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| **PURPOSE**  | The GMAS Framework IP Work Plan will support the management of actions and activities to accomplish the objectives of the IP as defined by the WMO Congress and the EC. The objectives are fixed per WMO Congress but the activities and actions defined here are dynamic, are spread across the WMO and are subject to the EC’s oversight of the GMAS Framework implementation according to a project management approach. Some outputs and activities may contribute to more than one objective in which case it will be placed under the objective it most closely aligns with and it will be cross-referenced elsewhere. For some activities, partners and external stakeholders are invited to join WMO to improve alerting capabilities. |
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| **OBJECTIVES**  | **A** | Establish a framework that includes a repository of warnings and defined information flows, building on and leveraging existing WMO standards and infrastructure that allow for sharing authoritative warning information produced by Members. |
| **B** | Especially for Members that need to strengthen their warning system(s), provide a roadmap for capacity development (on national, sub-regional and regional levels, including sharing of good practices) to enable them to issue warnings more effectively and efficiently and of higher quality. |
| **C** | Improve and promote the availability, affordability and accessibility of Members’ MHEWS as envisioned in the Sendai Framework, ensuring that they have authoritative warning information (sources) available to anticipate, mitigate, prepare for and respond to weather, water, ocean and climate events. |
| **D** | Enhance the authoritative voice of Members’ NMHSs in issuing official early warnings for weather, water, ocean, climate and space weather events that efficiently reach decision makers and those at risk and Members’ capacity to use authoritative information in preparing for and responding to these events. |
|  | **E** | Enhance the visibility of the NMHSs to their governments and development agencies, and of WMO in general, as key contributors to the 2030 Agenda. |
|  | **F** | Foster cooperation in disaster risk management and MHEWS on national, regional and global levels, including cross-border and interregional collaboration (creating a community to share warning information and to promote harmonization to the extent possible/appropriate). |
|  | **G** | Provide a framework for development agencies to invest in MHEWS capacity development projects for Members. |

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| **GMAS FRAMEWORK**  |  | **annex viiI** | **Global Multi-hazard Alert System Framework ip** | **wORK PLAN** |  |
|  | Lead Commission | SERVICES COMMISSION |  |
|  | Supporting Partners | Infrastructure CommissionRegional AssociationsWWRPKey Partner Organizations |  |

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| **EXPECTED OUTPUTS** | **1** | The GMAS Framework Implementation Strategy and Plan, leveraging all relevant WMO entities and capacity development activities, as well as other relevant institutions dealing with other types of hazards. The Framework shall include a repository of warnings and defined information flows, building on and leveraging existing WMO standards and infrastructure that allow for sharing authoritative warning information produced by Members. |
| **2** | A roadmap for capacity development (on national, sub-regional and regional levels, including sharing of good practices) to enable Members that need to strengthen their warning systems to issue warnings more effectively and efficiently and of higher quality. |
| **3** | Improved availability, affordability and accessibility of Members’ MHEWS as envisioned in the Sendai Framework, ensuring that they have authoritative warning information (sources) available to anticipate, mitigate, prepare for and respond to weather, water, ocean and climate events. |
| **4** | 1. The authoritative voice of Members’ NMHSs in issuing official early warnings for weather, water, ocean, climate and space weather events is enhanced.
2. Authoritative warnings for weather, water, ocean, climate and space weather events efficiently reach decision makers and those at risk.
3. Members capacity to use authoritative information in preparing for and responding to hazardous events is enhanced.
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| **5** | The visibility of the NMHSs to their governments and development agencies is enhanced, as well as that of WMO, as key contributors to the 2030 Agenda. |
| **6** | a. Enhanced cooperation in disaster risk management and MHEWS on national, regional and global levels, including cross-border and interregional collaboration.b. Community of practice organized to share warning information and to promote harmonization to the extent possible/appropriate. |
| 7 | An investment framework for development agencies to support MHEWS capacity development projects for Members. |

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| **OBJECTIVE NO.** | **A** | Establish a framework that includes a repository of warnings and defined information flows, building on and leveraging existing WMO standards and infrastructure that allow for sharing authoritative warning information produced by Members |
| **OUTPUTNO.** | **1** | The GMAS Framework Implementation Strategy and Plan, leveraging all relevant WMO entities and capacity development activities, as well as other relevant institutions dealing with other types of hazards. The Framework is in place that provides a repository of warnings and defined information flows, building on and leveraging existing WMO standards and infrastructure that allow for sharing authoritative warning information produced by Members |
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| **Activity No.** | **Concise description of activity**  | **Target Date** | **Responsibility** | **Status / Remarks****[Not started / On hold / Initiating / On-going / Completed / Deferred / Cancelled]** |
| **Lead**  | **Support** |
| **1.1** | Establish channels of coordination with relevant groups and partners. |  | SERCOM  | Secretariat | On-going |
| **1.2** | Agree roles and responsibilities for activities of IP |  | SERCOM  | Secretariat, relevant leads from other bodies |  |
| **1.3** | Develop a monitoring, evaluation and learning (MEL) methodology for GMAS. Connect with other relevant working bodies, especially RAs, to coordinate the MEL under the GMAS Framework. |  | SERCOM | Secretariat, relevant leads from other bodies |  |
| **1.4** | Consult with regional service groups to support alerting within their domains. Establish regular communications to support framework implementation.  |  | SERCOM and RAs | Secretariat | InitiatedLinked to Objective B. |
| **1.5**  | A. Document existing repositories of warningsB. Determine if there is a need to establish additional warning repositories |  | SERCOM | INFCOM, Secretariat | SWIC, WIS, WMO Alert Hub, Members sites, others as needed.WWIS not a repository of warnings but provides links that may also contain warnings.Determine where this documentation will be kept, possibly a GMAS website. |
| **1.6**  | Document warning information flows  |  | SERCOM | INFCOM, Secretariat  | Guidance material to be developed and edits included in GDPFS and WIS |
| **1.7** | Review WMO supportive frameworks (GDPFS: RSMC, WMCs, RCCs) and make recommendations as needed toward improving support for Members’ ability to issue high quality warnings. |  | SERCOM | INFCOM, Secretariat  |  |
| **1.8** | Communications strategy |  | Consultant | Secretariat | On-going |
| **OBJECTIVE NO.** | **B** | Especially for Members that need to strengthen their warning system(s), provide a roadmap for capacity development (on national, sub-regional and regional levels, including sharing of good practices) ***to enable them to issue warnings more effectively and efficiently and of higher quality*** |
| **OUTPUT NO.** | **2** | A roadmap for capacity development (on national, sub-regional and regional levels, including sharing of good practices) to enable Members that need to strengthen their warning systems to issue warnings more effectively and efficiently and of higher quality. |
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| **Activity No.** | **Concise description of activity**  | **Target Date** | **Responsibility** | **Status / Remarks****[Not started / On hold / Initiating / On-going / Completed / Deferred / Cancelled]** |
| **Lead** | **Support** |
| **2.1** | Develop a list of available resources to enhance the capacity of Members enabling more effective and efficient issuance of warnings through their MHEWS. |  | SERCOM Team TBD | SecretariatWWRP | Started, needs to be updated as framework progresses.HIWeather lists of relevant publications: http://hiweather.net/Lists/23.html plus in the newsletters.HiWeather IBW Project could assist in developing a list of other relevant references including outside of HiWeather. HiWeather publications linkage to 4.a.6  |
| **2.2** | Structure and sustainment of a CAP Helpdesk targeting alerting authorities (issuers) and their users ( NDMOs, NGOs, Media etc )  |  | SERCOM,  | Secretariat, WMO partners (ITU, IFRC) | Initial planningET-GMAS AD-Hoc Technical Coordination Group set up.Connection with Output 4.a.4 SC-HYD.Reference any relevant MOU’s or agreements.  |
| **2.3** | Coordination of CAP implementation for hydrology related warnings  |  | SC-HYD | SERCOM Team TBDsecretariat | 0n-going |
| **2.4** | Coordination of CAP implementation for marine related warnings  |  | SC-MMO | SERCOM Team TBDsecretariat | On-going |
| **2.5** | Coordination of CAP implementation for agricultural meteorology related warnings (including drought)  |  | SC-AGR | SERCOM Team TBDsecretariat | On-going |
| **2.6** | Respond on requests about CAP in other domains.Formalize the Ad-hoc ET-GMAS Technical Coordination Group (TCG)  |  | CAP Help DeskGMAS TCG |  |  |
| **2.7** | Exchange of CAP formatted warnings in WIS2.0  |  | SERCOM, SC-DRRINFCOM SC-IMT | SC- SC-IMT, Secretariat, Eliot  | On-goingET-GMAS & SC-IMT Trial exchange of CAP in MQ TTMQP pilot in cooperation with INF SC-IMT completed.  |
| **2.8** | Develop guidance for RAs and other groups such as domain focused groups to integrate the GMAS Framework and alerting support into their plans. This will also act as a roadmap for capacity development. |  | SERCOM, SC-DRR | Secretariat | Cross border collaboration and communication, building community of practice.Links to 6.b.1, community of practice.Partnership within and between Members can contribute to improved effectiveness of MHEWS and warning dissemination such as in MeteoAlarm & Caribbean CDEMA.Consider domain/hazard and issue related groups, SEB aspects, country groups like LDCs and SIDS. |
| **2.9** | RA plans overview:Ensure that Regional Plans include alerting and support/align with the GMAS IP Identify GMAS focal points / Working body(s) | N/A | Roadmap or Plans should identify relevant activities, centers, regional architecture and responsibilities highlighting where they are today and where they want to be. |
| **2.9 a** | RAI Africa: Review of the GMAS Roadmap for Africa |  | RAI Services Group | Regional officeSERCOM | On-going |
| **2.9.b** | RAII Asia: |  | RAII Services Committee | Regional officeSERCOM | On-going |
| **2.9 c** | RAIII South America:   |  | RAIII Services Group | Regional officeSERCOM | On-going |
| **2.9d** | RAIV North America, Central America and the Caribbean:  |  | RA IV Services Committee  | Regional OfficeSERCOM | On-going  |
| **2.9 e** | RAV South-West Pacific:   |  | RA V Services Group | Regional officeSERCOM | InitiatedInitiated |
| **2.9 f** | RAVI Europe:  |  | RA VI Services Group | Regional officeSERCOM | Initiated |
| **2.10** | Build linkages to ongoing capacity development initiatives. Capacity development should engage sub regional groupings in the roll out and coordination of training efforts |  | SERCOM Team TBD | SecretariatWWRP | WWRP/HiWeather book ‘Towards the perfect weather warning’ (2022) may contribute towards Framework related competencies exploring the skills underpinning each part of the warning chain. HIWeather members may be able to assist.Proposed WWRP PEOPLE project (2024-2027) which is still being defined, is likely to include capacity development, such as education guidance. Linkage to help the PEOPLE project contribute to the GMAS Framework. |
|  **2.11** | Review and Update of competency frameworks for “warning meteorologists/hydrologist” with the goal of forecasters to issue higher quality warnings  |  | CDP, ETR | SERCOM, Secretariat | Review WMO supportive frameworks (GDPFS: RSMC, WMCs, RCCs) and propose changes aligned with the revised competency framework to strengthened where needed to enhance quality and support to Members in issuing warnings. |
| **2.12** | Collaborate with partners on the need to provide improved competency for other hazards alerting |  | ETR and external partners | SERCOM, Secretariat |  |
| **2.13** | Raise awareness of alerting authorities to issue CAP alerts when warnings are generated. |  | SERCOMRAs | Secretariat | Consider in respect to MEL. |
| **2.14** | Provide recommendations to Members on steps to participate in GMAS Could be used as a reference for setting up an initial or new alerting capability. |  | Secretariat | SERCOM | Examples: MeteoAlarm on-boarding document & draft Common Policies & Practice of WMO Alert Hub. Not all alerting authorities issue in CAP, collaborate with these to increase the use of CAP. |
| **2.15** | Develop and maintain an integrated roadmap for capacity development across the issues and domains for this relevant to this objective. |  | SERCOMSecretariat | INFCOMRAsWWRPKey partnersActivity leads | Don’t duplicate other work or documents, rather link to or cite the relevant contributing work.Work with WWRP to identity and collaborate on their proposed projects that have relevant contributions to the GMAS Framework. |

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| **OBJECTIVE**  | **C** | Improve and promote the availability, affordability and accessibility of Members’ MHEWS as envisioned in the Sendai Framework, ensuring that they have authoritative warning information (sources) available to anticipate, mitigate, prepare for and respond to weather, water, ocean and climate events |
| **OUTPUT NO.** | **3** | Members have the authoritative warning information they need to anticipate, mitigate, prepare for and respond to weather, water, ocean and climate events  |
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| **Activity No.** | **Concise description of activity**  | **Target Date** | **Responsibility** | **Status / Remarks****[Not started / On hold / Initiating / On-going / Completed / Deferred / Cancelled]** |
| **Lead** | **Support** |
| **3.1** | Review and ensure relevant alerting authorities are included in the WMO Register of Alerting Authorities (circular letter)Relevant hazards are identified.Develop guidance for Members on how to maintain their registry entries noting in particular that NMHS are not the only authority in most Members.Send correspondence to inform Members and agencies of guidance and need for actions. |  | SERCOM Team TBD | Secretariat | Initial Discussions and action planning.* Contact Members to update existing entries, which are obviously outdated or incorrect.
* Many emergency management offices are missing.
* Conduct a review of individual Members institutional mandates to identify which national agencies have the mandate to issue warnings for different hazard types for inclusion in the Registry
* Using the review conducted in 3.2 issue guidance and launch advocacy efforts to update the Register of Alerting Authorities to ‘register’ national agencies with the authority to issue warnings.
* Not all Members have listed in the register of alerting authorities the entities that have the authority to issue warnings.
 |
| **3.2**  | Review the design and process of updating the WMO Register of Alerting Authorities to enhance aspects of human and machine queries (API to query different aspects, CAP URLs are most important). |  | SERCOM Team TBDGMAS TCG | Secretariat | Formalize AD hoc ET-GMAS AD-HOC TCG (see item 2.6)Align with internationally agreed hazard types eg, the WMO Catalogue of Hazard Events.  |
| **3.3** | Work towards consistency of the emerging Early Warning for All initiative with the GMAS Framework IP  |  | SERCOM Team TBD | Secretariat | As the emerging Early Warning for All initiative develops and evolves, its relationship to the GMAS Framework will need to be considered with a view to the two efforts to support each other as relevant. |
| **3.4** | Support national advocacy efforts to enhance Members MHEWS related capabilities.  |  | SERCOM Team TBD | Secretariat |  |

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| **OBJECTIVE**  | **D** | Enhance the authoritative voice of Members’ NMHSs in issuing official early warnings for weather, water, ocean, climate and space weather events that efficiently reach decision makers and those at risk and Members’ capacity to use authoritative information in preparing for and responding to these events |
| **OUTPUT NO.** | **4.a** | The authoritative voice of Members’ NMHSs in issuing official early warnings for weather, water, ocean, climate and space weather events is enhanced.  |
| **4.b** | Authoritative warnings for weather, water, ocean, climate and space weather events efficiently reach decision makers and those at risk. |
| **4.c** | Members capacity to use authoritative information in preparing for and responding to hazardous events is enhanced. |
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| **Activity No.** | **Concise description of activity**  | **Target Date** | **Responsibility** | **Status / Remarks****[Not started / On hold / Initiating / On-going / Completed / Deferred / Cancelled]** |
| **Lead** | **Support** |
| **4.a.1** | Update SWIC2 with official sources of warning from Members. |  | HKO SERCOM Team | Secretariat | On-going |
| **4.a.2** | Provide recognition of CAP in the WMO Technical Regulations. |  | SERCOM Team TBD | Secretariat | On-going, initial draft available.WMO #49, Vol. 1 |
| **4.a.3** | Inclusion of GMAS Framework in Technical Regulations Vol. 1, Part IV (WMO-No. 49).  |  | SERCOM Team TBD | Secretariat | Initiated |
| **4.a.4** | Support SC-HYD in the selection and development of hydrology case studies for CAP |  | Angela | Secretariat | Initiated |
| **4.a.5** | Develop an attribution statement for redistributors, such as the private sector, when using alerting information and noting this is recommended when using information published by WMO Members per the WMO Unified Data Policy. |  | SERCOM | Secretariat |  [WMO Data Policy](https://library.wmo.int/doc_num.php?explnum_id=11256)Creative Commons License also which permits use, distribution and reproduction in any medium, provided the original work is properly cited. |
| **4.a.6** | Identify and address needed guidance materials related to MHEWS, especially where gaps exist, which address effective, efficient issuance of warnings.  |  | SERCOM | SecretariatET-MTGWWRP | Consider guidance for national extreme level warnings and recommendations for dissemination by national media (such as radio, TV, cell, government agencies, businesses and social media), Link to 2.1 and 2.13  |
| **4.b.1** | In national policy review (Activity 3.1) highlight and develop case studies for countries which link warnings directly to decision making processes. |  | SERCOM Team TBD | Secretariat |  |
| **4.b.2** | Document case studies where countries or alert originators link warnings directly to decision making processes such as in an emergency operations center. |  | SERCOM | SecretariatWWRP | Provide these as good examples for Members to improve their authoritative voice and the effectiveness of their MHEWS.Possible use of WWRP value chain project, case studies related to disasters. |
| **4.b.3** | Support engagement between NMHS and national civil protection and disaster management agencies to develop actionable instructions to accompany CAP warnings and link alerts to decision making processes. |  | SERCOM | Secretariat |  |
| **4.c.1** | Collaborate and improve relationships and strategic partnerships with UN, NGOs, and the private sector to enhance dissemination of and use of authoritative warning information produced by Members. |  | SERCOMET-WCM | Secretariat | Linkage to Objective F, 6.a.2 |
| **4.c.2** | Link extra-budgetary projects to enhance Member capacity to use authoritative information in preparing for and responding to hazardous events. |  | SERCOM Key partner reps | Secretariat | Consider and clarify if needed roles and relationships. Consider role of feedback from re-distributers.Link to Objective G, investment support. |
| **4.c.3** | Provide guidance for impact descriptions and actionable instructions within CAP warnings and other alerts.Link alerts to decision making processes |  | SERCOM | SecretariatWWRP | Support engagement between alerting authorities (such as NMHSs, national civil protection, disaster management agencies), IFRC/PAPE and national telecom authorities to develop actionable alerts.Strong links to IBF initiatives and social science.HiWeather IBW Project (2022-23) will keep in mind any linkages to CAP and alert messages to help feed into GMAS. |

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| **OBJECTIVE NO.** | **E** | Enhance the visibility of the NMHSs to their governments and development agencies, and of WMO in general, as key contributors to the 2030 Agenda. |
| **OUTPUT NO.** | **5** | The visibility of the NMHSs to their governments and development agencies is enhanced, as well as that of WMO, as key contributors to the 2030 Agenda. |
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| **Activity No.** | **Concise description of activity**  | **Target Date** | **Responsibility** | **Status / Remarks****[Not started / On hold / Initiating / On-going / Completed / Deferred / Cancelled]** |
| **Lead** | **Support** |
| **5.1** | MEL (1.3) and Communications Strategy (1.8) |  | Secretariat | SERCOMconsultants | Initiated  |
| **5.2** | Identify global events where MHEWS activities could be profiled. |   | Secretariat | SERCOM | update every quarter |
| **5.3** | Facilitate the engagement of NMHSs in global forums.* Develop speaking points
* Strategic positioning
 |  | Secretariat  | SERCOM |  |
| **5.4** | Coordinate MEL with national reporting under the Sendai Framework Target G monitoring. |  | Secretariat  | SERCOM |  |

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| **OBJECTIVE NO.** | **F** | Foster cooperation in disaster risk management and MHEWS on national, regional and global levels, including cross-border and interregional collaboration (creating a community to share warning information and to promote harmonization to the extent possible/appropriate). |
| **OUTPUT NO.** | **6.a** | Enhanced cooperation in disaster risk management and MHEWS on national, regional and global levels, including cross-border and interregional collaboration.  |
| **6.b** | Community of practice organized to share warning information and to promote harmonization to the extent possible/appropriate. |
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| **Activity No.** | **Concise description of activity**  | **Target Date** | **Responsibility** | **Status / Remarks****[Not started / On hold / Initiating / On-going / Completed / Deferred / Cancelled]** |
| **Lead** | **Support** |
| **6.a.1** | Coordinate with RA services groups to include a standing item on enhanced cooperation in DRM including cross-border and interregional collaboration. |  | Secretariat  | SERCOM |  |
| **6.a.2** | Establish and enhance cooperation mechanisms with UN, NGOs, and the private sector disaster risk management to address MHEWS issues affecting national, regional and global levels, including cross-border and interregional matters.  |  | SERCOMET-WCM | Secretariat | Linkage to Objective E, 4.c.1 |
| **6.b.1** | Organize and facilitate community(s) of practice to share warning information and to promote harmonization to the extent possible and appropriate. |  | Secretariat Regional Associations | SERCOM | Regional and/or sub-regional groupsExisting domain based coordination groups. |
| **6.b.2** | Convene a technical working group of redistributors to share lessons learned and good practice in warning. |  | Secretariat  | SERCOM | Linkage to guidance material development in above objectives. |

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| **OBJECTIVE NO.** | **G** | Provide a framework for development agencies to invest in MHEWS capacity development projects for Members. |
| **OUTPUT NO.** | **7** | An investment framework for development agencies to support MHEWS capacity development projects for Members. |
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| **Activity No.** | **Concise description of activity**  | **Target Date** | **Responsibility** | **Status / Remarks****[Not started / On hold / Initiating / On-going / Completed / Deferred / Cancelled]** |
| **Lead** | **Support** |
| **7.1** | Develop a GMAS investment framework to facilitate improving Member’s MHEWS capability. Strong coherence with Objective B, Roadmap.Leverage the emerging Early Warning for All initiative. |  | Secretariat | SERCOM | Noting Activity 7.2, facilitate addressing any significant gaps.Review needs and plans for future implementation efforts to assist donors. |
| **7.2** | Map projects that support the various aspects of MHEWS including dissemination of authoritative warnings (note if they include CAP training)  |  | Secretariat | SERCOM, SC-DRR Regional teams | Include projects to enhance Member capacity to use authoritative information in preparing for and responding to hazardous events.This should address the end to end alerting landscape. |
| **7.3** | Facilitate projects to enhance Member capacity to use authoritative information in preparing for and responding to hazardous events |  | Secretariat | SERCOMWWRP | WWRP is proposing several projects that could contribute to the GMAS Framework.  |
| **7.4** | Ensure the investment framework is consistent with the roadmap for capacity development, objective B. |  | Secretariat | SERCOM |  |

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| **GROUPS OF RELEVANCE****[Internal to WMO (e.g. RB, TC SCs and SGs, HCP, JCB, CCP, etc.) and external to WMO (i.e. partner organizations and other entities]** | * SERCOM SC-DRR ET on the WMO Coordination Mechanism to support humanitarian activities (ET-WCM)
* SERCOM SC-DRR ET on Cataloguing of Hazardous Events (ET-CHE)
* SERCOM SC-DRR ET on Multi-Hazard Early Warning System (MHEWS) Interoperable Environment (ET-MIE)
* SERCOM SC-DRR ET on MHEWS Technical Guidance (ET-MTG)
* SERCOM SC-DRR ET on General Service Delivery (ET-GSD)
* SERCOM SC on Hydrological Services (SC-HYD)
* SERCOM SC Services for Agriculture (SC-AGR)
* SERCOM SC Climate Services (SC-CLI)
* SERCOM SC Marine Meteorological and Oceanographic Services (SC-MMO)
* SERCOM Study Group (SGs) on Integrated Health Services (SG-HEA)
* SERCOM SG Integrated Urban Services (SG-URB)
* INFCOM SC on Measurements, Instrumentation and Traceability (SC-MINT)
* INFCOM SC on Information Management and Technology (SC-IMT)
* INFCOM Study Group on Data Issues and Policies (SG-DIP)
* Joint WMO-IOC Collaborative Board (JCB)
* Regional Associations’ Management Groups, their DRR/Service-related Working Groups and Regional Training Centres
* EC Capacity Development Panel (EC-PE-CD)
* EC Technical Coordination Committee (EC-TCC)
* EC Policy Advisory Panel
* INFCOM Standing Committee on Earth Observing Systems and Monitoring Networks (SC-ON)
* INFCOM Standing Committee on Data Processing for Applied Earth System Modelling and Prediction (SC-ESMP)
* Research Board (RB)
* WWRP
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**Revision Track Record**

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| Date | Part/Chapter/Section | Purpose of amendment | Proposed by /date | Approved by / date |
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