Water issues for sustainable agriculture

Contribution to the public debate

Summary version

Eau, Agriculture et Territoires (EAT) is an association of French professionals and researchers specializing in agricultural water management. The association contributes to the development and dissemination of French know-how, knowledge and best practices in this field, both in France and internationally. EAT is ICID French National committee

With this document, which summarizes a detailed report discussed in June 2024 with 70 water stakeholders including farmers and farmers representatives, Eau, Agriculture et Territoires aims to contribute to the ongoing public debate on conflicts between farmers and environmentalists over water use and management in agriculture, whether for irrigation or drainage.

We believe that a constructive resolution to this debate can only be achieved if we first succeed in defining the type of agriculture we want for our territories in the future in order to meet both our food needs, other societal demands and environmental requirements. Once this vision is clarified, dialogue between the various water stakeholders will become more effective, facilitating the development of sustainable local models and moving beyond the ideological standoffs we are currently witnessing.

Agriculture has always had the primary purpose of providing food for the population. Recognizing that agricultural production is highly dependent on local conditions (climate, soil, etc.), farmers early on developed water management methods (irrigation and drainage) and the use of inputs to enrich the soil and protect crops from diseases and pests to secure and improve their production. These practices have significantly evolved towards greater intensification—especially during the second half of the 20th century—with notable impacts on man-made greenhouse gas (GHG) emissions as well as on water, energy, and soil resources.

Today, agriculture faces numerous challenges: i) society has become acutely aware of the urgent need to consider the water requirements of the natural environment; ii) the demand for drinking and domestic water has increased in most countries due to population growth and improved access to water, leading to increased pressure on resources and conflicts over usage; iii) climate change exacerbates this competition among uses, with rise in water needs and simultaneously decrease in available resources; iv) the increased variability of climate, along with the frequency and intensity of extreme events, heightens risks for agriculture; and v) agriculture also contributes to the production of industrial goods (fibers), energy, or materials, which can compete with food production.

Within the Association Eau, Agriculture et Territoires[1], we regret that the public debate on agricultural water management suffers from radical and sometimes dogmatic positions, whereas the issues to be resolved are complex and call for a scientifically justified constructive dialogue. The first question to be answered in this debate is what kind of agriculture we want for tomorrow. The answer to this question must take into account sustainability, production methods as well as processing and marketing (localization/globalization, etc.), consumption systems (diets, product quality, prices, fair competition, carbon impact, waste, etc.) and reflect on the changes needed in all these areas.

We believe it is essential to transition agricultural and agro-industrial systems towards more agro-ecology, towards shorter agri-food chain cycles, towards practices that are more environment friendly, and have greater consideration for human health. The transition therefore concerns the whole of society. This evolution must not and cannot be a return to the agriculture of yesteryear.

[1] Eau, Agriculture et Territoires : we believe that these 3 elements are intrinsically linked together

On the contrary, it will be facilitated by technological and methodological advances and by research. However, given the economic and social stakes involved, this transition will take time. The two systems will have to coexist for as long as necessary to ensure the social acceptability of this profound change.

On a global scale, 20% of cultivated land is covered by irrigated agriculture and produces almost 40% of the world's cereals, as well as a significant proportion of fodder and industrial crops. This “new” agriculture cannot be imagined without rethinking water management. This must be decided and governed according to the state of locally available resources, agricultural needs and all other water uses.

This management, from withdrawal from the natural environment to use of water to the farms and its drainage, may require the concerted implementation of facilities (storage, transfers) to cater to needs sustainably. Opposing such developments on principle may, in certain situations, run counter to the agro-ecological transition.

The following points seem to be fundamental to us in demonstrating **how irrigation and drainage, where necessary, can be used to develop agricultural models that are better adapted**, more environment and public health friendly, less GHG-emitting, more economical in terms of natural resources, more resilient to climate change, more diverse, and better adapted to farm viability.

Water management is a fundamental lever in the agroecological transition. In certain environments, irrigation has demonstrated its usefulness in securing diversified farming systems, enabling rotations, intermediate cover crops, and the reduction of synthetic inputs. By supplying water in a controlled, reasoned way, irrigation can stimulate soil biodiversity, improve soil structure, and support the crop growth that capture more carbon.

Irrigation can help keep farms viable and limit farmers' dependence on external factors. All challenges can only be met if farmers are there to meet them. Farm economics is, therefore, a key issue. By enabling farming conditions to be adapted to climate change, irrigation is often an essential factor in the sustainability of farms and even in the entry of young farmers.

Irrigation encourages the relocalization of production: the creation of storage facilities, or even the transfer of water from basins where it is in abundance, makes it possible to secure production in the consumer country and avoid costly imports in terms of energy, balance of payments, and water in production countries.

These hydraulic structures could be designed differently from what has been done to date, by taking better account of the periodic risk of resource shortages in the design of these infrastructures, which could, for example, only provide service for 9 years out of 10, or even for 4 years out of 5, and by implementing risk-adapted management that replaces crisis management (e.g. by reducing the size of the structures and taking into account the economic consequences).

There is a consensus on **the urgent need to combine improved supply and sobriety of demand**: the implementation of hydraulics projects, which are costly for the community and whose environmental impact is never negligible, must be conditional on an acceleration of the agroecological transition towards greater sobriety in water and inputs, through the contractualization of long-term commitments aimed at protecting resources and the natural environment.

Drainage, as a tool for managing excess water, plays an important role in optimizing water for crops, by evacuating surpluses that could adversely affect cultivation and productivity. In regions where water accumulation limits intervention and affects plant growth, effective drainage helps to keep soils workable and avoid destructive waterlogging.

From the local to global, agricultural, food and water issues vary greatly from region to region and country to country. We must not lose sight of the fact that food security issues, economic issues, the probable limits of agroecological systems (not yet well established) and the fact that not all production is possible in all climates mean that a goal of achieving total autonomy for each country with its ecological agriculture does not seem conceivable. Water issues also vary from one place to another, with countries such as those in the Sahel or the Maghreb experiencing pronounced water stress and countries with abundant water.

There cannot be a universal, global transition model. We need to prioritize the regional scale, which is best suited to taking into account unavoidable local specificities, consultation between all stakeholders and public support. Water governance on this scale, involving all stakeholders, is crucial. However, this territorial approach must also be situated within global, national, regional and international frameworks, taking into account the issues at stake at each of these scales for all categories of use.

This transition must therefore be supported by political will at all levels, based not on dogma or emotion, but on a vision born of calm public debate and underpinned by the scientific foundations that alone can determine the field of possibilities. It must be conducted in a spirit of consultation and collaboration with the farming community and other water users rather than confrontation.

Eau Agriculture et Territoires, as ICID French National Committee, wishes to contribute to move forward the debate and to find the best solutions together with farmers, professional organizations, associations, public authorities, local authorities, companies, etc.