Activity Area -1 Impact based end-to-end early-warning systems (EWS) for flood forecasting

outcome	Impact based end-to-end early-warning systems (EWS) for flood forecasting in the context of a broader integrated flood management strategy implemented by Members.
	Public, communities and businesses have enhanced access to and better capacity to react to official national hydrological forecasts and warnings globally and locally.
measure of success	 Number of Members having Multi-hazard Early Warning System set up for floods (at least 80 % of Members declared substantial or comprehensive achievement for all 4 major components of EWS for floods in Sendai Monitor of UNDRR). Number of Members providing their flood warnings via GMAS (at least 50 % of Members doing so)

output	activity	ID	description	LTA	SOP	success criteria	time frame	responsibility	resources	partners	linkages	MOA	comments
Enhanced coordination, effectiveness and governance of all WMO activities in supporting Members in Flood Risk Assessment and Flood Forecasting and Warning	FFI-AG reinforced coordination mechanisms of activities for Flood Risk Assessment, Forecasting and Warning across WMO, as well as in collaboration with international actors	B.1. 1	to streamline ongoing hydrological programmes and initiative ensuring coherence and consistency, alignment to the plan, effectiveness and efficient use of resources, support to international agenda for DRR, establishing new coordination mechanisms	1	1.1, 1.3, 3.1, 3.2, 4.3, 5.1,5.2	report presented regularly to EC FFI workplan fulfilled.	2023	SERCOM	budget needed for at least one face-to-face meeting per intersessio nal period	see Annex to Res. 3 (EC-72), IFI, UNDRR, UNEP, UNECE, UNESCO, regional organizati ons,	SC-HYD. SC-DRR. RHAs RB		
	establish effective joint planning and implementation mechanisms with major partners and activities (IFI, UNDRR, UNEP)	B.1. 2	Better coordination f UN flood related activities brings more effective delivery on flood risk assessment and forecasting around the globe.	1	1.1, 1.3, 3.1, 3.2, 4.3, 5.1,5.2			SERCOM via FFI?		IFI, UNDRR, UNEP, UNECE, UNESCO, regional organizati ons, UN WATER	RAs, RB		
	establish guiding principles and agreements with private sector to support flood related early warning and risk management	B.1. 3	Private sector could offer technologies like AI or cellphone applications that enable enhancement of services in flood forecasting. Searching opportunities for cooperation via agreements and pilot projects.	1				SERCOM		Private sector, NMHSs			
Assumptions	Water and hydrometeorologica	al disas	ters are considered to b	e priority	y for societa	al needs both in sl	hort term ar	nd long term persp	pective.				

output	activity	ID	description	LTA	SOP	success	time frame	responsibility	resources	partners	linkages	MOA	comments
Risks	Change in overall political and	l societa	 al priorities e.g. due to C	OVID-1	9 pandemic	results in decrea	sed involve	ment in water-rel	ated agenda				
	Lack of alignment with other a Technological game changer	nctivities underm	in the field of Water (e. ines the importance and	g. UNES d the role	SCO-IHP) le e of nationa	eading to competit I services in flood	tion for atte forecasting	ntion of governme I	ents.				
Framework is developed for evaluation of gaps and needs of National flood forecasting and early warning systems	Assessment Guidelines web based tool and community	B.2. 1	further development and implementation of the assessment guidelines as a tool for self- assessment (or assessment by expert teams through WMO), to identify capabilities and needs in national capabilities to deliver flood forecasting services and warnings; implementation of a web based tool, based on simplified assessment guidelines, to identify national capabilities and needs	1	1.3	web tool available on WMO website; assessment teams available for deployment once request received through the HelpDesk; repository of assessed NMHSs.	2023	SC-HYD (to finalize the Assessment Guidelines), Secretariat (to manage requests and coordinate the requested expertise)	Resources to respond to the Members requests will have to be mobilized/al located on a case-by- case basis. Possibility to provide RAS (reimbursa ble advisory services) for the implementa tion of assessmen ts	experts to TCs, Support Base Partners	checklist for MHEWS		Members' gaps and needs will also be identified through the Hydro Assembly and the RA Hydrological Fora
Assumptions													
Risks	None												
Increased exchange of knowledge and technical expertise in flood forecasting among Members	Community of Practice on End-to-End Early Warning Systems for Flood Forecasting, including guidance on emerging technologies and services for data acquisition and analysis	B.3. 1	Developing mechanisms on implementing recommended practices via team of experts to support knowledge exchange. This will be complemented by a repository of capacity building materials (guidance, e-learning); role of the new technologies to address geographical constraints or insufficient local resources	1				SERCOM	Technical platform for the CoP (webpage, discussion for a, wiki, social network), training materials and targeted workshops	UCAR			guidance on e.g. selection of hydrological/ hydraulic models, on developing holistic flood intelligence systems, on selection and appropriate use of different weather products, on ensemble flood prediction methods and verification, or on network design with respect to floods

output	activity	ID	description	LTA	SOP	success criteria	time frame	responsibility	resources	partners	linkages	MOA	comments
													forecasting and management , Development of global hydrological characteristic s usable to derive parameters of hydrological models.
Assumptions													
Risks	Insufficient contribution from Members Other communities of practices outside WMO competition for resources (mostly human)												
Enhanced collaboration among NHSs, NMSs and other organizations (e.g. DRR authorities) at national level in developing and operating E2E MHEWS particularly including floods	Inclusion of different stakeholders (energy-water- food) needs and requirements, moving towards MHEWS approach (e.g. with the integration of FFGS/CIFI/SWFP) for the possible future integration of hydrology in GMAS (including reflecting hydrological hazards in the catalogue of hazardous events)	B.4. 1	compilation of success stories for collaboration among NMHSs and DRR authorities create incentives to work together and share data/information and services	1							Links to FFI in terms of improved cooperati on between NHS and NMS		
	support to humanitarian organization for real time risk assessment	B.4. 2	Contribution to GMAS related to flood hazards relevant for humanitarian activities around the World			Number of flood events interpreted for humanitarian activities through GMAS	2025	SERCOM		UNHCR	GMAS		
Assumptions	Water and hydrometeorologica	al disas	ters are considered to b	e priorit	y for societ	tal needs both in s	hort term a	nd long term persp	pective.	I		1	
Risks	Change in priorities in DRR e. Lack of alignment with other a Technological game changer o	g. due t ctivities undermi	o COVID-19 pandemic in the field of Water (e. ines the importance and	g. UNE: d the role	SCO-IHP) I e of nationa	leading to competi al services in flood	tion for atte forecastinູ	ntion of governme g	nts.				

output	activity	ID	description	LTA	SOP	success criteria	time frame	responsibility	resources	partners	linkages	MOA	comments
Increased availability and international exchange of hydro- meteorological data for operational flood forecasting and early warning, and enhanced international cooperation in flood management especially for transboundary basins on free and unrestricted basis.	See cross-cutting issues	<u>B.5</u>	See cross=cutting issues Area A.10.1, A.10.2, A.10.3, A.10.4										
Enhanced resource mobilization (expertise, financial, partnership) for capacity building, technical assistance, training of personnel and sustainability of E2E MHEWS	Project proposals development support	B.6. 1.	See A.7.1										
MHEWS Flood related data and products with global and regional coverage are available for the use at national scale by Members	GDPFS - hydrological centers including regional forecasting centers/systems developed	B.7. 1	Establishment of RSMC centers with function in the field of operation flood forecasting to support Members with global and regional product and verification.	1		At least 2 specialized centers operational by 2024	2024	SERCOM, INFCOM		Members, RSMC	GDPFS, HYDROS OS, RCOFS		
	inventory of world- wide and regional free and public data and products for Flood forecasting; and inventory of international interoperable models and platforms	B.7. 2	Develop an update the inventory of state of the art tools that are freely available for use in flood forecasting or products that might be used at national and local scale to	1		Inventory accessible for NHSs	2025	SERCOM		Members, Academia ,	GDPFS, RCOFS, NMHSs		

output	activity	ID	description	LTA	SOP	success criteria	time frame	responsibility	resources	partners	linkages	MOA	comments
			support flood forecasting activities (such as DEWETRA, Glofas, efas, DHI-UNEP, Sustainable FFGS} as an entry reference page										
Assumptions						-							
Risks	Lack of candidates to become New centers develop outside Lack of acceptance of the GD	center the um PFS hy	rs operating under GDPF brella of GDPFS (includi /drology structure by NH	=S rules ing in pri ISs	ivate secto	r) that undermine	es the idea o	f GDPFS					
Increased Members' capacities to deliver and communicate to the public and raising the awareness	8.1 collection of success stories, challenges and needs	B.8. 1	includes case studies on CAP application to hydrological hazards, communication of uncertainty	1		document published	2025	SERCO, INFCOM		UNDRR, MeteoAL ARM (EUMETN ET), NMHSs,	public weather services programm e. GMAS		
	8.2 Guidelines on Flood Risk assessment/mapping and "Impact Based Forecasting"	<i>B.8.</i> 2	Better understanding of flood hazard and flood risk and their changes within the year, season, day as well as long-term trends based on concepts used e.g. in EU Floods Directive etc.	1		Document published	2025	SERCOM		UNDRR, EU	PWS		
	8.3 Enhanced national consultations/communication between forecasters and users	B.8. 3	 i) guidelines based on good practices developed and implemented ii) compilation of list of requirements from users and their decisions /expectations and how to research on these (guide) iii) catalog of case studies of product and service development as well as marketing strategies for customers and development of process/check list, methodology to 	1		Documents published	2025	SERCOM					

output	activity	ID	description	LTA	SOP	success criteria	time frame	responsibility	resources	partners	linkages	MOA	comments
			support strategic service planning of NMHSs including catalogue of products and services in response to customer requirements										
			including: Awareness raising on flood risk management (follow up from previous APFM activities, such as CBFM)										
	8.4 Guidelines for harmonizing information and products that are used to communicate forecasting results and related risks	B.8. 4		1		Guidelines published	2025	SERCOM, INFCOM	RB, RAs	UNDRR, OGC, Academia	APFM, FFI,		
assumptions													
risks	None												
Increased Members and Regions (basins) application of Integrated flood risk management principles in flood prevention, preparedness and response.	9.1 APFM capacity building	B.9. 1	activities of capacity building in flood forecasting and integrated flood management	1				APFM			APFM		
assumptions	Lack of financial resources for	runnin	a the APEM technical su	innort u	nit at M/MO								
113/13		runnin	y the AFT in technical Su	ipport u									