



7.1. Recommendations for Updating the Legal Framework and Improving Methodologies

7.2. Recommendations for Improving Rangeland Photo Monitoring Operations

POLICY RECOMMENDATIONS

The national assessment of rangeland condition, the photo monitoring network, the database and the development of digital platforms are creating opportunities not only to study and record rangeland change, but also to support evidence-based policy, planning and day-to-day management decisions. Therefore, these policy recommendations have been prepared for government and local decision-makers, specialists and herders, and should be used according to their respective mandates and needs.

The purpose of these recommendations is to support the practical use of the report's findings, improve the legal framework, ensure the normal operation, security and openness of the rangeland photo monitoring system, digital platforms and databases, strengthen inter-sectoral coordination, and propose practical recommendations and solutions linked to land management plans, rangeland management, rangeland use contracts, restoration, investment, and monitoring and evaluation. It will also be effective to improve implementation by raising awareness and understanding of existing laws and regulations among local decision-makers.

7.3. Recommendations for Improving the Rangeland Monitoring Digital System and Database

7.4. Recommendations for Local Decision-Makers

7.5. Recommendations for Herders

7.1.

RECOMMENDATIONS FOR UPDATING THE LEGAL FRAMEWORK AND IMPROVING METHODOLOGIES

At a time when the draft revised package of land laws is being developed and discussed, it is necessary to study issues related to rangeland protection, improvement, restoration, degradation reduction, the land monitoring system, and continuous state monitoring, based on international trends and experience. At the same time, it is essential to define Mongolia's specific conditions and the distinct characteristics of nomadic livestock production through multi-stakeholder participation and reflect them in the draft laws.

The system for monitoring and evaluating the implementation of rangeland management measures should be clearly defined, including its scope, responsible parties and accountability mechanisms. Rangeland improvement measures should also be developed, implemented and monitored in alignment with policies and plans at all levels. It is advisable to define the boundaries of rangelands used by herder households within state special protected areas, expand the coverage of rangeland condition assessments, and improve regulations for sustainable rangeland use. In addition, there is a need to legally establish the duration of measures for rangeland protection, restoration and temporary exclusion from use, as well as financial support from the state when rangelands are genuinely restored and improved.

It is also necessary to amend other relevant rangeland-related legislation to clarify funding sources, improve inter-sectoral coordination, and align them with the revised package of land laws in relation to rangeland protection, improvement, restoration and degradation reduction. To this end, regulations should be incorporated into the Law on the Legal Status of Herder Household Associations and other relevant laws to reduce degradation and pressure around wells and water points. Relevant laws should also clearly specify that a certain percentage of state, aimag and soum budget revenues is to be allocated to rangeland management, restoration and monitoring systems.

The registration of rangeland areas should be linked with Unified Land Fund registration and mapping. In addition, the methodology for calculating rangeland carrying capacity and stocking capacity should be improved by using satellite imagery to determine actual rangeland use and by linking carrying capacity calculations with spatial data on livestock numbers.

To combine rangeland photo monitoring procedures and methodologies with modern technologies, it is advisable to use artificial intelligence and machine learning algorithms together with remote sensing methods to estimate biomass and vegetation cover, identify plant species, and develop guidance and recommendations for rangeland protection and restoration measures. This would help save human resources, time and financial resources.



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In some cases, methodologies should be simplified to increase herder participation in rangeland photo monitoring field surveys, and arrangements should be created to involve herders when specialists cannot physically reach sites due to natural disasters such as floods. It is important to receive data collected by herders through a mobile application into the central database, process and analyse it using artificial intelligence, and develop and disseminate practical training materials and manuals for herders.

To prepare proposals for amendments to relevant laws and regulations, it would be effective to conduct situational studies and analysis, and work with professional consultants to improve procedures, guidelines and methodologies. It is also necessary to expand cooperation with international and national projects and programmes, pilot and introduce innovative methodologies, and organize trainings and consultations to ensure that legal reforms are aligned with practical implementation.

7.2.

RECOMMENDATIONS FOR IMPROVING RANGELAND PHOTO MONITORING OPERATIONS

During 2020–2025, surveys were not conducted at a total of 533 points nationwide due to insufficient human resources, flood-related difficulties and weak organization of field surveys. Going forward, there is an opportunity to organize surveys with the participation of soum and local land officers, rangeland specialists and relevant staff of meteorological institutions, while ensuring inter-sectoral coordination. It is important to use the results in rangeland management. It is also necessary to fully conduct field surveys at all rangeland photo monitoring points, plan and implement rangeland protection and restoration measures based on the previous year's results, and regularly monitor their implementation.

To improve the knowledge and skills of sector staff, it is necessary to build their capacity in the use of the land monitoring digital system and mobile applications, identification of rangeland plants, biomass measurement, and methodologies for determining rangeland carrying capacity and potential. To improve herders' understanding of rangeland monitoring, it is advisable to involve them in photo monitoring field surveys, organize demonstration-based training, and regularly present the results.

Since all soum land officers were fully equipped with rangeland photo monitoring tools in 2015–2016, these tools and equipment have not been renewed nationwide. Therefore, securing the necessary budget and creating conditions for high-quality field surveys is an important measure.

Based on rangeland photo monitoring results, the location of degraded rangelands should be identified, and restoration and protection measures should be mandatorily included in land management plans. The necessary financing should be secured from sources specified in relevant laws and regulations, and mechanisms for monitoring implementation should be applied regularly.

In addition, it is necessary to develop a methodology for rangeland management plans based on photo monitoring results, evaluate policy implementation using clear key performance indicators, KPIs, and monitor progress through a transparent reporting system.



7.3.

RECOMMENDATIONS FOR IMPROVING THE RANGELAND MONITORING DIGITAL SYSTEM AND DATABASE

There is a clear need to assess and improve the quality, accessibility and security of database information at the national level through standardization. Ensuring the security of the photo monitoring database, creating backup versions, hosting it on an independent server, and enabling compatibility with other digital systems and platforms are important measures to prevent risks in the digital era.

It is necessary to clearly regulate the system, rights and responsibilities for regularly conducting quality control and verification of data in the photo monitoring database and for implementing the necessary measures. It is also advisable to promptly organize, on the basis of mutual understanding and national interests, the integration of data from the Agency for Land Administration and Management, Geodesy and Cartography and the National Agency for Meteorology and Environmental Monitoring into the unified platform of the national monitoring network database for comparison, monitoring, evaluation and verification. In addition, the rangeland management monitoring and evaluation system should be clearly defined, with differentiated roles and responsibilities at each level.

Photo monitoring activities should be combined with remote sensing and artificial intelligence technologies. Biomass estimation, plant identification and other tasks should be automated, necessary additional development of the land monitoring digital system should be carried out using advanced technologies, and the use of the “Belcheer” mobile application should be expanded nationwide.

Going forward, strengthening the connectivity of digital systems, improving automation for data transfer, verification and analysis, and expanding access to technical equipment at the local level will provide a basis for taking the rangeland condition monitoring system to the next stage. This should be done by linking photo monitoring data with solutions based on remote sensing, artificial intelligence and machine learning.

The Unified Methodology for Calculating Livestock Rangeland Carrying Capacity should be fully automated within the land monitoring digital system and linked with the national database of detailed mapped representative areas of rangeland photo monitoring points. The system should also enable dynamic calculations that take into account natural and climatic influences. Using information from the National Statistics Office livestock database, such as the location of herder households and the number and type of livestock, would make rangeland carrying capacity and potential calculations more realistic and would be important for implementing rangeland management more effectively.



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There is also a need to develop new modules and menus in the land monitoring digital system for carbon markets, carbon sequestration and emissions accounting. This would enable implementation, monitoring and verification of measures reflected in NDC 3.0. Pilot studies should be conducted regularly on developing new financial mechanisms, such as carbon markets linked with carbon sequestration and ecosystem services.

If errors occur in vegetation cover, biomass or recovery classification, there is a risk that rangeland carrying capacity, target areas for restoration, contract conditions and planning priorities will be incorrectly defined. Therefore, regular quality checks of data and information should be institutionalized, as they form the core foundation for policy-level decision-making.

7.4.

RECOMMENDATIONS FOR LOCAL DECISION-MAKERS

As of 2024, a total of 45,685 locations were included in soum land management plans nationwide, of which only 716 were related to land protection and restoration measures. This means that 98 per cent of planned measures were related to land allocation, while only 2 per cent focused on land protection and restoration, which is clearly insufficient. This is linked to the fact that rangeland protection and restoration measures are not being adequately included and implemented in annual land management plans based on rangeland photo monitoring results.

As a consequence, there is a risk of increasing rangeland degradation. Therefore, aimag and soum Governors, Citizens' Representative Khurals and relevant officials need to closely integrate rangeland condition assessments into local development policy, land management, environmental management, disaster risk preparedness and agricultural policy. The following actions are recommended.



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FIRST, rangeland photo monitoring results should be linked with soum territorial development plans, and all soums should regularly plan and implement rangeland rotation and resting measures every year. Sustainable land use should be based not only on traditional administrative allocation, but also on carrying capacity, condition, recovery potential, seasonal pressure and risk assessment.

SECOND, rangeland protection and restoration measures should be included in annual soum land management plans in connection with financing sources such as livestock head taxes and natural resource use fees, and a mechanism for regular monitoring of implementation should be operated.

THIRD, local decision-makers should use monitoring results as a basis for setting local budget and investment priorities. In degraded areas, areas with high water-related pressure, low recovery potential or protection needs, measures for restoration, water supply and protection, as well as expanded training, advisory services and support for collective management, can provide a basis for effective investment.

FOURTH, a system should be established to regularly communicate rangeland condition information to the public at the local level. This may include annual summary reports, bag meetings and digital information boards. Information transparency will increase herder participation, oversight and shared responsibility.

FIFTH, local decision-makers should use rangeland photo monitoring results not merely as a reporting tool, but as a policy foundation for ensuring inter-sectoral coordination. For example, the results can be linked with veterinary services, water supply, disaster risk management, cooperative development, green development initiatives and climate change adaptation policies.

SIXTH, recommendations for decision-makers should be categorized by implementation timeframe. In the short term, efforts should focus on identifying risk areas and disseminating information. In the medium term, they should focus on updating rangeland use contracts and plans, adjusting grazing pressure and carrying capacity, and implementing restoration. In the long term, efforts should aim to strengthen financing systems, legal regulations and a sustainable monitoring system.

7.5.

RECOMMENDATIONS FOR HERDERS

Herders can use the findings of this report as baseline information to understand the long-term condition, trends and risk context of the rangelands they use. Daily observation is important, but multi-year monitoring data provides a more realistic picture of whether a rangeland is temporarily recovering or gradually degrading.

FIRST, herders should plan their seasonal rangeland use in connection with monitoring results. If vegetation cover in a particular area is declining, bare soil is increasing and the recovery period is becoming longer, herders should avoid concentrating livestock there for extended periods, use the area rotationally, rest it temporarily and make prior arrangements with neighbouring households. Particular attention should be paid to pressure on sensitive spring rangelands, water sources, areas around wells, areas near winter camps and main otor routes.

SECOND, it is important for herders to align decisions on herd structure and livestock numbers with the actual capacity of rangelands. When rangeland condition is unstable and degradation risk is high, optimizing herd structure according to productivity, market demand and feed availability may provide more sustainable benefits than simply keeping larger numbers of livestock. In this sense, the report's information is useful not only for decisions on increasing livestock numbers, but also for herd quality, risk preparedness, fodder reserves and early market sales.

THIRD, herders should use rangeland condition information as a tool for anticipating risks such as drought, dzud and feed shortages. If monitoring shows that a given area has been weakening over several years and its recovery potential is declining, early preparation of hay and fodder, planning of otor routes, ensuring good livestock body condition in autumn, managing vulnerable animals and developing joint solutions with neighbouring households can help reduce risks.

FOURTH, it is effective to use the report's findings in discussions at the level of herder groups, partnerships, associations and cooperatives. Rangeland issues cannot be fully resolved by the decisions of one household alone; they require collective regulation of a common resource. Therefore, discussions based on real information on which areas should be rested, where grazing pressure should be reduced, when and where to move, and which areas require restoration can improve mutual understanding.

FIFTH, recommendations for herders should not be general appeals, but should include practical steps. These may include reducing pressure on spring rangelands, minimizing livestock concentration around water sources, following summer–autumn rangeland rotation, temporarily resting degraded areas, adjusting livestock numbers, herd structure and movement in advance during risk periods, and actively participating in rangeland use discussions.