

## Flood, Drought, and the Law: Water Governance Under Climate Extremes

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### ABSTRACT

This article examines how climate change is exposing the legal and institutional weaknesses of water governance systems. It argues that flood and drought should no longer be treated as separate policy domains; both are symptoms of governance systems unable to balance competing demands under climatic volatility. The article draws on contemporary UN-Water reporting to show that many countries lack the financing, coordination, and integrated management instruments required for resilient water governance. Effective response requires legal frameworks that connect basin governance, land use, ecosystem protection, infrastructure planning, and equitable allocation. The central claim is that water law must move beyond static allocation and fragmented administration toward adaptive governance capable of handling variability, scarcity, and excess simultaneously. In the climate era, water governance is no longer a sectoral technical matter. It is a constitutional question of survival, distribution, and public order.

**Keywords-** water governance; climate extremes; flood; drought; IWRM; law.

### I. INTRODUCTION

Climate change is making water governance simultaneously more urgent and more difficult. Many states now face a dual crisis: destructive flooding in one period, severe drought in another, and mounting uncertainty in between. Yet legal and administrative systems often remain organized around fragmented mandates, irrigation in one agency, urban drainage in another, watershed protection elsewhere, disaster response somewhere else again. The result is not simply inefficiency. It is a structural inability to govern water as a shared, climate-sensitive system (IPCC, 2022; UNESCO, 2024).

UN-Water's recent reporting is unequivocal: the world is not on track to achieve effective integrated water resources management by 2030, and billions of people remain exposed to weak governance frameworks

for balancing competing demands under climate pressure (UN-Water, 2024a). That finding should be read as both a development warning and a legal warning (OECD, 2015; World Bank, 2016).

### II. CLIMATE EXTREMES REVEAL GOVERNANCE FAILURE

Flood and drought are often discussed as natural events. They are better understood as interactions between climatic extremes and governance weakness. Heavy rainfall becomes disastrous where drainage corridors are blocked, wetlands destroyed, floodplains settled, and basin planning disconnected from urban development. Drought becomes socially destabilizing where allocation rules are opaque, monitoring weak, storage inadequate, and ecosystem degradation ignored.

In both cases, the legal order has failed to organize trade-offs before crisis arrives (Ostrom, 1990; UNESCO, 2024).

The traditional water-law model emphasized fixed rights, sectoral allocations, and engineering solutions. Climate variability makes that model increasingly inadequate. Water systems now require adaptability, cross-sector coordination, and the capacity to re-balance uses under stress. UN-Water's 2024 update on integrated water resources management stresses that financing, institutions, management instruments, and participatory arrangements are all necessary if states are to cope with climate pressures effectively (UN-Water, 2024a) (IPCC, 2022; OECD, 2015).

### **III. TOWARD ADAPTIVE WATER LAW**

Adaptive water governance begins with integration. River basins, aquifers, urban systems, agriculture, energy, and ecosystems cannot be governed as isolated sectors. Law must therefore connect land-use planning, abstraction rights, pollution control, disaster management, and ecosystem restoration. It must also create procedures for revising allocations when climatic conditions change. Static legal certainty, while useful in ordinary times, can become maladaptive if it locks in unsustainable use under new hydrological realities (IPCC, 2022; UNESCO, 2024).

Participation is equally important. Competing claims over irrigation, domestic use, energy, industry, and environmental flow cannot be resolved technocratically alone. Legitimate governance requires forums in which trade-offs are made visible and contestable. UN-Water's broader 2024 World Water Development Report frames water not only as a resource but as a basis for prosperity, peace, and climate action (UN-Water, 2024b). That wider framing is essential. Water law is distributive law. It allocates opportunity, risk, and vulnerability across society (OECD, 2015; World Bank, 2016).

### **IV. THE INSTITUTIONAL AGENDA**

A climate-ready water-governance system needs at least five institutional features. First, basin-scale planning linked to local implementation. Second, stronger financing for monitoring, infrastructure maintenance, ecosystem restoration, and adaptive management. Third, legal protection for recharge zones, wetlands, and other natural buffers. Fourth, data systems capable of informing both scarcity and flood response. Fifth, clearer accountability for coordination failure across agencies (Ostrom, 1990; UNESCO, 2024).

Importantly, climate adaptation in water governance should not be reduced to building more infrastructure. Reservoirs, sea defenses, canals, and drainage systems matter, but without legal coordination,

maintenance, and ecological understanding, hard infrastructure can simply redistribute risk rather than reduce it. Governance quality remains the decisive variable (IPCC, 2022; OECD, 2015).

### **V. FROM SECTORAL WATER LAW TO ADAPTIVE ALLOCATION**

Climate extremes expose the limits of water law designed for stationary conditions. Fixed allocations, rigid permitting, and weak basin coordination may function tolerably in stable hydrological periods yet become inequitable or unworkable under repeated flood and drought cycles. Adaptive allocation does not require abandoning legal certainty. It requires legal frameworks that can revise priorities transparently, integrate ecosystem thresholds, and coordinate across agriculture, urban supply, energy, and disaster management without waiting for ad hoc political intervention (Ostrom, 1990; OECD, 2015).

This adaptive logic also changes the meaning of infrastructure. Dams, drainage works, reservoirs, floodwalls, wetlands, aquifer recharge, urban green space, and watershed protection should not be governed as disconnected projects. They are interdependent parts of a resilience system. Where law separates them into isolated administrative silos, climate shocks exploit the gaps. Effective water governance therefore depends on combining hard infrastructure with ecological restoration, land-use regulation, and real-time information systems (UNESCO, 2024; World Bank, 2016).

### **VI. INSTITUTIONAL PRIORITIES FOR CLIMATE-READY WATER GOVERNANCE**

A climate-ready legal regime needs at least four institutional commitments. First, basin-scale planning must be tied to enforceable allocation rules and transparent drought or flood triggers. Second, agencies responsible for water, land, housing, agriculture, and disaster risk must be required to exchange data and coordinate decisions. Third, participation should be structured so that affected communities, utilities, farmers, and environmental stakeholders can contest decisions before conflict hardens. Fourth, monitoring systems must convert hydrological information into legally usable evidence for timely action (OECD, 2015; UNESCO, 2024).

The essential shift is from fragmented administration to adaptive stewardship. Flood and drought will intensify under climate change, but institutional fragility determines how severely societies experience them. Water law that anticipates variability, allocates transparently, and protects ecological function is not merely an environmental aspiration. It is part of

the constitutional infrastructure of social peace, economic continuity, and climate resilience (IPCC, 2022; World Bank, 2016).

## VII. CONCLUSION

Water governance under climate extremes requires a shift from fragmented administration to adaptive legal integration. Flood and drought are no longer separate exceptional events. They are recurring tests of whether the state can balance scarcity, excess, ecology, and human need within one coherent framework. In that sense, climate-resilient water law is not only about resource management. It is about governing coexistence under pressure (IPCC, 2022; UNESCO, 2024).

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