Policy Frameworks & Governance Mechanisms for AI in Climate Action and Resilience

Uzbekistan approach aligned to the Country Climate Action Plan (CPS 2024–2028)

Why AI governance matters for climate outcomes

AI can either:

Accelerate resilience: early warning, optimized water/energy use, risk-informed investment decisions

Or amplify risk: opaque models, weak data, misaligned incentives, uneven access to benefits

Governance is the conversion layer: from “pilot” to trusted public-sector capability

Uzbekistan climate reality: macro risk, water stress, heat

GDP impact (projection)

- **≈ -3 pp by 2029**

economic volatility risk

ND-GAIN rank (2021)

- **72 / 185**

moderate exposure & readiness

Disaster losses (annual)

- **~$92M**

≈0.2% of GDP

Key climate pressures highlighted in the Country Climate Action Plan:

- Drought cycle ~every 5 years; 2021 irrigation water shortfall of 25%
- Glacial melt: ≥ one-third loss feeding main rivers → ≥28% basin deficits by the 2040s
- Heatwaves: days >35°C projected to double; impacts on health, productivity, and power systems

Mitigation baseline: emissions intensity improving, totals rising

Emissions intensity vs global benchmark

- Fossil fuels dominate (natural gas, coal); reform requires policy consistency (tariffs, SOE reform, social protection)
- Green finance capacity remains nascent; state-owned banks hold >65% of assets

Total GHG emissions trend

- Total emissions increased 2015→2022 (avg +2.6%/yr)
- Mitigation requires mobilizing private investment via PPPs and credit guarantees

National targets: NDC + Green Economy + Carbon-neutral electricity roadmap

2030 commitments and sector pathways

- Renewables: 25,000 MW capacity, expand share in electricity consumption to 40% by 2030
- National Determined Contribution (NDC) mitigation goal: reduce GHG per unit of GDP by 35% by 2030 (from 2010)
- Green Economy Strategic Framework (to 2030): energy efficiency across industry/transport/water; land degradation neutrality
- Electricity sector carbon neutrality roadmap (2050): regulatory framework, subsidy reform, carbon price mechanism, public awareness

Adaptation priorities: water, agriculture, cities, and risk management

NDC adaptation measures (focus areas)

- Water: contain salinization & degradation; reconstruct pumping stations/reservoirs; water-saving & energy-efficient irrigation; water conservation incentives
- Agriculture: crop diversification; drought/salinity-resistant varieties; restore degraded pastures; sustainable pasture management
- Urban: green masterplans; nature-based solutions; circular economy and waste recycling systems

Governance principles translated into operational controls

Human-centric & ethical
Human-in-the-loop for high-stakes decisions; explainability; do-no-harm testing

Sovereignty & inclusivity

Local capability building; regional coverage; language & access by design

Transparency & accountability
Audit trails; model registry; incident reporting; clear decision ownership

Open innovation
Gov–academia–private sector collaboration; sandboxed pilots; standards-based procurement

Policy frameworks that make AI investable and scalable

Mitigation governance instruments

- Sustainability reporting + ESG methodologies for SOEs and state-owned banks
- Voluntary and mandatory carbon market frameworks; “green certificates” concept
- Budget-cycle methods to account for mitigation costs; subsidy reform evidence base
- Long-term low-emission development strategy and consistent tariff policy

Adaptation governance instruments

- Climate & disaster risk screening tool for public investment management
- Fiscal Risk Statement including climate fiscal risks
- National Adaptation Plan design + budget alignment
- Institution to govern consolidated climate policy (adaptation/resilience focus)

Embedding climate action into institutions & national systems

Institutionalization priorities (where AI becomes routine capability)

Systems & standards

- Data for Climate: interoperable satellite, meteo, IoT, and sector datasets
- Public investment: mandatory climate-risk screening in project pipeline
- SOE transformation: ESG + decarbonization reporting embedded in management
- Education standards aligned to UNESCO Greening Education Partnership

People & capability

- Green skills (Technical and Vocational Education and Training + higher education) and re-skilling for just transition
- Adaptive social protection: roadmap + medium-term financial framework
- Healthcare readiness for heat/dust impacts on vulnerable groups
- Civil society engagement to improve transparency and effectiveness

High-quality operations (pilots → scale)

Programmatic delivery lanes highlighted in the Plan

- Energy: distributed renewables, mini-/micro-grids, battery storage, loss reduction; demand-side management pilots
- Transport: e-mobility (e-bus systems), rail electrification; air quality controls and congestion analytics
- Water & cities: water-conservation tech; green masterplans; nature-based solutions; circular economy & recycling PPPs
- Agriculture: integrated water resources management; modernized pumping/reservoirs; climate-adaptive livestock & crops

Partnership architecture: coordination platforms and co-financing

How we coordinate delivery with partners

- Country Platform with a Green Growth working group to align partner support and avoid duplication
- Central Asia Regional Economic Cooperation (CAREC) as regional vehicle for shared resources: transboundary water and air quality impacts
- Coordinated sector approaches with EBRD, IFC, AFD, EU, UNDP, UNESCO, ILO, SDA (by sector)
- Civil society engagement to improve transparency and community-level outcomes