Areal Penggunaan Lain* – APL) and *Cultivated Land.*



The JKPP's local service centre member, the Participatory Mapping Services Network (*Simpul Layanan Pemetaan Partisipatif*– **SLPP**), assisted the villagers in mapping out the area through participatory land use planning. Based on the map, the village community classified its 18,520.40 ha area into 11 types of land use.

The community uses part of the APL (some of it has forest cover) for agriculture, rubber plantations, and rattan gardens. The rest of the APL area is peatland (peat shrub, peat forest) and Lake Bagantung. This area, although not actively cultivated by the community, provides an essential source of livelihood for the Tanjung Pusaka Community and Tanjung Taruna villagers, especially the fishing grounds in Lake Bagantung.

The massive Lake Bagantung, home of native fish species.

[1] To expedite the recovery and restoration of degraded peat hydrological functions, especially degradation by fires and peat draining in Indonesia, the Government of Indonesia established the Peat Restoration Agency (BRG) in 2016. BRG is a non-structural agency under and responsible to the President. BRG was formed on 6 January 2016 through Presidential Regulation No. 1 of 2016 concerning Peat Restoration Agency. The BRG targets 4.5 million hectares for restoration (rewetting and revegetation) by 2019.

Lake Bagantung is a habitat for native fish species of peat forest, such as striped snakehead, giant snakehead, ocellated snakehead, catfish, catopra, sheatfish, wallago catfish, climbing perch, eels, blue sheatfish, and other wildlife including crocodiles, softshell turtles, and freshwater turtles. In the area adjacent to Lake Bagantung, the surrounding peat forest is a place where the community collects non-timber forest products (NTFP) such as grey sedge grass, rattan, and traditional medicine. Lake Bagantung is now also used as a fishing ground for fishers from outside the village. The lake is an integral part of the peat forest ecosystem in which the soil stores water that is essential for the existing biodiversity.

Peatlands have an important role in carbon-sink—if degraded, there will be negative impacts such as GHG emissions and acidification of the underlying aquifers, which will affect the entire watershed. The lake and peat ecosystem are critical for the ways of living of the Tanjung Pusaka community in Tanjung Taruna Village, as well as surrounding villages.

Objectives

The main objectives of JKPP and SLPP works are to protect Lake Bagantung and the surrounding forest and its ecosystem from degradation. It is particularly concerned to encourage the establishment of village regulations in conservation of the lake and its surrounding peatland forest area (covering 8,000 ha out of Tanjung Taruna village's ±19,791 ha). It works for the protection of community management rights over those areas to achieve the integration of the village regulations on management as well as protect the Begantung Lake and the surrounding peatland area into the Pulang Pisau District Government regulations.

Local residents gather fish within the lake.

Specifically, JKPP and SLPP works on focused strategies and activities that include developing and documenting the Tanjung Taruna community's decisions and practices for sustainable management of their natural resources and use its case to drive wider progress towards sustainable management of essential community resources through reforms at the village, district and national levels. Both organizations collaborate with various village stakeholders, including village government, environmental and peatland authorities, customary leaders, community figures and fisher groups in every step of the process. Moreover, JKPP attempted to implement gender-responsive and inclusive communal dialogue and decision-making processes.

BAGANTUNG LAKE AND THE LOCAL CONSERVATION

Desa Tanjung Taruna (X: 0178 107, Y: 9746 773) is one of eight villages in Jabiren Raya Sub-District, Pulang Pisau District, Central Kalimantan. The village is in the western part of the sub-district with an area of ± 19.791,52 Ha. The community is situated near lakes, swamps, and rivers; hence, most of the villagers are fishermen. Lake Bagantung is located in Tanjung Pusaka hamlet with ± 395, 63 Ha width according to participatory mapping in 2016. The village was originally from the hamlet which is now RT III (neighbourhood association). The village has 44 households, with a population of 179 people, 90% of which are fishermen. They fish in the river, creek, and swamp using traditional methods.

THE IMPORTANCE OF ECOSYSTEM

Like other villages in Jabiren Raya sub-district, the physiography of Tanjung Taruna is its mainland. It is also situated in a tidal area with secondary forests, shrubs, and swamps. They differentiate the land type in local name that are Petak Sahep, Petak Katam. The village also has few rivers and handel, i.e Sungai Matang Hamparang, Sungai Gambeng, Sungai Lubin / Galian, Sungai Murung Bua Hai, Sungai Taruna Kurik, Sungai Kurung, Sungai Tridaya, Sungai Taruna Hai, Sungai Taruna, Sungai Taruna Kurik, Sungai Johon, Sungai Pertanian Pusaka, Sungai Pak Arman, Parit Udin, Parit Anwar, Parit Herosupian, Parit Jamhari, Parit Ali, Parit Pak Laila, Parit Parisa, Parit Boros / Herman, Galian Pusaka, and Galian Hermawan. The handel are named Handel Keluarga and Handel Tanjung Taruna. Lake Bagantung consists of several small lakes namely Lake Balida, Lake Tauman, and Lake Tapah. The names refer to the fish species that live within, comprising of fish commonly found in river and peat swamp habitats. The community also catches fish during the rainy season when the swamp floods, and make traditional fishpond called *beje* during the dry season. The community focuses on fishing for the whole year. The fisherman also make cage culture for patin, baung, toman and shrimp.

THE HISTORY OF LAKE MANAGEMENT

The management of Lake Bagantung started approximately in 1950. During that time there was only one settlement on the opposite of Kahayan river branch called Teluk Putak river. The head of the family, H. Runtih Suling and his wife Sakar, belonged to the Ngaju and Banjar tribes, who stayed for a few years in Teluk Putak. Based on the village elder, this family moved to the cape around 1957, when the lake was shallower than Teluk Putak. The area was then known as Tanjung Pusaka. The Runtih Suling family protected and managed Lake Bagantung, as well as the creek. Besides fishing, they also made use of the dyke or highlands next to the Kahayan river for planting rubber and fruits.

In 1960, when population growth led to increased river transportation traffic in the hamlet, it attracted other communities outside the area such as Banjar tribe from Hambuku, Danau Panggang, Amuntai, Kalua - Hulu Sungai Utara District, South Kalimantan. The main village of Tanjung Taruna was in Tumbang Nusa village with Inin Timbang (Pindar) acting as head of the village. The hamlet itself was led by the head of neighborhood association (H. Runtih Suling). In 2007, led by temporary village head Bapak M. Jumri, Tanjung Taruna separated from Tumbang Nusa village. The current village head is Udin Agon, who will fulfill his six-year term from 2015 to 2021.

The villagers' main income-generating activity for generations have been traditional fishing that uses tools like *rengge* (net), *pisie* (fishing rod), portable trap (bubu), *lunta* (net), *rempa, kalang, tampirai, sauk, siap*, and *hantai*. They catch fish on the Kahayan river, which is considered a public area, with total catch around ± 3-5 kilograms. Meanwhile, in the lake, swamp, or river branches they can catch ± 7-10 kilograms. Their income ranges from Rp 30.000.,- to Rp 100.000,- per trip, depending on the weather. During the dry season, the catch is higher because the fish is trapped in the swamp or fishpond (beje). The buyers come from Palangka Raya and Pulang Pisau.

The Tanjung Taruna community engages in rubber plantations on the side. Old rubber trees initially planted in the Kahayan riverside are still productive—to this day they are still able to tap the trees for sap. Though rubber prices are unstable, villagers continue tapping to earn more money. Tapping yields approximately ± 4 - 7 kilogram, priced at Rp. 6.000/kg (price as per June 2018). The villagers work individually on different scales of animal husbandry. Cows and goats are the most common livestock, with the number of cow farmer higher (18 HH) than that of goat farmers. Farmers buy cows with their own money, aside from those provided by the Peat Restoration Agency in 2016. Meanwhile, poultry (chickens and ducks) are owned by almost everyone in the village, though free-ranching is not practiced. When the poultry reaches a certain weight and age, they are sold to buyers.

NATURAL RESOURCES IN TANJUNG TARUNA VILLAGE

Land	Comparing the village area (± 20.061 ha.) with the land use as ± 14.809 Ha, there will be ± 68,560 ha. available for each household. In the north and south of Kahayan river, the village is characterized as wet peat, in which roots and bark are harvested. Furthermore, activities such as hunting, fishing, and feeding of livestock are conducted in these areas.
Forest	The forest cover can be found in most areas of Tanjung Taruna village, especially in peat areas. The community collects non-timber forest products such as rattan, Gemor, resin, roots, honey, fish, and other resources with economic value. The forest has biodiversity (Flora and Fauna).
Tree species in the forest	Meranti, Balangiran, Gemur, Tumih, Tanjung Tarunagang, Kapur Naga, Tarantang, Hantangan, Martibu, Kajalaki, Salum Bar, Tutup Kabali, Katiau, Pantung, Hanjaluntung, Bangaris, Karandau, Alau, Kayu Seribu, Maruang, Tagula, Papung, Kayu Asem (malam-malam), Gahung, Marambung, Sumpung, Parupuk Galagah, Bantangur, Kayu Lalas, Balawan ,Tamehas, Kayu Tulang, Kayu Kumpang, Tapakan, Panaga Jangkar, Kayu Sasapat, Umpah, Rahanyang, Keput Bajukur, Rasak Bukit, Ramuning, Tampang Gagas, Maha Lilies.

Tree species in the side of sungai Kahayan	Halaban (Kalapapa), Rasak Danum, Gantalang, Jinjit, Rangas, Kandurin, Sangalang, Latak Anuk, Mahang, Bahunei, Jajangkit, Tatumbu, Kambalitan, Kakawang, Pampaning, Kalampan, Jambu Burung, Sungkai, Kandarahan, Muhur, Nyamu, Sangkuang, Madang Danum, Kayu Kuku, Kamasira, Kananga Hutan, Tabulus, Bengkel, Puntik Saraka, Kayu Randa, Sapak Kau, Kaja, Bunut, Tunjik Urak, Gandis, Galam, Ruhat, Damar Baputi, Katimpun, Balanti, Panaga Danum,Tampang, Rambangun, Tambalik Angin, Katunjung, Tapanggang.
Medical herbs	Benalu, Pasak Bumi, Saluang Belum, Kumis Kucing, Akar Kuning, Tasendok, Kalapapa, Tunjung, Henda Puti, Henda Bangapan, Jarangau, Busar, Takambat, Uru Sambung Maut, Kayu Tawar Seribu, Kayu Raja, Jinjit Batu, Uru Jinjit Uru Handalai, Mengkudu.
Fauna	Fish species ; behau (gabus), pentet (lele), sasapat, bapuyu (betok), mihau, karandang, tampala, saluang, kalatau, kakapar, jajulung, undang bahu, patin, tampahas (tapah), bamban, udang galah, balida (pipih), kalui, balantau, patung, manjuhan, telan, baung, darap jajili, bilis uan, sasumpit, tahuman, tabiring, bakut, tajela, banta, gugut, punti, sadarin, buntal, babaga.
Aquatic species	Bere, bajuku, barako, kelep, karendem, dengen, bakatak, baja'i, katam, kalabawai.
Terrestrial species	Angui, bahuang, bakei, bakara, kahiu, buhis, bangkui, tupai, mengkas, balawau, pusa kambe, jiliwung, macan edan, munyin, kalawet, tanggiri bulan, palanduk, ingkir, sangahau, lilang, kalas, kalisi, berok, bajang, karahau, palanduk, pitik bajawak.
Caterpillar	Uret bulu, langkawan, lipan, pacat, jelau, kala, lamantek, uret kuyum.
Snake	Panganen, hanjaliwan behau, tanggira bulan, nunung, depong, lepo, marawak, cobra.
Birds	Punei, bakaka mangkung, antang, tabuan, talisuk, betet, tanjaring, bakung, cawit, tiung, pampulu, ampit, baburak, punei petak, sabaru, binti, belibis, tabuntit, kajajau, brukau brukiu, kajajau merah, tingang, baliang, burung kanji, burung banyak, teteh, tanjaku, haruei, manuk matan, ampit doho, antang kalap, tangkasiang, balatuk, nene, kanjaring, pukuh, tatung bunat, pandan, bangamat, kuwung, burung kantuk, bubut, pantis, tuwuk, takukur, walet, kali alang dll.
Bushmeat	Bawui, palanduk, bajang, tupai, mengkas, bajawak, ular panganen dan burung paragam, punei, bangamat.

Good traditional practices in Tanjung Taruna Villages

LOCAL SPATIAL USE PATTERN

No.	Category of zones/space	Meaning
1	Pukung Pahewan	'Pukung Pahewan' is a place of spirits (Magic). Pukung Pahewan can also be a large leafy trees located inside or outside the forest. In The Dayak Ngaju language it's also called 'Leka Uluh' which means a large place/tree that has guardians/ spirits
2	Saka	'Saka' is a small river, made of natural process and named by the community. Saka usually has two types, there is Saka, which has estuary and upstream, there are also those that has estuary but doesn't have upstream.
3	Karamat	'Karamat' is a place that contains magic and is inhabited by magical spirits. Karamat is a place for people to avoid catastrophe, to look for luck, it can also be a place to hold traditional rituals. Karamat has a name and features there are small houses and many flags made of yellow cloth. According to the story, Karamat is the place of the occult spirits of the sacred predecessors. The karamat place aslo can be called 'Pangantuhu'.
4	Beie	Beje 'is a place to catch fish in long dry seasons. There are two kinds of Beje-beje, Beje made from natural processes and also man-made.
5	Baruh	Baruh 'is a small lake / river in the forest. Baruh is usually a breeding ground for fish, but in the long dry season, the water in the baruh will dry out
6	Pamatang Dahirang	'Pamatang Dahirang' is a highland area. Pamatang is also commonly called galeget / geges.
7	Petak Sahep	'Petak Sahep' is thick peat soil, medium and thin peat. Sahep is old tree leaves that have fallen long or for decades to become soil

8	Handeel	Handeel 'is a river (ditch) made by the community as a tidal irrigation area in the peat swamp area that is used for agriculture and plantation management. Handeel is a unique area management concept where at first it was a small river (saka), which was used as an elongated ditch to regulate the flow of the river. Handels are made jutting in from the river edge as far as 2-3 km with a depth of 0.5-1.0 m and a width of 2-3 m. On the left and right side, the community used Handel as fields, rubber plantation, and fruit plant.
9	Uwap	Uwap 'is plant roots, grass / a kind that grows on top of sahep.
10	Petak Katam	'Petak Katam' is only found in tidal areas. Petak Katam is on the edge of the river that have of crab animals as its characteristic. In Dayak Ngaju language crab is called Katam.
11	Sungei	Sungei is a river for fishing and as transportation for the community.
12	Eka Pali	Forbidden territory or place of ritual and the beliefs of the ancestors, which are part of the culture of the local community.
13	Telok	Is a lowland that is constantly flooded, usually the area is not too wide and the water depth is shallow, which is connected by a river that empties into the Kahayan river where the bay is utilized by the community to catch fish daily.
14	Lake	It is a continuous flooded lowland that is used by the community for daily fishing
15	Rawa	Is the lowland which has grasses / shrubs, and this area often occurs tides, usually this area is utilized by the community to catch fish in the flood season and during the dry season by using traps / Beje.

LOCAL SPATIAL USE PATTERN

- *Paras tiwing:* The water cycle starts in October and ends in November.
- *Karak Karayan:* All areas are flooded by the river for about a month.
- *Suri:* Water from upstream flows to the downstream and dry season starts. During this period, fish are abundant and prices are cheapest.

COMMUNITY PRACTICE IN VILLAGE AREA MANAGEMENT:

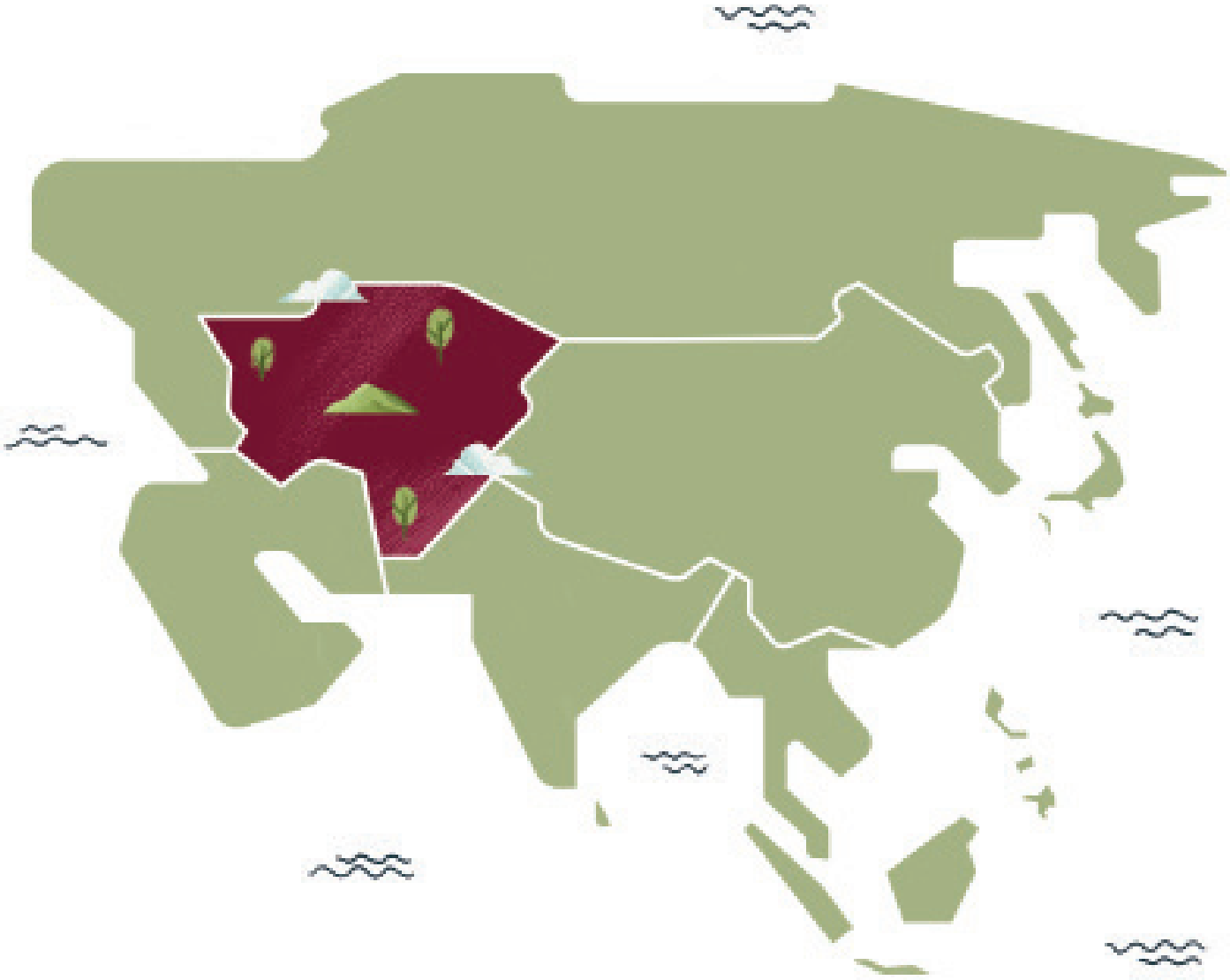
The village has rubber grown areas and fruit gardens situated along dykes or higher parts of land that is close to the Kahayan river. As alternative source of food and livelihood for community, fish ponds are made utilizing the swamp where fishes are harvested during the dry season. In their practice, there are several methods in fishing like *Mamisie* that is using hook and line such as *mambanjur, mambandan, mamaer and marawai. Marengge* using the rengge or nets, *Malunta* using jala (a type of net), *Manggalau* using tangguk or barrier trap and such usually carried out during the dry season in swamp area with holes, *Manayuar* using serapang or harpoon with three or four spears and is done at night, and *Mahauk hundang* that uses net during the night in a particular month. They also have various fishing gears like *rengge, banjur, Lukah duduk, lukah lurus, bubu, tampirai rambat, and pangilar among others.* The area also has several fish species like *jenis ikan, behau (gabus), pentet (lele), sasapat, bapuyu (betok), mihau, karandang, tampala, saluang, kalatau, kakapar, jajulung, undang bahu, patin, tampahas (tapah), bamban, undang galah, balida (pipih), kalui, balantau, patung, manjuhan, telan, baung, darap jajili, bilis uan, sasumpit, tahuman, tabiring, bakut, tajela, banta, gugut, punti, sadarin, buntal, babaga.*

Lessons learned and Recommendations

At the local level there are various ways to facilitate the protection of locally-managed areas from degradation. For one, there needs to be an ecosystem (forest, river, lake) management group that is able to protect the initiative. Secondly, the villagers needs to be organized and able to market their products. Thirdly, public awareness about this initiative must be mainstreamed. Support of the government through policy like Program Nawacita provides opportunities for the community to have access to social forestry programmes and agrarian reform (TORA). Aside from the support of the government, there are various methods and strategies to support the locally-managed area protection in a particular APL, one of which is the documented locally managed conservation area (AKKM). This management and protection in forest areas are implemented through a social forestry scheme. Moreover, the lake, swamp and river protection initiatives in peat area should be integrated using a hydrological approach and should not focus in one object or area alone. All stakeholders - private and public sector, local government have to recognize and understand the locally-managed conservation area, its needs and capacities. More importantly, the stakeholder's commitment to protect these areas should be supported by government laws.

References

- Literature ; Dokumen RPJMDes, Dokumen Perencanaan Desa
- Persons Interviewed ; Udin Agon (Head of the village), Hermanto (village officer), Suriansyah (eks RT), Sino (ketua RT),
- Consultations/FGDs result



Central Asia

Good Practices of Locally-Managed Pastoral Ecosystems in Mongolia

JASIL Environment and Development Association

ABSTRACT

Natural resources-based development is the background of the Mongolian economy.Mongolia's 115 million hectares grassland are home to about 250,000 herder families and 62 million horses, cattle, sheep, goats and camels. Half of the country's population of 3.2 million depends directly or indirectly on livestock production, which contributes more than 16 percent of the country's GDP (National Statistics Office of Mongolia, 2018).

More than these numbers can tell, nomadic pastoralism is a way of life for Mongolians rooted in the country's long history. Pastoral ecosystems are dynamic consisting of elements of vegetation cover, soil, water, forest, wildlife, and the herders with their nomadic livelihood practices.

Pastoral ecosystems represent specific socio-ecological landscapes shaped by centuries of nomadic animal husbandry production. Mongolian pastoral landscapes have their own specifics, such as large geographical scale, transitional governance systems, multi-stakeholders governance system, and cultural traditions of nomadic animal husbandry. Pastoral agriculture remains a crucial way of life for one third of Mongolians.

This study focuses on Mongolian pastoral systems, where people who are living in one locality join forces to form social, economic and ecological units (this is known as "neg nutgiikhan" or "neg usniikhan").

Introduction

Historically, nature conservation in Mongolia was of high importance, sustained by traditional norms and values and livelihood practices. However, dynamics of change came with Mongolia's transition to the market economy in the 1990's. Together with the increasing climatic variability, this brought a number of pressures on the pastoral ecosystems particularly the socio-ecological production landscapes.

Pastureland ecosystems in the country are very dry, fragile, highly susceptible to degradation, and slow to recover from disasters. The ecological dynamics of these grazing systems are characterized by highly variable precipitation, with droughts and *dzuds* (i.e., severe winter weather) causing frequent episodic mortality in herbivore populations (Batjargal et al. 2001).

BACKGROUND AND OBJECTIVES

Pastoral ecosystems are dynamic consisting of the elements of vegetation cover, soil, water, forest, wildlife, and the herders with their nomadic livelihood practices. Pastoral ecosystems represent specific socio-ecological landscapes shaped by centuries of nomadic animal husbandry production.

Natural resources-based development is the background of the Mongolian economy. Mongolia's 115 million ha grassland are home to about 250,000 herder families and 62 million horses, cattle, sheep, goats, and camels. Half of the country's population of 3.2 million depends directly or indirectly on livestock production, which contributes more than 16 percent of the country's GDP (National Statistics office of Mongolia, 2018). More than these numbers can tell, nomadic pastoralism is a way of life for Mongolians rooted in the country's long history.

Over the years, researchers of JASIL and collaborating institutions have implemented community based co-management of pasture land and natural resources in selected study sites, and carried out assessments of ecosystem changes and pasture monitoring experiments (http://cbnrm.mn/project_news.html; Ykhanbai and Bulgan 2006; Ykhanbai et al. 2006a, 2006b). In addition, the JASIL led research team introduced a novel system of localized weather forecast data delivery and use to be managed by community members for improved pasture management and livelihood practices (http://cbnrm.mn/dreamit_jasil.htm; Vernooy et al. 2013).

General objective: To improve herder communities' livelihoods supported by effective co-management agreements and ecosystem sustainability .

Specific objectives:

1. To assess the effectiveness of current co-management practices, including participatory ecosystem management and improving herders' livelihoods.

2. To introduce, test and assess community based co-management approaches

3. To contribute to the formulation and implementation of additional natural resource management policies, and assess their effectiveness.

MULTIDISCIPLINARY APPROACH AND CBNRM

JASIL has been involved in carrying out research since 2003, through the projects "Sustainable Management of Common natural resources in Mongolia" and "Collaborative Learning for the Co-management of natural resources in Mongolia" working closely with the Ministry of Nature and the Environment, Ministry of Food and Agriculture, and three of Mongolia's leading universities. JASIL's multidisciplinary team consists of researches and scientists from the following agencies:

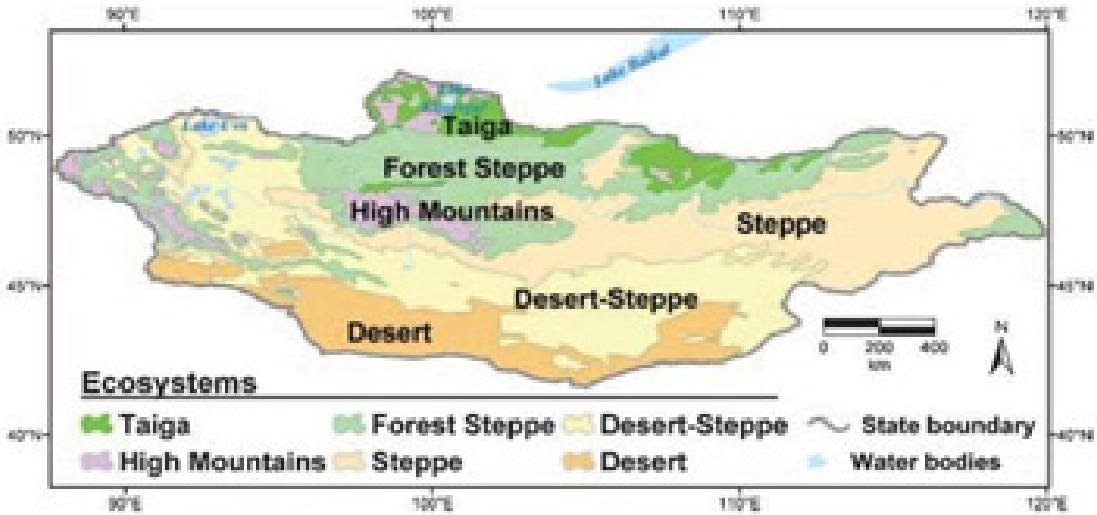
- Mongolian Research Institute of Animal Husbandry;
- Animal Husbandry Department, Biology Department, Mongolia State Agricultural University;
- Forestry Department, National University of Mongolia; and
- Institute for Meteorology, Hydrology and Environment Monitoring under National Agency for Meteorology.

This paper is a collaborative output of the team and the project experiences.

Context

STUDY AREA

Mongolia has five major ecosystems (see map below): 1) *Hangai* steppe and forest ecosystem, including *Hangai-Hovsgol* sub-region; 2) *Hangai-Kentei* forest and steppe ecosystem, including *Selenge-Onon* sub-region; 3) Mongolian Altai mountain and steppe ecosystem; 4) Gobi desert and steppe ecosystem, and 5) Eastern Mongolian steppe ecosystem.



During last 13 years, JASIL has been carrying out research in four study sites in Mongolia, representing four of the five major ecosystems referred to above (see map below), which namely are:

1. Khotont: this study site represents the steppe-forest ecosystem and diverse ecosystem components - forest, mineral water, and wildlife. There are good social relations among herder households, and a tradition of community coherence. Women and youth group are very active in 12 communities joining the project for co-management of pasture and natural resources

for sustainable livelihood. The herder population originates from the major Mongolian ethnic *Khalkh* group. JASIL has a pasture ecosystem monitoring point in the spring and autumn pasture area of Ikhbulag community.

2. Deluin: this represents the mountain and steppe dry ecosystem, where more degradation of grassland in winter and spring pasture. In this study site customary pasture division systems by seasons were maintained through the Soviet period, and there was higher interest among herders in operating co-management systems, because of the extensive degradation of pastureland and continuing growth of animal numbers. Now, 11 herder communities are joining the project. Local groups are organized around kinship relation and the population is made up of the minority ethnic Kazakh group. In the spring and winter pastures of Karatau community, JASIL has pasture monitoring points, and haymaking and vegetable growing areas for herders livelihood improvement activities.

3. Lun: this represents the steppe and prairie ecosystem with growing signs of desertification. Due to its closeness to the capital city, it has a higher concentration of animals. Herders display individual market-oriented behavior and originate from different geographical locations throughout the country. There are 8 co-management communities and the sum level co-management team is working actively to facilitate herder's participation for co-management. In the sum center, Jasil has a pilot testing point in the Green Wall nursery area, where tree seedlings and forest plantation are developed.

4. Batsumber (*Batsumber* sum of Central *aimak*) represents the forest and steppe ecosystem is located close to the Ulaanbaatar. In this sum, driven by the proximity to Ulaanbaatar city where there is a strong demand for timber, there is a serious challenge of illegal timber logging. During the Soviet period, Batsumber was a timber village with some dairy farming. After the privatization in the 1990's, the dairy farms were divided among households and herders formed small *khotails(herder's groups).*

	Unit	*Lun*	*Khotont*	*Deluin*	*Batsumber*
Altitude above sea level	m.	960-1710	1200-2100	1800-4000	1800-2250
Plant growing period	Days	120-145	110-130	90-120	120-140
Land	Thous. ha	252.9	338.0	549.0	243.1
Pasture land	Thous. ha	236.9	204.4	550.0	95.0
Average air temperature	C°	- 3.5 C°	- 0.3 C°	- 3.5 C°	- 3.9 C°
Distance from market centre	km.	120	80	150	78
Population (year)	Thous. people	3.8	5.7	8.0	6.5
Annual precipitation	mm.	240	530	105-250	445

Table1. Comparison of some ecological indicators of the project study sites

For the comparative analysis between different ecosystems, JASIL has selected 3 local communities from Lun (steppe and prairie ecosystem, pastoral), Batsumber (semi nomadic, sylvo-pastoral) and Khotont sums (nomadic, pastoral- sylvo), which are located in steppe-semi desert to steppe-forest ecosystems of Mongolia.

In most areas, pure pasture land is the major type of land use in Mongolia. However, in steppe and forest ecosystems, there are limited forestry activities, and in Central Mongolia (in Lun, Tuv aimak), cropland also coexist with pastoral agriculture.

THE LOCAL COMMUNITY

Mongolian pastoral landscapes have their own specifics, such as large geographical scale, transitional governance systems, multi-stakeholder governance system, and cultural traditions of nomadic animal husbandry. Pastoral agriculture remains a crucial way of life for one third of Mongolians.

The Mongolian pastoral system has been based on a type of ecosystem management in which people who are living in one locality join forces to form social, economic and ecological units (this is known as "neg nutgiikhan" or "neg usniikhan").

The formal governance system is interwoven with a dynamic fabric of social relationships and less formal forms of organization.

Neg nutgiinkhan: The largest ecological and social unit within the *bags* is generally known as *neg nutgiinkhan,* or "people of one place," i.e., herder households living in the same (restricted) area. There are regional variants, known as *neg jalgiinkhan* (people of one valley), *neg usniikhan* (people using the same water source) and *neg goliinkhan* (people of one river).

Sakhalt ail: This social unit is next to the *neg nutgiinkhan* combining several neigborhood khot ails, comprising 30-60 herders households.

Khot ail: The basic customary organizational unit in Mongolia's pastoral agriculture (within the *neg nutgiinkhan*) is the *khot-ail,* an independent social and economic unit, made up of 6-15 households.

Case Identified on Governing Local Ecosystems

TRADITIONAL PASTURE USE SYSTEM

Herders in Mongolia practice mobile herding primarily due to the dry land ecosystem. Their main strategy is mobility: following the needs of the livestock; moving where there is good pasture and water. Although the constitution says land and pasture belong to the State and herders are free to live and graze their livestock wherever they want, there are also some limitations related to the administrative boundaries and also the social norms related to livestock movements and pasture usage.

Herders' movements are mainly related to the changing of the four seasons: summer, autumn, winter and spring. Usually herders move four times, in line with the four seasonal pastures. However, this depends on an area's specific attributes. For example, in desert areas, where both the grass and population are scarce and the land area bigger, herders can move up to twenty times a year and the distance of movement might vary up to 100 kilometers. While in the forest-steppe ecosystem, as it has relatively better pasture with some forests, shorter and fewer movements of livestock are practiced. During the summer and autumn seasons, herders move to more distant areas, even to different *sum(district)* or *aimaks (provinces)*. Households move about four times a year on average, rotating their four seasonal pastures.

In the winter, herders settle in their winter camps with their livestock shelter, which is located in the shield of the mountain protected from the cold wind, and there they spend the longest period of the year: November to March. When spring arrives and the weather gets warmer they move a little further down the mountain where they have a spring campsite with warm shelters. They usually stay here between March and May, as this is also the lambing season. When the summer arrives, the herders move close to the rivers and streams, and the summer pastures are used between June and September. In autumn, the herders move again a little up the mountain to a cooler spot to flee the insects.

The summer and autumn seasons are the seasons used to fatten the livestock, and during these seasons the herders also move to the *otor* or fattening pastures, which is practiced more in the western and southern dry and more steppe and desert-like aimaks of Mongolia. Horses are usually grazed in the *otor* pasture during the winter and spring seasons. In summer, the horses are brought back and milked, up until the end of October. As for seasonal pastures, nearer pastures are kept for weak and newborn animals to be kept during bad weather, and the farther pastures are used for stronger animals such as horses and cattle.

Figure 3: Practicing otor in Ikh Nuur - Ikhbulag's Winter Reserve Pasture

PRINCIPLES AND EXPERIENCES: CBNRM AND CO-MANAGEMENT

Over the last few years, pasture has significantly degraded and pasture yields have decreased across the whole of Mongolia. Ecological, economic and social changes have brought many challenges to the herders' lives, and the classic methods are now difficult to practice.

Traditionally, herders often shifted seasonal pastures to prevent overgrazing. However, the chances to do this have been reduced today. Due to the water shortages, there is nowhere else to go to free their seasonal pastures, and even if they find another place and move there, somebody else will come to that area and use their pasture, hence disputes occur. The landscapes are intensively used, leading to resource depletion and accelerating loss of forest and biodiversity (Ikhbulag community). The rate of recovery and resilience is medium (to high) in steppe and forest ecosystem (Ikhbulag community), but lower rate of recovery in prairie and steppe ecosystem (Lun, Adunchuluun community).

Newly introduced community-based pasture management arrangements (such as co-management) have been based on these traditional forms of cooperation. An important feature is that communities define their physical boundaries for pasture use by seasons of the year combined with the particular features of valleys, mountains, and rivers.

The pasture and eco-system co-management contracts and delineation of pasture boundaries are proposed based on the local customary traditions and communal use of pasture as common resource and discussed and decided by community meetings -- *Bag's* Citizens' Public Meetings and *Sum* level Citizens' Representative Meetings. The principle is based on the mutual respect of the pasture rights between neighboring communities and discussion, negotiation, and agreement of stakeholders in the pasture and ecosystem management based on several meetings.

Otor - far-fattening pastures with surface water and salinity are left under the management of the local government – *bag* and *sum*. Thus, it is possible to regulate the use of reserve pastures during natural hardships and droughts at the *bag* and *sum* levels.

Locally managed ecosystems in Mongolia has its own specific characteristics. It is based on four seasonal livestock pastures, with seasonal mobility, and can be effective for the ecosystem's holistic management (forest, water, plant, and biodiversity): Some of these specific characteristics include:

- Locally managed ecosystems indicators reflect specifics of different pastoral ecosystems, such as the seasonal difference of landscape;

- Participatory assessments of locally managed ecosystems cover all the social, ecological and economic indicators as a whole;

- Community based Natural Resources Management, CBNRM, Information and Communication Technologies, ICT, Indigenous Knowledge, IK prove to be vital for improving capacity around locally managed ecosystems in pastoral agriculture;

- Further recognition of the *neg nutgiikhan" / "neg usniikhan"* or people living in one locality as the ones, who practice a holistic ecosystem management; thus further develop a formal policy recommendations recognizing this role.

MAIN OUTCOMES

Initially, the following major sustainable ecosystem indicators were used: 1) access and availability of livestock feed reserves; 2) access and availability of water resources; 3) ecological mobility throughout the seasons; 4) social and institutional flexibility over time and space.

After the study, the following key indicators for sustainable ecosystem assessment in pastoral agriculture are recommended:

Inclusion of pasture land management priorities, such as haymaking land, reserve pasture land, pasture rotation and shifting, animal breeds, daily products, invasive species and plants, co-management team, etc.;

- Access and availability of livestock feed reserves;
- Access and availability of water resources;
- Ecological mobility throughout the seasons;
- Legal, social, economic and institutional flexibility over time and space;
- Livestock productivity;
- Pasture quality and sustainable use of pasture land within its carrying capacity; and
- Diversity of income and forest, biodiversity-based income and livelihood sources.

The most important contribution from the ecosystem study is the inclusion of the indicator on "socio-ecological mobility" (of herders throughout the seasons). It is critically important for dry zone and short grass yield ecosystems. Ecological mobility is essential for herders as a way to prevent pasture degradation and overgrazing. During the project assessment workshops, the discussion focused on how mobility of herders between different seasonal pastures as an important factor for the sustainable ecosystem in pastoral agriculture as there are substantive distances to rotate and shift pasture from season to season, particularly in Karatau community.

The results of community-based pasture management arrangements, where communities define their physical boundaries for pasture by seasons of the year, and by the features of valleys, mountains, and rivers can be an important mechanism for the sustainable ecosystem.

Analysis

The underlying ecosystem research reached to the conclusion that the locally managed ecosystems in pastoral agriculture are dynamic and changing over time with climate variations, human made pressures and policy changes. Success of the community-based ecosystem management depends on the favorable legal atmosphere, respect of traditional norms and local knowledge as well as the enhanced participation of local community in decision-making. The participatory ecosystem and resilience indicators assessments that were carried out with local communities reflect certain specific circumstances:

- The size of communities is dependent on the type of ecosystem, livelihood opportunities, traditions and local cultural settings. The landscapes consist of several land-use types and fragmented ecosystem patches. No heterogeneity, i.e. no one type of land-use predominates in the landscape in steppe and prairie ecosystems, where landscapes are intensively used, resource depletion and accelerating loss of biodiversity occur (Lun). Also there is a medium (to high) rate of recovery and resilience in steppe and forest ecosystem (Khotont), while there is a lower rate of recovery in prairie and steppe or prairie and high mountain ecosystems (Lun and Deliun); and

• Community based local institutions are in place but need to be strengthened by involving both of Forest User Groups, as Nukurlul, and Pasture User Groups. Community has limited access to its traditional lands and resources and limited decision power over their management.

As a result of the long-term study and interaction with the local communities, the following benefits have been identified:

• Communities have been empowered in decision-making: Application of the ecosystem indicators in the participatory assessment and co-management discussions led to the greater empowerment of communities in the decision making of pasture and ecosystem management involving different stakeholders. The indicators of resilience also support adaptive management at community level, as they assess existing condition of resilience, and exchange the knowledge of what works and what does not; and

• Enhanced communication among stakeholders in ecosystem management: The Socio-ecological production landscapes assessment is carried out in a participatory manner, and brings together community leaders, community members, researchers, local government bodies. This has enhanced communication among the stakeholders and improved communication with local communities. JASIL team and other stakeholders improved their communication with local communities even after previous collaborative learning activities had come to an end.

Recommendations

JASIL recommends the approval of the draft of the Package Law on Land, which will further set the legal base for the Pasture management and will secure the pasture land rights for herders in consideration of the following research results:

• Ecosystems in pastoral agriculture are dynamic and changing over time, with climate variations, human made pressures, as well as policy changes;

• Success of the community-based ecosystem management depends on the favorable legal atmosphere, restoration of traditions and local knowledge and the participation of all social groups at community level;

• Ecosystems in Mongolia has its own specific characteristic based on four seasonal livestock pastures with seasonal mobility, and can be effective with the ecosystem paths (forest, water, plant, and biodiversity);

• Ecosystem indicators specific to pastoral ecosystems need to be developed, considering things such as the seasonal difference of landscape;

• Assessment of ecosystems include all the social, ecological and economic indicators of local development, such as CBNRM benefits;

• *Neg nutgiikhan" / "neg usniikhan"* or people living in one locality, can be defined as a "Mongolian pastoral ecosystem";

• CBNRM, ICT, IK can help in improving capacity of ecosystems in pastoral agriculture; and

• Ecosystems assessments may bring some policy recommendations.

References

JASIL's CBRNM and Co-management project, Dream IT- JASIL project on weather forecast delivery. (http://cbnrm.mn/CBNRM.pdf); (http://cbnrm.mn/project_news.html)

JASIL-CBNRM report and link to the book on Creative Commons. (http://cbnrm.mn/CBNRM.pdf)

Ykhanbai, Hijaba. Public Understanding the Forest. Ulaanbaatar: Nomhuur Publishing House, 2018.

Vernooy, Ronnie, Hijaba Ykhanbai and Jamba Tsogt. "Mongolia's nomadic weather readers." The Solutions 4(1) (2013). Accessed March 29, 2013, http://www.thesolutionsjournal.com/node/2261

Ykhanbai, Hijaba. Community-based co-management of natural resources in Mongolia: Ten years of experience. Ulaanbaatar: ADMON Publishing House, 2011.

Ykhanbai, Hijaba, Bulgan Enkhbat, Ulipkan Beket, Ronnie Vernooy and John Graham. "Reversing grassland degradation and improving herders' livelihoods in the Altai Mountains of Mongolia." Mountain Research Development 24 (May 2004): 96-100.

Ykhanbai, Hijaba and Bulgan Enkhbat. "Co-management of pastureland in Mongolia." In Communities, livelihoods and natural resources: Action research and policy change in Asia, edited by Stephen R. Tyler, 107–128. Bourton on Dunsmore: ITDG, and Ottawa: International Development Research Centre, 2006.

Community Based Pasture Management System in Kyrgyzstan

National Pasture Users Association of Kyrgyzstan (Kyrgyz Jayity)

ABSTRACT

The pastoral ecosystem, a major socio-ecological production landscape in Central Asia, is currently undergoing major socio-economic and ecological changes caused by policy and legal shifts, as well as man-made commercial pressures.

To remedy the degradation and ineffective management of pastureland, the Law on Pastures, enacted in 2009, allowed the formation of Pasture Users' Unions (PUUs). The National Pasture Users' Association of Kyrgyzstan, Kyrgyz Jayity, has facilitated the formation of 454 PUUs, each with an executive body, and a Jayit (Pasture) Committee in every region of Kyrgyzstan.

Community-based PUU members and committees, with the support of other stakeholders, have improved the condition of pasturelands, repaired livestock driveways, bridges, and other infrastructure, and contributed to the effective, efficient and equitable use of pasture resources. These committees have enabled pasture users and local communities to participate and directly manage local areas, learn new approaches, and adopt best practices in rotational, effective, and planned pasture usage. As a result, land resources are better managed and promoted livelihood of pastoralists.

Introduction

The reform of pastureland management in Kyrgyzstan is pressed by the need to mitigate degradation caused by unsystematic and uncontrolled land use, the decline of pasture infrastructure, the pasture sector's ineffective three-level management system (*aiyl okmotu,* rayon state administration, and oblast state administration), the lack of legislation, and the absence of any official body to set rents for pastureland. Furthermore, some wealthy pastoralists have seized large areas of land and have begun to sub-let them. Kyrgyz Jayity addressed all these challenges through the development of an inclusive community-based pasture management system, which combined participatory and action-oriented field research in all seven regions of the country.

The aims of the Law on Pastures and the creation of PUUs include the transfer of responsibility for and control of pastureland from the state to local self-governing bodies and a prohibition on leasing pasturelands. To achieve this, Kyrgyz Jayity and local communities have established and defined pasture boundaries, set fees for the use of pasturelands, and made provisions for access by foreign users and for other non-grazing uses. The PUUs have developed pastureland resource use and management plans, which local governments have approved.

OBJECTIVES

This case study is intended to:

1. Document the strategies and good practices facilitated by Kyrgyz Jayity in the formation of PUUs to sustainably manage pasturelands that may be adopted or scaled up in other countries;

2. Strengthen the connections among ILC members and various stakeholders in managing locally pasture ecosystems towards establishing platforms in conserving resources; and

3. Influence positive changes in policy and legislation of national, regional, and global framework to recognize locally managed ecosystems and adopt people-centered land governance.

METHODOLOGY

In writing this case study, it used a wide range of methods. At the beginning, an activity using questionnaires for the 40 pilot villages in every district of the country was conducted. After analyzing the results of the interviews, the identified issues were included in the project discussions at the district, regional and national level round tables and conferences. The collected data and feedbacks were also discussed with focused groups including the representatives of different NGOs, local government, rural communities, women groups and international project experts. Soon after, the drafted proposal was offered for public discussion to gather participatory suggestions and collective approaches. It used current legislation and good approaches of other countries, analyzed and adapted.

Overview of Pasture Ecosystem in Kyrgyzstan

The Kyrgyz Republic is a landlocked and largely mountainous country, with a Human Development Index of 0.655, ranked 120 (out of 188) as a medium human development category. After obtaining independence in December 1991, the country went through a difficult transition that caused disruptions in the economy and increase of poverty. The population of the Kyrgyz Republic of about 6.03 million is predominantly young: over half of population is under the age of 25.

Population	6,156 thousand people
Area	199,900 km2
Neighboring countries	China, Kazakhstan, Uzbekistan, Tajikistan
Language	State Kyrgyz, official Russian
Capital	Bishkek
Administrative division	Seven regions divided into distriacts
National currency	Som (KGS, code 417)

RESOURCE GOVERNANCE

According to the Constitution of the Kyrgyz Republic, the land (its subsoil, airspace, waters, forests, flora and fauna, other natural resources) is the exclusive property of the Kyrgyz Republic and is in state, municipal, private, and other forms of ownership.

Distribution of the Land Fund of the Kyrgyz Republic by categories of agricultural land is as follows: the largest area is occupied by reserve lands covering 42.6%, while agricultural land comprises 33.8% and forest land makes up 13%. On behalf of the state, the Government is the primary regulator of the tenure rights of state land reserves, which is actively used by the majority of local communities based on traditional rights of use, at least as pastures.

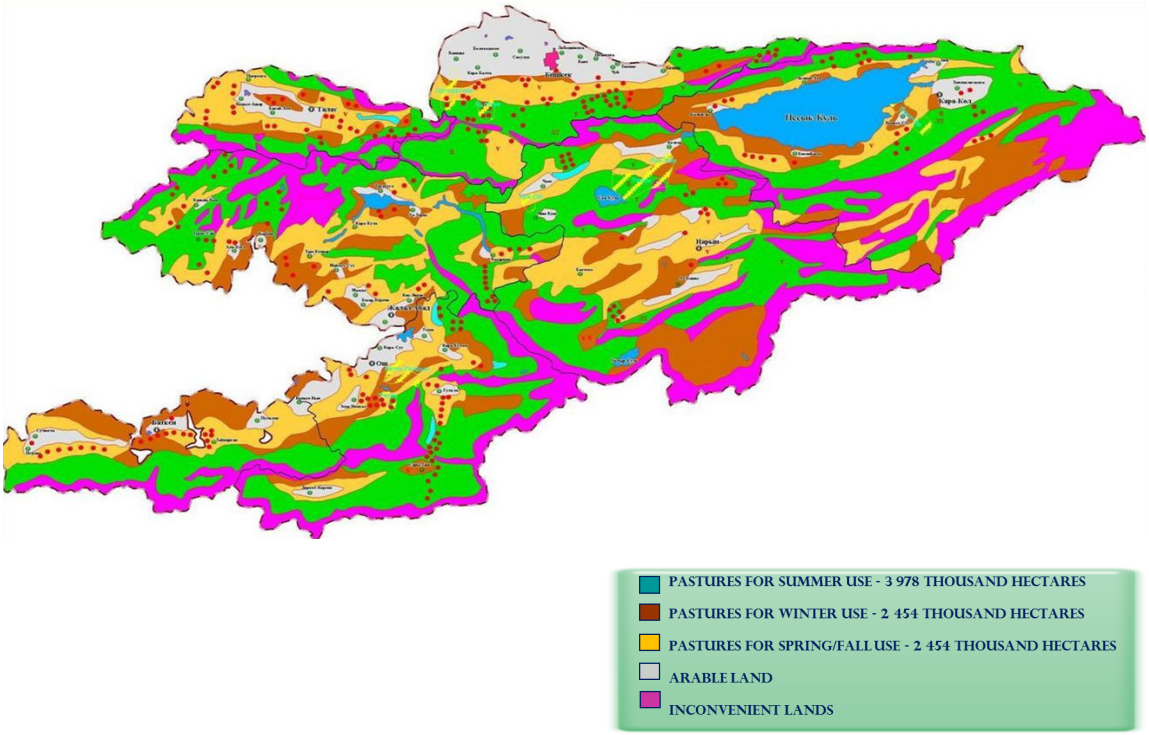
PRESSURES AND THREATS

The Kyrgyz Republic is facing a serious environmental, economic, and social problem: the degradation of land resources. Agricultural land degradation presently poses a significant threat to the country's food security. It is not just an environmental issue; it is a threat to the sustainable development of Kyrgyzstan. The weak potential of land use management aggravates the situation. Work to restore soil fertility is not sufficiently effective. The country does not produce its own mineral fertilizers, thus, fertilizer use has decreased.

A complex combination of natural factors and human economic activity causes the emergence of complex soil and ameliorative conditions. For instance, soil erosion has intensified in sloping agricultural lands, which occupy 90% of Kyrgyz territory posing a significant threat on inhabitants.

PASTURE ECOSYSTEM

The natural mountain pastures comprise the bulk of agricultural lands and country's main natural wealth, as pastoralism has been a traditional occupation of the Kyrgyz people and the main source of income of rural communities for centuries. However, their area is steadily decreasing. It has decreased by 38,000 hectares from 2010 to 2016 due to the use of pastures for other purposes as well as transference to other land categories. At the same time, the pattern of pastures throughout the country has its own characteristics, conditioned by natural and climatic aspects.



A significant portion of Kyrgyz land is experiencing degradation, with 3.6 million hectares or 40% of pastures affected. Degradation has been observed in 2.7 million hectares of suburb pastures and 1.4 million hectares of intensive pastures. Meanwhile, out of 3.9 million hectares of distant pastures, 1.4 million hectares or 36% has been degraded. Distant pastures are covered by inedible and poisonous vegetation and shrubs, while suburb pastures are trampled into dust by cattle.

Land degradation also occurs as a result of other negative anthropogenic factors such as the development of quarries, the formation of ash and slag dumps, trenches, the contamination of exploited areas of oil, salt, uranium deposits discharges of domestic and industrial wastewater, and emissions of harmful substances into the atmosphere. All these negative factors cause great damage to the ecological balance and accelerate the processes of soil degradation and desertification of the territory of the country.

The erosion of pastures is largely facilitated by unregulated grazing, leading to widespread pasture degradation. With the destruction of the grass stand of natural fodder lands (spraying, compacting and destroying the structural aggregates of the soil), the water-absorbing and water-retaining capacity of the soil is lost, contributing to its flushing.

Decisions on the regulation and quota of livestock at the level of local communities are the prerogative of the pasture users themselves and the subject of their communal contract within the community. Practically, the quality of pasture management planning is nowhere near regulated, and there is no regulation on livestock at the community level.

The Community Based Pasture Management System

Given the environmental degradation of the pasture ecosystems and pressures faced by the pastoralists, a strategic response on addressing the challenges was deemed necessary. It is with this perspective that a new law on pastures was enacted.

ENACTMENT OF A NEW LAW ON PASTURES

The 2009 Law on Pastures was a milestone in pasture management in the Kyrgyz Republic. It authorized community-led pastureland management through the formation of PUUs and created synergies between the work of executive bodies of pasture users, local government, farmers, veterinarians, and other experts. The law was formulated in a bottom-up manner: all active pasture users and local communities were involved, followed by several stages of community discussion and adjustment, taking into account the interests of all parties.

CREATING PASTURE USERS' UNIONS

PUUs were created by local communities, pasture users, shepherds, farmers, etc., living in a particular area. The participatory approach, based on the needs of communities, empowers them to manage their resources more effectively; encourages them to prioritize, plan, and implement proposed economic activities; helps communities organized on a voluntary basis to interact more effectively with local

authorities, central government, and others to provide services; helps to build new relationships and public-private partnerships based on democratic governance; and targets communities and individuals to expand their livelihoods using market-oriented approaches.

PREPARING PASTURE USAGE PLANS

The use of pastures is planned by the PUUs in accordance with their pastureland use and management plans. Access can be for grazing or for other specified purposes. Grazing is carried out on a pasture use permit basis, while access for other purposes is governed by individual contracts. Community plans for the management and use of pastures include:

- maps marking boundaries, pasture conditions and quality, areas excluded from use, protected areas, cattle pasturelands, watering places, and other significant infrastructural facilities;
- Optimum animal load;
- Plans for the development and reconstruction of pasture infrastructure;
- Annually updated management plans for pastureland use;
- Plans for management and use of pasturelands for other purposes.

Medium-term plans for pastureland use and management include the improvement and rehabilitation of land and investment over a period of up to five years.

CAPACITY BUILDING

The pastureland management and organizing capacity of communities have been enhanced by the participatory approaches adopted by Kyrgyz Jayity. Government agencies have also been capacitated through training and exchange visits to meet priority needs voiced by communities in a timely and transparent manner. Furthermore, pasture users and government agencies have helped increase access to pasturelands for women and youth.

IMPLEMENTING ACTIVITIES

All local and national activities are aimed at providing sustainable livelihoods for pastoral communities and reinforcing the effectiveness of pastureland use and management, as well as animal health. Pasture users benefit directly through increased capacity to adapt to climate change and increased income for livestock producers.

Activities prioritize adaptation and investment in infrastructure to improve community access to pasturelands and income. In addition, this has a positive impact on climate change mitigation and environmental benefits such as carbon sequestration, an improved water cycle, and expansion and conservation of local biodiversity.

RESULTS AND OUTCOMES

As a result of a long-term vision and collective effort, pasture users and local communities have an opportunity to directly manage local areas, learn new approaches, and employ best practices in rotational, effective, and planned usage of pastureland. New legislation and effective approaches have helped to prevent continued degradation of land resources. The PUUs were mandated with the development of pastureland resource management plans, for which they required a better understanding of legislation, best practices in pastureland management systems, and mechanisms for rotational and sustainable land use practices. Kyrgyz Jayity had the requisite expertise to work with committees to develop these plans

It also cooperated with other actors, including government, NGOs, independent experts, and international funds. The process was inclusive and community-driven, and utilized partners' expertise in different areas, such as ecology, animal husbandry science, and social sciences. The project also strengthened rural livelihoods and economies and promoted gender balance in access to pasturelands. The pastureland management plans were developed and implemented at local level, and systematically monitored and evaluated by Kyrgyz Jayity and state agencies.

Improvements to the legal framework have resulted in better public administration of pasturelands. Kyrgyz Jayity has worked with the Coordination Council on sustainable pasture management issues, which includes representatives of state structures, independent experts, representatives of international organizations, local NGOs, the Regional Association of Pasture Users (RAPP), and the chairmen of active pasture committees. The new legislative framework lays the foundation for a more inclusive and participatory management regime.

As a result, pastoral communities and other users have more equitable access to grazing resources. The resource management plans are premised on recognition that the effective management of grazing lands depends on pasture users themselves. Users recognize the need for pasture committees and their responsibility for housing, communal services, and effective pasture planning and management.

Women and youth are increasingly interested in pastoral activities because they now have improved and equitable access to pasturelands. PUUs are essential to the effective management of pasturelands. Their administrative responsibilities include collecting fees for the use of pastures, managing their use and maintenance, maintaining infrastructure, and planning activities to combat degradation. All the monies collected have been dedicated to activities for effective management, the reduction of conflicts related to pastureland, and improving access for local communities. Activities undertaken by Kyrgyz Jayity include technical, methodological, and consulting assistance to the PUUs at different levels of governance.

MAIN OUTCOMES

Social Outcomes	Ecological Outcomes	Economic Outcomes
Transfer of the pasture management rights to the local communities	Improvement of pasture condition	Increase in the number of livestock (+33%)
Equal access to the pasture resources for all segments of the population	Decrease of the pasture degradation and desertification level	Improving the welfare of the rural population (+15%)
Gender balance	Strengthening the forage reserve	Increase of the agricultural production (+16%)
Better conditions for pasture use	Revival of the traditional pasture management approaches	Revival of the traditional pasture management approaches
		Improving the pasture infrastructure

Challenges in Implementing the Law on Pastures

Despite the successes, there are still a number of challenges specially those related to adoption of the new system, capacities of PUUs in undertaking their new responsibilities and harmonizing the new law with other policies.

RESISTANCE TO NEW APPROACH

Kyrgyz Jayity had to contend with a lack of understanding by both officials and the local population, along with resistance to new pasture management approaches. The most difficult task was to convince people that community-based pasture management was more effective, environmentally friendly, and transparent, and fairer than other approaches. Over the years, people have become accustomed to treating pasture resources in a commercial manner, neglecting grazing systems, which has led to degradation. It became apparent that it was necessary to conduct community workshops to educate people on community pasture management systems before the project began, to enhance support for the project in the local and national levels. Kyrgyz Jayity was able to convince local communities to buy into the community pastureland management plans because they were based on traditional management approaches.

CAPACITY BUILDING NEEDS

Although PUUs have been established as territorial self-government bodies and registered as legal entities with the relevant authorities, many PUUs face challenges with internal organizational structures and procedures, documentation and internal accountability, and capacities for effective performance of their functions.

Many PUUs require access to information, methodological and technical support, and assistance. Some people involved in PUUs, along with some other stakeholders from local to national level have limited understanding of related legal issues or of the value of PUUs and the legal arrangements put in place by the 2009 Law.

Meanwhile, some stakeholders at national and at local levels are not supportive of the PUU system. Conflicts over pasture use are common because of unclear boundaries, as well as growing use of pastures by secondary users for non-grazing purposes. Such conflicts prevent effective pasture management.

Actors supporting the development of PUUs, such as government agencies and NGOs, are becoming more and more experienced in facing pasture management realities. These actors also need support and coordination, around pasture-related methodologies or access to information and coordination of activities, for instance.

ADVOCACY PLANS

There have been many changes in local and national legislation concerning the land management system in Kyrgyzstan. There is a need to adopt laws on pastures with due consideration to present conditions, global changes, and tested effective approaches for sustainable pasture use.

It has already made 4 additions to the Law on Pastures. It is also planned to offer some additions and changes in the co-terminal laws to protect the land rights of the local communities and make the PUUs more independent and sustainable, especially in finance. It is planned to offer some changes in the Law on Local Government System, Land Code, and Law on Pastures.

Analysis

The first steps were made in three pilot areas of the country (Issyk-Kul, Chuy and Talas districts) with the creation of local communities, united by a common goal of planning and joint management of pasture resources. An analysis of the received results and an estimation of their efficiency was then carried out, and on this basis the Law on Pastures' project was drafted and submitted for discussion of the parliament and further signed by the President of the country. After that, all 454 PUUs across the country were created simultaneously, which set as their main goal the protection and improvement of the pasture condition through joint planning and rational use.

DRIVERS OF SUCCESS

There are three factors of success and replicability in the case:

- The government reacted swiftly to a legislative need, resulting in the adoption of the Law on Pastures. The law is based on the need for sustainable management of pasture resources, the general developmental needs of pastoralists, their livelihoods, and national economic growth.

- Kyrgyz Jayity and other pastureland actors were also swift to implement plans. The process for drawing up pastureland resource management plans was led by the community, and community members thus supported and owned the process. This made it possible to create functional pasture committees that worked efficiently on their own and with government agencies.

- The management plans have short-term, medium-term, and long-term goals. These are based on traditional management approaches that prevent further deterioration of pasturelands and provide security of access for all community members.

GOOD TRADITIONAL PRACTICES

The nomadic Kyrgyz people developed a great number of effective practical skills in the use of the environment and management of economic life, using long-term knowledge of the land and animals, especially livestock grazing, hunting, and other knowledge and practices passed down by experienced members of the community to younger ones. Traditional land use and livestock management of nomadic Kyrgyz people - who kept the ecosystem with appropriate respect - are unique and the most effective since they are based on respect for natural resources, taking into account climatic conditions. By exchanging these knowledge and skills with other communities (as well as technological progress), they replenish, enrich, and change their practices, keeping them relevant to this day.

At present, it is increasingly important to imbibe the wisdom of our ancestors in the use of old and “forgotten” land and water management practices, which should be one of the areas of agricultural policy. It is necessary to document these traditional knowledge and skills to adapt to modern realities and pass them on to future generations, who in turn can cherish and be proud of their cultural heritage. The traditional knowledge of their people can be used for effective and sustainable use of pasture resources.

These traditional approaches were used as the basis for the preparing and adapting the Law on Pastures of the Kyrgyz Republic. Using both modern and traditional approaches, legislation can be more relevant to the Kyrgyz people and effective in practice. These can then be integrated into the Kyrgyz way of life.

Conclusions

For the introduction of community-based pasture management and use system, it is necessary to carefully explore and analyze the existing legislation, then document and evaluate existing traditional approaches and pasture management practices in the country. Taking these two components into account, legislation of the pasture use based on the local communities can then be developed. This draft should be widely discussed on all levels, from local to national, to maximize inclusivity and participation of stakeholders. After that the final legislation can be created and approved.

In addition, it is necessary to enlist the support and willingness of state agencies and funding organizations (for example, donors and international funds). Lastly, it is very important to increase the capacity of the implementing actors and conduct explanatory activities for the local communities and authorities.

References

PERSONS INTERVIEWED:

Mr. Nogoev A.K. (Ministry of Agriculture and Melioration of KR)

Mr. Chyngojoev A.T. (the chairman of the State agency of environment and forest protection)

Mr. Kasymaliev Ad. (deputy shief of the State Nax Department)

Mr. Isabekov A. (Chied of the State Cadastre Department)

Mr. Kasmaliev Aj. (Chief of the State Land Registration Agency)

Mrs. Sidorenko R., Mrs.Kenjebaeva A., Mr. Jamaldinov Z., Mr. Tagaev A., Mr. Ormonov J. (MPs)

Mrs. Kilyazova N., Mrs. Barakanova N. (Independent land evaluation specialists)

Local government, Aiyl Okmotu (A local authority with an elected board) and pasture users of 3 districts (Jergetal, Temirovka, and Baytik)

CONSULTATIONS/FGDS CONDUCTED:

The staff of the Agricultural Projects Implementation Unit of the Ministry of Agriculture and Melioration

The Community Development and Investment State Agency

The represents of the International Fund for Agricultural Development and World Bank mission in Kyrgyzstan

The members and an executive body of pasture users' unions of the pilot areas in all districts of the country

The staff of the National Pasture Users' Association of Kyrgyzstan "Kyrgyz Jayity"

The staff of the Livestock and Marketing Development Project (IFAD) in Kyrgyz Republic

Non-governmental organization (such as Camp Ala-Too, ISDS, RDF, KAFLU etc.)

Community Joint Forest Management in Kyrgyzstan

Rural Development Fund (RDF)

ABSTRACT

Forest ecosystems of Kyrgyzstan are rich with biological diversity and play an important role in its conservation and maintenance. Forests and forest resources are of great social and economic importance, supporting the well-being of local people living near forests or directly on the forestlands, and providing an opportunity to generate main or additional income. However, despite ongoing reforms in the forest sector, the local population remains outside the decision-making process on forest management, the interests and needs of local communities are poorly reflected in the forest policy and legislation, and subsequently in tenure arrangements.

The model of community joint management of forest ecosystems, developed and tested by the RDF, is an example of engagement of communities in making decisions on key functions and processes in management and use of forest resources. The model provides for mutually beneficial cooperation of the local community, local government and state forestry enterprises. The development and testing of a pilot model of forest management with the participation of local communities took place in the Batken forestry of the Batken region of the Kyrgyz Republic. This model of community joint management of forest ecosystems as a whole is aimed at promoting a holistic concept of management and conservation of natural resources and ecosystems, combining the conservation of biocultural diversity with the sustainable use of resources by local communities, including vulnerable groups. The results of the model approbation showed that this model, developed on the basis of traditional ecological knowledge of local communities and leading local and international practices in forest management, proved its sustainability and resilience.

Introduction

The Kyrgyz Republic (Kyrgyzstan) is a mountainous country with a total area of 199.9 km^2, with 90 percent of the territory at an altitude of 1,500 meters above sea level. The area of forests occupies 5.6 percent[1] of the total area of the country, which is 1 116.56 ths. ha, with most of the forests are at an altitude from 700 to 3,500 meters above sea level.

Despite the fact that the contribution of forests to the economy of the country is not significant - the gross output from hunting and forestry is 0.05 percent of GDP[2], and, the volume of logging is extremely low, the forests have not only ecological, but also an important social and economic importance for more than 2 million rural residents[3], living near forests, or directly in the forest. RDF studies show that 80 percent of households located near forests depend on forests and on the use of forest resources.

The country's population is 6.140 million people[4], 66 percent of whom live in rural areas. At the same time, one third[5] of the rural population is in poverty compared to the urban population, where the poverty rate is lower by almost 10 percent. Growing poverty in rural areas and increase in population leads to excessive pressure on natural resources and enhances consumer attitudes towards forests and forest resources.

The non-rational use of forests and forest resources is the result of not only of poor awareness of the local population on environmental risks and lack of proper state control, but also a result of the failure of the existing forest management and tenure system. The local population is excluded from decision-making in forest management, and with the interests and needs of local communities, who live in forest ecosystems and are part of these ecosystems, being poorly reflected in forest policy. The number of overlaps and controversies surrounding natural resources management is increasing and unsustainable use of forest resources has increased.

Currently, one of the main tasks set at both the state and local levels is the development and adaptation of an integrated approach to forest and forest resources management with the participation of local people in the planning, management and monitoring of forests and forest resources. Recognition of the role of the local population in the conservation and management of forests should be the basis for developing an effective approach to resource management, which will lead to the prevention of degradation of natural resources, conservation of forests and forest resources, as well as biodiversity, better management of forest resources, reducing conflicts between institutions and local population, as well as to creation of opportunities for diversification of incomes.

CASE STUDY OBJECTIVES

The purpose of this document is to present an approach of community joint management of forest ecosystems, that was developed and adapted in the Batken forestry in the Batken region of the Kyrgyz Republic by the Rural Development Fund (RDF) for further discussion with the members of CBI-6, the exchange of experience, the development of recommendations for the dissemination of approach in other communities, as well as the promotion of successful cases at the policy level and decision-making.

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[1] The National forest inventory carried out in 2008-2010

[2] Data of the National Statistical Committee (Natstatcom) of the Kyrgyz Republic for 2016

[3] Data of the Natstatcom KR and SRS for 2014

CASE STUDY METHODOLOGY

The methodology of the case study documentation was based on an overview of the data collected during a series of studies and projects conducted by the RDF in the Batken region (Batken Forestry) between 2010 and 2017:

- RDF research based on quantitative survey and in-depth interviews, as well as study of value chains, 2010-2012, funded by the Christensen Fund and PROFOR;
- Project "Promoting community joint forest management in in the Kyrgyz Republic", 2010-2013, funded by the Christensen Fund;
- Project "Model of management of forest ecosystems with participation of the local communities in the Kyrgyz Republic", 2014-2016, funded by the Christensen Fund.

The main tasks of the above-mentioned studies and projects implemented by RDF were:

- study of issues of access to forests and forest resources by local communities, practices of using forest resources,
- study of tenure regimes of forests and forest resource, as well as of key institutions and stakeholders involved in the use and management of forests and forest resources;
- research on the economic dependence of local communities on forest and forest products;
- based on the survey and analysis of data, the development and testing of a model of forest management involving local communities based on traditional ecological knowledge of local communities and on the leading international experience.

Context

AREA OF STUDY

The Kyrgyz Republic (Kyrgyzstan) is located in Central Asia and has common borders with China, Tajikistan, Uzbekistan and Kazakhstan. Most of the territory of the country is occupied by high mountains, which are less populated in comparison to the valleys - the Fergana, Chui and Talas, which are densely populated.

Figure 1. Map of the KR

The climate of the country is sharply continental, which is characterized by significant temperature variations in different seasons of the year from +40 degrees Centigrades in summer to -40 degrees Centigrades in winter. In addition, the mountainous relief determines the different climatic zones and temperature regimes in different regions of the country - moderately warm, warm and cold climatic conditions.

The population of the country is 6 140 million people, while the number of those who left for permanent residence abroad according to official data is 540 thousand of people[6]. The density of the population is 29 people per square kilometer, which can be considered relatively low (148th in the world), but in the country only half of its territory is considered suitable for living, or relatively suitable for living - valleys, cities, plains. 35 percent of the population lives in cities, and the rest of the population live in rural areas.[7]

The poverty level in Kyrgyzstan is 25.4 percent, while extreme poverty is most noted in rural areas and tends to grow, and 74 percent of the rural population is below the poverty line.[8] Agriculture is one of the main sectors of the country's economy, employing 31.6 percent[9] of the economically active population. About half of the gross output in agriculture belongs to the livestock sector, the share of which grows in recent years due to an increase in the number of livestock.

Despite the fact that the territory of the country is small, Kyrgyzstan has all ecological zones, except tropical, and the location of the country within high mountain systems such as the Tien Shan and Pamir-Alai, determines the rich diversity of biological resources - species, ecosystems and landscapes.

Among all ecosystems, forest ecosystems are distinguished by their rich diversity and uniqueness. In Kyrgyzstan, there are archa (juniper), spruce and spruce-fir, maple, small-leaved, walnut-fruit forests, as well as pistachio and almond forests. All these forests play an important role in the conservation of biological diversity. Walnut and spruce-fir forests are of global importance as the largest and most preserved massifs of relict forests, and they contain a rich genetic resource of ancestral forms of cultivars of walnut, almond and pistachio nuts, fruit trees.[10]

PROFILE

The development and testing of a pilot model of community joint management of forest ecosystems took place in the Batken forestry of the Batken region of the Kyrgyz Republic. Batken forestry is located in the south of the country in the Batken region and is located in the mountainous zone of the Pamir-Alai mountain system, the highest elevation of which reaches 4570 meters above sea level. The forestry occupies 162 410 hectares, where:

- Forest lands constitute 36 percent (59,416.4 hectares), of which 76 percent are covered by forest – 45,147.5 hectares, the remaining lands are not closed forest cultures, forest nurseries and plantations, light forests, clearings and wastelands.
- Non-forest lands amount 64 percent (102,993.6 hectares), which includes arable land, hayfields, pastures, estates, marshes and other lands (rocks, marginal terrain, etc.)

[6] Data of the State Migration Service under the Government of the Kyrgyz Republic for 2015

[7] Data of the Natstatcom for 2016-2017

[8] Data of the Natstatcom for 2016

[9] National Statistical Committee of the Kyrgyz Republic. Kyrgyzstan in figures. Bishkek 2015

[10] National Report on Biodiversity in the Kyrgyz Republic

The length of the territory of the Batken foretry from the north to the south is 43 km, from the west to the east - 145 km. The main forest-forming species are arborescent and creeping forms of archa, in the forests are archa hemispherical, Zeravshan and Turkestan juniper.

Forestry borders with 13 aiyl aimaks (AA) with a total number of more than 70 thousand of people. As a pilot community, whose inhabitants were involved in the development of the model of joint forest management, the Samarkandek Aiyl Aymak was chosen.

IMPORTANCE OF THE ECOSYSTEM

RDF studies have shown that for many residents of local communities, access to forests and the use of forest resources play an important role in maintaining the well-being of their households. In the forests grow various bushes of barberry, wild rose, honeysuckle, cotoneaster, spiraea and caragana. Local communities use non-timber forest resources, collect medicinal herbs, berries, almonds, collect firewood and brushwood. Among many non-timber resources, the greatest interest for local residents is cumin, wild rose and barberry. Thus, cumin grown in Batken is highly valued especially by buyers from neighboring Tajikistan and Uzbekistan, where it is mainly exported to.

Figure 2. Juniper forest

However, the most important for local residents are pastures, including forest land used for grazing, since the vast majority of locals are engaged in livestock keeping. Livestock for local residents is a dominant type of economic activity and livestock is perceived as the main investment in maintaining the well-being of households, in contrast to cropping, which mostly depends on the seasons. Despite the fact that most forests are far from populated areas, local communities graze or send cattle to pastures and forest lands. When studying the traditional ecological knowledge of local residents, it was also revealed that the ancestors had long been engaged mostly in livestock keeping, leading a nomadic or semi-nomadic way of life, and used different types of lands and pastures for grazing without fragmentation of the ecosystem into forest and other types of lands. Throughout the centuries, traditional knowledge has helped the people to preserve, maintain and even multiply vital biological diversity.

FOREST AND FOREST RESOURCES MANAGEMENT POLICY

All forests are owned by the state, which has an authority to manage forests. The main authorized body is the State Agency for Environmental Protection and Forestry of the Kyrgyz Republic, which is responsible for operational management. The management of the forests is based on a vertical system, which consists of the national level, regional level and local level (forestries), and each level performs various functions, often poorly coordinated with each other. It leads to conflicts due to overlaps of control and regulatory functions and financial and economic activity. Over the past 20 years, a number of reforms and institutional changes have been introduced in the forestry sector, some changes have been made to forest legislation related to both access to forests and forest management, nevertheless, no significant positive changes have been observed in practice[11].

Every year the anthropogenic pressure on forests grows and has negative impacts:

- non-rational use of forests and forests resources by users is noted,
- the percentage of survivability of the planting is decreasing despite of the fulfillment of planting plans, set up yearly and quarterly by the forest administrations,
- the species composition of forests is changing, pushing out endemic species, and
- the area of the state forest fund that is covered by forests is decreasing.

Local people, despite of the introduction of some regimes of forest use, such as forest leases (long-term and short-term) and Collaborative Forests Management (CFM), were not considered to be full participants in forest management, and final decisions without taking into account interest and needs of local population were taken by forestries.

The issue of joint and integrated management of forests and natural resources is extremely relevant for today. A number of international programs, as well as national strategies and plans for the development of the forest sector, aimed at the sustainable management of forest, land, water and biological resources, are being developed and tested. Thus, at the legislative level, the Concept for the Development of Forestry until 2040 clearly outlines the social priorities of forestry development, and include three important tasks:

1. Development of joint forest management;
2. Diversification of income;
3. Introduction of integrated natural resource management, which recognizes the importance of the involvement of all concerned parties, including local communities, in sustainable ecosystem management of natural resources.

PROBLEMS AND CHALLENGES

One of the factors negatively affecting the condition of resources and causing their rapid degradation in the pilot community and the forestry, as well as influencing on the natural restoration of forests and forest resources, is excessive grazing. The areas of pastures in the upper and lower parts of the region are more degraded. There is an unregulated grazing, cattle tramples down the natural seeding, and eats the underbrush, thereby

[11] Concept of forestry development , 2017

disrupting the process of natural restoration of forests. In many areas, natural seeding is reduced by 2-4 times. A large grazing load leads to soil compaction and disturbance of the grass cover, which results in a washout of soil.

Another problem is the breeding of goats. If previously most of the livestock consisted of cows and sheep, nowadays local population many keeps goats because of their high productivity and adaptability to the landscape. When grazing goats in the forests, young growth and shrubs suffer. Goats also inflict damage on trees, as they browse the bark of woody plants, and can reach those parts of the forest that are inaccessible to other types of livestock.

The results of the research and review of the data showed that before the collapse of the Soviet Union in the 1990s, because of the large number of grazing cattle, self-restoration of the juniper forest has ceased. With the decrease in the number of livestock in the 1990s in remote pastures, the natural regeneration of the forest has improved. However, at present the number of livestock, in particular goats, is increasing, which increases the threat of degradation of forests and forest resources.

Forest degradation is also noted due to illegal logging by local residents, despite the moratoriums imposed on cutting down forests and commercial timber.

Case Study

«Model of Community Joint Management of Forest Ecosystems»

MAIN OBJECTIVES AND TASKS OF THE APPROACH

The model of community joint management of forest ecosystems was developed and tested by RDF with the support of the Christensen Fund together with the State Agency for Environmental Protection and Forestry of the Kyrgyz Republic, local institutions and pilot communities during the 2012-2017. The model is aimed at promotion of a holistic concept of ecosystem management and conservation, combining the conservation of biocultural diversity with the sustainable use of resources by local communities, including vulnerable groups, based on traditional ecological knowledge of local communities and leading local and international practices.

The model has been tested in several communities, but the activities implemented in the Batken region with the participation of the Batken forestry have yielded interesting results and proved to be the most sustainable.

The model of community joint management of forest ecosystems is the joint management, conservation and rational use of forest resources within the forest area which was allocated to local communities. The model provides the mutually beneficial cooperation of the local community, local government and forestry.

An important role in the management of the ecosystem plays the newly created local institute – “Alasan Meikin Zhamaaty”. Joint community management of forest ecosystems is carried out through the transfer of forest sites for long-term use to local meikin zhamaat, the association of local forest users, in exchange for ensuring the conservation of the forest ecosystem and its biodiversity and the sustainable use of their resources, as well as for forestry, reforestation and

biotechnical works.

The objectives of the model development were:

- Sustainable management and conservation of forest ecosystems and biodiversity through rational use, strengthening protection against forest abuse and poaching (illegal logging, shooting animals, destroying their habitats, etc.);
- increase in forestation through reforestation and afforestation of lands designated for this purpose
- improvement of the living standards of the local community through the organization of rational forest management and creation of additional sources of income;
- reduction and mitigation of the potential conflicts on access to forest resources through increased cohesion of the local community;
- promotion of local traditional ecological knowledge and best environmental protection practices.

The main distinguishing features of the Model of community joint management of forest ecosystems from other, already existing, models of joint forest management are the following:

- a holistic or ecosystem approach to forest management;
- the continuity of conservation of forest ecosystems from the use of resources in them;
- application of local traditional ecological knowledge in the management and conservation of the forest ecosystem;
- involvement in co-management of the whole community, rather than individual, "privileged", forest users.

MAIN ACTIVITIES FOR THE DEVELOPMENT AND INTRODUCTION OF THE MODEL

Development and approbation of the model of community joint management of forest ecosystems was carried out during several stages, following one another, or implemented in parallel:

STUDY OF THE NEEDS, EXPECTATIONS AND PREFERENCES OF LOCAL COMMUNITIES IN REGARD TO JOINT MANAGEMENT OF FOREST ECOSYSTEMS

In general, by the RDF various studies and activities have been conducted in the Batken district since 2008 within the frame of other programs and studies. Nevertheless, as part of the development of the management model at the first stage the RDF conducted a comprehensive study, which included a quantitative, qualitative and participatory research; for each of them, RDF developed the methodologies with a package of tools, such as questionnaires, instructions, etc. At this stage, the following research was conducted:

- The sociological survey of households,
- institutional and legal reviews,
- studies of the state of flora and fauna, which included reports on flora and fauna, as well as a herbarium made up of samples of plants collected in the pilot sites,
- longitudinal study,
- analysis of the value chain,
- study of the pastures conditions,
- study of tourism potential,
- joint mapping of natural resources,
- collection of traditional ecological knowledge.

Figure 3. Joint mapping of natural resources

In addition, in order to study and test international experience, study tours were organized to Nepal, China, Thailand, Tajikistan in order to study the experience in joint management of forests and forest resources, familiarize with the lessons and results of ongoing activities.

The results of all studies were combined and presented to the relevant pilot forestries and local communities, and formed the basis for the development of Community Forest Ecosystem Management Plans.

AWARENESS, COMMUNITY MOBILIZATION AND THE FORMATION OF A LOCAL INSTITUTION

The next stage of the work on creating the model was to conduct an awareness campaign and social mobilization of local communities. First of all, information was gathered about forest users, the nature and extent of forest use. Using the rapid assessment method, work was carried out with identified leaders to determine the basic needs and opportunities for joint management and use of forests. From the data obtained, the main framework of the model for joint management and use of forest areas was formed.

At this stage, meetings were held with local residents and leaders to discuss the structure and role of the new institution needed to participate in the management of natural resources within the framework of the model being developed. The structure and charter of the new institute for joint management of forest ecosystems or meikin zhamaaty (landscape committees) was defined, and rules for the use of resources in forest areas were developed. Thus, the local institute “Alasan Meikin zhamaaty” was formed.

PILOTING PHASE OF THE MODEL

This phase began with the selection of a forest area for piloting. As a result of the conducted studies, meetings and discussions with the forestry and local residents, a forest plot Alasan in Batken forestry with an area of 2300 hectares was selected as a pilot site. Bilateral agreements were signed between the pilot meikin zhamaats and Batken forestries to test the model.

Community conservation and management plans of forest ecosystems. After the pilot sites were obtained, the Community Conservation and Management Plan was jointly developed, which became the main document of the meikin zhamaat on joint management and planning of activities in the pilot forest area. The methodology for the joint development of the Community Conservation and Management Plan was proposed by RDF. The community plan includes an information section that contains basic information about the forest area, strategic objectives and areas of work of the local community, as well as an Action Plan and a budget for the community to carry out its activities. The community plan was developed not only by pilot meikin zhamaat and forestry, but also with the participation of representatives of local authorities, since the community plan is aimed at managing the ecosystem as a whole, so the participation of all stakeholders and institutions involved in the management of local resources is important.

Figure 4. Community inventory

Community-based forest inventory. An important part in the development of the management model and community plans was the community inventory of forest resources. RDF has developed and tested methodologies for landscape assessment and forest inventory by local communities, joint monitoring of the state of mountain ecosystems and biodiversity, which are tools of the model. Members of the community also contributed to the inventory of forests and forest resources by using traditional knowledge to assess the condition and extent of natural resources that were used by ancestors.

Capacity building. The RDF has conducted a big number of activities on strengthening the capacity of the meikin zhamaat by organizing:

- a series of trainings for members of Meikin Zhamaat,
- participatory mapping of forests and forests resources,
- arranging exchange visits for Alasan Meikin Zhamaat members to other forestries and meikin zhamaats to exchange experience and to share mid-term results of the activities carried out to approve the joint management model.

Local initiatives. RDF has provided a great support to Alasan Meikin Zhamaat in implementing local initiatives aimed at improving the state of forests and forest resources in support of their community plans:

- Work was carried out to strengthen forest protection in order to prevent forest abuse and ensure regulated grazing of livestock in ht territory of the pilot site.

- Measures have been taken to increase the area covered by forest in the pilot area. Since 2013, Alasan Meikin Zhamaat has made a total planting of more than 7 thousand pieces of seedlings and nurslings of coniferous species, 6800 pcs. of seedlings and cuttings of fast-growing species, as well as 2250 pcs. of fruit trees and shrubs on more than 8 hectares of forest area and near temporary buildings and rivers.

• Measures have been taken to increase the productivity of pastures and reduce the burden on forests by regulating grazing. These measures include the annual approval of the amount of fees for grazing livestock with local authorities and coordination of the number of livestock with the Batken forestry and a zoning map of pastures is used to regulate controlled grazing of cattle on pastures, forests and a pilot areas. In organization of grazing of livestock, Meikin Zhamaat uses the rotation method and certain pasture areas (100-300 hectares) are removed from use for a certain period of time for natural restoration. At the same time, Meikin Zhamaat receives an opportunity to receive cash funds for grazing, which are directed to improve the state of natural resources. For the rational use of pastures and reducing the burden on nearby forest areas, work is carried out to repair and maintain the infrastructure of the site. Thus, Alasan Meikin Zhamaat, at its own expense, repaired roads on a 16 km long forest site, and also repaired several bridges with the installation of 21 pcs. of iron-concrete rings.

Figure 5. Planting of seedlings by the local community

SUSTAINABILITY OF THE ESTABLISHED LOCAL INSTITUTE "ALASAN MEIKIN ZHAMAATY"

RDF has done a significant afford in strengthening the capacity of the local community organization - meikin zhamaat to ensure the sustainability of its work. Under the meikin zhamaat, the Community Fund was created, where the financial resources of the zhamaat are accumulated for its stable functioning. The management of the community fund is carried out by Tabiyatker - the chairman, control is carried out by the Audit Commission and the General Meeting. The Alasan Meikin Zhamaat General Meetings are regularly held where reports submitted by Tabiyatker and the Audit Commission on financial, organizational, economic, and other matters are discussed and approved. The General Meeting also elects Tabiyatker and the members of the Audit Commission. For the period of its work from 2013 to 2017, Alasan meikin zhamaat collected more than 5 thousand dollars of funds, which were directed to the implementation of activities for the CFMP.

Batken Forestry has been allocated to alasan meikin zhamaat a room for the organization of a kindergarten or a children's development center. At the same time, salaries for the kindergarten teacher were allocated by "Alasan meikin zhamaat" at their own expense. This center is visited by more than 20 children aged 4 to 7 years. There are classes such as drawing lessons, national games and pre-school preparation of children. Currently, Alasan meikin zhamaat is searching for funds for the organization of the second children's center on the Alasan site.

In order to increase the potential of meikin zhamaat, RDF organized and conducted a number of trainings on fund raising, as well as on administrative affairs of the community. Alasan meikin zhamaat received support from various foundations, thus, with the support of the public foundation "Initiative of Roza Otunbayeva" (ex-president) the kindergarten of the zhamaat was supported with books, stationery, toys, as well as teaching materials. With the assistance of RDF, Alasan meikin zhamaaty received financial support from the Danish Church Aid for the creation of a community-based chicken farm as a source of income for meikin zhamaat.

Local self-government bodies and other local institutions were also actively involved in activities. LSG were involved in the process of regulation of disputes between the forestry and "Alasan meikin zhamaaty" on various issues. Members of the LSG in fact are members of the General Meeting of Meikin zhamaat. Besides local administration, local village councils also participated in activities. Thus, Meikin zhamaat approve in the village council the amount of the fee for grazing in the forest area of Alasan. The annual plans for the use and conservation of the Alasan forest area, as well as the annual reports of the meikin zhamaat, are presented at the local village session. Thus, the role of local self-government is increasing in ensuring accountability of the local community.

Some difficulties were encountered in the process of testing the model due to the low interest of the forestry in the transfer of rights and powers to local communities and in advising the meikin zhamaat on forestry and forestry engineering activities. But, in general, Alasan meikin zhamaaty showed the resilience of the Forest Ecosystem Management Model with the participation of local communities through the example of joint management of the forest area of the Batken foretsry.

Analysis

LESSONS LEARNED

The testing of the model in two pilot areas showed not only the viability of the model, but also its effectiveness in solving many problems in the forest sector. So, as part of piloting the model in the Batken pilot area, the local community "Alasan Meikin zhamaaty" has developed into a sustainable institution that successfully manages a forest plot without external financial support under the Community Forest Management Plan. However, in the development and testing of the model, RDF and Meikin zhamaat faced many difficulties:

- Resistance at the local level. Despite the Government's policy of decentralizing the forest management system, there is still a resistance at the local level to involve the local population in forest management. Forestries are not interested in transferring power in forest management to local communities, as they can lose the source of income in the form of payment for nature resource use, as well as levers of influence on forest users. On the other hand, the forestries are afraid to change anything, due to the lack of an appropriate legal base in the period after the completion of the project, they may have major problems on the part of the inspection bodies.
- Weak potential and negative stereotypes of "collective work", inherited from Soviet times, prevent local communities from working closely together for full-fledged forest management. Internal conflicts and the disunity of the community hamper joint action. The level of mistrust among community members is high in those communities where traditions are poorly observed.
- Consumer attitude to "public" resources. The local population is still dominated by stereotypes of negative understanding of the "public", where the individual user, in search of maximum benefit for himself, neglects the rules adopted by the communities.
- Low level of confidence in the forestry. Forestry's lack of mechanisms of accountability to the local population led to various conflicts and disinformation about the forest works carried out by the forestry.

CONCLUSION

The Model of community joint management of forest ecosystems aims to promote a holistic management and conservation concept by combining the preservation of biocultural diversity with the sustainable use of resources by local communities, including vulnerable groups. The model of community joint management of forest ecosystems has become innovative for the country, because:

- This is the first model of co-management of forests, which does not separate the conservation of forest ecosystems from the management and use of forest resources.
- Unlike existing and practicing approaches of joint forest management in the country, this model is aimed at a holistic or ecosystem approach in forest management, not fragmenting and not considering the forest as a collection of trees.
- The difference of the model is the involvement in the co-management of the entire "community", rather than individual "privileged" households.
- This approach is also aimed at increasing confidence and strengthening partnerships between the forestry, local communities and local authorities.
- The model, developed on the basis of traditional environmental knowledge of local communities and leading local and international forest management practices, demonstrated its sustainability during approbation.

PLAN FOR PROMOTION OF THE MODEL

Under certain rules, recommendations and capacity building, local communities may well act as agents for the transfer of economic functions. The involvement of local communities in the management of forest ecosystems should be gradual. In this regard, it is important that all members of the community participate in the management of forest resources, feel responsibility for the conservation of the ecosystem, understand the principles of sustainable use of natural resources.

For effective co-management it is necessary that community institutions and forestries work in close and equal partnership based on the coherence of all roles and responsibilities for the management of forest ecosystems. It is necessary to raise awareness about the importance of conservation and sustainable use of forests, as well as the importance of involving the local community in the management of forest ecosystems at all levels.

It is necessary to provide a favorable legal framework for the implementation of ecosystem management models. When implementing joint forest management models, donor assistance is needed to increase the capacity of local communities and forestries / local associations of pasture users, but it should not become the main incentive for co-management.

Recommendations

Based on the experience gained in the development and testing of the RDF model, the following recommendations are proposed for the implementation of the Model of community joint management of forest ecosystems:

1. It is necessary to clearly define the boundaries: the objects of joint management, the amount of resources available for meikin zhamaat and the value of the ecosystem they manage. Local communities need to understand the relationship between conservation and sustainable use, recognize the importance of the ecosystem they manage, and the threats and stresses that exist. Local communities need to know the amount and type of resources available to them, the methods for their rational use (in what quantities and how to use them wisely). If the potential benefit is small or available only for a limited number of individuals, then it is necessary to reconsider the involvement of the local community.

2. The forest should be considered as part of the ecosystem. When developing and implementing the Community Management Plan, the forest should be considered as a holistic ecosystem.

3. All members of the community should gradually be involved in planning the co-management of the forest site. It is necessary to involve all members of the community in the development and adoption of rules for the use and conservation of forest resources, as well as intra-organizational rules in meikin zhamaat

4. Meikin zhamaat or the local community involved in co-governance should have a clear organizational structure, where the rights and obligations of each member should be defined and accepted by the entire community.
5. Open election of the leader (Tabiyatker) of the meikin zhamaat. In the work of meikin zhamaat, its leader plays a big role; meikin zhamaat should be headed by a person with obvious leadership qualities that is able to unify members and organize the proper work of meikin zhamaat.

6. It is necessary to clearly define the mechanism for resolving conflicts in the structure of meikin zhamaat. Tabiyat Ordo (or the Board of Management) of meikin zhamaat acts as an intermediary in resolving disputes inside the meikin zhamaat..

7. Ensure the transparency and predictability of all decisions of meikin zhamaat. In order to avoid conflicts, it is necessary to inform all members of all decisions of meikin zhamaat. It is necessary to develop a clear regulation of accountability (fixed terms for holding the General Meeting, meetings of Tabiyat Ordo, etc.) and timely notification of all members of the zhamaat to ensure maximum participation in meetings.

8. The potential of meikin zhamaat. For successful introduction and implementation of co-management, it is necessary to train community members at all stages of the preparation and implementation of the Community Management Plan.

9. It is necessary to ensure an equal partnership between the forestry and meikin zhamaat. At the same time, a clear distribution of the rights and obligations of the parties is needed.

10. Joint monitoring contributes to the improvement of the effectiveness of meikin zhamaat and forestry. Joint assessment of the work on co-management and discussion of the results of joint monitoring contribute to building trust between the foretsry, meikin zhamaat and the local self-government body.

11. It is necessary to ensure regular informing and communication both within the community and between meikin zhamaat and the forestry in order to avoid conflicts and misunderstandings.

12. In order to introduce and promote a model for co-management of forest ecosystems, it is possible to involve external actors - non-governmental organizations, joint management working groups or experts. But, most importantly, the initiative to involve in co-management should come from the lower levels, from the forestries and the local community, and in no case should be imposed by external organizations.

References

Concept of Forestry Development in the Kyrgyz Republic, 2017

Integrated Assessment of Natural Resources 2008-2010. Kyrgyzstan. FAO. 2010

National Report on Biodiversity in the Kyrgyz Republic, 2015

National Statistical Committee data for 2015, 2016 2017 years

Publication on Joint Forest Management of Forest Ecosystems. RDF. 2016

State Agency for Environmental Protection and Forestry of the Kyrgyz Republic data for 2015, 2016, 2017 years.

State Agency for Migration under Government of the Kyrgyz Republic data for 2015 year.

Undeland A. Forest Management and Use in the Kyrgyz Republic: Development Potential. PROFOR, RDF, 2011.

Improvement of Living through the Sustainable Use of Natural Resources in Rural Districts of South Balkhash Region

Institute of Ecology and Sustainable Development (IESD)

ABSTRACT

The Republic of Kazakhstan is party to numerous International Conventions (Convention to Combat Desertification, Convention on Biological Diversity, the Cartagena and Nagoya Protocols to the CBD, Bonn, CITES). To uphold and fulfill its obligations to the said conventions, they use a multilateral approach in addressing land degradation issues. This not only mean that the conservation and restoration of natural ecosystems is considered, but also the improvement of livelihoods of locals, as well as poverty reduction. Desertification, natural resource management, and environmental safety are the main environmental issues faced at national and regional levels.

Asian ecosystems have provided rural communities with food and livelihoods for centuries. However, these food producers who rely on agriculture, fisheries, and cattle-breeding, are the ones who face poverty and hunger. Worst of all, they do not have the rights to the very land they use.

Land rights play a significant role in the elimination of hunger and poverty, as well as sustainable use of natural resources. By giving local communities the right to make use of land and its resources, they can claim ownership of the ecosystem management process.

The International Land Coalition, in its commitment to promote locally-managed ecosystems, aims to strengthen community safety in the management of environmentally sensitive ecosystems by documenting, replicating and promoting land management, with a strong focus on people's interests, as well as public policies and programs.

Rationale

In the Balkhash region, the process of desertification occurs rapidly. Desertification is manifested not only in the formation of sand dunes, but also in the reduction of the local water supply and its quality. A vivid example of land degradation and vegetation is the thinning and changing of vegetation. With irregular grazing, the state of the natural environment deteriorates. Valuable fodder grasses are discarded and do not provide an after-growth. At the same time, pastures are overgrown with inedible weeds. As a result, the yield of fodder lands decreases, causing the deterioration of grazing conditions and lower profitability of livestock.

Formation of sand dunes

According to scientists, the economic damage from degradation of desert pastures is 1000 tenge (tenge - National currency, 370 tenge=1$) per hectare annually.

Until 1990, pastures located in the sands of South Balkhash region were used by collective and state farms for traditional distant-pasture cattle tending. After the collapse of the collective and state farm system of land use and the transition to a market economy, these pastures have since been unused because watering points and wintering grounds have been destroyed. The number of livestock also significantly dwindled.

At present, the number of livestock in the community is gradually increasing but cattle graze on public lands (within a radius of 2-4 km from villages) and on pastures of peasant farms. Having extensive pasture lands and favorable natural and climatic conditions, local residents, can allow their livestock to graze all year round on pastures. This contributes to the increase in the number of livestock at the peasant farms and households in the community. In the Topar, Balatopar and Zheltorangy rural districts, there are approximately16,000 heads of cattle, 35,000 sheep and goats, and 4,000 horses.

Subsequently, excessive pasture use leads to the acceleration of desertification processes, which lead to the displacement of fodder species of vegetation by inedible, poisonous, and invasive plant species, erosion, and land degradation. These negative processes are also facilitated by uncontrolled harvest of saxaul forest. Ultimately, biodiversity is reduced and the restoration of forest and pasture vegetation is hampered. All desert regions of Kazakhstan are experiencing this problem.

Context

The Balkhash region is unique in Central Asia due to its natural conditions, richness of subsoil, and water resources. Lake Balkhash is the third largest after the Caspian Sea and the drying up Aral, the inland water basin of Kazakhstan. The Ili River flowing into the river delta in Balkhash forms one of the largest lake ecosystems in the world.

Map of the project territory

The lands in Balkhash are prone to desertification due to the Kapchagay reservoir, unregulated water use, and the cutting of desert forests. To a large extent, however, desertification is caused by the irresponsible pasture use.

The area is located in the southern part of the Ili river delta (Topar system of river branches) in the rural districts of Balatopar, Topar, and Zhelturangy of Balkhash district, and comprises about 150,000 hectares. This zone contains deserts and experiences a small amount of precipitation (120-217 mm per year), a periodic occurrence of droughts and dry winds, high summer (+35°C in July) and low winter (-20 °C in January) temperatures.

Most of the farms are located in the territory of the Balkhash State Nature Reserve, to the north of Topar. In the south, the project territory borders on the lands of the state reserve and the forest fund, which is managed by the Kurta state forest and wildlife protection agency.

The distribution of land among rural districts is as follows:

- Topar - 92 thousand hectares
- Balatopar - 196 thousand hectares
- Zhelturangy – 110.5 thousand hectares

A total of 105 peasant farms were registered. Public pastures occupy 9,500 hectares in the village of Topar, 6,000 hectares in Balatopar, and 10,000 hectares around Zhelturangy.

The desertification of forage lands is caused by unregulated pasture use, unsustainable water use and deforestation. With excessive grazing, the soils are compacted and sprayed by the hooves of cattle. Furthermore, valuable pasture grasses do not have time to grow and give off seeds, so weeds and other inedible plants grow in their place.

Because of decreased yield of forage grasses, the cattle in these areas have become undernourished. With excessive use of pastures, the state of the natural environment deteriorates, the productivity of the forage lands, and consequently the capacity of pastures also decreases.

The Project

The Institute of Ecology and Sustainable Development implemented a project to improve the living conditions of the rural population based on the sustainable use of natural resources of the South Balkhash region.

The Project was conducted in the rural districts of Balatopar, Topar, Zhelturangy in the Balkhash district, Almaty region from 2002 to 2006. It was supported by GTZ / CCD Project (German Society for Technical Cooperation/UN Convention to Combat Desertification).

OBJECTIVES

The objective of the Project is to get useful experience and prepare recommendations for further replication by local administrations, rural communities and peasant farms. Specifically, it will:

- Assess the degree of desertification and reduction of the risks that are caused by land degradation;
- Self-organization of the local population for the conduct of economic activities and mitigating the risks of socio-economic factors on natural ecosystems; and
- Improve the livelihoods and living conditions of the local population,

METHODOLOGY

The methodological basis of the project is the Autodidactic Learning on Sustainability (ALS), which is the process of self-learning in practice, in local conditions, together with the local population. The methodology for conducting ALS seminars was developed by the Center for Development and Environment (CDE) at the Institute of Geography of the University of Bern, on behalf of the Swiss Agency for Development and Cooperation (SDC). This technique has been tested in various countries such as Mali, Madagascar, Ethiopia, Bolivia, India, and Thailand. People affected by land degradation were involved in the planning, implementation, and evaluation of project activities. The state of fodder lands was assessed according to the methods of geobotanical field research—a survey of the local population, along with educational seminars and trainings were conducted.

In the three settlements, a survey of the socio-economic situation was conducted using the GIS **(Geographic Information Systems)** methodology. Assessment of the degree of desertification and environmental mapping in M 1:200000 was performed on the 5000-hectare territory in GIS format. The territory of three model peasant farms was surveyed, demonstrative sites were created, and vegetation maps were compiled.

MAIN RESULTS

On Capacity Building

- Capacity building was intended to capacitate the locals improve their livelihoods, training seminars on methods for collecting, primary processing and use of medicinal herbs; high-quality yogurt production technology, curd mass, soft and hard cheeses; meat processing; and the potential for the creation of an association of peasant farms, as well as in the areas of livestock development.
- Eco-education activities, such as training material production, resource mobilization, and trainings were conducted.
- The locals were trained on fixing moving sand.
- Capacitation of 30% of the population increased the potential of independent work. Various meetings with the locals and representatives of local, district and regional authorities, as well as seminars, trainings were subsequently held.

Management Plans

• Pasture management plans have been developed in four model peasant farms in partnership with local farmers.
• With the local population, plans for fodder land management plans were made in the rural districts of Zheltorangy, Kokterek, Birlik and Meshitbay.
• The Farmers' Manual and Recommendations for Pasture Management have been adapted to local conditions, considering the comments of the local population.

Organizations, Public service and Policies

• Policies on the Public Council on Ecology and Nature Management have been developed. At rural districts of Zheltorangy and Akzhar, councils on ecology and nature management were created for the first time and continue to function at present.
• Environmental NGOs have been established. These organizations are actively involved in the life of rural communities.
• In the villages, centers for public services were installed by training locals on hairdressing and sewing.

Reforestation

• The planting of saxaul was carried out. Field training was conducted to collect and sow seeds.
• Poplar planting was also performed for the local population to gain experience in propagation and poplar cultivation. Prior to this, the plantation of hybrid fast-growing poplars was demonstrated in farm plots. Three micro-nurseries were created.
• Economically valuable and endemic plant species were identified and documented, and an album on these species was compiled and published.
• Measures for the natural restoration of the unique Asiatic poplars' grove in the area of five hectares were taken.

Forest Protection

• To improve the protection of the territory from fires, foresters and huntsmen were provided with sets of saddles and saddlery equipment.
• Available fire prevention materials for various concerned parties were prepared, campaign materials and fire-fighting leaflets were produced, and fire prevention measures were taken.

Environmental Education

• In three schools, programs on environmental education involving classes with a set of TV-equipment and a set of videocassettes of nature protection subjects, as well as herbariums was rolled out. In the school of Topar village, satellite equipment for reception of environmental TV was added.
• To provide children with clean water in schools in two villages, drinking water quality treatment systems (desalination and disinfection) have been installed.
• A "Green Patrol" was created in three schools. For Topar high school, sewing machines, a TV, a video player, and a set of videocassettes with environmental films, and satellite antenna with the necessary equipment were provided.

Manuals and Handbooks

The following IESD methodological guides, recommendations, and other materials were created and published:
• Recommendations on fodder land management of the Topar rural district, using two peasant farms as examples;
• A handbook for Farmers;
• An album of economically valuable and endemic plants of the South Balkhash region;
• A handbook for beginners in NGOs. Formation of interactions between state bodies and NGOs in Kazakhstan;
• A handbook on correctly writing and composing an application, for new NGOs;
• Bird breeding technology; and
• Instrument for the creation of farmer cooperatives on product sales.

Analysis

Project duration is critical

The length of the project was limited due to budget constraints. Due to the short duration of the project, the advantages of this approach and methodology were not effectively measured. Because of this, best practices were not continued, the potential for replication and distribution was limited, and limitations on impact assessment became apparent. After the end of the implementation period, monitoring became impossible. As a result, lessons and results were not effectively disseminated.

Challenges in pasture management

The primary challenges in pasture management are:
• Imperfection of and weak access to statistical, hydrometeorological, cartographic databases;
• Lack of specialists at all levels;
• Insufficient access to information;
• Outdated scientific and methodological base;
• Gender barriers;
• Conflicts on natural resources;
• Loss of traditional knowledge and agricultural general fund;
• Disadvantages of the institutional and legislative framework; and
• Prevalence of various forms of ownership of land (public and private property) and forms of land ownership (long-term and short-term rent).

Need for financial assistance and access to resources

Despite the significant potential of the region, the development of agricultural production and rural entrepreneurship, as well as small businesses in the trade and service sectors, is impossible without external financing. Meanwhile, existing state agricultural lending programs and banks continue to be inaccessible to farmers in the project areas.

Many peasants want to have and can maintain additional heads of livestock but due to the lack of financial sources, most of them have to sell their own livestock, which they acquired with great difficulty, to secure household needs.

The region needs loans for agricultural production. It is necessary to provide loans to residents of the region for business development in the following areas:

- increasing the herd (to buy livestock);
- acquisition of circulating assets (hay, mixed fodder, fuel);
- purchase of equipment (tractors, hay harvesting equipment);
- purchase of equipment for distribution of products and other services for farmers;
- Loans for small businesses; and
- In order to improve the marketing situation for the purpose of increasing the profitability of household and peasant farms in the project area, it is proposed to establish a Supply and Marketing Agricultural Association. This partnership is an analogue of Western-type of Farm Cooperatives.

Safeguarding traditional knowledge

The project "Botany Diversity Support System and Management of Pasture Resources Based on Traditional Knowledge of the Local Population" was developed, with the following abstract in mind:

"Practical knowledge of cattle breeders is based on traditional methods of natural resource usage. Age-old traditions on the rational use of pastures were passed down from generation to generation of nomads. The preserved traditional knowledge among hereditary cattle breeders and traditional practitioners will allow the introduction of traditional pasture management and botanical diversity preservation methods. By documenting and traditional knowledge with, these practices can be integrated with modern practices".

It can be concluded that a farmer, to work successfully in the current economic and political situation, needs to have good knowledge, great capital, and ability to manage the farm and cooperate with others. These factors are decisive for the development of agricultural production in modern conditions.

Recommendations

When developing the ideology of the project, it is necessary to carefully consider the interests of the participants. For example, the plan to establish a local association of farmers (or an agricultural cooperative) did not work because the locals did not believe in each other and did not want to work together.

Project activities should be planned and implemented jointly with the party concerned (in this case, with the farmer). When conducting educational and training activities, the emphasis should be placed on adapting people to the realities of the market economy. Actions to change the perception and attitude of people regarding the preservation of the environment should be based on economic data.

References

Faizov K. Sh., Urazaliev R. A., Iorgansky A. I., Esimbekov M. B. Anthropogenic desertification of the soil of the Republic of Kazakhstan - Almaty, 2000. Poligrafservice LLP - 33 p.

Kurochkina L. Ya. Pastures of the sandy deserts of Kazakhstan. - Alma-Ata, 1973. - P.200-205

Kurochkina L. Ya., Makulbekova G. B., Karibaeva KN. State of pasture-grasslands. // Transformation of natural ecosystems and their components during desertification. - Almaty: “Naurzum” NGO, ENVIRS, 1999. - 140 p.

Nikolaev V.A. Delta p. Or and Bakanasy (geomorphological essay) .- Proceedings of the geography sector of the Academy of Sciences of the Kazakh SSR, 1959, issue 4.

5. L.Ya. Kurochkina, K.N. Karibaeva, A.B. Bayzhumanov, A.B. Mishchenko, A.ZH. Toylybayev, A.K. Masimov, A.B. Isabaeva. Manual for farmers (manual for pastures) Almaty, 2005

L.Ya. Kurochkina, K.N. Karibaeva, A.B. Bayzhumanov, A.B. Mishchenko, A.ZH. Toylybayev, A.K. Masimov, A.B. Isabaeva. Recommendations for the management of feed areas of farms of Southern Balkhash. Almaty, 2005

K.N. Karibaeva, L.Ya. Kurochkina. Vegetation changes and their regulation in pasture use (Taukums). Scientific publication. Almaty, Gylym, 1991

Transformation of desert vegetation of Kazakhstan in the regions of oil and gas production and the possibility of its rehabilitation. Proceedings of the Institute of Botany and Phyto-Production. Almaty, 2014

FSC Certification as a Tool for Biodiversity Conservation and Protection of Forest Users' Rights

Kyrgyz Association of Forest and Land Users (KAFLU)

ABSTRACT

This case provides an overview of the history of the development of voluntary forest certification by the FSC system in Kyrgyzstan.

The development of voluntary forest certification began after the UN Conference on Environment and Development, held in Rio de Janeiro in June 1992, amid a general increase in attention to environmental issues and interest in creating mechanisms for public participation in solving these problems. The FSC (Forest Stewardship Council) system was established as an organization in 1993, and forest certification in accordance with the principles and criteria of this system began in 1996.

Certification to standards (by schemes) FSC is a unique global system that provides for the assessment of forestry activities by an independent (third) party according to strict social, environmental and economic standards and is an important means of preserving the biological diversity of exploited forests, i.e. forests in which forest management is carried out with the aim of obtaining forest products.

For 2017, the FSC system in the world has certified forest management for about 200 million hectares; about 1,500 forest management certificates have been issued.

The first question on certification of the forest management system and the forest products supply chain (NTFP) in Kyrgyzstan through the FSC system was initiated by the Kyrgyz Association of Forest Users and Land Users in 2014. In the same year, work began on the introduction of certification of the forest management system and the forest products custody chain. The process of introducing certification lasted 3 years.

As a result of passing all the procedures and requirements of the FSC system, for the first time in Kyrgyzstan and Central Asia, 52 forest users received FSC certificates for forest management and the supply chain custody of forest products for a period of 5 years.

Introduction

The Kyrgyz Republic belongs to low-forest highlands and is distinguished by the high-altitude forests situated along mountain ranges. About 90% of the forests of the Kyrgyz Republic grow at the heights from 700 to 3500 meters above sea level.

Forests of the Kyrgyz Republic are the property of the state supervised by a single State Forest Fund. All forests (covered with forest vegetation) and lands (not covered by forest vegetation: plantations, nurseries, felling, clearings, wastelands) provide for the needs of the forestry, except for forests that are in communal and private ownership, forming the state forest fund (SFF).

According to the NSC in 2016, the total area of the SFF and specially protected natural areas (SPNA) was 3451.2 thousand hectares where SFF comprises 2,596.8 thousand hectares and SPNA is 8,544 thousand hectares[1]. Based on the results of the National Forest Inventory[2] (2008 - 2010), the forest area of the Kyrgyz Republic spans 1 116.56 thousand hectares, or 5.6% of the total area of the country.

Due to its rich biodiversity, the importance of the Kyrgyz forests goes beyond national borders. Some of these forests are of global importance. Natural, unique walnut- fruit forests of southern Kyrgyzstan, for example, have rich genetic resources of ancestral species of walnut, apple, grape, pear, plum, pistachio, and almond. In this sense, these forests have global significance and constitute a genetic bank of incredible value[3].

Forests in the Kyrgyz Republic have important ecosystem services value - soil protection, water protection, climate control, sanitation, health, carbon sequestration, biodiversity conservation (protected by the state) and other functions. In addition, forests influence the flow of Kyrgyzstan's transboundary rivers, evenly distributing it over time during the vegetation period, which is of great importance for agriculture, both in Kyrgyzstan and other Central Asian countries in the arid farming zone. Despite the significant forest cover in the country, the contribution of the forest sector to the economy of the country (GDP of the Republic) is only 0.05%[5].

It should be noted that although the Kyrgyz Republic has a small forest area, about 2 million of the country's population of 6 million people, live in or near the forest and their livelihood depends on forest resources. From total number of 453 rural districts (LGB) in Kyrgyzstan, 62.5% (283 communities or LGBs) are located inside or bordering the lands of the state forest fund.

There are more than 25 thousand forest users (tenants) on SFF lands, and their direct well-being depends on forest resources, i.e. forests are the main sources of their income, wood, food, fuel, etc. Local communities use a wide range of timber and non-timber forest products like nuts, fruits, medicinal plants, mushrooms, etc., and organize various types of side use of forest resources: grazing, hay harvesting, tourism and recreation and others.

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[1] Statistical Yearbook of the Kyrgyz Republic. -B., 2016.

[2] Resolution of the Government of the KR of July 26, 2011 No. 407.

[3] SAEPF, UNDP, Fourth National Report of the Kyrgyz Republic to the UN Convention on Biodiversity. -B. 2008

[4] Forest Code of the Kyrgyz Republic

[5] NSC, Kyrgyzstan in numbers. -B., 2015

Unfortunately, in forest management (during harvesting and collection of non- timber forest products, etc.), not enough attention is paid to the conservation of biodiversity, legal regulations, contractual conditions, rules of occupational health and safety in SFF areas. At the same time, in order to meet the immediate needs of the family (sending children to school, preparing fuel for the winter, etc.), the local population, in most cases, is forced to sell in wholesale their products at low prices to procurers and mid-resellers.

In recent years, there has been rapid growth of the population especially in the territory of the SFF. Further, preservation and development of our forests, as well as the rational and efficient use of forest resources will directly depend on local communities. Therefore, for conservation, development, and sustainable use of forest ecosystems, it is necessary to really involve local communities, forest users, and other interested stakeholders and affected parties.

Context

Among the forests of the Kyrgyz Republic, one of the most valuable is an array of unique walnut-fruit forests, located in Jalal-Abad and Osh regions on the Western and South-Western slopes of the Fergana and Chatkal ranges of the Tien Shan mountain system. This rare beauty of the corner of the Kyrgyz Republic is a natural botanical garden, where tens of thousands of hectares of valuable species of trees and shrubs grow. By the size of the occupied territory and the beauty of nut-fruit forests of Jalal-Abad and Osh regions stand out from all the forests of the world.

From 182 tree and shrub species represented in the area, the most valuable are walnut, pistachio, almond, pear, apple, various forms of wild plum (cherry plum), hawthorn, barberry, cherry-magalebka, and different types of rose hips. At altitude of more than 1800 meters above sea level grow coniferous forests of spruce Schrenk, juniper tree as listed in the Red Book of the Kyrgyz Republic fir Semenov[6]. Some other red listed species are: Uzunakhmatsky grapes, Korzhinsky's pear, kopeechnik shchetinoplodny, mountain ash Persian, Nedzvetsky's apple-tree, Sivers's apple-tree and hawthorn of Knorring.

Numerous representatives of the fauna also live in the zone of walnut forests: roe deer, bear, wild boar, snow leopard, capricorn, lynx, porcupine, wolf, fox, hare, marmot, many hunting and fishing birds. Deep-sea lakes (Sary-Chelek, Kyla-Kol, Kara-Kul) and the flowing rivers Kara-Ungur, Naryn are inhabited by scaly osman and marinka.

Walnut forests are inhabited by various animals and birds listed in the Red Book of the Kyrgyz Republic. From the animals: Tien Shan brown bear, snow leopard, manul, Tien Shan mountain sheep, Mensbir Marmot, red wolf, Central Asian otter, porcupine and lynx. From the birds: snake-eaters, bearded kumai, balaban, white-chested pigeon, gray owl, eagle owl, golden eagle, white-winged woodpecker; from the insects: splash mighty and splashing Ferghana.

[6] http://www.welcome.kg/ru/kyrgyzstan/region/development/209.html

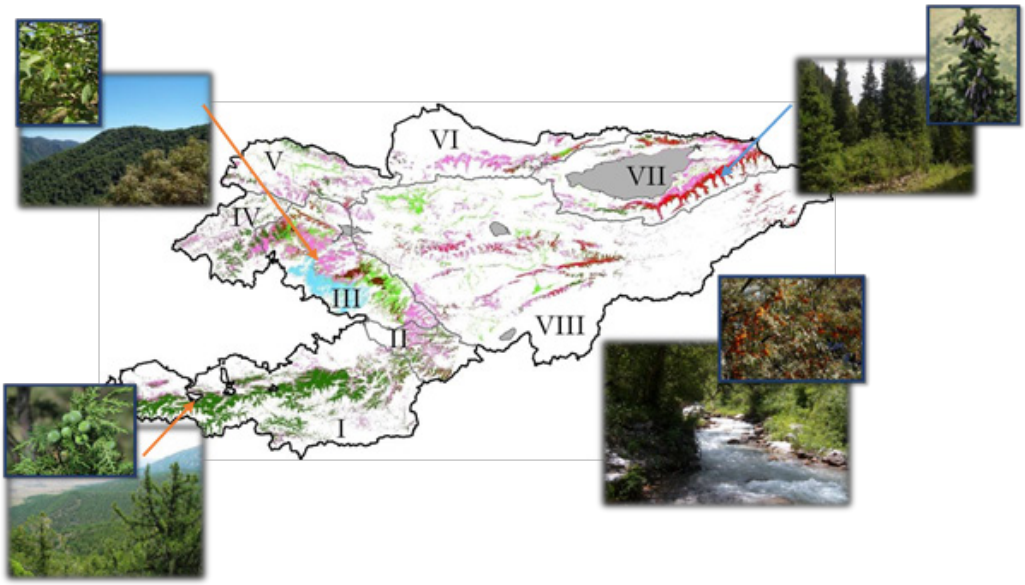


Fig. 1. Forest map of the Kyrgyz Republic.

Studies have shown that walnut forests and their products perform a variety of functions for different population groups at different levels. Subsistence care and urgent economic interests lead at the moment to the fact that the forest is irreversibly damaged. For this reason, it is urgent to develop criteria and indicators for the protection and use of unique forests and implement these in real life. At the same time, such requirements as preservation of forest ecosystems in walnut forests and social and economic well-being of local communities should be met. Forms of forest use that harm the forest for alternative sources of income should be prevented by the organization (e.g. multiple use of forest resources)[7].

In this connection, the zone of walnut forests of Jalal-Abad region was chosen for research and implementation of the certification system according to FSC standards. In order to preserve the forest ecosystems of the world's unique nut forests, it is necessary to involve local communities, creating conditions for responsible forest management and meeting their needs.

This is important as certification of forest management, according to FSC standards, will assist in:

1. Conservation of forests and biodiversity;
2. Enhancement of the image of the forest sector of the Kyrgyz Republic;
3. Strengthen the ability to enter the foreign market;
4. Active public participation in forest management;
5. Poverty reduction;
6. Reducing the level of corruption;
7. Effective compliance with occupational safety and health;
8. Sustainable use of the forest fund.

7 Schmidt M. On the use and management of walnut-fruit forests at the present time. Bulletin of the KAU. -Bishkek 2007. p. 62-67

VOLUNTARY FOREST CERTIFICATION

One of the mechanisms allowing the preservation forest ecosystems with the participation of all stakeholders is voluntary forest certification. Forest Certification is an activity to confirm the compliance of forest management and/or forest products with established requirements.

Kyrgyzstan recently approved on governmental level UN Criteria and Indicators for Sustainable Forest management. Most part of these C&I are covered by Forest Stewardship Council (FSC) national interim standard for Kyrgyzstan. Therefore, it is recommended to use FSC as a tool to prove Kyrgyzstan is actually complying with ratified Sustainable Development Goals.

Certification in the FSC system is carried out by FSC accredited certification bodies. Certification bodies are independent organizations that have accredited their certification programs in the FSC. The accreditation of certification bodies in FSC is carried out by the partner organization ASI - Accreditation services international. ASI has the right to verify any certification body or certified company in the framework of quality control of certification.

The certification procedure consists of the following main steps:

1. Appeal to one or more FSC accredited certification bodies. The certification body will provide information on the FSC certification requirements. To estimate the time it will take to prepare for certification and its cost, the certification body will need some basic information about the applicant's activities;
2. Decide which certification body you want to work with and sign the relevant agreement;
3. Certification (main) audit or basic assessment is carried out by the certification body to assess the company's readiness for certification;
4. Based on the data of the certification audit, an audit report is prepared, on the basis of which the certification body plans on certification;
5. If the solution is positive, the FSC certificate is issued. If the audit revealed that the organization's activities have not yet been brought into compliance with the FSC requirements, after eliminating the inconsistencies in its activities specified in the report, the organization may be re-audited[8].

According to expert estimates, the average time to obtain a forest management certificate (FM) is between 6 and 12 months. In the case of a supply chain certificate (CoC), the time is much shorter. FSC certification is not a one-time activity, but a continuous process throughout the life of the certificate. In addition, there will be costs for regular control audits (usually once a year). At the same time, the costs may differ significantly in different periods[9].

FSC certificates are valid for five years. The FSC accredited certification body annually conducts a supervisory audit to verify the organization of permanent compliance with FSC certification requirements. In some cases (for example, when there is information on significant discrepancies in the interval between supervisory audits) additional validations of the issuance of certificates can be carried out. After 5 years, recertification is carried out - that is, one needs to undergo again a full certification audit.

[8] https://ru.fsc.org/ru-ru/cert/five_steps_to_certification

[9] Voluntary Forest Certification: A Training Manual for Universities - Moscow 2011

FSC CERTIFICATION IN KYRGYZSTAN

The certification process in Kyrgyzstan started in 2014. The following steps were undertaken that took more than three years.

Expression of Interest

In November 2014 at the business forum in Almaty organized by FSC CIS Regional Office, Tetra Pak and Kagazy Recycling - KAFLU showed interest in the certification of forests in Kyrgyzstan and invited FSC regional coordinator for CIS Countries, Mariam Mattila, to study the possibility of implementing a forest management certification system according to international standards.

Fig. 2. Meeting of Mariam Mattila, FSC regional coordinator for CIS countries, with forest users.

Meetings with Stakeholders

From November 2014 to 2015, Mariam Mattila held a number of meetings with stakeholders:

- Director of SAEPF
- Head of the Department of agriculture and ecology of the GKR
- Vice-President of NAS KR
- Head of the National Statistical Committee
- Representatives of parliament of KR
- Director of the Department of forest ecosystems development of SAEPF
- Head of the SAEPF territorial
- A number of local NGOs and international organization
- Managers and forest users of forestry (as shown in Fig.2)

Conduct of Expert Study

In 2015, with the support of Hessen-Forst, an expert study was conducted in the nut forests of Kyrgyzstan by Mikhail Karpachevsky, forest protection expert and coordinator of the forest program "Transparent World". He also held meetings with all affected and interested parties (Fig. 3). A positive conclusion was given about the possibility of certification of nut forests according to FSC standards.

Fig. 3. Meeting of Mikhail Karpachevsky, forest protection expert, with forest users in the walnut forests.

Pre-Certification Processes

After a positive conclusion about the possibility of certification of walnut forests under the FSC scheme, the next step was the work of experts to determine the possibility and compliance of national legislation with the requirements of international standards FSC.

Fig. 4. The work of the experts of the NEPCon's for the study and preparation for the pre-audit potential of forests of Kyrgyzstan

FSC Principles, Criteria and Indicators

The compliance with its requirements was checked by assessing the activity at the level of the forest management unit for each of the indicators in comparison with some threshold value or values for the measured parameters of such activity given in the standard[10]. The FSC principles and criteria are the same for the whole world, for all areas and types of forest ecosystems, as well as cultural, political and legal systems.

FSC principles, criteria and indicators in the standard for forest management assessment in the Kyrgyz Republic:

Principle 1. Compliance with legislation (8 criteria, 26 indicators);
Principle 2. Workers' rights and working conditions (6 criteria, 30 indicators);
Principle 3. Rights of Indigenous Peoples (0);
Principle 4. Relations with the local population (8 criteria, 24 indicators);
Principle 5. The usefulness of the forest (5 criteria, 18 indicators);
Principle 6. Natural values and their impact (10 criteria, 41 indicators);
Principle 7. Farm planning (6 criteria, 23 indicators);
Principle 8. Monitoring and evaluation (5 criteria, 14 indicators);
Principle 9. High conservation values (4 criteria, 12 indicators);
Principle 10. Implementation of economic activity (12 criteria, 40 indicators).

Preparation for Certification

In 2016, consulting work was carried out to prepare for certification (Fig. 6):

- Training of KAFLU staff;
- Training of pilot local forest units (leskhozes) and corresponding LGB's employees;
- Training of forest users.

Fig. 6. Consulting work on preparation for certification

[10] Voluntary Forest Certification: A Training Manual for Universities - Moscow 2011

Preparation for the Audit

In early 2017, consulting work was carried out to prepare for the audit (Fig. 7):

- Preparation of documents on the principles of FSC by KAFLU staff;
- Preparation of relevant documents of forest users;
- Preparation of pilot leased plots.

In mid-2017, corrective actions were taken to streamline the package of FSC certification documents

Audit

In September 2017, an audit was conducted (Fig. 8):

- checking documents on FSC standards in KAFLU office
- field inspection (evaluation of leased sites)
- checking the documents of forest users for compliance with FSC standards
- writing a report
- reviewing the report
- decision to issue a certificate

Fig. 8. Photos during the audit

Issuance of Certificate

At the end of December 2017, a decision was taken to issue a certificate for forest management and chain of custody of forest products.

At the beginning of 2018, for the first time in Kyrgyzstan and Central Asia, 52 forest users of 84 Kyzyl-Ungur, Kara-Alma and Toskool Ata pilot local state forest units (leskhozes) receive FSC certification for forest management and chain of custody for non-timber forest products. Certificate is valid for 5 years (Fig. 9) with financial support of WWF.


Certificate

NEPCon

FSC

Kyrgyz Association of Forest and Land users

Fig. 10. Certificate of FSC Standards

Also, based on the interim standard for forest management assessment in the Kyrgyz Republic, the following standards were developed:

- A "Regional Forest Management Standard for the Caucasus, Central Asia, Moldova and Mongolia";
- Regional standard at the stage of approval by the International Committee on Standards and Policies at FSC International. The standard will be applicable to natural forests, plantations, timber and non-timber forest products, ecosystem services.

Analysis

In the process of certification of pilot local forest units (leskhozes) of walnut forest, the importance of harvesting and collecting non-timber forest products for the local population was noted. However, in the NTFP harvesting process, not sufficient attention was allocated to the conservation of biodiversity. In some places there is no compliance with contractual obligations and rules of labor protection in the areas of SFF.

The lack of legal protection of forest users, understanding of responsible management of forest areas and the lack of transparency in relations between forest users and forest agency cause many conflicts. And, as a result, forest degradation.

The low level of environmental education and the high level of poverty in the rural population living in and near the forest, compel almost total harvest of NTFP's, which reduces the possibility of forest regeneration.

In practice, there are no conditions for NTFP's to enter the export market of forest products (low competitiveness, low confidence). There is no transparency of legal relations between forest users and forest enterprises, which also contributes to the low socio-economic level of life of forest users.

After meetings with all interested and affected parties and awareness-raising activities, training of forestry and forest users who wish to obtain a certificate according to FSC standards, the relevant documents were ordered.

As a result, the activities of 52 forest users and their leased land plots out of 84 wishing to obtain a certificate are given in accordance with FSC standards, which is only 0.2% of the total number of forest users in the GLF. From the total land area of SFF 3 451,2 thousand hectares only 311,6 hectares (0,009%) are certified according to FSC.

To date, more than 1,000 fruit and walnut forests' forest users expressed a desire to obtain certificates for forest management and chain of custody of forest products according to the FSC standards, what will promote the conservation of biodiversity, and improving socio-economic condition of local communities and ensure the protection of the rights of forest users and compliance with occupational safety in forest management on their green workplace.

Unfortunately, at the same time, many forest users and stakeholders do not have enough information about the benefits of forest certification; many need financial support to improve capacity, marketing activities and informational company for the successful certification of potential forest areas of forest users.

As standards and FSC principles comply with the 10 commitments of the International Land Coalition (ILC), educating and increasing the capacity of more than 100 (one hundred) of the forest users about the benefits of forest certification (promote the conservation of biodiversity, and improving socio-economic condition, protect the rights of forest users, and adherence occupational safety) were included in the National Engagement Strategy (NES) and in the multi-year action plan for 2018-2021.

In addition, in order to solve the problems identified in the preparation work for Forest Management certification, it is first of all necessary to improve the Normative Legal Acts in the field of forest management and to ensure the participation of local communities and forest users in decision-making.

Recommendations

Given all these experiences and learning in the last 3 years, the following actions are recommended:

1. Develop a law on "forest management" for the preservation and development of forest ecosystems with the involvement of local communities to create the necessary conditions for their responsible forest management and satisfy the needs of the population;

2. Take actions to implement the Certification of the forest management system and ecosystem services throughout the SFF, as well as the certification of supply chains based on existing practices;

3. Take actions to promote responsible forest management among business structures and establish environmental requirements for retailers;

4. Organize a platform for responsible forest management and business development of forest products;

5. Assess the potential of non-timber products throughout SFF;

6. Organize advertising and promotion of domestic products towards the recognition for Kyrgyz products in world markets;

7. Request the relevant authorities to organize a representative office of FSC in Kyrgyzstan, which will become a platform for the organization of a broad implementation of the implementation of responsible forest management and business development of forest products, including training of specialists in the FSC certification process;

8. Train and cover the issues of sustainable forest management and business development through FSC certification as a tool for responsible forest management in the transition to a market economy of the Kyrgyz Republic;

9. Take actions to introduce and implement accounting, forest management planning, as well as innovative use of technologies, labor protection and safety measures, and other social needs of forest users and the public;

10. Regularly carry out activities to increase the capacity and awareness of forestry workers, forest users, local self-government bodies and other stakeholders on issues of sustainable forest management and business development through FSC certification; and

11. Regularly conduct an information campaign through the media and TV to promote FSC certification as a tool for responsible forest management in a market economy in the Kyrgyz Republic.

References

Resolution of the Government of the KR of July 26, 2011 No. 407

SAEPF, UNDP, Fourth National Report of the Kyrgyz Republic to the UN Convention on Biodiversity. -B. 2008

Forest Code of the Kyrgyz Republic

NSC, Kyrgyzstan in numbers. -B., 2015.

Voluntary Forest Certification: A Training Manual for Universities - Moscow 2011

https://ru.fsc.org/ru-ru/cert/five_steps_to_certification

http://www.welcome.kg/ru/kyrgyzstan/region/development/209.html

Schmidt M. On the use and management of walnut-fruit forests at the present time. Bulletin of the KAU. - Bishkek 2007. p. 62-67

Annex 1 Fruitful beginnings for smallholders in Central Asia 10. For more information click here:
http://www.fsc-uk.org/en-uk/about-fsc/fsc-uk-forest-matters-e-magazine/2018-editions
https://ic.fsc.org/en/news-updates/id/1035
https://ic.fsc.org/en/news-updates/id/1386 https://ic.fsc.org/en/news-updates/id/2054
https://new.wwf.ru/en/resources/news/lesa/v-kirgizii-poyavitsya-ekologichnaya-lesnaya-produktsiya/

Management and Use of Water Resources in the Kyrgyz Republic

The Union of the Water Users' Association of Kyrgyzstan (UWUA)

ABSTRACT

The Kyrgyz Republic has significant water resources. There are more than 3,500 rivers in the republic, the main source of power for which is the thawed waters of seasonal, eternal snow, and glaciers. The natural total average annual flow of rivers forming on the republic territory is 47.2 km3, including 35 km3 (74%) during the growing season, in the autumn-winter period, and the early-spring periods 12.2 km3 (26%) . Kyrgyzstan uses only 10-17% of the available reserves. The established annual limit is 25% of the emerging water flow. The rest of the flow is the object of international water allocation and enters to the territory of neighboring countries: Kazakhstan, China, Tajikistan and Uzbekistan. Of the total withdrawn water , 90% is used by agriculture, 7% by industry and 3% by other consumers, including the supply of drinking water to the population.

Despite the abundance of water resources, Kyrgyzstan faces water shortages for both irrigation and drinking. This trend may increase in dry periods, and every year the deficit will be felt more and more. A significant part of the abstracted water in the republic is lost during the using. The reason for the losing is the poor technical conditions of the irrigation and water distribution systems, the wear and tear of equipment, and the use of imperfect irrigation methods.

Agricultural production based on irrigated agriculture is the leading sector of the Kyrgyz economy and consumes the biggest share of water (93%).

Water resources are of great social and economic importance for the country as a whole and for each agricultural producer and play an important role in solving the problems of eradicating poverty and improving rural life. Therefore, today the state water policy is aimed at reforming the structure of water resources management along the path of introducing integrated water management, the State Irrigation Development Program for 2018-2026 has been adopted, and water users themselves are increasingly involved in water management.

Introduction

"It is important to note that responsible regulation of tenure, use of land, fisheries and forest resources is inextricably linked with the issue of access to and management of other natural resources, including water and mineral resources. Recognizing the existence of different models and systems for managing these natural resources in different national contexts, States may wish to consider, as appropriate, the management of these associated natural resources in the implementation of these Guidelines"[1].

Access to land and other natural resources, including water resources with reliable rights of owners and users of water and rational water management is a key condition for the development of agriculture and rural areas. For Kyrgyzstan, where more than 90 percent of agricultural products come from irrigated land, ensuring the country's food security is inconceivable without proper water management for agriculture, solution of water use problems of small family farmers - water users, without solving issues on protecting their tenure rights and access to water resources.

For joint promotion of the VG in Kyrgyzstan, FAO did not randomly choose the National Union of Water User Associations (WUA) of the Kyrgyz Republic. WUA are public associations of farmers-water users who have their own land shares, their total number is more than 350 thousand small farms. These are rural residents of our agrarian country, which makes up about 67 percent of the country's population. FAO, with its partners, has initiated the preparation of an unprecedented international agreement on the management of titles to land and fair access to land, fisheries and forests as a means of eradicating hunger and poverty, supporting sustainable development and improving the environment.

The Voluntary Guidelines for the Responsible Governance of Land Tenure, Fisheries and Forests in the Context of National Food Security (VG) were formally approved by the Committee on World Food Security (CFS) on 11 May 2012. After approval, FAO and its partners around the world initiated awareness-raising and supported the implementation of the Guidelines.

OBJECTIVES

In Europe and Central Asia, FAO raised awareness of the Guidelines in a series of workshops for various concerned parties. Between October 2015 and January 2016, FAO organized two-day country workshops to raise awareness on VG and its implementation in seven targeted countries for the FAO Regional Initiative in Support of Small Farmers and Family Farms (Albania, Armenia, Georgia, Kyrgyzstan, the former Yugoslav Republic of Macedonia, Moldova and Tajikistan. In December 2016, in Budapest, in close cooperation with ORC, a regional seminar for civil society organizations was organized to raise awareness, discuss experiences and share experiences. It was attended by CSO representatives in Tajikistan and Kyrgyzstan.

The main objective of this study is to analyze the current state and conduct a brief assessment of water management and use, in the context of ecosystem management.

[1] Voluntary guidelines on the responsible governance of tenure of land, forest and fisheries in the context of national food security. Food and Agriculture Organization of the United Nations, Rome, 2013

METHODOLOGY

The study methodology is based on a review and analysis of the current status of the issue, previous studies and a brief assessment of water management and use. The study used a variety of qualitative methods, such as an analytical review of the main legal and reference information, discussions with participants in the kick-off seminar, expert interviews with specialists from the Department of Water Resources and Land Reclamation, and in-depth interviews during project expert consultations with key concerned parties. For each problem selected above, a brief description of legal and institutional mechanisms is provided. The question is set - what do the VGs say? Then, an analysis is made of how these legal mechanisms are consistent with the comparable principles of VG WR, that is, the compliance of the regulatory legal acts of the Kyrgyz Republic with VG WR.

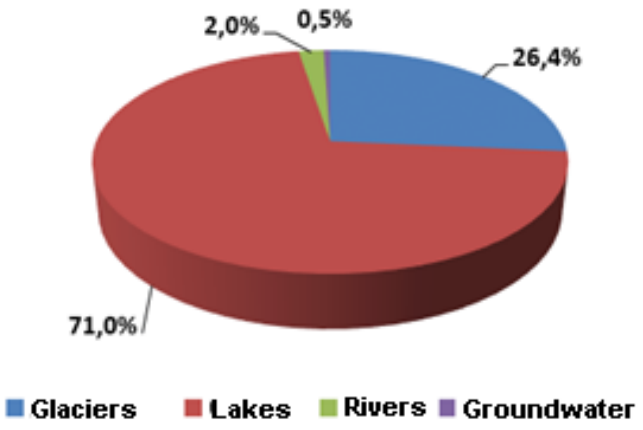
Context

ANALYSIS OF THE SITUATION IN THE MANAGEMENT OF WATER RESOURCES AND WATER USE IN THE KYRGYZ REPUBLIC.

Water resources of Kyrgyzstan

Water resources are of particular importance for the development of the national economy, maintenance of social stability and ensuring food security of the Kyrgyz Republic. The actual system of water resources and sector management was determined by the land and agrarian, as well as administrative reforms, the introduction of private ownership of land, and political changes in the system of state governance of Kyrgyzstan The Kyrgyz Republic has significant reserves of water resources. The total amount of available water in Kyrgyzstan is estimated at 2,458 km^3, including 650 km^3 of water (26.4%) stored in glaciers, 1,745 km^3 in lakes (71%), and 13 km^3 of potential groundwater resources (0.5%) and from 44.5 to 51.9 km^3 of average annual river runoff (2%) (Figure 6). The total annual amount of renewable water resources is estimated at 46.5 km^3. [2]

Figure 1. Water Resources of Kyrgyzstan



[2] Meerim Kurmanbekova, "The state of water resources of the Kyrgyz Republic". – Bishkek, National Institute of Strategic Researches of the Kyrgyz Republic, 29.10.2014. http://www.stanradar.com/news/full/13390-sostojanie-vodnyh-resursov-kyrgyzskoj-respubliki.html

Source: Meerim Kurmanbekova, "The state of water resources of the Kyrgyz Republic". – Bishkek, National Institute of Strategic Researches of the Kyrgyz Republic, 29.10.2014

There are more than 3,500 rivers in the country; the main source of their feeding are rains, melt waters of seasonal and perennial snows and glaciers.

The natural mean annual runoff of the rivers formed on the territory of the country is 47.2 km^3, including 35 km3 (74%) during the vegetation season, 12.2 km^3 (26%) during autumn-winter season and early spring. Kyrgyzstan uses only 10-17% of the available reserves. The established by interstate agreements annual limit is 25% of the formed runoff. The remaining flow goes to the territory of neighboring states: Kazakhstan, China, Tajikistan, and Uzbekistan and is the subject of inter-state water sharing.

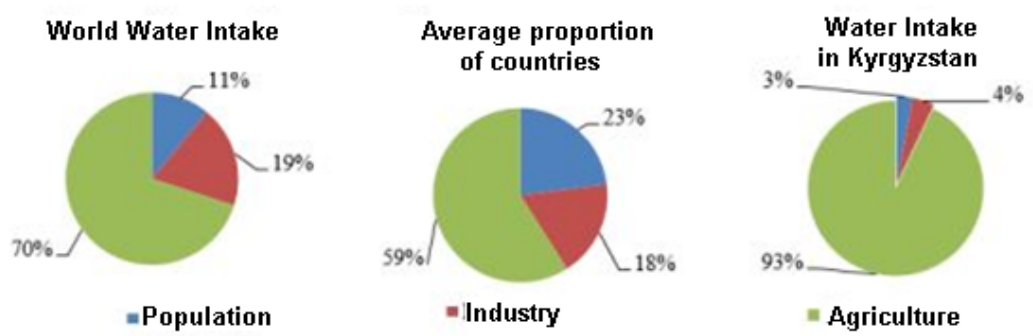
Table 1. Mean annual runoff of main river basins of the Kyrgyz Republic.[3]

Syrdarya	Amudarya	Chu	Talas + Kurkureu	Ili (Karkyra)	Tarim	Issyk-Kul	Total
Mean annual runoff, km3							
27.4	1.93	5.0	1.74	0.36	6.15	4.65	47.
58	4	11	4	0.8	13	10	%
Volume of runoff that goes outside Kyrgyzstan, km^3 by year							
69	6	3	3	1	18	-	%
23.6	1.90	1.15	0.96	0.36	6.15	-	33.76

Despite the abundance of water resources, Kyrgyzstan faces a shortage of water both for irrigation and for drinking purposes. This trend can intensify in low water periods, and according to climate change forecasts, this yearly water deficit will increase.

93% out of the total volume of water intake is used by agriculture, 4% by industry and 3% by other users, including drinking water supply to the population (Fig. 2).

Figure 2. The structure of the water intake



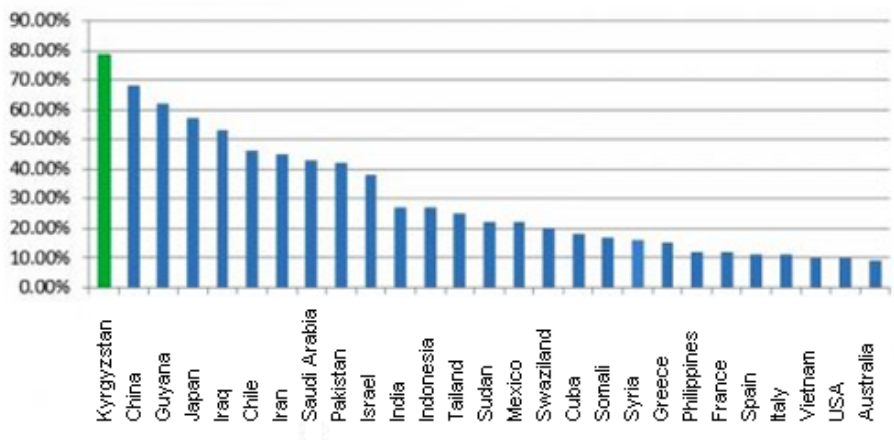
Source: Meerim Kurmanbekova, "The state of water resources of the Kyrgyz Republic". – Bishkek, National Institute of Strategic Researches of the Kyrgyz Republic, 2014.

[3] Source: A. Ergeshev, I. Tsigelnaya, M. Muzakeyev – Water Balance of Kyrgyzstan. B.: Ilim, 1992. – p. 151

However, water taken from natural sources is used inefficiently, and up to 20-30% of the total water intake is being lost, due to poor technical conditions of irrigation and water distribution systems with outdated equipment and the use of obsolete low-efficient irrigation technologies and methods.

At the same time, Kyrgyzstan's dependence on irrigated agriculture to ensure sustainable development and food security is extremely high. Among the countries with artificially irrigated agriculture, Kyrgyzstan occupies one of the leading places (78%) (Fig. 3).

Figure 3. Proportion of irrigated agricultural lands



Source: Meerim Kurmanbekova, "The state of water resources of the Kyrgyz Republic". – Bishkek, National Institute of Strategic Researches of the Kyrgyz Republic, 2014.

According to the forecast of National Institute of Strategic Researches (NISR), water needs for irrigation and agriculture water supply will increase by 57% by 2024 as per one scenario, or by 77% as per another.

806,000 ha or 76% of the irrigated lands in Kyrgyzstan are irrigated from small mountain rivers. The flow of small mountain rivers is not much regulated, only 86,000 ha are fed by water from the regulated flow, while 720,000 ha (89%) are irrigated by the unregulated runoff. The specific feature of mountainous rivers is a significant inequality of water distribution in space and time, i.e. during days, decades and months. In critical periods of vegetation (1.5-2 months), the water of all small rivers are fully abstracted for irrigation. The availability of water for the irrigated lands at this time is shrinking dramatically, and the irrigation water deficit can reach 30-50%, depending on the year. 262,000 ha are irrigated by large rivers' flow (24% of all lands), out of which 154,000 ha are irrigated from the regulated sources of irrigation.

Today, in Kyrgyzstan only 22.5% of irrigated lands are fed by water from constructed reservoirs, full water availability for other lands is not guaranteed. Water resources are distributed unevenly throughout seasons and territories. Difficulties in the development of water sector are determined by the diverse terrain and variability of hydrographic characteristics of rivers, which is also complicated by the need to construct, operate and maintain hydraulic facilities mainly in the mountains and piedmont areas. All this also determines also considerable costs of extensive irrigation systems.

Irrigation and Drainage Infrastructure. The water sector of the Kyrgyz Republic provides irrigation for 1018.7 thousand ha of arable lands, 100.1 thousand ha of which are in unsatisfactory reclamation condition. The total length of all off-farm canals is 6,502.34 km, 43% of which are lined. There are 34 water reservoirs, 8,318 hydraulic structures in the country. The length of the collection and drainage network is 642.46 km. The on-farm irrigation infrastructure consists of more than 250 daily and decade runoff basins, and about 20,000 of hydraulic structures, 22,700 km of irrigation canals (24% of which are concrete lined or made of flumes), 4,300 km of open and closed collection and drainage systems, 48% of which are in the bad condition.

Off-farm irrigation systems are managed by the Department of Water Resources and Land Im-provement of MAFILI and its territorial subdivisions. On-farm irrigation systems are managed by Water User Associations (WUAs) of the local communities. There were 486 legally registered WUAs as of the second quarter of 2017. The total area of agriculture lands irrigated by WUAs is 749.2 thousand ha or 73.2% of the totally irrigated area . The average required costs for the operation of state irrigation funds are 15 USD per hectare, for the WUA irrigation network - 10 USD per ha. In fact, funding is provided within 40-50% of the required.

Policy

The national water policy, relations on use, protection of water resources in the Kyrgyz Republic are built on the basis of the following:

- norms of the Constitution;
- Legislative acts
- Decrees of the President;
- By-laws, which include: regulations, orders and regulations approved by the Prime Minister;
- departmental and territorial regulations, including Orders and Orders of heads of ministries, departments, heads of local state administration, as well as standards, regulations, rules, provisions and other documents regulating various aspects of water relations.

In particular, the Constitution, adopted by the general referendum on June 27, 2010, declares: “The land, its resources, airspace, water, forests are the exclusive property of the Kyrgyz Republic, are used to preserve a single ecological system as the basis of life and activity of the people and are under special protection of the state. Land can also be in private, municipal and other forms of ownership, with the exception of pastures that cannot be privately owned”[4].

Priority directions of the internal water and economic policy of Kyrgyzstan is the consistent development of mechanisms for paid water use, along with increasing the efficiency of planning and use of public investment in the water sector. The external water policy of the Kyrgyz Republic will be based on the norms of international water law and national interests and pursue the goal of achieving a stable political environment in the Central Asian region and the mutually beneficial development of interstate water relations.

[4] Constitution of the Kyrgyz Republic, 2010 , p. 5 art. 12 section 1

In addition, the water policy of Kyrgyzstan is reflected in the National Sustainable Development Strategy of the Kyrgyz Republic for 2013-2017 approved by the Decree of the President of the Kyrgyz Republic No. 11 of January 21, 2013. Where, in particular, it is stated that "Policy measures within the framework of the eighth task assume the preservation and enhancement efficiency of land and water resources use.

It is expected: (i) to improve the state accounting and monitoring of land and water resources; (ii) ensure the preservation of fertility and the rational use of agricultural land, water resources; (iii) strengthen the role of local authorities and public organizations in the conservation and restoration of land fertility. It is necessary to conduct a large-scale assessment of land fertility, form a sustainable monitoring system and establish a databank on agricultural land, assess the real condition of water resources. It is necessary to create a system of legal norms and administrative and economic measures that prevent irrational land use and water use, and increase land degradation. It is planned to tighten the standards for the conservation of land and water resources (permissible levels of pollution of soils and water sources with various wastes of industrial and agricultural production, household waste, etc.) to strengthen penalties for violations. Simultaneously, the practice of monitoring and creating incentives for a gradual transition to environmentally friendly technologies will be significantly improved. It is necessary to strengthen the role and responsibility of local authorities, to use the potential of public organizations in the preservation and restoration of land fertility. There is an annual introduction of new lands is provided:

(i) state support and target financing for the modernization of the irrigation system, an annual introduction of 10,000 hectares of irrigated agricultural land (including new development and agricultural land returned from the number of previously withdrawn from circulation).
(ii) Creation of conditions for new jobs (mainly in the crop sector) and the conditions for the settlement of new territories[5].

Analysis of trends in the period 1992-2017. show that the colossal water potential of Kyrgyzstan is used in the country less efficiently, and at the regional level not only does not bring tangible economic benefits to the country, but it is often a source of tension in interstate relations. Along with the generally known objective reasons for these trends, related to overcoming the consequences of the economic crisis, the continuing degradation of the technical condition of the water use infrastructure, etc., the main constraining factors until recently were:

- absence of officially approved bases of the national water policy,
- imperfection of the water resources management and water-related activities in the context of implementation of this policy.

The basic principles of the state water policy are standardized by the provisions of the Water Code, the Laws "On water", "On Environmental Protection". Certain aspects of water relations are regulated by special legislation - these are the laws "On licensing", "On tariffs for irrigation water supply services", "On drinking water", "On subsoil assets", "On WUAs", Land Code and etc.

[5] The National Sustainable Development Strategy of the Kyrgyz Republic for the period 2013-2017, approved by the Decree of the President of the Kyrgyz Republic of January 21, 2013 No. 11.

Legislation

The main legislative acts governing the management and use of water resources are the following:

- Water Code of the Kyrgyz Republic dd. 12.01.05;
- Law of the Kyrgyz Republic "On Water" dd.14.01.94;
- Law of the Kyrgyz Republic "On Establishing Tariffs for Irrigation Water Supply Services for 1999" dd. 24.03.99;
- Law of the Kyrgyz Republic "On Drinking Water" dd. 25.03.99;
- Law of the Kyrgyz Republic "On interstate use of water bodies, water resources and water management facilities of the Kyrgyz Republic" dd. 23.07.01; Law of the Kyrgyz Republic "On Associations of Water Users and unions of Water User Associations" dd.15.03.02
- Code of Administrative Responsibility dd. 04.08.98.
- Regulations on water protection zones and water bodies' lines in the Kyrgyz Republic, Government Resolution of 7 July 1995, No. 271.
- Agreement between the Republic of Kazakhstan, the Kyrgyz Republic, the Republic of Uzbekistan, the Republic of Tajikistan and Turkmenistan on cooperation in the field of joint management of the use and protection of transboundary water resources, Almaty, February 18, 1992.

The rights and responsibilities of the subjects of water relations are set in the civil, administrative and criminal legislation of the Kyrgyz Republic, and the delimitation of functions, rights and responsibilities in the sphere of water relations between various state bodies is established in the Regulations on these bodies approved by the Government of the Kyrgyz Republic.

Up to the present time in the Kyrgyz Republic acting by-laws were instructions, guidelines, standards and regulations developed during the Soviet era. The Law of the Kyrgyz Republic "On Normative Legal Acts" dd. July 20, 2009 it is established that: "the normative legal acts of the USSR are applied in the territory of the Kyrgyz Republic until December 31, 2009 in the part not nontradicted with the legislation of the Kyrgyz Republic"[6].

At the initial stage of the formation of an independent state, in 1994 the Law "On Water" was adopted, which played a certain positive role in the development of water relations, subsequently the current Water Code was developed and adopted, which does not abolish the Law "On Water", but in accordance with Article 3 it is accepted: "in case of contradictions in the norms of water law contained in regulatory legal acts, the provisions of the Code shall apply".

According to foreign experts, the Water Code of the Kyrgyz Republic is a modern legislative act reflecting the best and international experience in the field of water resources management.

The water code for the first time in the Republic recognizes water management and a basin approach.

[6] Law of the Kyrgyz Republic "On Normative Legal Acts" dd. July 20, 2009

The Water Code of the Kyrgyz Republic is not fully implemented due to the delay in bringing other regulatory legal acts in line with its requirements.

The hydrographic principle of servicing water users, established by the Water Code, is not observed in practice. According to the current Law on WUA and the Water Code in the Kyrgyz Republic, all water users receiving water from the same source must unite in one WUA or federation, regardless of their administrative-territorial affiliation, i.e. go to the hydrographic principle of servicing the territory. However, in practice, some heads of administrative-territorial entities, using imperfect legislation, directly interfere in the work on water resources management.

Delays in bringing other regulatory legal acts in line with the requirements of the Water Code negatively affect water distribution between different levels of water resources management and water users, and restrains the water sector reform of the Kyrgyz Republic

In December 2012, a roadmap was prepared for the implementation of the Water Code and approved at the meeting of the WMC held on February 28, 2013. The road map sets long-term and short-term (5 years) goals for the implementation of the Water Code, with seven main components, including: (i change in the structure of the water sector; (ii) basin management of water resources; (iii) authorization and conclusion of contracts for water use; (iv) financing of water resources management; (v) the creation of a water information system (WIS); and (vi) protection of water resources and the environment. The roadmap determines the specific actions and measures to be taken in the next five years for each of these components.

Institutional organization of water resources management

Up to the present date, the Kyrgyz Republic has used the sector management principle, in which functions and responsibilities in the field of water relations are distributed among various ministries and departments. Regulation of water relations is carried out by: the National Parliament - the Zhogorku Kenesh, the Government of the Kyrgyz Republic, the Ministry of Agriculture, Water Resources and the Processing Industry; Ministry of Emergency Situations; State Agency for Environmental Protection; State Agency for Geology and Mineral Resources; Ministry of Health. In addition, other bodies deal with the solution of water issues, in particular the “Electric Stations” Joint Stock Company, municipal services of cities and regional centers, other bodies. In the regulation of water relations, republican structures are also involved: the National Statistical Committee; State Inspection for Standardization and Metrology; Ministry of Foreign Affairs; Ministry of Justice.

In the field of management, local government bodies also take part, which carry out on the territories entrusted to them: protection of the rights of water users; allocation of water fund lands; limitation in justified cases of water use rights.
Thus, the management of water resources is occupied by numerous state bodies with their own regulations, provisions and instructions. The National Water Council is the highest body in the Kyrgyz Republic responsible for coordinating the activities of ministries, administrative departments and other state bodies on water resources management, their use and protection, preparing proposals for establishing hydrogeographic boundaries of main basins, and preparing a draft of the National Water Strategy. The National Water Council consists of heads of ministries, administrative departments and other government bodies responsible for water management, including financial aspects and state security. The activities of the National Water Council are governed by regulations approved by the Government of the Kyrgyz Republic and other regulatory legal acts.

The Chairman of the National Council for Water is the Prime Minister of the Kyrgyz Republic, his deputy is the head of the State Water Administration.

The National Water Council has broad powers to receive from any ministry, administrative department, other government agency or public organization any information, data, reviews, or technical and consultative assistance necessary to prepare the National Water Strategy or fulfill its objectives. The NWC of the KR was established by the Resolution of the Government of the Kyrgyz Republic on February 26, 2006.

The State Water Administration carries out the functions of the secretariat of the National Water Council.

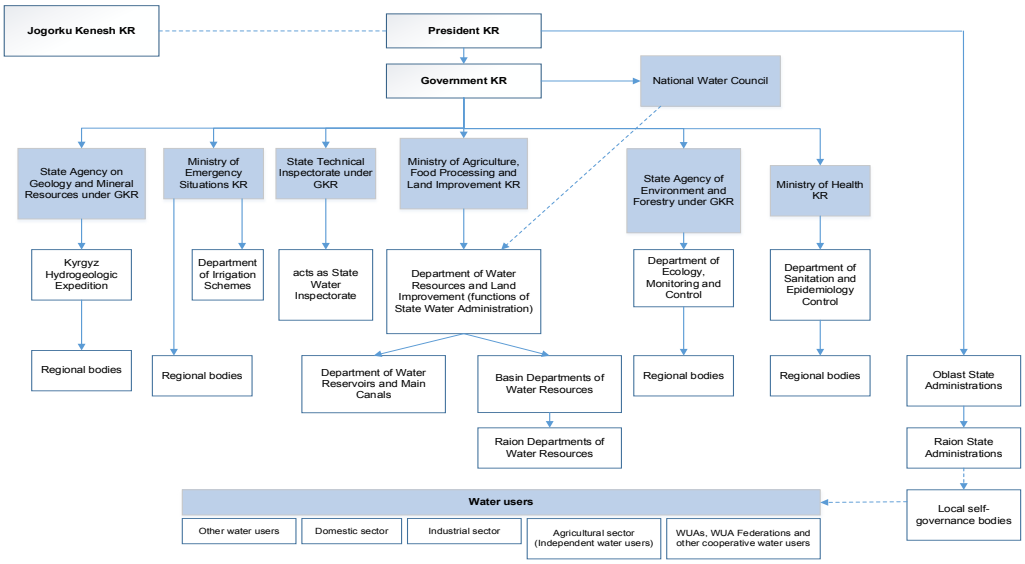
The performance of the functions of the State Water Administration, as provided by the WC KR, is assigned to the Department of Water Resources and Melioration of MAFILR of the KR (Government Resolution No. 140 dd.February 20, 2012). The current DWR structural scheme includes three levels of management - republican, basin and district. In the departmental subordination of DWR there are: 7 departments on basin water management (DBWM); 40 district water management departments (DDWM); 3 Departments of irrigation reservoirs management of national importance: a) Kirov reservoir on the river. Talas; b) Orto - Tokoy reservoir on the river. Chu; c) Papan reservoir on the river. Ak-Buura; and the Administration of the Aravan-Ak-Buura Main Canal of the basin significance and the administration of the Naiman reservoir of basin significance in the territory of the Osh region.

As a part of the majority of the DDWM, there are operating subdivisions of the lower level (hydro sections), which operate the facility management and technical service of irrigation systems, their parts or of large hydrotechnical constructions.

Management of drainage systems and organization of works to improve the ameliorative state of irrigated lands in the structure of DWR is available for the Melioration and Hydrogeological Expedition (MHE). Similar services have been established in all regions of the republic, and regional mechanical divisions have been established to ensure the repair and cleaning of the collector-drainage network.

With the beginning of the agrarian and land reform, the Government of the Kyrgyz Republic, studying international experience of operation and maintenance of the on-farm irrigation and collector-drainage network, came to the conclusion that the most optimal solution for the content of this network is the formation and development of water user associations (WUA). Therefore, by the Resolution of the GKR No. 473 dd. August 13, 1997 was approved the Provision on Water User Associations. On March 15, 2002, No. 38, the "Law on Water Users Associations" was adopted and with the Government Resolution No. 234 dd. April 6, 2004, the on-farm irrigation canals were transferred to the balance of water user associations (WUA) free of charge and are serviced at the expense of funds received from water users. The creation of water users associations is conditioned by the necessity to implement the rights for water use by farmers' and peasants' farms, the expediency of concentrating their efforts and means for carrying out concerted actions aimed at the most effective use of water resources of irrigated, watered and reclaimed lands. The number of WUAs in the Republic for the 2nd quarter of 2017 was 486 associations of water users legally registered. Irrigated area of WUA coverage in the Republic was 749.2 thousand ha or 73.2% of the total irrigated area.

Figure 4. Institutional organization of water sector in Kyrgyzstan



PROBLEMS OF WATER USERS

Registration of lands of water resources and infrastructure at WUA level

Description of the problem

"The lands of the water fund are lands occupied by water bodies (rivers, lakes, reservoirs, canals), glaciers, marshes, hydrotechnical and other water facilities, as well as lands allocated for the right-of-way." In turn, in the article 343 of the NCKR the water fund lands are included in the list of land exempted from land tax.

Irrigation infrastructure of WUA: Prepared and approved by the Resolution of the Government of the Kyrgyz Republic "Regulation on Water User Associations in Rural Areas" No. 473 dd. 13. 08. 1997, according to which the on-farm infrastructure should be transferred free of charge to the ownership of the WUA. As the study results show, the legal basis of the ownership of irrigation systems of WUAs In 98.3% of cases, WUAs own owned irrigation systems at their disposal, and only 1.7% - in temporary use. Thus, representatives of one WUA, located in the Osh region, responded in this way.

In 61.7% of respondents said that the WUA owns the irrigation infrastructure on the basis of the act of acceptance-transfer from rural administrations and in 16.7% on the basis of the Government Resolution of the Kyrgyz Republic dd. 13.08.97 № 473.

In order to fully legalize the ownership rights, it is necessary to pass the procedures provided by the State Registration Service. However, at present the WUA do not have excess funds for state registration of ownership of irrigation infrastructure. WUA have to wait for the planned state registration (inventory), released from payment for registration services[7].

[7] Report on the Assessment of the Activities of Water User Associations in the south regions of the Kyrgyz Republic Implemented by: CAIConsulting, Central Asian Consulting Company, 2010

These real estate objects actually owned and used by the WUA were not covered during the system registration (when there was a complete registration of rights and the registration of these rights was not subject to preferential registration, that is, WUAs were not exempted from paying registration services for their rights.

There is no sound approach to land management: allocating land for settlements and agriculture is chaotic and without taking into account other land uses and planning for integrated land management, availability of water and available water infrastructure. In the areas studied, there were many cases where the existing infrastructure could not effectively deliver the supplied water to the land plots and even access to it becomes difficult. In addition, the heterogeneous distribution of land does not allow increasing the water flow for irrigation. The unregulated distribution and use of allotments leads to duplication and contradictions in land rights, and also contributes to the insecurity of these rights. Land for settlements, farming, grazing animals, for forest and industrial purposes, and for way leave, are considered separately from each other and are regulated by various laws, creating confusion on the ground. For example, in all studied areas, settlements and sowing lands encroach on the land of water resources, contributing to the deterioration of the irrigation infrastructure. Despite the fact that the Water Code and the Code of Administrative Punishment provide for fines for violation of the way leave of water bodies, in practice this provision is not respected. The lack of access to information on land ownership adversely affects the management of the WUA's irrigation infrastructure. There are land plots with a lack of clear data on the status of land ownership, which makes it difficult to collect fees for irrigation services (FIS) from these lands. This mainly refers to the land of labor migrants who either unofficially rented them or sold them to others; the land plots that were removed from the agricultural turnover by local authorities and planned for new development; land plots of the Land Redistribution Fund (LRF) unofficially sub-leased - without providing information to the WUA on their status of ownership.

Taxation of WUA

Description of the problem

WUAs are registered as public, non-profit organizations in accordance with the Law on Associations of Water Users. This law provided the basis for the management of water resources at the community level, but needs further development to reflect the real situation. As noted earlier, some WUAs do not register themselves to avoid high taxation. Taxation is an important issue. Collections of water users are not legally considered income and should not be taxed. However, with some WUAs, a 2.5-4% sales tax is levied - from the fee collected from the FIS tariff (irrigation service fee), which was imposed by the Aiylkenesh (AK) decision. In some areas AK released the WUA from this tax. - In other cases, tax inspectors seek to pay income tax. There is a similar situation with the value-added tax, when the tax authorities impose a VAT at a rate of 20 percent of the amount of FIS WUA. Initially, this tax was introduced for state water management organizations, then for WUAs, but in 2012 it was canceled. However, many tax inspectors are not aware of the cancellation of this tax and continue to impose it on the WUA. The same applies to many WUA directors who are not aware of this and continue to pay income tax and VAT, and even they are penalized for late payments for these taxes.

• WUAs pay social payments to the Social Fund at a rate of 17.25 percent of the wage fund. In order to open a bank account, the WUA is requested to submit a certificate of registration with the Social Fund. SF, in turn, does not issue it if the WUA has debts, which is contrary to the law. If the WUA cannot open an account with a bank, it cannot receive grants from Ayilokmot or other state organizations. Nevertheless, the WUA collect

payments for water from water users, mainly in December, and this is the only time when it is able to pay social payments. The Social Fund even filed a lawsuit against the WUA for failing to pay and delaying social payments. Frequent inspections of the state fiscal authorities, for example, the State Tax Police, costs the WUA a lot of money and takes a lot of time. In an interview, some WUA leaders complained that the unofficial payments to the financial police were very high.

Problems with tariff policy, water accounting and payment for water losses in the irrigation system of WUA

Description of the problem

Issues on payment for water services. The state has established the payment for water supply for water users, that is, in this case for WUAs. The Associations in its turn has the right to determine the amount of payment for its services in accordance with paragraph 2 of Article 22 of the Law on WUAs, which states: "The amount of fees for water supply services to WUA members is established by the general meeting and must cover the costs of supplying irrigation water to the water supplier and operating costs and technical maintenance of the WUA's own irrigation system". Tariffs for payment of water supply services from state water management systems to water users are determined on the basis of the Resolution of the Government of the Kyrgyz Republic dd. July 6, 2011 No. 372 "On Approval of Tariffs for Payment for Water Supply Services from State Water Management Systems to Water Users for 2011. (Since 2011, tariffs have not been revised, although an annual review of tariffs has been planned taking into account the situation with water supply). At the same time, it remains unclear how and on what basis the tariffs are set.

At present, there are the following general problems:

- Low level of payment for irrigation services. In the republic, the established tariffs for irrigation water supply services for the WUA's own needs range from 21 to 659 KGS per hectare.
- Payment for irrigation services by water users is made by payment in kind and labor services is 22%, in monetary form - 78%;
- As the results of the research show: Water supply to the WUA: In 75.6% of cases, the volume of supplied water is determined "by eye" and in 25.0% of cases through stationary and portable means of water accounting.
- Water fee: 45% of water users indicate that they pay for water supply services from 100-500 KGS per 1 ha, 32.8% - from 501-1000 KGS per 1 ha, and only 5.5% - over 1000 KGS on 1 hectare. Almost half of the respondents (47.8%) are willing to pay more if the water supply system is improved.
- Almost 40% of respondents are not ready to pay more, because of "Insolvency" or because of their lack of faith in receiving high-quality services.

Tariffs for water in Kyrgyzstan in comparison with other CIS countries and the world are among the lowest. In connection with this, and another factor that the low level of tariffs (3 tiyin per cub.m.) does not stimulate water saving for agricultural producers, and, consequently, the introduction of new irrigation technologies, it is necessary to reform the economic mechanism of water relations. It should be aimed at the consistent development of the principle of payment for water use based on flexible regulation of tariff policy. In the long term, strategically important water management facilities will be kept at the expense of the state budget, and tariffs for water supply services from WUA irrigation systems should be differentiated due to differences in the cost of these services.

And often the supply of water is generally based on oral agreements. This means that the legal aspect of these relationships between the WUA and its members, and not members, is in fact not settled in any way.

Previously, irrigation systems were designed and built taking into account the land mass and crop rotation and for each irrigated area (50-60 hectares) and there were stationary means of water accounting, according to which water accounting was recorded. At present, irrigated areas are divided into small land shares and technically there are difficulties in providing water accounting for each individual farmer. The lack of water accounting leaves doubt the amount of payment for WUA irrigation services, leads to distrust of the WUA, inability to comply with irrigation technology, from the point of view of compliance with irrigation and irrigation norms, respectively, this all leads to a decrease in yields - a decrease in the incomes of water users-farmers.

Water losses: For water users in Kyrgyzstan, one of the main problems in the course of operation and water delivery are water losses from infiltration from canals. In WUAs water users pay not for actually received volume of water, but including losses. The second problem in the struggle with losses of irrigation water is the generally low educational potential of WUA personnel and their fluidity. It is associated with low wages of WUA employees and the absence of working conditions related to their provision with technical means.

To date, WUA staff are in contact with the difficulties associated with studying the efficiency of channels because of the lack of portable water measuring devices and stationary control gauges along the canal. In a number of cases, the study can be performed with water meters, and the remaining cases are determined visually or by primitive methods. According to the OSCE report for 2010, in 75.6% of cases the volume of water supplied is determined “by eye”, only 25% of cases this process is controlled through stationary or portable means of water accounting.[8]

Consequently, the provision of irrigation systems with automated stationary gauging stations and linear personnel with portable water accounting facilities with built-in level sensors in the target communities allow streamlining of accounting and water distribution and mitigating disputes and conflicts during water distribution between farmers.

Conflicts in water use

Description of the problem

The main causes of disputes and conflicts among water users of WUAs are: theft of irrigation water; loss of water due to technical condition of the channel; violation of the watering schedule. The first and third reasons for disputes between water users are of one nature - the lack of proper control over the timely and complete supply of irrigation water to water users. Unfortunately, the so-called “water theft” or technically speaking “unauthorized water abstraction” has always existed and is usually done at night, which can not always be controlled. Among this group of subjects, the following four main types of conflicts[9]:

[8] REPORT on the activities of Water User Associations in the south regions of the Kyrgyz Republic, OSCE, Bishkek, 2010

[9] COMTACA, _ Report on the study of conflicts due to irrigation water in the Kyrgyz Republic, Bishkek, 2013

- Organizational conflict: DDWM against WUA management and between WUAs
- WUA management / Murabs against influential persons
- Management of WUAs / Murabs against ordinary people
- Community against community, in particular, residents living upstream against residents living downstream; communities in neighboring countries living along the state border and / or ethnic groups
- In several investigated cases, DDWM supplied water to the WUA with a significant delay, which was critical for the growth of crops (for example, the WUA Seidikum received water from the DDWM with a delay of 22 days in 2012).

As the results of some researchers show, the conflict between one WUA and DDWM often extends to other WUAs. For example, neighboring WUAs: Bazar-Korgon, Seidikum and Akman often argue about the amount of water taken. Since these three WUAs receive irrigation water from one main channel "Left branch", which is managed by the DDWM, and given the large water losses in the network, and the lack of an accurate measurement of the amount of water allocated and withdrawn, it is believed that WUAs upstream, take more water than the DDWM allocates to them.

- The standard contract stipulates that WUAs are paid monthly for the received water within 30 days after receipt of the invoice from the DDWM. If payment is delayed, the WUA is obliged to pay a fine of 0.5 percent of the debt for each delayed day. However, this is an impossible requirement, because water users pay the WUA as a whole after the irrigation season, and mostly after harvesting. For example, in accordance with the data provided by the Bazar-Korgon District Office of Internal Affairs, this DDWM provided water to the WUA in the amount of 1.8 million KGS but only 1 million KGS in 2012 was collected.

DDWM filed a lawsuit against several WUAs for nonpayment of FIS, but the court could not force the WUA to pay, since they did not have funds in the accounts. In this situation, the DDWM asked the financial police to check the financial situation of the WUA in Bazar-Korgon as a means of putting pressure on the WUA to pay their debts. DDWM, in the case of AA OtuzAdyr, also filed a lawsuit against the WUA for non-payment of irrigation service fees (FIS).
Such conflicts occur mainly between two legal entities, where the relative lack of water does not directly affect personal means of subsistence or the well-being of individuals. Thus, this conflict is unlikely to lead to violence as such. However, it perpetuates poor infrastructure maintenance and, depending on the degree of WUAs ability to mobilize their communities, has hidden potential for conflict.

Gender aspects in water use

Description of the problem

About 67% of the Kyrgyz population lives in rural areas, and agriculture is their main source of livelihood. After the land reform about 75% of agricultural land in Kyrgyzstan went into private ownership, 25% are state-owned. More than 90% of agricultural production falls on the private sector. The country has more than 350,000 farms, and agriculture accounts for 25% of GDP. The main share is made up of small individual farms (0.5 - 0.7 ha). 30% of the economically active population employed in agriculture are women. And only about 10 percent of women are involved in water management. in post-Soviet countries, women, even in rural areas, still have a relatively high level of literacy and education and a high level of economic activity. However, if we go beyond the average indicators and, if possible, disaggregate the available statistical data by sex and place of residence, it is found that in critical areas (for example, with respect to

formal employment, access to social services, such as childcare facilities or pensions, as well as in relation to participation in local government, etc.) rural women are often in the least favorable position. Some areas, such as access to productive resources (land, credit, agricultural machinery, extension services, etc.) are of paramount importance to the living standards of rural households, but are generally not addressed in a gender perspective . In all regions, women constitute the majority of the rural population and a significant part of the labor force employed in agriculture. However, the overarching trend is the predominance of rural women in informal, low-skilled and low-paid jobs. The access of rural women to assets and productive resources is significantly lower than that of rural men. In recent decades, the participation of rural women in public life has dramatically decreased, and generous social security is no longer the norm.

The importance of involving both men and women in water resources management, including agricultural needs, and ensuring equal access to and control over water resources is widely recognized by the international community. The 1995 Beijing Platform for Action called on governments to promote knowledge and organize research on the role of women, especially rural women and indigenous women, in irrigation, watershed management and sanitation. The Political Declaration and Agenda for the 21st Century The United Nations Conference on Environment and Development, adopted in Rio de Janeiro in June 1992, underscored the vital role of women in environmental management and the need to ensure their equitable participation in decision-making related to governance of water resources and reduce workload on women and girls[10].

Water management in agriculture as a way to achieve gender equality requires recognizing the role of women as farmers or irrigators and addressing their asymmetric access to productive resources, services and decision-making spheres. It is therefore extremely important that gender issues be included in all governance and decision-making processes related to water management in agriculture.

Code of Recommendations

Recommendations on bringing the regulatory and legal acts of the Kyrgyz Republic regulating water management and water use issues in line with the VG.

ON ISSUES ON REGISTRATION OF WATER FUND LANDS AND IRRIGATION INFRASTRUCTURE AT THE WUA LEVEL

1) To introduce the corresponding amendment to the Law of the Kyrgyz Republic - On the state registration of rights to real property and transactions with it, dated December 22, 1998, No. 153, on the special status and subsidy of WUAs and their associations in registering the lands of the water fund and irrigation infrastructure on a free basis;
2) The Law “On WUAs” should be supplemented by a number of provisions. In particular, it is necessary to provide a legal basis for the association of WUAs in WUA Unions / Federations and the transfer to them of ownership and management of a certain part of inter-farm irrigation systems. Also the need to strengthen the role of WUA Councils and address the issue of WUA property registration

[10] Chronicle of the UN. Women and Water Resources Management in Agriculture, 2013.unchronicle.un.org›ru/article/1492

3) In the Law "On WUAs" throughout the text, the word "contributions" should be replaced with "fees".
4) Considering that the WUAs at one time took on the balance and management of the irrigation infrastructure destroyed during the economic crisis in the country, which, after the collapse of the collective and state farms, was not technically maintained and, accordingly, was mostly in insufficiently poor technical condition, additions to the Law on WUAs providing for free registration of lands of water resources and infrastructure at WUA level and introduction of other benefits in investing funds rehabilitation of irrigation infrastructure.

ON TAXATION OF WUAS

1) Amendments and additions to the Law on WUA clarifying the legal status that the WUA is a public, non-profit organization.
2) Considering that the WUA at one time took on the balance and management of the irrigation infrastructure destroyed during the economic crisis in the country, which, after the collapse of collective and state farms, was not technically maintained and, accordingly, was mostly in insufficiently poor technical condition, additions to the Tax Code of the Kyrgyz Republic should be made providing for exemption from taxes (from sales tax and other local taxes for the main activities of the WUA) and the introduction of other tax benefits.

ON TARIFF ISSUES, WATER ACCOUNTING AND PAYMENT FOR WATER SUPPLIES TO WATER USERS, INCLUDING WATER LOSSES THROUGH THE IRRIGATION SYSTEM OF WUAS

Considering that the WUAs once took on the balance and management of the irrigation infrastructure destroyed during the economic crisis in the country, which, after the collapse of the collective and state farms, was not technically maintained and, accordingly, was mostly in a poor technical condition, on the basis of Article 83 Water Code of the Kyrgyz Republic, "Subsidies for Irrigation and Drainage the Zhogorku Kenesh of the Kyrgyz Republic on the proposal of the Government of the Kyrgyz Republic may annually grant subsidies for irrigation and drainage. The amount of payment for water supplier services is approved by the Government of the Kyrgyz Republic":

1) To make appropriate additions to the WUA Law or to adopt a resolution of the GKR that stipulates that the WUA tariff in the DDWM will remain unchanged, and pay for actually supplied water to farmers, minus the loss of water within the WUA irrigation system and other benefits in investing in rehabilitation of the irrigation infrastructure.
At the same time, take into account that, at present, losses from water delivery fees to the WUA boundaries from state irrigation systems are excluded, and farmers pay for losses within the WUA irrigation system. Because of this, the fields do not receive the required volumes of water and from this the yield decreases. Here, the main reason is laid down - a retarding factor in the development of irrigated agriculture (from which the country receives 90 percent of agricultural output), in general the country's agriculture.
2) It is necessary to amend the Law on WUA on the development and adoption of the Concept on WUA water accounting, in which, in the distribution and water supply, the WUA must necessarily have water accounting facilities. And regulating that when allocating water without means of water account, the water user has the right not to pay for the water supplied in full.

3) To study the situation with the solvency of farmers in the production of agricultural crops. In those situations where farmers, based on the current state of procurement prices are not able to fully cover the costs of water management organizations, make proposals for possible state subsidies to compensate for the missing amount to cover the costs.
4) Promote a gradual increase in the amount of water charges within the WUA, which allows full reimbursement of O&M costs of irrigation systems.

ON CONFLICTS IN WATER USE

1) To introduce amendments to the Code of the Kyrgyz Republic on administrative responsibility and the Criminal Code of the Kyrgyz Republic, allowing to specify the types of administrative and criminal offenses in the field of water use and sanctions on them.
2) To amend the model agreement between the DDWM and the WUA, the WUA and the water user (WU), developed on the basis of the legal inventory and the results of the experimental measurements, should be submitted to the Government of the Kyrgyz Republic and, if possible, approved. Similar changes will be reflected in the WUA model agreement with the WU. It is possible to study the possibility of increasing fines for non-payment of used water provided by the Code on Administrative Responsibility of the Kyrgyz Republic and the Law on Water User Associations and make sure that WUAs can enforce compliance with these provisions.
3) Adoption of by-laws that allow the introduction of effective mechanisms for water distribution, methods for determining the cost (calculation) of payment for irrigation water and the procedure for the distribution and target (focus) use of these funds in the DDWM.
4) Strengthening the work of the Dispute Resolution Commissions in the WUA

ON GENDER ASPECTS IN WATER USE

It is necessary to consolidate in almost all NLAs related to agriculture and water management, such measures that should:
1) lead to the recognition of women as independent water users and ensure their access to water use rights regardless of land ownership. This involves strengthening the leadership role of women in water policy and decision-making, supporting their membership in water management institutions, such as the Water User Association;
2) overcome the multiple forms of gender discrimination with providing access to the productive resources such as water and land, assets and services and control over them. This involves identifying constraints which prevent an access by different groups of women to water resources, such as social and gender models and the balance of forces in the community, and help to remove these restrictions;
3) improve water supply services to cover the needs of the poorest, initiating reforms that will ensure accessibility of water for poor families in rural areas, with special attention to households headed by women;
4) Provide technical training for women in water management, irrigation, rainwater harvesting and other irrigation technologies designed for use by small farmers;
5) introduce and enforce reporting measures and indicators that contribute to women's leadership in water management in agriculture, including gender audits;
6) strengthen the capacity of relevant concerned parties from the government, civil society and development partners to understand and address gender issues in the management and governance of water resources in agriculture.

Analysis

LESSONS LEARNED

Based on the analysis of the water management system in Kyrgyzstan, it can be said that the implementation of the current Water Code of the Kyrgyz Republic is realizing partially, but all provisions of the Water Code are not implemented yet. In order to realize the goals set, besides the implementation of the Water Code, it is necessary to take measures to the recommendations noted above. A number of legislative and subordinate regulatory acts are still to be adopted.

References

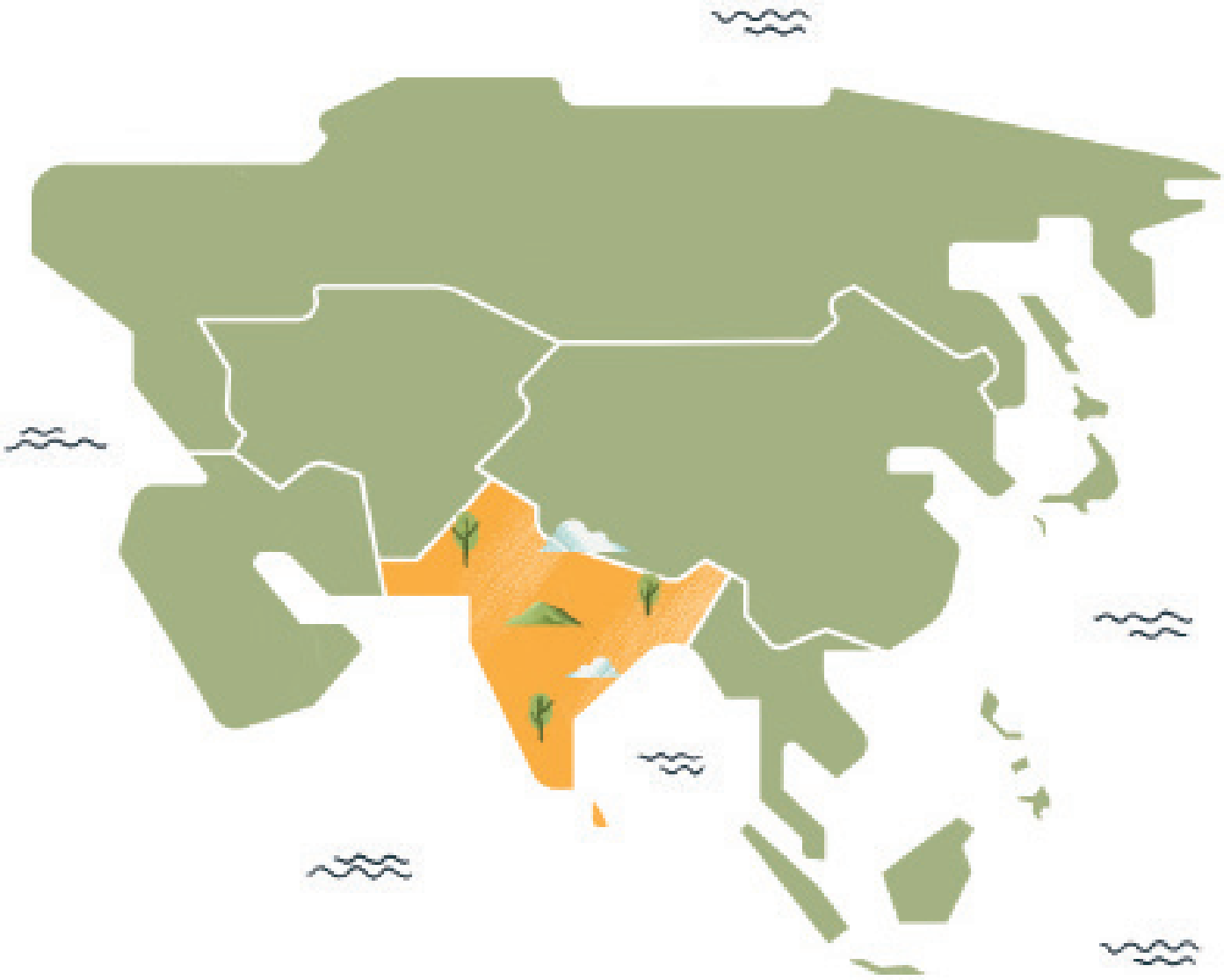
Report: Legal and Institutional Aspects, SMEC International pty limited, Water menegement improvement project (WMIP), July, 2008;

Implementation of the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forestry in the context of National Food Security in Central Asia, Legal assessment of selected issues against the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forestry in the context of National Food Security in the Kyrgyz Republic. Union of Water Users' Associations of the Kyrgyz Republic, Expert Team:

A. Burkhanov, A. Temirbekov, D. Bustanova, E. Kozhoev, M. Jusupov, V. Boltobaeva.

Legislation of the Kyrgyz Republic.

The results of the discussion at the validation seminar, with the participation of representatives of government bodies, non-governmental organizations, farmers and experts, NUWUA, September and October, 2017.



South Asia

Community Management of Commons in Sagatadi Village, India

Prayatna Samiti

ABSTRACT

This case study justifies that locally managed ecosystems are derived from the self-governing principles of natural resource conservation. The locally-managed ecosystem is a common land, pasture, or commons of the Sagatadi village towards the south east of Udaipur District in the Rajasthan State of India which is managed by locals. The model embraces the control of the community over a 75-hectare pasture for fodder access, with its village-based personnel ensuring its security. The main objective behind the management of the commons was the formation of a local institution for decision-making and management of commons, which would contribute to the regeneration of fodder.

In 1991, with the support of Prayatna Samiti, a local NGO based in Udaipur, people formed a Pasture Land Management Committee, with all village households as its members. Later on, the construction of the boundary wall took place with the support of Prayatna Samiti, Forest Department, and Society for Promotion of Wasteland Development (SPWD). The Pasture Land Development Plan was also developed. The work started with the implementation of physical and vegetative measures, with 50% community contribution to the total fund support provided by the NGO. After completion, the community was tasked with the maintenance of the pasture. All decisions on management and security measures were stipulated by the community.
After 25 years, the community affirmed that the committee's management of pasture lands has been effective. Fodder growth and water supply have been restored, according to accounts.

Introduction

The Rights over Common Pasture Land are observed as Common Property Rights (CPR). Over the years, in India, the commons have been protected by the residents of Panchayats Village, who have been responsible for securing and managing the pastures for the sustainable fodder growth, as well as the proper use of natural resources. The case study reflects the community management of Commons which received the credit of pasture regeneration.

The people of Sagatadi rely on pasture land for their livelihood. It provides fodder for animals, and wood for shelter, fuel, and artifacts.

The degradation of the 75-hectare common pasture land in the village caused a large shortage of fodder. Privately-owned pastures could not keep up with the demand of the village, so families had to purchase fodder at the cost of Rp 5000 to Rp 20000.

In 1991, the locals initiated a discussion on pasture management facilitated by Prayatna Samiti. At the initiation phase Prayatna Samiti took part in aggregating people and in conflict resolution.

Considering the role of the community in village management, the villagers formed a Pasture Land Committee (PLC), whose task was to facilitate the restoration of the commons. The PLC played a vital role in pasture regeneration, from plantation to protection. The committee also played a pivotal role in addressing the conflicts on land demarcation, and decision-making to minimize environmental stress and security threats.

OBJECTIVES

The objectives behind the management of the Commons were:

- Formation of a local institution for decision-making and management of commons for the restoration of fodder;
- Maintain dialogue between village and Panchayati Raj Institution (PRI) for valuing commons;
- Enhancement of fodder for increasing milk production in animals; and
- Implementing soil and water conservation (SWC) measures for water recharging and increasing vegetative cover.

METHODOLOGY

In Sagatadi village people felt acute deficiency of fodder. The private pasture lands were not able to support the fodder grasses as they were in degraded conditions and small in size. Commons contributing to a chunk of land mass was also running degraded. This was supposed to be maintained by the village Panchayat Bori. However, it went unnoticed by the Panchayat. Considering the commons as the common property belonging to the whole village people, they decided to develop it by themselves. In 1991 with the support of Prayatna Samiti, a local NGO based at Udaipur, people formed a Pasture Land Management Committee consisting of all of the village households as its members. In 1994 the NGO helped people to submit the proposal on JFM to the Forest Department. As the proposal got sanctioned a boundary wall was constructed around the 40 hectares of commons. Pasture Land Development Plan was developed with the guidance of the NGO. The work started with implementation of the physical measures and vegetative measures. Apart from boundary wall construction, the plantation and CCT in 40 hectares was also supported by the Forest Department. After the implementation, the land development was taken over in the form of watershed development with the support of SPWD. During this phase, the check dams, gully plugs, farm bunds and land leveling work was carried out. One (1) *Anikut* and one (1) *Nadi* were also constructed for effective water recharge. Soon after, Panchayat supported construction of four (4) *Anikut*.

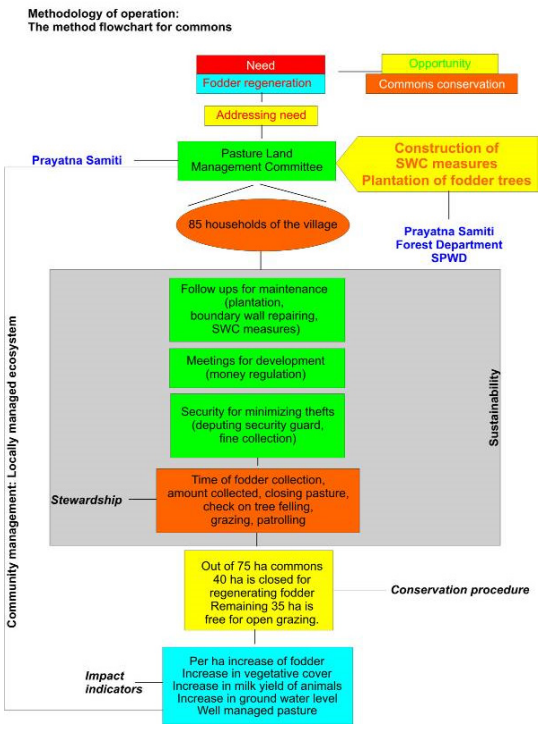
After completion of the work, self-management of the pasture was implemented. The decisions on management and security measures were stipulated by the community. After 25 years the condition reflects the appropriateness of the commons management through the committee. Fodder growth is restored along with water recharge and people have equal access to the fodder. Presented are the features of the local management in Sagatadi:

1. Out of the total commons of 75 hectares, 40 hectares were protected and treated. The remaining 35 hectares were left open for grazing.

2. People are involved in the management of the commons. Threats are checked by the local security guard appointed by the committee.

3. Managerial decisions are made by the committee.

***Caste clashes with the Dangi community of Nandivela Village caused the conflict. Some people were reluctant to contribute because they had no interest in the commons. Prayatna Samiti held several meetings to resolve the conflicts and aggregated the people to join the cause.*



Context

STUDY AREA

Profile

Sagatadi village is located 55 km towards south east of Udaipur district of Rajasthan State of India. The village exhibits semi-arid agro climatic conditions existing in extreme undulating terrain. The hillocks represent the rocky surface with thin soil cover. The main vegetation present in the area is thorny trees with stunted height. Babool, Ronjh, Ber, Bel and cactus are some of the most common growing trees. Sagatadi is a 225-hectare village, with a population of 468 across 85 households. 75 hectares have been allocated for common pastoral use, while the un-irrigated land, including fallow land, and comprise 27 hectares. The village has 84 buffaloes, 105 cows, and 395 goats. The most common means of livelihood are agriculture and animal husbandry including Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) and migration.

Importance of ecosystem

In the Sagatadi village, the ecosystem represents a niche of all the traditional flora and fauna diversity that is vital for each other. In the village all the life forms are very simple resources having a significant role in the sustenance of life.

The village is located in a semi-arid agro-climatic zone. People are dependent on land, animals, crops, fodder, and trees; hence their stewardship of the ecosystem of the village.

The land in Sagatadi falls in three categories: private pastures, government pastures, and crop-cultivated areas. Due to undulating topography, the land has fewer areas that are viable for crop cultivation as the sloping land's soil depth is unsuitable for farming.

A village pond constructed by Gram Panchayat in 1973 meets the major water supply needs. Other water resupply structures are *Nadi* and *Anikuts* which were constructed by Panchayat and other NGOs.

The crop cultivation exhibits the rain-fed agriculture with average annual rainfall of 500 mm. The community practices traditional agriculture consisting of winter *(Rabi)* and rain *(Kharif)* crops. *Rabi* crops consist of wheat and mustard while maize is generally cultivated during the rainy season.

The leaves and stalks of the crops serve as fodder for the animals. The pasture represents the *silvi* pasture where nature with trees growing along with the fodder grasses. The grasses which are mainly *Heran, Bhangto, Rohida,* and *Kali laap* are harvested during the month of October. Stall feeding and open grazing are practiced by animal herders particularly those harvested from the commons, while animals graze freely in areas outside of it.

Trees of economic importance, which are used for fruits, leaves, and wood, are also found in the pasture such as *Dhandi, Temru, Ronjh, Neem, Sheesham, Baans, palas, Kheir, Karanjia, Babool, Ber, Kemata, and Hemda.*

Dairy is one of the major sources of livelihood in the village where Buffalo milk is sold at the nearby Nandivela Village, earning an average of ₹75 daily. Moreover, the village makes use of a primary water source for drinking and irrigation, through wells. During the dry season, summer crops consisting of pulses varieties of moong and toor are grown.

Pressures and challenges

While the village is dependent on agriculture, it faces external challenges especially with the terrain and the weather conditions. 65% of the village is on undulating terrain, which is unsuitable for farming. In 2002, a drought caused a severe water shortage and light rainfall also erodes the gullies, compromising topsoil integrity and vegetative cover. Internal difficulties were also faced by farmers, wherein climate conditions have forced some to seek greener pastures, while some also note that the lack of skills has kept them from improving farming practices and adjusting to present realities.

THE LOCAL COMMUNITY

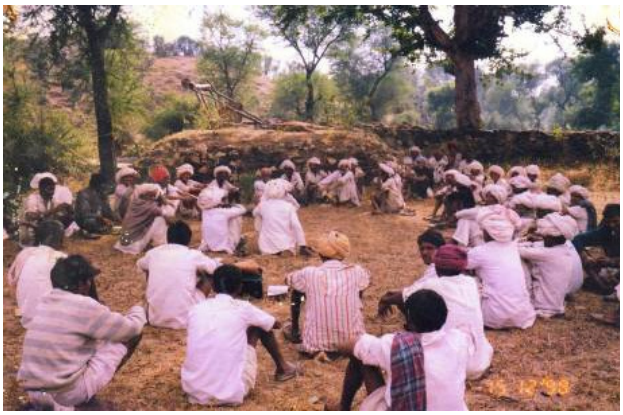
The local community belongs to Meena tribe, whose livelihood relies on agriculture and animal husbandry. The tribe fall under the Scheduled Tribe category in the state of Rajasthan, and most are classified Hindu.

A woman from Rawat community

ASSESSMENT OF IMPACTS OF INTERVENTIONS

Intervention: Formation of Pasture Land Management Committee

Impact Assessment: The immediate need of the committee was to initiate the regrowth of fodder grass. Private pastures were not able to fulfill the demand for fodder, so households were forced to purchase it in neighboring villages at great expense to the marginalized residents.



Prayatna Samiti coined the idea to form the Pasture Land Management Committee. The Committee consisted of the family representatives from 85 households in the village. It started with the development of a stone boundary wall around a 40-hectare area within the commons with JFM sanctioned from the Forest Department.

The creation of the committee was effective in starting the process to rehabilitate the commons, due to the villagers' unity. This enabled them to understand each other's condition, as well as the urgent need for fodder. The villagers reached the consensus that a development plan was needed. While demarcating the boundary of the commons, a conflict with the neighboring Nandivela Village arose. A case claim was prepared for the disputed land to be allotted to Sagatadi village. People raised ₹ 40000/- to fight the case which went to Jaipur branch. The case was won by the Sagatadi Village.

In May 2018, villagers rallied to oppose mining companies operating in their land. The community initiated a dialogue with a mining company which was attempting to extract marble from the land. The committee imposed rules and regulations to restrict poaching. A village-appointed security guard patrolled the pastoral land. Those who were caught poaching had to pay any of the following fines:

Tree felling: ₹ 400 to ₹ 2000/- (depending up on the type of tree)
Fodder cutting: 200 to ₹ 300/-.
Animal grazing: ₹ 500/-.

The imposition of fines contributed to the reduction of poaching behaviors in the village. The fines collected were used to fund repairs and social activities. The community voluntarily which shows ownerships in the land development. Furthermore, imaginary land partitions have helped guarantee equal access to fodder, enabling households to harvest 2.1 quarts of fodder each time. This has, in turn, allowed the villagers to use common resources without conflict.

Intervention: SWC measures and plantation

Impact assessment: Land treatment work was taken up to restore land fertility. The measures include the construction of stone boundary wall and CCT encompassing 40 hectares, 150 gully plugs, three (3) *Nadi,* and six (6) *Anikut.*

The work started with the construction of a boundary wall, plantation, and CCT by the Forest Department under JFM. Watershed development was next on the agenda. During this phase, the SPWD built check dams, gully plugs, and farm bunds, and carried out land leveling work. One (1) *Anikut* and one (1) *Nadi* were also constructed for effective water recharge. After this, Panchayat Village led the construction of four (4) additional *Anikut.*

With the facilitation of the boundary wall, the Forest department conducted CCT and plantation; the SPWD added two (2) *Nadi,* while Pachayat contributed five (5) more *Anikut.*

Furthermore, fodder trees were planted to reduce soil erosion of 50% of total manpower comprised of villagers where two (2) members from each family voluntarily worked to achieve and complete the task.

The planning showed good results in fodder regeneration. The growth of native grasses like *kali laap, heran and rohida, and bangato* showed improvement of the fertility and moisture holding capacity of the soil.

Meanwhile, the increased abundance of native trees such as *Ronjh, Neem, Sheesham, Baans, Palas, Kheir and Karanjia,* as well as fruit trees, has led to improved fodder and fuel quantities for the villagers, as well as vegetative cover of the commons. Looking at the need of water recharging through upper slopes people took initiatives to develop *Nadi* and farm bunds voluntarily. Due to the water supply in the crop land 4.4 hectares of fallow land was converted to rain-fed. This initiative has resulted in grain yield production resulting food security of the region. Animal milk production has increased by 51% per animal resulting in family incomes increasing by ₹ 300/- per day.

Case identified on governing local ecosystems

EXPERIENCES

The people's management of natural resources is one of the most effective means of ecosystem management. It reflects good governance in measures taken to facilitate the regeneration of pasture. It also proves that dependence on natural resources creates the need for proper management, which contributes to ownership of and adherence to sustainable processes.

People are satisfied with the closure of commons as it has increased the fodder and vegetative cover. The ground water level has increased considerably. Open pastures have also benefitted, as they are now able to meet grazing demands. The SWC structures constructed in 75 hectares have added value to the village. A common understanding among the locals has led to the steadfast practice of watershed management approaches.

Equal access to fodder has benefitted all of the families, ensuring their stake in decisions made towards the maintenance of the pasture. In dialogue with Panchayat, they helped in the delineation of the commons' boundary.

Regular patrolling of the security personnel in the commons has made it easy to monitor and prohibit wood poaching. Thefts and other maintenance concerns are addressed by the Pasture Land Management Committee.

In the earlier stages, inexperience in *Nadi* construction led to a breach during rainfall, causing heavy damage in low-lying crop fields. To prevent this from happening again, the people ensured that stones were perfectly bound.

The rehabilitation of the commons has encouraged the people to realize and claim ownership through plantation and construction of SWC structures. People experienced the use of traditional technology in *Nadi* construction and fruit tree plantation, ultimately contributing to the sustainable development of the community.

OUTCOMES

Watershed treatment: The watershed treatment approach was followed while treating the land. Taking a holistic view of development, the construction of SWC was done from ridge to valley. CCT was constructed on the slopes with an inclination of 25%. Plugs were constructed across gullies in the commons. Streams were treated with *Nadi* structures and *Anikuts*. Lower fields were treated with farm bunds. The structures helped in checking soil erosion and enabled ground water replenishment, starting from the ridges.

Organizing Pasture Land Management Committee meetings: Any steps taken towards the development of the commons are decided by the community members. This is a key principle in commons management. The community decides how offenders are punished. Fines are collected whenever the local security guard reports theft or poaching, ensuring that damages are paid for. Self-contribution in the form of volunteer labor is done by the committee members to maintain the pasture.

Equal access to fodder: The fodder is collected after the monsoon. The commons is opened for two months to collect fodder. The shared pasture has been divided into 85 imaginary partitions for 85 families. This way, the committee ensures equal access to fodder. This helped prevent any disputes on harvest. Today each family is able to harvest 2.1 q of fodder consisting of kali laap, rohida and heran grasses. They no longer have to purchase fodder from outside sellers, when they had to spend ₹ 5000/- to ₹ 20000/- per year before.

Local security guard, kheta Ram Rawat

Deputation of local security guard: A security guard from the village is deputed to keep a vigilant watch over the commons, conducting morning and evening patrols. Any violations are reported to the committee members. He is paid annually with a sum of ₹ 17000/-, which the community raises with a ₹ 200/- contribution from each family.

GOOD TRADITIONAL PRACTICES

Formation of Pasture Land Management Committee and imposing rules for community benefits: The Pasture Land Management Committee consists of representatives from 85 families of the village. The committee came into existence when they felt the need to rehabilitate the pasture and increase fodder production. It was an attempt to introduce an institutional setup which was necessary to sustain any development in the village. Through continuous meetings, the villagers reached the common understanding to protect the pasture and initiate the treatment of the commons with the support of Prayatna Samiti. The committee members created the development plan and disseminated responsibilities to protect the pasture.

Pasture land conservation through reforestation: The traditional interest of the people was valued when they started plantation of fruit and fodder trees inside the unprotected area. Now they are conserving the area by planting of mango trees in some places. The trees are protected by vegetative tree guards.

Analysis

LESSONS LEARNED

Developing unity is the best way to deal with social issues: The degradation of the commons was caused by neglect. The issue was addressed when people from different households discussed it at a common platform. They united to form a committee in which all the families of the village took an active role in developing the commons. While uniting, they made firm decisions to maintain the land through common understanding.

Unity also proves helpful in fighting for people's rights, as was observed in the case of boundary delineation. Unity also allowed the community to oppose the operations of marble mining operators.

Time management: Time management was extremely important in the management of the commons. Treatment work had to be accomplished before the rains, as planting during the rainy season contributes to land restoration. For offenses to be decided on quickly, fines were collected in time. These have helped develop discipline among the villagers.

Watershed approach: The watershed treatment approach was followed while land treatment. Taking the development as the holistic approach the construction of SWC was done from ridge to valley. CCT was constructed on the slopes of inclination of 25%. Gully plugs were constructed across gullies in the commons. Streams were treated with Nadi structures and Anikuts. Lower fields were treated with farm bunds. The structures helped in checking soil erosion and ground water recharge starting from ridges.

Pasture land treatment is necessary for village development: Being a good source of water and fodder, pasture lands provide livelihood opportunities. by developing such lands with respect to community rights, the village would also prosper, as vegetative cover and ground water supplies improve.

Community ownerships: Shared resources can be effectively managed by a community that takes ownership of its management. Community ownership is achieved by involving community members in decision-making. The community's reliance, as well as their intimate knowledge of the land and its resources, bolsters a collective sense of responsibility.

CAPACITY BUILDING NEEDS

While the Pasture Land Management Committee has taken numerous measures to address community needs regarding the commons, they continue to operate informally. To reinforce their institutionalization, trainings on leadership development, members' roles and responsibilities, alternative livelihood, and record keeping are needed.

Alternative livelihood opportunities are available through non-timber products and minor produce. However, further skills training (e.g. on carpentry, artifact-making, etc.) is needed to utilize these resources.

A local federation can be created to launch and sustain a product-based business that will strengthen their advocacy for village development. Women can be tapped as advisor for pasture land and agricultural development

ADVOCACY PLANS

Women SHGs possess good potential to carry forward the development of the village. Ten SHGs composed of women from adjoining villages will be formed to lead the women empowerment initiative. After the orientation, the SHGs will form a federation to represent the cadre skilled women, acting as the advisor for villagers to take up pasture land and agriculture.

The Pasture Land Development Committee, after training, will emerge as another advocacy forum which will assist in forming the Pasture Land Development Plan (PLDP) of neighboring pastures. The committee will establish a dialogue with Panchayat to replicate traditional water harvesting models under MGNREGA.

Recommendations

Sagatadi case study on the commons is a perfect example of the community management of natural resources. Prayatna Samiti has closely worked with the people in the village. The organisation is very familiar with the villagers. This is the why it shows confidence in the community and its approach to deal with situations of extreme pressure, where unity and resilience have manifested.

Prayatna Samiti only did the hand-holding during the initial stages, especially when monetary support was needed. Even then, the community contribution is 50% voluntary established that the community's bond was strong, despite being marginalized. The ongoing relationship between the community and the organisation fostered mutual trust, which played a major role as the organisation helped resolve conflict. Later on, the committee members took up the responsibility of the maintenance of the pasture as their own. Members showed their interest in asserting their right to equal access to the commons and its management.

Considering these, Prayatna Samiti recommends that this model of community management be considered protocol, in terms of ecosystem management.

Moreover, the community must continue to use and conserve the products of the commons such as fodder grasses, fruit, wood, and leaves for livelihood. This will strengthen the ecosystem and encourage people to cultivate floral diversity through land treatment. Local consortiums of such committees need to be formed to protect both private and government pastures. This will initiate the dialogue between people and Panchayat for the development of a Pasture Land Development Plan, to be included in the annual plan of development under MGNREGA.

Lastly, Prayatna Samiti requests the help of the CBI-6 forum in replicating such models, as well as further financial support for similar endeavors throughout Asia.

References

Rajasthan Common Land Policy, 2010.

Lobo Viren, Conroy Czech. *Silivi Pasture Development and Management of Common Lands in Semi-Arid Rajasthan*, 2002.

Vardhan, Mamta. *Cooperation in civic domains: Transferability to cooperation for common land management?*, 2015.

Venkateswara Rao Puppala Jagdeesh, Caturvedi Rahul. *Pratiti Priyadarshini, Kiran Kumari Commoning the Commons: Mediating for Spaces in Public Policy,* 2015.

[https://eschooltoday.com/ecosystems/what-is-an-ecosystem.html]

Moving Forward

ICCA and Locally Governed Ecosystems

Philippine Association for Intercultural Development, Inc.

The term "ICCA" is an abbreviation for a phenomenon that has many diverse manifestations and names in cultures and locations around the world. These include locally controlled and governed spaces, areas, territories and ecosystems such as ancestral domains, country, and community conserved areas, territories autonomous comunitarios, sacred natural sites, locally-managed marine areas, and many others. The ICCA abbreviation may encompass, but should never obscure, the diversity of such terms, which is a value in itself. Local or customary names should always be preferentially used, leaving the term 'ICCA' for general or inter-cultural communication.

Three Defining Characteristics of ICCAs, LCAs and LGEs[1]:

1. There is a close and deep connection between a territory or area and an indigenous people or local community. This relationship is generally embedded in history, social and cultural identity, spirituality and/or people's reliance on the territory for their material and non-material wellbeing;

2. The custodian people or community makes and enforces decisions and rules (e.g., access and use) about the territory, area or species' habitat through a functioning governance institution; and

3. The governance decisions and management efforts of the concerned people or community contribute to the conservation of nature (ecosystems, habitats, species, natural resources) as well as to community wellbeing.

[1] The ICCA Consortium

Significance

The global coverage of ICCAs has been conservatively estimated to be comparable to that of governments' protected areas, i.e. about 13% of the terrestrial surface of the planet. Globally, 400-800 million hectares of forests are owned/administered by communities, and land and resources in other ecosystems are under community control. By no means are all of the areas under community control effectively conserved and secured (and therefore considered as "defined ICCAs"), but a substantial number are.[2]

The UN Convention on Biodiversity (CBD) in its Global Biodiversity Outlook No. 3 released in 2010 stated that, Indigenous and local communities play a significant role in conserving very substantial areas of high biodiversity and cultural value. Furthermore, the GBO No. 3 affirmed that, in addition to officially designated protected areas, there are thousands of Community Conserved Areas (CCAs) across the world, including sacred forests, wetlands, and landscapes, village lakes, catchment forests, river and coastal stretches and marine areas. These are natural or modified ecosystems of significant value in terms of their biodiversity, cultural significance and ecological services. They are voluntarily conserved by indigenous and local communities, through customary laws or other effective means, and are not usually included in official protected area statistics.[3]

International Policy Framework

The UN CBD, the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and the International Union for Conservation of Nature (IUCN) are the main sources of international biodiversity law and conservation policy, respectively, that strongly recognize the rights and roles of indigenous peoples and local communities. In the CBD, this recognition is enshrined in Articles 8(j) and 10(c) and a wide range of decisions of the Conference of the Parties (COP) since the Convention entered into force in 1994. This includes recognition of ICCAs in several decisions since 2004, including in relation to protected areas, financial mechanisms and resource mobilization, traditional knowledge and customary sustainable use, sustainable development, ecosystem conservation and restoration, climate change, agricultural biodiversity and taxonomy.[4]

Status ICCAs, LCAs and LGEs

ICCAs, LCAs and LGEs are the oldest form of Conservation Governance in the world. These have been around for thousands of years sustaining life and ensuring the conservation of biodiversity and nature. However, there is very limited information regarding their status and most do not enjoy legal recognition by Governments. In many instances, Local Conservation Governance regimes remain invisible or are marginalized by mainstream society and are labeled ineffective and lacking in robust scientific basis.

They continue to face threats and challenges, mostly from large-scale commercial investments, top-down development initiatives undertaken by Governments, development agencies, and conflicting policies that undermine their governance over their lands and resources. These political and commercial threats are further exacerbated by global environmental changes such as biodiversity loss, climate change, extreme weather events, and ocean acidification and coral bleaching.[5]

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[2] The ICCA Consortium, Policy Notes
[3] pp. 29-30, Secretariat on the Convention of Biodiversity, Global Biodiversity Outlook 3 (2010), Montreal
[4] The ICCA Consortium
[5] The ICCA Consortium

Moving Forward

While there has been solid gains in the recognition of the contribution of ICCAs, LCAs and LGEs in sustaining life on earth, a lot of work needs to be done in order to ensure the continued existence if these very important local conservation governance regimes.

In 2012 the Secretariat of the Convention on Biodiversity commissioned the ICCA Consortium to conduct an exhaustive study in order to provide more in-depth information on the phenomena of ICCAs, LCAs, LGEs and to recognize and support ICCAs, and the peoples and communities that govern them, as part of international conservation and human rights agreements . The result was is the CBD Technical Paper No. 64 that provided recommendations for both Legal Reform and Non-legal Recognition of LCCAs. LCAs and LGEs that could provide a roadmap for CSOs and their work in support of Local Conservation Governance.

The following are some of the relevant recommendations of the study. [6]

• Legal and policy measures, most crucially towards recognizing indigenous peoples' and local communities' rights as legal subjects, rights to territory, natural resources, and collective governance, respect of customary knowledge and practices, and other such conditions relevant for secure ICCAs.

• Initiate activities and policies towards recognizing ICCAs as valid conservation initiatives including, where appropriate, in protected area systems.

• Conduct of Documentation and Research on specific ICCAs, LCA, LGE systems and their incorporation into relevant databases, through participatory and community-based mechanisms.

• Facilitate advocacy and networking, both among indigenous peoples and local communities governing ICCAs as also with and among support groups

These actions can also be adopted by ILC – Asia especially the members of CBI 6 as they continue to document the stories of their partner communities and advocate for the recognition of ICCAs in Southeast, South and Central Asia.

[6] Kothari, Ashish with Corrigan, Colleen, Jonas, Harry, Neumann, Aurélie, and Shrumm, Holly. (eds). 2012. Recognizing and Supporting Territories and Areas Conserved By Indigenous Peoples And Local Communities: Global Overview and National Case Studies. Secretariat of the Convention on Biological Diversity, ICCA Consortium, Kalpavriksh, and Natural Justice, Montreal, Canada. Technical Series no. 64, 160 pp

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INTERNATIONAL LAND COALITION | ASIA

International Land Coalition (ILC) is a global alliance of intergovernmental, governmental, and civil society organizations working together with the rural poor to increase their secure access to natural resources, especially land.

Rural Development Fund

The Rural Development Fund (RDF) is a non-profit, non-governmental policy and research organization established in 2003 to conduct research, develop policy recommendations, and implement activities in the field of rural development in Kyrgyzstan. The organization aims to support locally appropriate initiatives to alleviate poverty and achieve sustainable development in rural areas.

XAVIER SCIENCE FOUNDATION, INC.

Xavier Science Foundation, Inc. (XSF) is a legal, non-stock, non-profit, non-government organization established to support programs and projects that address poverty alleviation and social empowerment. It works to support development programs as conduit of funds, initiator of innovative programs and forum for dialogues.

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