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Water and Food Security – A Water Bill Briefing

UK farming and national food security are increasingly exposed to water scarcity. Yet the government's 'A New Vision for Water' White Paper treats agriculture as a pollution source rather than a sector whose productive capacity is closely linked to water security. While promising reform, the White Paper neglects key challenges in managing and governing water for food. Here, University of Manchester academics highlight how the forthcoming Water Bill could better support resilient rural economies.

Summary

- By 2050 it is projected that summer rainfall may drop by approximately 15% and summer river flows by roughly 45%, making severe droughts more frequent.
- Rural economies are acutely exposed to water risks - England's regulatory framework offers farmers few options to flexibly manage water scarcity in drought conditions.
- Agriculture must be prioritised as a key part of our water system and economy, without this food security and economic growth will suffer.
- The government's water White Paper fails to propose a substantive framework for reforming agricultural water management and the abstraction licensing regime.
- Any Water Bill must pursue a comprehensive programme of water risk management for the agricultural sector.

In detail

Agricultural consequences of a warming, drier climate are already being felt. Research from The University of Manchester shows to maintain current production levels, food processing infrastructure in eastern England may need to relocate northwards within the next decade due to drought pressures. Recent **droughts have caused significant losses to arable yields, with direct costs of the 2025 summer drought to UK food producers running into hundreds of millions of pounds.**

While promising reform, **the White Paper** outlining the government's vision for water reform **ignores fundamental challenges related to how water for food is managed and governed.** A change in approach is needed here if government is to mitigate the impact of water scarcity on rural economies and food security.

Water rights

England's abstraction rights system is outdated and has catchments across eastern and southern England chronically over-licensed. **The White Paper says little about modernising the underlying allocation framework.** Our research demonstrates that flexible allocation systems, such as those in operation in North America and Australia, could substantially reduce economic and environmental costs. **Policymakers should introduce dynamic seasonal allocations tied to real-time catchment conditions, transparent licence curtailment mechanisms for drought periods, and a framework for temporary water trading between**

agricultural users. This is the most important structural reform a Water Bill could deliver on for food security and sustainability.

Monitoring and storage

The White Paper is limited in ambition when it comes to monitoring actual water use in the agricultural sector. **Lack of monitoring is a critical barrier to compliance and enforcement of water rights.** Our research on satellite-based monitoring shows that affordable and scalable technologies exist, with North America and Southern Europe already using them to track agricultural water use regularly and reliably. **Policymakers should support the farming sector to invest in technologies, so it can respond effectively to emerging water scarcity risks.**

The **White Paper also fails to adequately address the needs of the agricultural sector regarding storage.** The sector demands a portfolio of distributed storage solutions like on-farm storage which can buffer irrigation demands and reduce pressure on rivers or aquifers. **Frameworks for the sharing of water between farms and across catchments must be incentivised and encouraged by any Water Bill** - this might include regulatory support for distributed water storage, financial mechanisms like index-based insurance, targeted grants for on farm storage investment, and the establishing of water co-operatives.

Regulation

The government's vision for water reduces farming to a pollution and regulatory problem rather than a productive system which underpins food security and is vulnerable to water shortages. Water rights that cannot be practically exercised during drought incentivises illegal abstraction. The UK needs a firmer approach to water rights but there must be genuine financial and technical support for farmers to adapt.

Further, **the new water regulator must have an explicit statutory objective to ensure drought resilience and preparedness, with food security embedded as a key criterion when evaluating and designing new systems of water management.** Without this agricultural water use will remain an afterthought in decision making, leaving farmers and the UK's food supply system critically exposed to drought and water scarcity.

Key academics

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