REPUBLIKA E SHQIPËRISË
KOMITETI KOMBËTAR I DIGAVE TË MËDHA

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Lutemi referoni këtë numër në përgjigje

Tiranë, më 27 / 08 / 2024

VENDIM

Nr. 20 datë 27 / 08 / 2024

PËR

MIRATIMIN E DRAFT DEKLARATËS SË ICOLD NË LIDHJE ME ROLIN E DIGAVE NË TRANZICIONIN E ENERGJISË DHE PËRSHTATJES SË NDRYSHIMEVE KLIMATIKE"

Në mbështetje të Ligjit Nr. 8681, datë 02.11.2000 "Për Projektimin, Ndërtimin, Shfrytëzimin dhe Mirëmbajtjen e Digave dhe Dambave", Neni 4, Komiteti Kombëtar i Digave të Mëdha (KKDM) në mbledhjen e datës 27.08.2024 mori në shqyrtim kërkesën e ICOLD për shqyrtim dhe miratim nga Komitetet Kombëtare të digave që janë antarë të ICOLD, të draftit të Deklaratës Botërore mbi rolin e digave në tranzicionin e energjisë dhe në përshtatjen me kushtet klimatike.

Deklarata pasi analizon sfidat në të cilat po përballet bota ku ndër kryesorë janë rritja e kërkesave për ujë, rritja e rrezikut nga ngjarjet ekstreme të përmbytjeve si dhe balancimi i burimeve të energjive të rinovueshme, thekson kërkesat për rritjen e kapaciteteve të rezervimit të ujit si dhe prodhimin në rritje të energjisë nga burimet ujore. Në kushtet e rritjes së popullsisë, rritjes së kërkesave për ujë, ndryshimeve klimatike, tranzicionit të energjisë së pastër, eventeve ekstreme të përmbytjeve, kërkesave të mirëmbajtjes dhe rehabilitimit të digave ekzistuese, ICOLD rekomandon fuqishëm tek shtetet antare ndërmarrjen e disa aksioneve kryesore si më poshtë:

1. Zhvillimin e kapaciteteve të depozitimit të ujit
2. Zhvillimin e potencialeve hidroenergjitike
3. Futjen e depozitimit të energjisë si një përdorim të ri zyrtar të rezervuareve të ujit;
4. Krijimin e një kuadri rregullator të qëndrueshëm për depozitimin e energjisë që përfshin tarifa shtesë për rezervimin e energjisë;
5. Reformë administrative që duhet të zbatohet për thjeshtësimin e procedurave për projektet e hidrocetraleve të reja dhe projekteve të magazinimit të ujit të pompuar dhe në mënyrë të vecantë dhënies së lejeve mjedisore për këto projekte;
6. Forcimi i menaxhimit të sigurisë së digave ekzistuese duke përfshirë rehabilitimin dhe modernizimin e monitorimit të tyre;
7. Promovimin e menaxhimit të qëndrueshëm të sedimenteve në rezervuaret e ujit;
8. Përshpejtimi i zhvillimit të energjisë ujore në përputhje me kërkesat e vendimarrësve dhe shoqërisë civile;
9. Promovimin e ndikimeve pozitive mjedisore të digave dhe rezervuareve që kontribojnë në sigurimin e nevojave për uje dhe në tranzicionin energjitik;
10. Promovimin e projekteve kërkimore dhe zhvillimore për teknologjitë e reja në sektorin e sigurisë dhe monitorimit të digave ekzistuese në përshtatje të ndryshimeve klimatike;
11. Instalimin e sistemeve të parashikimit dhe lajmërimit në kohë reale të rreshjeve dhe prurjeve të ujit.

Nga shqyrtimi i kësaj deklarate dhe në diskutimet e organizuara gjatë takimit, antaret e KKDM vlerësuan rekomandimet e ICOLD të dhëna në këtë deklaratë dhe u shprehen për rëndësinë e plotësimit të këtyre rekomandimeve në kushtet e reja që ndodhet bota sot.

Pas diskutimeve të të gjithë antarëve të pranishëm, KKDM:

VENDOSI:

1- Të miratoj draftin e Deklarates në lidhje me rolin e digave ne tranzicionin e energjisë si dhe në përshtatje të ndryshimeve klimatike sipas tekstit bashkëlidhur këtij Vendimi. Përfaqësuesi zyrtar i Komitetit Kombetar Shqiptar të Digave të Mëdha (KKDM) në takimin vjetor të Asamblesë së Përgjithshme të ICOLD që do të organizohet në 3 Tetor 2024 në Neë Delhi do të jap miratimin e kësaj deklarate në emer të KKDM;

2- **Ti rekomandoj Këshillit të Ministrave domosdoshmërinë e plotësimit të rekomandimeve të ICOLD të dhëna në këtë deklaratë** në lidhje me veprimet që duhet të ndërmerren për forcimin e rolit të digave në Shqipëri në tranzicionin e energjisë dhe në përshtatje të kushteve klimatike;

3- **Ti rekomandoj Këshillit të Ministrave domosdoshmërinë e kryerjes së një reforme institucionale dhe organizative në sektorin e kontrollit, monitorimit dhe rritjes së sigurisë së digave të mëdha** sipas eksperiences aktuale te vendeve europiane me synimin e forcimit te menaxhimit te sigurise se digave ekzistuese duke perfshire edhe modernizimin e monitorimit te digave te medha;

4- **Ti kërkoj të gjithë shfrytëzuesve të digave dhe rezervuareve që përdoren për prodhimin e energjisë nga burimet ujore, instalimin e sistemeve të monitorimit të digave** si dhe të sistemeve moderne online të parashikimit dhe lajmerimit në kohe reale të rreshjeve dhe prurjeve të ujit në basenet ujore të tyre. Ti rekomandoj Këshillit të Ministrave ngritjen e një grupi pune me përfaqesues të institucioneve kryesore qe veprojne në sektorin e ujit per kontrollin dhe monitorimin e rreshjeve dhe prurjeve ne te gjitha basenet ujore të rezervuareve që përdoren për prodhim të energjisë nga burimet ujore sipas kërkesave të legjislacionit në fuqi;

5- **Ti kërkoj shfrytëzuesve të digave të mëdha dhe rezervuareve** që përdoren për prodhimin e energjisë nga burimet ujore, **kryerjen e analizave në lidhje me depozitimet e materialeve të ngurta duke përfshire matjet batimetrike të volumeve aktuale te ujit në rezervuar** të kryera brënda 5 viteve te fundit dhe pregatitjen e kurbave përkatese të sipërfaqeve dhe volumeve te ujit. Të dhënat e matjeve, procesi i analizes se tyre dhe përfundimet e arritura në bazë të kësaj analize në lidhje me menaxhimin e qëndrueshëm të sedimenteve dhe jetegjatesine e perdorimit te ketyre digave dhe rezervuareve duhet të jenë pjesë e një Raporti teknik të vecantë i cili duhet të dorezohet për shqyrtim dhe miratim pranë KKDM brënda muajit Korrik 2025;

6- **Ti kërkoj shfrytëzuesve të digave të mëdha dhe rezervuareve** që janë të identifikuar nga KKDM me rrisk të lartë për shkak të numrit të njerezve në zonat urbane poshtë ketyre digave **të instalojnë sistemet moderne bashkëkohore (online) të alarmit në digat dhe në zonat urbane poshtë** tyre duke përfshirë edhe hartën e zonave të përmbytjeve në rastet e prurjeve të mëdha ose në rastet e prishjes së mundshme të digës të pregatitura gjatë 5 viteve të fundit.

Ngarkohet Sekretariati Kombëtar i Digave të Mëdha (SKDM) si zyrë ekzekutive e KKDM për ndjekjen dhe zbatimin e masave të kërkuara në këtë vendim sipas legjislacionin në fuqi.

Ky vendim hyn në fuqi menjëherë

KOMITETI KOMBËTAR I DIGAVE TË MËDHA

KRYETARI

Arjan JOVANI

World Declaration on the Role of Dams for Energy Transition and Adaptation to Climate Change

In addressing the multifaceted challenges posed by climate change the role of dams and reservoirs is indispensable. Dams are pivotal in providing water and food security, flood control, resilience to droughts and generation of low carbon energy, which is a critical component of our efforts to address climate change and energy transition. Meeting the climate change induced rising demands for water supply, addressing the heightened risks of extreme flood and drought events and balancing the intermittent renewable energy sources call for a significant increase in global water storage capacity and hydropower generation.

A changing world

Population growth. The world's population has skyrocketed from around one and a half billion in the early 20th century to nearly 8 billion today. It is expected to grow to around 10.4 billion by 2100. This steady rise in population directly impacts mankind's need for water.

Global water demand has reached 4,600 km^3 per year and is expected to increase by 20% to 30% by 2050. Climate change adversely affects water demand, especially for food security, as irrigated crops provide a major contribution in feeding humankind. Currently, roughly 70% of total water use worldwide is for irrigation, while 40% of total food production comes from 20% of total cultivated land. Feeding a population of around 9.7 billion by 2050 and 10.4 billion by 2100 is a fundamental yet most challenging task.

Unless more fresh water is stored in reservoirs by 2050, 3.6 to 4.6 billion people worldwide, and approximately 1 in 4 children, will be living in water stress areas. More dams are needed to store more water. The number of identified future dams, if constructed, and contributing to irrigation, could provide water to grow food for more than 600 million additional people. Reservoirs behind dams will play a crucial role in storage fed irrigation and water supply.

Climate change. Human activities, mainly through greenhouse gases emissions, have unequivocally caused global warming, with global surface temperature reaching an increase of 1.1°C above 1850-1900 levels in the past decade (2011-2020). Global greenhouse gas emissions have continued to rise, with historical and current contributions stemming from unsustainable energy use, land use and land-use changes, lifestyles and global consumption patterns.

The IPCC AR6 report has issued alarming forecasts on global climate change, warning of rising temperatures, extreme weather events and rising sea levels. One critical impact highlighted by the IPCC is the uncertainty in spatial and temporal distribution of water resources. Changes in precipitation patterns, increased evaporation rates and melting glaciers are expected to exacerbate water scarcity in many regions. The timing, duration, and intensity of climate crisis occurrences remain uncertain.

Per the Paris Agreement, the goal is to limit the temperature rise to within 1.5°C of pre-industrial levels by the end of the century

Clean energy transition is the top priority for meeting COP commitments since energy is the main source of carbon emissions. According to the International Energy Agency (IEA), total global electricity generation in 2050 will be 2.5 times the current level. To achieve the goal of reaching net zero by 2050, the share of renewable energy in primary energy consumption must increase significantly to 65%. To achieve 100% of electricity generation from non-fossil fuel sources by 2050, coal, oil and gas units' capacity will need to be reduced globally at a rate of 100 GW per year. This requires complete transformation of energy production and consumption.

Dams producing hydropower, including pump storage plants, through low-carbon dispatchable technologies, will need to step in to take over the role of 'guardians of the electricity grid' for energy transition. Dams with long duration energy storage are the lead provider of grid flexibility and will be the backbone of reliable, safe, and decarbonized power systems. To achieve the energy transition goal, the pace of construction of hydropower has to be double the current rate, from 2030 to 2050.

Extreme events aggravated by Climate Change call for more water storage capacity in reservoirs. Additional freeboard for flood control in existing and future reservoirs is required to assure higher safety levels, thus losing useful volumes of water for other uses. Ecological flows in downstream river reaches and deltas, reducing climate impacts on ecosystems and biodiversity, require additional regulated water volumes, against aggravating irregularity and uncertainty of inflows and competing water uses. Larger volumes of water storage are required to manage inland water resources in the context of climate induced water scarcity, severe droughts and increasing vital water needs of a growing population. More water storage in large dam reservoirs provides a means to enhance climate resilience to water-related hazards towards a climate-resilient water supply, food, and agricultural production, to be considered in integrated river basin management along with other options.

Maintenance and rehabilitation of existing dams, including increasing their capacity, efficiency and safety is paramount. The new conditions imposed by climate change and the demographic growth pose major challenges to the safety management of existing dams. ICOLD is committed to strengthening and improving dam safety management, rehabilitation and refurbishment, enhancing dam resilience and ensuring the safe, sustainable, reliable and environmentally friendly operation and maintenance of more than 60,000 large dams supporting human needs worldwide.

Role of Dams in Climate Change Mitigation- Dams for Energy Transition

Dams, as part of hydro-storage schemes make energy transition viable. The penetration of intermittent renewables and the withdrawal of thermal plants cause greater complexity in the operation of the electricity system, resulting in spills and rapid variations in generation and frequency. By storing and releasing water, hydropower can ramp up and down quickly, improving regulation of the response to frequency variations as needed for rapid adaptation of high voltage grid networks. This function is inescapable as renewable sources should replace fossil fuel sources to meet the climate commitments.

Pump storage plants allow displacement of energy from off-peak to peak hours by pumping water from lower to an upper reservoir. Off-river pump storage plants do not depend on hydrology of the site and are versatile in terms of their location. Reversible pump storage plants can employ existing reservoirs and energy transport infrastructure, to minimize environmental impact. They can synergize non-consumptive uses with current uses thereby minimizing generation and operation and maintenance (O&M) costs.

Uncertainty. Hydropower asset owners and managers, as well as other stakeholders, make financial and economic decisions based on the projected value of their production assets. Multiple factors delay decisions and implementation of such needed facilities. Hindering the desired acceleration of development of new reversible Pumped Storage Hydro Plants are the uncertainty of financial sustainability of the investment, the lack or ambiguity of regulatory framework for energy storage, pricing, and lagging administrative procedures for permitting and granting concessions for new hydroelectric and pump storage projects.

Role of Dams in Climate Change Adaptation

Dams and extreme events

Floods cause huge financial losses, often linked to environmental catastrophes, and fatalities. Climate change is expected to increase the frequency and intensity of floods in the coming

decades in many regions worldwide. Dams with storage reservoirs mitigate the risk of flooding and reduce the frequency and extent of inundations. Early warning systems and land management with non-structural measures reinforce and enhance the key role of dams in flood control.

Higher dam safety standards are demanded by society due to uncertainty in the frequency and intensity of floods in climate change conditions, land use changes and larger population exposure downstream. These require enhanced design of new dams and continuous efforts to upgrade spillway capacities, dam resilience to overtopping and smart operation of existing dams.

Drought events are also expected to occur more frequently and are likely to be more persistent and geographically widespread. Annual and interannual storage and proper reservoir management along with other measures at the river basin scale are required to mitigate droughts effects on water supply for irrigation, drinking water, energy generation, other human uses and the aquatic ecosystems. Thus, reservoirs provide resilience against droughts that may be exacerbated by climate change. Environment vulnerability may also be addressed by securing ecological flows, while artificial reservoirs have often developed into valuable wetlands hosting important wildlife and supporting biodiversity.

River basins with large reservoir regulation are often more adaptable to temporal and spatial changes in water resources, making them less vulnerable to climate change. Creating new storage by constructing sustainable dams is important since around 0.8% of storage capacity is being lost annually due to reservoir sedimentation. The rate of sedimentation is expected to rise in many areas where erodibility will worsen under climate change, unless reservoir management and watershed measures are implemented.

Integrated river basin management

More reservoir volume is needed for integrated water resources management, especially in the light of climate change. Annual and interannual storages are required to ensure climate-resilient water supply for irrigation and food security, safe drinking water, energy generation, flood regulation, droughts mitigation, and other uses. The volume of water stored in reservoirs must increase to meet traditional needs and climate change challenges.

Multipurpose dam projects support holistic river basin management and sustainable development. They allow for downstream ecological releases, and shape flood regimes allowing risk mitigation across river systems, floodplains, deltas and coastal areas. To address climate-related reduction in mean annual flow or increased hydrologic variability and heightened risk and uncertainty, reservoir storage capacity increase must be considered as a major option. Overall, dams make an important structural component within integrated river basin planning and management aligning with techno-economic and environmental considerations.

Dams for water supply and irrigation

Dams provide a reliable source of raw water which is treated and supplied to towns, cities, and large metropolitan areas and megacities concentrating more and more population. Reservoirs supplying *drinking water* systems provide enhanced resilience against drought through annual and interannual storage.

Increased temperature due to global warming raises water demand for crops, while *food security* of a growing population also requires more production, with expected reduction of rainfed crops. An increasing proportion of irrigated land will need new regulating infrastructure, including dams, to attend to this unavoidable function.

Dams and the environment. Carbon footprints and ecological impacts of dams need to be managed. Habitat loss, methane emission from reservoirs, disruption of river ecosystems,

relocation of communities, etc. should be evaluated and properly addressed in Environmental Impact Assessment and Environmental Management Plans. Despite certain adverse impacts, overall, dams are an important tool, alongside other measures, for energy transition and climate change adaptation. It is noted that hydropower has one of the lowest carbon intensity factors of all electric power generation technologies.

ICOLD strongly recommends the following actions:

i) **Development of storage capacity worldwide**: Per capita storage capacity has been declining steadily since the 1980s due to population growth, sedimentation in reservoirs, and a decline in dam construction pace. In addition to serving the energy transition, new storage is needed to maintain the traditional benefits of dams under the new challenging conditions shaped by climate change.

ii) **Development of hydroelectric potential in developing world**, especially in regions where only 10 to 30 percent of hydroelectric potential has been harnessed, demands significant efforts, commitment and cooperation amongst main stakeholders such as international organizations, governments, relevant institutions, NGOs, and civil society.

iii) **Introduction of energy storage as a new official use of reservoirs** in water acts and permitting regulations, thereby facilitating effective energy transition and modern water management adapted to current needs.

iv) **Establishment of a clear and stable regulatory framework for energy storage** that includes additional tariffs for energy storage. Urgent policy reforms are needed to enable energy transition, and ensure equity in energy access, guaranteeing the financial feasibility of storage-based hydropower and pump storage projects, as keys for the energy transition commitment.

v) **Administrative reforms** to be carried out urgently to simplify and expedite procedures for granting concessions for new hydroelectric and pump storage projects, especially concerning environmental authorization and grid access. Concessional financing needs to be provided to boost long duration energy storage in reservoirs. Mandates and targets for development of dams and hydropower have to be clearly defined.

vi) **Acceleration of hydroelectric development** which requires policy makers and civil society to put in place faster procedures from conception to construction of sustainable pump storage, storage based, hydro-schemes, balancing growth and energy transition to achieve the net zero pathway.

vii) **Highlighting the positive environmental impacts of dam and reservoir projects** contributing to water needs and energy transition, recognizing that in many cases, the positive impacts can outweigh other negative impacts.

viii) **Strengthening dam safety management** of existing dams, including their rehabilitation and modernization, to enhance resilience, in face of extreme events exacerbated by climate change.

ix) **Promoting sustainable reservoir sediment management** which is essential to preserve the functions of dams. Appropriate sediment management options should be selected, considering techno-economical, environmental and/or regulatory constraints.

x) **Promoting research and development** into new technologies that facilitate climate change mitigation and adaptation efforts. This includes exploring the implementation of hybrid hydro-battery systems, virtual power plants, automated data systems, and comprehensive information system architecture, as well as advanced materials for sustainable dam construction and rehabilitation.

xi) **Installing real time flow forecast and early warning systems**, along with better operational solutions for new and existing dams, will allow for safer flood management and optimized multipurpose reservoir operation.