APN
ASIA-PACIFIC NETWORK FOR
GLOBAL CHANGE RESEARCH

FINAL REPORT

The Science-Policy adaptive capacity for local herding and government groups to reduce climate vulnerability

CBA2022-10MY-Balt

2024

GOVERNMENT OF MONGOLIA
MINISTRY OF ECONOMY AND DEVELOPMENT

Institute of Atmospheric Physics
Chinese Academy of Sciences

MONGOLIAN ACADEMY OF SCIENCES

GOBI-ALTAI PROVINCE
GOVERNMENT OFFICE

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1. Summary

The effects of climate change and active use of natural resources are the key factors to pastoral social-ecological vulnerability in agriculture-based developing countries. Pastoral vulnerability is a base to measure how climate change affects pasture, livestock and the livelihoods of herding communities. It is explained through natural stressors of drought (and harsh winter) and human factors of pasture use and vegetation cover change as a set of interlinked impacts on social and economic conditions and coping strategies of herder communities. Our past study "Ecological vulnerability assessment for adaptation strategy formulation at different spatial scales in western Mongolia and China" revealed that the rural herding communities and local government units lack scientific information to better understand the nexus of Climate-Pasture-Livelihood and how it might impact their well-being now and in the future. They also have limited capacity building resources in science, policy, and its implementation.

The science-policy adaptive capacity program (SiPaC) funded by Asia-Pacific Network on Global Change Research (APN) was implemented by the Mongolian Academy of Sciences with the assistance of the project collaborators in Gobi-Altai province, Mongolia, where ecologically most vulnerable province affected by climate change related disaster extremes, water resources shortage, and cultural changes, while trying to keep its nomadic rangeland systems. Building on the pastoral social-ecological vulnerability assessment, the SiPaC program aimed at enhancing local herding communities, young leaders/researchers, practitioners, and government units to participate in, and connect to, local, national, and regional science and policy agenda (SDGs) on climate change adaptation, and enabling them learn science-based pastoral management, best practices, and innovative solutions.

Within the project framework, 5 capacity building trainings were organized in total: four interactive training sessions in two countries, Mongolia and China, and a final dissemination training workshop in Mongolia. Each session was designed as a two-to four-days' workshop to provide insights into specific topics.

The first training workshop on "climate change impacts and importance of scientific knowledge in policy and planning" was held on March 29-30, 2023 in Gobi-Altai province bringing together more than 65 participants from Gobi-Altai government office, five selected sub-provinces or soums (Khaliun, Bayan-Uul, Biger, Tugrug, and Taishir) along with other project collaborating organizations at local and national level. The workshop focused on climate change and pastoral social-ecological vulnerability, its impacts on the socio-economy of pastoral herding communities, opportunities to use scientific knowledge in policy and planning, importance of building partnerships and innovative solutions to decrease pastoral vulnerability, and development potential at local, regional and national levels. During the training workshop, side events such as project partners' official collaboration by signing MOU, "Science-policy pathways" forum and "Science technology and innovation" exhibition was also organized with the purpose to spread research outputs into practical application and local development.

The second training workshop on "Climate change and its impacts on pasture and desertification" was organized on 14-17 September, 2023 in Linhe City of Bayannor, Inner

Mongolia, China. The Mongolian Academy of Sciences, Natural Conservation Bureau of Bayannur, Meteorology Bureau of Bayannur, Uran Desert-grassland Research Station of the Chinese Academy of Sciences and other project partners consisting of leading academic scientists, researchers, decision makers, policy formulators and local communities to exchange and share their experiences and research results on climate change and its impacts, pastoral vulnerability, and adaptation options. Moreover, the participants discussed basic knowledge and methods to assess their local policies, participating options, tools, and methods to formulate policy documents, mainstreaming the process, practice and translating research outputs into local policymaking by using local root governance channels. 13 presentations and lectures from 12 organizations were discussed and 25 representatives (5 from Mongolia, 1 from Japan and 19 from china) participated.

The third training workshop on "Policy formulation methods and document review analysis" was organized by The Mongolian Academy of Sciences, Institute for strategic studies, Mongolian National university of Education and National university of Mongolia using online and on-site format involving 58 participants from selected government employees, representatives of citizens and private sector from five participating sub-provinces on 28-30 November 2023. The workshop covered methodology to develop mid-term strategic plan based on analysis of currently active-in-use local policy documents and pastoral vulnerability assessment results, and coordination with international, regional, and national policy documents, and provided detailed information about how to start drafting "Soum mid-term strategic plan".

The fourth training workshop on "Development of strategic and climate change adaptation plan at soum level" was organized on 11-13 April, 2024 in Gobi-Altai province. This training is more practical hands-on training focused on the development of local-centered adaptation strategic plan at sub-provinces based on training curriculum, previous training materials and scientific outputs.

The final dissemination workshop was held on August 14-20, 2024 in Ulaanbaatar and Altai city, Gobi-Altai province online and in-person format to conclude the project. The closing workshop brought together more than 70 participants consisting of national and local government organizations, private sector, academics and researchers from Mongolia, China and Japan to share project outputs, learnings and experiences.

Finally, the SiPAC training project produced one package of training curriculum guideline including the results of pastoral vulnerability assessment, local policy document analysis and methodology to develop local strategy, and each participating soum drafted its own adaptation strategy plan, subject to approval by local authorities following further improvements and amendments. The provincial administration highly appreciated the results and the importance of the project expressing further collaboration, and expressed their willingness to continue to

cooperate in climate change research on a wider level, to develop methods and technologies to overcome and ensure the implementation of the local strategic plan.

2. Objectives

The main objective of the project was to provide the science-policy adaptive capacity program (SiPaC) to enhance the local herding communities, young leaders/researchers, practitioners and government units to participate in and connect with local, national and regional scientific contributions and policy agenda (SDG's) on climate change adaptation, and to learn the science-based pastoral managements, best practices and innovative solutions preventing from pastoral vulnerability as well as develop local adaptation strategy. The specific objectives were as follows:

1. To develop the integrated training curriculum based on scientific research outputs, datasets, local needs assessment, special interest of participating stakeholders in each of the case areas using advanced methods and expert knowledge;
2. To teach the basic knowledge, methods and tools on climate change, pastoral vulnerability reduction and adaptation, assessment of policy and agenda relevance, and formulations of local policy development;
3. To facilitate development of local-centered and effective climate adaptation strategy based on training curriculum;
4. To develop a scientific, user-friendly experience sharing platform;
5. To expand local stakeholders' partnership and increase the awareness of the Sustainability Leadership Network;

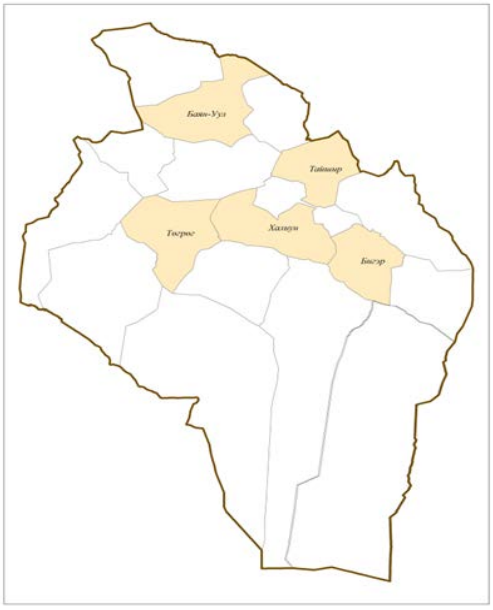
3. Outputs, Outcomes and Impacts

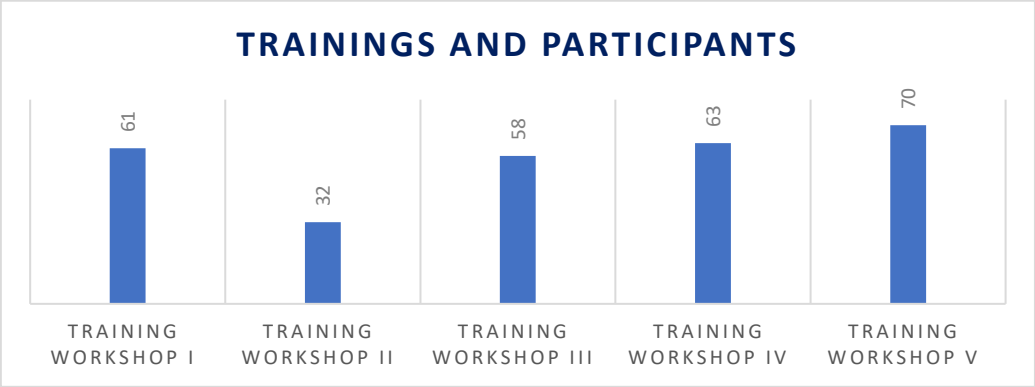
Outputs	Outcomes	Impacts
Pastoral vulnerability assessment report	Pastoral vulnerability assessment report for Gobi-Altai province including **5 sub provinces** (soums) **from 1990-2023 published online** (in Mongolian).	The pastoral vulnerability assessments for 5 soums were done to provide up-to-date research base to support the drafting of local adaptation and strategic plans. The assessment methodology was included in the training guidebook for understanding science base of climate, its changes, impacts, affecting indicators, adaptation options and policy issues.
Training guidebook published	Training guidebook was developed by the project collaborators and was published with a total of **120 pages including 4 chapters**.	Project collaborators developed training curriculum for the science-based policy making and capacity building program on climate change adaptation especially for the pastoral vulnerability reduction. **Training guidebook package consists of 4 chapters:** 1) Climate change in Global, Regional and Mongolian context: impacts and vulnerability, 2) Pastoral social-ecological vulnerability assessment at provincial and sub-provincial level, 3) Mainstreaming climate adaptation in local

		development policy, and 4) Methodology to develop local adaptation and strategic plan.
5 training and dissemination workshops completed	Total of 5 workshops – **4 training and 1 dissemination in combined on-site and online forms were organized, and more than 70 people and 280 participants in duplicate** participated and were educated.	The capacity building program educated more than **70 (280 in duplicate) leaders from local civil society, young leaders/researchers, and local government officers** through advanced knowledge and experience on climate change adaptation and reduction of pastoral vulnerability as well as experience sharing to make decisions and expand partnership.
5 sub-provinces (Biger, Bayan-Uul, Khaliun, Taishir, and Tugrug) from Gobi-Altai province drafted their **local strategic development plan**	During the project, each local team developed their local **strategic plan** inclusive of climate change adaptation.	Training participants developed a **local-centered, specific local strategic plan** taking into account climate change adaptation based on its pastoral vulnerability, resilience, sensitivity and impacts of climate change, adaptation measures, strategic developments and learned methods.
2 project reports, 1 guide book published, 48 presentations distributed, 3 video, and 9 news published	3 video, 9 news published, 2 project reports, 1 guide book published, 48 presentations distributed, 4 times presented at international conferences and 1 scientific paper under submission	The project findings were distributed to the local, provincial, national, and international users. Participants' achievements were expanding the effective participation, networking, communication and collaboration with local, provincial and national government organizations and international experts in presenting, designing, planning and implementing policies and problem-solving processes at local areas.

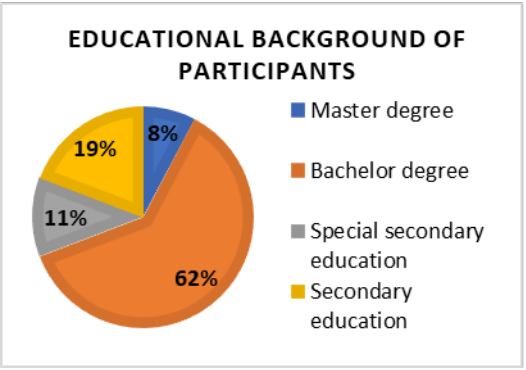
4. Key facts/figures

- The project was implemented in the 5 sub-provinces of Gobi-Altai province gaining an increased collaboration among different parties, including local stakeholders, academics, researchers, policymakers (2 ministries), practitioners from NGO and international experts. The project leaders also combined with other science-policy activities of "Science-policy pathways" forum, "Science technology and innovation" exhibition in Altai city.
- 5 workshops, 4 training, and 1 dissemination, in combined on-site and online forms were organized and 70 leaders from local civil society, young leaders/researchers, and local government officers attended.





– Over 60 percent of the participants had educational background of bachelor's degree or more, and were employed in local government or other organizations at the decision-making level or participated in the process, 87% were early and mid-career leaders under 40 years of age.



– 2 project reports, 1 training guide book published, 48 presentations distributed, 4 international conference presentations, and 1 scientific paper under submission.

5. Publications

- **B.Suvdantsetseg, Kh.Nominbolor, B.Munkhsuld and B.Kherlenbayar.** 2024 "Training guidebook ". Digital Print Service LLC, Ulaanbaatar, Mongolia.
- **B. Suvdantsetseg, T. Chuluun, M. Altanbagana, and D. Dagvadorj** "Developing science based local adaptation plan through integration of environmental, social and economic vulnerability assessment" ASIA SPOTLIGHT session SRI-2023, 10-12 July 2023, Panama. https://futureearth.org/wp-content/uploads/2024/10/Future-Earth-Annual-Report-2023-2024-Final.pdf
- **B.Suvdantsetseg, Kh.Nominbolor, and Ya. Erdenebileg** "Climate change impacts and adaptation options of nomadic pastoral systems in Mongolia" presented at Climate Change & Disaster Reduction Forum, 10 March 2024, Kobe, Japan. https://www.apn-gcr.org/news/apn-in-collaboration-with-the-graduate-school-of-disaster-resilience-and-governance-university-of-hyogo-held-the-climate-change-x-disaster-reduction-forum/

- **B.Suvdantsetseg, and D.Battogtogtokh**, "How Can We Design Effective Science-Policy Interface? Learning from the Best Practices and Experiences from Future Earth's National Committees" Future Earth session SRI-2024, 9-16 June 2024, Finland. https://sricongress.org/open-access-session-how-can-we-design-effective-science-policy-interface-learning-from-the-best-practices-and-experiences-from-future-earths-national-committees/
- **B.Suvdantsetseg and Jia Gensuo,** "5th International Symposium on Earth Observation for Arid and Semi-arid Environments (ISEO2024)", September 27-29, 2024, Kashi, Xinjiang, China. https://iseo2024.casconf.cn/
- **B.Suvdantsetseg, Kh.Nominbolor, and B.Kherlenbayar**, "The science-policy adaptive capacity for local herding and government groups to reduce climate vulnerability: case of Gobi-Altai province, Mongolia", draft paper accepted to present at the International Rangeland Congress 2025, Adelaide, Australia, June 2-6, 2025.

6. Media reports, videos and other digital content

The project kick-off & first training workshop:

- "Gobi-Altai: Climate change has the greatest impact on society and economy" In Mongolian. 2023.03.30 https://montsame.mn/mn/read/315680,
- "Localizing science, technology and innovation" campaign was successfully organized in Gobi-Altai province" In Mongolian. 2023.04.01. National committee on science and technology website. http://www.nstc.gov.mn/news?id=41

The Second training workshop:

- Report on the "The climate change and its impacts on pasture and desertification" training workshop in Inner Mongolia, China. https://www.apn-gcr.org/publication/report-on-the-the-climate-change-and-its-impacts-on-pasture-and-desertification-training-workshop-in-inner-mongolia-china/
- https://mas.ac.mn/c/950432?content=4248970

The third training workshop:

- A training workshop was organized on the theme "Development of policy documents and methods of document analysis". In Mongolian. 2023.11.30. https://mas.ac.mn/post/14891

The fourth training workshop:

- The project "The Science-Policy adaptive capacity for local herding and government groups to reduce climate vulnerability" is being implemented at the Mongolian Academy of Sciences under funding from the Asia-Pacific Network for Global Climate Change Research (APN). In English. 2024.04.19. https://en.ac.mn/c/1104837?content=4626545

The fifth and dissemination workshop:

The International Conference on "Science-policy nexus to reduce the risks of climate change" takes place". In Mongolian. 2024.08.22. http://mongoltimes.mn/7140.html

- The International Conference on “Science-policy nexus to reduce the risks of climate change” takes place”. In Mongolian. 2024.08.23. https://www.facebook.com/story.php/?story_fbid=808791598129800&id=100069969025472&_rdr

7. Pull quotes

- ***Dr. Battogtokh.D, Director of the Department of science and technology policy at the Ministry of economic development***

  Our ministry has been supported to work together to reduce the impact and risk of climate change in Gobi-Altai Province, to improve the quality of life of the people, and to increase their income. I am fully confident that project participants from Gobi-Altai province are able to take concrete and new steps to expand and develop cooperation, new knowledge and new image in a comprehensive way to work more closely with scientific institutions, policymakers, and academics within the framework of the capacity building project.

- ***Mr. Sh. Erdenebat, Chair of the Gobi-Altai province government office***

  I would like to express our gratitude for the project proponent, collaborators, implementing and supporting organizations, scientists and policymakers to give this opportunity to implement jointly with Gobi-Altai Province. Gobi-Altai province is the second largest province in the country in terms of the area far from the central region (1400-1500 km). It has 18 sums and 88 bags, a total population of about 58 thousand and more than 3 million head of livestock, as well high mountains, steppes, and 13 of the 33 Gobi valleys are located with extreme climate changes. Everyone knows that due to the extreme weather caused by climate change, the local people, especially the people engaged in animal husbandry and agriculture, have a lot of economic losses and stress. This project has had a significant impact on acquiring the right skills, knowledge, networking and contributions for the participating representatives from 5 sums. In my suggestion, the governor of Gobi-Altai province is planning to take the initiative to make the continued project proposal, which is jointly implemented at the level of our province including all other 13 sums, and at national level in future.

- ***Prof. Jia Gensuo, Director and Professor Global Change Research Center for East Asia (START-TEA), Institute of Atmospheric physics, CAS.***

  I am glad to be an international collaborator of this APN project, which is an important effort to enhance science-policy interface and to build science empowered capacity of climate change adaptation for local nomads and government officers in Mongolia grassland. The project is so successful that we were able to engage over planned number of locals from the Gobi-Altai Province to exchange ideas and share experiences with project scientists from Mongolia, China, and Japan. The on-site training programs and questionnaires were also very effective, and we learnt a lot on the main challenges and local knowledge for potential climate change adaptation strategies. In next phases of the project, we could well use big

data, citizen science, and digital technologies to further enhance capacity of climate change adaptation, and scale up what we learnt from our experience in Gobi-Altai to other regions in Mongolia and the Asia-Pacific.

8. Acknowledgments

The project team acknowledges the supports and contributions by various academic and government organizations including Mongolian Academy of Sciences, Governor's office of Gobi-Altai province, Ministry of economic and development, National Development Institute of Mongolia, Nutag Partnership NGO, Natural Conservation Bureau of Bayannur, Meteorology Bureau of Bayannur, Uran Desert-grassland Research Station of the Chinese Academy of Sciences, Institute of Atmospheric physics, Chinese Academy of Sciences, Research Institute of Humanity and Nature, Institute of Strategic studies, National University of Education for their valuable contributions, active participations, hospitality, kind support and assistance in developing training curriculum, guidebook, and in organizing training workshops and science exhibitions.

We want to acknowledge the Asia-Pacific Network for Global Change Research (APN) and its team including Dr Linda Anne STEVENSON, Yukihiro IMANARI, Nafesa Ismail and Naomi Young for its financial support, and nice coordination to complete the project successfully. We also sincerely thank the MAS team all of whom strongly backed-up the project team throughout the study from its design to the report submission stage by providing their guidance, regular feedback and smooth logistical support critical to the successful completion of the study.

9. Appendices

Annex 1. Report on Training workshop 1
Annex 2. Report on Training workshop 2
Annex 3. Report on Training workshop 3
Annex 4. Report on Training workshop 4
Annex 5. Report on Training workshop 5
Annex 6. Short summary of Training guidebook

ANNEX 1

TRAINING WORKSHOP 1

"CLIMATE CHANGE IMPACTS AND IMPORTANCE OF SCIENTIFIC KNOWLEDGE IN POLICY AND PLANNING"

26-30 March 2023, Gobi-Altai province, Mongolia

The first training workshop entitled **"Climate change impacts and importance of scientific knowledge in policy and planning"** to kick start the project was organized on 26-30 March 2023 in Gobi-Altai province. The event gathered collaborators from various organizations including Mongolian Academy of Sciences, Ministry of Education and Sciences, Ministry of Economic Development, Sustainable Fibre Alliance, Government office of Gobi-Altai province, Institute of Strategic Studies and other related organizations, as well as participants from 5 soums (Khaliun, Bayan-Uul, Biger, Tigriog, Taishir) where the project was going to be implemented.

The project kick-started with the speech by the MAS President, Academician D.Regdel and the Governor of Gobi-Altai province Mr. O.Amgalanbaatar. The workshop provided information related to climate change and pastoral social-ecological vulnerability, its impacts on the socio-economy of pastoral herding communities, opportunities to use scientific knowledge in policy and planning, importance of building partnerships and innovative solutions to prevent pastoral vulnerability, development potential at local, regional and national levels, creating local production of value-added products (cashmere) that meet international quality standards, and analysis of policy documents of Gobi-Altai province.

During the project launch, side events such as "Science-policy pathways" forum and "Science, technology and innovation" exhibition were organized with the purpose to spread scientific and research outputs and its application into local policy formulation, designing and implementation process.


ГОВЬ-АЛТАЙ АЙМГИЙН
ЗАСАГ ДАРГЫН ТАМГЫН ГАЗАР


БОЛОВСРОЛ, ШИНЖЛЭХ УХААНЫ ЯАМ
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Research Institute for Humanity and Nature
Institute of Atmospheric Physics Chinese Academy of Sciences
APN ASIA-PACIFIC NETWORK FOR GLOBAL CHANGE RESEARCH
LIVE
“Уур амьсгалын өөрчлөлтийн нөлөөлөл, эмзэг байдлыг бууруулахад шинжлэх ухааны мэдээлэлд тулгуурлан бодлого боловсруулах аргазүйд сурган чадавхжуулах нь”
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О.Амгаланбаатар
Говь-Алтай аймгийн Засаг дарга
О.Амгаланбаатар
Д. Баттогтох
БШУЯ, Шинжлэх ухаан, технологийн бодлого, инновацийн хөгжүүлэлт, хэрэгжилтийг зохицуулах газрын дарга
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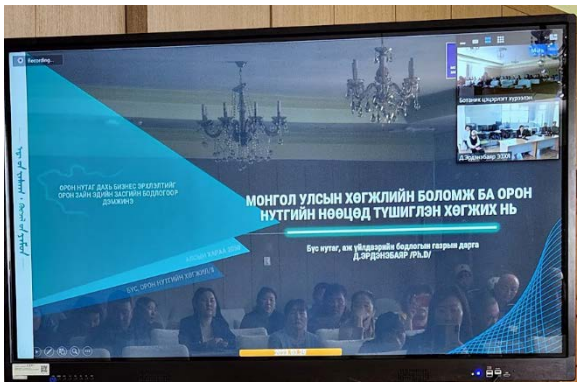
Table 1. TRAINING WORKSHOP AGENDA "CLIMATE CHANGE IMPACTS AND IMPORTANCE OF SCIENTIFIC KNOWLEDGE IN POLICY AND PLANNING"

09:00-09:10	**OPENING SPEECH** **D.Regdel** **O.Amgalanbaatar**	**President, Mongolian Academy of Sciences** **Governor, Gobi-Altai province**
09:10-09:30	Project introduction	B.Suvdantsetseg, PhD Head of Administration and International Cooperation Department, Mongolian Academy of Sciences
09:30-10:00	Opportunities to use scientific knowledge in policy and planning	D.Battogtokh, PhD Head of Science and Technology Policy, Innovation Development and Implementation Regulations Department, Ministry of Education and Science
10:00-10:50	The results of the evaluation of the impact of climate change and ecological vulnerability of Gobi-Altai province	B.Suvdantsetseg, PhD Head of Administration and International Cooperation Department, Mongolian Academy of Sciences
10:50-11:30	Mongolia's and western region's development potential and local resources of the Gobi-Altai province	D.Erdenebayar, PhD Head of Regional and Industrial Policy Department, Ministry of Economic Development
11:30-12:10	Creating local production of value-added products (cashmere) meeting international quality standards	B.Batkhishig, PhD Country director, Sustainable Fibre Alliance in Mongolia
12:10-12:50	Results of the analysis of policy documents of Gobi-Altai province	Kh.Nominbolor, ME Senior expert, Environmental Security Studies Center, Institute for Strategic Studies
12:50-13:30	Discussion Closing	B.Suvdantsetseg, PhD Head of Administration and International Cooperation Department, Mongolian Academy of Sciences



Signing of MOU: MOU was signed between the project leading organization, the Mongolian Academy of Sciences, and the project implementing body, Governor's office of Gobi-Altai province to collaborate in the areas of introducing and disseminating science, technology, and innovation achievements of academic institutions and researchers in the local area, putting the results of academic work into economic growth, organizing research and development work aimed to solve local problems, and implementing joint projects and programs, educate locals.


“Science-policy pathways” forum, academic conference, and science exhibition: Another objective of this project was to expand local stakeholders’ partnership between policymakers, and to teach science-based pastoral managements, best practices and innovative solutions to prevent pastoral vulnerability as well as develop local adaptation strategy. In this regard, we collaborated with the Ministry of Education and Science and the Ministry of Economic Development, and jointly organized the “Science-policy pathways” forum, academic conference and science exhibition during the project kick-off to spread science outputs and its application into local policy formulation, designing, and implementation process. The event gathered more than 400 people and introduced over 120 innovative products from scientific and innovative organizations.


The representatives of the project participated in the scientific conference and the science, technology and innovation exhibition got acquainted with the previous findings of the research conducted in Gobi-Altai province and discussed the possibilities and directions of applying them in the development and livelihood of people.

ANNEX 2

TRAINING WORKSHOP 2

"CLIMATE CHANGE AND ITS IMPACTS ON PASTURE AND DESERTIFICATION"

14-17 September 2023, Inner Mongolia, China

The Mongolian Academy of Sciences, Mongolia, Natural Conservation Bureau of Bayannur, Meteorology Bureau of Bayannur, Urat Desert-grassland Research Station, Chinese Academy of Sciences and other project partners organized **"The climate change and its impacts on pasture and desertification**" training workshop on 14-17 September 2023 in Linhe City of Bayannor, Inner Mongolia, China as part of the project "Science-policy adaptive capacity for local herding and government groups to reduce climate vulnerability". In the training workshop, 25 representatives (5 from Mongolia, 1 from Japan and 19 from China) participated and 13 presentations and lectures from 12 organizations were discussed.

The aim of the workshop was to bring together project partners including leading academic scientists, researchers, decision makers, policy formulators and local communities to exchange and share their experiences and research results on climate change and its impacts, pastoral vulnerability and adaptation options. Moreover, the participants discussed the basic knowledge and methods to assess local policies, participating options, tools and methods to formulate policy documents, mainstreaming the process, practice and transferring of research outputs into local policy making by using local root governance channels.

On the second day of the workshop, participants visited and got acquainted with the activities of the Urat Research Center of the Northwest Eco-Environment and Resources Institute of the Chinese Academy of Sciences. Also, on this occasion, it was proposed to determine the location of the places where a research center of the same type can be established along the vertical axis of the central region of Mongolia, and to reflect the proposal in the next cooperation.

Urat research center was established by the Chinese Academy of Sciences in the Gobi Desert region in 2013 and is equipped with the most modern technology and equipment. The center conducts comprehensive studies on carbon flow, changes in rainfall, nitrogen gas, plant growth and cycles, effects of sun and wind, effects on livestock pastures, drought, fertilizers, stress, plant species, and soil micro-organisms, and provides information to help make policy decisions.

Participants also visited pastoralist families of Hyangan Gatsa and Bayanbulag in Bayannuur and exchanged experiences on local management, planning, policy implementation, livelihoods of pastoralists, the effects of climate change, and measures for adaptation.

At the end of the workshop, Mongolian and Chinese parts agreed to continue to actively participate in project training and experience sharing activities and expand future cooperation on a wider scale by exchanging good practices on overcoming global climate change and its effects with minimal damage, and neutralizing the effects. Future cooperation opportunities could include establishment of integrated fixed ecosystem research centers in MAS, Mongolia to provide policy solutions based on research results by conducting sustainable long-term research.

Table 2. TRAINING WORKSHOP AGENDA "CLIMATE CHANGE AND ITS IMPACTS ON PASTURE AND DESERTIFICATION"

	14 September 2023	
8:30-23:00	Arrival	Designated hotel in Linhe city, Inner Mongolia, China all delegates arrival
	15 September 2023	
09:00-09:30	Opening Remarks	Feng Chen, Director of Natural Conservation Bureau of Bayannur Prof. Xueyong Zhao, Northwest Institute of Eco-Environment and Resources, CAS, China Prof. Gensuo Jia, Institute of Atmospheric Physics, Chinese Academy of Sciences, China
	SESSION 1: COLLABORATION MEETING	
09:30-10:00	CAS collaboration	Dr. Shaokun Wang, Director of Urat Desert-steppe research station, Chinese Academy of Sciences
	MAS collaboration	Dr. B.Suvdantsetseg, Director of administration and international cooperation department, MAS
10:00-10:30	Group photo and Coffee break	
	SESSION 2: CLIMATE CHANGE ADAPTATION OPPORTUNITIES: SCIENCE-POLICY NEXUS ***This session will share the social-ecological management and governance related research progress, key findings, and concrete activities for adaptation options.*** **CHAIR: Dr. M.Altanbagana, IGG, MAS**	
10:30-12:30	Dr. B.Suvdantsetseg, Mongolian Academy of Sciences "Science-policy adaptive capacity for local herding and government groups to reduce climate vulnerability" Prof. Gensuo Jia, Institute of Atmospheric Physics, Chinese Academy of Sciences, China Heterogeneous response of dryland ecosystems to rainfall extremes Ms. Uchiyama Christmas, Dr. Ria Lambino, Research institute of humanity and nature, Japan Climate change adaptation efforts in Japan Fuying Qin, College of Resources and Environmental Economics, Inner Mongolia, China Vegetation and Climate Change in the Mongolian Plateau	
12:30-15:00	Lunch and break	
	SESSION 3: CLIMATE CHANGE IMPACTS AND PASTORAL SOCIAL-ECOLOGICAL VULNERABILITY ***This session will share the pasture socio-ecological systems vulnerability assessment related research progress, and key findings for project partners.*** **CHAIR: Dr. Shaokun Wang, Director of Urat Desert-steppe research station, CAS, China**	
15:00-16:30	Dr. Altanbagana Myagmarsuren, Institute of Geography and Geoecology, MAS Climate change impact on Mongolian socio-economic systems	

	Prof. Zhao Xueyong, Northwest Institute of Eco-environment and Resource, CAS Theory and practices in desertified land restoration Dr. Bazarkhand Tsegmed, Advisor, Ministry of Economy and Development of Mongolia Science based policy making and challenges in Mongolia and regional development planning and opportunities based on local resources Professor Chao Lu Mengqiqige, Institute of Grassland Research, Inner Mongolia, Academy of Forestry Sciences, China Study on key technology of ecological restoration and protection in arid and semi-arid grassland mining area
16:30-17:00	Tea Break
17:00-18:00	Discussion
18:00	Dinner
	16 September 2023
8:00-14:00	Field visit to Urat research station and local farmers
Afternoon	Departure for some delegates
	17 September 2023
All day	Departure for delegates

ANNEX 3

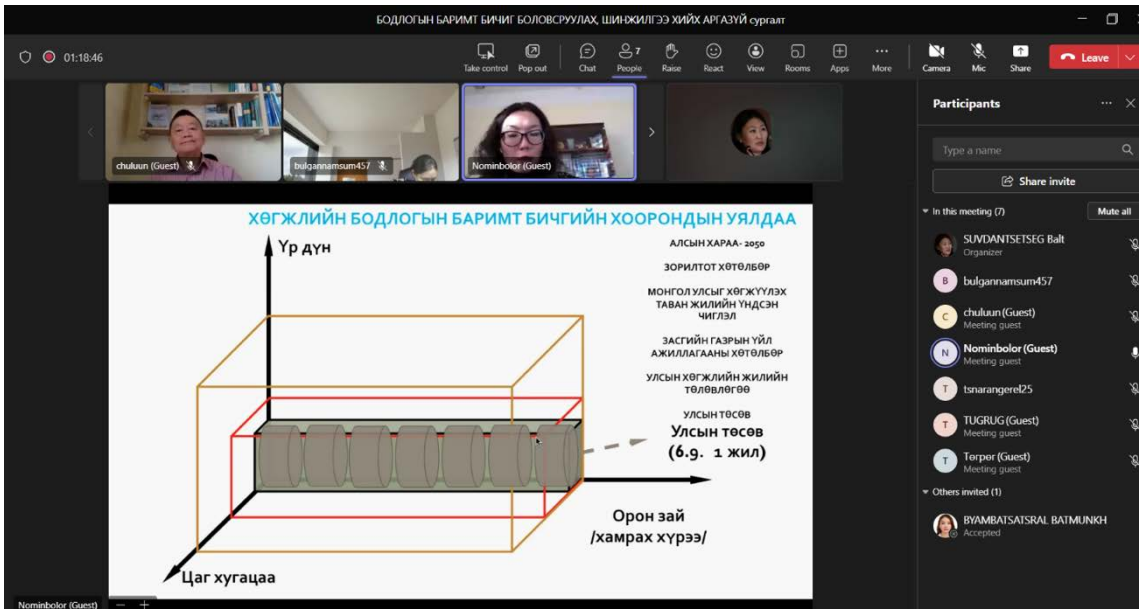
TRAINING WORKSHOP 3

"POLICY FORMULATION METHODS AND DOCUMENT REVIEW ANALYSIS"

28-30 November 2023, Ulaanbaatar city, Gobi-Altai province

In the second phase of the project, the training workshop 3 on the topic "Policy formulation methods and document review analysis " was held in 5 sub-provinces of Gobi-Altai province (Biger, Bayan-Uul, Taishir, Tugrug, Khaliun) in combined online (organizers) and onsite (participants) format on 28-30 November, 2023. A total of 50 representatives including local government employees, official representatives of citizens and the private sector were officially registered to participate in the training, but because the content of the training was important for some local mayors, governors and other relevant experts volunteered to participate.

The training was organized in forms of lectures, practical exercise, and dialogue. The topics of the training included the content analysis of currently implemented local policy documents, methodology of developing local mid-term strategic plan, and coordination with international, regional, and national policy documents and the guidelines for development of the mid-term strategic plan of sub-provinces were provided and explained.



Local development policies, strategies and plans should be updated in accordance with national level policies, such as the Law on development policy planning and management (2020), Vision 2050-national long term development policy, medium-term target programs, and the concept of sustainable development. By analyzing the content of existing policy documents, we can find out how climate change adaptation policy is being implemented, clarify differences and connections between the policies, define the policies to solve problems at local scale more optimally and use the right policy tools.

The content analysis was done for currently existing policy documents in Gobi-Altai province and 5 sub-provinces: Action program of the Governor and the Comprehensive development policy of the province, and the action program of the Governor of each sub-

Говь-Алтай аймгийн түвшний бодлогын баримт бичгүүдийн шинжилгээ

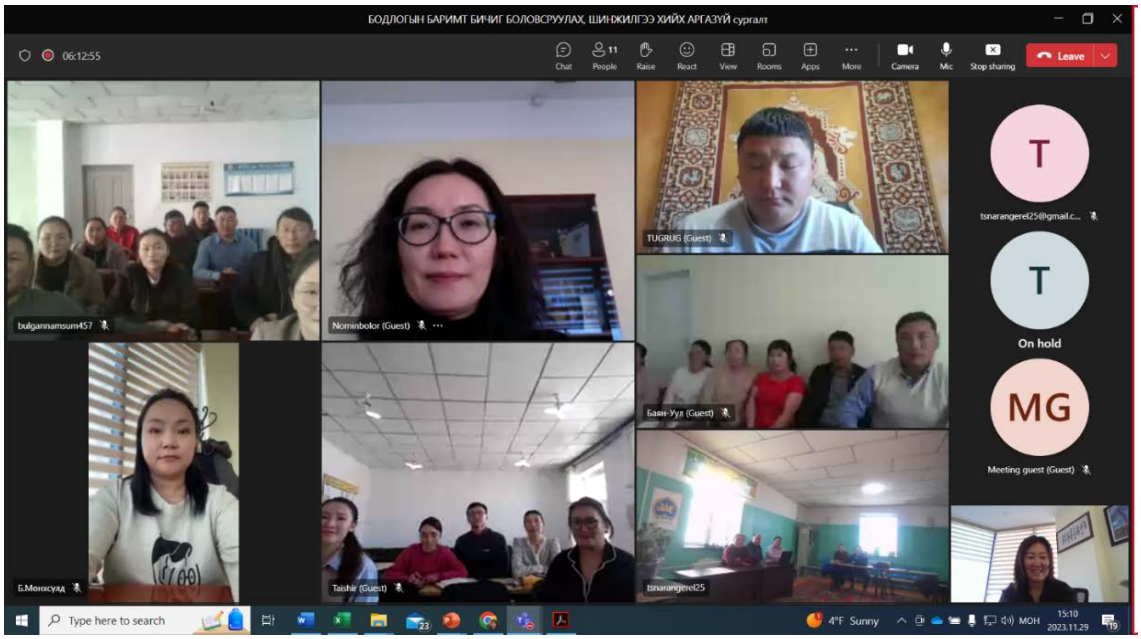
Бодлогын баримт бичиг	ТХЗ-д суурилсан уур амьсгалын өөрчлөлтөд тэсвэртэй хөгжлийн багц шалгуур				
	Дасан зохицох (Нийгмийн сэргэн хөгжих чадвар) (SDG1, SDG3, SDG8, SDG8)	Дасан зохицох (Байгалийн сэргэн хөгжих чадвар) (SDG15)	Сааруулах (SDG7)	Өөрчлөлт бий болох чадвар (SDG4, SDG9, SDG11, SDG13)	Ерөнхий нийцэл
Хөгжлийн цогц бодлого	2	2	1	1	(1.75) хязгаарлагдмал нийцэл
Засаг даргын үйл ажиллагааны хөтөлбөр	2	2	0	1	(1.25) хязгаарлагдмал нийцэл
Байгаль орчны мастер төлөвлөгөө	1	3	0	2	(1.50) хязгаарлагдмал нийцэл
Бэлчээрийн менежментийн хөтөлбөр	0	2	0	2	(1.33) хязгаарлагдмал нийцэл
Цөлжилтийг сааруулах дэд хөтөлбөр	0	2	1	1	(1.33) хязгаарлагдмал нийцэл
Нийт нийцэл	(1.00) хязгаарлагдмал нийцэл	(2.20) хэсэгчилсэн нийцэл	(0.40) огт нийцэхгүй	(1.40) хязгаарлагдмал нийцэл	

province. At the workshop, the results of analysis on policy documents implemented in Gobi-Altai province and 4 sub-provinces (Biger, Bayan-Uul, Taishir, and Khaliun) were presented.

In addition, Prof. T. Chuluun, director of the Institute of Sustainable Development of National University of Mongolia was invited to present the outcomes and cooperation opportunities of his ongoing project titled "Adaptation methodology and scientific research results". Prof.Chuluun discussed the idea of cooperation with the soums suffering from dzud disaster by keeping 300 animal carcasses in the research containers until next spring to reduce the risk of dzud and increase the value of livestock meat to sell at best price. Khaliun soum, which suffers from the dzud disaster, expressed its interest in future collaboration in this project.

Third part of the training focused on "mid-term adaptation strategic plan", which would be developed for each soum at the end of the project. In order to meet this goal, the participants got acquainted with detailed methodology of developing a strategic plan, step-by-step

explanation of its content, legal basis, monitoring and evaluation, criteria and formulation, and worked on some examples.



At the end of the training, the participants emphasized the importance of the content and topics of the training to help them make decisions based on the results of research and analysis in solving the problems they face in real life. However, in order to make the training more effective, they suggested that the next time it should be held face-to-face, and they expressed their desire to continue working together after the end of the project.

Table 3. Training workshop agenda

29 November 2023, Day 1		
9:00-9:05	OPENING	Dr. B.Suvdantsetseg, project leader Sh.Erdenebat, Head of Gobi-Altai province Governor's Office
9:05-9:30	Aim and objectives of training workshop, brief introduction of training handbook	Доктор Б. Мөнхсүлд Отгонтэнгэр их сургуулийн багш Доктор Б. Сувданцэцэг
9:30-10:30	Бодлогын баримт бичигт шинжилгээ хийх аргазүй	Магистр Х. Номинболор Стратегийн судалгааны хүрээлэнгийн Хүрээлэн буй орчны аюулгүй байдлын судалгааны төвийн ахлах шинжээч
10:30-11:00	Уур амьсгалын өөрчлөлт, түүний дасан зохицох бодлого, төлөвлөгөө орон нутгийн түвшин (Төслийн үр дүнгээс)	Доктор Т. Чулуун МУИС-ийн тогтвортой хөгжлийн хүрээлэнгийн захирал
11:00-12:00	Баян-Уулын сумын бодлогын баримт бичигт шинжилгээ хийсэн дүгнэлт, дадлага ажил	Г.Лувсандагва ЗД Орлогч Х. Номинболор
12:00-13:00	Бигэр сумын бодлогын баримт бичигт шинжилгээ хийсэн дүгнэлт, дадлага ажил	Н. Булган Тамгын газрын дарга Б. Сувданцэцэг
13:00-14:00	Өдрийн цайны завсарлага	

14:00-15:00	Төгрөг сумын бодлогын баримт бичигт шинжилгээ хийсэн дүгнэлт, дадлага ажил	Б. Мянганбаяр Засаг даргын орлогч Б. Сувданцэцэг
15:15-16:15	Тайшир сумын бодлогын баримт бичигт шинжилгээ хийсэн дүгнэлт, дадлага ажил	П.Ундрах Тамгын газрын дарга Х. Номинболор
16:15-17:30	Халиун сумын бодлогын баримт бичигт шинжилгээ хийсэн дүгнэлт, дадлага ажил	Ц.Нарангэрэл Тамгын газрын дарга Доктор Б. Мөнхсүлд
17:30	Хаалт	Доктор Б. Сувданцэцэг
2023 оны 11 дүгээр сарын 30-ны өдөр		
9:00-9:50	Бодлогын баримт бичиг боловсруулахад шинжлэх ухааны мэдээлэл ашиглах аргачлал ба суурь судалгааны үр дүнгүүд	Доктор Б. Сувданцэцэг, төслийн удирдагч
9:50-10:30	Бодлогын баримт бичиг буюу орон нутгийн стратеги төлөвлөгөө боловсруулах аргазүй	Магистр Х. Номинболор Стратегийн судалгааны хүрээлэнгийн Хүрээлэн буй орчны аюулгүй байдлын судалгааны төвийн ахлах шинжээч
10:30-11:30	Баян-Уулын сумын бодлогын баримт бичгийн төсөл ба суурь судалгааны мэдээлэл, үнэлгээ, дүн шинжилгээ	Г.Лувсандагва ЗД Орлогч Х. Номинболор
11:30-12:30	Бигэр сумын бодлогын баримт бичгийн төсөл ба суурь судалгааны мэдээлэл, үнэлгээ, дүн шинжилгээ	Н. Булган Тамгын газрын дарга Б. Сувданцэцэг
12:30-14:00	Өдрийн цайны завсарлага	
14:00-15:00	Төгрөг сумын бодлогын баримт бичгийн төсөл ба суурь судалгааны мэдээлэл, үнэлгээ, дүн шинжилгээ	Б. Мянганбаяр Засаг даргын орлогч Б. Сувданцэцэг
15:15-16:15	Тайшир сумын бодлогын баримт бичгийн төсөл ба суурь судалгааны мэдээлэл, үнэлгээ, дүн шинжилгээ	П.Ундрах Тамгын газрын дарга Х. Номинболор
16:15-17:30	Халиун сумын бодлогын баримт бичгийн төсөл ба суурь судалгааны мэдээлэл, үнэлгээ, дүн шинжилгээ	Ц.Нарангэрэл Тамгын газрын дарга Доктор Б. Мөнхсүлд
17:30	Хаалт	Доктор Б. Сувданцэцэг

ANNEX 4

TRAINING WORKSHOP 4

"DEVELOPING A CLIMATE CHANGE ADAPTATION STRATEGY AND PLAN"

11-13 April 2024, Gobi-Altai province

In the third phase of the project, the training workshop 4 on the topic "Developing a climate change adaptation strategy and plan " was held on 11-13 April, 2024 in the meeting hall of the Governor's office in Altai city, Gobi-Altai province. Representatives of the government, private sector and citizens of five soums of Gobi-Altai province Biger, Bayan-Uul, Taishir, Tugrug and Khaliun participated in the training with 98% attendance. The training workshop was organized in the form of lectures and group exercises. At the beginning of each session, the trainers gave lectures and explanations, followed by group exercises, where each group consisted of 10 people, led by a guide.

The training was conducted by Dr. B. Suvdantsetseg, Head of the Department of Management Planning and External Cooperation (UPD), MAS and the project leader, Dr. B.Munkhsuld, lecturer, Mongolian State University of Education, Kh.Nominbolor, senior research fellow, Institute of Strategic Studies, and T. Byambatsatsral and T. Dashdeleg, both of whom are staff at the MAS.

According to the agenda, on the first day of the workshop, the training participants were presented the learning objectives and contents of the training, followed by the updated results of the research on climate change and vulnerability of pastoral ecosystems in soums. The general content of the draft strategic plan, which is expected to be developed by the participants at the end of the training, was explained. As part of developing the strategic plan, the rationale, situation analysis, SWOT analysis, and mandate analysis methods were presented in detail and the participants from five soums worked in teams to do analysis on their own soums and presented their findings to the audience within 5 mins. During the workshop, the training manual prepared by the project team was actively used for the analysis.

The second day of the workshop started with the introduction of the method to define vision, mission and values of the Strategic plan, followed by exercises in team works on determining vision, mission and values of their respective soums. In the afternoon session, methodology of tasks such as "Determining strategic goals and objectives, planned actions, criteria, and necessary budget" was presented. After that, the teams went through exercises, and each group developed a general draft of their plan and presented their findings within 5 minutes. At the end of the second day, the participants were asked to fill out the survey designed to evaluate the quality of the project and the training.

The third or final day of the training workshop, the participants focused on drafting their adaptation strategic plan. In the first part of the day, guided by moderators, all teams worked on improving the draft of the strategic plan, filled in incomplete and omitted parts, worked on goals, objectives, implementation measures, evaluation criteria, and necessary budget calculations.

In the second part of the day, the teams presented "the first version of the strategic plan" developed during the 3-day workshop to the audience including the project team, department heads of Gobi-Altai province Governor's office, and other participants, followed by comments and suggestions made by the audience to support its revision and improvement. Suggestions and recommendations highlighted the importance of planning detailed strategic plans and measures for adaptation and practical implementation based

on careful consideration of each soum's natural environment, social and economic situation and potential, characteristics, strengths and weaknesses.

During the training workshop, the project team had a meeting with Mr. Sh.Erdenebat, the Head of the Gobi-Altai province Governor's office and his team, exchanged opinions on project activities and future cooperation, and agreed on providing support for the soums to finalise, approve and implement the strategy plans.

Table 4. TRAINING WORKSHOP AGENDA "DEVELOPING A CLIMATE CHANGE ADAPTATION STRATEGY AND PLAN"

11 April, 2024		
07:30-09:30	Arrival of trainers in Altai city, Gobi-Altai province	
13:00-13:30	Introduction of learning objectives and contents of the training workshop	Dr. Suvdantsetseg, Project leader
13:30-14:45	Introduction of strategy plan	Kh.Nominbolor, Senior research fellow, Institute for strategic studies
14:45-15:00	Coffee break	
15:00-17:00	Use of situational analysis, SWOT analysis and mandate analysis in strategic plan development (teamwork)	Moderator Dr. B.Suvdantsetseg, Project leader
17:00-17:30	Summary for Day 1 Drafting situational analysis for each soum	Moderators
12 April, 2024		
9:00-10:30	Defining vision, mission, and values of strategic plan by using the solution tree model (teamwork)	Moderator Dr. B.Munkhsuld, Mongolian state university of education
10:30-10:45	Coffee break	
10:45-12:30	Summary & Drafting vision, mission, and values of the soums' strategic plans	Participants, team guides
12:30-13:30	Lunch	
13:30-14:45	Defining strategic goals by using models (teamwork)	Moderator Kh.Nominbolor
14:45-15:00	Coffee break	
15:00-17:00	Summary & developing draft strategic plan objectives	Moderators
13 April, 2024		
9:00-10:30	Formulating strategic plan objectives and planned actions (teamwork)	Moderator Kh.Nominbolor
10:30-10:45	Coffee break	
10:45-12:30	Formulating criteria for evaluating strategic plan goals and planned measures (teamwork)	Moderator Dr. B.Suvdantsetseg
12:30-13:30	Lunch	
13:30-15:00	Determining the necessary budget for the implementation of strategic plan goals and planned measures (teamwork)	Moderator Dr. B.Munkhsuld
15:00-15:15	Coffee break	
15:15-17:00	Preparing the first draft of the strategic plan	Moderator Kh.Nominbolor
17:05	Summary & Closing of the training workshop	Dr.B.Suvdantsetseg
14 April, 2024 Return to respective soums and Ulaanbaatar		

ANNEX 5

FINAL DISSEMINATION WORKSHOP

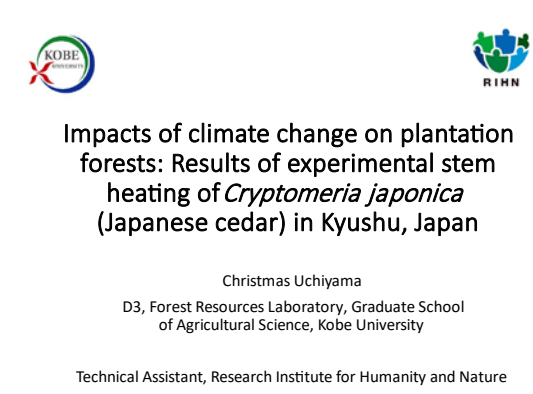
"THE SCIENCE-POLICY INTERFACE TO CLIMATE RISK REDUCTION"

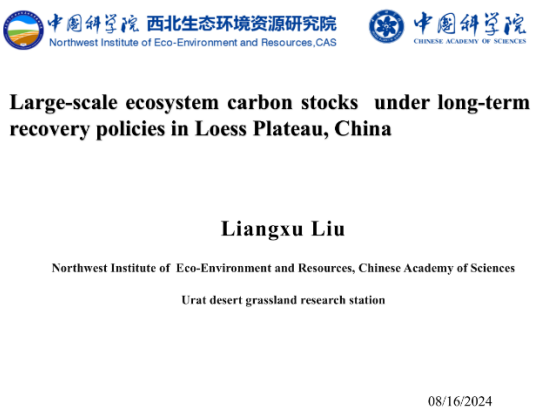
14-20 August 2024, Ulaanbaatar & Gobi-Altai province, Mongolia

The Mongolian Academy of Sciences jointly with the Governor's Office of the Gobi-Altai province, and other international and domestic project partners organized "THE SCIENCE-POLICY INTERFACE TO CLIMATE RISK REDUCTION" final dissemination and fifth workshop on 14-20 August, 2024 simultaneously in online and in-person format in Ulaanbaatar and Altai city of Gobi-Altai province, Mongolia. Due to force majeure (air flight Ulaanbaatar – Altai city, Gobi-Altai province cancelled at the last moment due to some technical issues), the project team had to organize the workshop in two formats.

The event brought together more than 70 representatives of about 20 organizations, including researchers and scientists from three participating countries, state and local policy makers, local citizens, herdsmen, NGOs, civil servants and entrepreneurs to exchange and share their experiences and research results on climate change and its impacts, pastoral vulnerability and adaptation options.

The workshop was attended by international and domestic participants, for instance Dr. Ria Lambino, specialist from RIHN in Japan and, Deputy Director of Future Earth Japan Global Hub, Dr. Jia Gensuo, Director of CAS-START Center of the Institute of Atmospheric physics of the Chinese Academy of Sciences, project leader Dr.B.Suvdantsetseg, Head of Department, MAS, Dr. D.Battogtokh, Head of Department, Ministry of Economic development, Dr. D.Erdenebayar, Head of Department, Ministry of Economic development, and Mr. Sh.Erdenebat, Head of Gobi-Altai province Governor's Office. During the workshop 17 important presentations were given.





Throughout the project period of two years, the representatives of 5 soums, Bayan-Uul, Biger, Taishir, Khaliun and Tugrug, learned about climate change and its effects on their environment, wellbeing and livelihoods, what strategies to implement to adapt and become more resilient against those adversaries, and did practical training on how to integrate adaptation strategy into local policy. As a result, the participants jointly developed the first draft of the adaptation strategy plan for their respective soums. In the dissemination workshop, each team presented brief introduction of their draft strategy plan.


"Уур амьсгалын өөрчлөлтийн нөлөөлөл, эмзэг байдлыг бууруулахад орон нутгийн иргэд, захиргааны байгууллагуудыг шинжлэх ухааны мэдээлэлд тулгуурлан бодлого боловсруулах аргазүйд суурган чадавхжуулах нь" төсөл
ГОВЬ-АЛТАЙ АЙМГИЙН БИГЭР СУМЫН СТРАТЕГИ ТӨЛӨВЛӨГӨӨ (2024-2028)
Булган Намсум
10/29/2024
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(2024-2028)
8/16/2024


CAPACITY BUILDING PROJECT
"SCIENCE-POLICY ADAPTIVE CAPACITY FOR LOCAL HERDING AND GOVERNMENT GROUPS TO REDUCE CLIMATE VULNERABILITY"
Reference Number: CBA2022-10MY-Balt
2024.08.14-20
Altai city, Gobi-Altai province, Mongolia
Science Policy Interface Cases around the world and Lessons Learned
futureearth
Research, Innovation, Sustainability
Research Institute for Humanity and Nature
Ria Lambino, PhD
Deputy Director, Future Earth Global Secretariat Hub Japan
Research Institute for Humanity and Nature, Kyoto Japan
The Science Poliicy Interface to Climate Risk Reduction Workshop
August 16, 2024 Altai City, Mongolia


МОНГОЛ УЛСЫН ШИНЖЛЭХ УХААНЫ АКАДЕМИ
MONGOLIAN ACADEMY OF SCIENCES
"THE SCIENCE-POLICY INTERFACE TO CLIMATE RISK REDUCTION"
Gobi-Altai Province, Mongolia
14-20 August 2024

The participants of the dissemination workshop praised the successful implementation of the project according to the planned schedule, and discussed the future cooperation. The provincial government highly appreciated the results and significance of the project and expressed their interest to closely cooperate with MAS to carry out climate change research on a wider scale, develop methods and technologies to adapt and become more resilient, and ensure the implementation of the local strategy plan and agreed to jointly develop proposals for the next project.

Table 7. FINAL DISSEMINATION WORKSHOP AGENDA ON "THE SCIENCE-POLICY INTERFACE TO CLIMATE RISK REDUCTION"

14 August 2024		
8:30-23:00	**Arrival**	**UB Inn hotel in Ulaanbaatar city, Mongolia** all delegates arrival
15 August 2024		
06:10-08:20	**Depart to Altai city**	➢ Check in Yntum Hotel
	City tour	City museum
16 August 2024 Workshop day		
OPENING PLENARY		
09:00-10:00	**Opening remarks**	**Mr. Erdenebat Sh** Head of Gobi-Altai province Governor's Office **Dr. Battogtokh Dorjgotov** Head of Department, Ministry of Economic development **Dr. B. Suvdantsetseg,** Head of administration planning and international cooperation department, MAS
	Keynote Speak Science policy interface cases around world and lessons learned	**Dr. Ria Lambino,** Debuty director Future Earth Japan hub, RIHN, Japan

10:00-10:30	Group photo and Coffee break	
SESSION 1: SCIENCE-POLICY INTERACTION **CHAIR: Ria Lambino, Debuty director Future Earth Japan hub, RIHN, Japan**		
10:30-10:50	Mogolian national and regional development policy in western region	**Dr. Erdenebayar Davaasambuu,** Ministry of Economy and Development of Mongolia
10:50-11:20	Policy formulation at province and local areas	**Mr. Sh Erdenebat,** Chair of Gobi-Altai Governor's Office
11:20-11:40	Policy review analysis in 5 sub provinces of Gobi-Altai province	**Khurel Nominbolor,** Institute of strategic studies, National security counsil
11:40-12:00	Changing dryland ecosystems under climate extremes	**Prof. Gensuo Jia**, Director Global Change Research Center for East Asia (START-TEA), Institute of Atmospheric Physics, CAS
12:00-12:20	Climate change and its impacts assessment for policy formulation at local level	**Dr. Balt Suvdantsetseg** Mongolian Academy of Sciences
12:30-13:30	Lunch	
SESSION 2: CLIMATE CHANGE, ITS IMPACTS AND ADAPTATION STUDIES: **CHAIR: Jia Gensuo, institute of Atmospheric Physics, CAS, China**		
13:30-13:50	Climate change impact and its adaptation options in Gobi area of China	**Dr. Shaokun Wang** Vice director of Urat Desert-steppe research station, Chinese Academy of Sciences
13:50-14:10	Impacts of climate change on plantation forests: Results of experimental stem heating of Cryptomeria japonica (Japanese cedars) in Kyushu, Japan	**Uchiyama Chrismas** Research institute of humanity and nature, Japan
14:10-14:30	Lessons learned from climate hazards of drought and dzud and its Adaptation	**Dr. Baival Batkhishig,** Nutag Partners National Consulting NGO
14:30-14:50	Large-scale ecosystem carbon stocks under long-term recovery policies in Loess Plateau, China	**Dr. Liangxu Liu** Urat Desert-steppe research station, Northwest Institute of Eco-Environment and Resources, CAS
14:50-15:10	Plantation of natural and socio-economically beneficial plants in Gobi-Altai region	**Kitaura Yoshio** Green Network, Japan
15:10-15:30	**Coffee break**	
SESSION 3: LOCAL DEVELOPMENT STRATEGIES AT LOCAL AREA **CHAIR: Dr.Erdenebat, Gobi-Altai province government office**		
15:30-17:00	Strategic development plan at 5 soums (sub-provinces) of the Gobi-Altai province which developed under project	N. Bulgan, Chair of Biger soum government office Ts. Narangerel, Chair of Khaliun soum government office, P. Enkhtaiwan, Chair of Bayan-Uul soum government office, V. Enkhtuya, Manager of high school at Tsaishir soum, B. Myanganbayar, Deputy chair of Tugrug soum
17:00-17:20	Participants learning evaluation	Dr. Munkhsuld, MNUE
17:20-17:50	**Discussion and conclusion**	
17:50-18:00	**Closing remarks** Representatives of Gobi-Altai government office Representative of MAS	
18:30	**Dinner**	
17 and 18 August 2024		
Morning	Field visit of green field research station and Local government office Field Visit to local Nomadic herders and farmers	
19 August 2024		
All day	Departure to Ulaanbaatar and departure for own countries	

APPENDIX 6

TRAINING GUIDEBOOK

SUMMARY

The goal of the project is to train and empower representatives of local communities and administrative organizations in sub-provinces of Gobi-Altai province in policy-making methods based on scientific information, develop the curriculum building on previous research results, modern innovative research methods, methods, and information, and distribute it to project participants. will provide methodological support for the development of strategic plans for local development.

The training manual is designed for local government officials, policymakers, young leaders and pastoralists of herding communities to provide the necessary knowledge and methodology for local policy development based on science and research findings, and provides detailed information on global, national and local climate impacts, adaptation and resilience of pastoral social-ecological systems, specifically pastoral animal husbandry adaptation and coping management to climate impacts, best practices and innovative solutions. The manual includes findings and results of our past project titled "Ecological vulnerability assessment for adaptation strategy formulation at different spatial scales in western Mongolia and China" (CRRP2017-04MY-BALT) funded by the APN. The training manual was prepared jointly by researchers from the project's international and domestic teams.

The training manual is structured in 4 main chapters. The first Chapter focuses on climate change and its present and future impacts in Mongolia, and introduces general information about vulnerability of social-ecological system to climate change and its assessment, focusing on pastoral social-ecological system as it is more relevant in local context.

The second chapter focuses on pastoral ecological vulnerability assessment and its social and economic impacts on local communities for Gobi-Altai province and its five sub-provinces (*soums*). The results of the updated assessment of the soums involved in the project were explained in detail, and based on the assessment, measures to adapt to climate change and overcome related risks were proposed for each soum. This is to assist local experts, decision makers, citizens and pastoralists who use the training manual to make research-based decisions.

The third chapter concentrates on integrating climate change adaptation into local development policy making. Any adaptation process should take into account all elements, including local and indigenous adaptation and traditional coping strategies, and should be based on the country's sustainable development goals and contribute to the realisation of these goals. Vulnerability assessment and analysis in the previous chapter focused on answering the questions of who/what is vulnerable (vulnerability of what?) and what is vulnerable (vulnerability to what?). This chapter provides the reader with a theoretical and methodological overview to help answer the questions of what needs to be done to reduce vulnerability and adapt, what policies are being implemented, and how effective they are. In addition, a content analysis was conducted on the development policy documents of five *soums*, and the results were included to determine whether adaptation policies and measures are integrated into development policies.

The fourth chapter introduces the methodology for the development of local development policy documents that incorporate climate change adaptation. The structure and content of the regional development strategic plan are explained in detail by each component enriched with practical examples.

The Training manual was freely used in both paperback and soft copy versions by the participants throughout the training sessions. At the end of the project, the participants of teams comprised of five sub-provinces formulated the first draft of their strategy plans and presented their drafts at the final dissemination workshop.

BRIEF CONTENTS

CHAPTER 1. CLIMATE CHANGE, IMPACTS & VULNERABILITY

The Chapter starts by overviewing global climate change and its present and future impacts in Mongolia, and introduces general information about vulnerability of social-ecological system to climate change and its assessment. It further focuses on pastoral social-ecological system since it is more relevant in local context.

CHAPTER 2. ASSESSMENT OF PASTORAL ECOSYSTEM VULNERABILITY & ITS IMPACTS ON SOCIO-ECONOMY AT PROVINCE AND SOUM LEVEL

The Chapter focuses on pastoral ecological vulnerability assessment and its social and economic impacts on local communities for Gobi-Altai province and its five sub-provinces (*soums*). The results of the updated assessment of the soums involved in the project were explained in detail, and based on the assessment, measures to adapt to climate change and overcome related risks were proposed for each soum. This is to assist local experts, decision makers, citizens and pastoralists who use the training manual to make research-based decisions. Bayan-Uul soum pastoral ecosystem vulnerability assessment

Pastoral vulnerability & its assessment

The vulnerability assessment was done using the same method from our past project “Ecological vulnerability assessment for adaptation strategy formulation at different spatial scales in western Mongolia and China” funded by the APN. Here we used up-to-date data as of 2023 as the results of our past project was from five years ago. Please refer to the past project CRRP2017-04MY-BALT for reference.

Pastoral vulnerability assessment:

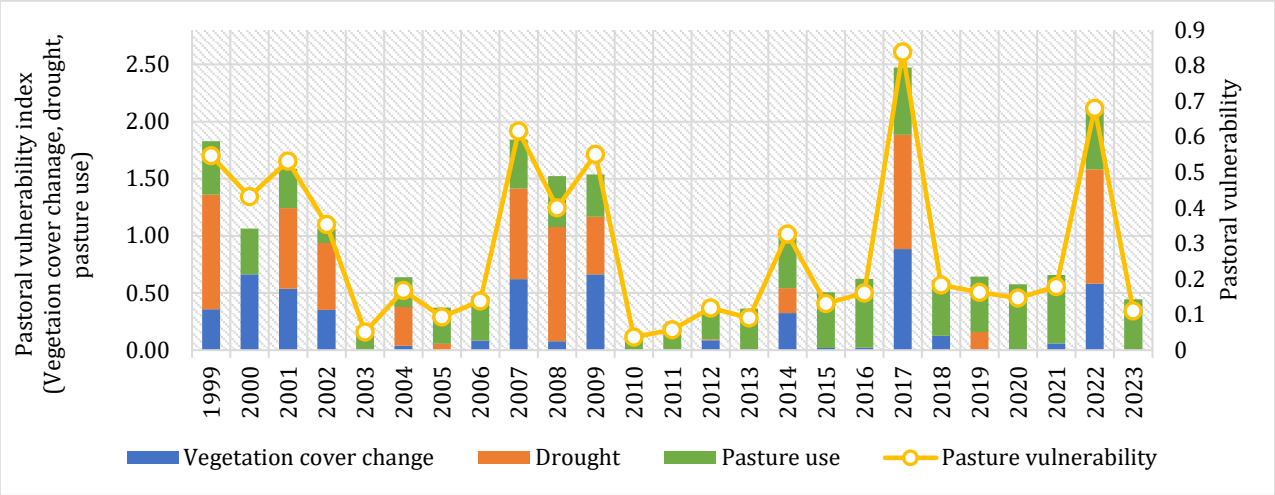


Figure 1. Pastoral vulnerability of Bayan-Uul soum

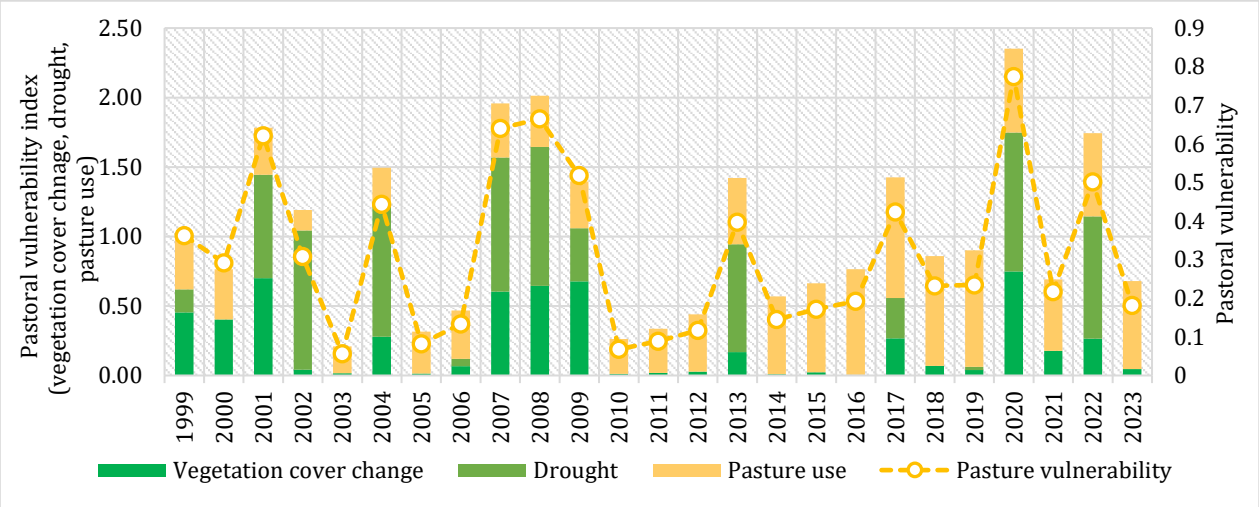


Figure 2. Pastoral vulnerability of Biger soum

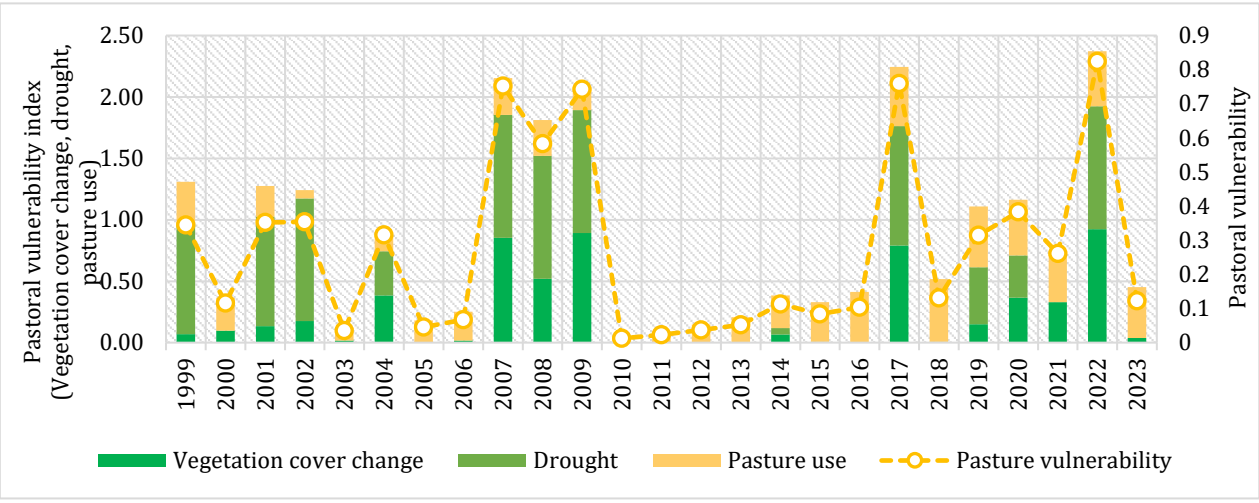


Figure 3. Pastoral vulnerability of Taishir soum

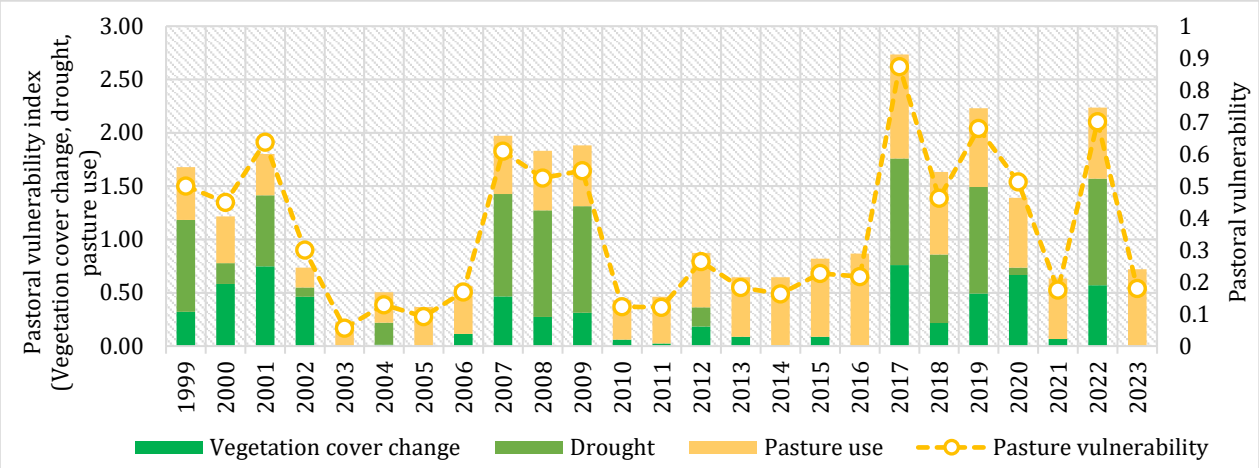


Figure 4. Pastoral vulnerability of Tugrug soum

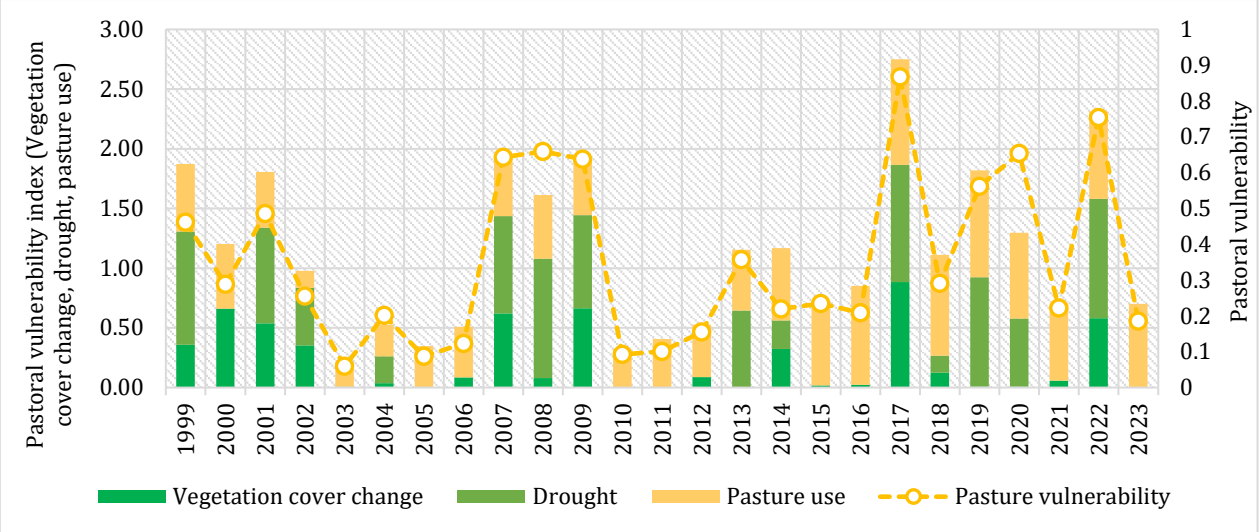


Figure 5. Pastoral vulnerability of Khaliun soum

Pastoral vulnerability impacts on socio-economic conditions of herding communities:

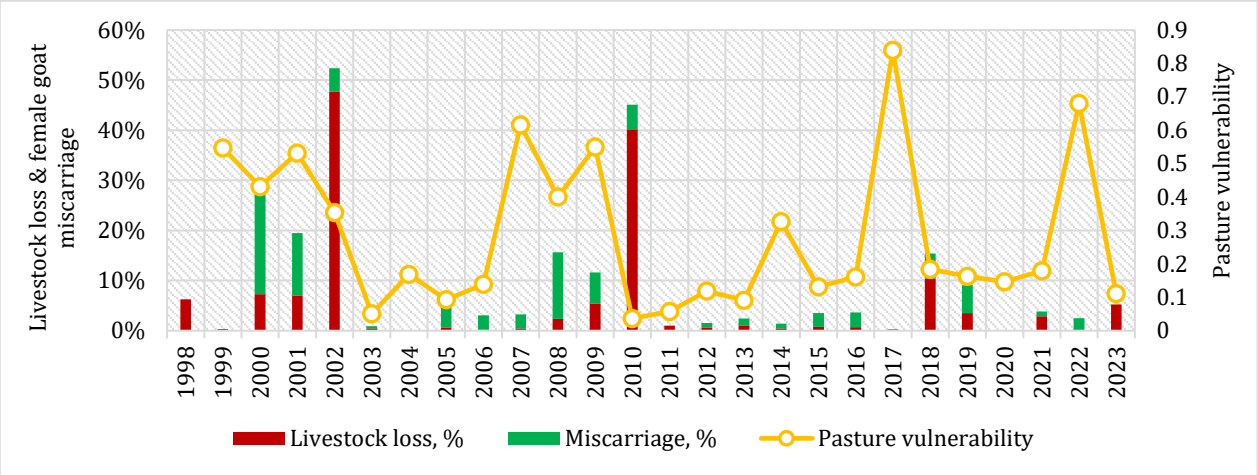


Figure 6. Pasture vulnerability vs Livestock loss & female goat miscarriage (Bayan-Uul soum)

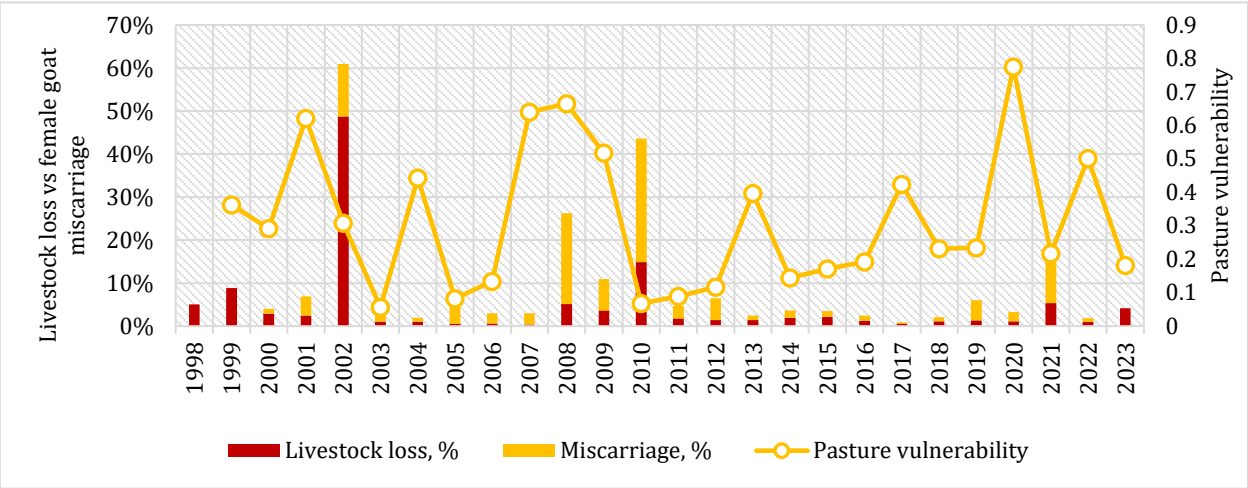


Figure 7. Pastoral vulnerability vs Livestock loss & female goat miscarriage (Biger soum)

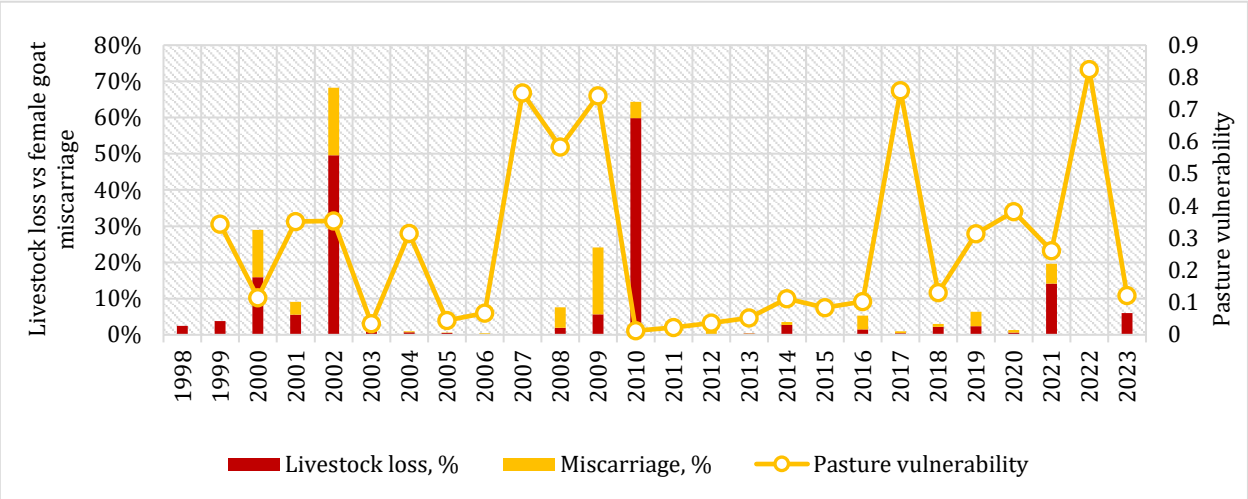


Figure 8. Pastoral vulnerability vs Livestock loss & female goat miscarriage (Taishir soum)

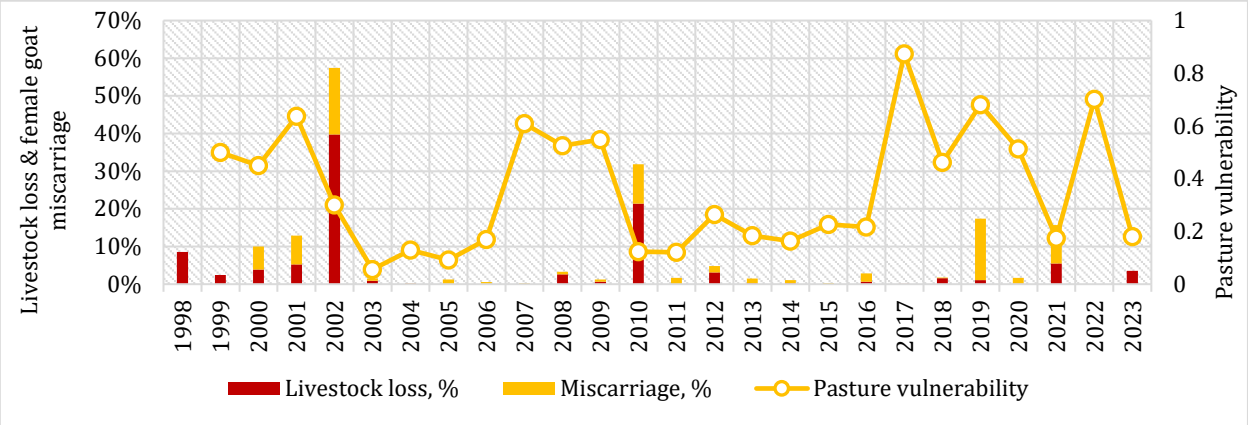


Figure 9. Pastoral vulnerability vs Livestock loss & female goat miscarriage (Tugrug soum)

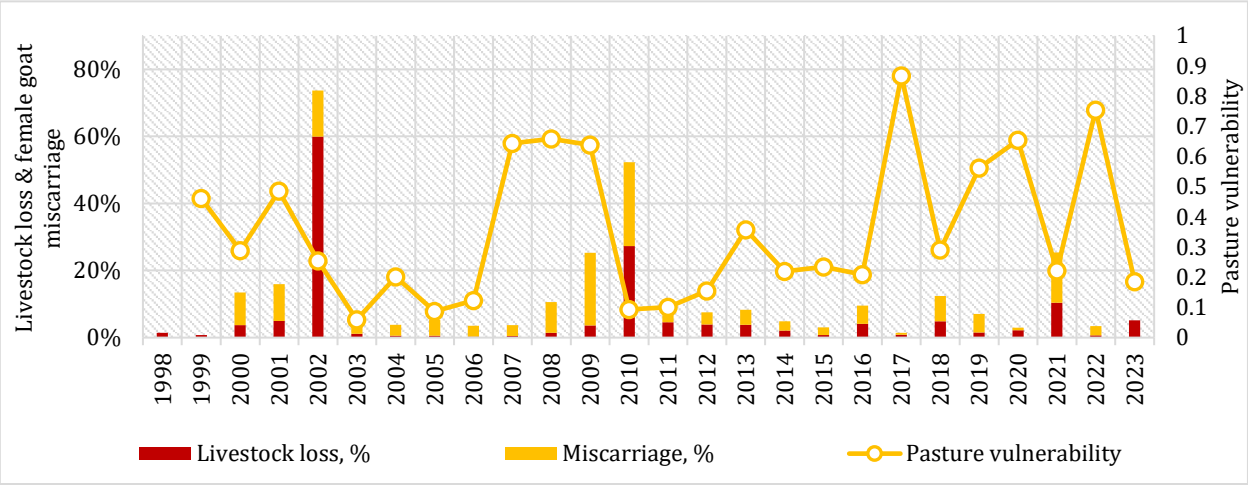


Figure 10. Pastoral vulnerability vs Livestock loss & female goat miscarriage (Khaliun soum)

Social-economic condition: One of the criteria for expressing the economic capability of herders in the short-term and long- term savings of banks and financial institutions. The amount of money savings and its growth will show the economic activity and capacity of the soum, and the cash accumulation will be important to overcome the household risks and to improve the economic resources.

Also, herders need to get a loan from banks and financial institutions if they do not have sufficient financial resources to increase their income, buy their supplies, and improve their living conditions. As a result, herders use livestock, the main source of their income, as collateral. If somehow there is a risk for herder's source of income, repayment of loans will slow down or be delayed resulting in debt burden on herders. Herders might face risks, such as losing the rest of the livestock as collateral, and therefore, getting too much bank loan is a risky business for herders.

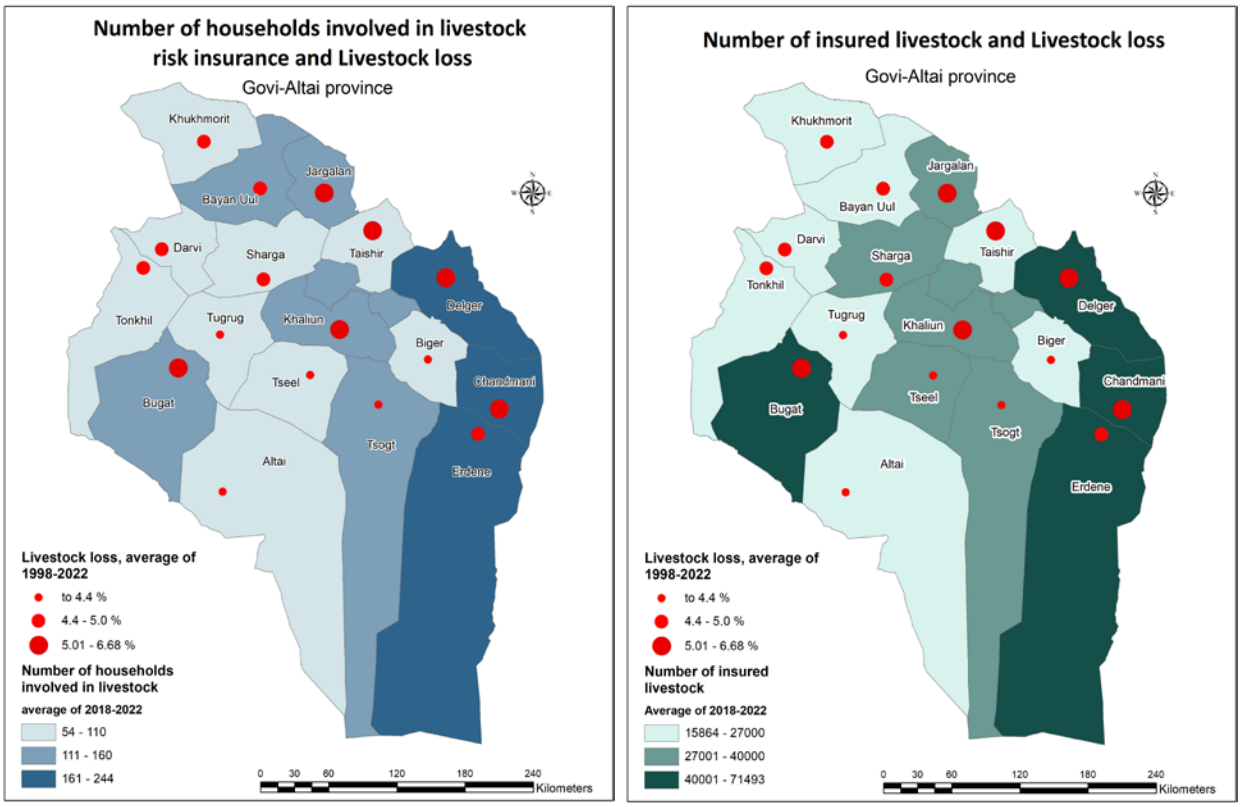


Figure 11. Households insured their livestock vs livestock loss

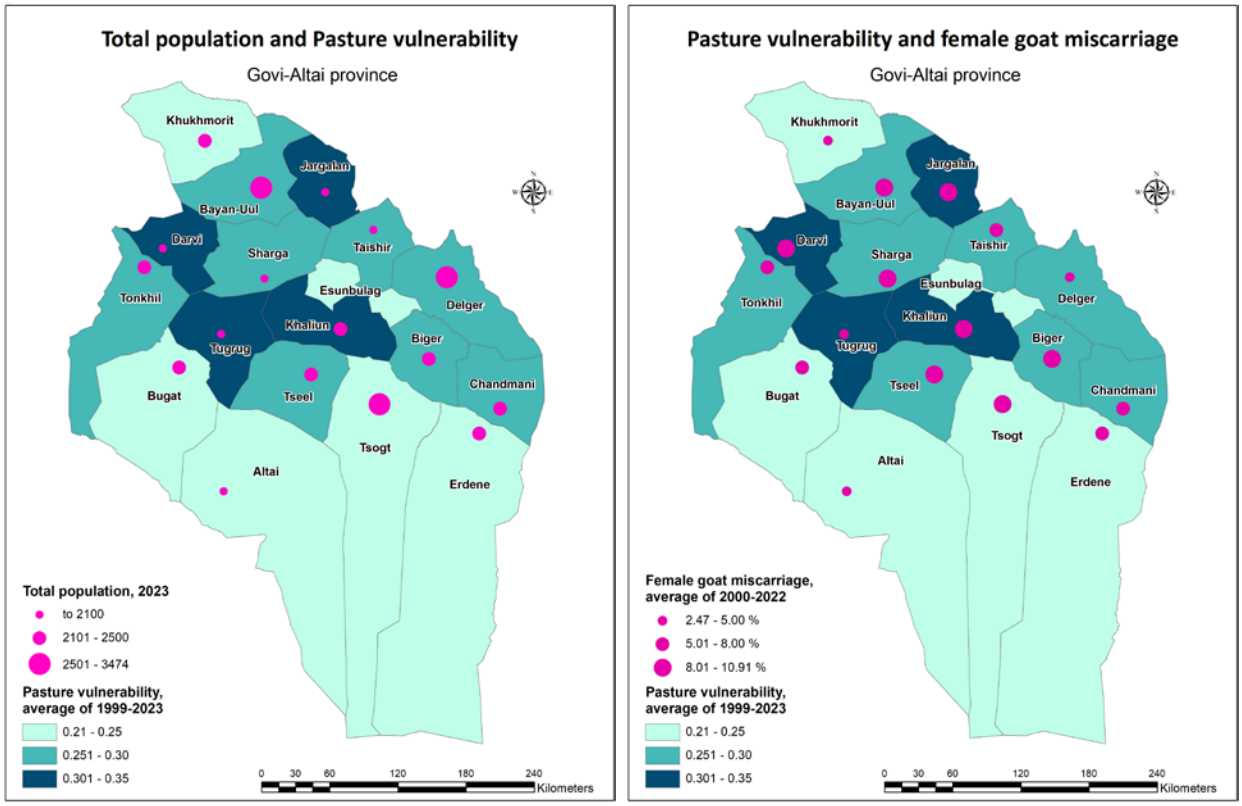
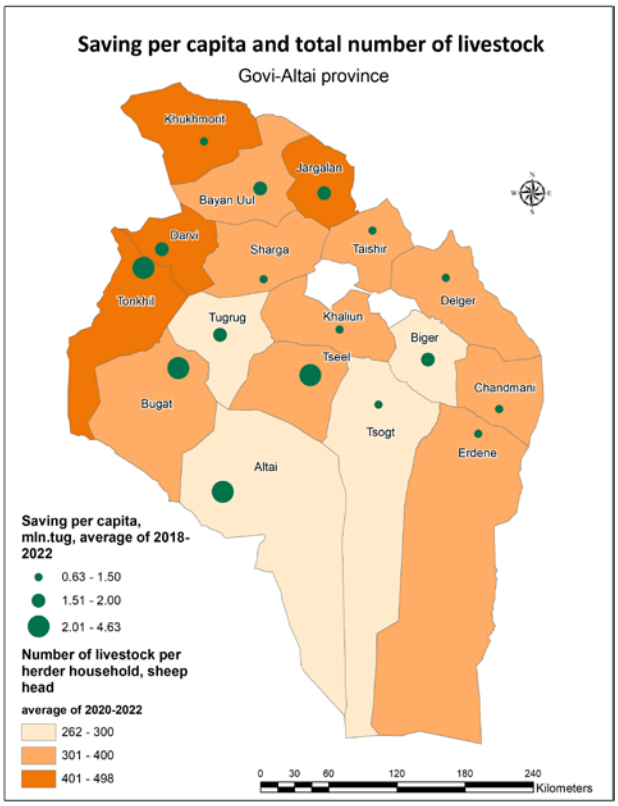


Figure 12. Pasture vulnerability vs female goat miscarriage rate



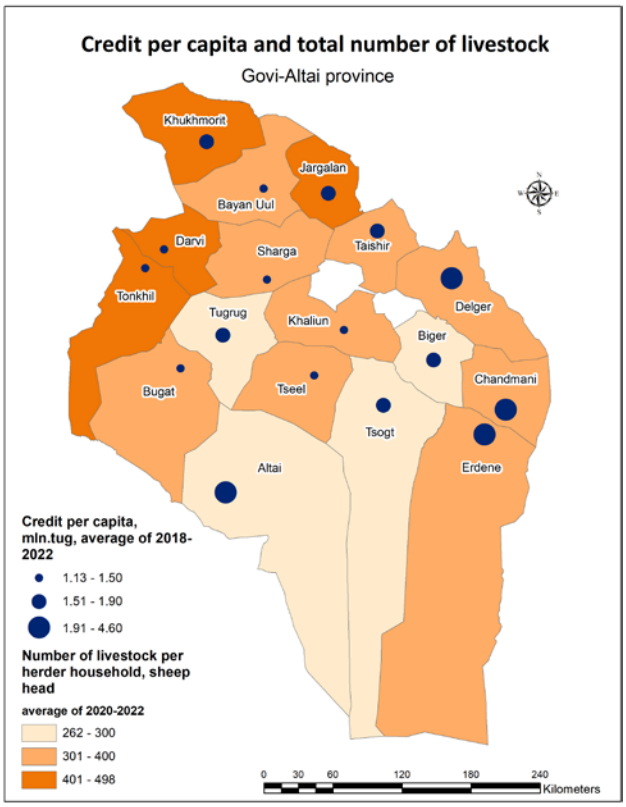
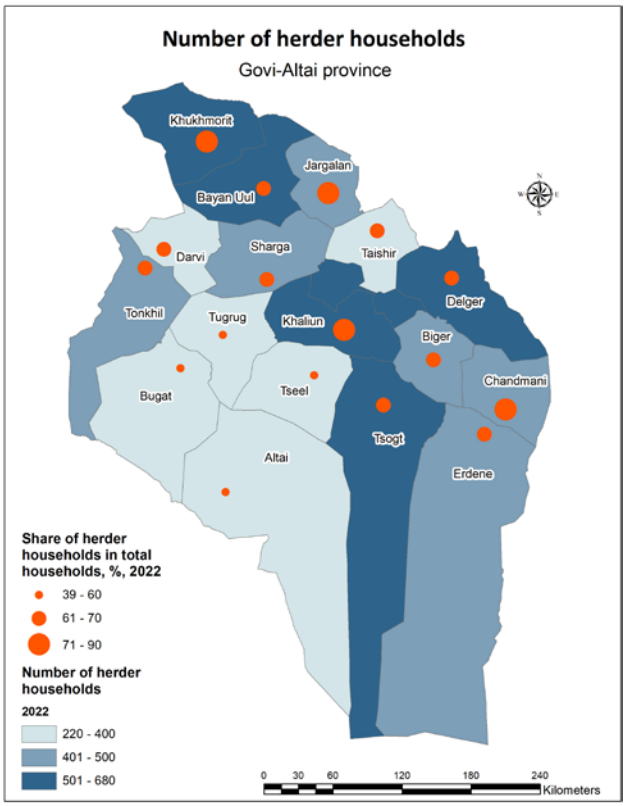


Figure 14. Total livestock vs Savings & credit per capita, soums



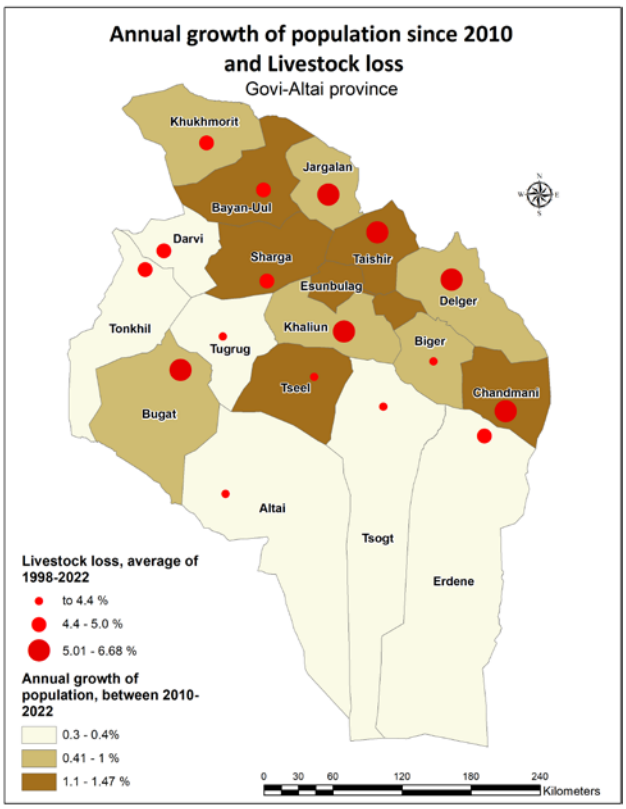


Figure 13. Number of households & annual population growth vs Livestock loss

Conclusions and recommendations followed detailed results of pastoral vulnerability assessment for each soum.

CHAPTER 3. INTEGRATING CLIMATE CHANGE ADAPTATION INTO LOCAL DEVELOPMENT POLICY

The third chapter concentrates on integrating climate change adaptation into local development policy making. Any adaptation process should take into account all elements, including local and indigenous adaptation and traditional coping strategies, and should be based on the country's sustainable development goals and contribute to the realisation of these goals. Vulnerability assessment and analysis in the previous chapter focused on answering the questions of who/what is vulnerable (vulnerability of what?) and what is vulnerable (vulnerability to what?). This chapter provides the reader with a theoretical and methodological overview to help answer the questions of what needs to be done to reduce vulnerability and adapt, what policies are being implemented, and how effective they are.

3.1 Approach to policy analysis

3.2 Policy document analysis: Gobi-Altai province & five soums

This part assessed the extent to which policies in development and environment related sectors align with climate change response (adaptation, mitigation) and sustainable development goals. The assessment was done using the same method and same scoring scheme in our 2017-2019 project "Ecological vulnerability assessment for adaptation strategy formulation at different spatial scales in western Mongolia and China" funded by the APN. Please refer to the past project CRRP2017-04MY-BALT for reference. For our purpose, we analysed current policy documents.

Table 1 shows how the policies of Gobi-Altai province integrate climate change adaptation and mitigation measures along with sustainable development goals. These scores give an overall impression of policy area attention of Gobi-Altai province to climate change and sustainable development. Analysis shows that they align differently with each of adaptation, mitigation and transforming capacity.

Table 5. Policy documents reviewed

Policy level	Gobi-Altai province
National	1. Vision 2050 (2020) 2. New revival policy (2021) 3. The five-year development direction of Mongolia in 2021-2025 4. The Government Action program in 2020-2024 5. Nationally determined contributions (Climate change) (2019) 6. National adaptation plan (climate change) (2024)
Provincial	1. Governor's action program 2020 – 2024 2. The five-year main directions for the development of Gobi-Altai province in 2021-2025
Sectoral	1. A comprehensive policy for the development of Gobi-Altai province tourism industry in 2021-2031 2. Provincial land use plan
Policy level	**Five soums (Bayan-Uul, Biger, Taishir, Tugrug, Khaliun)**
Sub-provincial (soum)	Governor's action program 2020-2024 for each soum

CHAPTER 4. LOCAL DEVELOPMENT

4.1 Legal and regulatory grounds
4.2 Practical examples of strategy plan
4.3 Strategy plan template, form & structure