Biennial self-assessment reports

For FY 2022-2023

(2022.4 – 2024.3)

Mid-term Programme	Projects	Planned activities and expected results in FY 2022-2023	Self-assessment of achievements S…Excellent, more than planned A…Good, as planned B…Satisfactory, less than planned C…Poor, far less than planned	Achievements in FY 2022-2023
(1) Innovative research 1) Collection, storage, sharing and statistical analysis of water-related disaster data				
ICHARM will conduct research on technologies to collect and store data and information regarding hazards, exposure and vulnerability and share them among stakeholders. We will also actively support nations and communities in data collection, storage, and sharing by developing and helping them implement technologies to collect damage data that can be operated by themselves. Technical assistance will also be provided for nations to compile highly reliable statistical data.	Support runoff inundation analysis using global observation data.	Improve the system continuity of the runoff inundation analysis system in the Philippines' Pampanga River basin by applying satellite rainfall data to prevent the system from disruption due to undelivered rain gauge data. Also, develop tools to support the implementation of a series of correction processes using ground rain gauge data.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [S] ⑤ Dissemination [S]	Constructed a system for the Pampanga River basin in the Philippines that statistically corrects satellite rainfall data (GSMaP) in real time using past ground observation data and inputs them into a runoff flood analysis system. In this way, the system continues to operate even when rain gauge data are not delivered in real time. Also developed A similar system for the Davao River in the Philippines. Conducted training for local policymakers so that they can use this system under the frameworks of the SATREPS and IFI projects. Presented this effort at a GEO ministerial meeting.
	Improve the resolution of soil moisture observation using global observation data.	Improve the resolution of land surface information (soil moisture content and vegetation biomass) up to about 1 km by combining a data assimilation system (CLVDAS) and a water energy balance model, apply the information system to different areas, and verify its effectiveness. Strive further to increase the resolution up to 100m by additionally using the synthetic aperture radar (SAR). Also, develop a model by combining CLVDAS and WEB-RRI-Veg for West Africa to establish drought monitoring.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [A] ⑤ Dissemination [B]	Fiscal 2022: Improved the resolution of soil moisture content from 25km to 2km for the Bouda River basin in West Africa by combining the CLVDAS data assimilation system and a water-energy balance model. Fiscal 2023: Improved the spatial resolution of soil moisture content from 2km to 100m using a soil moisture product from synthetic aperture radar (SAR) with high spatial resolution (100m). Presented the application of this resolution upgrading approach to drought assessment and agricultural support at the Japan Meteorological Society.
	Develop OSS-SR (Online Synthesis System for Sustainability and Resilience).	Develop and improve OSS-SR, accumulate water disaster statistics and other data, and build a data platform on DIAS while raising public awareness of water disaster prevention and providing facilitator training in the Philippines, Indonesia, and other countries. Select and coordinate target cities in Japan to carry out the same activities and start developing OSS-SR.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [S] ⑤ Dissemination [A]	Philippines: Assisted Davao City in establishing an OSS-SR subcommittee within the Davao River Basin Management Alliance. Strengthened ties with the Davao Regional Development Council, as the council adopted a resolution to cooperate with ICHARM in developing OSS-SR and training facilitators. Japan: Started research and development in the model study areas of the Kinugawa and Kokaigawa river basins in Ibaraki Prefecture and the Tokachi River basin in Hokkaido Prefecture. The project aims to create and use risk information that can lead individuals and businesses to take voluntary actions, such as early evacuation and pre-disaster preparations.
	Develop an information platform on which various types of information can be used on digital twins.	Start developing a methodology to create a platform for information sharing among related stakeholders while integrating different kinds of information on digital twins, including the specifications of ground conditions and artificial structures, urban development plans related to water-related disaster management, and data on agriculture, natural environment, and past disasters. The Kokai River basin in Ibaraki Prefecture is one of the candidates for this study.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [S] ⑤ Dissemination [A]	Developed a method to build a platform for information sharing among stakeholders in study areas, such as the Koigawa River basin in Ibaraki Prefecture. The method introduces a digital twin on which various types of information are integrated, including ground conditions, artificial structures, urban planning related to flood management, agriculture, the natural environment, and past disasters, and then constructed a virtual flood experience system using this method. Also ported the system to

					educational game software and improved the authenticity of the cyber landscape with help from local junior high school students to promote the public use of this VR system.
2) Assessment of water-related disaster risks					
	ICHARM will develop and verify a method to combine water-related disaster assessment models with other models. We will also develop an index that can holistically indicate the basin-wide impact of water hazards. Case studies on the risk assessment of water-related disasters will be conducted at multiple locations both in and outside Japan while taking local conditions into account. Necessary assistance will be provided for local communities to perform risk assessments based on their needs and circumstances using the findings of the case studies, thereby achieving disaster risk reduction.	Upgrade future climate prediction technology using multiple models, downscaling GCMs, etc., and evaluate its regional applicability.	Examine methods for reproducing past heavy rainfall events on meteorological models and methods for estimating the severity of heavy rainfall events due to global warming. Propose an evaluation method for estimating the maximum rainfall suitable for regional meteorological characteristics, estimate the maximum rainfall using multiple methods, compare and verify the estimation results, and propose a valid evaluation method.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [S] ④ Social significance [A] ⑤ Dissemination [A]	Conducted sensitivity analyses of a high-resolution dynamic downscaling method to generate climate data that can be used to evaluate the impact of global warming on small basins of 100km2 or less. The calculation of typhoon cases in the Tone River basin found that resolutions can significantly affect analysis results in the upstream area. Also conducted DAD analysis using d4PDF's rainfall data, taking Kyushu as an example, to estimate the impact of climate change on maximum rainfall using the rainfall change ratio. The results found that the average rainfall change ratio in the 4℃-rise scenario is 1.16 to 1.34 in northwestern Kyushu and 1.07 to 1.31 in southeastern Kyushu.
		Construct a water cycle model that can take into account basin characteristics and visualize the effects of community-led basin management measures.	Develop an elaborate water circulation model that can physically take into account the basin's conditions and flood control measures, aiming to simulate the effectiveness of individual facilities and structures in flood damage mitigation. Also, develop a model to evaluate the impact of levee breaches.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [S] ④ Social significance [S] ⑤ Dissemination [A]	Proposed a method to determine overflowing points using public data. Creating overflowing points in advance has been addressed to reduce damage due to flooding that exceeds the design flood scale set for levee construction by controlling floodwater volume. Also tested the method for an area where large-scale levee breaches had occurred in recent years. The results indicated that the annual average crop damage may decrease even when the overflow frequency increases after creating overflowing points. Reference: Osamu Itagaki, Miho Ohara & Toshio Koike, Study of Flood Damage Reduction by Spillway Installation on a Riverine Levee in a Protected Area, Journal of Japan Society of Hydrology and Water Resources vol. 35, No. 5, 2022
		Develop, upgrade, and apply hazard assessment of sediment, driftwood, and flood inundation in Japan and abroad.	Apply sediment hydraulic models that can process basin, two-dimensional, and three-dimensional data to various rivers with different characteristics. Also, study methods for utilizing the analysis results to practice river management related to flood, sedimentation, driftwood, and erosion, more effectively.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [A] ⑤ Dissemination [A]	Completed a sediment hydraulic model that can process basin, two-dimensional, and three-dimensional data and applied it to various river basins in Japan and overseas. Applied the RSR model, which analyzes sediment and driftwood runoff from basins due to heavy rain, to domestic and overseas river basins, and confirmed that it can evaluate spatial-temporal changes in sediment concentration, grain size distribution, and riverbed fluctuations over a certain area. The results demonstrated the model's practicality for river management purposes.
		Study adaptation measures using integrated risk assessment methods.	Develop and apply a model created by integrating WEB-RRI and SIMRIW (Simulation Model for Rice-Weather Relationships) to basins with various land uses, such as those in the Philippines and Indonesia. Using this integrated model, develop quantitative risk	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [A] ⑤ Dissemination [A]	Developed a rice-plant growth simulation model by coupling the WEB-RRI model with SIMRIW for the Pampanga River basin in the Philippines. Also developed and verified a function to consider the impact of irrigation systems.

			assessment methods that can take into account water-related hazards under future climate scenarios and their direct and indirect impacts. Support local governments in conducting practical activities using risk assessment methods and starting discussions on measures to build a society resilient to water-related disasters.		Downscaled MRI-AGCM 3.2S for WEB-RRI inputs and calculated future flood conditions in the Pampanga River basin. Conducted the 2nd e-learning training for local counterparts from July to August 2022, as we did in fiscal 2021, to improve their understanding of WEB-RRI and SIMRIW. Provided hands-on exercises for the Pampanga River basin as a model basin to help the participants acquire analysis techniques.
3) Monitoring and prediction of changes in water-related disaster risks					
ICHARM will develop, verify and improve methods for monitoring and forecasting changes in hazards due to meteorological conditions with different temporal scales ranging from season to climate change and changes in exposure and vulnerability due to social development and economic changes. These methods will be applied to case studies at multiple locations both in and outside Japan, and the outcomes will be used to provide support for all stakeholders to select appropriate methods according to their needs and conditions to mitigate future risks of water-related disasters by themselves. The methods will be modified with various local adjustments and compared with each other for further improvement to eventually become globally applicable.	Improve the accuracy of forecasting rainfall and flood events several days ahead.	Improve the accuracy of rainfall and flood forecasting up to several days in advance. To this end, the data assimilation method will be upgraded using the WRF (Weather Research and Forecasting model)-LETKF (Local Ensemble Transform Kalman Filter) model, and the initial values of atmospheric and terrestrial water circulation forecast models will be improved.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [A] ⑤ Dissemination [B]	Successfully reproduced the linear precipitation band observed over the Kyusyu region, Japan, in July 2020 by applying the WRF-LETKF method with improvements to its data assimilation approach. Also improved the accuracy of rainfall prediction by applying a method to assimilate cloud water content and other data obtained from satellite microwave observations into the forecasting model.
	Develop a water circulation model that can represent low to high water, including the effects of seasonal and regional factors such as snow accumulation and snowmelt.	Apply the inflow forecasting model studied for the typhoon-caused flood events in the Oigawa River (2018, 2019) and the Saigawa River (2018) to typical typhoon flood events in other years to verify its accuracy. Also, apply the model to flood events caused by frontal rainfall to verify the accuracy of inflow forecasting in events with different rainfall patterns. In addition, develop water circulation models for other basins, such as the Tone River basin.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [A] ⑤ Dissemination [A]	The Sai River in Nagano Prefecture, Japan: Conducted a hindcast of the ensemble inflow to the dams in two upstream river basins, Takase and Azusa, targeting the large- and small-scale flooding due to the frontal system in August 2021 and confirmed that our approach can accurately predict the timing of the peak and the inflow amount. Also started a similar model development for the Tone River. The Kawarada and Machino Rivers in the Noto Peninsula, Japan: Constructed WEB-DHM-S without observed flow data. Then, calibrated and tested the system to estimate snow cover and melt using AMeDAS snow depth data and MODIS snow area data and confirmed that the system can provide accurate estimations.
	Evaluate changes in exposure and vulnerability due to social changes.	Monitor the exposure and vulnerability of communities to water disasters, and analyze and evaluate risks associated with changes due to development and other social and economic conditions in the Philippines and Thailand.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [S] ⑤ Dissemination [A]	Philippines: Developed a system that uses corrected GSMaP rainfall as a backup system for rainfall input in the Early Flood Warning System (FEWS) built for the Pampanga River basin, and introduced it as part of FEWS by July 2022. This backup system enabled FEWS to continue monitoring flood conditions when Typhoon Karding hit the area in late September 2022, and the Pampanga Provincial Disaster Management Bureau acknowledged its usefulness. Thailand: Conducted extreme flood scenario analysis using the rainfall causing the 2011 flood and the historical maximum rainfall. Multiple rainfalls were prepared by modifying these two according to different return periods. The analysis indicated the flood risk for industrial sites, residential areas, and commuting routes by estimating the

					onset, end, period, and depth of inundation and the flood-control effect and limitation of flood walls.
4) Proposal, evaluation and application of policies for water-related disaster risk reduction					
When developing policies to address climate change impacts, it is essential to consider stakeholders' understanding of disaster management measures, lifestyles, socio-economic activities, and possible changes in disaster risks. To achieve these, ICHARM will develop models to assess each policy's practicality and effectiveness, as well as socio-economic assessment methods applicable to different nations. We will also provide training for strengthening human resources to lead local consensus-building and political decision-making.	Develop OSS-SR for building a basin-wide consensus and nurturing facilitators.	Continue developing Area-BCM in industrial clusters and create scientific knowledge that will contribute to policy-making for mitigating water disaster risks in cooperation with related organizations in Thailand.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [A] ⑤ Dissemination [A]	Assisted businesses in formulating BCM by constructing a flood inundation analysis model at the scale of industrial parks and by creating detailed flood risk information (e.g., the onset, end, and depth of inundation). Participated in the collaborative workshops for Area-BCM held at several industrial parks in fiscal 2023 and contributed to the discussions.
	Develop technologies to support the effective implementation of "River Basin Disaster Resilience and Sustainability by All".	Develop a method for assessing the economic impact of floods under climate change by utilizing the basin space created on digital twins, and investigate its applicability to the decision-making process in the management and investment of the corporate and financial sectors from the flood management perspective, as well as to the policy-making process for town development. The Tokachi River basin in Hokkaido Prefecture is one of the model cases for this study.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [B] ⑤ Dissemination [B]	Collected information on the criteria and frameworks for non-financial disclosure related to climate change and sustainability (e.g., TCFD) and information on flood risk awareness of mainly large corporations and the financial sector, including investors. Also examined the feasibility of coordination between these trends and basin-wide flood management. Started developing a system that allows businesses to easily calculate losses caused by flooding under climate change and estimate damage reduction when planning flood control measures.
5) Support for enhancing water-related disaster management practices					
ICHARM will support local governments and citizens at several locations in Japan and overseas in the implementation of means for effectively sharing information from early warning systems and other sources among administrators and residents to facilitate coordinated disaster responses among different sectors. We will also develop, verify, and help them implement methods for preparing operation continuity plans based on local needs and conditions and improving interoperability during disaster response by liking administrative functions effectively at all levels.	Support building an early warning system by providing real-time water-level forecasts and information on flooding and other hazards.	Develop a manual to support river administrators in independently developing low-cost, simple models, based on the RRI model developed for small and medium-sized rivers, for forecasting water levels and gathering inundation information with uncertainties. In creating a manual, a test model will be presented before the flooding season, a trial run will be conducted, and the results and feedback will be collected and reflected in the manual to increase the usability of the model.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [A] ⑤ Dissemination [S]	Standardized the low-cost, simple method developed to forecast water levels in small- and medium-sized rivers and produced a manual to support river managers in independently creating river models. Organized workshops for prefectural river managers to promote the introduction of the method and collect feedback to improve the manual. Made improvements to increase the user friendliness of RRI by adding sets of highly accurate data and new functions to RRI's graphical user interface.
	Develop optimal operation methods for existing dams and other structures to enhance flood control and provide support for their implementation.	Study and test optimal dam operations using rainfall and flood forecasts, which were developed for a single hydroelectric dam in the upper Oi River to enhance its water-use capacity and add a flood control capacity. Also study optimal dam operations for three dams built on the Takase River, a tributary of the upper Sai River. Moreover, start investigations to prepare for applying this method to reservoirs in Kerala State, India.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [A] ⑤ Dissemination [A]	Investigated the possibility of using short-term (39 hours) and long-term (3 months) rainfall forecasts for the Oi River Hatanagi First Dam in Japan. Obtained the long-term ensemble inflow forecasts by inputting the long-term ensemble rainfall forecasts into a hydrological model and examined multiple cases using different factors, such as the average inflow from the start of prediction, the different number of days to calculate the average for different seasons,

			and different ranks of ensemble inflow. A one-year case study at a single dam showed that long-term rainfall forecasts can be used to improve dam operations, achieving more hydropower generation and safe flood control. Then analyzed the dam operation data in the past several decades to find better dam operation methods for multiple years and submitted the findings to an international journal. Also conducted research for another domestic river, the Sai River, using short-term rainfall forecasts (39 hours) to find out whether they can be used to produce accurate ensemble inflow forecasts, and submitted the results to an international journal. Started another project to study optimal dam operations. Participated in a workshop hosted by the World Bank in January 2023 with local state government officials and World Bank officials and joined a dam study tour. Had a meeting in March 2024 with World Bank officials to discuss a plan for the second phase of the project.
Develop technologies (e.g., VR) to effectively provide risk information.	Improve the virtual flood experience system using DIAS and study effective methods to increase its public accessibility with a view to utilizing it in emergency drills and awareness-raising activities conducted by governments and companies. Study approaches to promoting broader use of this system among the public, for example, preinstalling it in popular devices and creating applications.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [A] ⑤ Dissemination [S]	Reproduced flood flows, including runoffs and surface flows, on a digital twin and constructed a virtual flood experience system that allows users to experience flooding through an avatar in a cyberspace. Made improvements to increase public accessibility by deploying the system on the web, developing a basic system to use it on smartphones and other mobile devices, and porting it to educational game software. Organized a public symposium for publicity in February 2023, where middle school and university students tried out the system.
Compile knowledge for strengthening disaster response capabilities of local governments and other entities.	Revise the “Collection of Critical Situations during Flood Emergency Response (local government edition)” by collecting and organizing new cases from the disaster response review reports released by local governments in Japan from 2017 to 2020. In addition, produce a version for business establishments. Study AI and text mining methods for automating the collection of critical situations, as well as feedback systems from local governments.	① Overall evaluation [A] ② Publication [B] ③ Scientific significance [A] ④ Social significance [A] ⑤ Dissemination [B]	Collected roughly 2200 new situations from disaster response case reports published between 2017 and 2020 by municipalities around Japan and added them to the database. Developed a system to semi-automatically extract critical situations by applying a deep learning approach to the already extracted cases and have been testing its accuracy. Also built cooperative relationships with municipalities to collect feedback from them.
Research response efforts to water disasters and support for and enhancement of early restoration efforts.	Develop a system to support preparation for emergency response efforts to water disasters. The system is built on a disaster risk information system and designed to help those in charge of disaster management with the following tasks: -check what to do when water disaster risks increase, -learn about what to do and possible critical situations during the response effort in case of disaster, -develop a BCP, -collect and share information on the status of restoration, and	① Overall evaluation [B] ② Publication [B] ③ Scientific significance [B] ④ Social significance [A] ⑤ Dissemination [B]	Selected critical situations that occurred during the restoration phase from the previously selected critical situations during flood response efforts, and then categorized them and conducted trend analysis. The analysis clarified what categories of issues need more support.

		-examine how best to allocate personnel and other resources during the response effort.		
(ii) Effective capacity building 1) Foster solution-oriented practitioners and Training-of-Trainers (TOT) instructors who can effectively lead the planning and practice of disaster management with solid theoretical and engineering foundation at all levels from local to international settings.				
ICHARM will continue and enhance the doctoral and master's courses by strengthening the collaboration with GRIPS and JICA. Particularly, we will more closely connect the doctoral education with our research activities, for example, by providing opportunities to learn more practical knowledge while utilizing ICHARM's human resources. We will also make full use of more functional learning materials and remote learning methods.	Doctorial Course "Disaster Management"	Accept about 2-3 students every year.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [A] ⑤ Dissemination [A]	October 2022: Accepted 4 students from Sri Lanka, Pakistan, Nepal, and Bangladesh. October 2023: Accepted 4 students from Afghanistan, the Philippines, Pakistan, and Japan. (One student dropped out due to personal circumstances.)
	Master's Course "Water-related Disaster Management Course of Disaster Management Policy Program" Start preparing for new capacity development programs to develop and implement water-related disaster management policies.	Accept about 14 students every year from the countries selected based on the results of the needs survey administered to candidate countries. Start preparing for launching an a-month-long training course, tentatively named "Field Integration Course on River Basin Disaster Resilience and Sustainability by All." This course plans to accept about three trainees each from countries at a high water-disaster risk, who are in charge of river management, risk management, crisis management, or meteorology. They will study Japan's science and technology related to water disaster management in an integrated manner and learn how to organize well-coordinated actions among ministries and agencies across different sections to solve issues regarding water-related disaster management.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [A] ⑤ Dissemination [A] ① Overall evaluation [B] ② Publication [B] ③ Scientific significance [B] ④ Social significance [B] ⑤ Dissemination [B]	October 2022: Accepted 13 students from Bhutan, Pakistan, the Philippines, Sri Lanka, East Timor, and Tunisia. October 2023: Accepted 13 students from Bangladesh, Honduras, Indonesia, Malawi, Morocco, Pakistan, the Philippines, Sri Lanka, and East Timor. Proposed a project to produce experts who can solve water issues in an interdisciplinary manner. The proposal could not get approval from the Ministry of Foreign Affairs, for its design does not fit the conventional training frameworks that typically focus on a specific country or issue. Nonetheless, we plan to continue negotiations with the Foreign Ministry since the UN Water Conference and others promote cross-cutting human resource development.
2) Train facilitators to acquire interdisciplinary scientific knowledge related to water-related disaster risk reduction and the capability to lead discussions and consensus building among various stakeholders.				
It is important to increase the understanding and collaboration of all stakeholders in a river basin to build resilience and sustainability against increasingly intense water-related disaster risks. ICHARM will provide support to foster facilitators who can integrate and translate interdisciplinary scientific knowledge for all stakeholders to cooperate in building social consensus by employing a cross-sectoral approach in the public sector and encouraging the private sector for active participation.	Provide e-learning and training opportunities, including facilitator training, through IFI and other networks.	Develop and improve OSS-SR, accumulate water disaster statistics and other data, and build a data platform on DIAS while raising public awareness of water disaster prevention and providing facilitator training in the Philippines, Indonesia, and other countries. Select and coordinate target cities in Japan to carry out the same activities and start developing OSS-SR.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [S] ⑤ Dissemination [A]	Philippines: Developed a prototype for a DIAS-based data upload and download system. This system creates metadata by uploading a portion of the natural and social environmental data collected locally. Defined data sharing guidelines and put the system in service for data sharing and utilization. Also improved the functions of the flood early warning system previously developed for the Pampanga River basin and constructed an OSS-SR for the basins of the Pampanga River, the Pasig-Marikina River, and the Laguna Lake. Organized a workshop for OSS-SR users and managers at DENR XI on June 30, 2023, to promote the use of OSS-SR, developed and implemented for Davao City. A total of 33 people from various organizations participated. Japan: Started research and development in the model study areas of the Kinugawa and Kokaigawa river basins in Ibaraki Prefecture and the Tokachi River basin in Hokkaido Prefecture. The project aims to create and use risk

				information that can lead individuals and businesses to take voluntary actions, such as early evacuation and pre-disaster preparations.
3) Maintain and enhance the capacity of local experts and institutions engaging in addressing water-related disaster management using the knowledge and skills accumulated in research and practice. ICHARM will provide support to build a global network of good practitioners involved in water-related hazard and risk management.				
ICHARM will support the graduates from our educational and training programs in becoming leaders in water hazard and risk management in their localities by offering them opportunities to research and practice water-related disaster management. We will continue holding follow-up seminars to enhance the global network of ICHARM alumni and create a knowledge hub to contribute to water-related risk reduction worldwide.	Enhance the network by holding follow-up seminars for ICHARM master's program graduates and others.	Discuss ways to hold a follow-up seminar overseas in a graduates' country while considering the situation of COVID-19. At the same time, prepare to have a yearly meeting of the online follow-up seminar as we did last year.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [S] ⑤ Dissemination [A]	Organized the 15th follow-up seminar on February 22, 2023. The participants included 17 graduates who were in Japan to participate in ICMF9. Organized the 16th follow-up seminar, the second one held online, on February 13, 2024, attended by 41 graduates from 20 countries and 23 current students from 12 countries. The 16th event aimed to support the career development of current students, in addition to the original purposes. In both cases, the participants actively engaged in discussions and showed that the ICHARM alumni would be important players in solving global water issues.
(iii) Efficient information networking 1) Collect, analyze, and provide information and experiences about large-scale water-related disaster by maintaining and upgrading a worldwide researchers' network.				
ICHARM, as the global knowledge center for water hazards, will be working closely with the UNESCO IHP, the World Meteorological Organization (WMO), the Typhoon Committee (TC), the International Flood Initiative (IFI), and other domestic and international agencies, exchanging data, information, lessons, and ideas regarding water-related disasters. By hosting and organizing international academic meetings, ICHARM will continue offering a place to collect and disseminate the most advanced knowledge to researchers around the world.	Fulfill the duties as the IFI secretariat.	Carry out the responsibilities as the IFI secretariat, including holding regular meetings with the participating organizations, sharing and compiling water-related disaster information, and reviewing the concept of IFI and other issues at the Advisory Committee meeting on the occasion of ICFM9 through coordination with relevant organizations. Continue disseminating IFI activities by participating in major international conferences and projects and strengthening partnerships with relevant organizations. Promote collaboration with relevant organizations to reduce water-related disaster damage.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [A] ⑤ Dissemination [A]	Exchanged information and opinions with IFI partners, such as UNESCO and WMO. Started reviewing the IFI Strategy 2016-2022. Disseminated information on IFI activities, particularly on the "Platform on Water Resilience and Disasters" projects in various countries at international conferences, such as the 4th Asia-Pacific Water Summit in April 2022, the 15th Asia Water Cycle Initiative (AWCI) in September 2022, the 9th International Conference on Flood Management in February 2023, and the 6th UN Special Session on Water and Disasters in March 2023.
	Support local efforts led by IFI.	Support the Philippines, Sri Lanka, and Indonesia in establishing the Platforms on Water Resilience and Disasters and promoting platform-related activities. Continue expanding IFI activities to other countries in Asia, Africa, and South America. Promote e-learning for engineers and other experts engaged in water-related disaster management and study issues on developing the OSS-SR and fostering facilitators in collaboration	① Overall evaluation [S] ② Publication [S] ③ Scientific significance [A] ④ Social significance [A] ⑤ Dissemination [A]	Assisted the IFI project implementing countries in setting up a platform on water resilience and disasters and undertaking related activities in cooperation with their responsible agencies. Philippines: Discussed plans of the project with the heads of DOST and PAGASA, the co-chairs of the platform, in fiscal 2022. Organized training for OSS-SR users and managers and a platform general meeting in fiscal 2023. Also had discussions with high-level officials, such as the president of Davao Del Sur State University and the director of DOST XI,

	with relevant organizations of the countries participating in IFI activities.			and concluded a tripartite agreement to start OSS-SR development and facilitator training in neighboring Digos City, as we had helped Davao City implement these tasks in past years. Sri Lanka: Held the first platform general meeting in four years on March 15, 2024, and discussed the future schedule and implementation plan. Others: Started the platform project in Thailand, Vietnam, and Central and South America. Held a platform general meeting on March 25, 2024, in Thailand. Signed a memorandum with the Vietnam Meteorological and Hydrological Administration (VNMHA) of the Ministry of Natural Resources and Environment on October 26, 2023, and began a dialogue with key organizations. Also initiated dialogue with representatives of IFI-LAC (Latin America and the Caribbean) to expand IFI activities in Central and South America.
Play a leading role in Typhoon Committee (TC).	Fulfill the duties as the chair of TC's Working Group on Hydrology (WGH), and promote AOP7 in collaboration with the WGH and other working group members and relevant organizations, as well as provide support for other related activities. Support other TC member countries, including Japan, in organizing WGH meetings in collaboration with MLIT. Participate in integrated workshops and annual sessions as the WGH chair to compile discussions on typhoon-related disasters in the TC region and contribute to developing and applying effective measures in collaboration with the TC member countries.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [S] ⑤ Dissemination [A]	Compiled the activities and discussions of the Typhoon Committee's Working Group on Hydrology (WGH) and reported it at the Integrated Workshop and the Annual Session. Strengthened collaboration among the member countries by, for the first time as WGH, co-hosting a working group meeting with Thailand. Also held a joint meeting with WMO RA II and initiated collaborative activities. As AOP7, an annual plan led by ICHARM, completed its five years of activities, each working group reported the project outcomes. The member countries approved a new AOP proposal.
2) Integrate interdisciplinary scientific knowledge into a consilience of water-related risk management as a common asset of practitioners.				
ICHARM will establish a system to collect accurate data and information by strengthening collaboration with organizations collecting and archiving scientific data, information, and knowledge about water-related disasters and nations co-hosting ICHARM's training and research projects. Collected data and information will be sorted out and accumulated as meta-data and integrated into a "consilience of water-related disaster risk management" as a shared asset of practitioners.	Collect water-related disaster information and support its accumulation and implementation.	Collect water-related disaster information from relevant organizations in each country through the Platforms on Water Resilience and Disasters under IFI and other regional and international networks. Support local efforts to reduce damage due to water-related disasters through accumulation of such information using DIAS.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [A] ⑤ Dissemination [A]	Proposed the creation of the ICHARM Alumni Meta Knowledge Database, tentatively named iAME, during the follow-up seminar held in February 2024, attended by both graduates and current students, with the intention of organizing and accumulating the data used in students' research activities as metadata for future use. This proposal was discussed among the participants during the event.

3) Mainstream water-related disaster risk reduction by facilitating active collaboration and communication among experts and organizations through sharing cases and findings in water-related hazard and risk management.				
ICHARM will continue contributing to worldwide efforts to implement and mainstream disaster risk reduction in step with the Sendai Framework and the Sustainable Development Goals (SDGs), both adopted in 2015. By enhancing research, capacity building, and networking, we will continue stressing the importance of water-related disaster risk reduction and promoting the creation of a resilient, sustainable society by involving all stakeholders at local, national, and international levels.	Organize, participate in, and contribute to major regional and international events.	Contribute actively to the 4th Asia-Pacific Water Summit by organizing a thematic session and compiling discussions, and hold the AWCI session of AOGEO and other workshops. Disseminate ICHARM's activities and their outcomes and develop and maintain our networks with other organizations and experts by organizing technical sessions and providing presentations at major events hosted by UN agencies and other regional and international organizations, as well as by participating in and contributing to regional and international projects. Convene ICFM9 in February 2023 in collaboration with organizations inside and outside Japan, organize a High-Level symposium with the HELP Secretariat and MLIT, and hold a public symposium to raise their awareness of water-related disasters.	① Overall evaluation [S] ② Publication [S] ③ Scientific significance [A] ④ Social significance [S] ⑤ Dissemination [S]	Co-hosted a parallel thematic session at the 4th Asia-Pacific Water Summit on April 23 and 24, 2022. Also hosted a special session with MLIT and Kumamoto City and an integration session with UNESCO. Organized the 15th AOGEO's AWCI session online on September 21, 2022, attended by more than 50 participants. They shared and discussed the IFI platform activities in each participating country and the direction towards the 2023 UN Water Conference. Hosted ICFM9 from February 18 to 21, 2023, attended by 400 participants from 41 countries. Co-hosted a high-level symposium on the first day at GRIPS with the HELP Secretariat and MLIT in the presence of His Majesty the Emperor. Also organized a public symposium, "Can You Survive a Flood?" using a virtual flood experience system, with about 70 participants, mainly junior and senior high school students in Tsukuba City. Participated in the Science and Technology panel on March 21, moderated by Executive Director Koike, held as part of the 6th UN Special Thematic Session on Water and Disasters organized prior to the UN 2023 Water Conference. Presented international projects in terms of knowledge integration, capacity integration, and process integration. These three concepts were mentioned in the Co-Chair's Key Messages, adopted after "Interactive Dialogue 3: Water for Climate, Resilience and Environment: Source to Sea, Biodiversity, Climate, Resilience and DRR." They were also included in the Water Action Agenda as Water Cycle Integrator (WCI), with the commitments proposed by other organizations. Hosted a side event on April 19, 2023, at a UNESCO-led international conference. After the discussion, the representatives from five UNESCO Category 2 centers agreed to promote interdisciplinary and integrated multilateral cooperation and launch joint research for Africa.
	Public relations	Keep posting the latest information on the ICHARM website and improve the contents based on readers' feedback. Publish the ICHARM newsletter four times a year (January, April, July and October) and keep upgrading its contents to make them more interesting and informative for readers. Continue enriching newsletter contents by including more contributions from educational and training program graduates and collaborating experts and by reflecting readers' feedback collected through questionnaires.	① Overall evaluation [A] ② Publication [A] ③ Scientific significance [A] ④ Social significance [A] ⑤ Dissemination [A]	Website: Posted articles 23 times in fiscal 2022 and 26 times in fiscal 2023, to increase publicity. Newsletter: Published a total of 8 issues (No. 64-71) over the past two fiscal years. Added a search function to the website in July 2022 to improve accessibility to past newsletter articles. Improved the quality of newsletters by collecting contributions from experts and graduates and conducting reader surveys for each issue. The number of readers for the latest issue is 5,450.