





ANNUAL REPORT 2020-2021

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Report APFM Report No. 49



WORLD METEOROLOGICAL ORGANIZATION

The World Meteorological Organization (WMO) is a specialized agency of the United Nations. It coordinates the activities of the meteorological and hydrological services of 193 countries and territories and is the authoritative voice on weather, climate and water.



ASSOCIATED PROGRAMME ON FLOOD MANAGEMENT

The Associated Programme on Flood Management (APFM) is a joint initiative of the World Meteorological Organization (WMO) and the Global Water Partnership (GWP). Since 2001 it promotes the concept of Integrated Flood Management (IFM) as an approach to flood management.



GLOBAL WATER PARTNERSHIP

The Global Water Partnership (GWP) is an international network whose vision is for a water secure world. The GWP mission is to advance governance and management of water resources for sustainable and equitable development. Created in 1996 the GWP network is open to all organizations that recognize the principles of integrated water resources management endorsed by the network.

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Executive Summary

This Annual Report documents the activities undertaken during the reporting period 01st August 2020 to 31st August 2021.

The Associated Programme on Flood Management (APFM), a joint initiative of the World Meteorological Organization (WMO) and the Global Water Partnership (GWP) is celebrating its 20th anniversary this year. Over the last 20 years, it has continued advocating and implementing Integrated Flood Management (IFM) concept and strategies worldwide. The APFM Technical Support Unit (TSU) has been actively providing technical services to governmental agencies, researchers, private companies, donors and financial institutions, jointly with the <u>Support Base Partners (SBPs</u>). The IFM HelpDesk remains instrumental and has offered technical assistance to to around 500 HelpDesk users requesting support on Integrated Flood Management pilot projects, rapid guidance and capacity development.

During the reporting period, the implementation of activities under the framework of the Volta Basin Flood and Drought Management (VFDM) project are on-going with some delays encountered due to travel restrictions imposed by the COVID-19 pandemic as well as for receiving timely information from the Regional and National stakeholders. The second-year project progress report was submitted to the Adaptation Fund.

The APFM TSU has been supporting activities of WMO Standing Committee on Hydrology (SC-HYD) mainly advancing on the Community of Practice for End-to-End Early Warning System for Flood Forecasting, as well as supported other on-going WMO projects (ENANDES, Central Asia EWS) and initiatives (CREWS). The APFM TSU is continuously liaising with the new and existing SBPs to sign new Letters of Engagement (LoE) for building partnership and supporting IFM HelpDesk and activities of APFM.

Mr. Valentin Aich has joined the APFM TSU as a seconded staff from GWP starting from October 2020.The APFM TSU and SBPs welcomes him and looks forward to his continuous support and contribution to the activities of the APFM.

It is with great sorrow that the APFM Technical Support Unit has learnt that Cees van de Guchte passed away on September 30rd, 2021.

Since the beginning of the IFM HelpDesk, Cees has been the focal point for Deltares in relation to APFM activities. His expertise and skills were of enormous help in the development of the IFM concept. His professionalism and guidance have been greatly appreciated by the APFM TSU and will now be missed.

APFM Institutional development

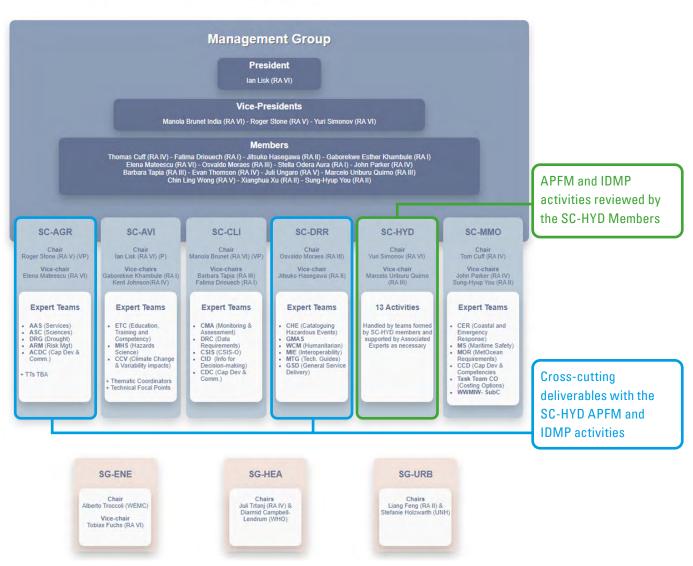
In the workplan of the Standing committee on Hydrology (SC-HYD) and under the leadership of Marcelo Uriburu Quirno (also Vice-chair of SC-HYD), Activity 7 is directed for provide scientific and technical advice to the WMO/GWP Associated Programme on Flood Management (APFM) and to represent WMO at the APFM governance meetings. Also, Marcelo and the APFM TSU are providing support and advice for the activity 8 (IDMP) and ensuring there is a linkage between both programmes and that the work is aligned with deliverables of other Standing Committees of the Services and Infrastructure commissions of WMO.

Under the SC-HYD Activities, discussions are on-going among the SC-HYD members and the Standing Committee on Services for Agriculture (SC-AGR) to expand the scope of APFM IFM Helpdesk to Integrated Water Resources Management (IWRM), including the potential merge with the IDMP HelpDesk. This would allow APFM and IDMP to provide technical services on overall

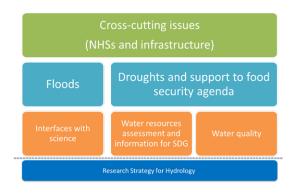
IWRM strategies (floods, drought, water quality, water assessment etc.) to the WMO Member states and other users, making also use of the respective SBPs networks.

Under Activity 3 of the SC-HYD, the development of a Community of Practice (CoP) on <u>End to End</u> <u>Early warning system for flood forecasting</u> (E2E-EWS-FF) is envisioned (since the Flood Forecasting Initiative Advisory Group meeting of 2017) which will showcase other SC-HYD activities end products and materials such as Assessment Guidelines, inventory of models and platforms etc along with the provision of a discussion forum for the users. These materials are currently being finalized by SC-HYD and should be available in 2022 for inclusion in the <u>floodmanagement.info</u> website.





The Hydrology and Water Resources Services Division (HWR under which the APFM TSU is embedded) supported the drafting of resolution 3.1/1- WMO Vision and Strategy for Hydrology and its associated Plan of Action for the 8 long-term Ambitions including also 'No one is surprised by a flood' and 'Everyone is prepared for drought', which will be presented during the virtual WMO extraordinary congress (Ext-Cong) under the Hydrological Assembly planned in October 2021.



During its second meeting, the Hydrological Coordination Panel (HCP), the WMO think tank on hydrology, approved decision 9 to form the HCP-PAG (Project Advisory Group). PAG members will provide review and validate new project proposals or reimbursable advisory services requests having hydrological components/activities or has crosscutting issues/linkages on operational hydrology including flood management, suggesting elements and partners to be integrated in the proposal and ensuring a quality check on the conformity of those project proposals to the principles of WMO Hydrological community.

The WMO Flood Forecasting Initiative - Advisory Group (FFI-AG) will have its next meeting during December 2021 with the objective to provide guidance and advice on the hydrological forecasting elements of several flood-related initiatives and programmes in progress, and to improve collaboration between the meteorological and hydrological communities for improved flood forecasting related practices. APFM will also be present to ensure proper integration of FFI-AG activities on the floodmanagement.info website (in line with SC-HYD activities mentioned above).

On the 20th anniversary of APFM, the TSU is developing a new communication strategy to improve the visibility of APFM and IFM HelpDesk to the users worldwide. For this purpose, a communication expert was hired through an ad-hoc Special Service Agreement in the framework of SC-HYD activity 7. To identify and design the APFM communication strategy together with the expert, several consultation meetings were held with the APFM TSU, WMO project and Reimbursable Advisory Services (RAS) focal point to donor and financial institutions, former APFM donors, SC-HYD Members etc. The communication strategy is presently under development and once finalized it will be shared with the partners and potentially disseminated through a virtual anniversary event. It is also foreseen that the APFM communication strategy and tools will be used for overall hydrological related work as well as by the APFM sister programme on Drought Management (IDMP).

GWP has appointed Mr Dario Soto-Abril as its new Executive Secretary. Dario, a native of Colombia, took up his position on 1 March 2021. After spending the first part of his career as a corporate lawyer, he worked for 14 years as the Deputy Executive Director and Chief Operating Officer of The Trust for the Americas, the non-profit affiliate of the Organization of American States. During this time, he led the Trust's expansion from 3 to 22 countries, building coalitions and public–private partnerships around free trade, workers' rights, and human rights.

The High-Level Panel on Water (HLPW), through the Government of South Africa, commissioned GWP to develop a HLPW legacy water initiative for Africa. In response, the Continental Africa Water Investment Programme (AIP) has been developed in collaboration with African Union and the African Development Bank (AfDB) Africa Water Facility. The Assembly of the African Union Heads of State and Government adopted the AIP as part of Programme for Infrastructure Development in Africa – Priority Action Plan 2 (PIDA-PAP 2) during the 34th ordinary session of African Union summit on 7 February 2021. The goal of the AIP is to mobilise US\$30billion in climate-resilient water investments by 2030 and create 5 million jobs. The objective of the AIP is to enhance job creation through gender sensitive investments in water security, industrialisation, and climate resilient development. The APFM and IDMP have been approached to secure their technical expertise and respective communities for the implementation of the AIP (more information under: https://aipwater.org/).

In 2020, GWP launched a Network strengthening initiative to support implementation of the new Strategy. The Strengthening Regional Operational Network Growth (StRONG) programme builds on previous GWP successes, aiming to enhance the capacity of the Regional and Country Water Partnerships to deliver results in a consistent, reliable, and agile way. Its three pillars – based around leadership and skills, institutional set-up, and network effects – is intended to unlock the barriers to further progress posed by a lack of capacity, finance, institutions, knowledge, and network connectivity.

Other important activities of GWP that have been launched during the past year were the revamping of the GWP ToolBox knowledge-sharing platform, overseeing the Water ChangeMakers awards, and mobilising stakeholders to access climate funding through a series of webinars.

In early June, GWP organised the annual Regional Days meeting, which convenes all 13 Regional Water Partnerships and GWP head office staff. For the first time, this was organised entirely online, providing new opportunities to explore virtual learning. The event used participatory online platforms to ensure as many participants as possible could engage fully, interact person-to-person, and air their diverse views. As a result, many participants will be taking these techniques and tools forward, using them in other relevant activities.

The APFM TSU has signed a total of 17 Letters of Engagement (LoE) between WMO, GWP and new and existing APFM Support Base Partners (SBPs). The new LoE (co-signed between WMO, GWP and SBPs) reflects the new WMO Constituent Bodies Reform (CBR) and the Secretariat reform. This LoE process with the SBPs was started last year and it provided the opportunity to identify further linkages and new areas of cooperation for supporting IFM HelpDesk and activities of APFM, meaning having a broader scope of collaboration and agreements simultaneously with both WMO and GWP.

During the reporting period, some of the new SBPs who have signed the new LoE or are presently under finalization are as below:

Name of the SBPs	Areas of cooperation
SEPIA Conseils Co. Ltd. (SEPIA)	 Design of flood forecasting and Early Warning System including urban flood modelling Joint project proposal development under the overall scope of the IFM
HKV Lijn in Water B. V.(HKV)	 Hydrological and Hydraulic modelling IWRM and Disaster Risk Reduction Flood and Drought risk management
Waterframes	 Governance of flood and drought risk management Capacity development in IFM
Centre de recherche sur l'environnement alpin (CREALP)	 Under approval stage Water resources and Hydrological modelling Design and development of flood risk management strategies including early warning and flood forecasting systems

The APFM TSU reminds all SBPs who have not yet signed the new version of the LoE to contact the TSU and have the agreement signed.

Implementation of the APFM Business model

The APFM TSU with the support of SBPs network continued implementing the new Business Model, providing expertise and services to requesting parties on a cost-recovery basis.

The APFM Business model is implemented for all the services provided such as technical assistance and guidance on developing strategies (conducting needs and capabilities assessments) for IFM approaches, Implementation of project activities (for example: VFDM project) and expertise services for specific areas such as procurement, design of the EWS system etc. These activities were either financed directly by the requesting institutions (e.g. World Bank, Inter-American Development Bank, Expertise France) or by third-party donors (e.g. Adaptation Fund for the VFDM project). The TSU and SBPs are constantly identifying new project proposal development and submission opportunities to secure funds from donors (European commission H2021-2025 call for proposal, development of regional HydroSOS-GBM pre-concept note etc.)



In order to identify further opportunities how regional and national IFM can be promoted, the TSU is planning together with IDMP a joint workshop in November with the regional and country programmes of GWP in order to identify ways for further collaboration and support for promoting IFM and IDM on regional and national level through the global programmes. This is a reaction to a recent survey, where support in flood and drought work where ranked as first priority by the GWP regions.

The APFM TSU, together with the SBPs, continues to respond to requests coming from the NMHSs and other key stakeholders managing floods and drought events (in cooperation with IDMP). As previously highlighted, the APFM Business model, based as much as possible on a cost-recovery principle, will be adopted for every type of activity, aiming to apply IFM strategies, tools and methodologies in practice (see Fig.3). These activities include developing project proposals, providing technical assistance, and linkages with other WMO, GWP or SBPs activities. The TSU is not able to identify resources for the core activities of the APFM (development of new tools, organizing capacity development workshops, monitoring of HelpDesk platform, etc.). However, these activities are currently supported by the two co-sponsoring institutions or embedded in the project proposals for implementation.

Volta Flood and Drought Management (VFDM) Project (October 2020-June 2021) and the way forward

The APFM TSU continued the implementation of the VFDM project activities together with other Executing Partners (Volta Basin Authority and Global Water Partnership-West Africa), External Implementing Partners (CIMA Research Foundation, Italian Department of Civil Protection, Knowledge & Innovation, IUCN, UNITAR/UNOSAT) and active support, participation and engagement of Regional, National and local agencies and communities. Implementation of some planned activities in the first and second year were delayed and are still on-going due to the global Covid-19 Pandemic situation. Many of the activities planned (involving travel to the countries) in the project's second year were postponed to the last quarter of the year 2021 or will be conducted virtually in agreement with the National services.

Based on the VFDM Project Technical Advisory Committee (PTAC) discussion and approval, the APFM TSU submitted the second project progress report (PPR) to the Adaptation Fund Secretariat during the second week of August 2021 highlighting the achievements, challenges and risks encountered during the implementation. Once the Adaptation Fund Board approves the PPR-II report, the funds for third-year activities will be made available to the project's Implementing Partner (WMO).

The mid-term evaluation of the VFDM project is planned for early 2022 through an independent Monitoring and Evaluation (M&E) expert.

The table below describes the VFDM activities completed, on-going and planned until July 2022.

Activities completed until July 2021	Activities carried out between July 2020-July 2021	Activities postponed and on-going due to the Covid-19 Pandemic	New activities planned between August 2021-July 2022
Letter of Agreement with the project executing Partners (VBA and GWP-WA) and External Implementing Partners (CIMA, Italian Civil Protection, Knowledge and Innovation, IUCN, UNITAR/UNOSAT)	Preparation work for developing Training Curriculum and carrying distance learning courses on End-to-End Early Warning System for Flood Forecasting (E2E-EWS-FF) and Third Pillars of Drought Management.	Development of the Centralized databases (1.1.2.3)	Development of Long- term risk management framework or strategies
Special Service Agreement with Independent Consultants	Design and Development of the VOLTALRAM EWS (on-going till the end of the project) https://volta.myDewetra. world	Development of Training curriculum and distance learning course on drought monitoring and EWS for floods and drought	Development of Hydrological models and forecasting system for the National portion of the Volta Basin
VFDM Monitoring and Evaluation manual	Consultation and Integration with other completed, on-going and planned projects to ensure synergies or complementarities (on-going).	Development of risk maps for floods and drought at the basin level	Regional workshops to present the existing policies, plans and guidelines on flood and drought management and climate change adaptation (NAPA, NAP etc.) and prepare action plan for improving them
National Consultation reports including current capabilities, needs, recommendations, action plan etc. are available	Country missions to assess IT network and databases availabilities, need and current capabilities (1.1.2.2) National IT/Database reports are developed and discussion with countries are on-going	Capacity of stakeholders to use Floods and Drought risk maps are enhanced	Development of community-based flood and drought manual for the Volta Basin countries incorporating experiences and lesson learnt from the CBFDM activities in the six communities
Local risk mapping activities in the 60 pilot sites of the Volta Basin (Activity 1.1.3) is completed and reports are available	Development of risk maps for floods and drought at the basin level	Implementation of community-based flood and drought management activities in the six selected sites	

Preparation and consultation with the National stakeholders on the activities on environmental and ecosystem services (Activity 1.2.3.1-1.2.3.7)	Development of Training Curriculum and carrying out e-learning and face-to-face capacity development sessions	Capacity development of the National and Regional stakeholders on Nature-based solutions for flood and drought management	
Finalization of the Training Manual for mainstreaming gender in E2E-EWS-FF and IFM	Identification of the six sites for implementing community-based flood and drought management activities	Review of existing policies, plans and guidelines on flood and drought management and climate change adaptation (NAPA, NAP etc.)	
Development of the Project Progress Report (PPR)-I and II submitted to the Adaptation Fund Secretariat	Organize and conducted National training workshops on Mainstreaming Gender into E2E-EWS-FF and IFM		

Provision of Expert Service and Proposal Development

Inter-American Development Bank (IDB): The APFM TSU is presently providing technical support (together with WMO HydroHub team and national consultants) to perform hydrological assessments in Costa Rica and Panama as per the Reimbursable Advisory Services (RAS) agreement signed with the Inter-American Development Bank (IDB). The National assessment reports will be prepared and shared with the IDB team to strengthen the National services capabilities in the entire chain of E2E-EWS-FF. The RAS work is expected to complete by December 2021.

EXPERTISE FRANCE (EF): The APFM TSU successfully completed two RAS contracts with Expertise France, a public agency affiliated to AFD (the French Development Agency), mainly seeking advisory support in the design of a flood early warning system's functional requirements (software and hardware) in the Jordan and Palestine Meteorological Department. The team worked with the EF focal point and National stakeholders to develop the Terms of Reference (ToR) and review the technical and financial proposals submitted by the potential partners. It is expected that the EF will use the technical procurement and design reports to develop a flood early warning system in the targeted countries under the framework of a Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG-ECHO) project. TSU has also provided support to the development of a training workshop on flood forecasting, organized in the framework of the same EF project, to be hosted by Israel Meteorological Department for the benefit of participants from Israel, Jordan and Palestine.

World Bank-Economic Community Of West African States (ECOWAS): The APFM TSU has successfully completed the technical review and guidance support on the development of a <u>Regional Flood Management Strategy and 2020 -2025 Action Plan</u> for the 15 ECOWAS Member states, funded by the World Bank. The regional flood management was presented and validated during the ECOWAS HydroMet forum held virtual in April 2021.

RAS to Caritas Switzerland (CaCH) project in Tajikistan: The APFM SBP CaCH and TSU jointly developed the project proposal 'From reactive response to informed management: Leveraging weather, water and climate services for sustainable rural livelihoods and well-being in Tajikistan'. As a next step, CaCH has requested WMO support for technical and institutional strengthening within its weather, water and climate services (WWCS) initiative in Tajikistan. The RAS contract is

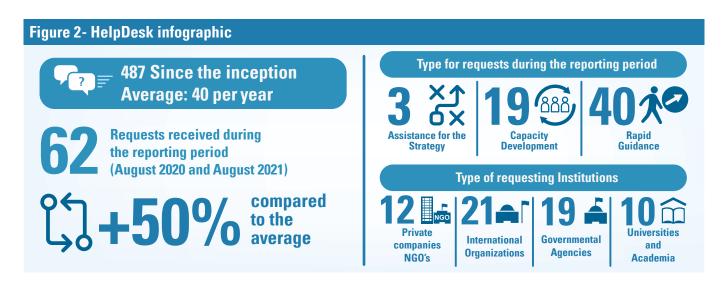
presently under preparation and once signed, the WMO support through APFM will be provided to CaCH for a period of 4 years.

World Bank GARID: In the month of May 2021, the WBG team contacted the APFM TSU for reviewing the Greater Accra Resilience and Integrated Development (GARID) project inception report and ToR for providing technical support to the Government of Ghana (GoG) in the design of the flood early warning system in the Greater Accra region. The TSU submitted the initial review report to the World Bank team and later was shared with GoG. The TSU is presently awaiting feedback on the reports from GoG and WB and discussion will be carried out to identify opportunities for future collaboration and also ensure linkages with other WMO projects in Ghana (CREWS West Africa and Volta Basin Flood and Drought Management (VFDM).

Technical Assistance through IFM HelpDesk



The IFM Helpdesk continues to receive requests for support from users working on flood management. In the reporting period, 62 number of requests were received from various users of IFM HelpDesk. Details about the HelpDesk request are presented in the below table (check Annex 1 for details on the requests received in the reporting period and refer to previous annual reports for previous requests).



Some of the Expert Services provided through the IFM HelpDesk include:

World Bank and Deltares- flood and drought policy engagement framework: The TSU of APFM and IDMP with SBP WaterFrames provided support in reviewing and shaping the publication 'An <u>EPIC Response: Innovative Governance for Flood and Drought Risk Management</u>' prepared through a partnership between the WB and Deltares. After publication's launch and initial discussion with World Bank, the TSUs jointly prepared a concept note and submitted it to WB for the Development of a Tool to Integrate National Flood and Drought Governance and testing the tool at one or two pilot countries.

FAO and WMO/GWP Flood and Drought knowledge product: Based on the request from FAO, the APFM and IDMP TSU is currently developing a knowledge product on drought and flood management i.e. A concept paper on Integrated flood and drought management for communities' resilience under climate change context. The development team has hired two consultants to draft the publication, gather case studies, carry out stakeholder's consultation meetings (discussion with the SBPs and National and Regional agencies etc.). Some of the SBPs will be contacted soon

to provide case studies or share their experiences of managing flood and drought events and share case studies on both the extreme hydrological events. The draft publication will be available most probably by the end of 2021.

New Project Proposal Preparation

During the reporting period, some of the new project ideas emerged from the SBPs as well as from the co-sponsoring entities (WMO and GWP):

European Union H2021

Two of the SBPs (Knowledge and Innovation and CIMA Research Foundation) contacted the APFM TSU for jointly preparing and submitting a project on the Topic 'Better understanding of the interactions between climate change impacts and risks, mitigation and adaptation options', to the European Commission call for proposals under Horizon Europe Programme. Based on initial discussion with the two SBPs and liaising with WMO colleague, it was identified that the WMO climate services division is already preparing a project with a consortium of the UK and European agencies. A joint call was organized in order to avoid two submissions from the WMO. It was proposed to include the two SBPs in the existing project development consortium. The project consortium lead agreed to involve the two SBPs and jointly submit the proposal to the EU Horizon programme.

HydroSOS-GBM regional pilot project

The WMO Hydrological Status and Outlook System (HydroSOS) is an important initiative that was approved by the WMO Congress (Resolution 25 at Cg-18) and aims to provide an operational system capable of assessing the current hydrological status and its outlooks (from sub-seasonal to seasonal time frames) across the global. After the initial concept phase, it is agreed to set up pilot projects, for which basins have been identified in Africa and South Asia. One of the identified pilot basins is the Ganges Brahmaputra Meghna (GBM) basin which covers Bangladesh, Bhutan, India, and Nepal. As part of the pilot implementation phase, a detailed assessment, and participative consultations with the National stakeholders (mainly the National Meteorological and Hydrological Services (NMHSs)) of the GBM countries was conducted in 2019 by the World Meteorological Organization (WMO) and partners. The WMO through the APFM is now working on developing a pre-concept note for the application of HydroSOS (including flood and drought risk maps, community initiatives etc.) in the GBM basin which will build upon the findings from the assessment. A virtual introductory meeting involving National stakeholders of Bangladesh, Bhutan, India, and Nepal was thus held on 15th July 2021 to present the pre-concept note and gather feedback and suggestions from them. It was agreed during that meeting that as a next step, WMO will organize a two day face-to-face regional workshop tentatively during late November or early December 2021 to finalize the current preconcept note and gather additional information and commitment from the countries for the project development and implementation.

Update on the on-going project proposal development

CBFM in Lao's and Cambodia under CREWS component

WMO Member Services department (formerly known as Department of Regional Affairs, DRA) in joint consultation with other technical division submitted the proposal for the Cambodia and Lao's PDR project to the CREWS Steering committee during April 2021 and was approved for implementation later in June 2021. The APFM TSU will be implementing Community-based Flood Management (CBFM) activities (assessments of risk communication, gender mainstreaming, capacity building and simulation exercises, local and indigenous knowledge integration and last-mile connectivity of Multi-Hazard Early Warning Systems in the region to support national/local EWS strategies) as well as lead the development of flood and drought risk maps and establishment

of a regional Hydro-meteo platform for the visualization of developed products and tools. The TSU is presently supporting the project team in developing the implementation plan which will be presented to the National stakeholders in early October 2021. SBP (ADPC) from the region has been contacted to provide necessary support in finalizing the proposals and implementation.

Lake Chad EWS/HYCOS

The WMO, GWP regional partnership and the Lake Chad Basin Commission (LCBC) with support from the APFM and IDMP TSUs submitted a second time a pre-concept note for the Lake Chad basin project to the Adaptation Fund during January 2021. The pre-concept was approved by the Adaptation Fund at the end of March 2021. The project implementing and executing partners are presently developing the concept note and most probably submitted in January 2022. The APFM TSU will continue to provide support in providing information and reviewing the draft concept note.

APFM linkages with other WMO and GWP initiatives

The WMO Flood Forecasting Initiative (FFI) contributes majorly to flood related disaster risk management activities that need to continue and further develop in order to achieve the long-term ambition 'no one is surprised by a flood'. In the upcoming meeting of FFI-AG, on-going initiatives and projects will be reviewed to ensure linkages to WMO SC-HYD activities.

Linkages with other WMO and GWP projects or initiatives GWP Latin America workshops in Central America

GWP Latin America organized series of workshops on flood management for the National water partnership and other agencies of Latin American countries. The APFM TSU presented the IFM concept and approaches to the participants. It was an opportunity to meet several stakeholders and identify the possibility of developing a pilot project.

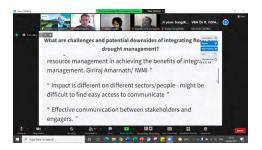
Establishing synergies and complementarities with the Climate Risk and Early Warning System (CREWS) initiative:

The APFM TSU is continuously supporting the WMO team working on various CREWS project proposals such as in Togo and Chad, also Horn of Africa, West Africa, Dominican Republic and others in the pipeline. This ensures that the hydrological component aligns with the WMO Hydrology work plan and incorporates IFM tools, products, and Services.

Resource Mobilization and Outreach

APFM and IDMP Joint Session during SWWW 2021

The APFM and IDMP TSU jointly organized a session on Managing floods and droughts: The technical challenges during the Stockohlm World Water Week (SWWW) 2021. The session was mainly to learn and discuss new approaches to break the silos from the full bandwidth of integrated flood and drought management, including risk mitigation, preparedness, monitoring & warning and response. The session was complementary to the one organized by the World Bank that



focuses on the policy aspects of integrating flood and drought management. Participants are encouraged to attend both sessions.

ICFM-8 Workshop

The APFM TSU took the lead and organized a special session on the WMO Long term Ambition"

No one is surprised by a flood" originally to be held in 2020 at the 8th International Conference on Flood Management (ICFM-8) in Iowa City. Due to the Covid-19 pandemic outbreak, the ICFM-8 was postponed to 2021 but was then cancelled with unilateral decision by the organizers in early 2021.

Ecowas Hydromet forum – April 2021

Based on a request from the WMO regional office in Abuja, Nigeria, the TSU moderated a session on Innovation: Flood Monitoring and Forecasting Services (FANFAR, FFGS, SLAPIS-Niger, VFDM, GARID) in West Africa during the ECOWAS HydroMet forum funded by the World Bank. This session presented the development and operation of the existing/new flood monitoring and forecasting systems applied in the ECOWAS Member states at local, National, and transboundary regions including the limitations and challenges encountered.

Also, TSU presented during the session on DRR Platform: Reaching the Last Mile: Stories from Communities, Women and Youth Led Initiatives mainly the training manual for mainstreaming gender, local risk mapping activities carried out the VFDM project.

Flood risk management journal special issue

The APFM TSU member is one of the guest editors of the special Issue titled: Operational Flood Forecasting and Early Warning Systems which will be published in Journal of Flood Risk Management (Online ISSN: 1753-318X, IF: 3.066). A paper invitation was requested on VoltAlarm: a multi-hazard early warning system platform for drought and flood management in the Volta basin under development in the framework of the VFDM project. The abstract was prepared and submitted to the Journal editors by the APFM, CIMA Research Foundation and Italian Civil Protection. The deadline for submission of the full article is mid-December 2021.

Caribbean Hydromet Summit

The APFM TSU participated as a speaker for a roundtable discussion on Forming meaningful partnerships to extend your Hydro-meteorological service and grow capacity of the NMHSs during the Caribbean Hydromet Summit – a virtual event organized by the Caribbean Meteorological Organization and Varysian during December 2020. During the roundtable discussion, the TSU presented information on the IFM HelpDesk mechanism and partnership establishment in the framework of the APFM Support Base Partners network.

WMO Regional Hydrological Forum RA II

During the First WMO Regional Hydrological Forum Regional Association (RA)-II in September 2020, attended by more than 30 WMO Member states (mainly the National Hydrological Advisor), a presentation was provided on the APFM activities and SBPs network, IFM HelpDesk and available IFM tools and products. The participants were requested to use IFM HelpDesk for getting assistance on flood management issues at the Transboundary, National and local levels.

During the reporting period, the APFM TSU presented the IFM concept and HelpDesk mechanism during the virtual training workshop on Impact-based Forecast and Warning Services (IBFWS) in Vietnam and Thailand.

Also, simlar presentation was given during the virtual International Telecommunication Union's Global event on Emerging Technology for Connectivity: Accelerating Digital Transformation in LDCs, LLDCs, and SIDS, organized from 5-9 July to share experiences and highlight the importance of emerging technologies for a post COVID-19 world.

SBP Webinars and workshops

As agreed in the last Annual SBPs forum, below four webinars with and for the SBPs were organized:

1. Webinar on <u>E-learning or remote capacity development</u> during Covid-19 Pandemic was carried

out during November 2021 together with the support of CIMA, IUCN and UNITAR.

- During February 2021, a webinar on developing <u>IFM project proposals and donor mapping</u> was organized for the SBPs in order to identify opportunities for jointly developing IFM proposals and submitting it to the donors. In this webinar, SBPs CIMA presented call for proposals from the European Commission.
- 3. As requested during the Bi-Annual SBPs forum in March 2021, CIMA conducted the MyDewetra information session for the APFM SBPs.
- 4. Similarly, the TSU organized a training workshop with the Stockholm Meteorological and Hydrological Institute (SMHI) to present their HYPE hydrological model and FANFAR project in order to build synergies and complementarities with the VFDM project activities implemented by the APFM.

The APFM TSU will continue to organize similar webinar or training session so as to disseminate and share knowledge from and between the SBPs.

Restructuring of APFM Website

The restructuring of the <u>APFM website</u> is completed mainly by improving its usability and harmonize the user experience with the website of APFM's sister programme, the Integrated Drought Management Programme. Under the APFM website, the <u>VFDM project website</u> is also available as well as the Community of Practice (CoP) on E2E-EWS-FF is presently under development.

APFM Catalogue of Services (CoS)

Through the support of two WYN Volunteers, the APFM Catalogue of Services (CoS) was updated with the information provided by many of the SBPs. The APFM TSU request the SBPs to continuously provide information on recent publications, training materials, knowledge products, and services available for the users. Therefore, this CoS is useful in two ways: 1) From one side, it aims to present relevant information to the Users requiring rapid guidance and to the APFM TSU, who would be able to have updated knowledge on the expertise available with the respective SBPs. 2) From the other, it will be made available to relevant donors or financial institutions reflecting the expertise the APFM programme has in terms of providing technical advisory and implementation support. WYN volunteers will continuously



request SBPs to share the latest information directly through a shared excel file or SBPs could also, send information directly to WYN volunteers or <u>floodmanagement@wmo.int</u>.

Regular communication with the APFM SBPs

The APFM has different communication mechanisms, e.g. through a LinkedIn group page or WhatsApp group, to support regular interaction with the SBPs. Both WhatsApp and LinkedIn group pages are closed groups only available to the SBPs and TSU to share information related to the new call for proposals, conferences or workshops on flood management etc. Another mechanism could be proposed from the SBPs such as frequent webinars in order to ensure regular participation and engagement of the SBPs.

Community of Practice (CoP) on E2E-EWS for Floods Forecasting

The SC-HYD and APFM TSU experts supporting Activity 3 (implementation strategy for the Endto-End Early Warning Systems (E2E EWS) for flood forecasting using the Community of Practice approach), continued the design of the CoP webpage developed under the APFM website. This CoP webpage will be for practitioners and researchers who can share their experience towards the development and adoption of the best available, sustainable and tailored solution on E2E-EWS-FF.

This CoP will also be used to share the inventory of models and platform available for flood forecasting and early warning system. Currently, the development of the CoP website is under progress, and it is expected that the first version of CoP webpage will be online before the end of December 2021. Further discussion and development of the CoP will be carried out under the umbrella of SC-HYD, possibly also involving WMO Research Board.

The way forward

As the APFM will go into its 21st year of existence, the communication strategy will be updated or improved to expand the outreach to more users, including donors who are made aware of APFM activities, capabilities, and partner network worldwide. Also, the TSU will discuss with the co-sponsoring institutions on expanding the official scope of the IFM Helpdesk to consider overall IWRM approaches.

The APFM TSU will continue the implementation of on-going and new activities planned under the VFDM project (through Project Manager based in WMO, Executing partners GWP-WA and VBA and some of the SBPs) between August 2021 to July 2022 and beyond.

In the following months, the TSU will contact the remaining SBPs to sign the new LoE. The amended LoE template will be shared, and areas of cooperation will be discussed bi-laterally.

The TSU in collaboration with SBPs, will actively identify new opportunities focussing on E2E-EWS-FF (Integrated Flood and Drought management in general) to develop new project proposals through WMO initiatives (CREWS), through GWP regional or national initiatives, or submitting directly to donors (Adaptation Fund, Green Climate Fund, European Commission H2020 etc) or provide reimbursable advisory services to financial institutions (World Bank, African Development Bank, Inter-American Development Bank etc.).

Also, APFM will continue to identify potential donors or financial institutions to support the core activities of the APFM mainly the IFM HelpDesk management, Communication and Outreach, liaising with the SBPs. With almost no success in last few years, the APFM programme will be supported by the co-sponsoring institutions (WMO and GWP) including support received from project preparation or advisory services. The TSU is encouraging all the SBPs to proactively reach out to the TSU with new project ideas or for the provisioning of expert services.

The APFM TSU will continue organizing virtual SBPs forums every four or six months to ensure SBPs are informed and actively involved in the WMO and GWP activities.



World Meteorological Organization 7 bis Avenue de la Paix 1211 Geneva Switzerland







ANNUAL REPORT 2020-2021 - ANNEX

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WORLD METEOROLOGICAL ORGANIZATION

The World Meteorological Organization (WMO) is a specialized agency of the United Nations. It coordinates the activities of the meteorological and hydrological services of 193 countries and territories and is the authoritative voice on weather, climate and water.



ASSOCIATED PROGRAMME ON FLOOD MANAGEMENT

The Associated Programme on Flood Management (APFM) is a joint initiative of the World Meteorological Organization (WMO) and the Global Water Partnership (GWP). Since 2001 it promotes the concept of Integrated Flood Management (IFM) as an approach to flood management.



GLOBAL WATER PARTNERSHIP

The Global Water Partnership (GWP) is an international network whose vision is for a water secure world. The GWP mission is to advance governance and management of water resources for sustainable and equitable development. Created in 1996 the GWP network is open to all organizations that recognize the principles of integrated water resources management endorsed by the network.

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Annex-1 List of IFM HelpDesk Requests between August 2020-August 2021

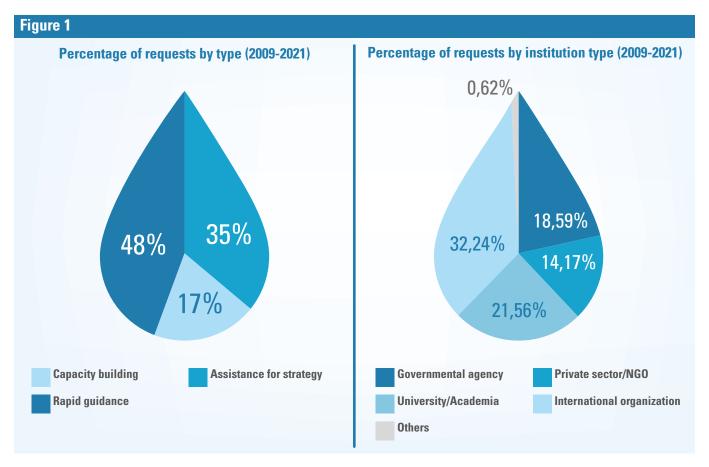
As per the recommendations of the Advisory and Management Committees of 2015, the lists of HelpDesk requests have been aggregated into a single list, independent of the channel through which the request has been received. Criteria on the consistency of aggregated data are provided at the beginning of Annex I in the APFM Annual Report 2015-2016 (APFM Report No. 39).

Since 2009, and as of August 2021, 487 requests have been received with an average of 40 per year. Of these 487, 35 were not fully addressed due to inappropriate requests (e.g. request for conference sponsorship, withdrawal, spam or lack of follow-up) from the requesting party. This translates into a rate of fulfilment of HelpDesk requests of more than 92%.

As shown in Figure 1 the most abundant type of request has been the "rapid guidance" (233 requests - 47.84%), followed by capacity building (169 requests - 34.70%). The category "assistance for strategy" covers less than one- fifth of the total requests 17.45% (85 requests) from 2009 to August 2021.

Regarding the requesting institutions, "International Organizations" (180 requests - 32.24%) is the category that made the most use of the HelpDesk, as shown in Figure 2. The remaining requests were from governmental agencies (18.69 %), universities or academic institutions (21.56%), NGOs or private consulting companies (14.17%) and from others¹ (0.71%).

Likewise, the proportion remains relatively stable during the last three years with the highest number of requests, i.e., 2020-2021 (62 total requests), 2019-2020 (51 total requests), and 2018-2019 (55 total requests) as shown in Figures 2 and 3.



¹ Others category include technical assistance provided to the group of expertise (for e.g. HELP check in the Annex 1- HelpDesk request 2018-2019 of the Annual Report 2018-2019 for more information) working on specific activities related Integrated Flood Management.

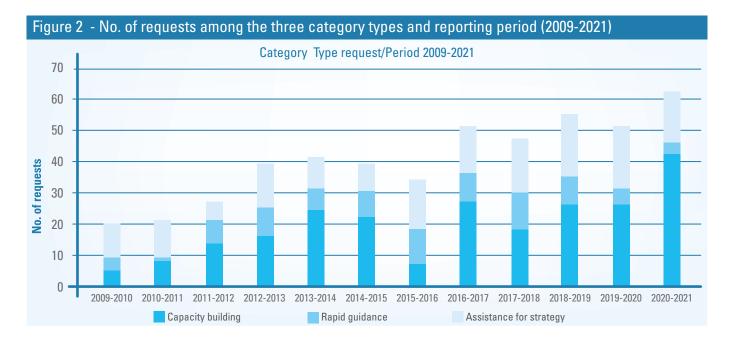
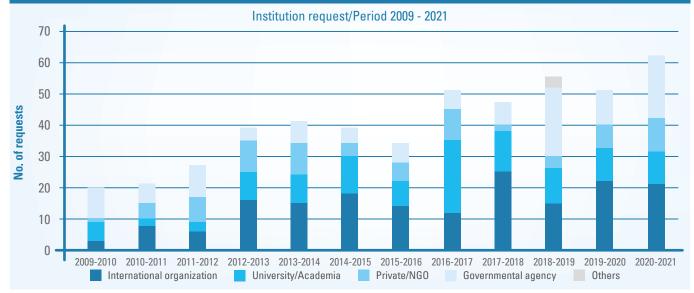
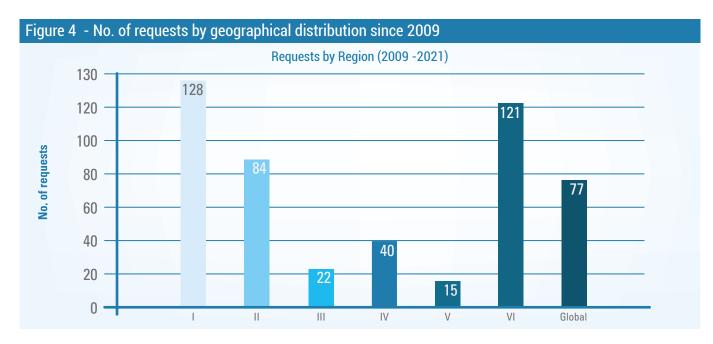
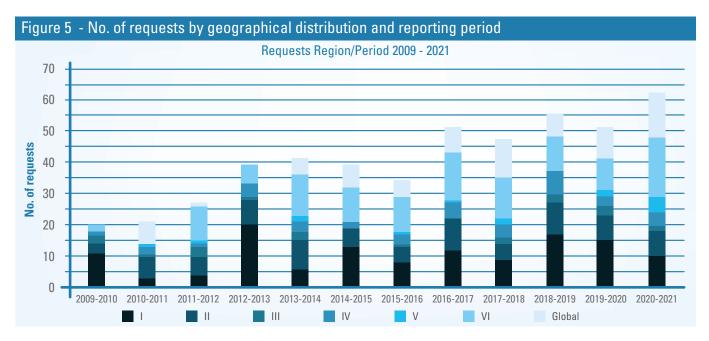


Figure 3 - No. of requests by Institution requesting and reporting period (2009-2020)





In terms of countries targeted as a result of HelpDesk requests, Figure 5 shows RA I – Africa as the region that has mostly benefitted from APFM interventions (128 requests since HelpDesk inception), followed by RA VI - Europe (121 requests), RA II – Asia (84 requests), RA IV (40), RA III (22) and RA V (15). In addition, 77 requests fall under the new category "Global", which might reflect activities impacting the global, regional or transboundary level. A distribution by year is also provided in Figure 5.



During the reporting period (August 2020-August 2021) 62 requests were received: of these, 3 requests were discarded/rejected or lack of follow-up, 1 are either ongoing or action is planned for the next reporting period.

A brief summary of the 62 HelpDesk requests received in the reporting period is provided in the table below. The majority of the 62 requests have been addressed. Prior to this reporting period, 425 requests were made and documented in previous annual reports.



List of IFM HelpDesk Requests between August 2020-August 2021

	Requests received by TSU in the framework of the HelpDesk						
Requests (No 1-425) not displayed)		Received from 06/2009 to 08/2021 (see previous annual reports)			388 Completed 32 discarded 5 on-going		
No.	Date	Institution, Country	Category (Request came through contacts in WMO or in GWP)	Impact (Region or Global)	Type of request	Status	
426	Aug-20	GWP Latin America (International Organization)	Capacity Development (GWP)	IV	Request for sessions on IFM for Guatemala, Honduras and Nicaragua	Completed	
427	Aug-20	Researchers from Norway (University and Academia)	Rapid Guidance Request (WMO)	Global	Looking for formulas on relative humidity for a paper on airborne diffusion of viruses	Completed	
428	Aug-20	TUD (University and Academia)	Rapid Guidance Request (WMO)	II	Seeking guidance on Myanmar project	Completed	
429	Sept-20	UN-Space (International Organization)	Rapid Guidance Request (WMO)	Global	Request for input to the UN SG report on Space	Completed	
430	Sept-20	CEREMA (Government Agency)	Rapid Guidance Request (WMO)	VI	Permission to re-use an image and reference	Completed	
431	Sept-20	PR of Saudi Arabia (Government Agency)	Rapid Guidance Request (WMO)	II	Looking for experts	Completed	
432	Sept-20	World Bank (International Organization)	Rapid Guidance Re- quest (WMO)	Global	Seeking peer-review and additional input to a guidance document on flood and drought management	Completed	
433	Sep-20	World wide Initiative for Development/ Hands for The Little(wwid/hfl)	Capacity Development (WMO)	1	Financial support for Clean water project in Kalehe Territory, Congo	Rejected/ Out of scope	
434	Sep-20	ITC-Institutul pentru Tehnica de Calcul S.A., Romania (Private Companies)	Rapid Guidance (WMO)	VI	seeking information on a potential technical partner for a flood risk management project	Completed	

435	Oct-20	FAO (International Organization)	Rapid Guidance (WMO)	Global	Evaluation of FAO's contribution to SDG 13 Climate Action	Completed
436	Oct-20	Student (Universities and Academia)	Rapid Guidance (WMO)	11	review the HydroGIS model development framework on urban flood management	Completed
437	Oct-20	San Diego University (University and Academia)	Rapid Guidance Request (WMO)	IV	Looking for hydrological data in California	Completed
438	Nov-20	IRI (University and Academia)	Rapid Guidance Request (WMO)	1	Letter of support for a project proposal in Uganda	Completed
439	Nov-20	RosHydromet	Rapid Guidance Request (WMO)	VI	Seeking information on low-flow for a RCOF	Completed
440	Nov-20	UNEP Central America	Rapid Guidance Request (WMO)	IV	Looking for information on opportunities to start project proposals on EWS for Honduras	Completed
441	Nov-20	Student (Universities and Academia)	Rapid Guidance Request (WMO)	Global	Permission to reprint infographic	Completed
442	Nov-20	UKI media events (Private company)	Rapid Guidance (WMO)	Global	Seeking assistance in identifying experts and topics for an online conference	Completed
443	Dec-20	FAO (International Organization)	Rapid Guidance (WMO)	Global	Adaptation Fund project submission information	Completed
444	Dec-20	UNEP Malawi	Rapid Guidance (WMO)	I	Seeking information about SARFFGS	Completed
445	Dec-20	Expertise France (Government Agency)	Assistance for Strategy	VI	Advisory services for a project in Jordan and Palestine	completed
446	Dec 20	GWP Latin America (International Organization)	Capacity Development (GWP)	IV	Request for sessions on IFM for Costa Rica, Panama and El Salvador	Completed
447	Jan-21	Hydrosolutions, Switzerland (NGO/ private companies)	Rapid Guidance (WMO)	1	Review the Upper Volta Hydro-Agro- Meteorological Bulletin	Completed



448	Jan-21	Applied Weather Associates (private company)	Rapid Guidance (WMO)	VI	Seeking information on pluviometry data for Bulgaria	Completed
449	Jan-21	Individual (NGO/ private companies)	Rapid Guidance (WMO)	I	Explanations between financial and economic analysis in commercial projects	Rejected/ Out of Scope
450	Jan-21	CIMA Research Foundation (NGO/ private companies)	Rapid Guidance (WMO)	VI	Seeking letter of support for EC project proposal	Completed
451	Jan-21	BoM (Government Agency)	Rapid Guidance (WMO)	V	Seeking information about HydroHub and WHYCOS	Completed
452	Jan-21	New Caledonia Met Service (Government Agency)	Capacity Development (WMO)	V	Request for MCH	Completed (Request transferred to relevant officer)
453	Jan-21	USAID (Government Agency)	Rapid Guidance (WMO)	Global	Seeking information of resolutions for Cg	Completed
454	Jan-21	IRIMO (Government Agency)	Capacity Development (WMO)	II	Seeking information on flash flood forecasting	Completed
455	Feb-21	Community-based Organization (NGO/ private companies)	Capacity Development (WMO)	1	Request for IFM pilot project	Completed
456	Feb-21	Arable.com (Private company)	Rapid Guidance (WMO)	Global	Request for intercomparison of rain gauges	Completed (Request transferred to relevant officer)
457	Feb-21	IMC Worldwide (private company)	Rapid Guidance (WMO)	Global	Request for input to the methodology for enhancing the climate science basis for GCF activities	Completed
458	Mar-21	Executive Officer, Papua New Guinea (Government Agency)	Rapid Guidance (WMO)	II	Development of CBFM project proposal for CREWS Cambodia and Lao PDR	Ongoing
459	Mar-21	ITU (International Organization)	Capacity Building	V	Review of the draft national strategy on water management	Completed

460	Mar-21	Water Resources Management Unit (WRM), Bahrain National Oil & Gas Authority (Government Agency)	Assistance for Strategy (WMO)	111	Request for a session at the Brazil Water Week 2020	Ongoing
461	Apr-21	ECOWAS and WB (International Organization)	Capacity Development (WMO)	1	Request for hydrological data in Senegal	Completed
462	Apr-21	UNAM, Mexico (Universities and Academia)	Rapid Guidance (WMO)	IV	Looking for bibliographic reference	Completed
463	Apr-21	UN Environment (International Organization)	Rapid Guidance (WMO)	VI	Request for internship or consultancy	Completed
464	Apr-21	Hydrological Adviser of Georgia (Government Agency)	Rapid Guidance (WMO)	11	Seeking approval for referencing APFM publications	Completed
465	Apr-21	Israel Hydrological Service (Government Agency)	Rapid Guidance (WMO)	11	Request for input to the impact base forecasting project in South East Asia	Completed
466	Apr-21	World Bank (International Organization)	Asistance for Strategy (WMO)	111	Request to present IFM concept in workshops in Honduras, Nicaragua and Guatemala	Completed
467	Ma-21	Milan Municipality, Italy (Government Agency)	Rapid Guidance (WMO)	Global	user group- global flood monitoring system	Ongoing
468	Ma-21	Individual (Universities and Academia)	Capacity Development (WMO)	V	Finalization of the draft national strategy on water management	Completed
469	Ma-21	UNOCHA (International Organization)	Capacity Development (WMO)	I	Seeking information on pilot project and financial support	Completed
470	Ma-21	Israel Hydrological Service (Government Agency)	Rapid Guidance (WMO)	I	Request to present VFDM project	Completed



471	Ma-21	Department of urban planning and environmental protection, City of Braunschweig, Germany (Government Agency)	Rapid Guidance (WMO)	VI	Looking for paper on urban flood management	Completed
472	Ju-21	UNV (International Organization)	Capacity Development (WMO)	III	Requesting for pilot project in Argentina	Completed
473	Ju-21	Malaysia National Flood Forecasting And Warning Center (Government Agency)	Rapid Guidance (WMO)	V	Looking for information on evaporation pan regulations	Completed
474	Ju-21	PhD student from University of Grenoble (University and Academia)	Rapid Guidance (WMO)	VI	Looking for runoff data sources	Completed
475	Ju-21	UNESCO (International Organization)	Capacity Development (GWP)	Global	Looking for input in good practices case studies	Completed
476	Ju-21	UNDP Georgia (International Organization)	Capacity Development (WMO)	VI	Multi-hazard modelling and mapping methodology for Georgia	Completed
477	Ju-21	Permanent Mission of Spain (Government Agency)	Rapid Guidance (WMO)	VI	Looking for gender distribution information	Completed
478	Jul-21	Consultant, WBG (International Organization)	Capacity Development (WMO)	II	Seeking information on myDewetra	Completed
479	Jul-21	Israel Meteorological Service (Government Agency)	Capacity Development (WMO)	VI	Seeking assistance for organizing a moodle on flood forecasting	Completed
480	Jul-21	PhD student, University of Buenos Aires	Rapid Guidance (WMO)	III	Looking for information on hydrological levels & flows using Machine Learning Algorithms	Completed
481	Jul-21	WB Consultant (International Organization)	Capacity Development (WMO)	V	Looking for support in organizing training workshop for Fiji	Completed

482	Jul-21	WHO (International Organization)	Rapid Guidance (WMO)	Global	Review of WHO/WMO Health portal	Completed
483	Jul-21	Bosnia and Herzegovina NationalTV (Government Agency)	Capacity Development (WMO)	VI	Seeking interview on Flash Floods	Completed
484	Jul-21	Cellink (Private Company)	Rapid Guidance (WMO)	Global	How IFM methodology can be impacted by the use of bioreactors	Discarded (not relevant)
485	Jul-21	CREWS Secretariat (International Organization)	Capacity Develop- ment (WMO)	Global	Looking for information on DEWETRA	Completed
486	Aug-21	World Bank (International Organization)	Capacity Develop- ment (WMO)	Global	Looking for webinar for WB staff	Completed
487	Aug-21	CIMA and K&I (NGO/private companies)	Capacity Develop- ment (WMO)	VI	Joint project proposal development and submission to EU	Completed



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