

# NATIONAL ACTION PLAN TO MANAGE AND MITIGATE STRONG WINDS AND SAND AND DUST STORMS IN THE KYRGYZ REPUBLIC FOR 2021-2030

## STRATEGIC CONCLUSIONS

Photo credit: Ussen Kapar

### KEY TASKS:

- Enhance the application and implementation of modern technologies and methods for dealing with strong winds and SDS;
- Strengthen the strategic and institutional framework for governance and individual country capacity to deal with strong winds and SDS;
- Improve interaction between government bodies and agencies, research institutes, universities, NGOs through human resources development;
- Enhance influence on systemic decision-making mechanisms and legislation for the sustainable management of the country's SDS processes;
- Strengthen cooperation among CA countries and international cooperation to exchange successful practices and modern technologies;
- Identify specialised education and training needs.

### MAIN OBJECTIVE

National Action Plan to manage and mitigate strong winds and sand and dust storms in the Kyrgyz Republic aims to develop an understanding of the long-term impact of strong winds and SDS, neutralize their effects and ensure comprehensive and consistent implementation of Kyrgyzstan's policy on prevention of strong winds and SDS.

The NAP provides a comprehensive analysis of the impacts of winds on land cover, social, gender, and public health, a comprehensive description of the problems leading to land degradation, a list of priorities for strong winds prevention and SDS mitigation, and explores international and regional cooperation in this area.

### WHAT ARE HIGH WINDS AND SDS?

Dust storms occur when winds blow over dry bare ground at speeds of more than 1 m/s and lift loose soil particles into the atmosphere. Sandstorms travel relatively close to the ground, while dust storms can rise to heights of many kilometres and carry particles hundreds or thousands of kilometres away.

Sand and dust storms (SDS) are a common meteorological phenomenon in arid and semi-arid regions of the world. The sharply continental climate of Central Asia (CA), characterised by long hot summers, cold winters, large amplitudes of daily temperatures, dry air, low cloudiness and sparse precipitation with extremely uneven distribution throughout the year, creates conditions for strong winds and SDS in the countries of the region.

Thunderstorms, cyclones and the country's mountainous terrain, with elevations ranging from 500 to 7,439 metres above sea level, also contribute to the formation of strong winds and hurricanes in Kyrgyzstan.

As the CA region is highly susceptible to the effects

of high winds and SDS, the Secretariat of the UN Convention to Combat Desertification (UN-CCD) works closely with governments of the region, NGOs, experts and local communities to build capacity to reduce the risks of high winds and SDS and mitigate their impacts.

According to the UN, more than 2 billion people in 100 countries live on drylands, which occupy 30% of the planet's surface. If the rate of desertification is not reduced, by 2025, one in five people on Earth will live in drought-prone territory. In Central Asia, experts estimate that 4-10% of cropland, 27-68% of pastureland and 1-8% of forests are significantly degraded.

Overgrazing, secondary salinization of soils,

depletion of water resources and unsustainable use of natural resources lead to more frequent and severe occurrences of high winds and SDS in CA. All these and other anthropogenic factors aggravate the processes of desertification, land degradation and drought (DLDD). The only way to slow down DLDD and achieve Land Degradation Neutrality (LND) is through enhanced regional cooperation.

The formulation and implementation of country and regional strategies for counteracting high wind and SDS processes will have a direct positive impact on the environment of all Central Asian countries and enhance the pace of sustainable development of the region as a whole.

## ADVERSE IMPACT OF SDS



According to the World Meteorological Organization, inhaling dust particles led to **400,000 premature deaths from cardiovascular disease** among those over 30 in 2014.



The impact of SDS on health:

Indirect damage from SDS:



development of asthma, bronchitis, obstructive airway disease, coughing and wheezing

sand drifts of irrigation canals, and deterioration of surface water quality



Cardiovascular disease (CVD), deep vein thrombosis and pulmonary embolism, cerebrovascular disease



reducing the output capacity of solar power plants



viral, bacterial, and fungal infections of the lower respiratory tract

skidding of transport routes, reduced visibility due to dust



## FORMATION OF WINDS AND SDS IN KYRGYZSTAN

Due to its remote location from the oceans and seas, Kyrgyzstan has a sharply continental climate. Significant fluctuations in air temperature and its dryness, moderate precipitation and low cloudiness create conditions for dusty winds. These winds sometimes grow into hurricanes. The frequency of these hurricanes has increased in recent years.

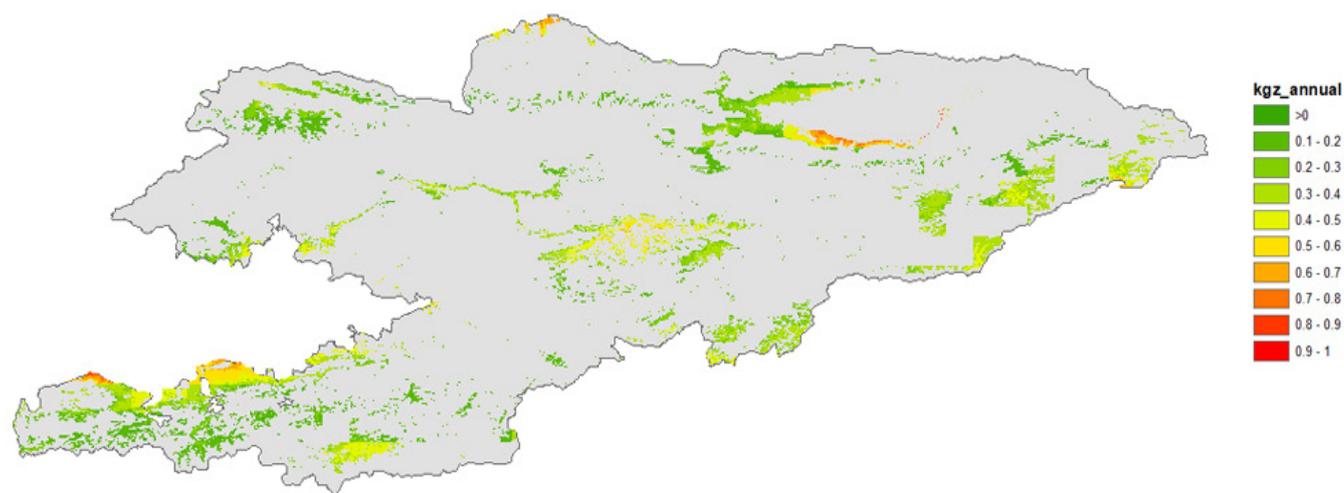
Strong winds intensify soil erosion. In Kyrgyzstan, wind erosion is widespread in Western Priiskykulle, eastern part of Kemin district, western part of Kara-Buura district, Kochkor depression, and in Batken, Osh and Chui oblasts.

Some natural and anthropogenic factors contribute to the development of wind ero-

sion in Kyrgyzstan. Among the natural factors are the fragmentation of the territory of the republic, soil properties, slopes of the terrain. Anthropogenic factors are related to improper organization of agricultural lands, deforestation of forest buffer belts, and deep plowing of soft soils.

There are areas in the Kyrgyz Republic that are particularly affected by high winds and SDS. Efforts to prevent these disasters need to be implemented in such areas. The most vulnerable to high winds and SDS are Western Priiskykulle and, to a lesser extent, the north of the Chui and Talas Valleys. The number of days with strong winds here can reach up to 120 per year.

## KYRGYZSTAN'S EXPOSURE TO THE SDS



### AGRICULTURAL RISKS OF SDS

Winds and SDS are a source of great socio-economic damage. This damage is particularly acute for those involved in agriculture. Non-adherence to agricultural management techniques, over-abstraction of water for irrigation, and deforestation are all contributing factors to vulnerability to high winds and SDS.

Areas where topsoil is not protected by vegetation cover, winds blow away its fine particles, which contain a significant proportion of nutrients and humus. The percentage of humus in the fertile layer of grey soil in the Chui Valley has declined from 2.5% in 1992 to 1-1.5% in 2012.

Ineffective land-use planning, deforestation, inadequate flood control, and disruption of slope stability lead to an increase in natural disasters. In the Kyrgyz Republic, 70% of irrigation facilities are located in mountain or foothill zones. They are very vulnerable to natural disasters in the form of floods, mudflows and the occurrence of ice crusts.

### HEALTH RISKS OF STRONG WINDS AND SDS

Airborne dust is a serious threat to human health, especially when it contains toxic particles. Fine dust particles can carry a wide range of pollutants, spores, bacteria, viruses, fungi and allergens. Dust particles carried by winds many kilometres away from the source can contribute to a wide range of illnesses. People suffering from lung or heart disease, as well as the elderly and children, are particularly vulnerable.

The economic losses from a single storm can be in the hundreds of millions of dollars. The short-term costs of high winds and SDS include damage to buildings and other infrastructure, power lines, and transport disruption. Hurricane winds often result in the felling of old trees. This results not only in economic losses, but also in human casualties. The long-term costs of high winds and SDS include soil erosion, livestock disease, pollution of ecosystems, chronic human health problems and desertification.

All this reduces the average income of the population engaged in agriculture and has a negative impact on the overall standard of living in the country. Women are particularly vulnerable to the negative effects of high winds and SDS, as they are more dependent on environmental conditions. In addition to women, the elderly, people with disabilities and migrant families are very vulnerable to these disasters.

Dust particles have a negative impact on lung development in children, leading in particular to impaired lung function and chronically stunted lung growth. Inhalation of dust particles can cause many serious non-communicable respiratory and cardiovascular diseases, cancer and premature death. Dust is often the cause of eye disease, skin diseases and infections such as meningitis. Dust can exacerbate chronic diseases.

## EXISTING PROGRAMMES TO COMBAT DLDD, WIND AND SDS

Since the collapse of the USSR, no new programmes to prevent and mitigate strong winds have been developed in Kyrgyzstan. Lack of funding has resulted in Kyrgyzhydromet ceasing to monitor the occurrence of high winds and SDS. SDS are also not included in the government-approved disaster risk register. High winds are not listed in the climate profile of the Kyrgyz Republic as a consequence of climate change.

Nevertheless, the Kyrgyz Republic is actively implementing measures to meet the country's obligations under the UNCCD, the UN Framework Convention on Climate Change and the Kyoto Protocol. The Ministry of Agriculture, Water Resources and Regional Development of the Kyrgyz Republic (MAWRD) is responsible for the development and implementation of agricultural policies. The State Committee on Environment and Climate of the Kyrgyz Republic is responsible for the implementation of Kyrgyzstan's international commitments under the above mentioned documents.

A number of international organisations and NGOs are implementing projects related to environmental protection, reforestation and pasture management. These include the World Bank, In-

ternational Fund for Agricultural Development, GIZ, UNDP, FAO, WFP, as well as local NGOs such as the Association of Forest and Land Users of Kyrgyzstan, Kyrgyz Pasture Users Association "Kyrgyz Jaiyty", the Republican Union of Water Users Associations, and the Public Foundation "CAMP Alatau".

The Kyrgyz Republic was one of the first post-Soviet states to implement land and agrarian reform. However, the issues of sustainable use and protection of land resources have not yet received due attention.

The main problems resulting in land degradation and hindering effective land management in Kyrgyzstan:

- Sectoral and legal fragmentation that limits the implementation of a coordinated land policy;
- Small landholdings that do not allow for profitable production and rational land use;
- Poor farming practices;
- Shortage of agricultural machinery, water supply, land reclamation, fertilisers etc;
- Lack of qualitative assessment, monitoring of agricultural land use efficiency;
- Lack of financial resources and other forms of state support.

## NATIONAL ACTION PLAN TO MANAGE AND MITIGATE STRONG WINDS AND SAND AND DUST STORMS

The main objective of the NAP is to draw attention to and raise public awareness about high winds and SDS in the Kyrgyz Republic and to plan appropriate actions to prevent and mitigate these disasters. Priorities for the NAP:

- Understand the risk of strong winds and SDS;
- Develop a policy framework for strong winds and SDS management;
- Strengthen the role of research and development efforts related to strong winds and SDS;
- Attract investment in strong winds and SDS management and mitigation.

Expected NAP implementation results:

- Improved understanding of the threat and im-

*The Tian Shan Policy Centre (TSPC) of AUCA, a non-profit organisation that aims to promote local and international research in Central Asia as well as strengthen governance in the countries of the region, has been actively involved in the development of the NAP.*

*TSPC specialises in research on migration, sustainable development, environmental protection, human rights and democratic governance in Central Asia.*

pact of strong winds and SDS, and how to reduce the risk of their occurrence;

- Strengthened institutional and legal framework for land tenure and emergency-related policies;
- Established legal framework for effective policies for the management and mitigation of strong winds and SDS;
- Science-based agro-technologies and innovations into practical actions for management and mitigation of strong winds and SDS are introduced;
- Tailored maps are developed;
- Investment attracted through international financial institutions using modern approaches.



**Disclaimer:**

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