

Key challenges and plans for drought monitoring and management in the Kyrgyz Republic

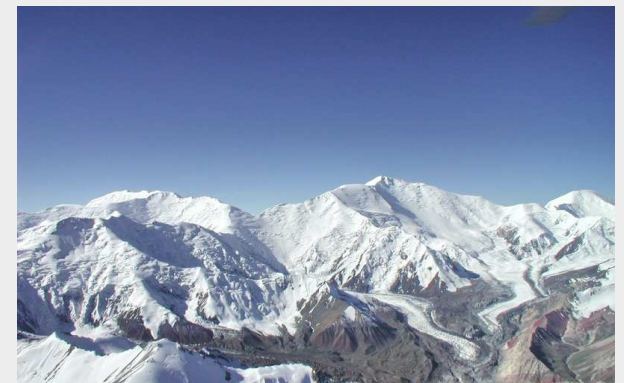
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Climate of Kyrgyzstan

Continental, dry. Due to the strong terrain in Kyrgyzstan, the climatic conditions are rather heterogeneous - in the highlands of Tien Shan, the weather has all the signs of a subpolar climate, in the south-western regions (Fergana Valley) it is subtropical, and in the northern foothills the climate is almost temperate. A characteristic feature is the dryness of the air over the entire territory of the country, making it an average of 247 sunny days a year.



The Kyrgyz Republic, possessing huge reserves of water resources accumulated in seasonal snow, snow and glaciers, in recent years has felt the negative effects of climate change, such as in 2007,2008,2014, when along with the hydrological drought caused by insufficient snow accumulation in areas formation of the river runoff of Kyrgyzstan, also the growing season was abnormally dry for almost the entire territory of the country, which had a negative impact on the productivity of crop production, animal husbandry, and the country's hydropower potential. Large interannual variability of precipitation and fluctuations of weather conditions in general, characteristic of Kyrgyzstan, require readiness to take adaptation measures for all climate-dependent sectors of the economy based on timely and high-quality short-term and long-term agrometeorological forecasts.



Drought is a phenomenon with the most serious consequences of all natural disasters. In dry years, the water situation becomes critical. During drought years, extreme manifestations of climate variability can lead to significant losses in agricultural production and the provision of water to the population. It is expected that anthropogenic climate change will lead to a higher frequency and severity of extreme drought events. Drought, land degradation and desertification are global issues that pose a serious threat to sustainable development in all countries.



Situation in Kyrgyzstan (drought)

Damage from all types of climatic emergencies in the Kyrgyz Republic for the period 1991-2014

№	Cultivation	Damage from all of disasters \$)	Damage from drought	Percent , %
1	Wheat	6560,26	5826,36	88,81
2	Barley	934,68	728,46	77,94
3	Rice	237,82	182,96	76,93
4	Corn	996,04	820,10	82,34
5	Grain legumes	28,16	26,68	94,74
6	Oats	2,68	2,07	77,24
7	Tobacco	251,66	202,54	80,48
8	Sugar beet	2216,86	2066,22	93,20
9	Oil -plant	202,36	165,50	81,78
10	Potato	249,57	143,40	57,46
11	Vegetables	2358,09	1817,60	77,08

National Statistical Committee of the Kyrgyz Republic

Economic and social consequences of drought

In recent years, especially the growing season 2007, 2008 as well as in 2010, 2011 and 2014, a strong spring and summer drought caused great harm to agriculture. As a result, the yield of wheat has significantly decreased.

These years were also not favorable in terms of climate. During the autumn sowing season, there was not enough moisture in the soil, and then in the summer, when grain was being poured in the air, there was a strong lack of moisture, which led to the formation of a puny grain. The yield during these years was 21.4 - 21.7 c / ha. Accordingly, the price of wheat in 2011 was the highest in recent years - 17,904 soms per 1 ton of grain. www.stat.kg.



Economic and social consequences of drought

2012 was also unfavorable. Autumn sowing of winter grain crops for the harvest of 2012 was accompanied by a dry autumn. In most grain-sowing regions of Kyrgyzstan, at the time of sowing of winter wheat, there was not enough moisture in the soil. Moisture content was 40–60% in places less than 40% of the smallest field moisture capacity. Because of this, the seedlings of winter wheat are thinned and weak.

As a result of this, the plants are gone in the winter without having a bush in the phase of 3-d leave, overwintering of the seedlings of winter wheat (according to surveys) turned out weak. The number of dead plants per 1 m² at the time of the survey (03/25/2012) was 20–30%, in some places up to 40%. Despite the snowy winter of 2011-2012. and with a delay in the onset of spring, and after that a sharp warming in the beginning of April, when daytime temperatures reached 30°C, and nighttime temperatures dropped to 2-3°C.



National Priorities for Climate Change and Drought Management

Since the ratification by Kyrgyzstan of the United Nations Framework Convention on Climate Change (UNFCCC) in May 2000, the country has been carrying out targeted work to fulfill the commitments undertaken by the country in the framework of this international instrument. The First (2003) and Second (2008) national communications on climate change in the Kyrgyz Republic were prepared.

The analysis of the strategic development documents of the Kyrgyz Republic showed that the risks associated with IC were reflected in the most important national strategic development documents:

The concept of environmental safety of the Kyrgyz Republic (Resolution of Kyrgyz Republic Government of October 16, 2007 No. 469).

A set of measures to ensure the environmental safety of the Kyrgyz Republic for 2011-2015 (Resolution of Kyrgyz Republic Government of September 23, 2011 N 599).

The strategy of integrated security of the population and territories of the Kyrgyz Republic in emergency and crisis situations until 2020 (approved by the Government of the Kyrgyz Republic on June 2, 2012 N 357)

The National Strategy of the Kyrgyz Republic on adaptation to climate change until 2020 has been developed - it is being coordinated with ministries and departments.

The Coordination Commission on Climate Change Issues was established, Resolution of the Government of the Kyrgyz Republic dated November 21, 2012 No. 783

Crop Insurance

The main legislative acts regulating insurance issues in the field of crop production are:

- ❑ Civil Code of the Kyrgyz Republic,
- ❑ Law of the Kyrgyz Republic “On the Development of Agriculture dated May 26, 2009 N 166,
- ❑ Law of the Kyrgyz Republic “On the organization of insurance in the Kyrgyz Republic” dated July 23, 1998 N 96,
- ❑ Law of the Kyrgyz Republic “On Features of Insurance in Crop Production” dated January 26, 2009 N 31.

Crop Insurance

Progress in agricultural insurance is the adoption of the Law of the Kyrgyz Republic “On the peculiarities of insurance in crop production,” which establishes the characteristics of insurance in crop production and regulates the legal, financial and organizational framework for its implementation.

A positive aspect of this law is that in Article 4 of the Law of the Kyrgyz Republic, it is stated that the objectives of insurance in plant growing are: **to protect the material and monetary interests of the manufacturer of crop products from the consequences of adverse natural phenomena** through insurance payments in case of insurance claims in the amount and order, stipulated by law.

The disadvantages of this Law of the Kyrgyz Republic “On the peculiarities of insurance in crop production” are that the following points are not taken into account:

In paragraph 5 of Article 1 of the analyzed Law, the concept of an adverse **natural phenomena** is designated as a natural phenomenon (**flood, hail, heavy rain, frost, mudflow**), which resulted in the death or damage to crops and the loss of crop production.

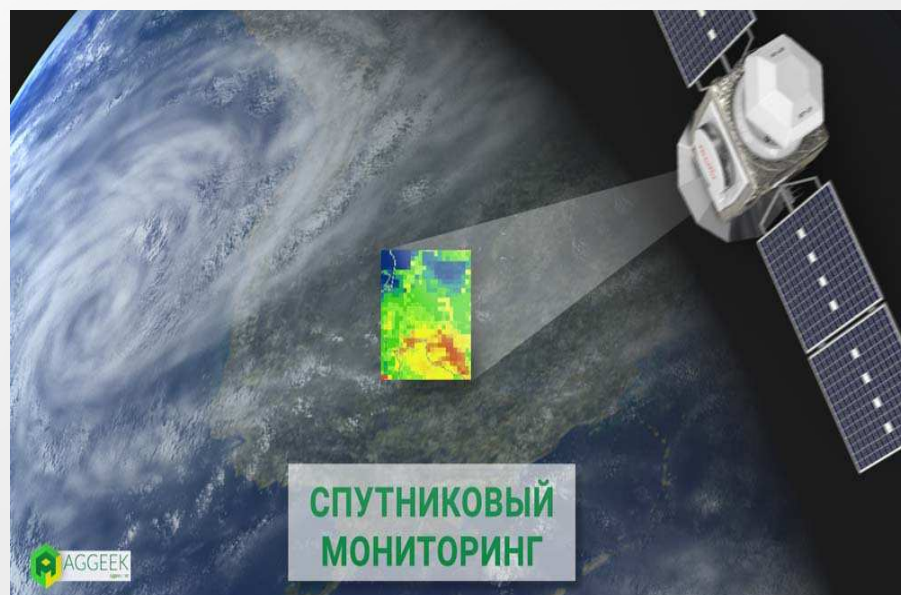
Crop Insurance

At the same time, this standard does not provide for other types of production risks in crop production, such as:

the destruction or reduction of crop yields and perennial plantings as a result of drought, storms, temperatures below the biological resistance limit of plants, as well as diseases or attacks by pests.

Thus, weather indices, crop indices and drought indices are not introduced into the Law when insuring risks in crop production.

Drought forecasting in the Kyrgyz Republic is not carried out. In this regard, noteworthy and require studying the experience of foreign countries and CIS countries in monitoring, early warning and application of drought indices for risk insurance in the crop sector.



Expectations from project implementation

- ❑ Familiarization with existing models and methods of agrometeorological forecasting for agricultural areas and pastures, the choice of the most suitable for use in the **territory of Kyrgyzstan**;
- ❑ Acquaintance and acquisition by existing models for use in predicting **droughts**, based on accounting for precipitation and the amount of irrigation water used, as well as **remote sensing data** on **Kyrgyzstan**;
- ❑ Assessment of the availability of **satellite monitoring of agricultural drought** for the **Kyrgyz Republic** based on long-term series of vegetation conditions index;
- ❑ Comparison of remote sensing data with ground-based agrometeorological observations.

Expectations from project implementation

The Ministry of Emergency Situations of the Kyrgyz Republic expresses deep gratitude to the UN ESCAP project for inviting specialists and looks forward to further joint cooperation in the implementation of the project.

The Agency on Hydrometeorology under the Ministry of Emergency Situations of the Kyrgyz Republic also hopes for further support from the ESCAP project in monitoring and preventing drought in Kyrgyzstan. This will help in taking measures to reduce the impact of climate change on people and climate-dependent sectors of the country's economy. It will give an opportunity when planning measures to create an effective system of agrometeorological monitoring in the territory of the Kyrgyz Republic, for operational forecasting of droughts of various lead times.

Thank you for attention!