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Submission to the call for input by the Nairobi Work Programme/UNFCCC

Stockholm International Water Institute (SIWI)

1a) Available and implemented tools and methods for adaptation planning processes addressing water resources

Since the impacts from climate change on society and nature are mainly manifested via changes to the hydrological cycle, resulting in increased frequency and intensity of extreme rainfall events leading to floods, prolonged draughts, unpredictable precipitation, and the gradual emergence of novel climate regimes, robust and resilient water management has to be at the core of adaptation planning. SIWI believes it is important to recognize that economies and ecosystems "float" on water, and climate change and rapid economic development are simultaneously rocking those boats. Long-term sustainable water management has to be addressed by ALL sectors of the society. Below we refer to two tools that facilitate this approach for adaptation planning processes.

In addition, adaptation planning processes should ensure integrity of the ecosystem and safeguarding water quality (which impact on water quantity).

Including key water resources management functions in adaptation planning processes will help in coping with both increasing climate variability and long-term shifts in mean climate conditions. Key water resources management functions include, for example, water allocation and conflict reduction mechanisms, pollution control, flood and drought management plans, groundwater governance and monitoring mechanisms, explicit ecological allocations ("environmental" or "ecological" flows), information management for improved long- and short-term monitoring and assessment, cross-sectoral basin planning, the use of economic and policy tools that encourage flexible water management, and active stakeholder participation in risk assessment, planning, and implementation processes to encourage transparent, consensus based, and holistic solutions. For example, monitoring water quantity and quality shifts can proactively help adaptation. Incorporating basin planning as well as water risk assessment can also be an important adaptation measures to cope and plan for climate variability (Cap-Net, 2014).

Specific adaptation tools:

AMCOW Framework for "water security and climate resilient development"
The development of this framework has been facilitated by the Global Water Partnership (GWP) and Climate Development Knowledge Network (CDKN) and is endorsed by the African Ministers Council for Water (AMCOW) (http://cdkn.org/project/cdkn-supports-implementation-of-the-africa-water-climate-and-development-programme/). It is currently being implemented in Africa on a pilot basis, and extended versions for Asia and other parts of the world are in making. The framework intends to facilitate the involvement of all sectors, particularly government institutions in those less often in prime climate focus such as Ministry of Finance and institutions responsible for infrastructure development and management. The framework also stresses the need for vulnerability assessments as a mechanism to support planning and decision making for development and management of all societal infrastructures as well as to identify climate-sensitive groups. Integrated climate change and socio-economic scenarios are important tools for informing development planning (AMCOW, 2012) (Tom Le Quense et al., 2010).

AGWA Decision Support System:
The Alliance for Global Water Adaptation (AGWA) was founded in August 2010 as a network of institutions working to develop effective, practical methods to incorporate the emerging best practices for climate adaptation from science, engineering, economics, finance, and governance (http://alliance4water.org/About/DSS/index.html). AGWA is developing and testing a Decision Support System (DSS), which is designed as a tool to make use of existing tools, research, and data products into an evidence-based system to inform water management decision making processes . Novel elements of the DSS focus on infrastructure and institutions that require high-confidence estimates of future conditions for planning, design, allocation, and operation but must operate in conditions of high uncertainty. Components of the AGWA DSS have been or are being implemented in 20 pilot programs globally, with a wide variety of governmental and non-governmental institutions.

1b) Available and implemented tools and methods for adaptation planning processes addressing ecosystems

Climate change regulation is fundamentally dependent on a functioning biosphere. Human modification of ecosystems that is dependent on functional ecosystem services can lead to reduced resilience to climate change. For example degradation of wetlands decreases the buffering capacity to flooding in a river basin and clearing of rain forest can reduce moisture recycling, driving a shift to savanna-like vegetation (Eriksson et al., 2014). Exposure to flood risk can be reduced by restoring the functions of floodplains and sound land use planning can ensure groundwater recharge and minimizing floodplain investments. An environmental flows assessment (eflows) is a useful tool to estimate the flow requirements needed to sustain important ecosystem functions needed for increasing the adaptive capacity of biosphere (King et al., 2010). In addition, Strategic Environmental Assessment (SEA) that includes climate risk exposure, sensitivity, and risk assessment is an important tool to assess climate vulnerabilities and appropriate response strategies.

2. Good practices and lessons learned related to processes and structures for linking national and local adaptation planning.

Local Level Knowledge

Supporting community's adaptive capacity needs to build on local level knowledge and experience. National governments need to strengthen the efforts to include local community's knowledge base in supporting local level resilience to climate change. Province and district government offices have a crucial role in bridging national policies with local implementation. Their resources should ideally be strengthened in order for them to be more effective in this role. Concrete examples include the government of Nepal's National Framework on Local Adaptation (LAPA) as measure to complement the National Adaptation Programmes of Action (NAPA) https://www.ids.ac.uk/files/dmfile/LHcasestudy03-NepalLAPA.pdf

Involve ministries responsible for finance and infrastructure development

Climate change adaptation needs to be mainstreamed into government and institutional decision-making processes as well as strong water governance that build flexible and coordinated institutions and that empowers people in the planning and decision making process. National adaptation policies should provide incentives for stakeholder participation on all levels. Ministries' of finance and government institutions responsible for infrastructure development (irrigation, energy, public health, urban water treatment, groundwater, extractive industry regulators) need to be properly involved in adaptation planning.

Enhancing cooperation between sectors

Adaptation planning should build on cross-sectoral approaches and Water Resources Management and planning needs to be well integrated in all sectors, for example, Energy as well as in urban planning. Urban areas will host most of the world's future population and their rapid growth can in many cases lead to unsustainable development such as unplanned housing, degradation of flood plains, slum areas insufficient infrastructure. Lack of long term planning and integration of climate scenarios and sound water management will increase people's vulnerability in many existing and future urban areas (AMCOW, 2012) (Eriksson et al., 2014). Involvement of the right stakeholders early in infrastructure planning and development ensure a better adaptation planning process and is much more cost-effective than trying to fix faulty constructions afterwards.

References

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