



Fourth Edition
**"NATURAL HAZARDS AND CULTURAL
HERITAGE"**
PRESERVATION STRATEGIES
19 - 26 July 2026



ALGERIA NATIONAL DROUGHT PLAN

GUIDELINES FOR ITS OPERATIONALIZATION

PROFESSOR

Dr,ARCH , Mourad MAROC
Universite of Blida 01- Algeria



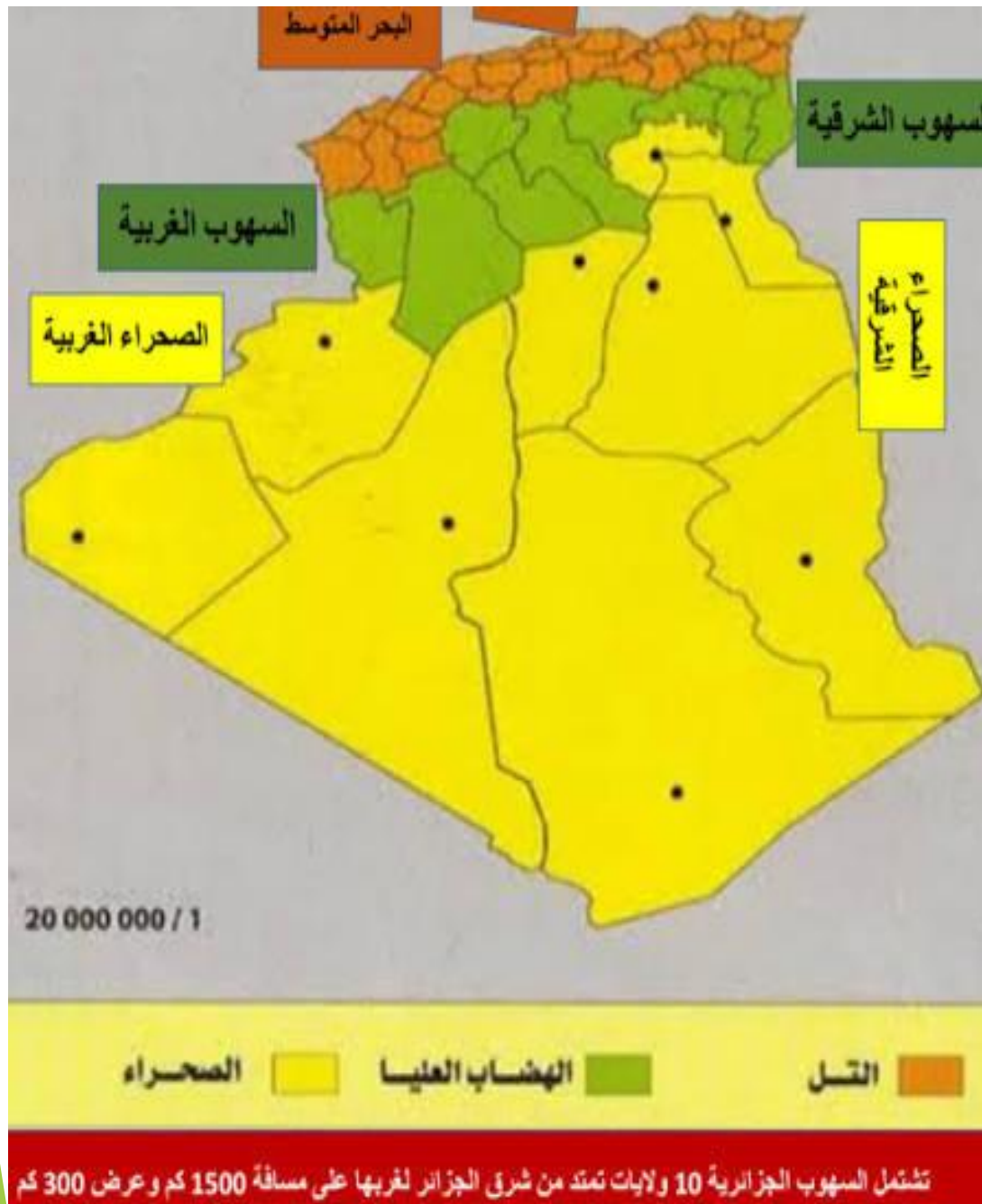
United Nations
Convention to Combat
Desertification

Todi -Italy - 19 to 26 July 2026

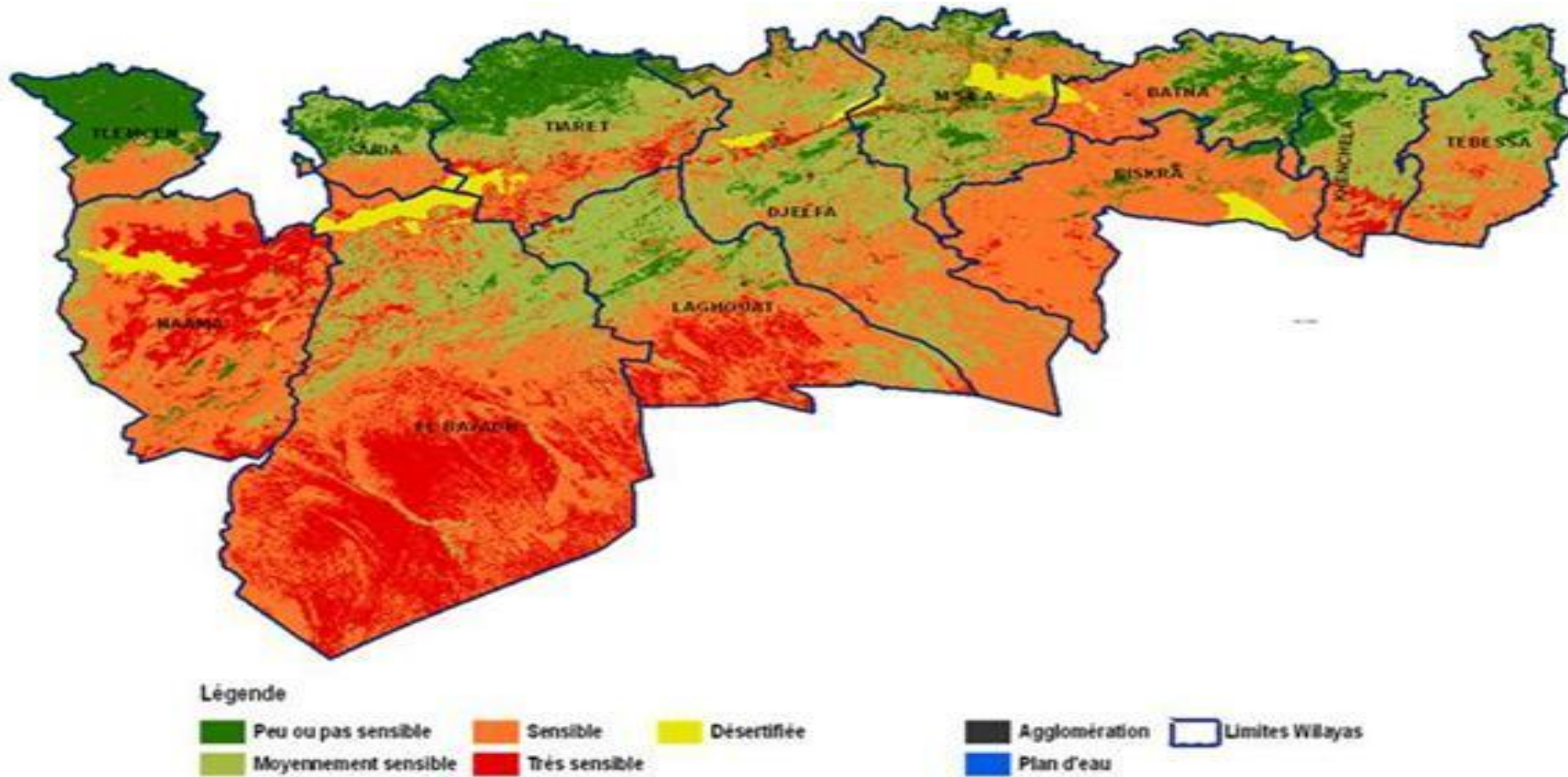
Presentation

- **Desertification in Algeria** refers to the degradation of the fertility of productive lands and pastures in steppe and arid regions; the state is addressing this issue through major projects, such as the Green Dam, aimed at rehabilitating millions of hectares.



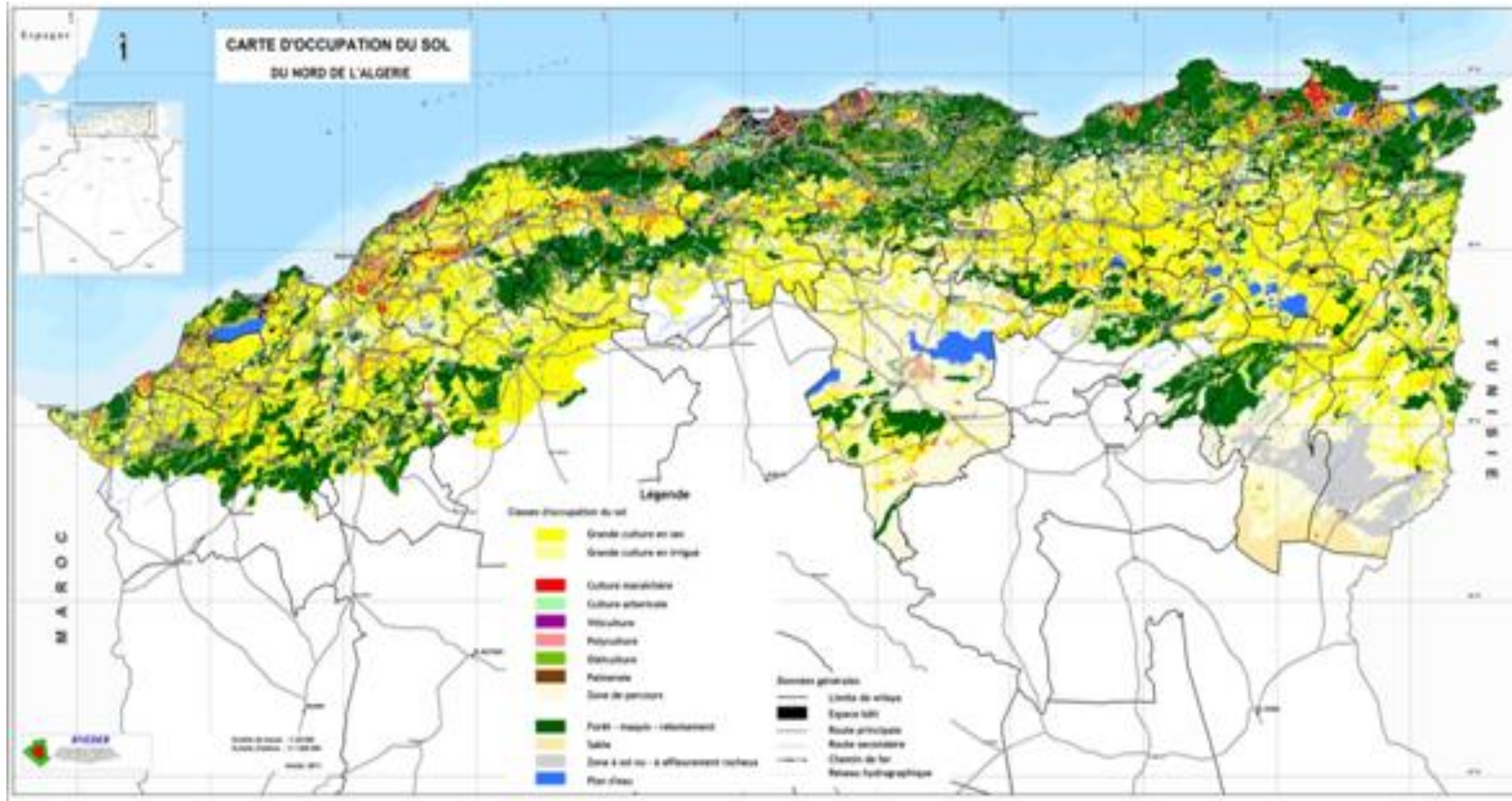


Desertification: a problem linked to drought



Map of susceptibility to desertification (ASAL 2012)

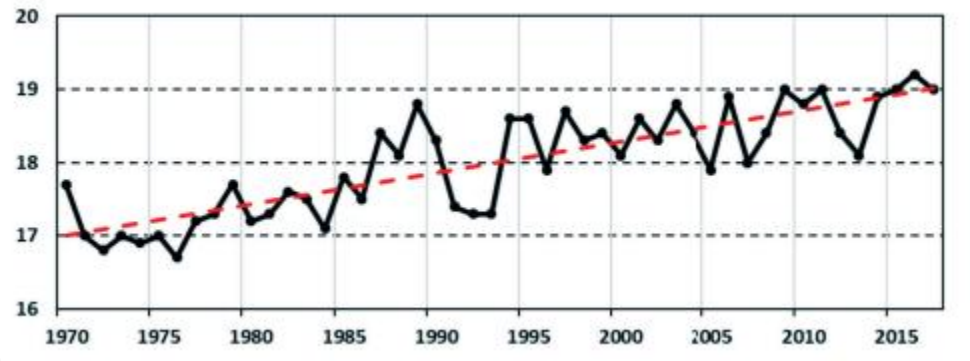
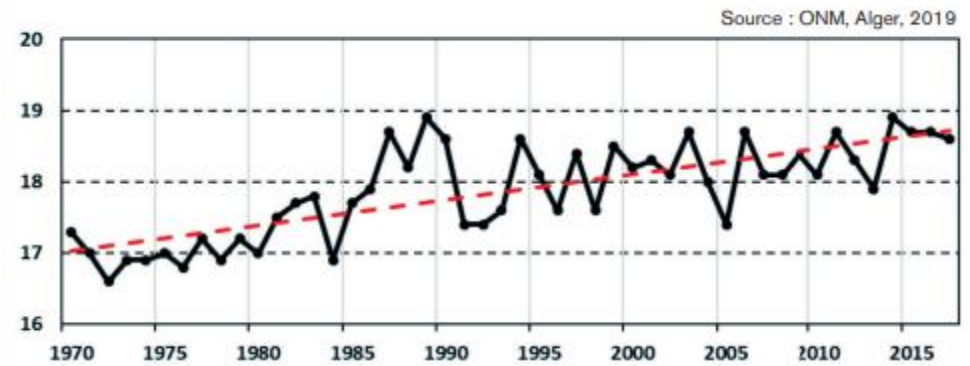
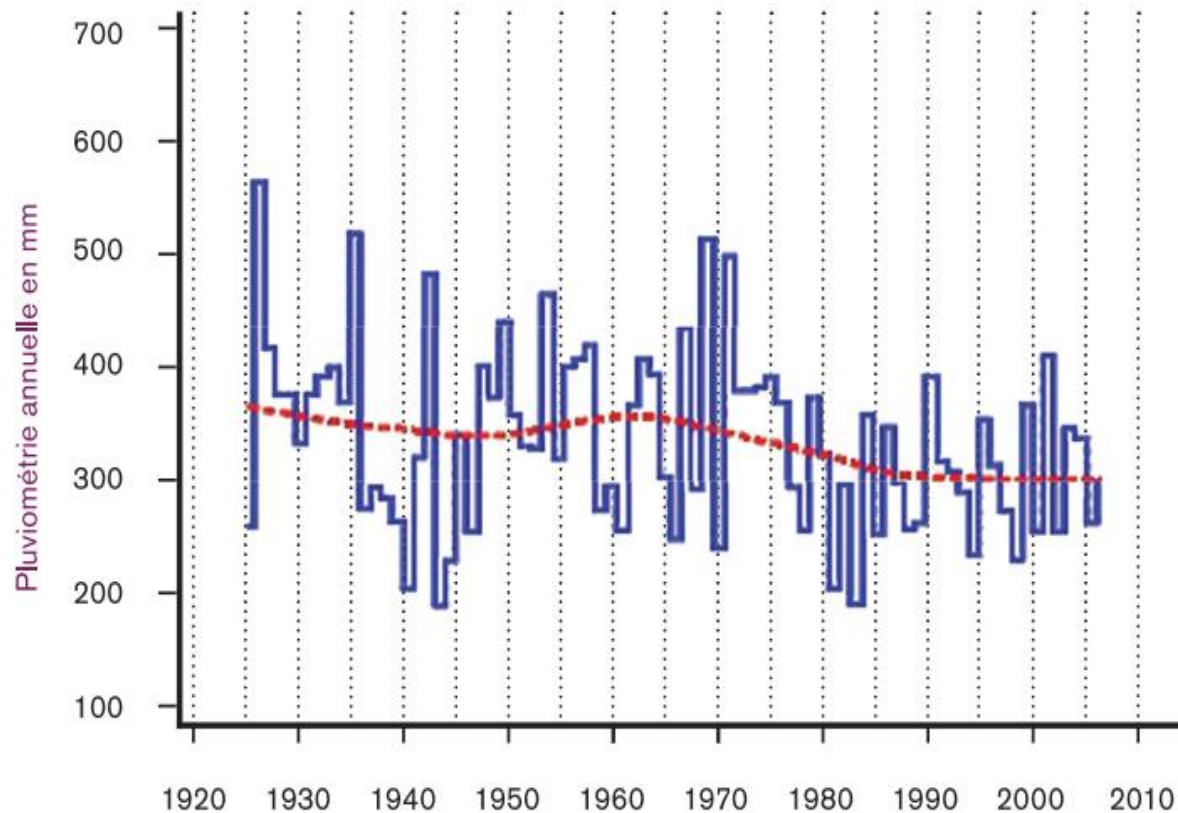
Desertification: a problem linked to drought



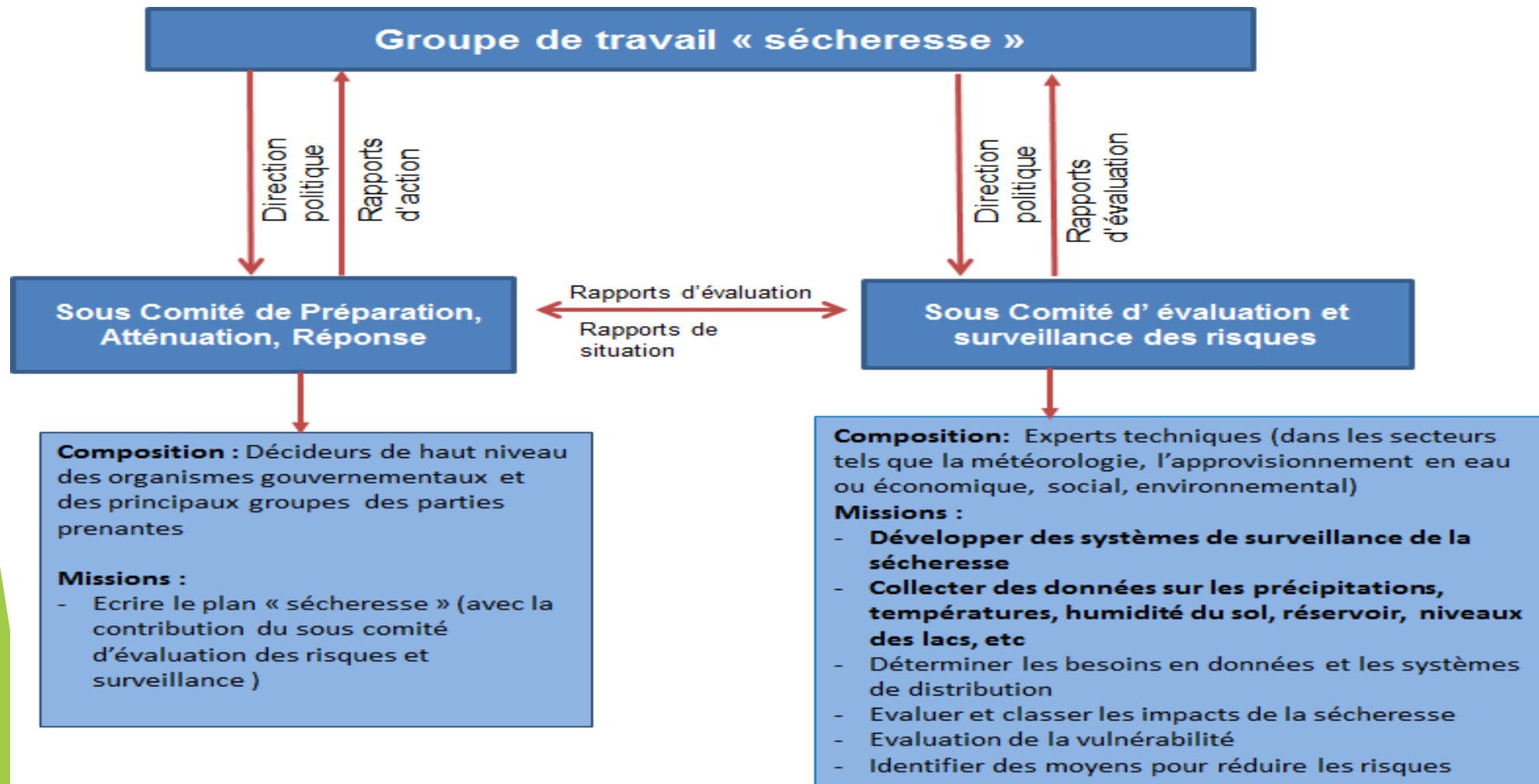
Climate

The water resources sector is considered the most vulnerable and exposed to the impacts of climate change. In a statement, the Ministry of Water Resources reported that "like other Mediterranean nations, Algeria is experiencing a water deficit driven by climate change, which has significantly affected natural rainfall patterns." The Ministry attributed the crisis to a substantial drop in dam water levels across the country's central and western regions—recording a deficit of 25 percent in dam reserves—according to a statement issued by the Ministry.

change



Drought mitigation strategies and existing planning issues



Stratégies	Objectifs et priorités	Organe chargé de la mise en place	Documents de référence et textes d'application
Stratégie Nationale du Développement Durable	- Protection des écosystèmes aride et semi-aride - Organisation des parcours - Sédentarisation de la population - Reconversion des systèmes de production pour lutter contre de la sécheresse - Améliorer le niveau de vie des populations rurales - Traitement de la dette des éleveurs et des agro-pasteurs.	<u>Commune</u> (plan d'action communal)	Charte communale sur le développement durable
Stratégie de Conservation et d'Utilisation Durable de la Diversité Biologique	Identifier les options prioritaires pour la conservation et l'utilisation durable de la diversité biologique.	<u>Administration centrale</u> (programme de travail intersectoriel de synergie entre les conventions environnementales :CNUL CD, CCNUCC, CDB ,RAMSAR...	Conventions environnementales :CNULCD, CCNUCC, CDB, RAMSAR...
Stratégie Nationale sur les Changements Climatiques	Participer à l'effort universel de protection de l'atmosphère	<u>Comité National sur les changements climatiques</u> <u>Agence nationale sur les changements climatiques</u> <u>Office national de la Météorologie</u>	Protocole de Montréal sur la convention cadre des Nations Unies sur les changements climatiques, Accords de Kyoto 1993, décret normalisant les émissions de gaz dans l'atmosphère.
Stratégie Nationale de Lutte Contre la Pauvreté et l'Exclusion	Identification des poches de pauvreté et des causes d'exclusion et y remédier	<u>Ministère chargé de la Solidarité Nationale et de l'Action Sociale</u> <u>Communes</u>	Première conférence sur la lutte contre la pauvreté et l'exclusion 2000 Carte de la pauvreté 2000
Stratégie Nationale en Matière de Population et de Développement	- Meilleur accès aux soins de santé - Soutien des catégories en difficulté - Habilitation des femmes au niveau local et national - Intégration des ONG au niveau de tous les programmes	<u>Ministère de la Santé et de la Population</u> <u>Commune</u>	Loi n° 04-20 du 13 Dhou El Kaada 1425 correspondant au 25 décembre 2004

Drought in the 2030 National Forest Strategy

- ▶ The primary objective of the National Forest Strategy 2030 is "the conservation and sustainable management of the resources (soil, water, flora, fauna) of forest lands, alfa-grass areas, and other natural spaces, with a view to ensuring their long-term viability and guaranteeing a sustained production of goods and services for the benefit of the population and the national economy."
- ▶ The second specific objective—"restoring affected ecosystems in arid zones and strengthening their resilience to climate change and drought"—places significant emphasis on mitigating the impacts of climate change and drought, particularly through the rehabilitation and expansion of drought-adapted species: the Atlas pistachio (covering 95,000 hectares) and *Acacia raddiana* (covering 764,000 hectares) by 2030.



SECTOR OF THE INTERIOR, LOCAL AUTHORITIES AND REGIONAL PLANNING

- ▶ Algeria established a National Delegation on Major Risks (DNRM) under the authority of the Ministry of the Interior, Local Authorities, and Regional Planning following the promulgation on December 25, 2004, of Law No. 04-20
- ▶ Defines the general rules for the prevention and management of major risks within the framework of implementing the national sustainable development policy. This policy was developed based on five fundamental principles:
 - ▶ • Principle of precaution and prudence.
 - ▶ • Principle of preventive and corrective action, prioritizing the source.
 - ▶ • Principle of participation.
 - ▶ • Principle of integrating new technologies.
 - ▶ • Principle of simultaneity;

Importance of the National Drought Plan

- ▶ Implementing a drought plan in Algeria will make it possible to:
- ▶ 1. Monitor and analyze climate trends in real time and trigger alerts in a timely manner,
- ▶ 2. Strengthen and leverage sectoral alert and response systems,
- ▶ 3. Generate mitigation processes across all sectors vulnerable to drought (water, agriculture, forestry, livestock, public health, local authorities, energy, national solidarity, etc.).

OVERVIEW OF DROUGHT IN THE COUNTRY

- ▶ **Understanding drought: Meteorological, agricultural, hydrological, and socio-economic drought**
- ▶ here are several types of drought:
- ▶ 1. Meteorological drought
- ▶ is the type of drought that occurs when precipitation is well below normal over an extended period. It is monitored by national meteorological services. The primary tools used are the national network for measuring climatic parameters, as well as the observation and analysis of specialized satellite imagery.
- ▶ 2. Agricultural drought
- ▶ is the type of drought that occurs when low soil moisture, combined with water scarcity, halts plant growth, reduces yields, and endangers livestock. This area falls under the responsibility of central and decentralized agriculture services, forestry sectors, livestock farmers, agricultural operators, environmental services, and civil society.

OVERVIEW OF DROUGHT IN THE COUNTRY

- ▶ Hydrological drought
- ▶ is the type of drought that occurs when a prolonged meteorological drought causes a significant drop in the levels of groundwater, rivers, and lakes. Monitoring this phenomenon is the responsibility of water management authorities (agencies and central or provincial directorates), whose primary mission is to supply water for the population, agriculture, tourism, and industry. Data regarding surface runoff, dam inflows, groundwater dynamics, and changes in irrigated land are collected via networks of measuring instruments or by observers distributed across the country.
- ▶ Socio-economic drought
- ▶ encompasses the economic and social consequences of the preceding forms (rural exodus, famine, declining agricultural yields, livestock loss, rising prices for basic necessities, human and animal health issues, etc.). Depending on its severity, this type of drought—which is addressed at a high (governmental) level—triggers public awareness campaigns, the activation of emergency response plans (such as ORSEC), the establishment of support and compensation funds, and the launch of national and international solidarity initiatives. **Socio-economic drought is thus a form of internal supply shock—that is, a serious disruption caused by events beyond the country's control that significantly impacts domestic economic variables.**

Impacts of the drought by sector

- ▶ Drought, combined with other climate hazards such as heatwaves and cold spells, consistently plays a disruptive role, and its impacts on economic sectors are often immediate :

- ▶ WATER RESOURCES SECTOR

*-Reduced inflows to dams and lakes will lead to a decline in water stocks in natural (lakes) and artificial (dams) reservoirs and disrupt water distribution to urban areas and irrigated zones.

*-The rainfall deficit will reduce the groundwater

replenishment rate and drive the excessive exploitation and/or overexploitation of aquifers.

- The deterioration in water quality resulting from reduced pollutant dilution will exacerbate the contamination of surface and groundwater reserves.
- Disruption to water distribution—and often shortages—necessitating trade-offs between consumer groups and the use of mobile distribution methods.



Impacts of the drought by sector

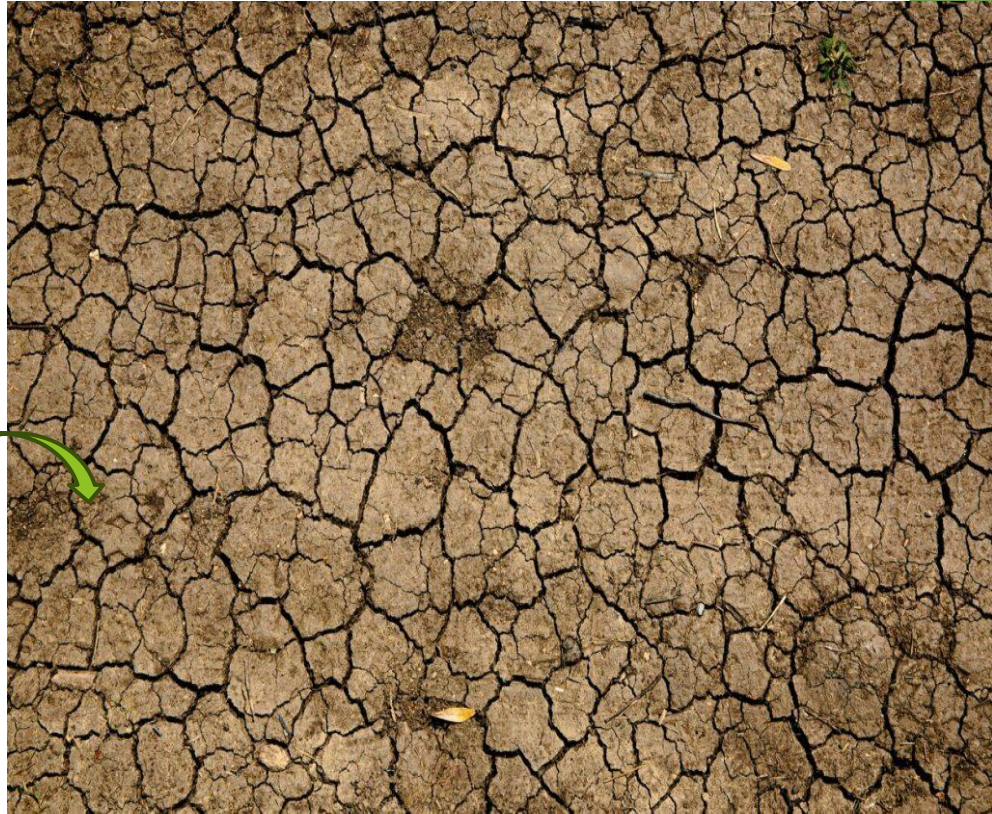
- ▶ ON THE AGRICULTURAL, FORESTRY, AND BIODIVERSITY SECTORS
- ▶ ON THE HEALTH AND POPULATION SECTORS
- ▶ ON THE INDUSTRIAL SECTOR
AND OTHER ECONOMIC SECTORS

The reduction in industrial production and activity in other economic sectors resulting from disruptions to water and energy supplies.

Faced with drought, factories—major water consumers—are subject to stringent regulatory pressures, water conservation plans, and technological innovations for water recycling. Administrative constraints, wastewater reuse, and industrial adaptation efforts now shape their crisis management.



Impacts of the drought by sector



State structures for combating drought

- ▶ Algerian Space Agency (ASAL)
- ▶ ASAL's mission is to contribute—through satellite-based Earth observation—to economic, social, and cultural development, environmental protection, and the understanding and rational management of the country's natural resources (**Presidential Decree 02-48 of January 16, 2002**).



State structures for combating drought

► NATIONAL METEOROLOGICAL OFFICE “ONM

The ONM is the institution specializing in climate observation and scientific study (analysis, diagnosis, forecasting, and modeling).



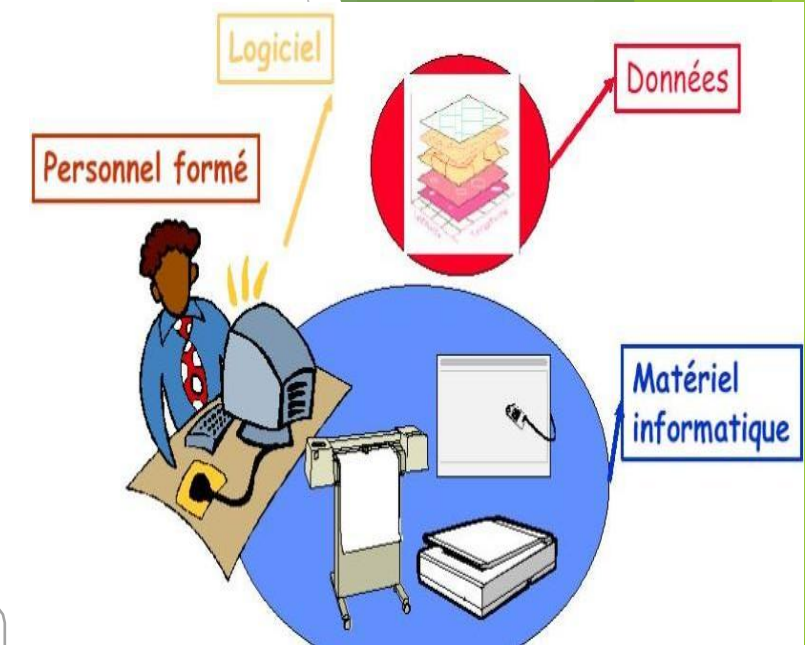
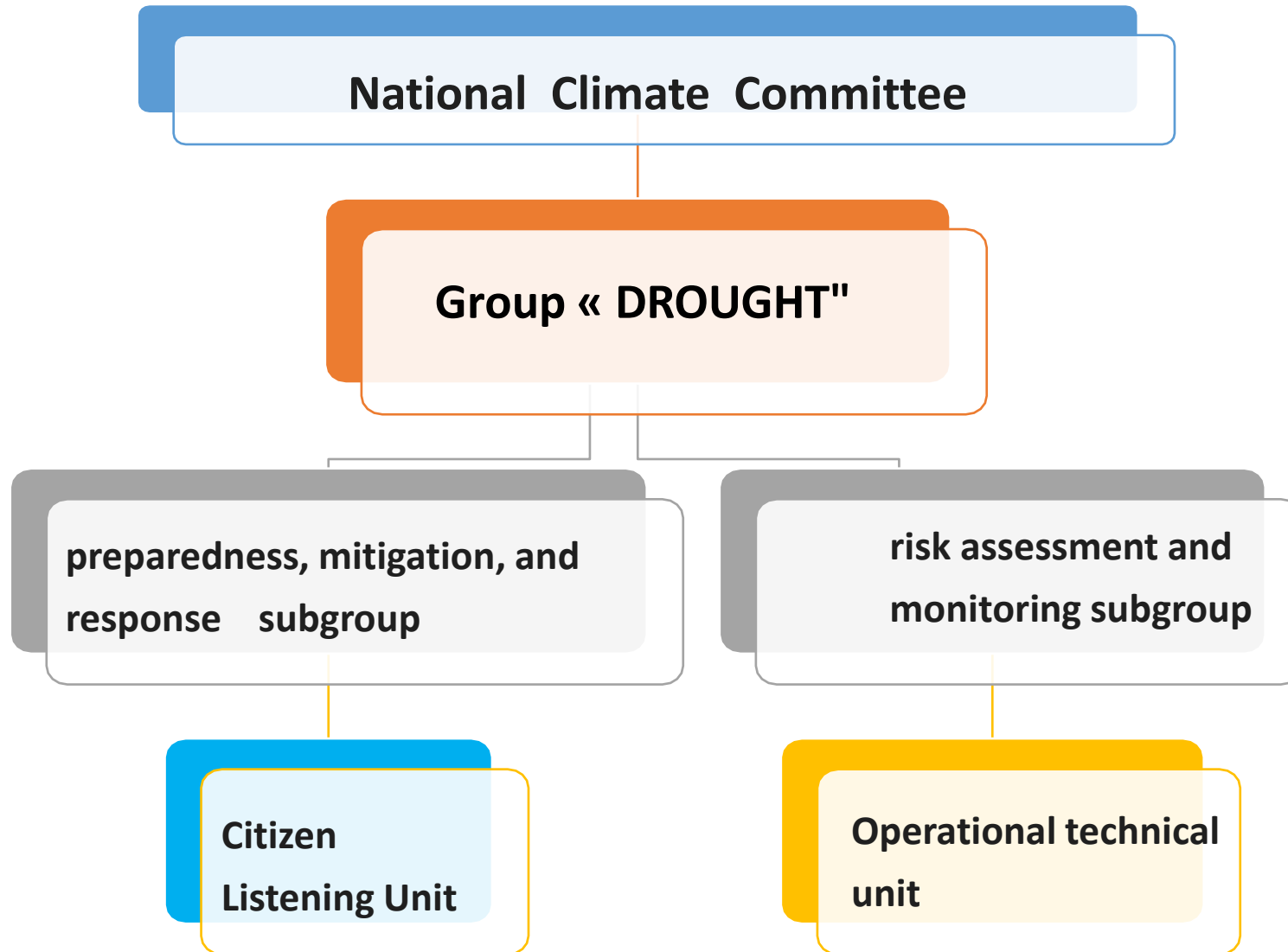
State structures for combating drought

NATIONAL OFFICE OF STATISTICS (ONS)

- The National Office of Statistics is Algeria's central statistical agency. It is a public administrative institution responsible for collecting, processing, and disseminating socio-economic statistical information (population and housing censuses, labor force surveys, industrial enterprise surveys, agricultural and environmental statistics, etc.). It operates under the supervision of the ministry responsible for planning.



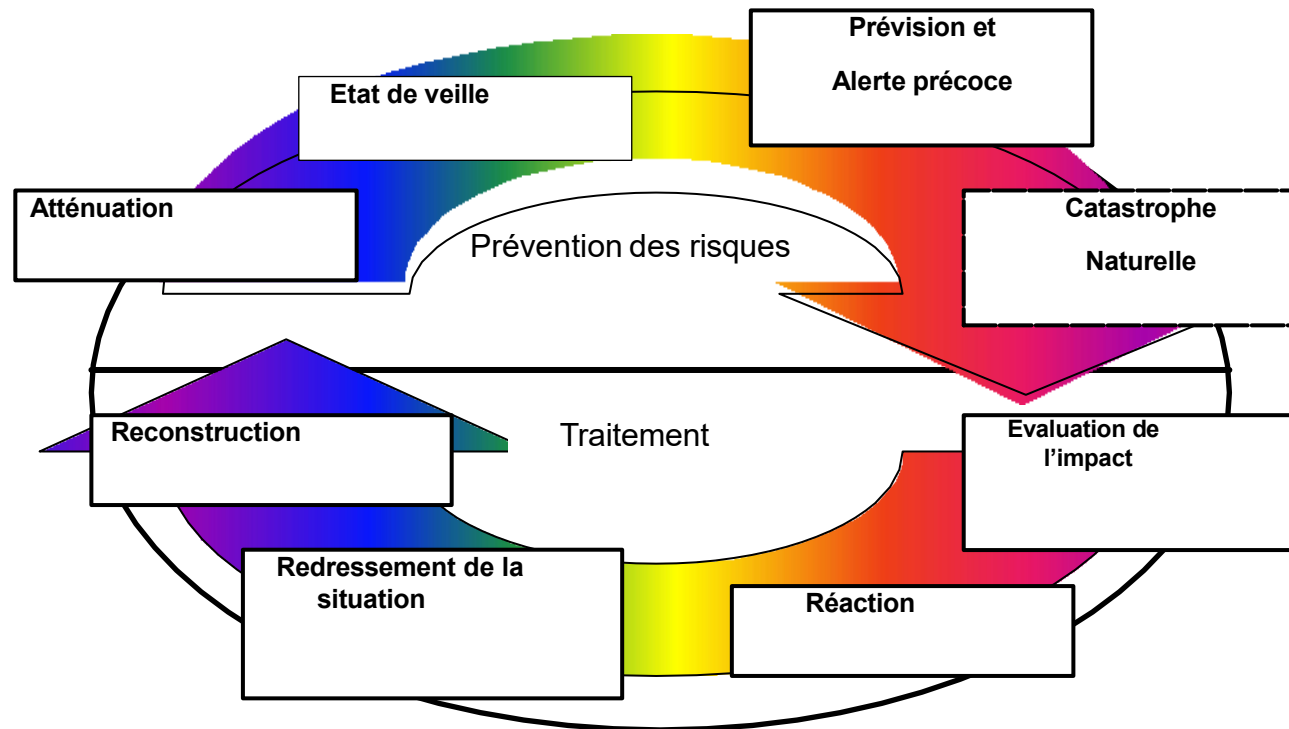
OPERATIONAL PROCEDURES FOR THE "DROUGHT" GROUP



Composition of a GIS operational unit

Drought response measures

- Measures should be taken based on the severity of the drought, following a review of data provided by the operational unit. Interventions must be planned to take into account the roles, responsibilities, and needs of women regarding water management, crop and livestock production, livelihoods, etc.



Drought response measures

- ▶ Water conservation practices / public awareness and dissemination
- ▶ These initiatives complement those undertaken by the following sectors:
 - ▶ • Agriculture, through the water-saving program utilizing water-efficient irrigation techniques—comprising two components: training for farmers and technical staff, and an intensive awareness-raising campaign (both targeted and mass-reach via local radio) that has been in place for over a decade; and
 - ▶ • Environment (specifically through the ANCC's work with schools).

CONCLUSION

- ▶ This **"National Drought Plan"** for Algeria outlines the means to implement drought-combating actions by taking into account the Algerian context—including **institutional, regulatory, and historical factors**, as well as the current level of understanding regarding this phenomenon—while also drawing on the experience of other countries that have established operational strategies for monitoring, early warning, and mitigation programs. The approach adopted is based on the UNCCD's 8-step process, which itself derives from the 10-step plan developed by the University of Nebraska-Lincoln.
- ▶ An analysis of climatic conditions and fluctuations, combined with **an assessment of the expertise available within institutions and research bodies**, has made it possible to identify the causes and effects of drought in Algeria and to define the most appropriate remedial measures (structural, regulatory, human, material, and financial). Establishing a permanent high-level body for monitoring, consultation, and decision-making—with broad powers to coordinate the various stakeholders—is essential. This body, known as the "Drought Group," will include an operational technical unit responsible for preparing assessments based on reliable local indicators; this will facilitate the production of working documents, dashboards, and maps to support appropriate decision-making across short, medium, and long-term horizons.
- ▶ Integrating this group as a thematic group within the **CNCD (National Committee to Combat Desertification)** and housing the permanent operational unit within the **ANCC (National Agency for the Fight Against Desertification)** are measures that will enable the immediate and effective launch of this plan.
- ▶ Supporting this integration with appropriate capacity-building—covering human, material, and financial resources—for **the various data collection and processing units** within the ANCC and among data providers is crucial to ensuring the long-term sustainability of the system to be implemented.