TC Newsletter
ESCAPWMO TYPHOON COMMITTEE
No. 2 1990

JAPAN HOSTS 22ND SESSION OF TYPHOON COMMITTEE

TC XXII participants pose with Dr. Kikuchi, Director-General of host JMA, seated sixth from left.

The twenty-second session of the Typhoon Committee (TC 22) was held at the headquarters of the Japan Meteorological Agency (JMA) in Tokyo, Japan from 30 October to 6 November 1989. It was attended by representatives of China, Hong Kong, Japan, the Philippines, the Republic of Korea and Thailand. Members that were not able to send representatives were Democratic Kampuchea, Lao P.D.R. and Viet Nam. Observers from the USA, USSR, WMO's Commission for Atmospheric Science (CAS), the United Nations Development Programme (UNDP), the Office of the UN Disaster Relief Co-ordinator (UNDRO), UN Department of Technical Cooperation for Development (UNDTCD) and the League of Red Cross and Red Crescent Societies (LRCS) were also present.

The Secretariat, to be distinguished from the local secretariat, was composed of representatives from WMO, ESCAP and the Typhoon Committee Secretariat (TCS). It guided the deliberations of the Committee towards its successful conclusion.

The three major topics of the session were the Typhoon Committee Special Experiment, the role of the Committee in the International Decade for Natural Disaster Reduction (IDNDR), and the review of the Committee's Regional Co-operation Programme Implementation Plan.

The Committee elected Mr. P. Sham (Hong Kong), Chairman and Mr. Luo Jibin (China), Vice-Chairman for the year 1989-1990. Col. Pagulayan was elected Chairman of the Drafting Committee for the session. Their immediate predecessors were Dr. R.L. Kintanar, Mr. P. Sham, and Dr. Lim Joo Tick (Malaysia) in that order.

The Republic of Korea has offered to host the twenty-third session of the Committee at Seoul 13-19 November 1990.

ESCAP/WMO TYPHOON COMMITTEE NATURAL DISASTER PREVENTION AWARD WINNERS

On the occasion of the opening session of the 22nd Typhoon Committee Session, the ESCAP/WMO Typhoon Committee Natural Disaster Prevention Award for 1989 was presented for the first time to two co-winners, Mr. Saburo Yamamoto and the Disaster Prevention Week Promotion Conference.

Mr. Yamamoto was cited for his "lifetime dedication, both in his capacity as a public official and then as a private individual, to advocating flood control technology in Japan."

For thirty years, Mr. Yamamoto promoted flood control and disaster prevention works until his retirement from government service as Vice-Minister of Construction in 1963. He authored, among others, the book on "River Engineering" that became the principal reference for disaster prevention engineering. Retirement did not deter Mr. Yamamoto from championing flood control and flood disaster prevention measures. Since 1976, he has been the President of the Japan River Association which handles all flood control problems in the country.

The Disaster Prevention Week Promotion Conference, on the other hand, was set up by non-governmental organizations (NGOs). It was chosen for "successfully working for the designation by the Government of Japan of the week 30 August to 5 September of each year beginning 1982 as Disaster Prevention Week in Japan." It has continued to conduct activities for the dissemination of information on disaster prevention by holding exhibitions, lectures, poster design contests, etc. on disaster prevention. Mr. Yujiro Ogawa received the award

Saburo Yamamoto

on behalf of the Conference.

The winners shared the cash award of US$3000 and plaques.

The award was established by the Typhoon Committee in accordance with its decision taken at the twenty-first session (Manila, November 1988) to put up a Typhoon Committee Foundation based on Manila. The Foundation's primary goal is to generate greater public awareness on disaster prevention and preparedness measures by giving out awards to distinguished contributions in this field. The prize money is income derived from accrued interest earned by the US$45000 cash that came with the second Sasakawa-UNDRO Disaster Prevention Award which the Committee won in 1988.

As provided for by the by-laws of the Typhoon Committee Foundation, Inc. (TCFI), the award is given to individual/s or institution/s of the country that hosts a session of the Committee. The next winner/s will therefore come from the Republic of Korea, host of the 23rd session. The rules or criteria governing the selection of the winner is a responsibility of the host government.

The Board of Directors of the Foundation is composed of Dr. Kintanar, Chairman, Col. Pagulayan, Vice-Chairman, Juanito E. Lucas, Secretary-Treasurer, and Atsushi Yoshii and Alberto T. Rous, Members.

SPECTRUM STEERING GROUP MEETS

The Steering Group for the ESCAP/WMO Typhoon Committee SPECTRUM (Special Experiment Concerning Typhoon Recurvature and Unusual Movement) met at the Admiral Hotel, Manila, from 2 to 5 May 1990 to finalize plans for the experiment. It was hosted by the Philippine Government through PAGASA.

Under-Secretary Ricardo T. Gloria of the Department of Science and Technology was the keynote speaker at the opening ceremonies attended by key government officials headed by Dr. Roman L. Kintanar. The Under-Secretary welcomed the participants most of whom he noted have been in Manila in late 1989 for the Second International Workshop on Tropical Cyclones (IWTC-II). He said that IWTC-II and SPECTRUM underscore the efforts of the scientific community at obtaining a better understanding of tropical cyclones. He stressed that no one country could go it alone in this area and thus co-operation on at least a regional scale in the conduct of the contemplated experiment is an imperative. He lauded the United States and the Soviet Union for agreeing to conduct their respective research initiative concurrently with SPECTRUM to obtain optimum advantage of this rare opportunity.

Attending were the members of the Steering Group: Messrs. Chen Shanmin (China), Group Chairman C.Y. Lam (Hong Kong), Shingo Osano (Japan), Ooi See Hai (Malaysia), Ellaquim A. Adug (Philippines), Choi Jung-boo (Rep. of Korea), and Patipat Patvivatsiri (Thailand). Also present were Prof. Russell L. Elsberry (US Observer), Deputy Director Cipriano C. Ferraris (for WMO CAS), Messrs. Gabriel S. Monroy (TCS) and Don O. Vickers (WMO). The USSR Observer was unable to attend the meeting and apprehensions were expressed on the information received earlier that the USSR will deploy their ships two weeks earlier than originally planned thus reducing the degree to which the three experiments (SPECTRUM, the US's TCM-90 and the USSR's TYPHOON-90) would be concurrent, an essential feature that will contribute in large measure to the success of all three experiments. It was decided that an appeal would be made to the Soviet authorities to restore the original schedule. At presstime, it was learned that the USSR has acceded to the request.

Salient agreements were:

1. RSMC Tokyo–Typhoon Center has agreed to serve as Experiment Center. It would decide when Intensified Observation Periods (IOPs) would be activated, maintain communication linkages with Typhoon Committee Members and TCM-90 and TYPHOON-90, undertake the dissemination of data and post-experiment activities such as data cataloguing and archiving. Japan announced that the Center will start issuing prognostic reasoning messages on 1 July, a full month before the beginning of SPECTRUM.

2. With regard to plans and arrangements, the meeting was informed of the plan to install a new RW/DIGICORA equipment being provided by Finland through WMO/VCP, at Legaspi. Latest reports indicate that installation will be completed under supervision of a Vaisala expert by mid-July. PAGASA would make every effort to make Laoag similarly operational with its MICRO-CORA.

3. The Experiment Center will forward data on magnetic tape reels to the Members free of charge before the end of 1990. It will also prepare a data catalogue and disseminate the same by the end of the year. On the part of TCM-90, raw data sets on tape will be available to TCS for distribution to Members 6 months after the experiment.

4. The follow-up action plan called for a Steering Group Evaluation Meeting on 18-21 December to be hosted by JMA. A forecaster from each participating Member, exclusive of the Steering Group Members, will be invited to participate.

Enhanced training of meteorological personnel from Typhoon Committee Members in the handling and scientific interpretation of complex data sets in preparation for research work using the SPECTRUM data set was proposed, utilizing the TCDC and UNDP programme support for funding sources.

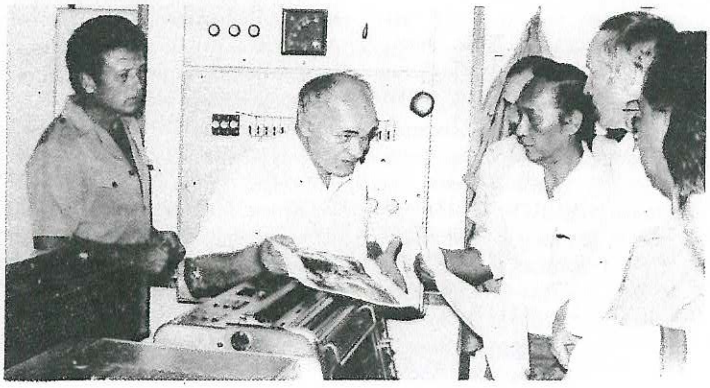
5. Finally, the SPECTRUM Operational Manual was revised. At presstime, TCS has distributed at least 10 copies of the Manual to each TC Member. (AT)

SPECTRUM at the opening ceremonies.

TYPHOON-90 FLOTILLA CALLS ON MANILA

The Akademik Korolev, Okean, and Priboy constituting the bulk of the USSR's TYPHOON-90 flotilla called on Manila 24-27 August 1990 for replenishment of supplies, refueling, and R and R. However, Philippine officials were not able to welcome Dr. Victor P. Teslenko, Director of the experiment, and his staff and crew

Dr. Teslenko briefs visitors.



immediately because of inclement weather. The southeast monsoon under the influence of Typhoon Becky (T9015) generated strong winds and choppy waters in Manila Bay where the ships lay at anchor.

It was only on their last day that a group of meteorological officials were able to board the Akademik Korolev, Dr. Teslenko's flagship. The group was headed by Weather Services Chiefs Mariano T. Asuncion and Bernardo M. Soriano, Jr. The Typhoon Committee Secretariat was represented by Gabriel S. Monroy and Atsushi Yoshi, Meteorologist and Hydrologist, respectively. Accompanying the group was Second Secretary Dmitri F. Luschenko of the Russian Embassy.

They were welcomed aboard by Dr. Teslenko who briefed the group on the Korolev and the three Intensive Observation Periods (IOPs) they have participated in during the month of August. They were also shown the various laboratory facilities aboard the ship.

It was learned from Dr. Teslenko that participation by Philippine meteorologists in the experiment cruises were hampered by the late arrangements made. The group was told that Chinese and Cuban scientists were on board the Shirshov which was at the time in Shanghai and on the other ships as well.

The visit was occasion for the Russians to turn over to TCS a magnetic tape of the observations during the IOPs for forwarding to Dr. Russell Elsberry of TCM-90. The visit ended on a hopeful note for further scientific cooperation between the Soviet Union and the Philippines in the future.

Hong Kong

MARINE WEATHER INFORMATION THROUGH NAVTEX

The NAVTEX system of broadcasting weather information to the marine community became operational in 1990. Ships equipped with appropriate NAVTEX receivers can now obtain tropical cyclone warnings and other meteorological information in a practically operator-free manner.

NEW TELECOM LINK BETWEEN BEIJING AND HONG KONG

To enhance the capacity of meteorological information exchange, the telecommunication link between Beijing and Hong Kong was upgraded to a 9600 bps circuit. The signing of a

Signatories to the agreement were Director P. Sham, Royal Observatory Hong Kong and Director Li Zechun, NMC, SMA.

Memorandum of Understanding for the project was held at the Royal Observatory, Hong Kong on 6 February 1990. The circuit was successfully installed and commissioned into operation on 30 April 1990.

Thailand

WEATHER INFORMATION SERVICE CENTER SET UP

The Weather Information Center set up at the Meteorological Department central office provides 24-hour weather information and advisories over special telephone lines since 10 January 1990.

THAILAND REPRESENTS WMO AND TC AT ESCAP XLVI

The Director-General and the Director of Studies and Research Division represented WMO and the Typhoon Committee at the forty-sixth session of ESCAP at Bangkok from 4 to 13 June 1990.

IDNDR COMMITTEE PROPOSED

A Sub-Committee for the promotion of the International Decade for Natural Disaster Reduction (IDNDR) composed of representatives from 18 agencies is awaiting approval by higher authorities.

PLANS REVEALED

The Meteorological Department bared its plans relevant to Typhoon Committee activities. These are:

1) To enhance the capability of national meteorological telecommunication system by establishing a VHF network,
2) To enlarge the weather observing station network in order to enhance the services to civil aviation and navigation, and
3) To set up a hydrometeorological station and 6 water level observing stations to support flood forecasting in 3 major river basins namely the Kok, Tapi, and U Ta Pao.

Philippines

SHAM ON TC MISSION

On the fourth leg of a hopping mission as a WMO consultant to prepare a UNDP project document on "Reduction of Natural Disaster Related to Typhoons",

Thailand's Weather Information Service Center.

Mr. P. Sham, Director of Hong Kong Royal Observatory and concurrently Chairman of Typhoon Committee, visited PAGASA on 20-23 May 1990. He had earlier visited China, Japan and Korea as part of a series of discussions with some Members of the Typhoon Committee regarding the said project for consideration in the next UNDP programming cycle, 1992-1996.

The importance of his mission can be glimpsed from the fact that the present UNDP/WMO Regional Project RAS/86/175 "Support to Typhoon Committee" is ending with the close of this calendar year. It was decided then in the twenty-second session of the Typhoon Committee and Tripartite Meeting in Tokyo (1989) that a sequel project document be prepared.

While in PAGASA, he had several dialogues with Dr. R.L. Kintanar, the Director of PAGASA and Coordinator of Typhoon Committee Secretariat, aside from pre-arranged meetings with other officials of PAGASA and outside Agencies concerned with natural disaster prevention measures.

In his opening talk, Mr. Sham enumerated the basic problems confronting the Members of Typhoon Committee, such as brain drain especially of highly trained technicians in specialized equipment, the lack of basic facilities due to economic difficulties, lack of vigorous research because of its dependence on facilities, and the need for more training or technology transfer. The problem is compounded, he added, by the increasing expectations from the users like the need for longer-range forecasts or the more detailed short-range forecasts.

The local difficulties echoed in the meetings have commonalities in asking for additional funds to complete existing projects and to pursue new ones, and in calling for more regional workshops and trainings. On this note Dr. Kintanar remarked that the Disaster Prevention and Preparedness Programme (DPP) now places new emphasis on education in the region. Mr. Sham clarified however that the UNDP format for assistance is regional and not national but the end beneficiaries will be the member countries.

The discussions included the importance of improving communications for any action on disaster reduction and more reliance on the use of numerical products to improve the forecasting aspect.

Mr. Sham explaining his mission to PAGASA

But the subject of Data Management took the greater portion of the meetings. As Mr. Sham put it, everything starts with data. Much can be achieved with sound data base and management. There is a need, he said, for each Member to be data-conscious. Data are vital information, as an example, for establishing building code parameters for typhoons and related phenomena. He envisions a computer-based data management system for gathering, archiving, retrieving and analysing data and having these available in friendly-users form.

From the Philippines, Mr. Sham is scheduled to proceed to Malaysia, Thailand, and then to Geneva where he will finalize the project document for submittal to UNDP, New York.

DPP CONSULTANCY MISSION

The long delayed DPP consultancy mission to some TC countries finally took off on 23 August 1990. Mr. Kunio Takase, a DPP meteorologist of Japan Meteorological Agency, joined Col. Victor Pagulayan, Jr., part-time DPP Expert with TCS, in the Philippines on the first leg of the mission.

On the first day, they met and held detailed discussions with officials of PAGASA concerned with DPP. It began with a briefing of PAGASA's procedure in preparing tropical cyclone and flood warnings and advisories including a description of a new forecasting format being tried out this typhoon season. The meeting was followed by a visit to the weather and flood forecasting facilities.

Their itinerary in the Philippines also brought them to several municipalities north of Manila that are representative of the typhoon-and flood-prone areas in the region. They had a first hand view of the DPP situation in their travels as the prevailing weather during the week was bad, spawned by Typhoon Becky (T9015). This provincial tour was capped by a visit to a flooded barangay or hamlet which usually experiences isolation during inclement weather such as the one prevailing at the time.

In their final meeting with PAGASA officials, they reported that the barangay or grass roots level appears to be the weakest link in the entire chain of the DPP program. The problem stems from isolation from floods and power cut-offs during incessant rains and/or strong winds. To this they recommend provision of battery-operated radios to enable the barangay officials to receive flood and typhoon advisories and warnings aired by radio stations and relay the same to the populace.

The duo could not foresee an immediate solution to floods. Mr. Takase however emphasized the need for the enactment of a law that would pinpoint the responsibility for the dissemination of information related to DPP.

The pair is scheduled to proceed to Bangkok and then Kuala Lumpur where Mr. Takase will complete his part of the mission. Col. Pagulayan will go on with the mission with visits to Hong Kong, Beijing, Tokyo, and Seoul.

ACTIVITIES UNDER THE HYDROLOGICAL COMPONENT

In the Typhoon Committee region, the damage caused by floods is one of the most serious problems. Every year the Typhoon Committee Members suffer from floods due to typhoons, the passage of low pressure troughs, high tides, etc. The hydrological component has struggled in various fields to reduce said damages, such as improvement of flood forecasting system, implementation of comprehensive flood loss prevention and management etc.

In 1990 the hydrological component stressed the implementation of comprehensive flood loss prevention and management and urban flood loss prevention and mitigation through the following occasions:

Expert Group Meeting on Urban Flood Loss Prevention and Mitigation in the ESCAP Region

The Expert Group Meeting on Urban Flood Loss Prevention and Mitigation in the ESCAP Region was held at Bangkok from 16 to 20 April 1990 participated in by 8 countries/areas including 7 members of the Typhoon Committee namely, China, Hong Kong, Malaysia, Philippines, Lao People's Democratic Republic, Thailand and Viet Nam. Observers from the Asian Institute of Technology, the Delft Hydraulics of the Netherlands and the secretariat of the Interim Committee for Co-ordination of Investigation of the Lower Mekong Basin, and Advisers from Japan and the Philippines were also present.

The meeting was organized by ESCAP in cooperation with TCS as a part of the project on urban flood loss prevention and mitigation which is supported by Japan.

ESCAP initiated the project in order to investigate the causes of urban flooding and to identify the measures to be undertaken to solve this problem in October 1988.

In November 1988 a questionnaire was sent to selected members and associate members of ESCAP soliciting information related to flood problems in urban areas and inquiring of their interest in participating in the project. Based on the responses to the questionnaire, missions were organized by ESCAP in cooperation with TCS, to the participating cities for the following purposes:

(a) survey the existing situation with regard to flooding problems that faced in urban areas;
(b) review the available studies in the areas; and,
(c) recommend future action to be taken to reduce flood losses in the areas

The following urban areas were selected by the participating countries/areas for study and visit by the mission composed of members from ESCAP secretariat including a consultant and TCS from July to February 1990.

(1) Jakarta	(Indonesia)
(2) Kuala Lumpur	(Malaysia)
(3) Bangkok	(Thailand)
(4) Manila	(Philippines)
(5) Hong Kong	
(6) Vientiane	(Lao P.D.R.)
(7) Hanoi	(Viet Nam)
(8) Benxi	(China)

Mission reports had been prepared and sent to the countries/areas for review prior to the meeting.

In the meeting, urban flood problems and countermeasures in the participating cities were reviewed. The report of the mission of each city was presented by the mission member and one after the other. The result of each city mission was analyzed comparatively and considered.

Analyzing the findings of the mission, the meeting recommended the preparation of a comprehensive master plan for urban flood loss prevention and mitigation for each city. In addition it recommended that a single organization should be assigned the sole responsibility of and corresponding authority for the planning and implementation of the comprehensive master plan. The meeting also discussed the problem of maintaining the existing drainage structures and canals. It reported the necessity of cleaning, declogging and desilting of the drainage systems, and using educational facilities and news/information media in changing the attitude of the public on the indiscriminate disposal of solid waste and garbage on the streets and waterways. In the same manner, the squatter problem needs to be resolved considering that it is seriously affecting the capacity of drainage systems and preventing their improvement.

The meeting also considered other elements which make some cities more flood-prone, such as decrease in the retention function, land subsidence, etc.

At the last meeting, ESCAP proposed Urban flood loss prevention and mitigation in the ESCAP region—Phase II which plans to carry out further studies of the flood problem in the selected pilot urban areas in relations to the current physical, economic, social, institutional, and environmental conditions in the area.

Through the project, the flood problems of each city were identified and some recommendations to solve them were proposed. The efforts to implement structural and non-structural measures based on the recommendations are expected to help the people in flood-prone urban areas.

EXPERT GROUP MEETING ON COMPREHENSIVE FLOOD LOSS PREVENTION AND MANAGEMENT

The Third Expert Group Meeting on Comprehensive Flood Loss Prevention and Management was held at the conference room in ESCAP building in Bangkok from 23 to 27 July 1990. The meeting was organized by ESCAP in co-operation with TCS and WMO as part of the activities in the project on the preparation of manual and guidelines for and dissemination of techniques of comprehensive flood loss prevention and management applicable to Typhoon Committee Members.

The project which is a sub-project of the project titled "Programme Support for the Typhoon Committee" (RAS/86/175) supported by UNDP, was initiated in 1986 and would be concluded at the end of 1990. Before the meeting, a series of missions had been fielded from November to December 1987, in March 1988 and from February to March 1989 for information collection, and two expert group meetings had been held in October 1988 and July 1989 for preparation of the manual and guidelines. The manual and guidelines will be completed and printed by the end of 1990.

The meeting was attended by 8 participants from six members of the Typhoon Committee, a representative of TCS and observers from the Asian Institute of Technology, the secretariat of the Interim Committee for Co-ordination of Investigation of the Lower Mekong Basin. A consultant of ESCAP and a resource person from the Japanese Government also participated as advisers.

The main purpose of the meeting was to finalize the manual and guidelines for comprehensive flood loss prevention and management applicable to Typhoon Committee Members.

The meeting reviewed the final draft of the manual and guidelines and considered them page by page. It was agreed that the manual and guidelines should not express any preferences between structural and non-structural measures or the priority among various flood prevention and management measures, because the effectiveness of each measure would vary from one river basin to the other and the optimum set of these measures should be selected in an objective manner.

The meeting required the provision of enough references and stressed the importance of the inclusion of enough drawings and photographs in the publication so that it would be convenient and understandable to the readers.

As the last planned activity of the project, roving seminars will be organized to help the manual and guidelines to be well-understood and the techniques widely adopted by the Typhoon Committee Members. The roving seminars is planned in or near March 1991 in Typhoon Committee Member countries/areas except Japan. In the Seminar, the manual and guidelines would be explained in one and a half days, and the utilization of the manual and guidelines would be discussed for half a day.

At any rate, the manual and guidelines for comprehensive flood loss prevention and management will be printed and disseminated before the seminar, so the steady implementation of comprehensive flood loss prevention and management adjusted to each river basin in the Typhoon Committee Members is expected using the manual and guidelines.

Next project of the hydrological component of the Typhoon Committee named "Project on preparation of manual and guidelines for integrated river system development and management with reference to comprehensive flood loss prevention and management."

During the Third Expert Group Meeting on Comprehensive Flood Loss Prevention and Management, the next project of the hydrological component, "Preparation of manual and guidelines for integrated river system development and management reference to comprehensive flood loss prevention and management" was discussed and its project document was finalized. This project was proposed at the pre-session meeting of the Hydrological Component which was held at Tokyo on 29 October 1989 based on the answers to the questionnaire asking for the theme of the next project from the Members.

Among the flood loss prevention measures included in the manual and guidelines for comprehensive flood loss prevention and management, one of the most effective and important measures found was flood plain development and management, because the development of flood plains, where the majority of settlers of most Member countries for historical and natural reasons choose to live and develop, still has high priority. Without proper development and appropriate management of existing activities in the flood plains the flood risk will never be minimized.

On the other hand, water resources development and environmental issues of the whole river system are closely related to flood loss prevention activities as well as flood plain development and management. For example, water resources development might influence flood loss prevention measures adversely and a flood loss prevention project might cause water quality problems. These activities must be arranged in such a way that they support each other. When the comprehensive approach to flood loss prevention and management is taken, the optimum set of various measures should be selected by taking interrelationships between the whole basin and river system and all the river-related aspects in the basin into consideration. The optimum set must be dynamic in nature and change corresponding to the changes in social and economic conditions of the river system.

The river system with its basin, including all the related activities carried out in the basin can be referred to as the "Integrated River System". To introduce the concept of the integrated river system in the Typhoon Committee region, a manual and guidelines should be prepared and the concept be widely disseminated among the Members.

The project has been considered in the light of the background and reasons stated and would be included as an integral part of the project of the Typhoon Committee. It is expected to be accepted by the support organization and be initiated from 1992.

IWTC-II

More than a hundred savants, a veritable Who's Who in tropical meteorology, met for two weeks, from 24 November to 8 December 1989, at the Ambassador Hotel, Manila, for the Second International Workshop on Tropical Cyclones (ITWC-II). The objectives of the meeting were: a) to summarize the advances that have occurred since the first workshop (IWTC-I), b) to expand on areas missed in IWTC-I, c) to further promote inter-action between the international forecasting and research communities, and d) to produce a global forecasting manual based on the materials collected from both workshops.

IWTC-II was organized by the World Meteorological Organization (WMO) in support of the activities of its Tropical Meteorology Research Programme (TMRP) and Tropical Cyclone Programme (TCP). It was co-sponsored by the Office of Foreign Disaster Assistance (OFDA), Office of Naval Research (ONR), and the National Science Foundation (NSF), all of the United States of America.

Despite the attempted coup d'etat that rocked Metro Manila in mid-session, the participants succeeded in meeting their targets. Immediately following IWTC-II, WMO convened the Expert Meeting on Preparation of a Guide on Tropical Cyclone Forecasting from 8 to 11 December. The objective of the meeting was to utilize the information gathered at IWTC-II, including relevant information from IWTC-I, to produce a forecasting manual that can be used as reference in cyclone warning centers. The manual is intended to complement the textbook "A Global View of Tropical Cyclones" produced following IWTC-I.

NEW PRS

Congratulations are in order for the appointments of Dr. Ryozo Tatehira and Mr. S. Tumsaroch as Directors-General and concurrent Permanent Representatives of their respective meteorological services, the Japan Meteorological Agency (JMA) and the Thai Meteorological Department. They have featured prominently in Typhoon Committee activities for quite sometime. Nevertheless, it is felt that the Members should know them better through their curriculum vitae.

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Director-General,
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Academic

BSc: Science Faculty, Kyoto University, 1953
PhD: Science Faculty, Kyotò University, 1967 (A study on rainband)
Prize: Award of Meteorological Society of Japan, 1966 (An analytical study on meteorological phenomena by radar)

Employment

1953-54 Synoptic Reporting Division, Forecast Department, JMA
1954-57 Mount Fuji Weather Station, Tokyo District Meteorological Observatory
1957-58 Japanese Antarctica Expedition
1958-61 Radar Section, Technical Division, Tokyo District Meteorological Observatory, Tokyo
1961-64 Chief, Radar Section, Observations Division Nagoya Local Meteorological Observatory, Nagoya
1964-67 Chief, Radar Section, Mount Fuji Weather Station Tokyo District Meteorological Observatory, Tokyo
1967-68 Research Associate, Department of Geophysical Sciences, Chicago University
1970-78 Forecaster, Forecast Division and Electronic Computation Center, Forecast Department, JMA
1978-83 Director, Forecast Division, Forecast Department, JMA
1983-85 Director, Fukuoka District Meteorological Observatory, Fukuoka
1985-87 Director, Marine Department, JMA
1987-90 Director, Forecast Department, JMA
April 1990 Director-General, Japan Meteorological Agency

Professional Experience

Operational Meteorology
- Surface, upper-air and radar observation
- Short-range forecasting
- Development of digitized radar echo system for nowcasting and model output statistics system for short-range forecasting

Research
- Development of ground clutter rejection system
- Mesoscale analysis of weather systems such as rainbands with radar

Membership of Domestic Committees

- Member of Council of the Meteorological Society of Japan
- Member of the committee of international academic exchange of the Meteorological Society of Japan
- Member of the national liaison group of meteorological research of the Science Council of Japan
- Member of Tokyo Metropolitan Committee of counter measures against the environmental pollution (Tokyo Metropolitan Government)

Involvement in WMO Activities

- Member of the Commission for Marine Meteorology (1978-83 and 1985-87)
- Member of the Commission for Hydrology (1978-83)
- Member of the Commission for Basic System (1987-90)
- Principal delegate of Japan for the 20th (1987), 21st (1988) and 22nd (1989) sessions of the ESCAP/WMO Typhoon Committee
- Delegate of Japan for the third session of the UNEP/WMO IPCC (1990)
- Participant in WMO symposium on the integration of broad-scale NWP products for local forecasting purposes (1976)
- Invited speaker to the ESCAP/WMO symposium on Typhoons (1980)

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DRAINAGE CHANNELS AND DRAINS RETRIEVING PROJECT IN MANILA

In the Typhoon Committee region, clogging and siltation of drains and rivers are serious problems. Even if the drainage systems with enough capacity could be installed, sediment deposit and dumping of garbage in the systems would often cause severe floods because of decreasing capacity.

In the city of Manila, seven (7) drainage pumping stations have been constructed with a total design drainage capacity of 62.8 m^3/s which could prevent inundation of the drainage area in the event of occurrence of a 10-year probability rainfall. However, the actual capacity has decreased to about 30 m^3/s which cannot prevent inundation even in the event of occurrence of a 2-year return probability rainfall.

Consequently, the serious inundation occurs almost every year in the city of Manila. The area subject to frequent inundation is estimated at about 8.7 km^2 which corresponds to 17% of the whole city of Manila. Furthermore, an area of approximately 22 km^2, corresponding to 43% of the city of Manila was inundated in the 1986 flood.

The reduction of drainage capacity is attributed to sediment deposits and the garbage blocking the drainage channels and drains. The present condition of the sediments deposits and garbage blocking are estimated below:

1) In the "esteros" (creeks canals), a total dredging volume of 220,000m^3 with a length of 13,422m is required to restore the channel flow capacity to the original design level of a 10-year return period flow.
2) In the primary drains (2m x 3m box culverts) with a total length of 19.623m, an average of 40% of the culvert clearance are blocked by deposits which is estimated at about 67,500m^3.
3) "Laterals" (drainage pipes) are also blocked by deposits about 50% of their clearance and the total volume of deposits is estimated at about 24,000m^3.

Under the circumstances, the Philippine Government planned to carry out retrieval work on the existing drainage channels and drains, and made a request for the Government of Japan to extend a grant aid. In response to the request, the Government of Japan decided to procure the necessary equipment for the retrieval work and at same time to carry out the Model implementation effecting the transfer of knowledge for the management, operation and maintenance of the procured equipment.

Drains clearing equipment.

Channel dredging equipment

The equipment to be procured are (1) 43 units of special vehicles such as water jet cleaners, vacuum cleaners, water tankers, and cranes, (2) 41 units of dump trucks, (3) 20 units of dredging vessels such as pontoon barges, tugboats, and scows and (4) work tools such as drainage pumps, gas detectors, etc.

The Model Implementation will be carried out by a Japanese contractor with the supervision of a Japanese consultant, and the technical knowledge will be transferred to the staff of the Department of Public Works and Highways (DPWH), which is the executing agency for the Project. About 10% of the entire work volume will be achieved through the Model Implementation, and the remaining 90% of the work volume will be undertaken by DPWH using the equipment procured and the knowledge transferred through the Japanese grant aid.

The equipment procurement works started in April 1990, and delivery of all equipment and spare parts was completed end of August 1990. As for the Model Implementation, all preparatory works will be completed by the end of September, and actual retrieval works and guidance services will be executed for a 6-month period beginning late September 1990 up to end of March 1991. Immediately after the completion of the Model Implementation, the DPWH will undertake the remaining retrieval works for a 4.5-year period, and the whole retrieval work for the city of Manila will be completed by September 1995.

The drainage capacity of the existing facilities in the city of Manila will be restored to cope with the stormwater of a 10-year return period after the Project is completed. It is estimated that restoration of the drainage capacity will reduce by about 30% the present flood damage which corresponds to about 11 million US dollars in terms of annual average damage reduction. In addition to the flood damage reduction, the retrieval work will lead to the improvement of sanitary conditions and hazardous traffic conditions in rainy season. Thus, the proposed retrieval works of the Project will effectively reduce the chronic flood damage and furthermore, promote a desirable urban environment.

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ASIAN DISASTER PREPAREDNESS CENTER
SPECIAL ALUMNI IN THE REGION

Statistics published by the United States Office of Foreign Disaster Assistance (OFDA) provide compelling reasons for the creation of the Asian Disaster Preparedness Center (ADPC) in January 1986. In 1964-1986, the Asia-Pacific region experienced 708 disaster events resulting in 1.2 million dead and US$18 billion in damages.

When the Board of Trustees of the Asian Institute of Technology (AIT), with a start-up grant from OFDA, established ADPC as an independent cost center at its campus just north of Bangkok, it was meeting the expressed need of the countries of the region for international assistance in strengthening their disaster management capabilities, as well as following the recommendations of a feasibility study conducted by the Office of the United Nations Disaster Relief Co-ordinator (UNDRO).

The UNDRO feasibility study identified "training as the greatest need of all," and ADPC moved quickly to establish an intensive training program for officials in the region who are concerned with disaster management. The first Disaster Management Course (DMC) was offered 28 July-29 September 1986. Participants were senior officials representing government and nongovernment organizations.

There have now been seven DMC's with a total of 150 participants. The course has been designed to familiarize officials with the range of disaster management topics and balance theory with practical skills training. The latter, for instance, includes a 3-day field trip to refugee camps along the Thai-Kampuchean border where logistics and other aspects of emergency situations can be observed first hand.

Worldwide Resources

Though primary responsibility for organizing DMC, and other training courses, rests with ADPC's staff, resource people are brought in worldwide. The DMC has had lecturers from Australia, Bangladesh, India, Singapore, Sri Lanka, Thailand, the United Kingdom, the United States, and many other countries. These specialists have represented agencies such as the Cranfield Disaster Preparedness Center, the International Committee of the Red Cross, the United Nations Development Program, and the World Health Organization.

The DMC, offered twice a year —April-May, and October-November, has three principal objectives:

* upgrade knowledge of the theory and practice of disaster prevention, mitigation, preparedness, emergency response, reconstruction, and recovery
* improve personal disaster-related management skills, with emphasis on the training of trainers
* acquaint participants with specialized equipment and provide an opportunity for hands-on use of computers, communications and other resources.

Special Alumni

There is mounting evidence that the Center's commitment to a collaborative and multidisciplinary approach is creating a "multiplier effect" whereby individuals trained at ADPC return to their home countries to train other officials and initials policy and program ventures. These "alumni", as ADPC likes to describe its course participants, have accomplished a great deal in little time.

In Indonesia, key officials of the Indonesian Disaster Management Center have all been sent to ADPC for training. In turn, these officials have now trained more than 400 colleagues.

In the Philippines, a series of disaster management workshops organized by the Department of Social Welfare and Development and an Inter-agency Planning Committee, with support from ADPC, targets some 300 officials.

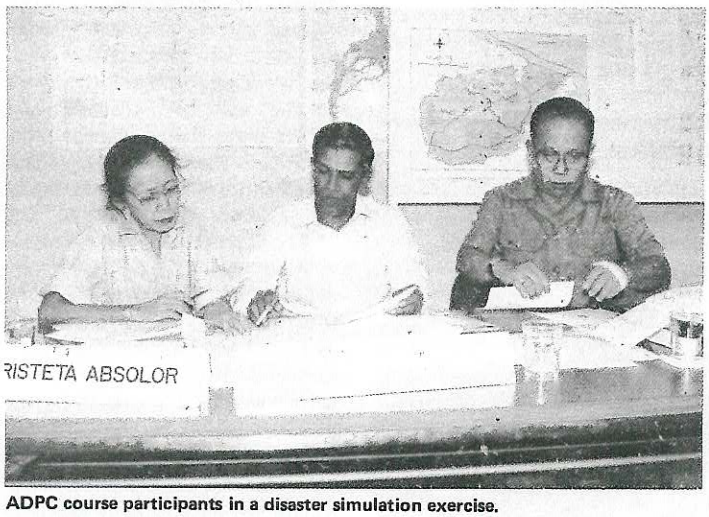
In Vietnam, 129 storm prevention officers have participated in training programs organized, in cooperation with ADPC, by Vietnamese alumni of ADPC disaster management courses.

In Sri Lanka, some 60 government officials and agents participated in Workshops organized, in cooperation with ADPC, by Sri Lankan alumni of ADPC.

Hardedge Expertise

The ADPC does not limit its efforts to training in management and nontechnical programs; it is also concerned with providing hardedged expertise to answer urgent questions.

An intensive training course for 28 engineers—26 from the Philippines and two from Indonesia—for instance, was held at the University of the Philippines, 1-30 October 1987. The Philippines archipelago is located in a region of high seismic activity and its inhabitants have repeatedly experienced devastating earthquakes. The course was coordinated by ADPC's senior research scientist and funded by OFDA.



ADPC course participants in a disaster simulation exercise.

A second course on aseismic design and construction, funded by the Canadian International Development Agency, will be conducted in the Philippines in late 1989.

Between 1964-1986, the Asia-Pacific region experienced 225 wind storms resulting in more than 400,000 people killed, 74 million people affected, and US$4.5 billion in property damage. Clearly an effective cyclone warning response in the region is vital to reduce loss of life and damage to critical infrastructures.

The ADPC organized its first course on improving cyclone warning response 31 October-11 November 1989, at AIT. Recognizing the important links between those who issue cyclone warnings and those who make use of warnings, there was an effort to invite two participants from each country, a meteorologist and a management official. Some of the topics covered were: global occurrence and impact of cyclones, community awareness, cyclone warning systems, hazards and vulnerability analyses, and methodologies for evaluating warning systems. Nearly 500 core shelters built in the Philippines, according to the design techniques developed by ADPC's senior research scientist and presented at the workshop, have withstood cyclonic winds of some 175 km/h.

The ADPC is planning additional courses on early cyclone warning systems in 1990 and following years.

Other areas of specialized need where ADPC plans on providing assistance, is conducting training programs, particularly for technical personnel, in flood loss prevention and management.

Information: A New Imperative

The ADPC maintains a specialized collection of books, periodicals, reprints, and audiovisual materials. The Center also has an extensive bibliographic database with some 1,700 abstracts on disaster-related topics. These resources are invaluable resources for course participants, researchers, and national policy makers.