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Project on “Reducing risks of locust disasters in Caucasus and Central Asia”

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The threat

Locust pests are a constant threat to agricultural production in Caucasus and Central Asia. Every year, they put at risks crops and rangelands while threatening food security, the economy and livelihoods of the rural populations living in the affected areas.

- Three locust pests: **Italian** (*Calliptamus italicus*), **Moroccan** (*Dociostaurus maroccanus*) and **Asian Migratory** (*Locusta migratoria*) **Locusts**
- Over the past 10 years, **7.1 million** hectares annually infested in Caucasus and Central Asia and **4.2 million** hectares treated with chemical insecticides
- Locusts are **transboundary plant pests**, with political borders situated across historical breeding areas; they have a high capacity to multiply, form groups, migrate and breed in various habitats
- They are becoming **even more dangerous** in the context of exceptional weather events associated with **climate change**, including drought and warming



FAO's response

The project “Reducing risks of locust disasters in Caucasus and Central Asia (CCA) (GCP/GLO/917/USA) was approved in 2021 by the **United States Agency for International Development (USAID)** to the benefit of nine Caucasus and Central Asian countries, namely **Afghanistan, Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan**. This three-year project, with a budget of **USD 1.8 million**, is part of the multi-funded “Programme to improve national and regional locust management in Caucasus and Central Asia (CCA)”, implemented by FAO since 2011.

Project overall objective is to contribute to food security and livelihoods of the rural populations in Caucasus and Central Asia by preventing and limiting the threats of damage to crops and rangelands posed by locusts, in the respect of human health and the environment. The ultimate beneficiaries are thus the rural populations living in the locust-affected areas. The immediate beneficiaries are the national services in charge of locust management, whose institutional, human and operational capacities are strengthened both at national and regional levels.

This project builds up on the progresses made during the previous projects successfully implemented under the umbrella of the Locust Programme in CCA, including two projects



The goals

With a view of promoting the implementation of locust preventive control strategy, i.e. switch from reactive and curative management to preventive and disaster risk reduction approaches, the project focuses on:

- Fostering **regional cooperation** on locusts
- Contributing to **early warning** and reaction through improved data collection, analysis and forecast
- Further harmonizing and **improving human capacities** on all aspects of locust management, relying on world-wide recognised best practices
- Delivering **equipment** for locust survey and control and **trainings** on its effective use
- Promoting the use of **up-to-date control methods** and **less hazardous pesticides**, in particular the Ultra-Low Volume (ULV) technology as well as Insect Growth Regulators and biopesticides
- **Monitoring and mitigating impact** of locust control **on human health and the environment**
- Improving **public information** and **awareness** in the affected areas







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Collaboration

In Caucasus and Central Asia, political borders are situated across historical locust habitats and breeding areas. As a result, if a country faces a locust outbreak, it is more than likely that at least one neighbouring country faces a similar situation. And even if a country is able to properly manage its own locust situation, it is not protected from locust swarms arriving from neighboring countries, which represents a threat to food security in addition to a source of tension at regional level.

FAO therefore actively promotes regional cooperation for managing such transboundary pests. In particular, **timely and regular exchange of information** is key for early warning and reaction, which are the cornerstone of prevention. Regional coordination also involves **joint activities**, such as **annual regional workshops** or **cross-border surveys**, allowing common evaluation of the locust situation, especially in border areas, experience sharing as well as networking. Another key aspect is to put in place a **permanent institutional mechanism** to ensure that regional cooperation on locusts is ensured in the long term, beyond the Programme and projects.



Early warning system

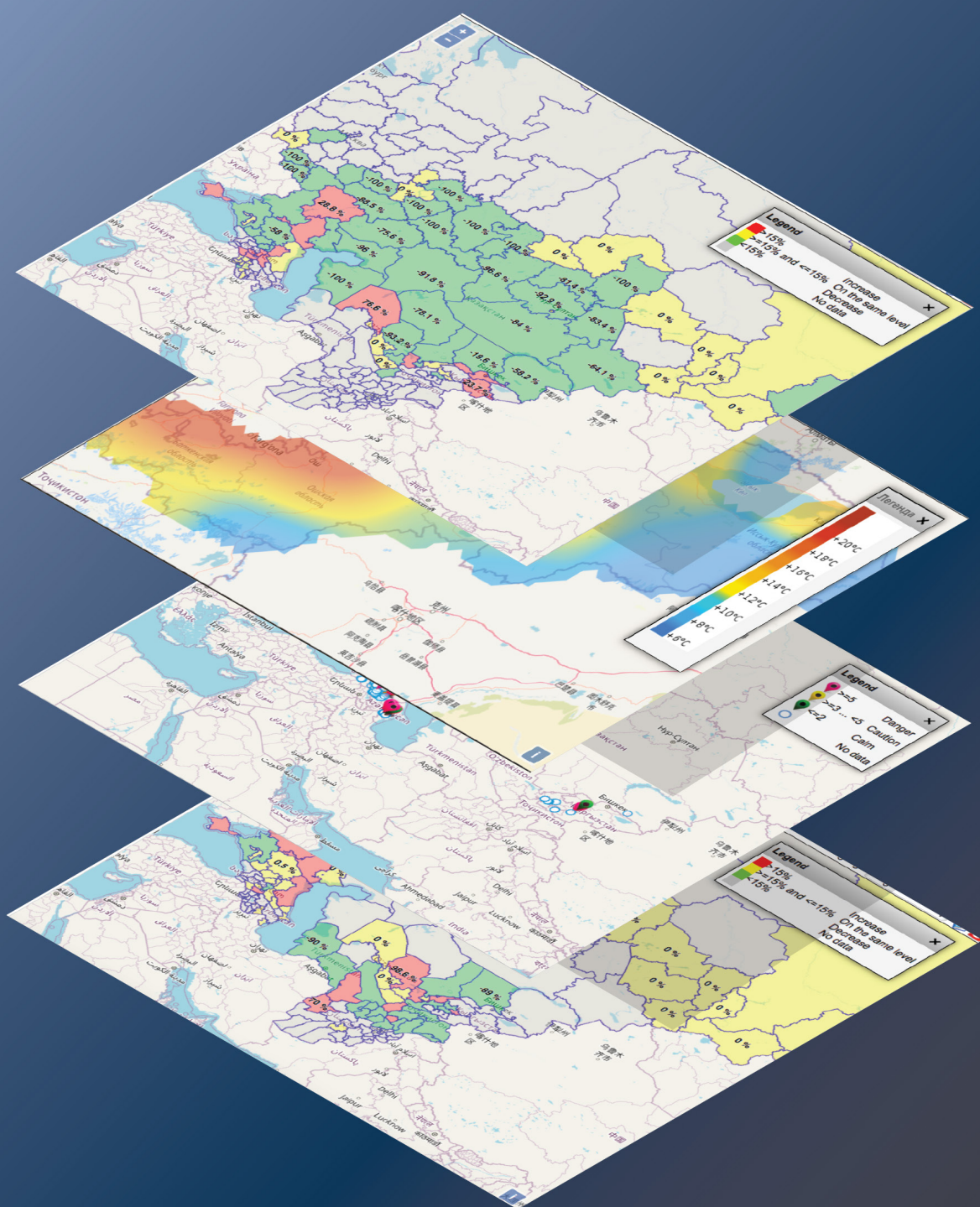
The main challenge regarding locust management in Caucasus and Central Asia is the switch from mostly crop protection, or reactive mode, to preventive and disaster risk reduction approaches. This means anticipating locust outbreaks and getting prepared for crises on the one hand as well as responding earlier and better in case they occur.

Besides advocacy, this requires in particular more accurate locust monitoring, along with the use of modern tools. The project therefore supports the use of the **Automated System Data Collection (ASDC)** as well as of the Geographical Information System (GIS) entitled “**Caucasus and Central Asia Locust Management System (CCALM)**”, for enhanced data collection and real-time transmission, improved analysis and forecast as well as for sharing standardized information at the regional level.

The use of such tools must be accompanied by strengthening knowledge of locust staff on all aspects of locust management together with delivering substantial equipment to support countries to adequately carry out survey and control operations.

This is expected to play a key role for early warnings, thus preventing and helping to efficiently control the damage the pest could cause in the region.





Information sharing and capacity strengthening

Knowledge is key for locust prevention and control and the project thus helps disseminating it to all stakeholders.

In particular, professionals' capacities can be effectively enhanced thanks to **Training-of Trainers**; this method allows preparing Master-Trainers at regional level, who in turn provide further training to other staff at the national level.

Background material will also be prepared and dispatched to staff to promote best practices, aimed at harmonizing and updating competencies and technologies.

Local populations will receive **awareness raising material** in national languages, including calendars and posters on safety measures to be adopted in relation with locust control operations, increasing awareness on best practices contributing to locust survey and control operations.







Human health and the environment

Considering the huge quantities of chemical pesticides sprayed annually, the project assists countries in **monitoring and mitigating the negative impact of locust control on human health and the environment**.

This includes support for the adoption of safety measures before, during and after the control operations as well as backing the **Human Health and Environment Teams**, which check the impact of treatments on humans and non-target organisms and recommend remedial action if necessary.

These measures include:

- Use of updated and **efficient spray techniques**
- Adoption of **less-harmful** alternatives to conventional **pesticides** and formulations
- Adequate **pesticide management** including the collection and disposal of empty pesticide containers
- Systematic use of **personal protective equipment (PPE)**





Up-to-date control technology

Overall, Caucasus and Central Asian countries have treated annually from 1.9 to 6.9 million hectares over the past ten years, with an average of 4.2 million hectares. Locust control in the region traditionally relies on large-scale, full cover applications of fast-acting pesticides, mostly pyrethroids and neonicotinoids, applied in water-based emulsifiable concentrate (EC) formulations by conventional sprayers.

Handling, storage and spraying of high quantities of pesticides expose numerous workers. Negative impact can also concern rural populations in case appropriate information on control operations and related safety measures is not timely delivered. Chemical pesticides are not specific to locusts, so non-target organisms, such as aquatic and terrestrial arthropods (specifically, honeybees, pollinators and other beneficials), birds, mammals and reptiles, can also be affected.

The project helps promoting the **Ultra-Low Volume (ULV) technology for locust control**, world-wide recognized as the most efficient, economical and environmentally less hazardous one, as well as Insect Growth Regulators and alternative to chemical pesticides.



Less hazardous pesticides

Biopesticides present an ecologically acceptable and safe, low-toxicity alternative to conventional pesticides. Among naturally occurring entomopathogenic microorganisms, it is a fungus *Metarhizium acridum* which is used for locust control. It provokes an epidemic disease among the treated insects. *Metarhizium acridum* is highly specific to locusts and grasshoppers. It kills only these insects and does not negatively affect honeybees and other beneficial arthropods. It is not toxic to humans or animals such as birds, fish, reptiles, amphibians etc. The biopesticide requires standard Personal Protective Equipment (usually, a face mask is sufficient) and can be applied with the same spraying equipment as the chemical pesticides. Contrary to chemical pesticides, biopesticides can be applied to areas with water bodies. Biopesticides are an appropriate tool for the preventive strategy to control locusts, particularly when it is necessary to treat initial, small groups of hoppers to prevent them from forming dense and huge hopper bands.

Several biopesticide products are currently available commercially and registered for locust control in several CCA countries. However, despite the obvious ecological advantages of biopesticides, their adoption for operational use in CCA is slow. The reasons for that include slow action, specific requirements for storage and transportation conditions and particular mixing before application. In order to promote the biopesticide operational use, the project includes a demonstration trial in one of the CCA countries. The trial will be complemented by training on all aspects of biopesticide application.





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Contact

Plant Production and Protection Division (NSP)

NSP-director@fao.org

<http://www.fao.org/locusts-cca/en/>

Food and Agriculture Organization of the United Nations (FAO)

Rome, Italy

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