

WORLD METEOROLOGICAL ORGANIZATION

OPERATIONAL HYDROLOGY REPORT No. 28

HYDROLOGICAL INFORMATION REFERRAL SERVICE — INFOHYDRO

SERVICE DE RÉFÉRENCE CONCERNANT L'INFORMATION HYDROLOGIQUE — INFOHYDRO

INFOHYDRO MANUAL

1995 edition

ГИДРОЛОГИЧЕСКАЯ ИНФОРМАЦИОННО-СПРАВОЧНАЯ СЛУЖБА — ИНФОГИДРО

SERVICIO DE INFORMACIÓN Y REFERENCIAS HIDROLÓGICAS — INFOHYDRO



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INFOHYDRO Manual

FOREWORD TO THE SECOND EDITION

One of the functions of the World Meteorological Organization is "to promote activities in operational hydrology and to further close cooperation among Meteorological and Hydrological Services of Members". This function is fulfilled largely through the Hydrology and Water Resources Programme (HWRP) of WMO. Promotion of the exchange of information on the status of activities of the Hydrological Services/Agencies of Members is the aim of one of the long-term projects within the Operational Hydrology Programme (OHP-Basic Systems).

The WMO Tenth Congress (1987) welcomed the initiation of the Hydrological Information Referral Service (INFOHYDRO) as an important contribution to the promotion of information exchange. The first edition of the INFOHYDRO Manual was published in 1987.

Clearly, INFOHYDRO can only remain useful if it is continually updated to reflect the extension of hydrological records and changes in political and institutional realities. To this end, the WMO Eleventh Congress (May 1991) urged Members to respond to requests for updated information for INFOHYDRO. Accordingly, by the end of 1993 many Members had provided the Secretariat with updated information.

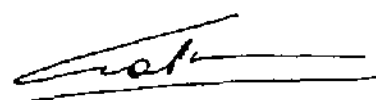
The WMO Commission for Hydrology, at its ninth session (January 1993), recognized that the recent changes in a number of countries would require modifications in Section I — International Organizations Dealing with Hydrology and Water Resources, and in Section II — Principal River and Lake Basins, particularly regarding WMO codes and countries shares in the areas of river basins, as well as on institutional cooperation within these basins. However, these changes are still continuing and, so as not to delay the publication of this second edition, the information given, while not always completely up to date, reflects the situation as close to the present as possible.

Thus, the second edition of the INFOHYDRO Manual contains the most recent information the Secretariat has received from Members. In addition to improvements in the maps of international river basins this edition contains three innovations:

- (a) The addition of a Section VI with information on International Data Banks related to Hydrology and Water Resources;
- (b) The inclusion of two maps for each of the six WMO Regions showing the density of precipitation and discharge stations in countries of the region;
- (c) The translation of the explanatory notes preceding the tables in French, Russian and Spanish.

As proposed by the WMO Commission for Hydrology (1988) and welcomed by the Eleventh Congress (1991), the next step will be the incorporation in INFOHYDRO of a geographical information system (GIS) capability. This has been included as part of Project 3.5.18 of the approved Programme and Budget for 1992-995. It is expected that this capability should assist Members in the application of the new opportunities provided by GIS for network planning and management purposes.

I wish to record my gratitude to all those who have contributed to this important reference publication. Their continued assistance through comments, suggestions and updated information will be most welcome. I trust that Members, international organizations and others involved in hydrology will benefit fully from facilities provided by INFOHYDRO.



(G. O. P. Obasi)
Secretary-General

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CUADRO 1.3 - Intervención de las organizaciones del sistema de las Naciones Unidas en el desarrollo de recursos hídricos: indicación de las esferas principales y aplicadas de interés

CUADRO 1.4 - Intervención de las organizaciones del sistema de las Naciones Unidas en materia de recursos hídricos

CUADRO 1.5 - Organizaciones internacionales no gubernamentales que se ocupan de hidrología y de recursos hídricos

CUADRO 1.6 - Acuerdos de cooperación a nivel del sistema (mundial, regional) y sectorial (bilateral o multilateral) para el desarrollo de recursos hídricos

CUADRO 1.7 - Cooperación institucionalizada en cuencas fluviales y lacustres internacionales

II PRINCIPALES CUENCAS FLUVIALES Y LACUSTRES - NOTAS EXPLICATIVAS (español, francés, inglés, ruso)

CUADRO 2.1 - África

CUADRO 2.2 - Asia

CUADRO 2.3 - América del Sur

CUADRO 2.4 - América del Norte y América Central

CUADRO 2.5 - Suroeste del Pacífico

CUADRO 2.6 - Europa

III ORGANISMOS NACIONALES QUE SE OCUPAN DE LA HIDROLOGÍA Y DE RECURSOS HÍDRICOS - NOTAS EXPLICATIVAS (español, francés, inglés, ruso)

CUADRO 3.1 - África

CUADRO 3.2 - Asia

CUADRO 3.3 - América del Sur

CUADRO 3.4 - América del Norte y América Central

CUADRO 3.5 - Suroeste del Pacífico

CUADRO 3.6 - Europa

CUADRO 3.7 - Organismos hidrológicos nacionales - Resumen

CUADRO 3.8 - Funcionamiento de redes hidrológicas - Resumen

CUADRO 3.9 - Actividades de organismos - Resumen

IV ESTACIONES DE OBSERVACIÓN HIDROLÓGICA - NOTAS EXPLICATIVAS (español, francés, inglés, ruso)

4.1 ÁFRICA

CUADROS 4.1.01 a .07 - Estaciones de medición de la precipitación

CUADRO 4.1.08 - Estaciones de medición de la evaporación

CUADRO 4.1.09 - Estaciones de medición del caudal

CUADRO 4.1.10 - Estaciones de medición de la altura (nivel del agua)

CUADRO 4.1.11 - Estaciones de medición de sedimentos y de la calidad del agua

CUADRO 4.1.12 - Estaciones de medición de aguas subterráneas (pozos)

4.2 ASIA

CUADROS 4.2.01 a .07 - Estaciones de medición de la precipitación

CUADRO 4.2.08 - Estaciones de medición de la evaporación

CUADRO 4.2.09 - Estaciones de medición del caudal

CUADRO 4.2.10 - Estaciones de medición de la altura (nivel del agua)

CUADRO 4.2.11 - Estaciones de medición de sedimentos y de la calidad del agua

CUADRO 4.2.12 - Estaciones de medición de aguas subterráneas (pozos)

4.3 AMÉRICA DEL SUR

CUADROS 4.3.01 a .07 - Estaciones de medición de la precipitación

CUADRO 4.3.08 - Estaciones de medición de la evaporación

CUADRO 4.3.09 - Estaciones de medición del caudal

CUADRO 4.3.10 - Estaciones de medición de la altura (nivel del agua)

CUADRO 4.3.11 - Estaciones de medición de sedimentos y de la calidad del agua

CUADRO 4.3.12 - Estaciones de medición de aguas subterráneas (pozos)

4.4 AMÉRICA DEL NORTE Y AMÉRICA CENTRAL

CUADROS 4.4.01 a .07 - Estaciones de medición de la precipitación

CUADRO 4.4.08 - Estaciones de medición de la evaporación

CUADRO 4.4.09 - Estaciones de medición del caudal

CUADRO 4.4.10 - Estaciones de medición de la altura (nivel del agua)

CUADRO 4.4.11 - Estaciones de medición de sedimentos y de la calidad del agua

CUADRO 4.4.12 - Estaciones de medición de aguas subterráneas (pozos)

4.5 SUROESTE DEL PACÍFICO

CUADROS 4.5.01 a .07 - Estaciones de medición de la precipitación

CUADRO 4.5.08 - Estaciones de medición de la evaporación

CUADRO 4.5.09 - Estaciones de medición del caudal

CUADRO 4.5.10 - Estaciones de medición de la altura (nivel del agua)

CUADRO 4.5.11 - Estaciones de medición de sedimentos y de la calidad del agua

CUADRO 4.5.12 - Estaciones de medición de aguas subterráneas (pozos)

4.6 EUROPA

- CUADROS 4.6.01 a .07 - Estaciones de medición de la precipitación
- CUADRO 4.6.08 - Estaciones de medición de la evaporación
- CUADRO 4.6.09 - Estaciones de medición del caudal
- CUADRO 4.6.10 - Estaciones de medición de la altura (nivel del agua)
- CUADRO 4.6.11 - Estaciones de medición de sedimentos y de la calidad del agua
- CUADRO 4.6.12 - Estaciones de medición de aguas subterráneas (pozos)

4.7 RESUMEN MUNDIAL

- CUADRO 4.7 - Estaciones de observación hidrológica - Resumen

V BANCOS DE DATOS HIDROLÓGICOS NACIONALES - NOTAS EXPLICATIVAS (español, francés, inglés, ruso)

- CUADROS 5.1.1 a 5.6.1 - Bancos y archivo de datos hidrológicos (por Regiones)
- CUADROS 5.1.2 a 5.6.2 - Concentración y proceso de datos hidrológicos (por Regiones)
- CUADRO 5.7 - Bancos y archivo de datos hidrológicos - Resumen
- CUADRO 5.8 - Concentración y proceso de datos hidrológicos - Resumen

VI BANCOS DE DATOS INTERNACIONALES RELACIONADOS CON LA HIDROLOGÍA Y LOS RECURSOS HÍDRICOS - NOTAS EXPLICATIVAS (español, francés, inglés, ruso)

- Centro Mundial de Datos de Escorrentía
- INFOCLIMA

HYDROLOGICAL INFORMATION REFERRAL SERVICE - INFOHYDRO - INTRODUCTION

PURPOSE AND SCOPE

1. The Hydrological Information Referral Service - INFOHYDRO - is a service for the dissemination of information on:

- (a) National and international (governmental and non-governmental) organizations, institutions and agencies dealing with hydrology;
- (b) Hydrological and related activities of these bodies;
- (c) Principal international river and lake basins of the world;
- (d) Networks of hydrological observing stations of countries - numbers of stations and duration of records;
- (e) National hydrological data banks - status of collection, processing and archiving of data;
- (f) International data banks related to hydrology and water resources.

2. **INFOHYDRO is a metadata base and therefore does not contain or handle actual hydrological data, nor does it duplicate national referral systems.** It is designed to facilitate the prompt dissemination of continually updated hydrological information as listed above to Member countries, particularly for the benefit of their experts, agencies and enterprises engaged in activities or projects related to water-resource assessment, development and management requiring support from national, regional or international agencies dealing with operational hydrology. The information available in INFOHYDRO provides a good indication of water-resources assessment activities of Members. As a computerized service, INFOHYDRO is expected to be developed gradually into an "on-line" system which will be made available to Members and other users.

COMPONENTS AND FUNCTIONS OF INFOHYDRO

3. INFOHYDRO consists of the two components described below.

A. INFOHYDRO Manual

4. The INFOHYDRO Manual contains information concerning the entire INFOHYDRO and its operation. It also contains all hydrological information available at present in INFOHYDRO. Thus, the Manual comprises in a single volume comprehensive information on the Hydrological Services of the countries of the world and their data-collection activities.

5. The Manual is distributed according to WMO procedures for hydrological publications of the Organization supplied to:

- (a) Permanent representatives of Members with WMO or Directors of Meteorological and Hydrometeorological Services of Members;
- (b) Hydrological advisers to permanent representatives, or Hydrological Agencies of Members;
- (c) United Nations and specialized agencies involved in hydrology and water resources;
- (d) International river basin commissions and non-governmental organizations with whom WMO has working agreements.

6. Others users may purchase the Manual from WMO.

B. Computer services

7. INFOHYDRO is maintained as a computerized data base, and data can also be supplied on diskette. Requests should be addressed to:

The Secretary-General
World Meteorological Organization
41, Avenue Giuseppe Motta
P.O. Box 2300
CH-1211 GENEVA 2
Switzerland
Telephone: (+41 22) 730 81 11
Telegramme: METEOMOND GENEVE
Telex: 23 260 OMM CH
Facsimile: (+41 22) 734 23 26

C. Sources of information

8. The information in INFOHYDRO was collected from Members by means of questionnaires, supplemented where appropriate by published information and that available through the UN system. INFOHYDRO was first published in 1977 as Operational Hydrology Report No. 10 - **Statistical Information on Activities in Operational Hydrology** (WMO-No. 464). This publication forms the basis of the INFOHYDRO Manual and the computer service. The computerized information pertaining to each country was reviewed, updated and/or completed by the country concerned.

D. Updating

9. The information stored is updated continually, as new information becomes available through different channels such as WMO experts' reports, missions of Secretariat officers,

WMO Commission for Hydrology and the working groups on hydrology of the WMO regional associations*. However, for purposes of completion, verification and authentication of the updated information, the co-operation of Member countries will be sought at appropriate intervals.

10. However it may not be necessary to update and reprint the entire **INFOHYDRO Manual** because major revisions will tend to pertain to information concerning hydrological observing stations and data banks. Therefore chapters IV, V and VI-Hydrological observing stations, Data banks and International data banks related to hydrology and water resources will require more frequent updating, and will be reissued as necessary.

* The Regional Associations of the World Meteorological Organization established by Congress are as follows:

- Region I - Africa
- Region II - Asia
- Region III - South America
- Region IV - North and Central America
- Region V - South-West Pacific
- Region VI - Europe

SERVICE DE RÉFÉRENCE CONCERNANT L'INFORMATION HYDROLOGIQUE - INFOHYDRO - INTRODUCTION

OBJET ET PORTÉE

1. Le Service de référence concernant l'information hydrologique - INFOHYDRO - est un service de diffusion de données sur :

- a) les organisations, institutions et organismes nationaux et internationaux (gouvernementaux et non gouvernementaux) qui s'occupent d'hydrologie;
- b) les activités hydrologiques et apparentées de ces organismes;
- c) les principaux bassins fluviaux et lacustres internationaux du monde;
- d) les réseaux nationaux de stations hydrologiques d'observation (nombre de stations et durée des relevés);
- e) les banques de données hydrologiques nationales (état du rassemblement, du traitement et de l'archivage des données);
- f) les banques de données internationales concernant l'hydrologie et les ressources en eau.

2. **INFOHYDRO est une base globale de données. C'est-à-dire qu'elle ne contient pas de données hydrologiques à proprement parler et ne fait donc pas double emploi avec les systèmes de référence nationaux.** Son objet est d'aider à communiquer rapidement des renseignements hydrologiques continuellement actualisés aux pays Membres, en particulier au profit de leurs experts, organismes et entreprises chargés d'activités ou de projets liés à l'évaluation, à la mise en valeur et à la gestion des ressources en eau et nécessitant l'appui d'organismes nationaux, régionaux ou internationaux qui s'occupent d'hydrologie opérationnelle. Les renseignements figurant dans INFOHYDRO donnent une bonne indication des activités d'évaluation des ressources en eau menées par les Membres. En tant que système informatisé, INFOHYDRO devrait être transformé progressivement en un service directement accessible aux pays Membres et autres utilisateurs.

COMPOSANTES ET FONCTIONS DU SYSTÈME INFOHYDRO

3. Le système INFOHYDRO comprend les deux composantes décrites ci-dessous.

A. Manuel INFOHYDRO

4. La manuel INFOHYDRO contient des renseignements sur l'ensemble du système et sur son fonctionnement. On y trouve aussi tous les renseignements hydrologiques actuellement disponibles dans ce système. Le manuel regroupe donc en un seul volume des informations complètes sur les services hydrologiques des divers pays et leurs opérations de rassemblement de données.

5. Le manuel est diffusé conformément aux procédures de l'OMM applicables aux publications hydrologiques; il a donc été adressé aux personnes et organismes suivants :

- a) représentants permanents ou directeurs des Services météorologiques et hydrométéorologiques des pays Membres de l'OMM;
- b) conseillers en hydrologie auprès des représentants permanents, ou organismes hydrologiques des pays Membres;
- c) Organisation des Nations Unies (ONU) et institutions spécialisées s'occupant d'hydrologie et de ressources en eau;
- d) commissions des bassins fluviaux internationaux et organisations non gouvernementales avec lesquelles l'OMM a passé des accords de travail.

6. Les autres personnes ou organismes intéressés peuvent acheter le manuel à l'OMM.

B. Service informatisé

7. INFOHYDRO est exploité comme une base de données informatisée, et les données peuvent être communiquées sur disquette. Toute demande de renseignements sera envoyée à l'adresse suivante :

Monsieur le Secrétaire général
Organisation météorologique mondiale
41, avenue Giuseppe Motta
Case postale N° 2300
CH-1211 GENÈVE 2
Suisse

Téléphone : (+41 22) 730 81 11
Télégramme : METEOMOND GENÈVE
Télex : 23 260 OMM CH
Télécopie : (+41 22) 734 23 26

C. Sources d'information

8. Les renseignements figurant dans INFOHYDRO ont été rassemblés auprès des pays Membres, grâce à des questionnaires, et complétés s'il le fallait par des renseignements publiés ou des données disponibles dans le système des Nations Unies. Le premier document du genre a été publié en 1977; il s'agissait du Rapport N° 10 de la série consacrée à l'hydrologie opérationnelle - **Statistical Information on Activities in Operational Hydrology** (Information statistique sur les activités d'hydrologie opérationnelle, OMM - N° 464). Cette publication constitue la base du manuel et du service informatisé INFOHYDRO. Chaque pays a examiné, mis à jour et/ou complété les renseignements informatisés le concernant.

D. Mise à jour

9. Les renseignements en mémoire seront mis à jour en permanence, à mesure que les données nouvelles parviendront à l'OMM par des circuits tels que les rapports d'experts de l'OMM, les missions des responsables du Secrétariat, la Commission d'hydrologie de l'OMM et les groupes de travail de l'hydrologie des associations régionales de l'OMM*. Toutefois, l'OMM demandera aux pays Membres de compléter, de vérifier et d'authentifier les renseignements actualisés, à intervalles appropriés.

10. Toutefois, il ne sera peut-être pas nécessaire de mettre à jour et de rééditer l'ensemble du **Manuel INFOHYDRO** car les principales révisions porteront en général sur des renseignements concernant les stations hydrologiques d'observation et les banques de données. Aussi, les sections IV, V et VI - "Hydrological observing stations" (Stations hydrologiques d'observation), "National hydrological data banks" (Banques de données hydrologiques nationales) et "International data banks related to hydrology and water resources" (Banques de données internationales concernant l'hydrologie et les ressources en eau) - devraient être mises à jour plus fréquemment. Elles seront rééditées selon les besoins.

* Les associations régionales de l'Organisation météorologique mondiale, telles qu'elles ont été établies par le Congrès, sont les suivantes :

Région I	-	Afrique
Région II	-	Asie
Région III	-	Amérique du Sud
Région IV	-	Amérique du Nord et Amérique centrale
Région V	-	Pacifique Sud-Ouest
Région VI	-	Europe

ГИДРОЛОГИЧЕСКАЯ ИНФОРМАЦИОННО-СПРАВОЧНАЯ СЛУЖБА - ИНФОГИДРО - ВВЕДЕНИЕ

ЦЕЛЬ И СФЕРА ПРИМЕНЕНИЯ

1. Гидрологическая информационно-справочная служба - ИНФОГИДРО - является одной из служб по распространению информации о:

- a) национальных и международных (правительственных и неправительственных) организациях, учреждениях и агентствах, занимающихся гидрологией;
- b) деятельности органов, упомянутых в пункте (a), в области гидрологии и смежных с ней областях;
- c) основных международных речных и озерных бассейнах мира;
- d) сетях гидрологических наблюдательных станций, принадлежащих странам - число станций и длительность наблюдений;
- e) национальных банках гидрологических данных - состояние сбора, обработки и архивации данных;
- f) международных банках данных, относящихся к гидрологии и водным ресурсам.

2. ИНФОГИДРО является базой метаданных и, следовательно, не содержит и не занимается фактическими гидрологическими данными и не дублирует национальные справочные системы. Она разработана для облегчения быстрого распространения непрерывно обновляемой гидрологической информации, которая перечислена выше, странам-членам, в частности, в помощь экспертам, агентствам и предприятиям, вовлеченным в деятельность или проекты, относящиеся к оценке, развитию и управлению водными ресурсами, что требует поддержки со стороны национальных, региональных или международных агентств, занимающихся оперативной гидрологией. Информация, имеющаяся в распоряжении ИНФОГИДРО, дает хорошее представление о деятельности членов в области оценки водных ресурсов. Ожидается, что ИНФОГИДРО как служба, основанная на использовании ЭВМ, постепенно превратится в систему, работающую в режиме поступления информации, которая будет доступна членам и другим пользователям.

КОМПОНЕНТЫ И ФУНКЦИИ ИНФОГИДРО

3. ИНФОГИДРО состоит из двух компонентов, описанных ниже.

A. Наставление по ИНФОГИДРО

4. Наставление по ИНФОГИДРО содержит информацию, касающуюся ИНФОГИДРО в целом и ее функционирования. Оно также содержит всю гидрологическую информацию, имеющуюся в настоящее время в распоряжении ИНФОГИДРО. Таким образом, в единственном томе Наставления собрана обобщенная информация по гидрологическим службам стран мира и их деятельности по сбору данных.

5. Наставление распространяется в соответствии с практикой ВМО, применяемой в отношении гидрологических публикаций Организации, т.е. оно будет направляться:

- a) постоянным представителям стран-членов при ВМО или директорам метеорологических и гидрометеорологических служб членов;

- b) советникам по гидрологическим вопросам постоянных представителей или гидрологическим агентствам членов;
 - c) Организации Объединенных Наций (ООН) и специализированным агентствам, занимающимся гидрологией и водными ресурсами;
 - d) комиссиям по международным речным бассейнам и неправительственным организациям, с которыми ВМО имеет рабочие соглашения.
6. Другие пользователи могут приобретать Наставление у ВМО.
- В. Компьютерные услуги
7. ИНФОГИДРО представляет собой компьютеризированную базу данных, при этом данные могут поставляться на дискете. Запросы-заявки следует направлять по адресу:

The Secretary-General
World Meteorological Organisation
41, Avenue Giuseppe Motta
P.O. Box 2300
CH-1211 GENEVA 2
Switzerland
Telephone: (+41 22) 730 81 11
Telegramme: METEOMOND GENEVE
Telex: 23 260 OMM CH
Facsimile: (+41 22) 734 23 26

С. Источники информации

8. Информация, имеющаяся в распоряжении ИНФОГИДРО, была получена от членов на основе вопросников и дополнена при необходимости опубликованной информацией и той информацией, которая доступна в системе ООП. Эта информация впервые была опубликована в 1977 г. в качестве отчета по оперативной гидрологии № 10 - **Статистическая информация о деятельности в области оперативной гидрологии** (Публикация ВМО № 464). Эта публикация положена в основу **Наставления по ИНФОГИДРО** и компьютерной службы. Введенная в компьютер информация по каждой стране была пересмотрена, обновлена и/или дополнена соответствующей страной.

Д. Обновление

9. Информация, хранящаяся в компьютере, дополняется на непрерывной основе по мере поступления новой информации по таким различным каналам, как: отчеты экспертов ВМО, командировки сотрудников Секретариата, Комиссия ВМО по гидрологии и рабочие группы по гидрологии региональных ассоциаций ВМО*. Однако с целью комплектации, проверки и установления подлинности обновленной информации, будет предусмотрено установление сотрудничества стран-членов через соответствующие интервалы времени.

10. Однако надобности в обновлении и пересчете всего **Наставления по ИНФОГИДРО** может не быть по той причине, что основной пересмотр будет касаться информации, относящейся к гидрологическим наблюдательным станциям и банкам данных. Следовательно, главы IV, V и VI - "Гидрологические наблюдательные станции", "Банки данных" и "Международные банки данных, относящихся к гидрологии и водным ресурсам", потребуют более частого обновления. Они будут переиздаваться по мере необходимости.

* Конгрессом Всемирной Метеорологической Организации учреждены следующие Региональные ассоциации:

Регион I	-	Африка
Регион II	-	Азия
Регион III	-	Южная Америка
Регион IV	-	Северная и Центральная Америка
Регион V	-	Юго-западная часть Тихого океана
Регион VI	-	Европа

SERVICIO DE REFERENCIAS E INFORMACIÓN SOBRE DATOS HIDROLÓGICOS - INFOHYDRO - INTRODUCCIÓN

FINALIDAD Y ALCANCE

1. El Servicio de Referencias e Información sobre Datos Hidrológicos - INFOHYDRO - tiene por cometido difundir información sobre:
 - a) organizaciones, instituciones y organismos, nacionales e internacionales (gubernamentales y no gubernamentales) que se ocupan de hidrología;
 - b) actividades hidrológicas y conexas de que se ocupan;
 - c) principales cuencas fluviales y lacustres internacionales del mundo;
 - d) redes de estaciones de observación hidrológica de países - número de las estaciones y duración de los registros;
 - e) bancos de datos hidrológicos nacionales - situación de la concentración, proceso y archivo de datos;
 - f) bancos de datos internacionales relativos a la hidrología y a los recursos hídricos.
2. El INFOHYDRO es una base de metadatos, por lo que no contiene ni trata datos hidrológicos reales y tampoco se solapa con los sistemas nacionales de referencia. Está destinado a facilitar una pronta difusión de información hidrológica, actualizada de manera permanente, a los países Miembros, en especial a sus expertos, organismos y empresas que se ocupan de actividades o proyectos relacionados con la evaluación, explotación y gestión de recursos hídricos, para los que se requiere apoyo de organismos nacionales, regionales o internacionales que se ocupan de hidrología operativa. La información contenida en el INFOHYDRO proporciona un buen indicio de las actividades de evaluación de recursos hídricos de los Miembros. Como el INFOHYDRO es un servicio automatizado, se espera convertirlo gradualmente en un sistema "en línea", a disposición de los Miembros y de otros usuarios.

COMPONENTES Y FUNCIONES DEL INFOHYDRO

3. El INFOHYDRO consta de los dos componentes que se describen a continuación:
 - A. **Manual del INFOHYDRO**
4. El **Manual del INFOHYDRO** contiene información relativa al sistema total del INFOHYDRO y su funcionamiento. También engloba toda la información hidrológica disponible actualmente en el INFOHYDRO. Así pues, el Manual comprende, en un único volumen, información global relativa a los servicios hidrológicos de los países y a sus actividades de concentración de datos.
5. El Manual se distribuye de acuerdo con los procedimientos aplicados por la OMM para la distribución de publicaciones hidrológicas de la Organización, por lo que se suministra a:
 - a) los Representantes Permanentes de los Miembros ante la OMM o Directores de los Servicios Meteorológicos e Hidrometeorológicos de los Miembros;
 - b) los Asesores hidrológicos de los Representantes Permanentes u organismos hidrológicos de los Miembros;
 - c) las Naciones Unidas (NU) y organismos especializados que se ocupan de hidrología y recursos hídricos;
 - d) las Comisiones y organizaciones no gubernamentales encargadas de cuencas fluviales internacionales con las que la OMM tiene concertados acuerdos de trabajo.
6. Otros usuarios pueden adquirir el Manual en la OMM.

B. Servicios informatizados

7. El INFOHYDRO se mantiene como base de datos informatizada, pudiendo suministrarse los datos también en disquete. Las peticiones de información deberán cursarse a la siguiente dirección:

El Secretario General
de la Organización Meteorológica Mundial
41, Avenue Giuseppe Motta
P.O. Box 2300
CH-1211 GINEBRA 2, Suiza
Teléfono: (+41 22) 730 81 11
Telegrama: METEOMOND GÈNEVE
Télex: 23 260 OMM CH
Fax: (+41 22) 734 23 26

C. FUENTES DE INFORMACIÓN

8. La información que contiene el INFOHYDRO procede de la que los Miembros aportan por medio de cuestionarios, completada, según corresponda, con información publicada y con la que se proporciona por conducto del sistema de las Naciones Unidas. La información se publicó por primera vez en 1977 en el Informe N° 10 de Hidrología Operativa - **Información estadística sobre actividades de hidrología operativa** (OMM N° 464). Esta publicación constituye la base del Manual del INFOHYDRO y el servicio informatizado. Se ha revisado, actualizado y/o completado por cada uno de los países interesados la información computarizada correspondiente a cada uno de ellos.

D. ACTUALIZACIÓN

9. La información almacenada se actualiza continuamente, a medida que se dispone de nueva información a través de diferentes canales, como informes de expertos de la OMM, misiones de funcionarios de la Secretaría, la Comisión de Hidrología de la OMM y los grupos de trabajo sobre hidrología de las Asociaciones Regionales de la OMM*. Sin embargo, con el fin de completar, verificar y autenticar la información actualizada, se solicitará la cooperación de los países Miembros a intervalos apropiados.

10. No obstante, tal vez no sea necesario actualizar y reimprimir la totalidad del **Manual INFOHYDRO**, ya que las principales revisiones corresponderán a la información relativa a las estaciones de observación hidrológica y los bancos de datos. Por tanto, los Capítulos IV, V y VI - Estaciones de observación hidrológicas, los bancos de datos y los bancos de datos internacionales relativos a hidrología y recursos hídricos habrá que actualizarlos más frecuentemente. Éstos se volverán a publicar en la medida necesaria.

* Las Asociaciones Regionales de la Organización Meteorológica Mundial establecidas por el Congreso son las siguientes:

Región I	- África
Región II	- Asia
Región III	- América del Sur
Región IV	- América del Norte y América Central
Región V	- Suroeste del Pacífico
Región VI	- Europa

I - INTERNATIONAL ORGANIZATIONS DEALING WITH HYDROLOGY AND WATER RESOURCES

TABLES 1.1 to 1.7

Explanatory notes

Tables 1.1 and 1.2: International governmental organizations (IGOs) dealing with hydrology and water resources

These are organizations established by agreements to which two or more States are party. Such organizations may be global or regional. Co-ordination of the activities in hydrology and water resources of the organizations within the United Nations System is achieved through the Sub-Committee on Water Resources of the Administrative Committee on Co-ordination (ACC). The IGOs listed in **Table 1.1** and the United Nations Regional Economic Commissions listed in **Table 1.2** are members of this Sub-Committee. Involvement of these organizations in hydrology and water resources development is delineated in a general way in **Tables 1.3 and 1.4** (see references 1 and 2).

Table 1.3: Involvement of the organizations of the United Nations System in water-resources development: indication of main and applied areas of interest

Column (1) indicates the nature and general interrelationships of the roles played by the organizations in each of these areas.

Column (2) lists the organizations whose main involvement lies in a given area of activity as classified in *Column (1)*.

Column (3) indicates those organizations participating in a given area in the applied sense, such as in the context of comprehensive development planning and/or co-operation with other organizations.

Table 1.4: Involvement of the organizations of the United Nations System in the field of water resources

This table provides a more detailed view of the activities of the organizations. Each cell in the matrix shows which organizations are involved in development and management activities concerning specific water-resources sectors. The development and management functions have been classified as follows:

1. Surface water hydrology
2. Groundwater hydrology
3. Surface water-quality monitoring
4. Groundwater quality monitoring
5. Information on water use
6. Surface water development
7. Groundwater development
8. Waste water re-use
9. Integrated water-resources management
10. Water use management
11. Waste water management

12. Strengthening of institutions
13. Legislation
14. Education and training
15. Human-resources development

The specific water resources sectors are as follows:

- A. Agricultural water use
- B. Drinking-water supply
- C. Industrial water use
- D. Hydropower
- E. Navigation
- F. Flood control
- G. Drought management
- H. Multipurpose water use

Additional information as to the nature of the involvement of each organization, as well as a description of the scope and nature of water-related activities of the organizations of the United Nations System, with examples of typical projects executed by them, is provided in references [3, 4].

Table 1.5: International non-governmental organizations (NGOs) dealing with hydrology and water resources

These are international organizations not established by intergovernmental agreement. They include organizations that accept members designated by government authorities, provided that such membership does not interfere with the free expression of the views of the Organization [1, 2]. The NGOs involved with hydrology and water resources are listed alphabetically in **Table 1.5** in the following categories:

- (a) Federations of international organizations;
- (b) Universal membership organizations;
- (c) Inter-continental membership organizations;
- (d) Regional membership organizations;
- (e) Semi-autonomous bodies; and
- (f) Organizations of special form.

Table 1.5 is presented as follows:

Column (1) - Organization name: the name of the organization is normally given in English.

Column (2) - Acronym

Column (3) - Organization address: the address given is that of the international secretariat, principal secretariat or principal contact as in 1992. Some secretariats rotate or move to another address depending on the changes in the composition of the governing bodies.

Table 1.6: Arrangements for inter-organizational co-operation at the global, regional and sectoral levels

To further their respective roles and enhance the complementarity of their efforts to assist developing countries, the organizations of the United Nations system have formal arrangements for co-operation and collaboration in many programmes, including water. As can be seen from the summaries in **Table 1.6**, some of these arrangements are comprehensive in scope, spanning the entire field of water-resources development, and involving system-wide co-ordination at the global and regional levels. Others are of a sectoral nature and involve bilateral or multilateral collaboration within the framework of a particular aspect of water-resources development. Further details on these arrangements for inter-organizational co-operation are given in [3, 4].

System-wide co-operation in the field of water is facilitated through the UN Administrative Committee on Co-ordination Sub-Committee on Water Resources, constituting an essential focus for collaboration in UN water orientated activities. The IGO's listed in **Table 1.1** and the United Nations Regional Economic Commissions listed in **Table 1.2** are members of this Intersecretariat Group.

Table 1.7: Institutionalized co-operation in international river and lake basins

There are many international agreements and treaties which concern the joint use of international rivers and boundary waters, and many of these agreements and treaties have resulted in institutionalized co-operation among the countries concerned. This table lists the main international institutions of this kind, by WMO Region. The headquarters of each institution and the address of its secretariat, where available or applicable, are also given.

The information for this table is derived from references 5 to 10.

Due to the recent changes in a number of countries, particularly in Europe, updated information on institutional co-operation within international basins shared by some of these countries was not yet available at the time of printing this second edition.

References

- (1) ECOSOC Resolution 288 (X) and Resolution 1296 (XLIV);
- (2) Yearbook of International Organizations - 1985/1986; 22nd edition, Saur, Munich.
- (3) UN, 1982: The United Nations Organizations and Water, 83-00237, New York.
- (4) UN, 1992: The United Nations Organizations and Water - Briefing note on the scope and nature of the activities of the organizations of the United Nations system (in preparation).
- (5) UN Treaty Series, Legislative Texts and Treaty - Provisions Concerning the Utilization of International Rivers for Purposes other than Navigation (ST/LEG/SER.B/12; Sales No. 63.V.4).
- (6) UN Management of International Water Resources: Institutional and Legal Aspects (ST/ESA/5; Sales No. E.75.II.A.2), 1975.

INTERNATIONAL ORGANIZATIONS

- (7) UN ECOSOC, Document E/C.7/35: 27 October 1972;
 - (8) UN Treaties concerning the utilization of international water courses for other purposes than navigation - Africa. Nat. Res./Water Series No. 13 (ST/ESA/141, Sales No. E/F.84.II.A.7), 1984.
 - (9) UN Report on Legal Problems related to the Utilization and Use of International Rivers. A/5409, 1964.
 - (10) FAO Systematic Index of International Water Resources Treaties, Declarations, Acts and Cases by Basin - Legislative Study No. 15, 1978.
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I - ORGANISATIONS INTERNATIONALES S'OCCUPANT D'HYDROLOGIE ET DE RESSOURCES EN EAU

TABLEAUX 1.1 À 1.7

Notes explicatives

Tableaux 1.1 et 1.2 : Organisations internationales gouvernementales s'occupant d'hydrologie et de ressources en eau

Il s'agit d'organisations, mondiales ou régionales, établies par le biais d'accords conclus entre au moins deux Etats. La coordination des activités menées dans le domaine de l'hydrologie et des ressources en eau par les organisations faisant partie du système des Nations Unies est assurée par le Sous-Comité des ressources en eau du Comité administratif de coordination (CAC). Les organisations internationales gouvernementales énumérées au **Tableau 1.1** et les commissions économiques régionales des Nations Unies énumérées au **Tableau 1.2** sont membres du Sous-Comité. L'engagement de ces organisations dans le domaine de l'hydrologie et de la mise en valeur des ressources en eau est décrit dans ses grandes lignes aux **Tableaux 1.3** et **1.4**, comme indiqué ci-dessous (voir références 1 et 2).

Tableau 1.3 : Participation d'institutions du système des Nations Unies à la mise en valeur des ressources en eau : principaux domaines d'intérêt et d'intervention

La colonne 1) indique en quoi consiste la participation des institutions dans chacun des domaines cités et spécifie les liens existant entre les institutions dans ces domaines.

La colonne 2) énumère les institutions dont la principale occupation s'inscrit dans le cadre de l'un des domaines d'activité énumérés dans la colonne 1).

La colonne 3) indique les institutions qui participent dans la pratique à un domaine donné, par exemple dans le cadre de projets globaux de mise en valeur et/ou de coopération avec d'autres institutions.

Tableau 1.4 : Participation d'institutions du système des Nations Unies aux activités menées dans le domaine des ressources en eau

Ce tableau fournit une description plus détaillée des activités menées par les institutions. A l'intérieur de chaque colonne sont indiquées les institutions qui participent à des activités de mise en valeur et de gestion pour des secteurs spécifiques des ressources en eau. Les fonctions de mise en valeur et de gestion ont été classées comme suit :

1. Hydrologie (eaux de surface)
2. Hydrologie (eaux souterraines)
3. Surveillance de la qualité des eaux de surface
4. Surveillance de la qualité des eaux souterraines
5. Renseignements sur l'utilisation de l'eau
6. Mise en valeur des ressources en eau de surface
7. Mise en valeur des ressources en eau souterraine
8. Réutilisation des eaux usées
9. Gestion globale des ressources en eau
10. Gestion de l'utilisation de l'eau

11. Gestion de l'utilisation des eaux usées
12. Renforcement des institutions
13. Législation
14. Enseignement et formation professionnelle
15. Mise en valeur des ressources humaines

Les secteurs spécifiques des ressources en eau sont les suivants :

- A. Utilisation de l'eau pour l'agriculture
- B. Alimentation en eau potable
- C. Utilisation de l'eau pour l'industrie
- D. Hydro-électricité
- E. Navigation
- F. Défense contre les inondations
- G. Gestion de la sécheresse
- H. Utilisation de l'eau à des fins multiples

On trouvera dans les références [3, 4] les renseignements supplémentaires sur la nature de la participation de chaque institution, ainsi qu'une description des activités menées par les institutions du système des Nations Unies dans le domaine de l'eau (leur portée et leur nature), illustrée d'exemples de projets types qu'elles ont exécutés.

Tableaux 1.5 : Organisations internationales non gouvernementales (ONG) s'occupant d'hydrologie et de ressources en eau

Il s'agit d'organisations internationales qui n'ont pas été établies par le biais d'un accord intergouvernemental. En font partie les organisations qui acceptent des membres désignés par des administrations gouvernementales, sous réserve que l'adhésion de ces membres ne soit pas un frein à la libre expression des opinions de l'Organisation [1, 2]. Les ONG s'occupant d'hydrologie et de ressources en eau sont énumérées, par ordre alphabétique, au Tableau 1.5. Elles appartiennent à l'une ou l'autre des catégories suivantes :

- a) fédérations d'organisations internationales
- b) organisations dont l'adhésion est universelle;
- c) organisations dont l'adhésion est intercontinentale;
- d) organisations dont l'adhésion est régionale;
- e) organes semi-autonomes; et
- f) organisations de type spécifique.

Le Tableau 1.5 est présenté comme suit :

Colonne 1) - Nom de l'organisation : le nom de l'organisation est indiqué normalement en anglais.

Colonne 2) - Acronyme

Colonne 3) - Adresse de l'organisation : l'adresse indiquée est celle du secrétariat international ou du secrétariat principal, ou encore celle du principal centre de liaison, pour 1992. Certains secrétariats assurent leurs fonctions à tour de rôle ou changent d'adresse selon les changements intervenus dans la composition des organes directeurs.

Tableau 1.6 : Dispositions prises par les organisations en vue de leur collaboration dans la mise en valeur des ressources en eau, pour l'ensemble des systèmes (mondiaux ou régionaux) et des secteurs (collaboration bilatérale ou multilatérale)

Afin d'améliorer leurs rôles respectifs et de favoriser la complémentarité des efforts qu'elles déploient pour aider les pays en développement, les institutions du système des Nations Unies prennent des dispositions officielles de coopération et de collaboration dans de nombreux programmes, y compris dans les programmes relatifs à l'eau. Comme le montrent les résumés figurant au **Tableau 1.6**, certaines de ces dispositions ont une portée très étendue, dans la mesure où elles couvrent l'ensemble de la question de la mise en valeur des ressources en eau et englobent une coordination de toute le système, à l'échelle aussi bien mondiale que régionale. D'autres, plus sectorielles, portent sur une collaboration bilatérale ou multilatérale s'effectuant dans le cadre d'un aspect spécifique de la mise en valeur des ressources en eau. On trouvera aux références [3, 4] plus de détails sur ces dispositions de coopération entre institutions.

La coopération dans le domaine de l'eau est facilitée par le Sous-Comité des ressources en eau, du Comité administratif de coordination des Nations Unies, qui constitue un axe essentiel de collaboration des activités menées par les Nations Unies dans ce domaine. Les organisations intergouvernementales énumérées au **Tableau 1.1** et les commissions économiques régionales des Nations Unies énumérées au **Tableau 1.2**, sont membres de ce Sous-Comité.

Tableau 1.7 : Coopération institutionnalisée dans les bassins fluviaux et lacustres internationaux

Il existe beaucoup d'accords et de traités internationaux concernant l'utilisation commune de fleuves internationaux et d'eaux limitrophes. Bon nombre d'entre eux ont donné lieu à une coopération institutionnalisée entre les pays concernés. Ce tableau énumère les principales institutions internationales de ce type, classées par Région de l'OMM. Le Siège de chaque institution et l'adresse de son secrétariat sont également indiqués, le cas échéant.

Les renseignements fournis dans ce tableau sont tirés des références 5 à 10.

En raison des changements récents survenus dans un certain nombre de pays, en particulier en Europe, la version actualisée des renseignements concernant la coopération institutionnelle à l'intérieur des bassins internationaux que certains de ces pays se partagent n'était pas encore disponible au moment où cette deuxième édition était imprimée.

Références

- 1) ECOSOC Resolution 288 (X) and Resolution 1296 (XLIV)
- 2) Yearbook of International Organizations - 1985/1986; 22nd edition, Saur, Munich
- 3) UN, 1982 : The United Nations Organizations and Water, 83-00237, New York
- 4) UN, 1992 : The United Nations Organizations and Water - Briefing note on the scope and nature of the activities of the organizations of the United Nations system (in preparation)

- 5) UN Treaty Series, Legislative Texts and Treaty - Provisions Concerning the Utilization of International Rivers for Purposes other than Navigation (ST/LEG/SER.B/12; Sales N° 63.V.4).
 - 6) UN Management of International Water Resources : Institutional and Legal Aspects (ST-ESA/5 ; Sales N° E.75.II.A.2), 1975
 - 7) UN ECOSOC, Document E/C.7/35 : 27 October 1972
 - 8) UN Treaties concerning the utilization of international water courses for other purposes than navigation - Africa. Nat. Res./Water Series N° 13 (ST/ESA/141, Sales N° E/F.84.II.A.7), 1984
 - 9) UN Report on Legal Problems related to the Utilization and Use of International Rivers. A/5409, 1964
 - 10) FAO Systematic Index of International Water Resources Treaties, Declarations, Acts and Cases by Basin - Legislative Study No. 15, 1978.
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I - МЕЖДУНАРОДНЫЕ ОРГАНИЗАЦИИ, ЗАНИМАЮЩИЕСЯ ГИДРОЛОГИЕЙ И ВОДНЫМИ РЕСУРСАМИ

ТАБЛИЦЫ 1.1 - 1.7

Пояснительные записки

Таблицы 1.1 и 1.2: Международные правительственные организации (МПО), занимающиеся гидрологией и водными ресурсами.

Это организации, учрежденные на основе соглашений, сторонами которых являются две или более страны. Эти организации могут быть как глобальными, так и региональными. Деятельность в области гидрологии и водных ресурсов организаций, входящих в систему Организации Объединенных Наций, координируется подкомитетом по водным ресурсам Административного комитета ООН по координации (АКК). МПО, перечисленные в таблице 1.1 и региональные экономические комиссии Организации Объединенных Наций, перечисленные в таблице 1.2, являются членами этого подкомитета. Участие этих организаций в гидрологической деятельности и освоении водных ресурсов описано в общих чертах в таблицах 1.3 и 1.4 в изложенном ниже порядке (см. ссылки 1 и 2).

Таблица 1.3: Участие организаций системы Организации Объединенных Наций в освоении водных ресурсов: указатель основных и прикладных сфер, представляющих интерес

Колонка (1) дает представление о характере и общей взаимосвязи деятельности организаций в каждой из этих сфер.

Колонка (2) содержит список организаций, играющих основную роль в конкретной сфере деятельности, описанной в колонке (1).

Колонка (3) дает представление о тех организациях, которые заняты в конкретной сфере в прикладном плане, в частности, в контексте всеобъемлющего планирования процесса развития и/или сотрудничества с другими организациями.

Таблица 1.4: Деятельность организаций системы Организации Объединенных Наций в области освоения водных ресурсов

Данная таблица содержит более подробное описание деятельности организаций. В каждой отдельной графе указано, какие организации участвуют в деятельности по развитию и управлению конкретными секторами водных ресурсов. Задачи по освоению и управлению классифицированы следующим образом:

1. Гидрология поверхностных вод
2. Гидрология подземных вод
3. Мониторинг качества поверхностных вод
4. Мониторинг качества подземных вод
5. Информация по водопользованию
6. Освоение поверхностных вод
7. Освоение подземных вод
8. Повторное использование сточных вод
9. Комплексное управление водными ресурсами
10. Управление водопользованием

11. Управление сточными водами
12. Укрепление организационной структуры
13. Законодательство
14. Образование и подготовка кадров
15. Развитие людских ресурсов

К числу конкретных секторов водных ресурсов относятся следующие:

- A. Использование сельскохозяйственных вод
- B. Снабжение питьевой водой
- C. Использование промышленных вод
- D. Гидроэнергия
- E. Судостроительство
- F. Регулирование наводков
- G. Управление засухой
- H. Многоцелевое использование водных ресурсов

В ссылках [3, 4] содержится дополнительная информация о характере участия каждой организации, а также описание сферы охвата и характера водохозяйственной деятельности организаций системы Организации Объединенных Наций наряду с примерами типовых проектов, которые были осуществлены ими.

Таблица 1.5: Международные неправительственные организации (МПО), занимающиеся гидрологией и водными ресурсами

К числу этих организаций относятся те, которые были созданы не на основе межправительственных соглашений. Они включают организации, принимающие в свой состав членов, назначаемых государственными властями при условии, что это членство не препятствует свободному выражению мнений Организации [1, 2]. В таблице 1.5 перечислены в алфавитном порядке МПО, занимающиеся гидрологией и водными ресурсами. Их можно отнести к одной из следующих категорий:

- a) федерации международных организаций;
- b) всемирные организации;
- c) межконтинентальные организации;
- d) региональные организации;
- e) полуавтономные организации;
- f) специальные организации.

В таблице 1.5 содержится следующее:

Колонка (1) - название организации: название организации обычно дается на английском языке.

Колонка (2) - сокращение

Колонка (3) - адрес организации: указывается адрес международного секретариата, либо главного секретариата, либо основного пункта связи по состоянию на 1992 г. Некоторые секретариаты переезжают либо меняют свой адрес в связи с изменениями в составе руководящих органов.

Таблица 1.6: Меры по межорганизационному сотрудничеству на глобальном, региональном и секторальном уровнях

Организации системы Организации Объединенных Наций имеют официальные соглашения по сотрудничеству в рамках многих программ, включая водные ресурсы, в целях содействия осуществлению их соответствующей роли и активизации их дополнительных усилий в деле оказания помощи развивающимся странам. Данные, содержащиеся в таблице 1.6, свидетельствуют о том, что некоторые из этих соглашений являются всеобъемлющими по сфере применения и охватывают всю область освоения водных ресурсов, а также включают элементы общесистемной координации на глобальном и региональном уровнях. Другие же носят секторальный характер и охватывают сферу двустороннего или многостороннего сотрудничества в рамках конкретного аспекта освоения водных ресурсов. Дополнительные сведения относительно этих соглашений по межорганизационному сотрудничеству содержатся в [3, 4].

Общесистемное сотрудничество в области водных ресурсов налаживается через подкомитет по водным ресурсам Административного комитета ООН по координации, являющийся важным центром сотрудничества по осуществлению деятельности ООН в области водных ресурсов. МПО, перечисленные в таблице 1.1, и региональные экономические комиссии ООН, перечисленные в таблице 1.2, являются членами этой межсекретариатской группы.

Таблица 1.7: Сотрудничество, учрежденное в области международных речных и озерных бассейнов

Существует множество международных соглашений и договоров, касающихся совместного использования международных рек и пограничных вод, причем многие из этих соглашений и договоров способствовали развитию сотрудничества, учрежденного между заинтересованными странами. В этой таблице перечислены основные международные организации такого рода по регионам ВМО. Кроме того, при наличии или в соответствующих случаях, указывается штаб-квартира каждой организации и адрес ее секретариата.

Информация для этой таблицы подготовлена на основе ссылок 5-10.

В связи с последними изменениями в ряде стран, особенно в Европе, обновленная информация по сотрудничеству, учрежденному в области международных бассейнов, между некоторыми из этих стран, не поступила к моменту публикации данного второго издания.

Ссылки

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- (5) UN Treaty Series, Legislative Texts and Treaty - Provisions Concerning the Utilization of International Rivers for Purposes other than Navigation (ST/LEG/SER.B/12; Sales No. 63.V.4).
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I - ORGANIZACIONES INTERNACIONALES GUBERNAMENTALES QUE SE OCUPAN DE HIDROLOGÍA Y DE RECURSOS HÍDRICOS

CUADROS 1.1 a 1.7

Notas explicativas

Cuadros 1.1 y 1.2: Organizaciones internacionales gubernamentales (OIG) que se ocupan de hidrología y de recursos hídricos

Se trata de organizaciones establecidas por acuerdos de que son parte dos o más Estados. Tales organizaciones pueden ser mundiales o regionales. La coordinación de las actividades de hidrología y recursos hídricos de las organizaciones del sistema de las Naciones Unidas se logra a través del Subcomité de Recursos Hídricos del Comité Administrativo de Coordinación (CAC). Las OIG enumeradas en el Cuadro 1.1 y las Comisiones Económicas Regionales de las Naciones Unidas enumeradas en el Cuadro 1.2 son miembros de este Subcomité. La intervención de esas organizaciones en el desarrollo de la hidrología y de los recursos hídricos se describe con carácter general en los Cuadros 1.3 y 1.4, según se explica a continuación (véanse las referencias 1 y 2).

Cuadro 1.3: Intervención de las organizaciones del sistema de las Naciones Unidas en el desarrollo de recursos hídricos: indicación de las esferas principales y aplicadas de interés

La *Columna (1)* indica la naturaleza y la interrelación general de las funciones desempeñadas por las organizaciones en cada una de estas esferas.

En la *Columna (2)* se enumeran las organizaciones cuya principal intervención tiene lugar en determinada esfera de actividad, según se clasifica en la *columna (1)*.

La *Columna (3)* indica las organizaciones que participan en determinada esfera en el sentido aplicado, como en el contexto de la planificación y/o la cooperación con otras organizaciones para el desarrollo global.

Cuadro 1.4: Intervención de las organizaciones del sistema de las Naciones Unidas en materia de recursos hídricos

Este cuadro da una idea más detallada de las actividades de las organizaciones. Cada célula de la matriz muestra qué organizaciones intervienen en las actividades de desarrollo y gestión relativas a sectores de recursos hídricos concretos. Las funciones de desarrollo y gestión se han clasificado como sigue:

1. Hidrología de agua de superficie
2. Hidrología de agua subterránea
3. Control de calidad del agua de superficie
4. Control de calidad del agua subterránea
5. Información sobre utilización del agua
6. Aprovechamiento del agua de superficie
7. Aprovechamiento del agua subterránea
8. Reutilización de aguas residuales
9. Gestión integrada de recursos hídricos
10. Gestión de utilización del agua
11. Gestión de aguas residuales
12. Fortalecimiento de instituciones
13. Legislación
14. Enseñanza y formación profesional
15. Desarrollo de recursos humanos

Los sectores de recursos hídricos concretos son los siguientes:

- A. Utilización del agua para la agricultura
- B. Abastecimiento de agua potable
- C. Utilización de agua para la industria
- D. Energía hidroeléctrica
- E. Navegación
- F. Control de las crecidas
- G. Gestión de las sequías
- H. Utilización del agua con fines múltiples

En las referencias [3, 4] figura información adicional en cuanto a la naturaleza de la intervención de cada organización, así como una descripción del alcance y la naturaleza de las actividades relacionadas con el agua de las organizaciones del sistema de las Naciones Unidas, con ejemplos de proyectos típicos ejecutados por ellas.

Cuadro 1.5: Organizaciones internacionales no gubernamentales (ONG) que se ocupan de hidrología y de recursos hídricos

Se trata de organizaciones internacionales no establecidas por acuerdo intergubernamental. Comprenden organizaciones que aceptan a miembros designados por autoridades gubernamentales, siempre y cuando ello no interfiera en la libre expresión de las opiniones de la Organización [1, 2]. Las ONG que se ocupan de hidrología y recursos hídricos se enumeran por orden alfabético en el Cuadro 1.5. Pueden pertenecer a cualquiera de las categorías siguientes:

- a) federaciones de organizaciones internacionales;
- b) organizaciones de composición universal;
- c) organizaciones de composición intercontinental;
- d) organizaciones de composición regional;
- e) órganos semiautónomos, y
- f) organizaciones de forma especial.

El Cuadro 1.5 se presenta como sigue:

Columna (1) - Nombre de la organización: el nombre de la organización figura normalmente en inglés.

Columna (2) - Acrónimo

Columna (3) - Dirección de la organización: la dirección indicada es la de la secretaría internacional o la secretaría principal o el principal contacto, como en 1992. Algunas secretarías rotan o cambian de dirección, según la modificación de la composición de los órganos de gobierno.

Cuadro 1.6: Acuerdos de cooperación a nivel del sistema (mundial, regional) y sectorial (bilateral o multilateral) para el desarrollo de recursos hídricos

Con el fin de fomentar sus respectivas funciones y de mejorar la complementariedad de sus esfuerzos para ayudar a los países en desarrollo, las organizaciones del sistema de las Naciones Unidas tienen acuerdos formales de cooperación y colaboración en numerosos programas, incluido el del agua. Como puede verse por los resúmenes del Cuadro 1.6, algunos de esos acuerdos son exhaustivos, abarcando la totalidad del desarrollo de los recursos hídricos y englobando la

coordinación en todo el sistema a nivel mundial y regional. Otros tienen carácter sectorial y abarcan la coordinación bilateral o multilateral en el marco de determinado aspecto del desarrollo de los recursos hídricos. En [3, 4] figuran más detalles sobre tales acuerdos de cooperación entre organizaciones.

La cooperación a nivel del sistema por lo que se refiere al agua se facilita a través del Subcomité de Recursos Hídricos del Comité Administrativo de Coordinación de las Naciones Unidas, que constituye una parte esencial de la colaboración en las actividades relacionadas con el agua en las Naciones Unidas. Las OIG enumeradas en el Cuadro 1.1 y las Comisiones Económicas Regionales de las Naciones Unidas enumeradas en el Cuadro 1.2 son miembros de este Grupo Intersecretarías.

Cuadro 1.7: Cooperación institucionalizada en cuencas fluviales y lacustres internacionales

Hay numerosos acuerdos y tratados internacionales sobre la utilización conjunta de las aguas fluviales limítrofes internacionales, y muchos de estos acuerdos y tratados han dado lugar a una cooperación institucionalizada entre los países interesados. En este cuadro se enumeran las principales instituciones internacionales de este tipo, por Regiones de la OMM. También se indica la sede de cada institución y la dirección de su secretaría, cuando se dispone de ella o es aplicable.

La información para confeccionar este cuadro se ha obtenido de las referencias 5 a 10.

Debido a recientes cambios en varios países, sobre todo en Europa, en el momento de imprimirse esta segunda edición no se disponía aún de información actualizada sobre la cooperación institucional en las cuencas internacionales compartidas por algunos de esos países.

Referencias

- 1) Resolución 288 (X) y Resolución 1296 (XLIV) del ECOSOC.
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 - 6) UN Management of International Water Resources: Institutional and Legal Aspects (ST/ESA/5; Sales N° E.75.II.A.2), 1975.
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TABLE 1.1 - INTERNATIONAL GOVERNMENTAL ORGANIZATIONS (IGOs) DEALING WITH HYDROLOGY AND WATER RESOURCES - GLOBAL

Name (1)	Abbreviation (2)	Address (3)
<u>UNITED NATIONS</u>		
Department for Development Support and Management Services DDSMS		United Nations Headquarters, New York, N.Y. 10017, USA
United Nations Children's Fund	UNICEF	3 United Nations Plaza, New York, NY 10017, USA
United Nations Development Programme	UNDP	One United Nations Plaza, New York, NY 10017, USA
United Nations Environment Programme	UNEP	P.O. Box 30552, Nairobi, Kenya
United Nations University	UNU	Toho Seimei Building, 15-1 Shibuya, 2-chome, Shibuya-ku, Tokyo 150, Japan
United Nations Centre for Human Settlements (HABITAT)	HABITAT	United Nations Office in Nairobi P.O. Box 30030, Nairobi, Kenya
United Nations Disaster Relief Co-ordinator, (Office of the)	UNDRO	Palais des Nations, CH-1211 Geneva 10, Switzerland
World Food Council	WFC	Via delle Terme di Caracalla, 00100 Rome, Italy
International Research and Training Institute for the Advancement of Women	INSTRAW	P.O. Box 21747, Santo Domingo, Dominican Republic
World Food Programme	WFP	Via Cristoforo Colombo 426, 00145 Rome, Italy
International Labour Organisation	ILO	4 route des Morillons, CH-1211 Geneva 22, Switzerland

**TABLE 1.1 - INTERNATIONAL GOVERNMENTAL ORGANIZATIONS (IGOs) DEALING WITH HYDROLOGY AND
WATER RESOURCES - GLOBAL
(continued)**

Name (1)	Abbreviation (2)	Address (3)
<u>SPECIALIZED AGENCIES AND OTHER ORGANIZATIONS</u>		
Food and Agriculture Organization of the United Nations	FAO	Via delle Terme di Caracalla, 00100 Rome, Italy
United Nations Educational, Scientific and Cultural Organization	UNESCO	7 place de Fontenoy, 75700 Paris, France
World Health Organization	WHO	20 avenue Appia, CH-1211 Geneva 27, Switzerland
World Meteorological Organization	WMO	P.O. Box 2300, CH-1211 Geneva 2, Switzerland
World Bank	IBRD (WB)	1818 H Street, N.W., Washington, DC 20433, USA
International Fund for Agricultural Development	IFAD	Via del Serafico 107, 00142 Rome, Italy
United Nations Industrial Development Organization	UNIDO	P.O. Box 300, Vienna International Centre, A-1400, Vienna, Austria
International Atomic Energy Agency	IAEA	P.O. Box 100, Vienna International Centre, A-1400 Vienna, Austria

**TABLE 1.2 - INTERNATIONAL GOVERNMENTAL ORGANIZATIONS (IGOs) DEALING WITH HYDROLOGY AND
WATER RESOURCES - REGIONAL**

Name (1)	Abbreviation (2)	Address (3)
<u>ORGANS OF THE UNITED NATIONS</u>		
Economic Commission for Africa	ECA	P.O. Box 3001, Addis Ababa, Ethiopia
Economic Commission for Europe	ECE	Palais des Nations, CH-1211 Geneva 10, Switzerland
Economic Commission for Latin America and the Caribbean	ECLAC	Casilla 179-D, Santiago, Chile
Economic and Social Commission for Western Asia	ESCWA	P.O. Box 927 115, Amman, Jordan
Economic and Social Commission for Asia and the Pacific	ESCAP	The United Nations Building, Rajadamnern Ave., Bangkok 10200, Thailand
United Nations Sudano-Sahelian Office	UNSO	One United Nations Plaza, Room DC-1100, New York, NY 10017, USA
Regional Commission on Land and Water Use in the Near East (FAO)		Via delle Terme di Caracalla, 00100 Rome, Italy
<u>OTHERS</u>		
Arab Center for the Studies of Arid Zones and Drylands	ACSAD	P.O. Box 2440, Damascus, Syria
Caribbean Meteorological Organization	CMO	P.O. Box 461, Port of Spain, Trinidad

**TABLE 1.2 - INTERNATIONAL GOVERNMENTAL ORGANIZATIONS (IGOs) DEALING WITH HYDROLOGY AND
WATER RESOURCES - REGIONAL**
(continued)

Name (1)	Abbreviation (2)	Address (3)
Comité Permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel	CILSS	BP 7049, Ouagadougou, Burkina Faso
Comité Regional de Recursos Hidráulicos	CRRH	c/o ICE, P.O. Box 10032, San José, Costa Rica
Commission of the European Communities	CEC	200 rue de la Loi, Brussels 1040, Belgium
Council of Europe	CE	Avenue de l'Europe, 67 Strasbourg, France
Energy Organization of the Great Lakes Countries	CEPGL	BP 58, Gisenyi, Rwanda
European Space Agency	ESA	8-10 rue Mario Nikis, 75738 Paris, CEDEX 15, France
Comité Interafricain pour Etudes Hydrauliques	CIEH	B.P. 369, Ouagadougou 01, Burkina Faso
Nordic Council	NC	Gamla Riksdagshuset, Stockholm, Sweden
Organization of African Unity	OAU	P.O. Box 3243, Addis Ababa, Ethiopia
Organization of American States	OAS	Pan American Union Building, Washington, DC 20006, USA
Organization for Economic Co-operation and Development	OECD	Château de la Muette, 2 rue André Pascal, 75775 Paris, France

**TABLE 1.3 - INVOLVEMENT OF ORGANIZATIONS OF THE UNITED NATIONS SYSTEM IN WATER RESOURCES
DEVELOPMENT: INDICATION OF MAIN AND APPLIED AREAS OF INTEREST**

AREAS OF CONCERN	ORGANIZATIONS WITH MAIN CONCERN IN INDICATED AREAS	ORGANIZATIONS WITH INTEREST IN APPLIED ASPECTS OF INDICATED AREAS
1. Water resources assessment and impacts of climate change on water resources	WMO, UNESCO, DESD, FAO, WB, IAEA	WHO, UNDP, ECA, ECE, ECLAC, ESCAP, ESCWA, UNDRO
2. Protection of water resources water quality and aquatic ecosystems	WHO, WMO, UNEP, DESD, ECE	ALL OTHERS
3. Water and sustainable urban development and drinking water supply and sanitation in the urban context	WB, HABITAT, WHO, UNDP, UNICEF, INSTRAW	DESD, ECA, ECLAC, ESCAP, ESCWA, UNEP
4. Water for sustainable food production and rural development and drinking water supply and sanitation in the rural context	FAO, WB, UNDP, WFP, WHO, UNICEF, DESD, HABITAT, INSTRAW, ILO	ECA, ECLAC, ESCAP, ESCWA
5. Integrated water resources management	DESD, ECA, ECE, ECLAC, ESCAP, INSTRAW, UNDP, WB	UNDRO, UNESCO, WMO, WHO, FAO

TABLE 1.4 - INVOLVEMENT OF THE ORGANIZATIONS OF THE UNITED NATIONS SYSTEM IN THE FIELD OF WATER RESOURCES

DEVELOPMENT AND MANAGEMENT FUNCTIONS	SPECIFIC SECTORS							
	Agricultural water use	Drinking water supply	Industrial water use	Hydropower	Navigation	Flood control	Drought management	Multipurpose water use
	-A-	-B-	-C-	-D-	-E-	-F-	-G-	-H-
1 Surface water hydrology	DESD, ECA, FAO, WB	DESD, UNICEF, ECA, ESCAP, ESCWA, INSTRAW, WB, HABITAT	DESD, ECA, WB, HABITAT	DESD, ECA, INSTRAW, UNESCO, WB	DESD, ECA, ESCAP, WB	DESD, ECA, ESCAP, ESCWA, UNESCO, FAO, WMO, WB, HABITAT	DESD, ECA, ESCAP, ESCWA, UNESCO, FAO, WMO, WB	DESD, ECA, ESCAP, ESCWA, WB, UNESCO, WMO, HABITAT
2 Groundwater hydrology	DESD, ECA, FAO, WB,	DESD, ECA, INSTRAW, WB, HABITAT	ECA, WB, HABITAT			ECA, HABITAT, UNESCO, WMO	DESD, ECA, ESCAP, UNESCO, FAO, WMO, WB	DESD, ECA, ESCAP, ESCWA, HABITAT, UNESCO, WMO, WB
3 Surface water quality monitoring	DESD, ECA, FAO, WHO, WB	DESD, UNICEF, ECA, ESCAP, UNEP, WHO, WB, HABITAT	DESD, WHO, WB, HABITAT	ECA	ECA, ESCAP		DESD, ECA, UNESCO, FAO, WMO	DESD, ECA, ESCAP, UNEP, UNESCO, WHO, WMO, HABITAT
4 Groundwater quality monitoring	ECA, FAO, WHO, WB	UNICEF, ECA, ESCAP, UNEP, WHO, WB, HABITAT	WHO, WB, HABITAT				ECA, ESCAP, UNESCO, FAO, WMO	ECA, ESCAP, UNEP, UNESCO, WHO, WMO, HABITAT
5 Information on water use	ECA, ECE, ECLAC, ESCAP, INSTRAW, FAO, WB	UNICEF, ECA, ECE, ECLAC, ESCAP, INSTRAW, WHO, WB, HABITAT	ECA, ECE, ECLAC, ESCAP, WB, HABITAT	ECA, ECE, ECLAC, ESCAP, INSTRAW, WB	ECA, ECE, ECLAC, ESCAP	ECA, ECE, ECLAC, ESCAP, UNESCO, WMO	ECA, ECLAC, ESCAP, UNESCO, WMO, FAO, WB	ECA, ECE, ECLAC, ESCAP, INSTRAW, HABITAT, UNESCO, WMO, WB
6 Surface water development	DESD, ECA, ESCAP, FAO, WFP, WB	DESD, UNICEF, ECA, ESCAP, WHO, WFP, WB, HABITAT	DESD, ECA, WB, HABITAT	DESD, ECA, ESCAP, WB	ECA, ESCAP, WB	DESD, ECA, ESCAP, ESCWA, FAO, WFP, WB, HABITAT, UNESCO, WMO	DESD, ECA, ESCAP, UNESCO, WMO, FAO, WFP, WB	DESD, ECA, ECLAC, ESCAP, ESCWA, WFP, UNESCO, WMO, WB, HABITAT

TABLE 1.4 - INVOLVEMENT OF THE ORGANIZATIONS OF THE UNITED NATIONS SYSTEM IN THE FIELD OF WATER RESOURCES
(continued)

DEVELOPMENT AND MANAGEMENT FUNCTIONS	SPECIFIC SECTORS							
	Agricultural water use	Drinking water supply	Industrial water use	Hydropower	Navigation	Flood control	Drought management	Multipurpose water use
	-A-	-B-	-C-	-D-	-E-	-F-	-G-	-H-
7 Groundwater development	DESD, ECA, ESCAP, FAO, WFP, WB	DESD, UNICEF, ECA, ESCAP, WHO, WFP, WB, HABITAT	ECA, WB, HABITAT				DESD, ECA, ESCAP, UNESCO, WMO, FAO, WFP, WB	DESD, ECA, ESCAP, ESCWA, WFP, WB, HABITAT, UNESCO, WMO
8 Waste water reuse	DESD, ECA, ECE, FAO, WB	DESD, WHO	ECA, ECE, WHO, WB, HABITAT				ESCAP	DESD, ECA, ECE, ECLAC, ESCAP, ESCWA, HABITAT, UNESCO, WMO
9 Integrated water resources management	DESD, ECA, ECE, ESCAP, FAO, WHO, WFP, WB	DESD, ECA, ECE, ESCAP, WHO, WFP, WB, HABITAT	DESD, ECA, ECE, ESCAP, WHO, WB, HABITAT	DESD, ECA, ECE, WB	ECA, ECE, ESCAP, WB	DESD, ECA, ECE, ESCAP, ESCWA, WFP, WB, HABITAT, UNESCO, WMO	DESD, ECA, ECE, ESCAP, UNESCO, FAO, WMO, WFP, WB	DESD, ECA, ECE, ECLAC, ESCAP, ESCWA, WFP, WB, WMO, UNESCO, HABITAT
10 Water use management	DESD, FAO, ECA, ECLAC, ESCAP, WB	DESD, ECA, ECLAC, ESCAP, INSTRAW, WHO, WB, HABITAT	DESD, ECA, ECLAC, ESCAP, WB, HABITAT	ECA, ESCAP, ECLAC, INSTRAW, WB	ECA, ECLAC, WB	ECA, ECLAC, ESCAP, FAO, UNESCO, WMO, WB	ECA, ECLAC, ESCAP, FAO, WB, UNESCO, WMO	DESD, ECA, ECLAC, ESCAP, INSTRAW, UNESCO, WMO, WB, HABITAT
11 Waste water management	ECA, ECE, FAO, WHO, WFP	ECA, WHO, WB, HABITAT	ECA, ECE, WHO, WB, HABITAT					ECA, ECE, ECLAC, ESCAP, ESCWA, WMO, HABITAT, UNESCO
12 Strengthening of institutions	ECA, ECLAC, FAO, WB	UNICEF, ECA, ESCAP, ECLAC, WHO, WB, HABITAT	ECA, ECLAC, WB, HABITAT	ECA, ECLAC, WB	ECA, ESCAP	ECA, ECLAC, ESCAP, WB, HABITAT, UNESCO, WMO	ECA, ECLAC, UNESCO, FAO, WMO, WB	ECA, ECLAC, ESCAP, ESCWA, WB, HABITAT, UNESCO, WMO

TABLE 1.4 - INVOLVEMENT OF THE ORGANIZATIONS OF THE UNITED NATIONS SYSTEM IN THE FIELD OF WATER RESOURCES
(continued)

DEVELOPMENT AND MANAGEMENT FUNCTIONS	SPECIFIC SECTORS							
	Agricultural water use	Drinking water supply	Industrial water use	Hydropower	Navigation	Flood control	Drought management	Multipurpose water use
	-A-	-B-	-C-	-D-	-E-	-F-	-G-	-H-
13 Legislation	DESD, ECA, ECE, FAO	DESD, ECA, ECE, WHO, HABITAT	DESD, ECA, ECE	DESD, ECA, ECE	ECA, ECE, ESCAP	ECA, ESCAP, FAO, HABITAT	ECA, FAO	DESD, ECA, ECE, ECLAC, ESCAP, ESCWA, FAO, WB, HABITAT
14 Education and training	ECA, INSTRAW, FAO, WHO, WFP, WB	DESD, UNICEF, ECA, ESCAP, INSTRAW, WHO, WB, HABITAT	ECA, WHO, WB	ECA, INSTRAW, UNESCO, WB	DESD, ECA, ESCAP	ECA, ESCAP, WFP, UNESCO, WMO, WB, HABITAT	ECA, ESCAP, FAO, WFP, UNESCO, WMO, WB	ECA, ECLAC, ESCAP, INSTRAW, UNESCO, WMO, WB, HABITAT
15 Human resources development	ECA, INSTRAW, FAO, WHO, WB	DESD, UNICEF, ECA, ESCAP, INSTRAW, WHO, WB, HABITAT	ECA, WB, HABITAT	ECA, WB	ECA, ESCAP	ECA, ESCAP, WB, HABITAT, UNESCO, WMO	DESD, ECA, ESCAP, UNESCO, FAO, WMO, WB	ECA, ESCAP, INSTRAW, WB, HABITAT, UNESCO, WMO

TABLE 1.5 - INTERNATIONAL NON-GOVERNMENTAL ORGANIZATIONS (NGOs) DEALING WITH HYDROLOGY AND WATER RESOURCES

Name (1)	Abbreviation (2)	Address (3)
International Association of Hydrogeologists	IAH	National Rivers Authority, 550 Steetsbrook Road, Solihul, West Midlands, B91 1QT, U.K.
International Association of Sedimentologists	IAS	Université de Liège, Place du Vingt-Aout 7, B-4000 Liège, Belgium
International Association of Theoretical and Applied Limnology	SIL	Sil Secretariat/Central Office, Department of Biological Sciences, The University of Alabama, Tuscaloosa, Alabama 35487-0344, USA
International Association for Water Law	IAWL	Via Montevideo 5, I-00198 Rome, Italy
International Association on Water Quality	IAWQ	1 Queen Anne's Gate, London SW1H 9BT, U.K.
International Council of Scientific Unions	ICSU	Bd. de Montmorency 51, F75016 Paris, France
- Committee on Space Research	COSPAR	see ICSU
- Committee on Science and Technology in Developing Countries	COSTED	see ICSU
- Committee on Data for Science and Technology	CODATA	see ICSU
- Scientific Committee on Water Research	SCOWAR	see ICSU
- Scientific Committee on Problems of the Environment	SCOPE	see ICSU
International Geographical Union (member of ICSU)	IGU	University of Bonn, Department of Geography, Meckenheimer Allee 166, 53115 Bonn, Germany
International Institute for Applied Systems Analysis	IIASA	A-2361 Laxenburg, Austria
International Lake Environment Committee Foundation	ILEC	4-1-1 Kyomachi, Otsu, Shiga 520, Japan

TABLE 1.5 - INTERNATIONAL NON-GOVERNMENTAL ORGANIZATIONS (NGOs) DEALING WITH HYDROLOGY AND WATER RESOURCES
(continued)

Name (1)	Abbreviation (2)	Address (3)
International Organization for Standardization	ISO	1, rue de Varembe, CH/1211 Geneva 20, Switzerland
International Society of Soil Science	ISSS	University of Agriculture, Gregor Mendel-Strasse 33, 1180 Vienna, Austria
International Training Centre for Water Resources Management	ITCWRM (CEFIGRE)	BP 13, Sophia Antipolis, F-06561 Valbonne CEDEX, France
International Union for Conservation of Nature and Natural Resources	IUCN	Avenue du Mont-Blanc, CH-1196 Gland, Switzerland
International Union of Geodesy and Geophysics (member of ICSU)	IUGG	Bureau Gravimétrique International, 18 Avenue E. Belin, 31055 Toulouse Cedex, France
- International Association of Hydrological Sciences	IAHS	Rozendaalselaan 36, 6881 LD Velp, The Netherlands
- International Association of Meteorology and Atmospheric Sciences	IAMAS	National Center for Atmospheric Research, P.O. Box 3000 Boulder, CO 80307 USA
International Union of Geological Sciences (member of ICSU)	IUGS	P.O. Box 3006 Lade, 7002 Trondheim, Norway
International Water Resources Association	IWRA	University of Illinois, 205 North Mathews Avenue, Urbana, IL 61801 USA
International Water Supply Association	IWSA	1 Queen Anne's Gate, London SW1H 9BT, UK
Union of International Technical Associations	UITA	Unesco, 1 rue Miollis, F-75015 Paris, France
International Commission on Agricultural Engineering	CIGR	CHO-TNO, P.O. Box 6067, 2600 JA Delft, The Netherlands

TABLE 1.5 - INTERNATIONAL NON-GOVERNMENTAL ORGANIZATIONS (NGOs) DEALING WITH HYDROLOGY AND WATER RESOURCES
(continued)

Name (1)	Abbreviation (2)	Address (3)
International Union of Pure and Applied Chemistry	IUPAC	Bank Court Chambers, 2-3 Pound Way, Templars Square, Cowley, Oxford OX4 3YP, U.K.
- International Association for Hydraulic Research	IAHR	Rotterdamseweg 185, P.O. Box 177, 2600 MH Delft The Netherlands
- International Commission on Large Dams	ICOLD	Bd. Haussmann 151, F-75008 Paris, France
- International Commission of Irrigation and Drainage	ICID	48 Nyaya Marg, Chanakyapuri, New Delhi 110021, India
- World Energy Conference	WEC	34 St-James Street, London SW1A 1HD, UK
Permanent International Association of Navigation Congresses	PIANC	WTC-Tour 3, 26e étage, Boulevard S. Bolivar 30, B-1210 Brussels, Belgium

TABLE 1.6 - ARRANGEMENTS FOR SYSTEM-WIDE (GLOBAL, REGIONAL) AND SECTORAL (BILATERAL OR MULTILATERAL) COOPERATION IN WATER RESOURCES DEVELOPMENT

NAME	SCOPE	ORGANIZATIONS INVOLVED	TERMS OF AGREEMENT
Administrative Committee on Coordination Inter-Secretariat Group for Water Resources (ACC ISGWR)	Overall co-ordination in entire field of water	All organizations active in the water field	1. Monitoring the Mar del Plata Action Plan 2. Promotion of joint planning and review of water-related programmes 3. Promotion of co-operation in the implementation of water-related activities at the country and regional levels
Steering Committee for Water Supply and Sanitation	Co-ordination of activities concerning water supply and sanitation	UN, Regional Commissions, UNICEF, UNDP, UNEP, HABITAT, INSTRAW, FAO, UNESCO, WHO, WB, WMO, IRC	1. Promote water supply and sanitation at the global level, particularly within the programmes of the organizations of the United Nations system, and within the framework of water resources and environmental planning and management 2. Monitor continuously and effectively needs and progress towards the achievement of national, regional and global objectives 3. Ensure continuous and effective consultations among the organizations of the United Nations system through the exchange of information on policies, programmes, criteria and approaches, and the dissemination of information.
Interagency Task Force for Asia and the Pacific	Entire field of water	ESCAP, UN/DESD, UNEP, UNICEF, UNIDO, UNDP, FAO, WB, ILO, UNESCO, WHO, WMO, IRC, IDB, MEKONG COMMITTEE	Promoting inter-organizational co-operation in the field of water resources at the regional level
Designated Officials for Environmental Matters (DOEM)	Co-ordination of system-wide activities in the field of environment, including those related to water resources development	All organizations concerned	Promotion of inter-organizational co-operation
FAO/World Food Programme	Supply food for projects promoting social and economic development, including irrigation	FAO and UN World Food Programme	Mobilize and distribute supplies and food for: 1. Human resources development in child feeding and school lunch programmes 2. Infrastructure

**TABLE 1.6 - ARRANGEMENTS FOR SYSTEM-WIDE (GLOBAL, REGIONAL) AND SECTORAL (BILATERAL OR MULTILATERAL)
COOPERATION IN WATER RESOURCES DEVELOPMENT
(continued)**

NAME	SCOPE	ORGANIZATIONS INVOLVED	TERMS OF AGREEMENT
World Bank/FAO co-operative programme	Project identification and preparation for investment in agriculture	World Bank and FAO	Combining staff resources and experience in the identification and preparation of investment projects for World Bank financing; FAO's contribution is made through its Investment Center
World Bank/UNESCO co-operative programme	Project identification for investment in the education sector	World Bank and UNESCO	Joint undertaking of evaluation and project preparation in the field of education
World Bank/WHO Working Agreement in Water Supply and Sanitation	Pre-investment activities relative to water supply, waste disposal and storm drainage	WHO and World Bank	Joint undertaking of pre-investment studies and missions to developing countries of common membership
World Bank/UNIDO	Project identification and preparation of labour intensive small-scale industries	World Bank and UNIDO	Joint studies and missions to evaluate and prepare projects, with special emphasis on support of employment, intensive small-scale manufacturing and construction industries, including small-scale hydropower plants
World Bank/IFAD Working Agreement	Preparation and appraisal of agricultural and rural development projects	World Bank and IFAD	Assistance by the World Bank in the preparation, appraisal, evaluation and supervision of projects for financing by IFAD or for co-financing by IFAD and the World Bank
Working Agreement in the Field of Hydrology and the Long-term co-operation between the Secretariats of UNESCO and WMO	Long-term co-operation in the field of hydrology	UNESCO and WMO	1. Maintain and develop collaboration throughout the field of hydrology 2. Establish close co-operation with their respective hydrology programmes (OHP of WMO and IHP of UNESCO)
FAO/WMO Working Agreement in the Field of Hydrology and Water Resources	Hydrology and its application to agriculture	FAO and WMO	General division of responsibilities between the two organizations for the collection and analysis of hydrological and meteorological data

**TABLE 1.6 - ARRANGEMENTS FOR SYSTEM-WIDE (GLOBAL, REGIONAL) AND SECTORAL (BILATERAL OR MULTILATERAL)
COOPERATION IN WATER RESOURCES DEVELOPMENT
(continued)**

NAME	SCOPE	ORGANIZATIONS INVOLVED	TERMS OF AGREEMENT
WHO/FAO/UNEP Memorandum of understanding concerning water-borne diseases in Agricultural Water Development	Establish procedures for collaboration and joint action for the prevention and control of vector-borne diseases	FAO, WHO, UNEP, it also provides for co-operation with other organizations	1. Hold meetings to examine programme activities and identify measures 2. Exchange of information, project data, country briefs (profiles) 3. Prepare guidelines and training
FAO/WHO Memorandum of understanding concerning Rural Water Supply and Agricultural Development	Training of rural extension workers and integration of rural water supply and sanitation in rural development programmes	FAO and WHO with provision for co-operation with other organizations	1. Joint planning and implementation of projects involving domestic water supply and irrigation in rural areas 2. Undertake studies and training on the application of appropriate technology and benefits from rural water supply and sanitation
FAO/UNESCO Intersecretariat arrangement in Hydrology and Water Resources	Programmes related to hydrology and water resources development	FAO, UNESCO	1. Regular consultations to harmonize planning of programmes of work in common areas 2. Exchange of advice and information in hydrology and water resources
UNIDO/UNEP Joint Committee	Coordination of work relating to industrial use of water and environmental aspects of industrial development	UNIDO, UNEP	The Committee meets annually to coordinate activities

TABLE 1.7 - INSTITUTIONALIZED CO-OPERATION IN INTERNATIONAL RIVER AND LAKE BASINSRA I - AFRICA

River(s)/Basin(s) Date Agreement Came into Force (1)	Institution and Secretariat (2)	Member Countries (3)	Activities (4)
Chad (Lake) 22 May 1984	Lake Chad Basin Commission/Commission du Lac Tchad - B.P. 727, N'Djamena, Chad or B.P. 261, Maroua, Cameroon	Cameroon, Central African Republic, Chad, Niger, Nigeria	Water development and utilization-industrial, agricultural; exchange of information
Gambia 30 October 1978	Organization for the Development of the Gambia River Basin (OMVG) - Dakar, Senegal	Gambia, Guinea, Senegal	Integrated development of the basin
Kagera 22 August 1977	Organization for the Management and Development of Kagera River Basin (KBO) - B.P. 297, Kigali, Rwanda	Burundi, Rwanda, Uganda, United Republic of Tanzania	Development of water and land resources
Liptako-Gourma 3 June 1971	Liptako Integrated Development Authority (LGA) P.O. Box 619, Route de Fada, N'Gourma, Ouagadougou, Burkina Faso	Burkina Faso, Mali, Niger	Integrated water and land development
Mano 3 October 1973	Mano River Union (MRU) - PMB 9016, Monrovia, Liberia	Guinea, Liberia, Sierra Leone	Water-resource development as part of general economic co-operation
Maradi, Komadougou, Yobe, Maggia	Nigeria-Niger Joint Commission for Co-operation, Niamey, Niger	Niger, Nigeria	Evaluation of water resources common to both countries as part of economic development
Niger 12 April 1966	Niger Basin Authority/Autorité du bassin du Niger (NBA/ABN) - B.P. 729, Niamey, Niger	Benin, Burkina Faso, Cameroon, Chad, Côte d'Ivoire, Guinea, Mali, Niger, Nigeria	Integrated water resources development in all fields
Nile 8 November 1959	Permanent Joint Technical Commission for Nile Waters (PJTC) - P.O. Box 878, Khartoum, Sudan	Egypt, Sudan	Utilization of Nile waters

TABLE 1.7 - INSTITUTIONALIZED CO-OPERATION IN INTERNATIONAL RIVER AND LAKE BASINSRA I - AFRICA

River(s)/Basin(s) Date Agreement Came into Force (1)	Institution and Secretariat (2)	Member Countries (3)	Activities (4)
Senegal 11 March 1972	Organisation pour la mise en valeur du fleuve Sénégal (OMVS) - B.P. 3152, Dakar, Senegal	Mali, Mauritania, Senegal	Water-resource development and utilization
Tanganyika (Lake) 1975	Lakes Tanganyika and Kivu Basin Commission c/o ECA, P.O. Box 3001, Addis Ababa, Ethiopia	Burundi, Rwanda, United Republic of Tanzania, Zaire, Zambia	Development of water resources
Victoria, Kyoga and Mobutu Sese Seko (Lakes) 1967	Technical Committee for the Hydrometeorological Survey - P.O. Box 192, Entebbe, Uganda	Burundi, Egypt, Kenya, Rwanda, Sudan, United Republic of Tanzania, Uganda	Assessment of water resources
Volta 21 August 1971	Joint Permanent Commission - c/o P.O. Box M77, Accra, Ghana	Ghana, Burkina Faso	Use of rivers flowing from Burkina Faso into Ghana for all purposes

TABLE 1.7 - INSTITUTIONALIZED CO-OPERATION IN INTERNATIONAL RIVER AND LAKE BASINSRA II - ASIA

River(s)/Basin(s) Date Agreement Came into Force (1)	Institution and Secretariat (2)	Member Countries (3)	Activities (4)
Amur, Argun 18 August 1956	Joint Scientific Council	China, USSR*	Integrated water resources development
Ganges-Brahmaputra 1972	Joint Rivers Commission	Bangladesh, India	Integrated water resources development
Helmand 7 September 1950	Helmand River Delta Commission	Afghanistan, Iran	Integrated water resources development
Indus 19 September 1960	Permanent Indus Commission	India, Pakistan	Integrated water resources development
Mekong (Lower) 17 September 1957	Committee for Co-ordination of Investigations of the Lower Mekong Basin - Pibultham Villa, Kasatsuk Bridge, Bangkok 10500, Thailand	Cambodia, Lao PDR, Thailand, Viet Nam	Integrated water resources development
Kosi 25 April 1954	Co-ordination Committee	India, Nepal	Integrated water resources development

* former USSR

(updated information will be provided as soon as possible)

TABLE 1.7 - INSTITUTIONALIZED CO-OPERATION IN INTERNATIONAL RIVER AND LAKE BASINS

RA III - SOUTH AMERICA

River(s)/Basin(s) Date Agreement Came into Force (1)	Institution and Secretariat (2)	Member Countries (3)	Activities (4)
Amazon 1978	Treaty for Amazonian Co-operation (TCA)	Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, Venezuela	Integrated water resources development
Paraná 1971	Joint Argentina-Paraguayan Technical Commission	Argentina, Paraguay	Integrated water resources development
Paraná 1973	Itaipú Bi-Nacional Foz de Iguazú, Paraná, Brazil	Brazil, Paraguay	Hydropower production
Pilcomayo 1945	Joint Technical Commission for Hydraulic Works on the River Pilcomayo	Argentina, Paraguay	Integrated water resources development
Plata 1971	Intergovernmental Committee on the River Plate Basin (CABEI) - LAFTA, Cebollati 1461, Casilla de Correo 577, Montevideo, Uruguay	Argentina, Bolivia, Brazil, Paraguay, Uruguay	Joint development of principal rivers, including water resources and navigation
Lake Titicaca 1955	Joint Commission	Bolivia, Peru	Integrated water resources development
Uruguay 1946	Joint Technical Commission - Buenos Aires, Argentina	Argentina, Uruguay	Integrated water resources development

TABLE 1.7 - INSTITUTIONALIZED CO-OPERATION IN INTERNATIONAL RIVER AND LAKE BASINS

RA IV - NORTH AND CENTRAL AMERICA

River(s)/Basin(s) Date Agreement Came into Force (1)	Institution and Secretariat (2)	Member Countries (3)	Activities (4)
Central American River Basins 1969	Intergovernmental Commission on Central American River Basins - c/o 4a Avenida 10-25 C.A., Guatemala, Guatemala	Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama	Integrated water resources planning and development
Colorado and Rio Grande (Bravo) 8 November 1945	International Boundary and Water Commission	Mexico, U.S.A.	Water supply, irrigation, regulation, protection of water resources
Nelson 17 July 1925	International Lake of the Woods Control Board	Canada, U.S.A.	Navigation, regulation, protection of water resources
St. Lawrence, Columbia and other U.S.A. - Canadian Boundary Waters 5 May 1910 (with many subsequent amendments)	International Joint Commission (IJC) - 151 Slater Street, Suite 850 Ottawa, Ontario, Canada, K1P 5H3 - 1717 H Street, N.W., Suite 203, Washington DC, 20440, U.S.A.	Canada, U.S.A.	Hydropower production, navigation, regulation, water supply, protection of water resources

TABLE 1.7 - INSTITUTIONALIZED CO-OPERATION IN INTERNATIONAL RIVER AND LAKE BASINSRA VI - EUROPE

River(s)/Basin(s) Date Agreement Came into Force (1)	Institution and Secretariat (2)	Member Countries (3)	Activities (4)
Austrian-Czechoslovakian Frontier waters 18 March 1970	Austria-Czechoslovakia Frontier Waters Commission	Austria, Czechoslovakia**	Regulation, water supply, navigation, protection of water resources
Austrian-Hungarian frontier waters (Danube) 31 July 1959	Permanent Hungarian-Austrian Water Commission	Austria, Hungary	Protection of water resources
Albanian-Yugoslav frontier waters 6 August 1957	Yugoslav-Albanian Water Economy Commission	Albania, Yugoslavia***	Management, hydro-economic development
Bidassoa 1967	Technical Sub-commission	France, Spain	Water supply
Bulgarian-Greek frontier waters 30 July 1964	Bulgarian-Greek Water Management and Energy Commission	Bulgaria, Greece	Regulation and use
Bulgarian-Turkish frontier waters 28 November 1968	Bulgarian-Turkish Water Management Committee	Bulgaria, Turkey	Hydropower, irrigation, use and protection of water resources
Lake Constance 10 November 1961	Permanent International Commission for the Protection of Lake Constance Pollution - c/o OFPE CH-3003 Berne, Switzerland	Austria, Germany, Switzerland	Protection of water resources
Lake Constance 1 June 1973	International Navigation Commission	Austria, Germany, Switzerland	Navigation, water supply, fishery, recreation

** former Czechoslovakia

*** former Yugoslavia

(updated information will be provided as soon as possible)

TABLE 1.7 - INSTITUTIONALIZED CO-OPERATION IN INTERNATIONAL RIVER AND LAKE BASINSRA VI - EUROPE

River(s)/Basin(s) Date Agreement Came into Force (1)	Institution and Secretariat (2)	Member Countries (3)	Activities (4)
Czechoslovakian- Hungarian frontier waters 31 March 1976	Joint Commission for Frontier Waters	Czechoslovakia**, Hungary	Regulation and management
Danube 18 August 1948	La Commission du Danube (CD) - Benczur utca 25, H-1068, Budapest, Hungary	Austria, Bulgaria, Czechoslovakia**, Hungary, Romania, USSR*, Yugoslavia*** Permanent Observer: Germany	Co-ordinated management of navigation and waterways including hydrometeorology
Danube, Po 15 September 1962	Commission	Italy, Switzerland	Hydropower production
Danube (Iron Gate) 16 July 1964	Joint Yugoslav-Romanian Commission for the Iron Gate	Romania, Yugoslavia***	Hydropower production, navigation
Doero (Duoro) and other Portuguese- Spanish boundary waters 29 May 1968	Joint Portuguese-Spanish Commission	Portugal, Spain	Regulation, hydropower production, water supply, navigation
Drava 15 January 1955	Joint Drava Commission	Austria, Yugoslavia***	Hydropower, protection of water resources
Ebro 27 January 1970	Joint Commission	France, Spain	Hydropower production

* former USSR

** former Czechoslovakia

*** former Yugoslavia

(updated information will be provided as soon as possible)

TABLE 1.7 - INSTITUTIONALIZED CO-OPERATION IN INTERNATIONAL RIVER AND LAKE BASINSRA VI - EUROPE

River(s)/Basin(s) Date Agreement Came into Force (1)	Institution and Secretariat (2)	Member Countries (3)	Activities (4)
Finish-USSR frontier waters 6 May 1965	Joint Finnish-Soviet Commission	Finland, USSR*	Protection, use, management of water resources
Hungarian-Romanian frontier waters 2 November 1969	Joint Water Commission	Hungary, Romania	Water management
German-Danish frontier waters 7 June 1922	Frontier Water Commission	Denmark, Germany	Regulation, use and management
German-Polish frontier waters 1952	Joint Polish-German Commission	Germany, Poland	Integrated development
Lake Inari 1959	Joint Commission	Finland, Norway, USSR*	Integrated development of water resources
Inn, Salzach 16 October 1950	Austrian-Bavarian Hydro-electric Company	Austria, Germany	Hydropower production
Kurah-Araks, Coruh 26 June 1928	Joint Commission	Turkey, USSR*	Irrigation, water supply, regulation
Maritsa-Ebros, Nestos, Strymon 9 July 1964	Permanent Bulgarian-Greek Commission	Bulgaria, Greece	Water supply
Minho 1 July 1968	International Standing Commission	Portugal, Spain	Fishery

* former USSR

(updated information will be provided as soon as possible)

TABLE 1.7 - INSTITUTIONALIZED CO-OPERATION IN INTERNATIONAL RIVER AND LAKE BASINS

RA VI - EUROPE

River(s)/Basin(s) Date Agreement Came into Force (1)	Institution and Secretariat (2)	Member Countries (3)	Activities (4)
Lac du Mont-Cenis	Commission technique de surveillance	France, Italy	Hydropower production
Moselle 31 December 1956	Moselle Shipping Commission	France, Germany, Luxembourg	Navigation
Moselle 1 July 1962	International Commission for the Protection of the Moselle against Pollution - Bundesministerium des Innern, Graurheindorfer Str. 198, Postfach, D-5300 Bonn 1, Germany FR	France, Germany, Luxembourg	Pollution control
Mura 9 February 1956	Joint Commission for the Mura	Austria, Yugoslavia***	Regulation, flood control, hydropower, water supply and protection of water resources
Netherlands-German boundary waters (excluding Rhine, Ems, Dollard) 1 August 1963	Permanent Commission for Surface Waters	Germany, Netherlands	Integrated use and management of water resources
Oder, Wisla 7 August 1958	Permanent Joint Commission	Czechoslovakia**, Poland	Protection and management of water resources
Po 7 August 1973	International Water Protection Commission for Italo-Swiss Waters - Piazza S. Antonio 5, Casa Rusca, CH-6600 Locarno, Switzerland	Italy, Switzerland	Protection of water resources
Lake Prespa, Axios-Vardar 1 April 1960	Yugoslav-Greek Permanent Hydro-Economic Commission	Greece, Yugoslavia***	Integrated development of water resources
Pruth 15 March 1973	Joint Soviet-Romanian Commission	Romania, USSR*	Flood control, regulation, hydropower

* former USSR(

** former Czechoslovakia

*** former Yugoslavia

(updated information will be provided as soon as possible)

TABLE 1.7 - INSTITUTIONALIZED CO-OPERATION IN INTERNATIONAL RIVER AND LAKE BASINSRA VI - EUROPE

River(s)/Basin(s) Date Agreement Came into Force (1)	Institution and Secretariat (2)	Member Countries (3)	Activities (4)
Saar 1 July 1962	International Commission for the Protection of the Saar against Pollution	France, Germany	Protection of water resources
Tisa	Joint Commission for Tisa River	Czechoslovakia**, Hungary, Romania, Yugoslavia***, USSR*	Management and protection of water resources
Torne 1 January 1972	Finnish-Swedish Frontier Rivers Commission - P.O. Box 125, S-95300 Haparanda, Sweden	Finland, Sweden	Regulation, fishery, protection of water resources
Yarmuk 14 June 1953	Joint Syro-Jordanian Commission	Jordan, Syrian Arab Republic	Integrated development of water resources
Yugoslav-Bulgarian frontiers waters 29 December 1959	Yugoslav-Bulgarian Water Economy Commission	Bulgaria, Yugoslavia***	Regulation, water supply, hydropower, flood control, irrigation, protection of water resources
Yugoslav-Hungarian frontier waters 8 August 1955	Yugoslav-Hungarian Water Economy Commission	Hungary, Yugoslavia***	Regulation and management
Yugoslav-Italian frontier waters 30 March 1978	Yugoslav-Italian Water Economy Commission	Italy, Yugoslavia***	Water development and management
Yugoslav-Romanian frontier waters 7 April 1955	Water Control Commission	Romania, Yugoslavia***	Flood control, protection of water resources
Russian Federation-Hungarian frontier waters 9 June 1950	Joint USSR-Hungarian Water Commission	Hungary, USSR*	Water management

* former USSR

** former Czechoslovakia

*** former Yugoslavia

(updated information will be provided as soon as possible)

II - PRINCIPAL RIVER AND LAKE BASINS

TABLES 2.1 to 2.6

Explanatory notes

Tables 2.1 to 2.6 list principal river basins and groups of basins according to WMO Regions. Within each table the basins are listed in order of basin number.

An international system of hydrological observing station identification numbers has been adopted by WMO. Further information on this system may be found in the WMO **Manual on Codes**, (WMO - No. 306) Volumes I (1984) and II (1987) and in FM 67-VI HYDRA - Report of hydrological observations from a hydrological station and FM 68-VI HYFOR - Hydrological forecast.

The six columns within each table contain the following information:

- (1) *Name of the basin or group of basins.*
- (2) *Basin area.*
- (3) *Basin code (by which the basin listing is ordered) [BB].*
- (4) *Name of the State/Territory.*
- (5) *Percentage of the basin within each State/Territory.*
- (6) *The country code [Ci].*

Each table is followed by a map of the WMO Region showing the international river basins.

The listing of countries for the basins does not imply that these countries are engaged in co-operative action in respect of the basin.

Due to recent boundary changes in a number of countries, particularly in Europe, updated information on WMO codes and the decision of international river basins between countries, as well as on the frontiers on the maps of the WMO Regions, were not yet available at the time of printing this second edition.

II - PRINCIPAUX BASSINS FLUVIAUX ET LACUSTRES

TABLEAUX 2.1 à 2.6

Notes explicatives

Les tableaux 2.1 à 2.6 énumèrent les principaux bassins fluviaux et groupes de bassins, classés par Région de l'OMM. A l'intérieur de chaque tableau, les bassins sont énumérés par ordre de numéro de bassins.

L'OMM a adopté un système international de numéros d'identification des stations d'observation hydrologique. Pour plus d'informations sur ce système, il convient de se référer au **Manuel des codes** de l'OMM (OMM-N° 306), Volume I (1984) et II (1987), ainsi qu'aux messages FM 67-VI HYDRA - Message d'observation hydrologique provenant d'une station d'observation hydrologique - et FM 68-VI HYFOR - Prévision hydrologique.

Les six colonnes composant chacun des tableaux contiennent les renseignements suivants :

- 1) Nom du bassin ou du groupe de bassins
- 2) Zone couverte par le bassin
- 3) Code du bassin (numéro de classement du bassin) [BB]
- 4) Nom de l'Etat ou du Territoire
- 5) Pourcentage de la zone couverte par le bassin à l'intérieur de chaque Etat/Territoire
- 6) Code du pays [Ci].

Chaque tableau est suivi d'une carte de la Région de l'OMM représentant les bassins fluviaux internationaux.

L'énumération des pays auxquels correspondent les bassins n'implique nullement que ces pays sont engagés dans un effort de coopération concernant ces bassins.

En raison des changements récents survenus dans un certain nombre de pays, en particulier en Europe, la version actualisée des renseignements concernant les codes de l'OMM et le partage entre pays des zones de bassins fluviaux internationaux, ainsi que les frontières dressées sur les cartes des Régions de l'OMM, n'était pas encore disponible au moment où cette deuxième édition était imprimée.

II - ОСНОВНЫЕ РЕЧНЫЕ И ОЗЕРНЫЕ БАССЕЙНЫ

ТАБЛИЦЫ 2.1-2.6

Пояснительные записки

В таблицах 2.1-2.6 перечисляются основные речные бассейны и группы бассейнов в соответствии с разделением на Регионы ВМО. В каждой таблице бассейны перечисляются в порядке следования номеров.

ВМО утвердила международную систему идентификационных номеров гидрологических наблюдательных станций. Дополнительная информация об этой системе содержится в **Поставлении ВМО по кодам** (Публикация ВМО № 306), том I (1984 г.) и том II (1987 г.), а также в FM 67-VI HYDRA - Отчет о гидрологических наблюдениях гидрологических станций и в FM 68-VI HYFOR - Гидрологический прогноз.

Шесть колонок каждой таблицы содержат следующую информацию:

- 1) название бассейна или группы бассейнов;
- 2) площадь бассейна;
- 3) код бассейна (в порядке следования номеров) [BB];
- 4) название страны/территории;
- 5) процентная доля площади бассейна в рамках каждой страны/территории;
- 6) код страны [C].

Каждая таблица сопровождается картой Региона ВМО, на которой показаны международные речные бассейны.

Отнесение тех или иных стран к конкретному бассейну не означает, что эти страны проводят совместные мероприятия в отношении данного бассейна.

В связи с недавними изменениями в ряде стран, особенно в Европе, к моменту опубликования настоящего второго издания не было получено последней информации о кодах ВМО и доле стран в рамках территорий международных речных бассейнов, а также границах, указанных на картах Регионов ВМО

II - PRINCIPALES CUENCAS FLUVIALES Y LACUSTRES

CUADROS 2.1 a 2.6

Notas explicativas

En los Cuadros 2.1 a 2.6 se enumeran las principales cuencas y grupos de cuencas fluviales según las Regiones de la OMM. En cada uno de los cuadros, las cuencas se enumeran por orden del número de cuenca.

La OMM ha adoptado un sistema internacional de números de identificación de estaciones de observación hidrológicas. En el **Manual de Claves** (OMM - N° 306), Volúmenes I (1984) y II (1987) y en FM 67-VI HYDRA - Informe de observación hidrológica proveniente de una estación de observación hidrológica, y FM 68-VI HYFOR - Pronóstico hidrológico, puede hallarse más información sobre este sistema.

Las seis columnas de cada cuadro contienen la siguiente información:

- 1) **Nombre de la cuenca o del grupo de cuencas.**
- 2) **Área de la cuenca.**
- 3) **Código de la cuenca (según el cual se ordena la enumeración de las cuencas) [BB].**
- 4) **Nombre del Estado/Territorio.**
- 5) **Porcentaje de la cuenca en cada Estado/Territorio.**
- 6) **Clave del país [Cij].**

Cada cuadro va seguido de un mapa de la Región de la OMM en el que se muestran las cuencas fluviales internacionales.

La enumeración de los países para las cuencas no implica que esos países intervengan en actividades de cooperación con respecto a la cuenca.

Debido a recientes cambios en varios países, sobre todo en Europa, en el momento de imprimirse esta segunda edición no se disponía aún de información actualizada sobre claves de la OMM y partes de países en las zonas de cuencas fluviales internacionales, ni sobre las fronteras trazadas en los mapas de las Regiones de la OMM.

TABLE 2.1 - (RA I - AFRICA) PRINCIPAL RIVER AND LAKE BASINS (Page 1)

BASINS Sub-basins	Area km ²	Code (BB)	State/Territory in the Basin	Country % Area	Code (C ₁)
MEJERDA	36 000	01	(Algeria (Tunisia	52.0 48.0	1 2
CH. MELRHIR AND RHARSA	685 000	02	(Algeria (Tunisia		1 2
CH. DJERID		03	Tunisia	100.0	2
ALGERIAN COAST		04	Algeria	100.0	1
CH. EL HODNA	61 000	05	Algeria	100.0	1
CH. ECH CHERGUI		06	Algeria	100.0	1
TAFNA	8 800	07	(Algeria (Morocco	57.0 43.0	1 3
MOULOUIYA	53 700	08	Morocco	100.0	3
NORTH-WEST COAST		09	(Morocco (Canary Islands		3 7
OUED GUIR, DAOURA & OUED DRA	244 700	10	(Morocco (Algeria	56.3 43.7	3 1
Oued Guir	98 500	10			
Daoura	65 700	10			
Oued Dra	80 500	10			
ATUI	19 500	11	(Western Sahara (Mauritania	64.0 36.0	4 5
SENEGAL	338 000	12	(Mali (Mauritania (Senegal (Guinea	46.2 26.4 18.1 9.3	1 5 8 6
GAMBIA	77 850	13	(Senegal (Guinea (Gambia	66.0 20.0 13.5	8 6 9
GEBA	13 700	14	(Guinea-Bissau (Senegal (Guinea	63.6 32.0 4.4	1 8 6
CORUBAL	22 000	15	(Guinea (Guinea-Bissau	63.6 36.4	6 1
SOUTH-WEST COAST		16	(Cape Verde (Guinea (Sierra Leone (Liberia (Côte d'Ivoire		5 6 2 3 4
KOLENTA (GREAT SCARCIES)	8 500	17	(Guinea (Sierra Leone	70.6 29.4	6 2
LITTLE SCARCIES	15 000	18	(Sierra Leone (Guinea	73.3 26.7	2 6
MOA	17 900	19	(Guinea (Sierra Leone (Liberia	52.5 44.0 3.5	6 2 3
MANO-MORRA	8 250	20	(Liberia (Sierra Leone (Guinea	75.0 25.0	3 2 6
LOFA	10 620	21	(Liberia (Guinea	92.0 8.0	3 6
ST PAUL	21 900	22	(Liberia (Guinea	66.7 33.3	3 6
ST JOHN	17 220	23	(Liberia (Guinea	81.5 18.5	3 6

TABLE 2.1 - (RA I - AFRICA) PRINCIPAL RIVER AND LAKE BASINS (Page 2)

BASINS Sub-basins	Area km ²	Code (BB)	State/Territory in the Basin	Country % Area	Code (C)
CESS (CESTOS)	12 560	24	(Liberia (Côte d'Ivoire (Guinea	75.2 20.0 4.8	3 4 6
CAVALLY	30 200	25	(Côte d'Ivoire (Liberia (Guinea	53.2 38.3 8.5	4 3 6
GULF OF GUINEA		26	(Côte d'Ivoire (Ghana (Togo (Benin (Nigeria		4 5 6 7 8
SASSANDRA	77 500	27	(Côte d'Ivoire (Guinea	90.4 9.6	4 6
KOMOE	76 500	28	(Côte d'Ivoire (Burkina Faso	73.3 26.7	4 9
BIA	13 100	29	(Ghana (Côte d'Ivoire	66.4 33.6	5 4
TANO	15 975	30	(Ghana (Côte d'Ivoire	85.7 14.3	5 4
VOLTA	394 100	31	(Burkina Faso (Ghana (Togo (Côte d'Ivoire (Benin (Mali	45.5 42.0 5.0 3.4 2.8 1.3	9 5 6 4 7 1
MONO	25 600	32	(Togo (Benin	85.2 14.8	6 7
OUEME	47 780	33	(Benin (Nigeria (Togo	89.0 5.5 5.5	7 8 6
NIGER	1 215 000	34	(Mali	28.2	1
Bénoué	305 000	35	(Nigeria (Niger (Algeria (Guinea (Cameroon (Burkina Faso (Benin (Côte d'Ivoire (Chad	26.4 22.3 6.8 4.3 4.1 3.6 2.3 1.1 0.9	8 2 1 6 3 9 7 4 5
CROSS	48 000	36	(Nigeria (Cameroon	79.0 21.0	8 3
CHAD	1 910 000	37	(Chad (Niger (Central African Republic (Nigeria (Sudan (Cameroon	49.7 21.8 11.3 9.2 5.2 2.8	5 2 7 8 6 3
SANAGA	131 500	38	(Cameroon	100.0	3
NYONG	30 375	39	(Cameroon	100.0	3
NTEM	26 350	40	(Cameroon (Gabon (Equatorial Guinea	57.6 27.3 15.1	3 6 9

TABLE 2.1 - (RA I - AFRICA) PRINCIPAL RIVER AND LAKE BASINS (Page 3)

BASINS Sub-basins	Area km ²	Code (BB)	State/Territory in the Basin	Country % Area	Code (C)
ZAIRE/CONGO	3 457 000	47	(Zaire	62.1	1
Sangha	240 000	48	(Central African Republic	10.9	7
Ubangui	772 800	49	(Angola	7.7	6
Kasai	879 000	50	(Congo	6.9	1
Ruki		51	(Zambia	4.7	5
Lomami	90 000	52	(United Republic of Tanzania	4.5	2
Lake Tanganyika	238 700	53	(Cameroon	2.7	3
			(Burundi	0.4	9
			(Rwanda	0.1	8
ANGOLA COAST		54	Angola	100.0	6
CUNENE	106 500	55	(Angola	90.0	6
			(Namibia	10.0	7
ETOSHA-CUVELAI		56	(Angola	62.7	6
			(Namibia	37.3	7
OKAVANGO	785 000	57	(Botswana	36.8	3
			(Angola	31.8	6
			(Namibia	27.3	7
			(Zimbabwe	4.1	4
NAMIBIA COAST		58	Namibia	100.0	7
ORANGE	852 000	59	(South africa	60.0	1
			(Namibia	26.3	7
			(Botswana	10.5	3
			(Lesotho	3.2	2
CAPE COAST (ORANGE TO MAPUTO)		60	South Africa*	100.0	1
MEDITERRANEAN COAST		61	(Libyan Arab Jamahiriya		4
			(Egypt		3
NILE	3 030 700	62	(Sudan	62.7	6
Blue Nile	324 530	63	(Ethiopia	12.1	5
Tekezze-Atbara	88 000	64	(Egypt	9.9	3
Adar		65	(Uganda	7.7	4
Sobat		66	(United Rep. of Tanzania	3.8	2
Behr el Ghazel		67	(Kenya	1.8	7
Lake Mobuto-Sese Seko	61 114	68	(Zaire	0.8	1
Lake Victoria	264 160	69	(Rwanda	0.7	8
Kagera	58 370	70	(Burundi	0.5	9
Mara	10 900	71			
Lake Kyoga	75 500	72			
		73			
GASH	32 000	74	(Ethiopia	79.0	5
			(Sudan	21.0	6
BARAKA	66 200	75	(Ethiopia	66.0	5
			(Sudan	34.0	6
RED SEA COAST AND GULF OF ADEN		76	(Egypt		3
			(Sudan		6
			(Ethiopia		5
			(Somalia		8
			(Djibouti		9
AWASH	118 500	77	(Ethiopia	97.0	5
			(Djibouti	3.0	8
WABI SHEBELLI	260 000	78	(Ethiopia		5
			(Somalia		8
OGADEN		79	(Ethiopia		5
			(Somalia		8
JUBA	196 000	80	(Ethiopia		5
			(Somalia		8
			(Kenya		7

* Suspended by Res. 38 (Cg-VII) from exercising its rights and enjoying privileges as a Member of WMO

TABLE 2.1 - (RA 1 - AFRICA) PRINCIPAL RIVER AND LAKE BASINS (Page 4)

BASINS Sub-basins	Area km ²	Code (BB)	State/Territory in the Basin	Country % Area	Code (Cj)
LAKE TURKANA (RUDDOLF) Omo	50 000	81	(Kenya	52.5	7
		82	(Ethiopia	42.6	5
			(Sudan	3.3	6
			(Uganda	1.6	4
KAKE CHEWBAHIR		83	(Ethiopia		5
			(Kenya		7
LAKE NATRON	28 500	84	(Kenya	59.0	7
			(United Rep. of Tanzania	41.0	2
UMBA		85	(Kenya		7
			(United Rep. of Tanzania		2
RUFUJI	158 000	86	United Rep. of Tanzania	100.0	2
GREAT RIFT VALLEY BASINS		87	(Ethiopia		5
			(Kenya		7
			(United Rep. of Tanzania		2
RUVUMA	155 400	88	(Mozambique	62.0	8
			(United Rep. of Tanzania	36.0	2
			(Malawi	2.0	9
EAST COAST AND S.W. IND. OCEAN		89	(Kenya		7
			(United Rep. of Tanzania		2
			(Mozambique		8
			(Madagascar		3
			(Mauritius		6
LAKE RUKWA		90	(United Rep. of Tanzania		2
			(Zambia		5
ZAMBEZI Shire-Lake	1 419 960 130 200	91	(Zambia	40.7	5
		92	(Angola	18.3	6
		93	(Zimbabwe	15.9	4
			(Mozambique	11.4	8
			(Malawi	7.7	9
			(Botswana	2.8	3
			(United Rep. of Tanzania	2.0	2
PUNGOE	15 046	94	(Mozambique	76.3	8
			(Zimbabwe	23.9	4
BUZI	28 800	94	(Mozambique	76.3	8
			(Zimbabwe	23.9	4
SAVE (SABI)	103 000	95	(Zimbabwe	71.0	4
			(Mozambique	29.0	8
LIMPOPO	412 000	96	(South Africa*	46.8	1
			(Botswana	19.0	3
			(Mozambique	18.4	8
			(Zimbabwe	15.8	4
INCOMATI	46 246	97	(South Africa*	63.0	1
			(Mozambique	32.4	8
			(Swaziland	4.6	5
UNBELUZI	5 600	98	(Swaziland	62.5	5
			(Mozambique	22.5	8
			(South Africa*	15.0	1
MAPUTO	33 963	99	(South Africa*	54.5	1
			(Swaziland	29.0	5
			(Mozambique	16.5	8

* Suspended by Res. 38 (Cg-VII) from exercising its rights and enjoying privileges as a Member of WMO

INTERNATIONAL RIVER AND LAKE BASINS AFRICA

AFRICA

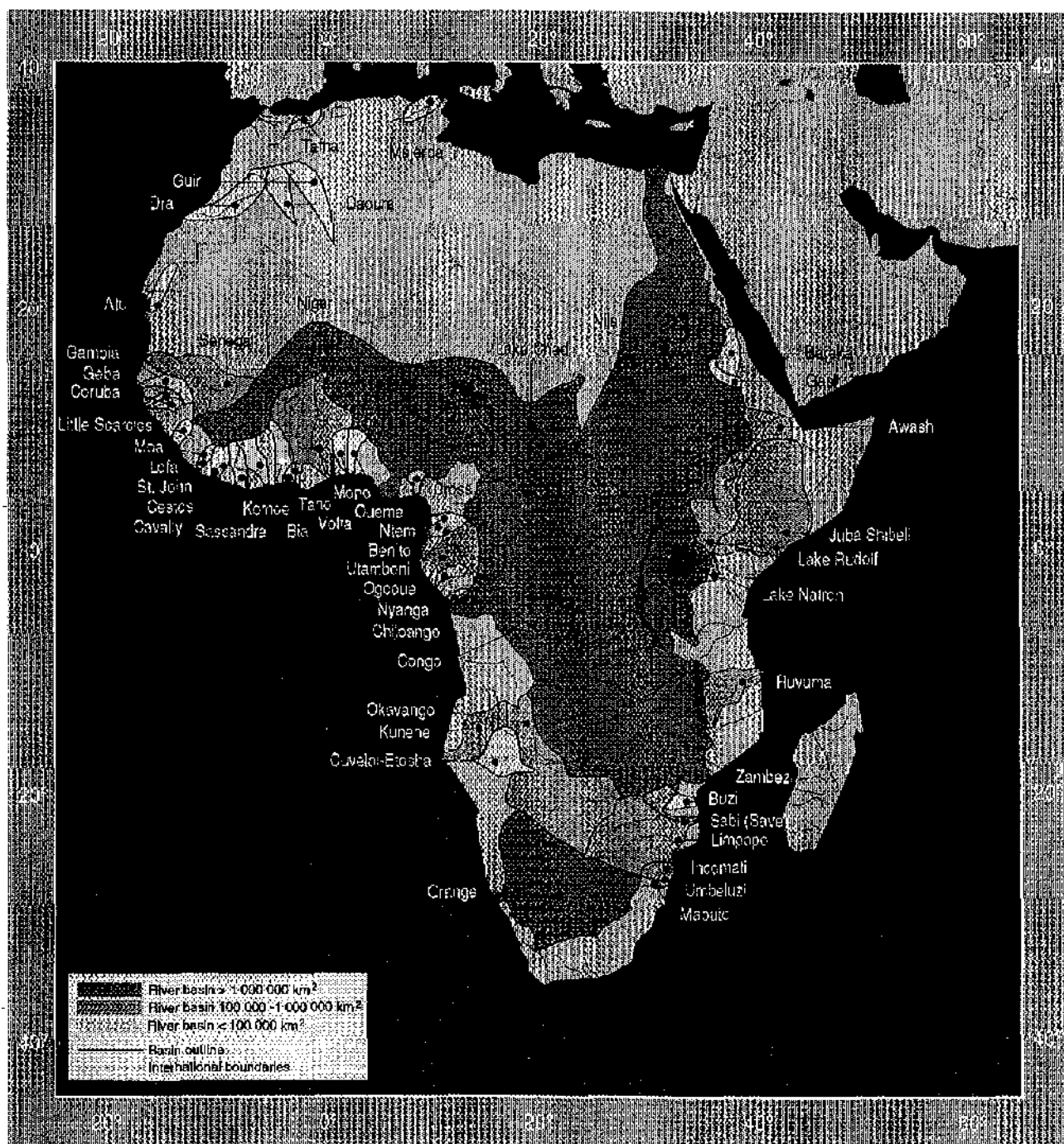


TABLE 2.2 - (RA II - ASIA) PRINCIPAL RIVER AND LAKE BASINS (Page 1)

BASINS Sub-basins	Area km ²	Code (BB)	State/Territory in the Basin	Country % Area	Code (C)
CHUKOTSK AND OKHOTSK SEA COASTS (EXCEPT KAMCHATKA)		01	Russian Federation	100.0	9
KAMCHATKA	472 000	02	Russian Federation	100.0	9
LENA-INDIGIRKA	2 785 000	03	Russian Federation	100.0	9
SAKHALIN AND KURIL ISLANDS	97 500	04	Russian Federation	100.0	9
SEA OF JAPAN COAST		05	(Russian Federation		9
Suyfun	16 500	05	(China	57.0	1
			(Russian Federation	43.0	9
AMUR	844 300	06	(Russian Federation	52.4	9
			(China	44.5	
			(Mongolia	3.1	7
YENISEY	2 590 000	09	(Russian Federation	87.0	9
Lake Baikal	571 500	07	(Mongolia	13.0	7
Angara (including Baikal)	1 045 000	08			
OB UPPER AND MIDDLE	2 484 000*	10	(Russian Federation	98.2	9
Irtish	969 000	11	(China	1.8	1
Lower Ob and Tobol		12			
KAZAKHSTAN (CENTRAL)	440 000	13	C.I.S.	100.0	9
LAKES BALKHASH (ILI)	413 300)	14	(C.I.S.	63.1	9
ALAKOL'	10 500)		(China	36.9	1
CHU. TALAS, ASSE AND LAKE ISSYKKUL'	22 000	15	C.I.S.	100.0	9
SYR DARYA	219 000	16	C.I.S.	100.0	9
AMU DARYA	227 000	17	(C.I.S.	77.0	9
			(Afghanistan	23.0	2
ATREK	61 000	18	(Iran	67.2	4
			(C.I.S.	32.8	9
HARIRUD (TEDZEN)	84 000	18	(Afghanistan	44.0	2
			(C.I.S.	29.8	9
			(Iran	26.2	4
MURGAB	73 000	18	(C.I.S.	58.9	9
			(Afghanistan	41.1	2
URAL)	229 000	19	C.I.S.	100.0	9
EMBA)	38 100	19			
TARIM (INCLUDING YARKAND)	980 000	20	(China	96.4	1
			(C.I.S.	3.6	9
SOUTH COAST OF CASPIAN SEA		21	Iran	100.0	4
LAKE REZAYEH	51 800	22	Iran	100.0	4
EUPHRATES-TIGRIS	778 834	95	(Iraq	59.1	5
			(Turkey [Region VII]	19.6	6
			(Iran	14.1	4
			(Syrian Arab Rep. [Region VI]	7.2	3
KARUN		23	Iran	100.0	4
ARABIAN PENINSULA	2 362 150**	24	(Saudi Arabia	91.0	6
		25	(Oman	9.0	8

* Total area of Ob river basin

** Excluding Bahrain, Yemen, Kuwait, Qatar and United Arab Emirates

TABLE 2.2 - (RA II - ASIA) PRINCIPAL RIVER AND LAKE BASINS (Page 2)

BASINS Sub-basins	Area km ²	Code (BB)	State/Territory in the Basin	Country % Area	Code (C ₁)
			(Dem. Yemen	46.8	7
PERSIAN GULF		27	Iran	100.0	4
CENTRAL BASIN		28	Iran	100.0	4
DARYACHECH-YE-SISTAN	528 700	29	(Pakistan		3
			(Afghanistan		2
Helmand	386 000	30	(Iran		4
		TA			
LAB		31	(Iran		4
			(Pakistan		3
DASHT	36 000	32	(Pakistan	80.6	3
			(Iran	19.4	4
HINGOL		33	Pakistan	100.0	3
PISHIN LORA		34	(Pakistan		3
			(Afghanistan		2
INDUS	970 500	35	(China		1
Jhelum	63 500	36	(India		8
Chenab	61 000	37	(Pakistan		3
Ravi	14 470	38	(Afghanistan	7.1	2
	Sutlej		186 000	39	
	Kabul		77 850	40	
	Khuram			41	
	Gomal			42	
Uvs Nuur (Lake Ubsa)	67 000	43	(Mongolia	73.1	7
			(Russian Federation	26.9	9
CHAR US NUUR		44	(Mongolia		7
			(Russian Federation		
URUNGU		45	(Mongolia		7
			(China		1
GANGES-BRAHMAPUTRA	1 730 000	46	(China		1
Yamuna	268 273	47	(India		8
Ghaghra	132 000	48	(Nepal	8.8	5
Gandak	45 800	49	(Bangladesh	7.1	6
Kosi	86 900	50	(Bhutan	2.9	4
	Brahmaputra		671 000	51	
MEGHNA	80 200	52	(India		8
			(Bangladesh		6
WEST COAST	491 600	53	India	100.0	8
EAST COAST (BAY OF BENGAL)	1 210 330	54	India	100.0	8
	Mahanadi		132 790	55	
	Godavari		302 590	56	
SRI LANKA	65 610	57	Sri Lanka	100.0	3
KARNAFULI	10 500	58	(Bangladesh	95.2	6
			(India	4.8	8
KALADAN	40 000	59	(India	53.7	8
			(Burma	46.3	2
ARAKAN COAST		59	(India		8
			(Burma		2
IRRAWADDY	430 000	60	(Burma	87.1	2
			(India	8.3	8
			(China	4.6	1
SITTANG	32 535	61	Burma	100.0	2

TABLE 2.2 - (RA II - ASIA) PRINCIPAL RIVER AND LAKE BASINS (Page 3)

BASINS Sub-basins	Area km ²	Code (BB)	State/Territory in the Basin	Country % Area	Code (C)
SALWEEN	270 000	62	(China (Burma (Thailand	53.0 40.7 6.3	1 2 9
TENASSERIM COAST		63	(Burma (Thailand		2 9
CHAO PHRAYA	111 500	64	Thailand	100.0	9
PAKCHAN	3 100	65	(Burma (Thailand	51.6 48.4	2 9
MEKONG	802 900	66 67 68 69	(Lao PDR (Thailand (China (Dem. Kampuchea (Vietnam (Burma	25.4 22.9 22.2 18.9 7.7 2.9	4 9 1 5 3 2
SAIGON-VAICO	44 000	70	(Vietnam (Dem. Kampuchea	79.5 20.5	3 5
INDO-CHINA COAST		71	Vietnam	100.0	3
CA	28 500	72	(Vietnam (Lao PDR	70.9 29.1	3 4
MA-CHU	36 000	73	(Vietnam (Lao PDR	62.5 37.5	3 4
RED RIVER (KOI)	169 600	74	(China (Vietnam (Lao PDR	53.1 46.0 0.9	1 3 4
TILMEN	34 400	75	(China (DPR of Korea (Russian Federation	69.7 29.1 1.2	1 8 9
YALU	64 500	76	(DPR of Korea (China	50.4 49.6	8 1
HAN	34 700	77	(DPR of Korea (Rep. of Korea	82.1 17.9	8 6
PO HAI COAST		78	China	100.0	1
	Liao		219 000	79	
HWANG	980 000	80	China	100.0	1
YANGTZE	1 942 500	81	China	100.0	1
	Han		174 350	82	
	Siang		261 130	83	
	Yalung		144 280	84	
SOUTH-EAST COAST	436 000	85	China	100.0	1
HSI	328 000	86	(China (Vietnam	96.1 3.9	1 3
HOKKAIDO	78 460	87	Japan	100.0	5
PACIFIC COAST)	250 000	88	Japan	100.0	5
	JAPAN SEA COAST)			89	
KYUSHU	42 010	90	Japan	100.0	5

TABLE 2.3 - (RA III - SOUTH AMERICA) PRINCIPAL RIVER AND LAKE BASINS (Page 1)

BASINS Sub-basins	Area km ²	Code (BB)	State/Territory in the Basin	Country % Area	Code (C)
JURADO	620	01	(Colombia (Panama)	76.6 23.4	1 9
CARIBBEAN SEA Magdalena-Cauca	383 000 284 000	02 03	Colombia	100.0	1
CATATUMBO Meta	34 840	04	(Colombia (Venezuela)	55.4 44.6	1 2
CARIBBEAN SEA		05	Venezuela	100.0	2
ORINOCO	966 000	06	(Venezuela (Colombia)	64.8 35.2	2 1
ESSEQUIBO	147 000	08	(Guyana (Venezuela)	77.0 23.0	3 2
AMACURO	10 260	08	(Venezuela (Guyana)	77.6 22.4	2 3
DARIMA	8 400	08	(Guyana (Venezuela)	89.3 10.7	3 2
NORTH ATLANTIC OCEAN		09	Guyana	100.0	3
COURANTIJN	72 100	10	(Suriname (Guyana)	51.2 48.8	4 3
NORTH ATLANTIC OCEAN		11	Suriname	100.0	4
MARONI	66 000	12	(Suriname (France-Guyana)	56.1 43.9	4 5
NORTH ATLANTIC OCEAN		13	(France-Guyana)	100.0	5
OIAPOQUE	30 270	14	(France-Guyana (Brazil)	53.5 46.5	5 6
AMAZON	5 870 000	15	(Brazil (Peru (Bolivia (Colombia (Ecuador (Venezuela (Guyana)	63.3 15.9 11.9 5.8 2.1 0.9 0.1	6 9 7 1 8 2 3
Beni-Madre de Dios (Madeira)		16	(Bolivia (Brazil (Peru)		7 6 9
Mamoré (Guaporé)		17	(Bolivia (Brazil)		7 6
Negro		18	(Brazil (Colombia)		6 1
Napo		19	(Ecuador (Peru)		8 9
Putumayo (Ica)		20	(Brazil (Colombia (Ecuador (Peru)		6 1 8 9
Caqueta (Yapura)		21	(Brazil (Colombia)		6 1
Marañon) Ucayali) Huallaga)			Peru	100.0	9
Javari) Juruá) Purus) Negro) Madeira) Tapajos) Xingu)		22 - - to - - 40	Brazil	100.0	6
PACIFIC OCEAN		41	Colombia	100.0	1
PATIA	22 540	42	(Colombia (Ecuador)	99.4 0.6	1 8

TABLE 2.3 - (RA III - SOUTH AMERICA) PRINCIPAL RIVER AND LAKE BASINS (Page 2)

BASINS Sub-basins	Area km ²	Code (BB)	State/Territory in the Basin	Country % Area	Code (C ₁)
MIRA	11 200	43	(Ecuador (Colombia	61.8 38.2	8 1
PACIFIC OCEAN		44	Ecuador	100.0	8
ZARUMILLA	1 570	45	(Ecuador (Peru	56.1 43.9	8 9
TUMBES	4 650	46	(Ecuador (Peru	56.7 43.3	8 9
CHIRA-CATAMAYO	16 220	47	(Peru (Ecuador	53.9 46.1	9 8
PACIFIC OCEAN	271 000	48	Peru	100.0	9
TOCANTINS	757 000	49	Brazil	100.0	6
NORTH, NORTH EAST ATLANTIC OCEAN		50	Brazil	100.0	6
SAN FRANCISCO	634 000	51	Brazil	100.0	6
EAST ATLANTIC OCEAN		52	Brazil	100.0	6
SOUTH EAST ATLANTIC OCEAN		53	Brazil	100.0	6
TITICACA-POPO	114 000	54	(Bolivia (Peru (Chile	52.0 43.8 4.2	7 9 1
LAGUNA BLANCA	150	55	(Chile (Peru		1 9
ZAPALERI	1 565	56	(Chile (Argentina (Bolivia	53.0 34.0 13.0	1 2 7
CANCOSA) TODOS LOS SANTOS) LAUCA) COSAPILLA)		57	(Bolivia (Chile		7 1
PLATA	3 250.850		(Brazil (Argentina (Paraguay (Uruguay (Bolivia	44.5 36.0 12.7 4.4 2.4	6 2 3 4 7
Lower Plata	128 360	58	(Argentina (Uruguay	76.0 24.0	2 4
Parana	1 572 410	58 to 68	(Argentina (Brazil (Paraguay		2 6 3
Paraguay	1 095 000		(Argentina (Brazil (Bolivia (Paraguay		2 6 7 3
Iguazu	70 000		(Brazil (Argentina		6 2
Uruguay	385 080	69	(Argentina (Brazil (Uruguay		2 6 4
LAGUNA MERIN	55 700	71	(Uruguay (Brazil	58.3 41.7	4 6
ATLANTIC OCEAN		72	Uruguay	100.0	4
PUNA ENDORHEIC BASINS		73	Argentina	100.0	2

TABLE 2.3 - (RA III - SOUTH AMERICA) PRINCIPAL RIVER AND LAKE BASINS (Page 3)

BASINS Sub-basins	Area km ²	Code (BB)	State/Territory in the Basin	Country % Area	Code (C _i)
SALINAS GRANDES) LAGUNA MAR) CHIQUEITA) PAMPA DE LAS SALINAS) POZO DE LAS YEGUAS) RIVERS DESAGUADERO,) COLORADO AND NEGRO) ANO RIVERS) FLOWING INTO THE) ATLANTIC BETWEEN THE) PLATA AND NEGRO RIVERS)		74	Argentina	100.0	2
RIVERS OF PATAGONIA FLOWING INTO THE ATLANTIC SOUTH OF RIO NEGRO		76	Argentina	100.0	2
CLOSED BASINS OF THE PATAGONIAN PLATEAU		77	Argentina	100.0	2
PACIFIC OCEAN		78	Chile	100.0	2
LAKE BAKER) BUENOS AIRES)	25 700	81	(Chile (Argentina	79.2 20.8	1 2
GALLEGOS CHICO	12 240	82	(Argentina (Chile	56.2 43.8	2 1
LAKE FAGNANO	4 820	83	(Argentina (Chile	81.5 18.5	2 1
VIZCACHAS		84	(Argentina (Chile		2 1
LAKE SAN MARTIN	370	85	(Chile (Argentina	91.9 8.1	1 2
LAKE PUEYRREDON		86	(Argentina (Chile		2 1
RIO SIMPSON) HUEMULES)		87	(Argentina (Chile		2 1
RIOS PICO AND CISNES		88	(Argentina (Chile		2 1
RIO CALEUFU-CORCOVADO-PALENA	13 000	89	(Chile (Argentina	56.9 43.1	1 2
RIO FUTALEUFU		90	(Argentina (Chile		2 1
RIO PUELO	8 800	91	(Argentina (Chile	63.8 36.2	2 1
RIO MANSO	8 620	92	(Argentina (Chile		2 1
RIO HUA-HUM		93	(Argentina (Chile		2 1
LAGUNA DEL BAYO) LAGUNA ESCONDIDA/) SALAR DEL PULAR) LAGUNA MUCAR) SALINA DE JAMA)		94	(Argentina (Chile		2 1

INTERNATIONAL RIVER AND LAKE BASINS

SOUTH AMERICA



TABLE 2.4 - (RA IV - NORTH AND CENTRAL AMERICA) PRINCIPAL RIVER AND LAKE BASINS (Page 1)

BASINS Sub-basins	Area km ²	Code (BB)	State/Territory in the Basin	Country % Area	Code (C)
ARCTIC OCEAN		01	U.S.A. (Alaska)	100.0	1
PACIFIC OCEAN		02	U.S.A. (Alaska)	100.0	1
YUKON	932 400	03	(U.S.A. (Canada	63.0 37.0	1 2
STIKINE	56 700	04	(Canada (U.S.A.	91.0 9.0	2 1
PACIFIC OCEAN	876 200	05 06	Canada	100.0	2
FRASER	238 280	07	(Canada (U.S.A.	96.0 4.0	2 1
ARCTIC OCEAN	3 580 000*	08	Canada	100.0	2
NELSON-SASKATCHEWAN	1 072 260	13	(Canada (U.S.A.	88.0 12.0	2 1
HUDSON BAY	4 040 000	14	Canada	100.0	2
COLUMBIA	668 220	15	(U.S.A. (Canada	83.0 17.0	1 2
MISSISSIPPI	3 230 400	19	(U.S.A. (Canada	97.8 2.2	1 2
SAINT JOHN	58 500	31	(Canada (U.S.A.	66.0 34.0	2 1
ST. CROIX	8 100		(U.S.A. (Canada	82.2 17.3	1 2
GREAT LAKES	774 000**	32	(Canada (U.S.A.		2 1
ST. LAWRENCE	1 289 820	43	(Canada (U.S.A.	62.3 37.5	2 1
ATLANTIC OCEAN	958 600	44	Canada	100.0	2
PACIFIC OCEAN		45 46	U.S.A.	100.0	1
ATLANTIC OCEAN		47 48	U.S.A.	100.0	1
GULF OF MEXICO		49 50	U.S.A.	100.0	1
GRANDE (BRAVO)	471 940	51	(U.S.A. (Mexico	55.0 45.0	1 3
COLORADO	637 900	52	(U.S.A. (Mexico	99.0 1.0	1 3
CONCEPCION) YAQUI)	70 000***	53	(Mexico (U.S.A.	95.7 4.3	3 1
TIJUANA	1 635	54	(Mexico (U.S.A.	94.3 5.2	3 1
PACIFIC OCEAN		55	Mexico	100.0	3
GULF OF MEXICO		58	Mexico	100.0	3
HONDO-AZUL	5 600	60	(Belize (Mexico (Guatemala	49.1 30.4 20.5	2 3 4

* Mainland area only

** Above Iroquois dam

*** Yaqui only

TABLE 2.4 - (RA IV - NORTH AND CENTRAL AMERICA) PRINCIPAL RIVER AND LAKE BASINS (Page 2)

BASINS Sub-basins	Area km ²	Code (BB)	State/Territory in the Basin	Country % Area	Code (C)
CANDELARIA	10 800	61	(Mexico (Guatemala	92.5 7.4	3 4
USUMACINTA-GRIJALVA	131 000	62	(Mexico (Guatemala	67.5 32.5	3 4
SUCHIATE-COATAN ACHUTE	3 090	63	(Guatemala (Mexico	58.6 41.4	4 3
LEMPA	17 000	64	(El Salvador (Honduras (Guatemala	59.3 36.0 4.7	6 5 4
PAZ	1 650	65	(Guatemala (El Salvador	55.8 44.2	4 6
MOTAGUA	16 500	66	(Guatemala (Honduras	84.8 15.2	4 5
GOASCORAN	2 990	67	(Honduras (El Salvador	76.4 23.6	5 6
CARIBBEAN SEA		68	Honduras	100.0	5
COCO (SEGOVIA)	26 550	69	(Nicaragua (Honduras	83.0 17.0	7 5
CHOLUTECA-NEGRO	9 090	70	(Honduras (Nicaragua	80.1 19.9	5 7
PACIFIC OCEAN		71	Nicaragua	100.0	7
CARIBBEAN SEA		72	Nicaragua	100.0	7
SAN JUAN	39 350	73	(Nicaragua (Costa Rica	68.1 31.9	7 8
PACIFIC OCEAN		74	Costa Rica	100.0	8
CARIBBEAN SEA		75	Costa Rica	100.0	8
SIXAOLA TERIBE	3 655	76	(Costa Rica (Panama	77.9 22.1	8 9
PACIFIC OCEAN		77	Panama	100.0	9
CARIBBEAN SEA		78	Panama	100.0	9
BAHAMAS	13 500	79	Bahamas	100.0	1
CUBA	114 524	80 81	Cuba	100.0	2
DOMINICAN REPUBLIC	48 442	82	Dominican Republic	100.0	3
HAITI	27 750	83	Haiti	100.0	4
JAMAICA	11 400	84	Jamaica	100.0	5
PUERTO RICO	8 800	85	USA	100.0	1
TRINIDAD AND TOBAGO	5 121	86	Trinidad and Tobago	100.0	6
BARBADOS	430	87	Barbados	100.0	7
COLOMBIA		88	Colombia	100.0	1
BELIZE-SARSTUN	8 760	96*	(Belize (Guatemala	60.2 39.8	2 4
CHANGUINOLA	3 060	97**	(Panama (Costa Rica	98.0 2.0	9 8

* To be adopted by the Regional Association



TABLE 2.5 - (RA V - SOUTH-WEST PACIFIC) PRINCIPAL RIVER AND LAKE BASINS (Page 1)

BASINS Sub-basins	Area km ²	Code (BB)	State/Territory in the Basin	Country % Area	Code (C _i)
AUSTRALIA*					
NORTH-EAST COAST	451 000	01	Queensland	100.0	1
SOUTH-EAST COAST	274 000	02	(New South Wales (Victoria		2 3
TASMANIA	68 376	03	Tasmania	100.0	
MURRAY-DARLING	1 063 000	04	(New South Wales (Queensland (Victoria (South Australia (Capital Territory	57.0 24.0 12.0 7.0	2 1 3 4 5
SOUTH AUSTRALIAN GULF	82 000	05	South Australia	100.0	4
SOUTH-WEST COAST	314 000	06	Western Australia	100.0	6
INDIAN OCEAN	519 000	07	Western Australia	100.0	6
TIMOR SEA	547 000	08	(Western Australia (Northern Territory		6 7
GULF OF CARPENTARIA	638 000	09	(Queensland (Northern Territory		1 7
LAKE EYRE	1 170 000	10	(Queensland (Northern Territory (South Australia (New South Wales		1 7 4 2
BULLOO-BANCANNIA	101 000	11	(Queensland (New South Wales		1 2
WESTERN PLATEAU	2 455 000	12	(Western Australia (Northern Territory (South Australia		6 7 4
REST OF THE REGION					
GOLOK	1 500	21	(Malaysia** (Thailand	53.3 46.7	2 1
MALAYSIA Peninsular Sarawak and Sabah	324 000 131 200 193 000	22	Malaysia	100.0	2
SINGAPORE	581	32	Singapore	100.0	7
SEBAKUNG	11 000	33	(Indonesia (Malaysia	54.5 45.5	3 2
BORNED (KALIMANTAN)	559 000	34	Indonesia	100.0	3
SUMATRA	524 100	35	Indonesia	100.0	3
JAVA	134 045	41	Indonesia	100.0	3
LESSER SUNDA ISLANDS Bale and Lombok Sumbawa	11 470 17 513	43 45	Indonesia	100.0	3
TIMOR	33 915	46	Indonesia	100.0	3
MALUCAS Sulawesi	212 270	48	Indonesia	100.0	3
TAMI	4 600	49	(Indonesia (Papua New Guinea	89.1 10.9	3 5

* Australia has the largest river basins in the Region, and is composed of separate states. The allocation of BB and C_i has been made separately for Australian basins bearing in mind the existing national system.

** See also Asia (RA II)

TABLE 2.5 - (RA V - SOUTH-WEST PACIFIC) PRINCIPAL RIVER AND LAKE BASINS (Page 2)

BASINS Sub-basins	Area km ²	Code (BB)	State/Territory in the Basin	Country % Area	Code (C)
SEPIK	71 000	50	(Papua New Guinea (Indonesia	97.2 2.8	5 3
FLY	75 800	51	(Papua New Guinea (Indonesia	95.5 4.5	5 3
WEST IRIAN	337 000	52	Indonesia	100.0	3
EAST IRIAN	320 300	53	Papua New Guinea	100.0	5
LUZON	104 690	54	Philippines	100.0	6
PALAWAN		55			
MINDORO		56			
PANAY		57			
NEGROS		58			
SAMAR		59			
MINDANAO	94 630	60			
NEW CALEDONIA	19 056	62	New Caledonia	100.0	7
NORTH ISLAND	114 700	63	New Zealand	100.0	8
SOUTH ISLAND	150 460	66	New Zealand	100.0	8
HAWAII	15 939	71	U.S.A.	100.0	9
FIJI	18 274	72*	Fiji	100.0	1
SOLOMON ISLANDS	28 446	73*	Solomon Islands	100.0	2
VANUATU	14 763	74*	Vanuatu	100.0	3

* To be adopted by the Regional Association

INTERNATIONAL RIVER AND LAKE BASINS SOUTH WEST PACIFIC



TABLE 2.6 - (RA VI - EUROPE) PRINCIPAL RIVER AND LAKE BASINS (Page 1)

BASINS Sub-basins	Area km ²	Code (BB)	State/Territory in the Basin	Country % Area	Code (Cj)
ICELAND	103 000	01	Iceland	100.0	4
SHANNON	10 410	02	Ireland	100.0	5
REST OF IRELAND	74 021	03	(Ireland (United Kingdom		5 6
SCOTLAND	76 772	04	United Kingdom	100.0	6
ENGLAND-NORTH OF DEE AND HUMBER		05	United Kingdom	100.0	6
EAST ENGLAND-FROM THAMES TO HUMBER		06	United Kingdom	100.0	6
SOUTH ENGLAND-FROM THAMES TO BRISTOL		07	United Kingdom	100.0	6
WALES EXCEPT SEVERN		08	United Kingdom	100.0	6
CENTRAL ENGLAND		09	United Kingdom	100.0	6
NORTH AND WEST COAST	53 000	10	Spain	100.0	2
MINO) LIMA)	13 500 3 400	11	(Spain (Portugal	86.4 13.6	2 1
DUERO (DOURO)	94 500	12	(Spain (Portugal	83.2 16.8	2 1
TAJO (TAGUS)	82 000	13	(Spain (Portugal	68.9 31.1	2 1
WEST COAST		14	Portugal		1
SOUTH COAST		15	(Spain (Portugal		2 1
GUADIANA	82 725	16	(Spain (Portugal		2 1
GUADALQUIVIR	56 630	17	(Spain (Portugal		2 1
ENGLISH CHANNEL COAST		18	(France (Belgium		1 2
ATLANTIC COAST		19	France	100.0	1
SCHelde		20	(Belgium (France (Netherlands	58.8 39.4	2 1 4
MEUSE	41 400	21	(Belgium (France (Netherlands (Germany	41.8 29.7 17.6 10.9	2 1 4 3
SEINE	78 650	22	France	100.0	1
LOIRE	115 120	23	France	100.0	1
DORDOGNE	23 860	24	France	100.0	1
GARONNE	85 470	25	(France (Spain		1 2
EBRO	84 440	26	(Spain (France (Andorra	99.0 0.5 0.5	2 1 3
SOUTH-EAST COAST	96 600	27	Spain	100.0	2
LANGUEDOC COAST		28	France	100.0	1

TABLE 2.6 - (RA VI - EUROPE) PRINCIPAL RIVER AND LAKE BASINS (Page 2)

BASINS Sub-basins	Area km ²	Code (BB)	State/Territory in the Basin	Country % Area	Code (C _i)
COMMON TO NORWAY-SWEDEN		29	(Norway (Sweden		7 2
COMMON TO NORWAY-FINLAND-		30	(Norway		7
RUSSIAN FEDERATION			(Finland (Russian Federation		8 9
NORWAY ONLY		31	Norway	100.0	7
COMMON TO SWEDEN-FINLAND		32	(Sweden (Finland		2 8
SWEDEN		33	Sweden	100.0	2
DENMARK	43 069	34	Denmark	100.0	9
RHINE	185 000	35	(Germany	54.5	3
Moselle	28 100	36	(Switzerland	15.3	9
Aar	17 800		(Netherlands	13.5	4
Ill	4 800		(France	12.8	1
Neckar	14 000		(Austria	1.6	2
Nahe	4 100		(Luxembourg	1.4	8
Main	27 200		(Belgium	0.8	2
Lahn	5 900		(Liechtenstein*	0.5	5
Ruhr	4 500				
Lippe	4 900				
WESSEL (WESER)	52 800	37	Germany		3
NORTH SEA COAST (INCLUDING EMS) (Ems at Versen)	8 469	38	(Netherlands (Germany		4 3
RHONE	95 600	39	(France (Switzerland	92.3 7.7	1 9
ELBE	144 500	40	(Germany (Czech Republic (Germany (Austria (Poland	55.4 34.4 8.7 1.0 0.5	6 1 3 2 4
BALTIC SEA COAST		41	(Germany (Germany (Poland		3 6 4
DANUBE	815 850	42	(Romania	29.3	7
Inn	25 700	43	(Former Yugoslavia	22.5	5
Tisza-Mures	139 078	44	(Hungary	11.7	4
Sava	93 720	45	(Austria	10.0	2
Drava	40 490	46	(Germany	7.0	3
Velika Morava	37 400	47	(Bulgaria (Slovakia (C.I.S. (Czech Republic (Switzerland (Italy (Poland (Albania	5.3 5.2 0.4 0.3 0.05 0.02	8 1 9 1 3 4 6
PO	70 100	48	(Italy (Switzerland		3 9
VENETIAN COAST		49	(Italy (Switzerland		3 9
CORSICA		50	France		1
SARDINIA			Italy		3
SOUTHERN ITALY		51	Italy	100.0	3
FINLAND		54	Finland	100.0	8

* To be adopted by the Regional Association

TABLE 2.6 - (RA VI - EUROPE) PRINCIPAL RIVER AND LAKE BASINS (Page 3)

BASINS Sub-basins	Area km ²	Code (BB)	State/Territory in the Basin	Country % Area	Code (C.)
WEST BALTIC COAST		56	Poland	100.0	4
ODRA (ODER)	126 000	57	(Poland (Germany (Czech Republic	82.4 10.4 7.2	4 6 1
WISLA (VISTULA)	196 840	58	(Poland (Slovakia (Former USSR	90.9 1.4 7.7	4 1 9
ADRIATIC COAST (NORTH)		59	Former Yugoslavia	100.0	5
ADRIATIC COAST (SOUTH)		60	(Albania (Greece		6 2
GREECE		61	Greece	100.0	2
VARDAR (AXIOS)	24 662	63	(Former Yugoslavia (Greece		5 2
NESTA (NESTOS)	6 178	64	(Bulgaria		8
STRUHA (STRIMON)	16 553		(Greece (Former Yugoslavia		2 5
MARICA (MERIC NEHRI)	14 560	65	(Bulgaria (Turkey (Greece		8 6 2
BLACK SEA COAST (EAST)		66	(Romania (Bulgaria (Turkey		7 8 6
NORTHERN DISTRICT		70	Russian Federation	100.0	9
KOLA PENINSULA		71	Russian Federation	100.0	9
KARELIA, NORTH WEST AND ESTONIA		72	Former USSR	100.0	9
WEST DVINA*/DAUGAVA AND RIVERS BETWEEN WEST DVINA/DAUGAVA AND NEMAN/NEMUNAS	360 000	73	Former USSR.	100.0	9
NEMAN/NEMUNAS AND KALININGRAD	98 200**	74	(Former USSR (Poland		9 4
VOLGA	1 360 000				
Upper Volga		75	Russian Federation	100.0	9
Kama	522 000	76			
Lower Volga		77			
DOM	422 000	78	C.I.S.	100.0	9
UPPER DNIEPER/DNIPRO AND BUG	593 540***	79	C.I.S.	100.0	9
MIDDLE AND LOWER DNIEPER/DNIPRO		80	C.I.S.	100.0	9
BLACK SEA WEST OF DNIEPER/DNIPRO		81	(C.I.S. (Poland		9 4
BLACK SEA EAST OF DNIEPER/DNIPRO		82	C.I.S.	100.0	9
SEA OF AZOV		83	C.I.S.	100.0	9
NORTHERN CAUCASUS	355 100	84	Former USSR	100.0	9
EASTERN TRANSCAUCASUS		85	Former USSR	100.0	9
BLACK SEA (NORTH AND EAST COAST)	53 700	87	Turkey	100.0	6
BLACK SEA (SOUTH COAST)		88	Turkey	100.0	6

* Area of Dvina 87 900 km²

** Area of Neman only

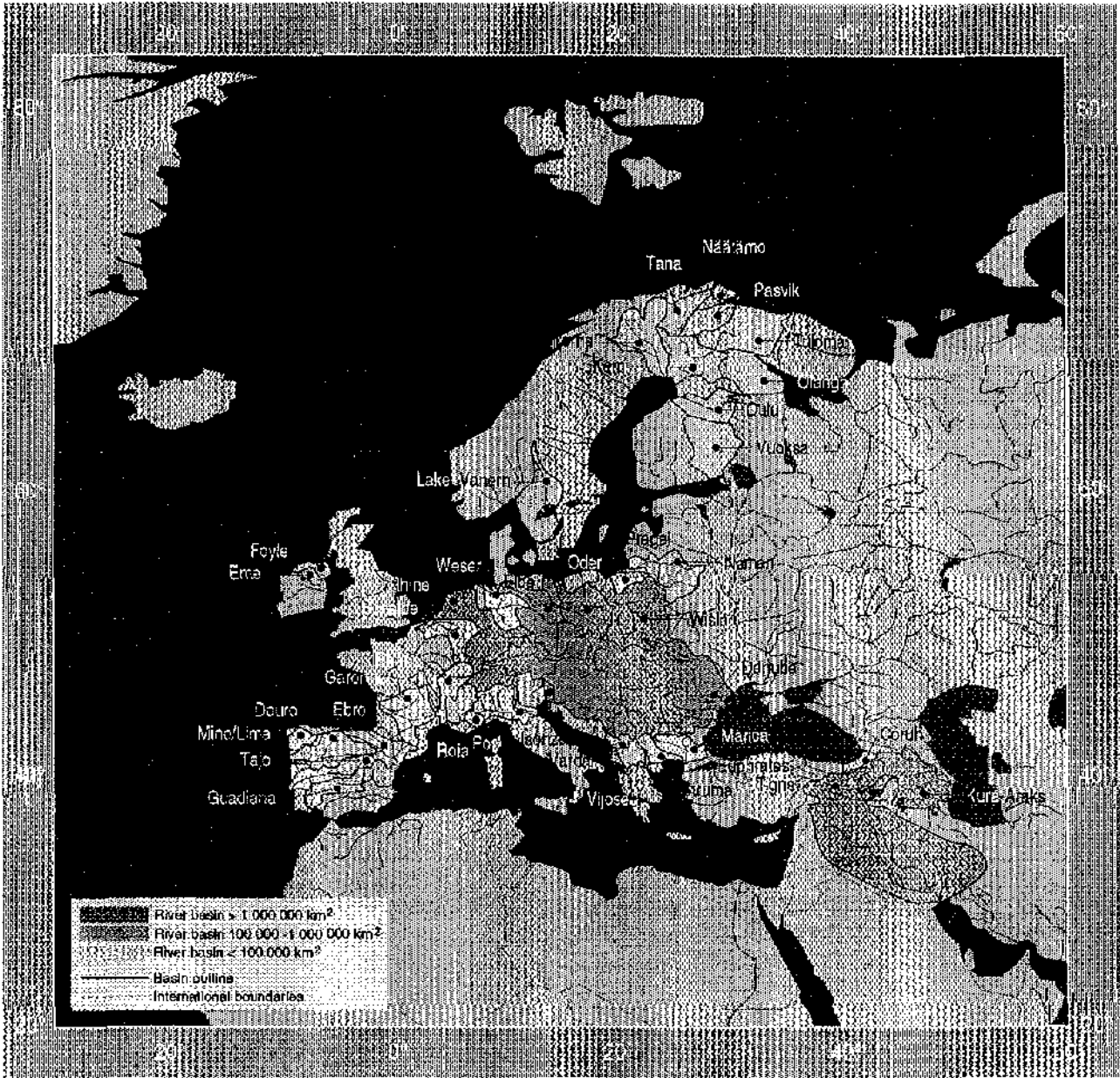
*** Area of Dnieper 504 000 km²

TABLE 2.6 - (RA VI - EUROPE) PRINCIPAL RIVER AND LAKE BASINS (Page 4)

BASINS Sub-basins	Area km ²	Code (BB)	State/Territory in the Basin	Country % Area	Code (C _i)
CASPIAN SEA (WEST)		89	Iran (Region II)	100.0	4
KURA-ARAKS	225 000	90	(Former USSR (Turkey (Iran [Region II])	62.3 25.3 12.4	9 6 4
TURKISH MEDITERRANEAN COAST		91	(Turkey (Greece		6 2
ASI	13 300	92	(Syrian Arab Rep. (Turkey (Lebanon	73.0 15.0 12.0	3 6 8
EASTERN MEDITERRANEAN COAST		93	(Syrian Arab Rep. (Lebanon (Israel		3 8 5
INTERNAL BASINS AND GULF OF AQABA		94	(Syrian Arab Rep. (Lebanon (Israel (Jordan (Saudi Arabia [Region II])		3 8 5 7 6
EUPHRATES-TIGRIS	778 834	95	(Iraq [Region III] (Turkey (Iran [Region II] (Syrian Arab Rep.	59.1 19.6 14.1 7.2	5 6 4 3

INTERNATIONAL RIVER AND LAKE BASINS

EUROPE



III - NATIONAL AGENCIES DEALING WITH HYDROLOGY AND WATER RESOURCES

TABLES 3.1 to 3.9

Explanatory Notes

The national Hydrological Services or Agencies of WMO Members are listed in six tables (Tables 3.1 to 3.6), one for each of the six WMO Regions. Explanation of the symbols used in these tables is given below in the order of the column titles:

Column (1) - State or Territory:

- Type of inter-Agency co-ordination
- Name and address of Agency
- Responsible authority (ministry)

This column lists, under the name of each WMO Member, the national Agencies dealing with operational hydrology and water resources, together with their addresses and the authority or ministry to which each Agency reports. Information on the inter-Agency co-ordination is also provided, which may be of the following types:

- All services are combined (one Agency only);
- Co-ordination is carried out by one of the Agencies listed (Agency number is indicated);
- Co-ordination is carried out by a separate national Agency;
- Co-ordination is *ad hoc*, when needed;
- Other.

Column (2) - Main activities of Agency: The letters used in the table indicate the activities as follows:

- G - General hydrology
- H - Hydropower production
- A - Agriculture (irrigation)
- W - Water supply
- F - Flood control
- P - Pollution control
- N - Navigation
- T - Other

Column (3) - Level (of activity):

- N - National
- R - Regional (sub-national)

Column (4) - Hydrological stations: the sub-column headings A to K indicate the types of networks operated by each agency as follows:

- A - Hydrometric observations
- B - Groundwater observations
- C - Climatological observations for hydrological purposes
- D - Snow
- E - Lakes (stage)
- F - Glaciers (advance and retreat)
- G - Estuaries
- H - Ice thickness in fresh water bodies
- I - Soil moisture
- J - Sediment discharge
- K - Water quality (physical and chemical)

The involvement of the Agency in operating these networks in the country is shown by the numbers 1, 2 and 3 as follows:

- 1 - The Agency mainly responsible for these networks in the country;
- 2 - An Agency with secondary involvement;
- 3 - Other Agency (ies) operating these networks.

Column (5) - Yearbooks or summaries, and Column (6) - Data catalogues: both these columns are coded as for Column (4) (Hydrological stations) but only for categories A - Hydrometric observations, B - Groundwater observations and C - Climatological observations for hydrological purposes.

Tables 3.7 to 3.9 provide summaries, by WMO Region, respectively, of: national Hydrological Agencies; operation of hydrological networks; and activities of national Agencies.

III - ORGANISMES NATIONAUX S'OCCUPANT DE L'HYDROLOGIE ET DE LA MISE EN VALEUR DES RESSOURCES EN EAU

TABLEAUX 3.1 à 3.9

Notes explicatives

Les services ou organismes hydrologiques nationaux des Membres de l'OMM font l'objet de six tableaux (tableaux 3.1 - 3.6), qui correspondent chacun à l'une des six Régions de l'OMM. On trouvera ci-après, dans l'ordre des titres de colonne, l'explication des symboles utilisés dans ces tableaux.

Colonne (1) - Etat ou territoire :

- Type de coordination interinstitutions
- Nom et adresse de l'organisme
- Autorité responsable (ministère)

Dans cette colonne sont indiqués, sous le nom de chaque Membre de l'OMM, les organismes nationaux qui s'occupent de l'hydrologie opérationnelle et de la mise en valeur des ressources en eau, ainsi que leurs adresses et l'autorité ou le Ministère dont ils relèvent. Y sont également fournies des informations sur le type de coordination interinstitutions :

- Tous les services sont regroupés (en un seul organisme)
- La coordination est assurée par l'un des organismes énumérés (le numéro de l'organisme est indiqué)
- La coordination est assurée par un organisme national distinct
- La coordination est assurée selon les besoins
- Autres types de coordination

Colone (2) - Principales activités de l'organisme : Les lettres utilisées dans le tableau indiquent les activités comme suit :

- | | | |
|---|---|--------------------------------------|
| G | - | Hydrologie générale |
| H | - | Production d'énergie hydroélectrique |
| A | - | Agriculture (irrigation) |
| W | - | Approvisionnement en eau |
| F | - | Maîtrise des crues |
| P | - | Lutte contre la pollution |
| N | - | Navigation |
| T | - | Divers |

Colonne (3) - Niveau (d'activité) :

- | | | |
|---|---|----------|
| N | - | National |
| R | - | Régional |

Colonne (4) - Stations hydrologiques : Les en-têtes des colonnes A à K indiquent le type de réseau exploité par chaque organisme, comme suit :

- A - Observations hydrométriques
- B - Observations concernant les eaux souterraines
- C - Observations climatologiques à des fins hydrologiques
- D - Neige
- E - Lacs (hauteur d'eau)
- F - Glaciers (avance et retrait)
- G - Estuaires
- H - Epaisseur de la glace dans les masses d'eau douce
- I - Humidité du sol
- J - Débit solide
- K - Qualité de l'eau (physique et chimique)

La participation de l'organisme à l'exploitation des réseaux en question dans le pays concerné est indiquée par les chiffres 1, 2 et 3, dont la signification est la suivante :

- 1 - Principal organisme responsable de ces réseaux dans les pays
- 2 - Organisme jouant un rôle secondaire
- 3 - Autre(s) organisme(s) exploitant ces réseaux

Colonne (5) - Annuaire ou résumés, et colonne (6) - Catalogues de données : Dans ces deux colonnes on utilise les mêmes codes que dans la **colonne (4) (Stations hydrologiques)**, mais uniquement pour les catégories A (observations hydrométriques), B (observations concernant les eaux souterraines) et C (observations climatologiques à des fins hydrologiques).

Les tableaux 3.7 à 3.9 sont des états récapitulatifs qui indiquent, par Région de l'OMM, des chiffres concernant respectivement : les organismes hydrologiques nationaux; l'exploitation des réseaux hydrologiques et les activités des organismes nationaux.

III - НАЦИОНАЛЬНЫЕ АГЕНТСТВА, СВЯЗАННЫЕ С ГИДРОЛОГИЕЙ И ВОДНЫМИ РЕСУРСАМИ

ТАБЛИЦЫ 3.1-3.9

Пояснительные записки

Национальные гидрологические службы или агентства членов ВМО перечислены в шести таблицах (таблицы 3.1-3.6) по одной для каждого из шести Регионов ВМО. Пояснения символов, использованных в этих таблицах, приводятся ниже в порядке заголовков колонок:

Колонка (1) - Государство или территория:

- Тип межагентской координации
- Название и адрес агентства
- Власти, несущие ответственность (министерство)

В данной колонке под названием каждого члена ВМО перечисляются национальные агентства, связанные с оперативной гидрологией и водными ресурсами, с указанием их адресов и властей или министерства, которому подотчетно каждое агентство. Также предоставляется информация о межагентской координации, которая может быть следующих типов:

- Все обслуживание объединено (только одно агентство)
- Координация осуществляется одним из перечисленных агентств (номер агентства указывается)
- Координация осуществляется отдельным национальным агентством
- Координация осуществляется на специальной основе, по мере необходимости
- Другие виды координации

Колонка (2) - Основные виды деятельности агентства: для указания видов деятельности в таблице используются следующие буквы:

- G - Общая гидрология
- H - Производство электроэнергии
- A - Сельское хозяйство (ирригация)
- W - Водоснабжение
- F - Управление паводками
- P - Контроль загрязнения
- N - Навигация
- T - Другие виды деятельности

Колонка (3) - Уровень (деятельности):

- N - Национальный
- R - Районный, областной (по внутринациональному делению)

Колонка (4) - Гидрологические станции: в заголовках подколонок буквами от A до K указываются следующие типы сетей, эксплуатируемых каждым агентством:

- A - Гидрометрические наблюдения
- B - Наблюдения за подземными водами
- C - Климатологические наблюдения для гидрологических целей
- D - Снег

Е	-	Озера (уровень)
F	-	Ледники (наступление и отступление)
G	-	Эстуарии
H	-	Толщина льда в пресноводных объектах
I	-	Почвенная влага
J	-	Расход наносов
K	-	Качество воды (физическое и химическое)

Участие агентства в эксплуатации этих сетей в стране указывается с помощью цифр 1, 2 и 3 следующим образом:

1	-	Агентство, в основном ответственное за эти сети в стране
2	-	Агентство со вспомогательными функциями
3	-	Другое(ие) агентство(а), эксплуатирующее(ие) эти сети

Колонка (5) - Ежегодники или резюме и колонка (6) - Каталоги данных: обе эти колонки кодируются как и колонка (4) (Гидрологические станции), но только для категорий: А - Гидрометрические наблюдения; В - Наблюдения за подземными водами; и С - Климатологические наблюдения для гидрологических целей.

В таблицах 3.7-3.9 предоставляются резюме по регионам ВМО, соответственно касающиеся: национальных гидрологических агентств; функционирования гидрологических сетей; а также деятельности национальных агентств.

III - ORGANISMOS NACIONALES QUE SE OCUPAN DE HIDROLOGIA Y RECURSOS HIDRICOS

CUADROS 3.1 a 3.9

Notas explicativas

Los servicios u organismos hidrológicos de los Miembros de la OMM se enumeran en seis cuadros (3.1 a 3.6), uno por cada una de las seis Regiones de la OMM. A continuación se proporciona la explicación de los símbolos utilizados en estos cuadros, siguiendo el orden de los títulos de las columnas:

Columna (1) - Estado o Territorio:

- Tipo de coordinación entre organismos
- Nombre y dirección del organismo
- Autoridad responsable (Ministerio)

En esta columna se enumeran, bajo el nombre de cada Miembro de la OMM, los organismos nacionales que se ocupan de hidrología operativa y recursos hídricos, además de su dirección y las autoridades o ministerio de los cuales depende cada organismo. También se proporciona información sobre la coordinación entre organismos, que puede corresponder a alguno de los siguientes tipos:

- todos los servicios están combinados (un solo organismo);
- la coordinación es realizada por uno de los organismos enumerados (se indica el número del organismo);
- la coordinación es realizada por un organismo nacional diferente;
- la coordinación es *ad hoc*, según las necesidades;
- otros.

Columna (2) - Principales actividades del organismo: Las letras usadas en el cuadro indican las actividades según el siguiente detalle:

- G - Hidrología general
- H - Producción de energía hidroeléctrica
- A - Agricultura (irrigación)
- W - Abastecimiento de agua
- F - Control de las inundaciones
- P - Control de la contaminación
- N - Navegación
- T - Otros

Columna (3) - Nivel (de actividad):

- N - Nacional
- R - Regional (subnacional)

Columna (4) - Estaciones hidrológicas: Los encabezados A a K de las subcolumnas indican los tipos de redes que explota cada organismo, según el siguiente detalle:

- A - Observaciones hidrométricas
- B - Observaciones del agua subterránea
- C - Observaciones climatológicas con fines hidrológicos
- D - Nieve
- E - Lagos (altura)
- F - Glaciares (avance y retroceso)
- G - Estuarios
- H - Espesor del hielo en los cuerpos de agua dulce
- I - Humedad del suelo
- J - Transporte de sedimentos
- K - Calidad del agua (física y química)

La participación del organismo en la explotación de estas redes en el país se indica con los números 1, 2 y 3, según el siguiente detalle:

- 1 - el principal organismo responsable de estas redes en el país;
- 2 - un organismo con participación secundaria;
- 3 - otro(s) organismo(s) que explotan estas redes.

Columna (5) - Anuarios o resúmenes, y Columna (6) - Catálogos de datos: Ambas columnas están codificadas como la Columna 4) (Estaciones hidrológicas), pero sólo para las categorías A - Observaciones hidrométricas, B - Observaciones del agua subterránea y C - Observaciones climatológicas con fines hidrológicos.

Los Cuadros 3.7 a 3.9 ofrecen resúmenes por Región de la OMM de los organismos hidrológicos nacionales, la explotación de las redes hidrológicas y las actividades de los organismos nacionales respectivamente.

TABLE 3.1 - (RA 1 - AFRICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 1

STATE OR TERRITORY	Type of co-ordination	Main activities of Agency	Level	Hydrological stations											Yearbooks or summaries			Data catalogues			
Name and address of Agency	Responsible authority (Ministry)	(1)	(2)	(3)	(4)											(5)			(6)		
					A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Algeria																					
Co-ordination: All services combined																					
1	AGENCE NATIONALE DES RESSOURCES Hydrauliques (ANRH)	G AWF	N		1									1	1	1	1		1	1	
Ave Mohammedi, Clairbois, Birmourad Rais, Alger																					
Ministère de l'Equipement																					
Angola																					
No information supplied																					
Benin																					
Co-ordination by agency 1																					
1	Direction de l'Hydraulique	G AWF	N		1	1			1							1	1		1		
B.P. 385, Cotonou																					
Ministère des Travaux Publics, Mines et Energie																					
2	Direction de l'ASECNA	G	N				1						1					1			1
Cotonou BP 379																					
Ministère des Transports, Postes et Télécommunications																					
Botswana																					
Co-ordination: All services combined																					
1	Department of Water Affairs, Hydrology Division	G AWF	N		1	1							1	1	1	1	1		1	1	
Private Bag 0029, Gaborone																					
Ministry of Minerals and Water Affairs																					
Burkina Faso																					
Co-ordination by agency 1																					
1	Direction de l'Hydraulique et de l'Equipement Rural	G	N		1	1	1		1					1	1	1	1		1	1	
B.P. 7025, Ouagadougou																					
Ministère du Developpement Rural																					
2	DRSTOM	G	N		2	2			2				2	2		2	2				
B.P. 182, Ouagadougou 01																					

TABLE 3.1 - (RA I - AFRICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 2

STATE OR TERRITORY			Hydrological stations											Yearbooks or summaries			Data catalogues			
Type of co-ordination	Name and address of Agency	Main activities of Agency	Level												(5)			(6)		
Responsible authority (Ministry)	(1)	(2)	(3)	(4)																
				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Burundi																				
Co-ordination: All services combined																				
1	Departement de l'Hydrométéorologie, Service Météorologique (IGEBU) B.P. 331, Bujumbura	G	N	1	1										1	1				
Cameroon																				
Co-ordination: Ad hoc																				
1	Centre de Recherche Hydrologique (IRGM) B.P.4110, Yaoundé Ministère de la Recherche Scientifique et Technique	G	N	1									1		1			1		
2	Direction des Eaux Souterraines Yaoundé Ministère des Mines, de l'Eau et de l'Energie	G	N		1															
3	Direction de la Meteorologie Nationale BP 186 Douala Ministère des Transports	G	N			1											1			1
Cape Verde																				
No information supplied																				
Central African Republic																				
Co-ordination: Not specified																				
1	Service de l'Hydrologie - Direction de la Météorologie Nationale B.P. 224, Bangui Directeur de la Météorologie	GHAW N	N	1	1	2							1		1	1	2	1	1	1
Chad																				
Co-ordination by agency 1																				
1	Service hydrologique du Tchad B.P. 429, N'Djamena Ministère d'Etat à l'Agriculture et au Développement rural	G	N	1				1							1			1		

Page 3

[illegible]

TABLE 3.1 - (RA I - AFRICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 4

STATE OR TERRITORY Type of co-ordination Name and address of Agency Responsible authority (Ministry) (1)	Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
			(4)											(5)			(6)		
			A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Côte d'Ivoire			(continued)																
5 Direction de l'Assainissement et des Infrastructures	P.T	N																	
Ministère de l'Environnement, de la Construction et de l'Urbanisme																			
6 Compagnie Ivoirienne d'Electricité CIE	H	N																	
-																			
Djibouti			No information supplied																
Egypt																			
Co-ordination by agency 2																			
1 The Meteorological Authority Meteorology P.O. No. 11784, Cairo Ministry of Civil Aviation	G	N			1									1				1	
2 Nile Water Control P.O. Eldwaween, Cairo Ministry of Irrigation	G	N		1	1		1					1	1	1	1		1	1	
Equatorial Guinea			No information supplied																
Eritrea			No information supplied																
Ethiopia																			
Co-ordination: Separate national agency																			
1 Ethiopian Valleys Development Studies Authority P.O. Box 1086, Addis Ababa, Ethiopia	GHA FP	N		1	1	2		1				1	1	1	2		1		2
2 National Meteorological Services Agency P.O. Box 1090, Addis Ababa National Water Resources Commission	G	N					1							1					

TABLE 3.1 - (RA 1 - AFRICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 5

STATE OR TERRITORY	Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)			
Type of co-ordination			Name and address of Agency Responsible authority (Ministry) (1)	A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
France (Réunion)			No information supplied																	
Gabon																				
Co-ordination: Ad hoc																				
1	S.E.E.G. B.P. 2187 Libreville Min. d'Etat chargé des Travaux Publics, des Transports et de l'Aéronaut. Civile	G	N		1															
2	Direction de l'Exploitation Météorologique B.P. 3144, Dakar Min. d'Etat chargé des Travaux Publics, des Transports et de l'Aéronaut. Civile	G	N		1											1				
3	Direction de la Météorologie Nationale B.P. 377, Libreville Min. d'Etat chargé des Travaux Publics, des Transports et de l'Aéronaut. Civile	G	N		2											2			2	
Gambia																				
Co-ordination: Not specified																				
1	Water Resources Department 7E Marine Parade, Banjul Ministry of Agriculture, Water and Rural Development	G	N																	
Ghana																				
Co-ordination by agency 2																				
1	Hydrological Division of Architectural & Engineering Services Corporation P.O. Box 3969, Accra Ministry of Works and Housing	G	N		1	3		1		1			1	1		1			1	1
2	Water Resources Research Institute P.O. Box M.32, Accra Council for Scientific and Industrial Research	G	T	N	2	1	3						1	2		1				1
3	Ghana Water and Sewerage Corporation P.O. Box M.194, Accra Ministry of Works and Housing	W	N		3	1	3		1					1						

TABLE 3.1 - (RA I - AFRICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 6

STATE OR TERRITORY																			
Type of co-ordination	Main activities of Agency	Level	Hydrological stations											Yearbooks or summaries			Data catalogues		
Name and address of Agency Responsible authority (Ministry) (1)	(2)	(3)	(4)											(5)			(6)		
			A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Ghana			(continued)																
4 Volta River Authority P.O. Box M.77, Accra Ministry of Fuel and Power	H	N	3		3		1						3						
5 Irrigation Development Authority P.O. Box 154 Accra Ministry of Agriculture	A	N	3		3		1						3						
6 Meteorological Services Department P.O. Box 87, Legon Ministry of Transport and Communications	G	N			1											1			1
Guinea																			
Co-ordination: Not specified																			
1 Direction Nationale de l'Hydraulique (DNH), Division de l'Hydraulique BP Conakry Ministère des Ressources Naturelles	G	N	2																
Guinea Bissau																			
Co-ordination: Not specified																			
1 Division de l'Hydrologie - Direction Générale des Ressources Hydriques - Secrétariat d'Etat des Ressources Naturelles	G	N																	
Kenya																			
Co-ordinations: Ad hoc																			
1 Surface Water Branch P.O. Box 49720, Nairobi Ministry of Water Development	G	N	1	1	2		1		1				1	1					
2 Kenya Meteorological Department P.O. Box 30259, Nairobi Ministry of Transport and Communications	G	N			1											1			1

TABLE 3.1 - (RA I - AFRICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 7

STATE OR TERRITORY			Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination Name and address of Agency Responsible authority (Ministry) (1)					(4)											(5)			(6)		
					A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Lesotho																					
Co-ordination: All services combined																					
1	Department of Water Affairs	G		N		1															
	P.O. Box 772, Maseru																				
	-																				
Liberia																					
Co-ordination: All services combined																					
1	Liberia Hydrological Service	G		N		1															
	P.O. Box 9024, Monrovia																				
	Ministry of Lands, Mines and Energy																				
Libyan Arab Jamahiriya																					
Co-ordination: Not specified																					
1	General Water Authority																				
	P.O. Box 399 Tripoli																				
	-																				
Madagascar																					
Co-ordination by agency 1																					
1	Météorologie Nationale (Hydrométéorologie)	G		N		1		1				1	1	2		1	1		1		
	B.P. 1254, Antananarivo																				
	Ministère des Transports, de la Météorologie et du Tourisme																				
2	Direction de l'Energie et de l'Eau Service de l'eau et de l'hydrogéologie, B.P. 280 Antananarivo	G W P		N		1						2		1		1			1		
	Ministère de l'Industrie, de l'Energie et des Mines																				
3	Orstom	G		N		2															
	BP 434 101 Antananarivo																				
	-																				
Malawi																					
Co-ordination: Ad hoc																					
1	Water Resources Branch, Water Department Private Bag 390, Lilongwe 3 Ministry of Works	G WFP		N		1	1	2		1			1	1		1	1	2	1		
2	Department of Meteorological Services P.O. Box 2, Chileka	G		N			1									1			1		

TABLE 3.1 - (RA I - AFRICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 8

STATE OR TERRITORY	Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination			A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Name and address of Agency Responsible authority (Ministry) (1)																			
Mali																			
Co-ordination: Ad hoc																			
1 Direction Nationale de l'Hydraulique et de l'Energie B.P. 66 Bamako Ministère du Développement Industriel et des Travaux Publics	G	N	1	1		1				1	1	1	1				1	1	
2 Service de la Météorologie B.P. 237, Bamako Ministère des Transports et Télécommunications	G	N			1											1			1
Mauritania																			
No information supplied																			
Mauritius																			
Co-ordination: All services combined																			
1 Central Water Authority, Division of Hydrology Royal Road Saint Paul. Ministry of Water Resources, Postal Affairs and Sewerage	GHAWFP	NR	1	1		1				3	1	1	1	1			1	1	
2 Meteorological Service St. Paul's Road, Vacoas Prime Minister's Office	A T	N			1					1		2			1				1
Morocco																			
Co-ordination: Ad hoc																			
1 Direction de l'Hydraulique Rabat Ministère des Travaux Publics	G	N	1	1	3	1	1		1	1	1	1	1	1			1	1	
2 Direction des Eaux et Forêts et de la Conservation des Sols Rabat Ministère de l'Agriculture	G	N	2		2					2									
3 Office National de l'Electricité Casablanca	G	N	3			2	2												
4 Direction de la Météorologie Nationale B.P. 8106 Casa-Oasis, Casablanca-Anfa Ministère des Travaux Publics	G	N			1	3				3									

TABLE 3.1 - (RA I - AFRICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 9

STATE OR TERRITORY Type of co-ordination Name and address of Agency Responsible authority (Ministry) (1)	Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
			(4)											(5)			(6)		
			A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Morocco		(continued)																	
5 Institut National de Recherches Agronomiques Rabat Ministère de l'Agriculture	G	N			3							3							
6 Institut Scientifique, Service de Physique du Globe Rabat -	G	N			3														
Mozambique																			
Co-ordination: Ad hoc																			
1 Direcção Nacional de Aguas C.P. 1611, Maputo -	G WF	N		1	2		1		1			1	1	1	2		1	2	
2 Servicos de Geologia e Minas Maputo -	G	N			1														
3 Servico Meteorologico de Moçambique C.P. 256, Canphumo -	G	N			1										1			1	
Namibia																			
Co-ordination: Not specified																			
1 Dept of Water Affairs Private Bag 13193, Windhoek 9000 Ministry of Agriculture, Water and Rural Development	G	N		1	1														
Niger																			
Co-ordination by agency 1																			
1 Direction des Ressources en Eau - Ministère de l'Hydraulique et de l'Environnement	G	N		1								2	2	1				1	
2 Centre ORSTOM B.P.11416 Niamey -	G	N		2	2							1	1						

TABLE 3.1 - (RA I - AFRICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 10

STATE OR TERRITORY				Hydrological stations											Yearbooks or summaries			Data catalogues		
Type of co-ordination	Name and address of Agency	Main activities of Agency	Level												(5)			(6)		
	Responsible authority (Ministry)	(2)	(3)	(4)																
	(1)			A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
(continued)																				
Niger			N			1														
3	Direction des Ressources en Eau, Service Hydrogéologie Ministère de l'Hydraulique et de l'Environnement	G	N			1											1			1
4	Service Météorologique du Niger B.P. 218, Niamey	G	N			1											1			1
Nigeria																				
Co-ordination: All services combined																				
1	Federal Department of Water Resources New Secretariat, Phase 1, 3rd Floor, Ikoyi Rd, Lagos Federal Ministry of Agriculture	G AWF	N	1		2							1	1	1	1	2	1	1	2
Portugal (Madeira)																				
Co-ordination by agency 1																				
1	Instituto Nacional de Meteorologia e Geofisica Rua C, Aeroporto, 1700 Lisboa, Portugal Ministerio das Obras Publicas, Transportes e Comunicacoes	G A	N			1											1			1
Rwanda																				
Co-ordination by agency 1																				
1	Direction de l'Aéronautique B.P. 720, Kigali Ministère des Transports et des Communications	G A	N	2		2									2		2			
Sao Tome and Principe																				
No information supplied																				
Senegal																				
Co-ordination: Ad hoc																				
1	Direction du Génie Rural et de l'Hydraulique B.P. 402 MDRH-Dakar Ministère de l'Hydraulique, Dakar	G	N	1				1		1			1		1					
2	Section Hydrologie B.P. 4021 MDRH-Dakar Ministère de l'Hydraulique, Dakar	G	N	2				2		2			2		2					

TABLE 3.1 - (RA I - AFRICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 11

STATE OR TERRITORY Type of co-ordination Name and address of Agency Responsible authority (Ministry) (1)	Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
			(4)											(5)			(6)		
			A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Senegal			(continued)																
3 ORSTOM BP 1386-Dakar	G	N	2		2									2			2		
Seychelles																			
Co-ordination: Ad hoc																			
1 Seychelles Water Authority P.O. Box 34, Unity House, Victoria, Mahe	GHAW P	N	1	1	2							1		1	1	2			
Sierra Leone																			
Co-ordination: Separate national agency																			
1 Ministry of Works, New England, Freetown	G	N	1		2				1			1		1	1		1		1
2 Guma Valley Water Company	G	N	2		3												2		2
3 Ministry of Agriculture and Natural Resources	G	N	3																
4 Meteorological Department F.18 Charlotte Street, Freetown Ministry of Transport and Communication	G	N			1														
5 Fourah Bay College University of Sierra Leone	G	N			3														
Somalia																			
Co-ordination by agency 1																			
1 Department of Civil Aviation, Meteorological Service P.O. Box 310, Mogadishu Ministry of Transport	G	N			1														
2 Hydrology Section, Department of Land and Water Resource Mogadishu Ministry of Agriculture	G	N	1											1			1		

TABLE 3.1 - (RA 1 - AFRICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 12

STATE OR TERRITORY	Main activities of Agency	Level	Hydrological stations											Yearbooks or summaries			Data catalogues			
Type of co-ordination	Name and address of Agency																			
Responsible authority (Ministry)																				
(1)	(2)	(3)	(4)											(5)			(6)			
			A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C	
South Africa																				
Co-ordination: Ad hoc																				
1	Division of Hydrology Private Bag X313, Pretoria Department of Water Affairs	G	N	1	2	1		1		1			1	1	1			1		
2	Forest Research Institute P.O. Box 727, Pretoria Department of Forestry	G	N	2																
3	Geological Survey Private Bag X112, Pretoria Department of Mines	G	N			1														
4	Weather Bureau Private Bag X193, Pretoria Department of Transport	G	N			2										1			1	
Spain (Canary Islands)																				
Co-ordination by agency 1																				
1	Dirección General de Obras Hidráulicas, Centro de Estudios Hidrográficos Paseo Bajo Virgen del Puerto 3, Madrid 5	GH WFP	N	1	2	2							1	2	1	2	2	1	2	2
2	Instituto Nacional de Conservación Naturaleza Gran Vía San Francisco 37, Madrid 5 Ministerio de Agricultura	G AW P	N				2	1			1				3					
3	Instituto Geológico y Minero Rios Rosas 23, Madrid 3 Ministerio de Industria	W P	N	2	1								1		1			1		
4	Instituto Nacional de Meteorología Paseo de las Moreras, Apartado de Correos 285, Madrid 3	G AWFP	N			1	1				2				1				1	

TABLE 3.1 - (RA I - AFRICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 13

STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination	Name and address of Agency																			
	Responsible authority (Ministry) (1)			A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Sudan																				
Co-ordination: Ad hoc																				
1	Hydrology Division of Nile Water Department P.O. Box 878, Khartoum Ministry of Irrigation	GHAWFPN	NR	1	1		1		1			1	1	1	1		1	1		
2	National Water Administration P.O. Box 381, Khartoum Ministry of Energy and Mining	G W	N	2	1							1		2	1			1		
3	Meteorological Department P.O. Box 574, Khartoum -	G	N			1										1		1		
Swaziland																				
Co-ordination: All services combined																				
1	Service Water Resources Branch P.O. Box 57 - Mbabane - Swaziland Ministry of Natural Resources Land Utilization and Energy	G WFP	N	1	1							1		1		1				
Togo																				
Co-ordination: Not specified																				
1	Division de l'Hydrologie, Direction de l'Hydraulique et de l'Energie (DHE) B.P. 335, Lomé Ministère de l'Equipement, des Postes et Télécommunications	G	N	2																
Tunisia																				
Co-ordination: Separate national agency																				
1	Direction des Ressources en Eau et en Sol 41 rue de la Manoubia, Montfleury, Tunis Ministère de l'Agriculture	G	N	1	1							1	1				1	1		
2	Institut National de la Météorologie B.P.22 Aéroport de Tunis-Carthage -	G	N			1	1									1		1		
3	ORSTOM 5 Impasse Chahrazed El Menzah IV, Tunis	G	N	2			2					2								

TABLE 3.1 - (RA I - AFRICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 14

STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination	Name and address of Agency			(4)											(5)			(6)		
	Responsible authority (Ministry)			A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Uganda																				
Co-ordination: Ad hoc																				
1	Water Development Department P.O. Box 19, Entebbe Ministry of Land and Water Resources	G	N	1	1	1	1			1	1	1	1	1		1		1		
2	East African Meteorological Department, Uganda Region P.O. Box 7025 Kampala	G	N				2								2			1		
United Republic of Tanzania																				
Co-ordination by agency 1																				
1	Ministry of Water Development and Power, Hydrological Section P.O. Box 9153, Dar-es-Salaam Ministry of Water Development and Power	G	N	1	1	1						1		1			1	1		
Zaire																				
Co-ordination by agency 1																				
1	Régie des Voies Fluviales Kinshasa 1 Département des Transports et Communications	G	N	1																
2	Régie des Voies Maritimes Boma Département des Transports et Communications	G	N	2																
3	Service Géologique Kinshasa Département des Mines et Energie	G	N	3																
4	Laboratoire National Kinshasa Département des Travaux Publics et Aménagement du Territoire	G	N		1															
5	Institut National de Météorologie B.P. 4715, Kinshasa II Département des Transports et Communications	G	N		1										1			1		

TABLE 3.1 - (RA I - AFRICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 15

STATE OR TERRITORY			Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)						
Type of co-ordination Name and address of Agency Responsible authority (Ministry) (1)					(4)											(5)			(6)						
					A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C				
Zaire			(continued)																						
6 Inera-Yangambi - Département de L'Agriculture			G	N	2														2			2			
Zambia																									
Co-ordination: Ad hoc																									
1 Department of Water Affairs P.O. Box 50288, Lusaka Ministry of Agriculture and Water Development			G	N	1	1	1								1	1	1				1	1			
2 Meteorological Department P.O. Box 200, Lusaka Ministry of Power, Transport and Works			G	N	2	1						1				2	1				1				
Zimbabwe																									
Co-ordination: Ad hoc																									
1 Hydrological Branch P.O. Box 8132, Causeway, Harare Ministry of Water Resources and Development			G	N	1	1	2	1								1	2	1	1	2	1	1	2		
2 Department of Meteorology Box BE 150, Belvedere, Harare Ministry of Transport			GH W PN	NR	2	2	1	2								2	1	2	2	1	2			2	1

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Key: Main activities: G - General hydrology, H - Hydropower, A - Agriculture, W - Water supply,
F - Flood control, P - Pollution control, N - Navigation, T - Other.
Level: N - National, R - Regional.
Stations: A - Hydrometric, B - Groundwater, C - Climate, D - Snow, E - Lake levels, F - Glaciers,
G - Estuaries, H - Ice thickness, I - Soil moisture, J - Sediment, K - Water quality.
1, 2, 3 Indicate relative order of involvement of the Agency.
Yearbooks & Catalogues: as Stations.

TABLE 3.2 - (RA II - ASIA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 1

STATE OR TERRITORY			Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination Name and address of Agency Responsible authority (Ministry) (1)					(4)											(5)			(6)		
					A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Afghanistan, Islamic State of Co-ordination: Separate national agency																					
1	Meteorological Institute Post Box 2020, Kabul Afghan Meteorological Authority	GHAWFPN	NR	1	1	1	1					1	1	1	1	1	1	1	1		
Bahrain			No information supplied																		
Bangladesh																					
Co-ordination: Ad hoc																					
1	Directorate of Surface Water Hydrology BWDB, Dacca Ministry of Flood Control, Water Resources and Power	G	N	1	1				1			1			1	1		1	1		
2	Directorate of River Morphology, Research and Training Ministry of Flood Control, Water Resources and Power	G	N	2											2			2			
3	Inland Water Transport Authority Dacca Ministry of Shipping and Aviation	G	N	3											3			3			
4	Port Trusts Chittagonga Chalna Ministry of Railways, Highways and Ports	G	N	3											3			3			
5	Directorate of Ground Water Circle BWDB, Dacca Ministry of Flood Control, Water Resources and Power	G	N		1							1			1			1			
Cambodia			No information supplied																		
China																					
Co-ordination: Ad hoc																					
1	Bureau of Hydrology 1 Lane Two, Baiquang Road, Beijing Ministry of Water Resources and Electric Power	GH FP	NR	1	1		1	1		1	1	1	1	1	1	1		1	1		

TABLE 3.2 - (RA II - ASIA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 2

STATE OR TERRITORY	Type of co-ordination	Main activities of Agency	Level	Hydrological stations											Yearbooks or summaries			Data catalogues		
Name and address of Agency	Responsible authority (Ministry)	(2)	(3)	(4)											(5)			(6)		
(1)				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Democratic People's Republic of Korea																				
Co-ordination: All services combined																				
1	State Hydrometeorological Administration of DPR of Korea Oesong-dong, Central District Pyongyang	G	N	1	1	1	1	1	1	1	1	1	1	1	1	1		1		1
Hong Kong																				
Co-ordination by agency 1																				
1	Water Supplies Department WAN CHAI TOWER HONG KONG	G W	N	1	1	2							1	1	1	1	2	1	1	2
2	Royal Observatory Nathan Road, Kowloon HONG KONG	G	N			1											1			1
India																				
Co-ordination: Ad hoc																				
1	India Meteorological Department Lodi Road, New Delhi 110003 Ministry of Tourism and Civil Aviation	G	N			1											1			1
2	Central Water Commission Sewa Bhawan, R.K. Puram, New Delhi Ministry of Irrigation	G	N	1									1	1	1				1	
3	Central Ground-Water Board Jamnagar House, Mansingh Road, New Delhi Ministry of Agriculture and Irrigation	G	N			1														1
4	Geological Survey of India Calcutta 1 Ministry of Steel and Mines	G	N																	
Iran, Islamic Republic of																				
Co-ordination: Ad hoc																				
1	Bureau of Water Resources Investigations 81, North Felestine Ave., Tehran, IRAN Ministry of Energy	G	N	1	1	2	1	2					1	1	1	1	2			
2	Regional Water Authorities Ministry of Energy, Tehran, IRAN Ministry of Energy	GH WF	N	1	1	2	1	2		1			1	1				1	1	2

TABLE 3.2 - (RA II - ASIA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 3

STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination																				
Name and address of Agency																				
Responsible authority (Ministry)																				
(1)																				

TABLE 3.2 - (RA II - ASIA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 4

STATE OR TERRITORY				Hydrological stations										Yearbooks or summaries			Data catalogues				
Type of co-ordination				Main activities of Agency (2)	Level (3)	(4)										(5)			(6)		
Name and address of Agency Responsible authority (Ministry) (1)						A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B
Kazakhstan (Asia)					(continued)																
3 Ministry of Geology and Bowels Protection Almaty, Bogenbai Batyr ul., 115				G	N		1														
Kuwait																					
Co-ordination: Not specified																					
1 Meteorological Service P.O. Box 17 Directorate General of Civil Aviation																					
Kyrgyzstan																					
Co-ordination: Ad hoc																					
1 State Agency for Hydrometeorology for the Gov. of the Rep. of Kyrgyzstan Karasuiskaya St. 1, Bishkek 720017, Republic of Kyrgyzstan Government of the Republic of Kyrgyzstan				G	P	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Lao People's Democratic Republic																					
Maldives																					
Co-ordination: Ad hoc																					
1 Department of Meteorology Male, Republic of Maldives																					
2 Water and Sanitation Authority Male, Maldives Ministry of Health and Welfare				W P T	N		1								1						
Mongolia																					
Co-ordination: Ad hoc																					
1 Administration of the Hydrometeorological Service Gudamj October 5, Ulan Bator Council of Ministers				G	P	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2 Ministry of Water Economy Gudamj Natsagdorjyn 13, Ulan Bator				G		N	1							2		1			1		

TABLE 3.2 - (RA II - ASIA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 5

STATE OR TERRITORY	Type of co-ordination	Main activities of Agency	Level	Hydrological stations											Yearbooks or summaries			Data catalogues		
Name and address of Agency	Responsible authority (Ministry)	(2)	(3)	(4)											(5)			(6)		
(1)				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Myanmar																				
Co-ordination: Ad hoc																				
1	Department of Meteorology and Hydrology Kaba-Aye Pagoda Post Office, Kaba-Aye pagoda Road, Rangoon Ministry of Transport and Communications	G	N	1	1								1		1	1				
2	Irrigation Department - Ministry of Agriculture and Forest	G	N	2											2					
Nepal																				
Co-ordination: All services combined																				
1	Department of Irrigation, Hydrology and Meteorology Babar Mahal, Kathmandu Ministry of Food, Agriculture and Irrigation	G	N	1	1	1							1		1	1		1	1	1
Oman																				
Co-ordination: Ad hoc																				
1	Directorate General of Meteorology P.O. Box 6553, Ruwi Ministry of Communications	G	N			1										1				1
2	Directorate General of Water Resources and Irrigation P.O. Box 467, Muscat Ministry of Agriculture and Fisheries	G A	N	1	1	2							1		1	2				
3	Public Authority for Water Resources Post Box 5575, Ruwi -	G WF	N	1	1	2							1	1	1	1	2	1	1	2
Pakistan																				
Co-ordination by agency 1																				
1	Pakistan Meteorological Department 37-X, Block No. 6, P.E.C.H.S., P.O. Box 8017, Karachi 29 Ministry of Defence	T	N			1										1				1
2	Water and Power Development Authority WAPDA House, Lahore Ministry of Water and Power	G F T	N	1		2	1									2				2

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TABLE 3.2 - (RA 11 - ASIA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY																					
Type of co-ordination			Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues		
Name and address of Agency Responsible authority (Ministry) (1)					(4)											(5)			(6)		
					A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Russian Federation (Asia)																					
Co-ordination: Ad hoc																					
1	Chief Administration of the Hydrometeorological Service 12 Pavlik Morozov Street, Moscow D-376 Council of Ministers		G	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
2	Ministry of Geology Ul Bolshaja Gruzinskaja, Moscow D-4 -		G	N	1																
Saudi Arabia																					
Co-ordination: Ad hoc																					
1	Hydrology Division, Ministry of Agriculture and Water Riyadh Ministry of Agriculture and Water		G AMF	N	1	1	1					1	1	1	1	1	1	1	1		
Sri Lanka																					
Co-ordination by agency 1																					
1	Hydrology Division, Irrigation Department P.O. Box 1138, Colombo 7 -		G A F	N	1	1		1							1	1					
Tajikistan																					
No information supplied																					
Thailand																					
Co-ordination: Ad hoc																					
1	Royal Irrigation Department 811 Samsen Road, Bangkok 10300 Ministry of Agriculture and Cooperatives		GHAWFPN	N	1	2	3				1			1	2	2	3	1	2	1	
2	Meteorological Department 4353 Sukhumvit Road, Bangkok 10260 Ministry of Transport and Communications		G	N	2	1										2	1	2	1		
3	Electricity Generating Authority of Thailand Near Rama 6 Bridge, Nonthaburi Office of the Prime Minister		GH	N	3	2							3			3	2				

TABLE 3.2 - (RA II - ASIA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 8

STATE OR TERRITORY	Main activities of Agency	Level	Hydrological stations											Yearbooks or summaries			Data catalogues		
Type of co-ordination Name and address of Agency Responsible authority (Ministry) (1)	(2)	(3)	(4)											(5)			(6)		
			A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Thailand			(continued)																
4 Department of Energy Affairs Ban Phibuntham, Rama 1 Road, Bangkok 10330 Ministry of Science, Technology and Environment	GHA	NR	3	3								3	3	3	3		3	3	
5 Department of Mineral Resources Rama 6 Road, Bangkok 10400 Ministry of Industry	W	N	1									1		1			1		
Turkmenistan			No information supplied																
United Arab Emirates Co-ordination: Not specified																			
1 United A Emirates: Soil and Water Department P.B. No. 1509, DUBAI U.A.E Ministry of Agriculture and Fisheries	G A F	R	1	1	1							1	1	1	1	1	1	1	1
Uzbekistan Co-ordination: All services combined																			
1 Main Administration of Hydrometeorology 72, Observatorskaya St, Tashkent 700052	G	N	1																
Viet Nam Co-ordination: All services combined																			
1 Hydrometeorological Service of the Socialist Republic of Vietnam Dang Thai Than Street - No. 4, Hanoi	G	N	1	1								1	1	1					

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Key: Main activities: G - General hydrology, H - Hydropower, A - Agriculture, W - Water supply,

F - Flood control, P - Pollution control, N - Navigation, T - Other.

Level: N - National, R - Regional.

Stations: A - Hydrometric, B - Groundwater, C - Climate, D - Snow, E - Lake levels, F - Glaciers,

G - Estuaries, H - Ice thickness, I - Soil moisture, J - Sediment, K - Water quality.

1, 2, 3 Indicate relative order of involvement of the Agency.

Yearbooks & Catalogues: as Stations.

TABLE 3.3 - (RA III - SOUTH AMERICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 1

STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations										Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination				(4)										(5)			(6)		
Name and address of Agency Responsible authority (Ministry) (1)				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B
Argentina																			
Co-ordination: Ad hoc																			
1	Dirección General del Servicio Meteorológico Nacional (Departamentos de Hidrometeorología y de Climatología) Ministerio de Defensa, Fuerza Aérea Argentina - Comando de Regiones Aéreas	G	N		1	1	1	1	1	1	1		1	1	1	1	1	1	
2	Instituto Nacional de Ciencia y Técnica Hídricas Direccion National de Recursos Hídricos	G	N		3	2													
3	Servicio de Hidrografía Naval - Servicio de Meteorología de la Armada Ministerio de Defensa, Armada Argentina	G	N	R		2	3		1										
4	Prefectura Naval Argentina Ministerio de Defensa		N	N	1														
5	Aguas Argentinas	W P	N		1							1							
6	Direcciones Provinciales de Hidraulica (all together 23) One for each province	G	R		2	2	3	2											
Bolivia																			
Co-ordination: All services combined																			
1	Servicio Nacional de Meteorología e Hidrología Edificio La Urbana, 6 Piso, Avda Camacho No. 1485, La Paz Ministerio de Aeronáutica	G	N		1	1	1				1	1		1		1	1	1	

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TABLE 3.3 - (RA III - SOUTH AMERICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 5

STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)							
Type of co-ordination	Name and address of Agency Responsible authority (Ministry) (1)			(4)											(5)			(6)							
				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C					
Brazil					(continued)																				
22	Depart. de Aguas e Energia Eletrica do Estado de Sao Paulo - DAEE-SP Rua Diachuelo 115, 4 andar, Sao Paulo - SP -	GHAWFP T	R	3	2	3						2		2	2		2								
23	Depart. de Aguas e Energia Eletrica de Minas Gerais - DAEE-MG Av. Prudente de Moraes 1671, Belo Horizonte - MG -	GH WF T	R	3																					
24	Cia de Tecnologia de Saneamento Ambiental - CETESB Av. Prof. Frederico Herman Jr No. 345, Sao Paulo - SP -	G P T	R									3													
25	Fundacao Estadual de Engenharia do Meio Ambiente - FEEMA Rua Fonseca Teles 121, 15 andar, Rio de Janeiro - RJ -	G P T	R									3													
26	Fundacao Centro Tecnologico - CETEC Av. Jose Candido da Silveira 2000, Cx. Postal 2306, Belo Horizonte - MG -	G P T	R									3													
27	Superintendencia dos Recursos Hidricos e Meio Ambiente - SUREHMA Rua Engenheiro Reboucas 1206, Curitiba - PR -	G P T	R	3								3													
28	Centro de Estudos de Saneamento Basico - CESB-RS Rua Barao do Guaiba 781, Porto Alegre - RS -	G P T	R	3								3	3												

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STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)			
Type of co-ordination	Name and address of Agency Responsible authority (Ministry) (1)			(4)											(5)			(6)			
				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C	
Brazil																					
36	Instituto Nacional de Pesquisa do Amazonas - INPA Rua do Aleixo 1756, Km 4, Manaus - AM Secretaria de Planejamento da Presidência da República - SEPLAN	G P T	R	(continued)											3						
37	Instituto de Desenvolvimento Economico e Social do Para - IDESP Av. Nazare 871, Belem - PA	G A T	R	3	3												3	3			
Chile																					
Co-ordination: Other																					
1	Dirección General de Aguas (DGA) Morandé 59, Santiago Ministerio de Obras Públicas	G T	N	1	1	2	1	1	1	1			1	1				1	1	1	
2	Empresa Nacional de Electricidad S.A.(ENDESA) Casilla 1392, Santiago	G	N	2	3	2	2						2			1		2			
3	Dirección de Obras Portuarias Morandé 59, Santiago Ministerio de Obras Públicas	G	N	3						1											
4	División de Recursos Hidráulicos Ramon Nieto 920, Santiago Corporación de Fomento de la Producción (CORFO)	G	N		1								2			1		1			
5	Dirección Meteorológica de Chile Casilla 717, Santiago Ministerio de Defensa	G	N			1											1			1	
6	Dirección de Conservación de Recursos Naturales (DICOREN) Ministerio de Agricultura	G	N			3						1									

TABLE 3.3 - (RA III - SOUTH AMERICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination Name and address of Agency Responsible authority (Ministry) (1)				(4)																
				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Colombia																				
Co-ordination: All services combined																				
1	Instituto Colombiano de Hidrología, Meteorología y Adecuación de Tierras - Ministerio de Agricultura	GHAWFPN	N	1	3	1		1					1	1		1		1	1	
2	Corporación Autónoma Regional del Valle de Cauca - Ministerio de Agricultura	GHAWFPN	N	2	1	2		2					2	2		2		2	1	
3	Corporación de los Valles de Ubaté y Chiquinquirá - Ministerio de Agricultura	GHAWFP	N	3	2	3		3					3		3	1		3	2	
Ecuador																				
Co-ordination by agency 1																				
1	Instituto Nacional de Meteorología e Hidrología (INAMHI) Inaquito 700 y Corea, Quito Ministerio de Energía y Minas	G	N	1	1	1		1					1	1		1	1	1	1	
France (Guyane)																				
Co-ordination: Ad hoc																				
1	ORSTOM Guyane - Institut Français de Recherche Scientifique pour le Développement en Coopération	GHAW	N	1		1				1			1		1		1		1	
Guyana																				
Co-ordination: All services combined																				
1	Hydrometeorological Service 18, Brickdam, P.O. Box 1088, Georgetown Ministry of Agriculture	GHAWFPN	N	1	1	1							1	1		1	1	1	1	

TABLE 3.3 - (RA III - SOUTH AMERICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination	Name and address of Agency																			
	Responsible authority (Ministry) (1)																			
				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Paraguay																				
Co-ordination by agency 1																				
1	Dirección de Meteorología e Hidrología López 1146, Asunción Ministerio de Defensa Nacional	G	N																	
2	Administración Nacional de Navegación y Puertos Plazoleta La Católica y Colon, Asunción	G	N																	
3	Administración Nacional de Electricidad (ANDE) Avda. España 1268, Asunción	G	N																	
Peru																				
Co-ordination by agency 1																				
1	Servicio Nacional de Meteorología e Hidrología SENAMHI Avenida República de Chile 295, oficina 205, Lima 1, Casilla Postal 1308 Ministerio de Defensa	G	N	1	2							2						1	2	
2	Ministerio de Agricultura Jirón Cahuide 805, Jesús María, Peru Ministerio de Agricultura	G A	N	2	1	1		2				1	1					2	1	2
3	Ministerio de Energía y Minas ELECTRO PERU S.A., Paseo de la República 144, Lima - Peru Ministerio de Energía y Minas	GH	N	3	3		1	2	2				2		3	3		3	3	
Suriname																				
Co-ordination: Other																				
1	Hydraulics Research Division POB 2110, Paramaribo Department of Public Works and Traffic	G	N	1				1		1			1		1			1		
2	Hydrological Service of the Bureau for Hydroelectric Power Works Rode Kruislaan 15, Paramaribo Department of Natural Resources (Opbouw)	G	N	2									2	1	2			2		

TABLE 3.3 - (RA III - SOUTH AMERICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination	Name and address of Agency			(4)											(5)			(6)		
	Responsible authority (Ministry)			A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Suriname				(continued)																
3	Ministry of Rural Government and Decentralization, Water Supplies Kleine Waterstraat 1, Paramaribo	G	N		1							2								
4	Meteorological Service Cornelis Jongbawstraat 22, Paramaribo Department of Public Works and Traffic	G	N			1									1			1		
Uruguay																				
Co-ordination by agency 1																				
1	Dirección Nacional de Hidrografía Ciudadela 1414, Montevideo Ministerio de Transportes y Obras Públicas	G FPN	N	1	1		1		2			1	1		1			1		
2	Usinas y Transmisiones Eléctricas (Dpto de Ingeniería de Presas y Embalses) Palacio de la Luz, Montevideo	GH F	N	1														1		
3	Obras Sanitarias del Estado Carlos Roxlo 1271, Montevideo	G WFP T	N	3	1		2					1						2		
4	Dirección Nacional de Meteorología Casilla de Correo 64, Montevideo Ministerio de Defensa Nacional	G A T	NR	2	1		2		2	1		3			1			1		
5	Instituto A. Boerger Treinta y Tres 1374, Piso 4, Montevideo Ministerio de Agricultura y Pesca	A T	NR		1						1				1			1		

TABLE 3.3 - (RA III - SOUTH AMERICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY																								
Type of co-ordination				Main		Level	Hydrological stations										Yearbooks			Data				
Name and address of Agency				activities													or			catalogues				
Responsible authority (Ministry)				of Agency													summaries							
(1)				(2)		(3)	(4)										(5)			(6)				
							A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C	
Venezuela																								
Co-ordination: All services combined																								
1	Dirección de Hidrología y Meteorología			G WFPNT		N	1	1	1	1				1		1	1	1	1	1	1	1	1	
Edificio Camejo, piso 5, C.S.B Caracas																								
Ministerio del Ambiente y Recursos																								
Naturales Renovables (MARNR)																								

INFOHYDRO 04/08/94

Key: Main activities: G - General hydrology, H - Hydropower, A - Agriculture, W - Water supply,
F - Flood control, P - Pollution control, N - Navigation, Y - Other.

Level: N - National, R - Regional.

Stations: A - Hydrometric, B - Groundwater, C - Climate, D - Snow, E - Lake levels, F - Glaciers,
G - Estuaries, H - Ice thickness, I - Soil moisture, J - Sediment, K - Water quality.

1, 2, 3 Indicate relative order of involvement of the Agency.

Yearbooks & Catalogues: as Stations.

TABLE 3.4 - (RA IV - NORTH AND CENTRAL AMERICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 1

STATE OR TERRITORY			Hydrological stations											Yearbooks or summaries			Data catalogues								
Type of co-ordination	Name and address of Agency	Main activities of Agency	Level												(5)			(6)							
	Responsible authority (Ministry)	(2)	(3)	(4)																					
	(1)			A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C					
Antigua and Barbuda				No information supplied																					
Bahamas																									
Co-ordination: Ad hoc																									
1	Water Department P.O. Box 8156, Nassau Ministry of Works and Utilities	G W P T	N		1	2												2							
2	Water and Sewerage Corporation P.O. Box N3905, Nassau, New Providence -	G W P T	N												2										
3	Department of Environmental Health Services P.O. Box N3729, Nassau, New Providence -	G W P T	N												1										
4	Meteorological Department P.O. Box N8330, Nassau, New Providence -	G W P T	N	1																1			1		
Barbados																									
Co-ordination: Not specified																									
1	Land and Water Use Research P.O. Box 505, Graeme Hall, Christchurch Ministry of Agriculture	G A	N	1	1	1												1			2				
2	Soil Conservation Unit Haggats, St Andrews Ministry of Agriculture	G F	N	1	1												1								
3	Agricultural Chemistry, Government Analyst Laboratory Culloden Rd, St Michaels Ministry of Agriculture	P	N												1			1							
4	Meteorological Services Grantley Adams Airport, Christchurch -	G	N	1																					
5	Environmental Division Culloden Farm, St Michaels Ministry of Health	FP	N												1										

TABLE 3.4 - (RA IV - NORTH AND CENTRAL AMERICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 2

STATE OR TERRITORY Type of co-ordination Name and address of Agency Responsible authority (Ministry) (1)	Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
			(4)											(5)			(6)		
			A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Barbados		(continued)																	
6 Barbados Water Authority Pine, St Michaels	W	N		1									2						
7 Barbados Sugar Industry Ltd Edgehill, St Thomas													3						
Belize																			
Co-ordination: All services combined																			
1 National Meteorological Service Belize Ministry of Electricity Tourism Transport & Communications	GHA	N	1	1					1			1	1	2			1	1	
2 National Water and Sewerage Authority Belize Ministry of Power and Communications	W	N	2									2							
British Caribbean Territories																			
Co-ordination by agency 10																			
1 Department of Agriculture The Valley - Anguilla	A	N	3	2	3						1	3	2	2	2		3	3	3
2 Public Works Department The Valley, Anguilla Ministry of Communication & Works	W	N	1	1	3						3	1	2	2	2		3	3	3
3 Department of Agriculture Tortola, B.V.I.	A	N	3	2	3						1	3	2	2	2		3	3	3
4 Public Works Department Grand Cayman, Cayman Islands	G W P	N	1	1	3						3	1	2	2	2		3	3	3
5 Agricultural Department Grand Cayman, Cayman Islands	A	N	3	2	3						1	3	2	2	2		3	3	3
6 Water and Sewerage Department P.O. Box 130, Tortola, B.V.I.	W	N	1	1	3						3	1	2	2	2		3	3	3

TABLE 3.4 - (RA IV - NORTH AND CENTRAL AMERICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 3

STATE OR TERRITORY	Type of co-ordination	Main activities of Agency	Level	Hydrological stations											Yearbooks or summaries	Data catalogues						
Name and address of Agency	Responsible authority (Ministry)	(1)	(2)	(3)	(4)											(5)	(6)					
					A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C	
British Caribbean Territories				(continued)																		
7	Ministry of Agriculture	Grove Montserrat	A	N	3	2	3						1		3	2	2	2	3	3	3	
8	Montserrat Water Authority	P.O. Box 324, Plymouth, Montserrat	G W P	N	1	1	3						3		1	2	2	2	3	3	3	
9	Water Department	Grand Turk, Turks & Caicos Islands	W	N	1	1	3						3		1	2	2	2	3	3	3	
10	Caribbean Meteorological Institute, Caribbean Operational Hydrology Institute	P.O. Box 130, Bridgetown, Barbados	G T	R	3	3	1						3		1	1	1	1	1	1	1	
Canada																						
Co-ordination: Ad hoc																						
1	Surveys and Information System Branch - Ecosystem Sciences and Evaluation Dir.	Ottawa Ontario, Canada K1A 0H3	G	N	1			1	1		1	1		1	1	1			1			
Environment Canada																						
2	Atmospheric Environment Service	4905 Dufferin Street, Downsview, Ontario, Canada M3H 514	G T	N			1	2				2					1				1	
Environment Canada																						
Colombia (San Andrés Providencia)																						
Co-ordination: All services combined																						
1	Instituto Colombiano de Hidrología, Meteorología y Adecuación de Tierras		GHAWFPN	N	1	3	1		1					1	1	1	1		1		1	
Ministerio de Agricultura																						

TABLE 3.4 - (RA IV - NORTH AND CENTRAL AMERICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)			
Type of co-ordination	Name and address of Agency																				
	Responsible authority (Ministry) (1)			A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C	
Costa Rica																					
Co-ordination: Ad hoc																					
1	Departamento de Estudios Básicos, Instituto Costarricense de Electricidad Apartado 10032, San José	GH	N	1	2	1					1	1	1			1	2				
2	Servicio Nacional de Aguas Subterráneas Apartado 5262, San José	G	N	2	1	3											1				
3	Instituto Meteorológico Nacional Apartado 7, 3350 San José Ministerio de Agricultura	G	N		1										1			1			
Cuba																					
Co-ordination: All services combined																					
1	Instituto Nacional de Recursos Hidraulicos. Monserrate No. 213, C.P.10100. Ciudad Habana. Cuba	GHA WFP	N	1	1	1	1			1	1	1	1	1	1	1	1	1			
Dominica																					
Co-ordination: Separate national agency																					
1	Dominica Water & Sewerage Co. (DOMASCO) P.O. Box 850 Roseau, Dominica	G W	N	1	3						3	1	2	3		3	3				
2	Forestry Division Ministry of Agriculture, Roseau, Dominica Ministry of Agriculture	G T	N	2	3						1	3	3	3		3	3				
3	Agricultural Department Ministry of Agriculture Ministry of Agriculture	A	N	2	3					1	3	2	2		2	3	2				
4	Dominica Electrical Services Ltd. Roseau, Dominica	H	N	3	3						3	3	3		3	3					

TABLE 3.4 - (RA IV - NORTH AND CENTRAL AMERICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations										Yearbooks or summaries (5)	Data catalogues					
Type of co-ordination	Name and address of Agency Responsible authority (Ministry) (1)			(4)											(6)					
				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Dominica				(continued)																
5	Caribbean Meteorological Institute, Caribbean Operational Hydrological Institute P.O. Box 130, Bridgetown	G T	R	3	3							3	3	3		1	1	1		
Dominican Republic																				
Co-ordination: Ad hoc																				
1	División Hidrología Apartado Postal 1407, Santo Domingo Instituto Nacional de Recursos Hidráulicos	GHA F	NR	1	1	1	1			1	1	1				1	1	1		
2	Oficina de Hidrologia Apartado Postal 1503, Santo Domingo Instituto Nacional de Agua Potable y Alcantarillados	W P	R		2							2						2		
3	Oficina Nacional de Meteorología Apartado Postal 1153, Santo Domingo	G	N		2					2				2				2		
El Salvador																				
Co-ordination by agency 1																				
1	Servicio de Meteorología e Hidrología Canton El Matasano, Soyapango, San Salvador, El Salvador, C.A. Ministerio de Agricultura y Ganadería	G	N	1	1		1				1	1	1	1		1	1			
France (Guadeloupe)																				
Co-ordination: Ad hoc																				
1	ORSTOM Guadeloupe B.P. 1020, 97178 Pointe à Pitre Cedax Institut Français de Recherche Scientifique pour le Développement en Coopération	G AWF	N	1	1	1						1	1	1		1		1		

TABLE 3.4 - (RA IV - NORTH AND CENTRAL AMERICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY	Main activities of Agency	Level	Hydrological stations											Yearbooks or summaries			Data catalogues			
Type of co-ordination	Name and address of Agency																			
Responsible authority (Ministry)	(1)	(2)	(3)	(4)											(5)			(6)		
				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
France (Martinique)																				
Co-ordination: Ad hoc																				
1	ORSTOM Martinique B.P. 8006, 97256 Fort de France Cedex Institut Francais de Recherche Scientifique pour le Développement en Coopération	G AW	N	1	1								1		1	1		1	1	
Guatemala																				
Co-ordination by agency 1																				
1	Instituto Nacional de Sismología, Vulcanología, Meteorología e Hidrología INSIVUMEH 7a Avenida 14-57, Guatemala 13 C.A. Ministerio de Comunicaciones, Transporte y Obras Públicas	G AWF	N	1	1	1		1					2		1	1	1			
2	Instituto Nacional de Electrificación 6a. Avenida 2-73, Guatemala 4 C.A. Ministerio de Comunicaciones, Transporte y Obras Públicas	G	N	2	2								1		2	2				
Haiti																				
Co-ordination: Not specified																				
1	Service National des Ressources en Eau (SNRE) Damien, Port-au-Prince Ministère de l'Agriculture, des Ressources naturelles et du Développement rural	G	N	1	1	1						1	2		1	1	1	1	1	1
2	Service d'Irrigation et du Génie rural (SIG) Damien, Port-au-Prince Ministère de l'Agriculture, des Ressources naturelles et du Développement rural	G A F	NR	3								2								
3	Electricité d'Haiti (EDH) Bld Harry Truman, Port-au-Prince Ministère de l'Economie et des Finances	GH	N	2				1					1						2	

TABLE 3.4 - (RA IV - NORTH AND CENTRAL AMERICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations										Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination	Name and address of Agency Responsible authority (Ministry) (1)			(4)															
				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B
Haïti																			
4	Service National d'Eau Potable (SNEP) 1, Delmas 45, Port-au-Prince Ministère des Travaux Publics et des Télécommunications	W										3							
5	Centrale Autonome Métropolitaine d'Eau Potable (CAMEP) 104, rue Paul VI, BP 1012, Port-au-Prince Ministère des Travaux Publics et des Télécommunications	W										1							
Honduras																			
Co-ordination: Other																			
1	Dpto de Servicios Hidrológicos y Climatológicos, Dir. Gen. de Recursos Hídricos, San José, El Pedregal Ministerio de Recursos Naturales	G A	N		1		1				2			1		1		1 1	
2	Unidad de Hidrología, Empresa Nacional de Energía Eléctrica - -	GH F	NR		2		2			1			2		1				
3	División de Hidrología, Servicio Nacional de Acueductos y Alcantarillados - -	G WF	NR		3		1 3						2		1				
Jamaica																			
Co-ordinations: Ad hoc																			
1	Underground Water Authority Hope Gardens, P.O. Box 91, Kingston 7 -	G	N		1		1				1	2	1		1			1	
2	Jamaica Meteorological Service Norman Manley Airport, Kingston -	G	N				1				1							1	
3	Government Printing Office Duke Street, Kingston	G	N																

TABLE 3.4 - (RA IV - NORTH AND CENTRAL AMERICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY			Hydrological stations											Yearbooks or summaries			Data catalogues			
Type of co-ordination	Name and address of Agency	Main activities of Agency	Level																	
	Responsible authority (Ministry)	(2)	(3)	(4)											(5)			(6)		
	(1)			A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Mexico																				
Co-ordination by agency 1																				
1	Dirección General de Administración y Control de Sistemas Hidrológicos Teotihuacan No. 18, Col. Hipódromo-Condessa, Deleg. Cuauhtémoc, 06170 México, DF	G AWFP	N	1	1	1		1					1	1	1	1		1	1	1
2	Departamento de Hidrometeorología Ródano 14, Piso 6, México 1, D.F. Comisión Federal de Electricidad	H	N	2		2							2		2	2		2		2
3	Dirección General de Límites y Ríos Internacionales Av. Juárez No. 101, Piso 25, Centro, Deleg. Cuauhtémoc, 06040 México D.F. Secretaría de Relaciones Exteriores	G FP	N	3	2	3							3	2	3	3		3	2	3
4	Dirección General del Servicio Meteorológico Nacional Avenida Observatorio No. 192, Col. Observatorio, Deleg. M. Hidalgo, 11860 México Secretaría de Agricultura y Recursos Hidráulicos (SARH)	G	N			3										3				3
5	Instituto Mexicana de Tecnología del Agua Rio Usumacinta No. 2, Col. Vista Hermosa, Cuernavaca, Morelos, 62190 Mexico																			
Netherlands Antilles																				
Co-ordination: All services combined																				
1	Meteorological Service Seru Mahuma z/n, Curacao	G A	N			1										1				1

TABLE 3.4 - (RA IV - NORTH AND CENTRAL AMERICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination	Name and address of Agency																			
	Responsible authority (Ministry) (1)																			
				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Nicaragua																				
Co-ordination: Other																				
1	Empresa Nacional de Luz y Fuerza Apartado Postal No. 55, Managua	G	N	1	1		1						1	1	1	1		1	1	
2	Catastro e Inventario de Recursos Naturales Ministerio de Economía, Industria y Comercio	G	N		1										1				1	
3	Servicio Meteorológico Nacional 1a. Calle Sur Este, No. 101A, B.P. 87, Managua, D.N. Ministerio de Defensa	G	N			2										2			2	
4	Comisión Nacional del Algodón Ministerio de Agricultura	G	N			3						1				3			3	
Panama																				
Co-ordination: Ad hoc																				
1	Dpto. de Hidrometeorología del Insto. de Recursos Hidráulicos y Electrificación Aptdo. 5285, Panamá 5, R.P.	GH	N	1	1		1						1	1	1			1	1	
2	División de Meteorología e Hidrografía - Comisión del Canal de Panamá	GH F N	R	2	2		2						2		2					
Saint Lucia																				
Co-ordination: Not specified																				
1	Agricultural Engineering Services Division Ministry of Agriculture	G A	N	1	1							1			1	1		1	1	
2	National Meteorological Service Ministry of Communications Works and Transport	G	N			1									1				1	

TABLE 3.4 - (RA IV - NORTH AND CENTRAL AMERICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 10

STATE OR TERRITORY Type of co-ordination Name and address of Agency Responsible authority (Ministry) (1)	Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
			(4)											(5)			(6)		
			A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Saint Lucia		(continued)																	
3 Water and Sewerage Authority Ministry of Health	W	N										1							
Trinidad and Tobago Co-ordination: Ad hoc																			
1 Water Resources Agency (Water and Sewerage Authority) P.O. Box 145, Port of Spain, Trinidad, W.I. Ministry of Public Utilities	G AWFP	N	1	1	1		1					1	1	1	1	1	1	1	1
2 Drainage Division Queen Street, Port of Spain, Trinidad, W.I. Ministry of Works	F T	N	2						1										
3 Central Experimental Station Centeno, via Anima, Trinidad, W.I. Ministry of Agriculture	G A	N			3														
4 Trinidad and Tobago Meteorological Service Piarco Airport, Piarco, Trinidad W.I. Ministry of Public Utilities	G T	N			2														
United States of America Co-ordination: Ad hoc																			
1 Geological Survey, Water Resources Division National Center, Reston, Va. 22092 US Department of the Interior	G T	N	1	1			1	1	1	1	1	1	1	1	1		1	1	
2 Corps of Engineers, Office of Chief Washington, D.C. 20314 US Department of Defense	GH F N	N	2	2		1	2		2	1	2	2	2	2			2		
3 NOAA, National Weather Service, Office of Hydrology Silver Spring, Md. 20910 US Department of Commerce	G W T	N	3	1	2	3			3	2	3			2			3	2	

TABLE 3.4 - (RA IV - NORTH AND CENTRAL AMERICA) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY			Hydrological stations											Yearbooks	Data	
Type of co-ordination	Main	Level												or	catalogues	
Name and address of Agency	activities													summaries		
Responsible authority (Ministry)	of Agency													(5)	(6)	
(1)	(2)	(3)												(5)	(6)	
			A	B	C	D	E	F	G	H	I	J	K	A	B	C
(continued)																
United States of America																
4 Soil Conservation Service	G AWFP T	N	3		2	2					2	3	3		1	
Washington, D.C. 20250																
US Department of Agriculture																1

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Key: Main activities: G - General hydrology, H - Hydropower, A - Agriculture, W - Water supply,
F - Flood control, P - Pollution control, N - Navigation, T - Other.

Level: N - National, R - Regional.

Stations: A - Hydrometric, B - Groundwater, C - Climate, D - Snow, E - Lake levels, F - Glaciers,
G - Estuaries, H - Ice thickness, I - Soil moisture, J - Sediment, K - Water quality.

1, 2, 3 Indicate relative order of involvement of the Agency.

Yearbooks & Catalogues: as Stations.

TABLE 3.5 - (RA V - SOUTH-WEST PACIFIC) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 1

STATE OR TERRITORY			Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination Name and address of Agency Responsible authority (Ministry) (1)					(4)											A B C			A B C		
					A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Australia																					
Co-ordination: Separate national agency																					
1	NSW Department of Water Resources P.O. Box 3720, Paramatta, New South Wales 2150 New South Wales Department of Water Resources	G WF T	R	1	1	3		1					1	1	1		1	1	3		
2	Water Resources Division G.P.O. Box 2454, Brisbane, Queensland 4001 Department of Primary Industries	G AW	R	1	1	2		1		3		3	2	1	1			1	2		
3	Hydro Technology 590 Orrong Road, Armadale, Victoria 3143 Department of Conservation and Natural Resources	G AWF	R	1	1	2		1		3		3	1	1	1			1			
4	Power and Water Authority G.P.O. Box 1096, Darwin, Northern Territory, 8001 Department of Transport and Works	G	R	1	1	2		1		1			1	1				1	2		
5	Bureau of Meteorology P.O. Box 1289K, Melbourne, Victoria 3001 Department of Environment, Sport and Territories	G F	N	2	3	1		3		3			3			1		1	1		
6	Water Authority of Western Australia P.O. Box 100, Leederville, Western Australia, 6007 Minister for Water Resources	G	R	1	2	1		2		3		3	2	1	1	2	1	2	2		
7	Hydro-Electrical Commision of Tasmania G.P.O. Box 355D, Hobart, Tasmania, 7001 Hydro-Electric Commision	GH T	R	2	3	2	1	2		3			3	2	2	2		2	2		
8	Water Resources Group G.P.O. Box 1047, Adelaide, South Australia 5001 Department of Environment and Natural Resources	W	R	1	2	2		1		2		3	2	1				1	2		

TABLE 3.5 - (RA V - SOUTH-WEST PACIFIC) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 2

STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations (4)											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Name and address of Agency Responsible authority (Ministry) (1)																				
(continued)																				
9	Australia Land and Water Resources Division G.P.O. Box 908J, Hobart, Tasmania 7001 Department of Primary Industry, Fisheries and Energy	G AWF	R	1	3	2	3	2	3	3	3	3	2	1	1	3	2	1	3	3
10	Sydney Water P.O. Box A53, Sydney South, New South Wales, 2000 New South Wales Minister for Housing	WFP	R	2	2	2		2		3			3	1	3	3	3	3	3	3
11	Melbourne Water 68 Ricketts Rd, Mount Waverly, Victoria, 3129 Minister for the Environment, and Minister for Water Resources	G WFP T	R	2	1	1		1					1		1		1	1		1
12	Department of Conservation and Natural Resources 232 Victoria Parade, East Melbourne, Victoria, 3002 Department of Conservation and Natural Resources	G	R		2											2				
13	Generation Victoria Production Technology G.P.O. Box 2765Y, Melbourne, Victoria, 3001	H T	R	3	3	3	3								3	3			3	
14	Division of Water Resources Commonwealth Sc. and Ind. Research Organisation, G.P.O. 1666, Canberra, ACT 2601	T	N	2	3		3		3	2	3	3								
15	Department of Public Works 1018 King Street, Many Vale, New South Wales, 2093 Department of Public Works	F T	N	2	3		3		1		3	3	2					2		

TABLE 3.5 - (RA V - SOUTH-WEST PACIFIC) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 3

STATE OR TERRITORY																					
Type of co-ordination		Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)			
Name and address of Agency Responsible authority (Ministry) (1)				(4)											A B C			A B C			
				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C	
Australia					(continued)																
16	Agriculture and Resources Management Box 858, Canberra, A.C.T. 2601 (for liaison and general information) Commonwealth Department of Primary Industries and Energy	G	N											1			1				
17	Mines and Energy South Australia P.O.Box 151, Eastwood, South Australia, 5063 Mines and Energy South Australia	G W P	R		1							1		1			1				
18	Mines and Energy Department of W.A 100 Plain St, Perth Western Australia 6004 Western Australia Department of Mine and Energy	G	R		2									3			3				
19	Mineral Resources Tasmania P.O. Box 56, Rosny Park, Tasmania, 7018 Tasmania Development and Resources	G	R	3	1	3		3			3		2								
20	Snowy Mountains Hydro-Electric Authority P.O. Box 332, Cooma, New South Wales, 2630 Minister for Energy and Primary Resources	GH	R	2		2	2					2	2	2		2	2	2			
21	Australian Geological Survey Organisation P.O. Box 378, Canberra City, ACT 2601 Commonwealth Department of Primary Industries and Energy	G	N		3		3					3		1			1				
22	Hydrology and Water Resources ACT Electricity and Water P.O.Box 366, Canberra City, 2601 Department of Environment, Land and Planning	G WFP	R	1	1	2		1				3	3	1			1				
23	Gippsland Water P.O. Box 348, Traralgon, Victoria 3844 Department of Conservation and Natural Resources	G WFP T	R		2	2		1		1	3	1	1	3	2	2	3	2	1		

TABLE 3.5 - (RA V - SOUTH-WEST PACIFIC) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 4

STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination Name and address of Agency Responsible authority (Ministry) (1)				(4)											(5)			(6)		
				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Australia																				
24	University of New South Wales P.O. Box 1, Kensington, New South Wales, 2033 University of New South Wales	T	R				2	3	2											
Brunei Darussalam																				
Fiji																				
Co-ordination: Ad hoc																				
1	Fiji Meteorological Service Private Bag, Nandi Airport Ministry of Foreign Affairs, Tourism and Civil Aviation	T	N				1								1			1		
2	National Data Unit (Hydrology), Public Works Department P.O. Box 3740, Samabula, Suva Ministry of Communications, Transport and Works	GHAWF	N				1	2				1					1	2		
3	Department of Mineral Development, Hydrogeology Section Private Mailbag, Suva Ministry of Lands, Energy and Mineral Resources	T	N				1					1						1		
French Polynesia																				
Co-ordination: Ad hoc																				
1	Direction de l'équipement (Groupement étude et gestion du domaine public) Papeete Assistance de l'ORSTOM	G F	N				1	1							1	1	1	1		
Indonesia																				
Co-ordination: Ad hoc																				
1	Research Institute for Water Resources Development Jl. Ir. H. Juanda 193, Bandung Ministry of Public Works and Electric Power	G	N				1	1	2		1		1	1	1			1		
2	Meteorological and Geophysical Agency Jl. A.R. Hakim 3, Jakarta Department of Communications	G	N				1					1			1			1		

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TABLE 3.5 - (RA V - SOUTH-WEST PACIFIC) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 6

STATE OR TERRITORY Type of co-ordination Name and address of Agency Responsible authority (Ministry) (1)	Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
			(4)											(5)			(6)		
			A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
New Zealand		(continued)																	
3 New Zealand Meteorological Service P.O. Box 722, Wellington	G	N			2										1			2	
Papua New Guinea																			
Co-ordination: Not specified																			
1 Bureau of Water Resources P.O. Box 6580, Boroko Dept of Environment and Conservation	G	N																	
Philippines																			
Co-ordination by agency 1																			
1 National Water Resources Council 8th Floor NIA Bldg. Epifanio de los Santos Avenue Diliman, Quezon City, Metro Manila Ministry of Public Works and Highways (MPWH)	GHAWFPN	N	1	1	2		1		1			1	1	1	1	2			
2 National Irrigation Administration NIA Building, Quezon City MPWH	G A	N	2		3														
3 National Power Corporation BIR Road, Diliman, Quezon City Ministry of Energy	GH	N	3	1	3							2	2						
4 PAGASA (Weather Bureau) 1424 Quezon Building Extension, Quezon City National Science and Technology Authority	G	N	2		1									1				1	
Singapore																			
Co-ordination: Ad hoc																			
1 Water Department, Public Utilities Board PUB Building 14-01, 111 Somerset Road, Singapore 0923	G W	N	1		2							2						1	

TABLE 3.5 - (RA V - SOUTH-WEST PACIFIC) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 7

STATE OR TERRITORY				Hydrological stations											Yearbooks or summaries	Data catalogues				
Type of co-ordination	Name and address of Agency	Main activities of Agency	Level												(5)	(6)				
Responsible authority (Ministry)	(1)	(2)	(3)	(4)											(5)	(6)				
				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Singapore			(continued)																	
2	Drainage Department, Ministry of the Environment 18-00 Environment Building, 40 Scotts Rd, Singapore 0922 Ministry of the Environment	G	N		2													2		
3	Meteorological Service Changi Airport, P.O. Box 8, Singapore 9181	G	N			1										1			1	
Solomon Islands																				
Co-ordination by agency 1																				
1	Water Resources Section P.O. Box G24, Honiara Ministry of Natural Resources	GH W T	N		2	1														
2	Meteorological Services P.O. Box G25, Honiara Ministry of Post and Communication																			
United States of America (South West Pacific)																				
Co-ordination: Ad hoc																				
1	Geological Survey, Water Resources Division National Center, Reston, Va. 22092 US Department of the Interior	G T	N		1	1		1	1	1	1	1	1	1	1	1		1	1	
2	Corps of Engineers, Office of Chief Washington, D.C. 20314 US Department of Defense	GH F N	N		2	2		1	2		2	1	2	2	2	2			2	
3	NOAA, National Weather Service, Office of Hydrology Silver Spring, Md. 20910 US Department of Commerce	G W T	NR		3	1	2	3		3	2	3				2		3	2	
4	Soil Conservation Service Washington, D.C. 20250 US Department of Agriculture	G AWFP T	NR		3	2	3				3	3	3		1				1	

TABLE 3.5 - (RA V - SOUTH-WEST PACIFIC) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY			Hydrological stations											Yearbooks or summaries	Data catalogues	
Type of co-ordination	Name and address of Agency	Main activities of Agency	Level												(5)	(6)
Responsible authority (Ministry)		(2)	(3)	A	B	C	D	E	(4) F	G	H	I	J	K	A B C	A B C
Vanuatu																
Co-ordination: Ad hoc																
1 Vanuatu Meteorological Service	Private Mail Bag, Port Vila	GH WF N	N	1	1	2		2					1	2	1	3
2 Department of Geology, Mines and Rural	Water Supplies (Hydrology Section)	GHAW N	N	1		2										
	Private Mail Bag, Port Vila															

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Key: Main activities: G - General hydrology, H - Hydropower, A - Agriculture, W - Water supply,
F - Flood control, P - Pollution control, N - Navigation, I - Other.

Level: N - National, R - Regional.

Stations: A - Hydrometric, B - Groundwater, C - Climate, D - Snow, E - Lake levels, F - Glaciers,
G - Estuaries, H - Ice thickness, I - Soil moisture, J - Sediment, K - Water quality.

1, 2, 3 Indicate relative order of involvement of the Agency.

Yearbooks & Catalogues: as Stations.

Page 1

STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations												Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination	Name and address of Agency Responsible authority (Ministry) (1)			(4)												(5)			(6)		
				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C	
Albania																					
Co-ordination: All services combined																					
1	Instituti Hidrometeorologjik 26, Rr. Kongresi Permetit, Tirana	GHA WFPN	N	1	2	1	1	1		1	1		1	3	1	1	1	1	1		
Armenia																					
Co-ordination: All services combined																					
1	Hydrometeorological Service 54 Leo St, 375002 Yerevan	G	N	1	1	1	1	1		1			1	1	1		1				
Austria																					
Co-ordination: Ad hoc																					
1	Hydrographisches Zentralbuero Marxergasse 2, A-1030 Wien Bundesministerium fuer Land und Forstwirtschaft	G F	NR	1	1	1	1	1					1		1	1	1	1	1		
2	Bundesanstalt fuer Wasserguete Kaisermuehlen, A-1220 Wien Bundesministerium fuer Land und Forstwirtschaft	P	N											1							
3	Zentralanstalt fuer Meteorologie und Geodynamik Hohe Warte 38, A-1190 Wien Bundesministerium fuer Wissenschaft und Forschung	T	N			2	2	2													
4	Institut fuer Meteorologie und Geophysik der Universitaet Innsbruck Schoepfstr. 41, A-6020 Innsbruck Bundesministerium fuer Wissenschaft und Forschung	T	N						1												
Azerbaijan																					
No information supplied																					

TABLE 3.6 - (RA VI - EUROPE) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 2

STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination	Name and address of Agency			(4)											(5)			(6)		
	Responsible authority (Ministry) (1)			A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Belarus																				
Co-ordination: Not specified																				
1	Hydrometeorological Service	G	T	N	1	1	1					1	1	1	1	1				
	Komsomolskaya Ulitsa 16, 220600 Minsk 16																			
Belgium																				
Co-ordination: Ad hoc																				
1	Service d'Etudes Hydrologiques	G		N	1									2				2		
	Rue de la Loi 155, Bruxelles 1040																			
	Ministère des Travaux Publics																			
2	Service des études des eaux souterraines et des eaux de surface	G AW P		R	2	1						2		1				1		
	Manhattan Center - Tour H2, Rue des Croisades 3, Bruxelles 1210																			
	Ministère de la Région Wallonne																			
3	Administratie voor Ruimtelijke Ordening en Leefmilieu	G AW P		R	2	1						2		1				1		
	Belliardstraat, 12-14-18, Brussel 1040																			
	Ministerie van de Vlaamse Gemeenschap																			
4	Institut Royal Météorologique (Section Hydrologie)	G		N			1	1						1	2	1		1 2 1		
	Avenue Circulaire 3, Bruxelles 1180																			
	-																			
5	Régie des Voies Aériennes (Service Météorologique)	G		N			2	2												
	Aérodrome National, Bâtiments Météo, Zaventem 1930																			
	-																			
6	Force Aérienne, Wing Météorologique	G		N			3	3												
	Quartier Evère, Avenue Jules Bordet 1, Bruxelles 1130																			
	-																			
7	Institut d'Hygiène et d'Epidémiologie	P		N								1								
	Rue Juliette Wytsman 14, Bruxelles 1050																			

TABLE 3.6 - (RA VI - EUROPE) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 3

STATE OR TERRITORY			Hydrological stations											Yearbooks or summaries			Data catalogues		
Type of co-ordination	Main activities of Agency	Level												(5)			(6)		
Name and address of Agency	(2)	(3)	(4)																
Responsible authority (Ministry)			A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
(1)																			
Bosnia and Herzegovina			No information supplied																
Bulgaria																			
Co-ordination by agency 1																			
1 Hydrometeorological Service Blvd. Lenin No. 66, Sofia Bulgarian Academy of Sciences	G	N	1	1	1	1	1				1	1	1	1	1	1	1	1	1
2 Commission for Protection of Natural Environment Sofia Ministry Council	G	N	2		2		2			1			2						
3 National Union of Agriculture and Industry St. Hristo Botev No. 55, Sofia -	G	N		2							2								
4 State Economic Organization - Water Supply and Sewerage Uzundjovska Str. No. 12, Sofia Ministry of Building and Civil Construction	G	N		3									3						
5 Department of Mineral Waters Sq. Lenin No. 5, Sofia Ministry of Public Health	G	N		3									3						
Croatia																			
Co-ordination by agency 1																			
1 Meteorological and Hydrological Service Gric 3, 41000 Zagreb -	G	N	1	1	1	1	1		1	1	1	1	1				1	1	1
Cyprus																			
Co-ordination: Ad hoc																			
1 Department of Water Development Nicosia Ministry of Agriculture and Natural Resources	G AWF	N	1	1		2	1					1	1	1	1		1	1	
2 Meteorological Service Nicosia Ministry of Agriculture and Natural Resources	G AWF	N		1	1											1			1

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TABLE 3.6 - (RA VI - EUROPE) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY			Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination Name and address of Agency Responsible authority (Ministry) (1)					(4)																
					A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Finland																					
Co-ordination: Ad hoc																					
1	Hydrological Office National Board of Waters Ministry of Environment	GH W P	N	1	1	2	1	1			1	1			1	1	2	1	1	2	
2	Water Research Office National Board of Waters Ministry of Environment	G T	N				2						1								
3	Finnish Meteorological Institute Vuorikatu 24, Box 503, 00101 Helsinki 10 Ministry of Traffic	G	N			1	2								1				1		
France																					
Co-ordination: Ad hoc																					
1	Direction de l'Eau 20, Avenue de Ségur, 75302 Paris 07 SP Ministère de l'Environnement	G WFPN	NR	1	2	2				1			1	1	1			1			
2	Direction de l'Espace rural et de la Forêt - sous-direction l'aménagement et H.A. 19, avenue du Maine, 75732 Paris cedex 15 Ministère de l'Agriculture et de la Forêt	G AW P	N	2	3	3							2		2			2	2		
3	Electricité de France, Div. Technique Générale, Serv. Production Hydraulique 37 rue Diderot, 38000 Grenoble Ministère de l'Industrie et de la Recherche	GHA F	N	3	3		1	1					3	3	3						
4	Bureau de Recherches Géologiques et Minières, Service Géologique National, avenue de Concy, B.P. 6009, 45060 Orléans Cedex Ministère de l'Industrie et de la Recherche	G P	N		1							1	2	3		1			1		

TABLE 3.6 - (RA VI - EUROPE) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

Page 6

STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination	Name and address of Agency Responsible authority (Ministry) (1)			(4)											(5)			(6)		
				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
France				(continued)																
5	ORSTOM - Laboratoire d'hydrologie 2051, avenue du Val de Montferrand - 34032 Montpellier cedex Institut français de recherche scientifique pour le développement en coopération	G	R	3	3			2		2			3	2		3	3			
Georgia																				
Co-ordination: All services combined																				
1	Main Department of Hydrometeorology and Environment Monitoring D. Agmashelebely, 150, Tbilisi Ministry of Environmental Protection	G	N	1	1	1					1	1	1	1		1	1			
Germany																				
Co-ordination: Ad hoc																				
1	Bundesanstalt für Gewässerkunde D-5400 Koblenz, Kaiserin-Augusta-Anlagen 15-17, Postfach 309 Bundesministerium für Verkehr, Bonn	G	FPN	N	2	2	2		2			2	2	1	3	3	1	2	3	
2	Deutscher Wetterdienst, Zentralamt D-6050 Offenbach, Frankfurter Strasse 135, Postfach 100465 Bundesministerium für Verkehr, Bonn	G	N		1	1				1					1			1		
3	Federal Water and Navigation (Wasser- und Schifffahrtsdirektion) 7 Regional Offices Bundesministerium fuer Verkehr, Bonn	G	F N	N	1	2	3	2	1	1		2	2	1	3		1	3		
4	Water-Management Administrations of the States 16 State Offices Appropriate State Ministries	GH	WFP	NR	1	1	3	2	1		1	3	3	1	1	3	1	1	3	

TABLE 3.6 - (RA VI - EUROPE) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination Name and address of Agency Responsible authority (Ministry) (1)				(4)											(5)			(6)		
				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Greece																				
Co-ordination: Separate national agency																				
1	Ministry of Public Works H. Trikoupi 182, Ambelokipi, Athens	G	N	1	2	2	1					1	1							
2	Geology-Hydrology Department Halkokondili Street 46, 10438 Athens Ministry of Agriculture	G AW P	N	2	1	3	3	2		1	1	2	2							
3	HEP Development Department 4 Kopai Street, Athens 132 Public Power Corporation	GHAW P	N	3	3	3	3	3				3	3	1	1	1	1			
4	Institute of Geology and Mineral Exploration 70 Messoghion, 11522 Athens	G	N	2								3								
5	Hellenic National Meteorological Service (HNMS) El. Venizelou Street, 16777 Hellinikon	G	N	1	1															
Hungary, Republic of																				
Co-ordination: All services combined																				
1	Research Centre for Water Resources Development (VITUKI) Budapest IX, Kvassay Jeno ut 1 Ministry of Transport, Communications and Water Management	G FPN	N	2	2	3	3	1		2	3	2	2	1	1	2	1	1		
2	Institute for Enviromental Management Budapest V, Alkotmany u. 29 Ministry for Environment and Regional Policy	G	N											2	2					
3	Hungarian Meteorological Service Budapest II, Kitaibel Pal u. 1 Ministry for Enviroment and Regional Policy	G	N	1	2					1					1			1		

TABLE 3.6 - (RA VI - EUROPE) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination	Name and address of Agency																			
	Responsible authority (Ministry) (1)																			
				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Hungary, Republic of				(continued)																
4	12 District Water Authorities	G	R	1	1	2	1	2			1	2	1	1				2	2	
National Water Authority (Ministry of Transport, Communication and Water Manag.)																				
Iceland																				
Co-ordination: Ad hoc																				
1	National Energy Authority, Hydrological Survey Grensasvegur 9, 108 Reykjavik Ministry of Industry	GH	N	1	1	2	2	1		1			1	1	1	1		1	1	
2	Icelandic Glaciological Society P.O. Box 5128, Reykjavik	G	N	2					1											
3	Iceland Meteorological Office Bustadavegi 9, 108 Reykjavik Ministry of Communications	G	N			1	1					1					1			1
Ireland																				
Co-ordination: Ad hoc																				
1	Hydrometric Section, Office of Public Works 17-19 Lower Hatch Street Dublin 2	G F N	N	1		2		1		2										
2	Civil Works Department, Electricity Supply Board Stephen's Ct., 18-21 St. Stephen's Green, Dublin 2	GH F	N	2		2		2												
3	The Meteorological Service, Department of Tourism, Transport and Communications Glasnevin Hill, Dublin 9	G	N			1	1					1								

TABLE 3.6 - (RA VI - EUROPE) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY			Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)			
Type of co-ordination Name and address of Agency Responsible authority (Ministry) (1)					(4)											(5)			(6)			
					A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C	
Ireland			(continued)																			
4	Environmental Research Unit, Dept. of Environment St. Martin's House, Waterloo Road, Dublin 4	G W P	N	2	2			2		2				1	1							
5	Geological Survey of Ireland Beggars Bush, Dublin 4	G	N	1																		
6	Dept. of Marine Leeson Street, Dublin 2	G PN	N							1												
Israel																						
Co-ordination: Ad hoc																						
1	Hydrological Service P.O. Box 6381, Jerusalem 91060 Ministry of Agriculture	G W P	N	1	1	2		2						1	1		1	1		1	1	
2	Kinneret Limnological Laboratory P.O. Box 345, Tiberias Israel Oceanographic and Limnological Research Limited	G P	R					1							1							
3	Israel Meteorological Service P.O. Box 25, Bet Dagan Ministry of Transport and Communications	G	N				1	1									1				1	
4	Soil Erosion Research Station P.O. Box 3181, Natanya 42131	G AW	NR	2	2												2			2	2	
Italy																						
Co-ordination: Ad hoc																						
1	Servizio Idrografico e Mareografico Nazionale Presidenza del Consiglio dei Ministri, Palazzo Chigi, I-00187 Roma	G	N	1	1	1		1	1					1						1	1	1
2	Libreria dello Stato Piazza Verdi No. 10, Roma	G	N														1	1	1			

TABLE 3.6 - (RA VI - EUROPE) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

[illegible]

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STATE OR TERRITORY	Type of co-ordination	Name and address of Agency	Responsible authority (Ministry)	(1)	Main activities of Agency	(2)	Level	(3)	Hydrological stations											Yearbooks or summaries			Data catalogues		
									(4)											(5)			(6)		
									A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Luxembourg	Co-ordination: All services combined	1 Service de la Météorologie et de l'Hydrologie	16 route d'Esch, B.P. 1904, Luxembourg 1019		GHAWF		N		1	1										1				1	
Administration des services techniques de l'agriculture																									
Malta	Co-ordination: Not specified	1 Meteorological Office	Luqa Airport		G		N		1	1	1														
Civil Aviation Department																									
Moldova	No information supplied																								
Netherlands	Co-ordination: Ad hoc	1 Rijkswaterstaat, Tidal Waters Division	P.O.Box 20907, 2500 EX The Hague		G WFP		N		1			1		1			1	1		1				1	
Ministry of Transport, Public Work and Water Management																									
	2	Institute for Inland Water Management and Waste Water Management	P.O. Box 17, 8200 AA Lelystad		G WFPN		N		2			1		1			1	1		1	1				
Ministry of Transport, Public Works And Water Management																									
	3	Institute of Applied Geoscience TNO	Postbus 285, 2600 AG Delft		G W P		N		1															1	
	4	Koninklijk Nederlands Meteorologisch Instituut	P.O.Box 201, 3730 AE De Bilt		G A		N			1	1										1				1
Ministry of Transport, Public Work and Water Management																									

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STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations												Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination	Name and address of Agency																				
	Responsible authority (Ministry)																				
				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C	
Norway																					
Co-ordination: Ad hoc																					
1	Norwegian Water Resources and Energy Administration P.O. Box 5091, Oslo 3 Ministry of Oil and Energy	G WF	N	1	2		2	1	1	1	1		1						1		
2	Norwegian Geological Survey Drammensveien 230, Oslo 2 Ministry of Industry and Handicraft	G	N		1											1				1	
3	Norwegian Meteorological Institute P.O. Box 320, Blindern, Oslo 3 Ministry of Culture and Science	G	N			1	1										1			1	
4	Norwegian Water Research Institute P.O. Box 333, Blindern, Oslo 3 Royal Norwegian Council for Scientific and Industrial Research	G	N											1							
Poland, Republic of																					
Co-ordination: All services combined																					
1	Institute of Meteorology and Water Management ul. Podlesna 61, 01673 Warsaw Ministry of Environmental Protection and Natural Resources	G	N	1	1	1	1	1		1	1	1	1		1	1	1	1	1	1	
Portugal																					
Co-ordination: Ad hoc																					
1	Direccao-Geral dos Recursos e Aproveitamentos Hidraulicos Rua de Sao Manede ao Caldas, No. 23, 1100 Lisboa Ministerio do Equipamento Social	G FP	N	1	1	1				1		1	1	1	1	1	2	1	1	2	
2	Instituto Nacional de Meteorologia e Geofisica Rua C/Aeroporto, 1700 Lisboa Ministerio do Equipamento Social	G A	N			2	1										1			1	

TABLE 3.6 - (RA VI - EUROPE) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY			Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination Name and address of Agency Responsible authority (Ministry) (1)					(4)											(5)			(6)		
					A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Romania																					
Co-ordination: All services combined																					
1	Institute of Meteorology and Hydrology Sos. Bucuresti-Ploiesti No. 97, Bucarest 18 COD 71581 National Waters Council	G	N	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1		
Russian Federation (Europe)																					
Co-ordination: Ad hoc																					
1	Chairman of the State Committee on Hydrometeorology and Environmental Control 12 Pavlik Morozov Street, Moscow D-376 Council of Ministers	G	N	1		1	1	1	1	1	1	1	1	1	1		1	1	1		
2	Ministry of Geology ul Bolshaja Gruzinskaja, Moscow D-4	G	N		1																
Slovakia																					
Co-ordination: All services combined																					
1	Hydrometeorological Institute, Hydrological Service Jeséniova 17, Bratislava-Koliba, Ministry for the Environment	G	N	1	1					1			1		1	1		1	1		
2	Hydrometeorological Institute, Climatological Service Jeséniova 17, Bratislava-Koliba, Ministry for the Environment	G	N			1	1				1					1			1		
Slovenia																					
Co-ordination: All services combined																					
1	Hydrometeorological Institute Vojkova 12, 61000 Ljubljana	G	N	1	1	1	1	1		1	1	1	1	1				1	1	1	

TABLE 3.6 - (RA VI - EUROPE) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination Name and address of Agency Responsible authority (Ministry) (1)				(4)																
				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Spain																				
Co-ordination by agency 1																				
1	Dirección General de Obras Hidráulicas - Centro de Estudios Hidrográficos Paseo Bajo, Virgen del Puerto 3, Madrid 5	GH WFP	N	1	2	2						1	2	1	2	2	1	2	2	
2	Instituto Nacional de Conservación Naturaleza Gran Vía San Francisco 37, Madrid 5 Ministerio de Agricultura	G AW P	N				2	1			1			3						
3	Instituto Geológico y Minero Ríos Rosas 23, Madrid 3 Ministerio de Industria	W P T	N	2	1							1		1				1		
4	Instituto Nacional de Meteorología Paseo de las Moreras, Apartado de Correos 285, Madrid 3	G AWFP	N			1	1			2				1					1	
Sweden																				
Co-ordination: Ad hoc																				
1	Swedish Meteorological and Hydrological Institute Box 923, S-60119 Norrköping Ministry of Transport and Communications	GHAWFPN	N	1		1	1	1		1		1	1	1	1		1		1	
2	Geological Survey of Sweden Box 670, S-75128 Uppsala Ministry of Industry	G	N			1						2		1					1	
Switzerland																				
Co-ordination: Separate national agency																				
1	Service hydrologique et géologique national CH-3003 Berne Département Fédéral de l'Intérieur	G P	N	1	1		1					1	1	1	1		1		1	
2	Institut Suisse de Météorologie Krahbühlstrasse 5B, CH-8044 Zurich Département Fédéral de l'Intérieur	G	N			1	1								1					

TABLE 3.6 - (RA VI - EUROPE) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination																				
Name and address of Agency																				
Responsible authority (Ministry) (1)				(4)											(5)			(6)		
		A B C D E F G H I J K											A B C			A B C				
Switzerland			(continued)																	
3	Institut pour l'Etude de la Neige et des Avalanches Weissfluhjoch, CH-7260 Davos Département Fédéral de l'Intérieur	G	N			2	2										2			
4	Laboratoire de Recherches Hydrauliques, Hydrologiques et Glaciologiques Ecole Polytechnique Fédérale de Zürich, ETH-Zentrum, CH-8092 Zürich	G	N			3	3	1									3			
Syrian Arab Republic																				
Co-ordination: Not specified																				
1	Ministry of Irrigation P.O. Box 4451, Damascus Ministry of Irrigation	A	N																	
The former Yugoslav Republic of Macedonia				No information supplied																
Turkey																				
Co-ordination: Ad hoc																				
1	General Directorate of State Hydraulic Works D.S.I. Gn. Md.gu, Yucetepe, Ankara Ministry of Energy and Natural Resources	G	N	1	1	2	1	1					1	1		1			1	
2	General Directorate of Electrical Power Resources, Surveying and Design Dept. D.S.I. Gn. Md.gu, Yucetepe, Ankara Ministry of Energy and Natural Resources	G	N	2			2	2					2	2		2				
3	General Directorate of State Meteorological Service P.O. Box 401, Ankara Ministry of Government	G	N	3		1	3									1			1	

TABLE 3.6 - (RA VI - EUROPE) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY	Type of co-ordination	Main activities of Agency	Level	Hydrological stations											Yearbooks or summaries			Data catalogues			
Name and address of Agency	Responsible authority (Ministry)	(1)	(2)	(3)	(4)											(5)			(6)		
					A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Ukraine																					
Co-ordination: Not specified																					
1	Chief Administration of Hydrometeorology and Control of the Natural Environment	Zolotovorotskaya Oulitza 6, Kiev																			
United Kingdom of Great Britain and Northern Ireland																					
Co-ordination: All services combined																					
1	Institute of Hydrology (for water authorities and equivalent bodies)	Maclean Building, Crowmarsh Gifford, Wallingford OX10 8BB	G	N	1											1			1		
Natural Environment Research Council																					
2	Meteorological Office	London Road, Bracknell, Berkshire RG12 2SZ	G	N			1	1					1					1			
Ministry of Defence																					
3	Hydrogeology Unit, British Geological Survey	Maclean Building, Crowmarsh Gifford, Wallingford OX10 8BB	G	N			1											1			1
Natural Environment Research Council																					
4	Water Quality Division, Water Directorate, DOE	Romney House, 43 Marsham Street, London SW1P 3PY	G	N											1						2
Department of Environment																					
Yugoslavia																					
Co-ordination by agency 1																					
1	Federal Hydrometeorological Institute	Bircaninova 6, P.O. Box 604, 11001 Beograd	G	N	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1
2																					
2	Hydrometeorological Institute of the Socialist Rep. of Serbia	Kneza Visaslava 66, 11000 Beograd	G	N	2	2	2	2	2		2	2	2	2	2				2	2	2

TABLE 3.6 - (RA VI - EUROPE) NATIONAL AGENCIES DEALING WITH OPERATIONAL HYDROLOGY

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STATE OR TERRITORY		Main activities of Agency (2)	Level (3)	Hydrological stations											Yearbooks or summaries (5)			Data catalogues (6)		
Type of co-ordination	Name and address of Agency																			
	Responsible authority (Ministry) (1)																			
				A	B	C	D	E	F	G	H	I	J	K	A	B	C	A	B	C
Yugoslavia				(continued)																
3	Hydrometeorological Institute of the Socialist Rep. of Montenegro IV Proleterske 15, 81000 Podgorica	G	N	2	2	2	2	2		2	2	2	2	2				2	2	2
4	Hydrometeorological Service of the Socialist Autonomic Region of Vojvodina ul. Skolska (Dvorac), 21208 Sremska Kamenica	G	N	3	3	3	3	3		3	3	3	3	3				3	3	3

INFOHYDRO 04/08/94

Key: Main activities: G - General hydrology, H - Hydropower, A - Agriculture, W - Water supply,
 F - Flood control, P - Pollution control, N - Navigation, T - Other.
 Level: N - National, R - Regional.
 Stations: A - Hydrometric, B - Groundwater, C - Climate, D - Snow, E - Lake levels, F - Glaciers,
 G - Estuaries, H - Ice thickness, I - Soil moisture, J - Sediment, K - Water quality.
 1, 2, 3 Indicate relative order of involvement of the Agency.
 Yearbooks & Catalogues: as Stations.

TABLE 3.7 - NATIONAL HYDROLOGICAL AGENCIES - SUMMARY *
(Number of Countries)

	WMO REGIONS						
	AFRICA (RA I) (1)	ASIA (RA II) (2)	S. AMERICA (RA III) (3)	N. & C. AMERICA (RA IV) (4)	S.W. PACIFIC (RA V) (5)	EUROPE (RA VI) (6)	TOTAL (GLOBAL) (7)
STATES/TERRITORIES							
Total in Region	55	32	13	24	13	48	185
Reporting	47	27	13	23	12	43	165
Having Hydrological Agencies	45	23	13	23	12	41	157
Having HOMS N.R.C.	26	18	11	15	7	27	104
INTERAGENCY CO-ORDINATION							
Single/combined Services	9	7	4	3	0	16	39
By one Agency	13	3	4	4	4	4	32
Separate national Agency	3	3	0	1	1	2	10
Ad hoc	15	14	3	10	6	21	69
Other	0	0	2	2	0	0	4
YEARBOOKS/SUMMARIES							
Hydrometric (A)	34	20	10	19	7	33	123
Groundwater (B)	14	13	8	8	2	27	72
Climatological (C)	32	19	12	19	10	32	124
DATA CATALOGUES							
Hydrometric (A)	31	16	12	19	8	33	119
Groundwater (B)	14	14	7	11	3	29	78
Climatological (C)	29	17	12	20	9	29	116

* Summary, by Regions, of information given in Tables 3.1 to 3.6
Updated August 1994

TABLE 3.8 - OPERATION OF HYDROLOGICAL NETWORKS - SUMMARY *
(Number of Countries)

TYPE OF STATIONS		WMO REGIONS						TOTAL (GLOBAL) (7)
		AFRICA (RA I) (1)	ASIA (RA II) (2)	S. AMERICA (RA III) (3)	N. & C. AMERICA (RA IV) (4)	S.W. PACIFIC (RA V) (5)	EUROPE (RA VI) (6)	
Hydrometric	(A)	42	22	12	21	11	41	149
Groundwater	(B)	25	19	10	17	8	37	116
Climatological	(C)	36	21	12	21	10	37	137
Snow	(D)	3	10	3	2	2	34	54
Lakes (stage)	(E)	22	8	10	13	5	31	89
Glaciers	(F)	1	2	3	1	2	5	14
Estuaries	(G)	8	7	6	5	4	17	47
Ice thickness	(H)	0	5	2	2	2	19	30
Soil moisture	(I)	10	9	6	11	3	23	62
Sediment Discharge	(J)	26	19	10	15	8	31	109
Water quality	(K)	25	19	11	21	9	34	119

* Summary, by Regions, of information given in Tables 3.1 to 3.6
Updated August 1994

TABLE 3.9 - ACTIVITIES OF NATIONAL AGENCIES - SUMMARY *
(Number of Agencies)

		WMO REGIONS						TOTAL (GLOBAL) (7)
		AFRICA (RA I) (1)	ASIA (RA II) (2)	S. AMERICA (RA III) (3)	N. & C. AMERICA (RA IV) (4)	S.W. PACIFIC (RA V) (5)	EUROPE (RA VI) (6)	
Number of Agencies		108	57	72	77	51	115	480
MAIN ACTIVITIES OF AGENCY								
Hydrology	(G)	96	48	69	55	42	106	416
Hydropower	(H)	10	6	21	11	10	10	68
Agriculture	(A)	14	10	20	20	8	19	91
Water Supply	(W)	21	10	16	25	16	25	113
Flood Control	(F)	12	11	22	16	15	22	98
Pollution control	(P)	15	8	19	14	7	30	93
Navigation	(N)	4	4	13	2	3	9	35
Other	(T)	5	5	41	13	11	5	80
HYDROLOGICAL ACTIVITY								
Hydrometric	(A)	64	34	50	49	37	65	299
Groundwater	(K)	30	24	19	34	29	53	189
Climatological	(C)	61	32	34	49	36	68	280
Snow	(D)	6	11	6	5	5	55	88
Lakes (stage)	(E)	29	9	17	16	21	45	137
Glaciers	(F)	1	2	3	1	2	6	15
Estuaries	(G)	9	8	9	7	15	25	73
Ice thickness	(H)	0	5	2	4	2	23	36
Soil moisture	(I)	16	10	8	28	10	32	104
Sediment discharge	(J)	31	25	15	23	21	43	158
Water quality	(K)	36	25	28	47	28	56	220
LEVEL OF ACTIVITY								
National		106	52	42	69	31	108	408
Regional (sub-national)		3	4	33	9	19	9	77

* Summary, by Regions, of information given in Tables 3.1 to 3.6
Updated August 1994

IV - HYDROLOGICAL OBSERVING STATIONS

TABLES 4.1.01 to 4.7

Explanatory Notes

The tables in this chapter show the number of hydrological observing stations operating in each country by WMO Region as follows:

Table(s) No(s)	Type of station
4.r.01 to .07	Precipitation
4.r.08	Evaporation
4.r.09	Discharge
4.r.10	Stage (water level)
4.r.11	Sediment and water quality
4.r.12	Groundwater (wells)

The letter "r" above denotes the WMO Region (I to VI as 1 to 6) in the table numbers.

Where possible, the observing stations have been classified by length of record:

- Less than five years;
- Five to 10 years;
- 10 to 30 years;
- Over 30 years.

The total number of observing stations is also shown. This total may exceed the sum of the previous four columns when some stations have not been classified by length of record. It should be noted that data prior to 1980 have been taken from **Operational Hydrology Report No. 10** (WMO-No. 464) and in that publication all record lengths over 10 years are included in a single category, with no division at 30 years. These data have been arbitrarily included under 10 to 30 years in these tables, with the over-30 years column left blank.

In all tables the first three columns are the same:

Column (1) - Country name

Column (2) - Total area of the country

Column (3) - Year in which the data were collected.

Details of the individual tables are as follows:

Tables 4.r.01 to 4.r.06 - Precipitation stations for different elevation bands

The elevation bands used are:

4.r.01	0 to 500 m above sea-level
4.r.02	501 to 1 000 m

4.r.03	1 001 to 1 500 m
4.r.04	1 501 to 2 000 m
4.r.05	2 001 to 2 500 m
4.r.06	over 2 500 m.

The columns are:

Column (4): % area - the percentage of the area of the country which lies in this elevation band

Column (5): Number of non-recording precipitation gauges in the country in this elevation band, classified by length of record as described above

Column (6): Number of recording precipitation gauges [as for Column (5)]

Column (7): The number of telemetering gauges

Column (8): The number of radars used for rainfall measurement.

Only countries reporting gauges in the relevant elevation range are included in each table. This can result in a blank table which has not been printed.

The "Totals" row shows totals of the figures in each column. Note in particular that the total in **Column (2)** is the sum of the areas of the countries listed, and not the area of the region in the elevation band.

Tables 4.r.07: Precipitation observing stations - Totals

This table gives all precipitation gauges, irrespective of elevation. It is set out as **Tables 4.r.01 to 4.r.06**, except that the "% area" column has been omitted. The numbers in this table may exceed the sums of the previous six tables. This arises when not all gauges have been classified by elevation.

For each of the six WMO Regions, a map of the non-recording precipitation gauges density (number of gauge per 1000 km²) is included.

Tables 4.r.08: Evaporation stations

Column (4) shows numbers of evaporation pans, of all types: US Class A, GCI-3000 (USSR), etc. The number of pans of various types is available but not published here.

Column (5) - Indirect methods - includes energy budget, aerodynamic, combined and other methods of measuring evaporation.

Tables 4.r.09: Hydrological observing stations - Discharge

These are, generally, water level stations with a rating enabling the calculation of discharge. They are grouped under "recording", **Column (4)**, and "non-recording", **Column (5)**, stations. **Column (6)** gives the total of these two groups and **Column (7)** the number of telemetring stations.

For each of the six WMO Regions, a map of the discharge measuring station density (number of stations per 1000 km²) is included.

Tables 4.r.10: Hydrological observing stations - Stage (water level)

This table, which is presented as in **Table 4.r.09**, shows the numbers of water level stations which are not used for discharge computation.

Tables 4.r.11: Hydrological observing stations - Sediment and water quality

The sediment stations are grouped into *suspended sediment (Column (4))*, and *bed-load (Column (5))*, *measuring stations*. *Column (6) shows water quality stations of all types*. No breakdown by parameter measured is available.

Tables 4.r.12: Groundwater stations (wells)

The columns show:

- Column (4):** *Level measurements*, either at special observation wells or at production wells (Prod). The observation wells are either recording (Rec) or non-recording (N-rec).
- Column (5):** *Temperature measurement stations*. Grouped under observation wells (Obsn) or production wells (Prod)
- Column (6):** *Water quality measurements (Obsn or Prod)*
- Column (7):** *Other groundwater measurements (Obsn or Prod)*.

Table 4.7 summarizes the total numbers of observing stations in each WMO Region.

IV - STATIONS D'OBSERVATION HYDROLOGIQUE

TABLEAUX 4.1.01 à 4.7

Notes explicatives

Les tableaux de cette section indiquent le nombre de stations d'observation hydrologique exploitées dans chaque pays, par Région de l'OMM comme suit :

Tableau(x) N°(s)	Type de station
4.r.01 à .07	Précipitations
4.r.08	Evaporation
4.r.09	Débit
4.r.10	Hauteur d'eau (niveau de l'eau)
4.r.11	Charge solide et qualité de l'eau
4.r.12	Eau souterraine (puits)

Dans les numéros de tableaux ci-dessus, la lettre "r" indique la Région de l'OMM (les chiffres 1 à 6 correspondent aux Régions I à VI).

Dans la mesure du possible, les stations d'observation sont classées en fonction de la durée de la période de relevé :

- Moins de cinq ans;
- Cinq à 10 ans;
- 10 à 30 ans;
- Plus de 30 ans.

Le nombre total de stations d'observation est également indiqué. Il peut être supérieur à la somme des quatre colonnes précédentes, lorsque certaines stations ne figurent pas dans la classification en fonction de la durée de la période de relevé. On notera que les données antérieures à 1980 sont tirées du **Operational Hydrology Report N° 10 (WMO-N° 464)** et que dans ce rapport toutes les périodes de relevé supérieures à dix ans sont regroupées en une seule catégorie, non limitée à trente ans. Dans les tableaux dont il est question ici, les données correspondantes figurent arbitrairement dans la colonne "10 à 30 ans", la colonne "plus de 30 ans" restant alors vide.

Dans tous les tableaux, les trois premières colonnes sont réservées aux indications suivantes :

Colonne (1) - Nom du pays

Colonne (2) - Superficie totale du pays

Colonne (3) - Année où les données ont été recueillies

Pour les autres colonnes, les détails concernant les divers tableaux sont indiqués ci-après :

Tableaux 4.r.01 à 4.r.06 : Stations pluviométriques pour différentes zones altitudinales

Les zones altitudinales sont les suivantes :

4.r.01	0 à 500 m au-dessus du niveau de la mer
4.r.02	501 à 1000 m
4.r.03	1001 à 1500 m
4.r.04	1501 à 2000 m
4.r.05	2001 à 2500 m
4.r.06	plus de 2500 m

Les indications fournies dans les colonnes (4) à (8) sont les suivantes :

Colonne (4) : *% de la superficie* - Pourcentage de la superficie du pays qui se situe dans la zone altitudinale visée

Colonne (5) : *Nombre de pluviomètres non enregistreurs* du pays situés dans la zone altitudinale concernée, classés en fonction de la durée de la période de relevé comme indiqué ci-dessus

Colonne (6) : *Nombre de pluviomètres enregistreurs* [comme pour la Colonne (5)]

Colonne (7) : *Nombre de pluviomètres de télémesure*

Colonne (8) : *Nombre de radars utilisés pour la mesure des précipitations.*

Ne sont inclus dans chaque tableau que les pays communiquant des indications pour des pluviomètres situés dans la zone altitudinale visée. D'où la possibilité d'un tableau vide, ne fournissant aucune indication et qui, dans ce cas, n'a pas été imprimé.

Sur la rangée "Totaux" sont indiqués les totaux pour chaque colonne. On notera en particulier que le total dans la **Colonne 2** représente la somme des superficies des pays énumérés, et non pas la superficie correspondante à la zone altitudinale visée.

Tableau 4.r.07 : Stations d'observation des précipitations - Totaux

Les indications données dans ce tableau concernent l'ensemble des pluviomètres quelle que soit l'altitude. La forme de présentation est ici la même que pour les tableaux 4.r.01 à 4.r.06, sauf que la colonne "% de la superficie" est absente. Les chiffres indiqués dans ces tableaux peuvent être supérieurs à la somme des chiffres des six tableaux précédents. Tel est le cas lorsque tous les pluviomètres n'ont pas été classés dans les zones altitudinales.

Une carte de la densité des pluviomètres non enregistreurs (nombre de pluviomètres par 1000 km²) a été incluse pour chacune des six Régions de l'OMM.

Tableau 4.r.08 : Stations évaporométriques

La Colonne (4) indique le nombre de bacs d'évaporation, de tous types : US Class A, GGI-3000 (ancienne URSS), etc. Le nombre de bacs de divers types est connu, mais il n'est pas indiqué ici.

La Colonne (5) - Méthodes indirectes - correspond à des méthodes de bilan énergétique, des méthodes basées sur la dynamique de l'atmosphère, des méthodes combinées et d'autres méthodes de mesure de l'évaporation.

Tableau 4.r.09 : Stations d'observation hydrologique - Débit

Il s'agit, d'une manière générale, de stations limnimétriques pour lesquelles il existe une courbe d'étalonnage permettant le calcul du débit. On distingue ici deux groupes de stations, selon qu'il s'agit de *stations "avec enregistrement" (limnigraphique) (Colonne (4))* ou de *stations "sans enregistrement" (limnimétrique) (Colonne (5))*. La Colonne (6) indique le total de ces deux groupes de stations, et la Colonne (7) le nombre de stations de télémesure.

Une carte de la densité des stations de mesure du débit (nombre de stations pour 1000 km²) a été incluse pour chaque Région de l'OMM.

Tableau 4.r.10 : Stations d'observation hydrologique - Hauteur d'eau (niveau de l'eau)

Ce tableau, dont la forme de présentation est la même que celle du tableau 4.r.09, indique le nombre de stations limnimétriques qui ne sont pas utilisées pour le calcul du débit.

Tableau 4.r.11 : Stations d'observation hydrologique - Charge solide et qualité de l'eau

Les stations de mesure de la charge solide sont réparties en deux groupes : *stations de mesure de la charge solide en suspension (Colonne (4))*, et *stations de mesure du transport de fond (Colonne (5))*. La Colonne (6) indique tous les types de stations de mesure de la qualité de l'eau. L'on ne dispose pas d'une répartition en fonction du paramètre mesuré.

Tableau 4.r.12 : Stations de mesure des eaux souterraines (puits)

Les indications présentées par les Colonnes (4) à (7) sont les suivantes :

Colonne (4) : *Mesures du niveau* effectuées dans des puits d'observation spéciaux ou des puits de production (Prod). Les puits d'observation peuvent être munis d'enregistreurs (Rec) ou non (N-rec).

Colonne (5) : *Stations de mesure de la température*. Elles se répartissent en puits d'observation (Obsn) et en puits de production (Prod).

Colonne (6) : *Mesures de la qualité de l'eau (Obsn ou Prod)*.

Colonne (7) : *Autres mesures des eaux souterraines (Obsn ou Prod)*.

Le Tableau 4.7 est un tableau récapitulatif indiquant le nombre total d'observations dans chaque Région de l'OMM

IV - ГИДРОЛОГИЧЕСКИЕ НАБЛЮДАТЕЛЬНЫЕ СТАНЦИИ

ТАБЛИЦЫ 4.1.01-4.7

Пояснительные записки

В таблицах данной главы указывается количество гидрологических наблюдательных станций, функционирующих в каждой стране в соответствии с разделением по Регионам ВМО.

Таблица(ы) №(№)	Тип станции
4.г.01-.07	Осадки
4.г.08	Испарение
4.г.09	Расход воды
4.г.10	Уровень (воды)
4.г.11	Наносы и качество воды
4.г.12	Подземные воды (скважины)

Буква "г", используемая выше, обозначает Регион ВМО (I-VI как 1-6).

Везде, где возможно, наблюдательные станции классифицированы по длине ряда наблюдений:

- менее 5 лет;
- 5-10 лет;
- 10-30 лет;
- более 30 лет.

Указывается также общее число наблюдательных станций. Это число может превышать сумму предыдущих четырех колонок в том случае, если некоторые станции не были классифицированы по длине ряда наблюдений. Следует отметить, что данные, относящиеся к периоду до 1980 г., были взяты из отчета по оперативной гидрологии № 10 (Публикация ВМО № 464), в котором все ряды наблюдений, длиннее 10 лет, включены в единую категорию. Эти данные были произвольно включены в градацию "10-30 лет" в описываемых таблицах, причем колонка "более 30 лет" оставлена незаполненной.

Во всех таблицах первые три колонки являются одинаковыми:

Колонка (1) - Название страны

Колонка (2) - Общая площадь страны

Колонка (3) - Год, по которому собраны данные.

Подробности, касающиеся отдельных таблиц, приводятся ниже:

Таблицы 4.г.01 - 4.г.06 - Осадкомерные станции для различных интервалов высот

Использованы следующие интервалы высот:

4.г.01	0-500 м над уровнем моря
4.г.02	501-100 м
4.г.03	1001-1500 м
4.г.04	1501-2000 м
4.г.05	2001-2500 м
4.г.06	более 2500 м

Содержание колонок:

<i>Колонка (4):</i>	% площади - процентная доля площади страны, которая располагается в данном интервале высот
<i>Колонка (5):</i>	количество необорудованных самописцами осадкомеров в стране в данном интервале высот, классифицированное по длине ряда наблюдений в соответствии с вышеприведенным описанием
<i>Колонка (6):</i>	количество оборудованных самописцами осадкомеров [как для колонки (5)]
<i>Колонка (7):</i>	количество дистанционных осадкомеров
<i>Колонка (8):</i>	количество радиолокаторов, используемых для измерений жидких осадков.

В каждую таблицу включены осадкомеры только тех стран, которые сообщили о расположении осадкомеров в соответствующем интервале высот. В результате получились незаполненные таблицы, которые не напечатаны.

В ряде граф "Totals" указываются общие суммы по каждой колонке. В частности, примите во внимание, что сумма в колонке (2) является суммой площадей перечисленных стран, а не площадью, охватываемой данным интервалом высот.

Таблица 4.г.07: Осадкомерные станции - Итоги

В этой таблице сведены все осадкомерные посты без учета высоты их расположения. Эта таблица построена так же, как и таблицы 4.г.01-4.г.06, за исключением того, что колонка "% площади" опущена. Количества, указанные в данной таблице, могут превышать суммы предыдущих шести таблиц. Это происходит тогда, когда не все осадкомеры классифицированы по высоте их расположения.

Для каждого из шести Регионов ВМО прилагается карта плотности расположения необорудованных самописцами осадкомеров (количество осадкомеров на 1000 км²).

Таблица 4.г.08: Станции наблюдений за испарением

В колонке (4) указывается количество испарителей всех типов: класс А США, ГГИ-3000 (СССР) и т.д. Данные по количеству испарителей различных типов имеются, но здесь не публикуются.

Колонка (5) - Непрямые методы - в них входит метод энергетического бюджета, аэродинамический, комплексный и другие методы измерения испарения.

Таблица 4.г.09: Гидрологические наблюдательные станции - Расход воды

Сюда, как правило, относятся водомерные станции, для которых имеется зависимость расхода от уровня, что дает возможность вычисления расхода воды. Они сгруппированы по двум типам станций: "оборудованные самописцами", колонка (4), и "необорудованные самописцами", колонка (5). В колонке (6) приводится сумма этих двух групп, а в колонке (7) - количество дистанционных станций.

Для каждого из шести Регионов ВМО прилагается карта плотности расположения станций по измерению расхода воды (количество станций на 1000 км²).

Таблицы 4.г.10: Гидрологические наблюдательные станции - Уровень (воды)

В этой таблице, которая имеет ту же самую форму, что и таблица 4.г.09, показаны количества водомерных станций, которые не используются для вычисления расхода.

Таблицы 4.г.11: Гидрологические наблюдательные станции - Наносы и качество воды

Станции для измерения наносов группируются следующим образом: взвешенные наносы (*колонка (4)*) и влекомые наносы (*колонка (5)*). В *колонке (6)* указываются все типы станций, измеряющих качество воды. Разбивки по измеряемым параметрам не имеется.

Таблицы 4.г.12: Станции для наблюдений за подземными водами (скважины)

В колонках указываются:

- Колонка (4):* Измерение уровней либо в специальных наблюдательных скважинах, либо в эксплуатационных скважинах (Prod). Наблюдательные скважины либо оборудованы самописцами (Rec), либо необорудованы (N-rec).
- Колонка (5):* Станции для измерения температуры. Сгруппированы по наблюдательным (Obsn) или эксплуатационным (Prod) скважинам.
- Колонка (6):* Измерение качества воды (Obsn или Prod).
- Колонка (7):* Измерение других параметров подземных вод (см. выше).

В таблице 4.7 резюмируется общее количество наблюдательных станций по каждому Региону ВМО.

IV - ESTACIONES DE OBSERVACIÓN HIDROLÓGICA

CUADROS 4.1.01 a 4.7

Notas explicativas

Los cuadros de este capítulo muestran el número de estaciones de observación hidrológica en explotación en cada país, por Región de la OMM, según el siguiente detalle:

Cuadro(s) N°(s)	Tipo de estación
4.r.01 a 07	Precipitación
4.r.08	Evaporación
4.r.09	Caudal
4.r.10	Altura (nivel del agua)
4.r.11	Sedimentos y calidad del agua
4.r.12	Agua subterránea (pozos)

La letra "r" de la primera columna indica la Región de la OMM (I a VI como 1 a 6) en los números del cuadro.

En la medida de las posibilidades las estaciones de observación han sido clasificadas por tiempo de duración del registro:

- Menos de 5 años;
- cinco a 10 años;
- diez a 30 años;
- más de 30 años.

Se indica asimismo el número total de estaciones de observación. Este total puede superar la suma de las cuatro columnas anteriores en los casos en que algunas estaciones no se han clasificado por tiempo de duración del registro. Debería tenerse presente que los datos anteriores a 1980 se han tomado del **Informe de Hidrología Operativa N° 10** (OMM-N° 464), publicación en la que todos los períodos de registro de más de 10 años se incluyen en una categoría única, sin división alguna a los 30 años. Estos datos se han incluido arbitrariamente en la parte "10 a 30" años de estos cuadros, dejando en blanco la columna correspondiente a más de 30 años.

En todos los cuadros las tres primeras columnas son las mismas:

Columna (1): Nombre del país

Columna (2): Superficie total del país

Columna (3): Año en que se recopilaron los datos.

Los detalles de los cuadros son los siguientes:

Cuadros 4.r.01 a 4.r.06 - Estaciones de medición de la precipitación para diferentes niveles de altura

Los niveles de altura considerados son los siguientes:

4.r.01	0 a 500 m sobre el nivel del mar
4.r.02	501 a 1000 m

4.r.03	1 001 a 1 500 m
4.r.04	1 501 a 2 000 m
4.r.05	2 001 a 2 500 m
4.r.06	más de 2 500 m.

Las columnas son las siguientes:

Columna (4): % superficie - porcentaje de la superficie del país que se halla a este nivel de altura

Columna (5): Número de pluviómetros en el país en este nivel de altura, clasificados por tiempo de duración del registro según se describe anteriormente

Columna (6): Número de pluviógrafos [como en la Columna (5)]

Columna (7): Número de pluviómetros telemétricos

Columna (8): Número de radares utilizados para la medición de la precipitación.

Sólo se incluyen en cada cuadro los países que dan cuenta de pluviómetros en el pertinente nivel de altura. Esto puede traducirse en un cuadro en blanco que no ha sido impreso.

La columna "Total" indica los totales de las cifras de cada columna. Nótese en particular que el total de la **Columna (2)** es la suma de las superficies de los países enumerados y **no** la superficie de la región que se halla en ese nivel de altura.

Cuadros 4.r.07: Estaciones de observación de la precipitación - Totales

Este cuadro presenta todos los pluviómetros, sin tener en cuenta la altura. Está organizado como los Cuadros 4.r.01 a 4.r.06, con la diferencia de que se ha omitido la columna "% superficie". Los números de este cuadro pueden superar las sumas de los seis cuadros anteriores. Esto ocurre cuando no todos los pluviómetros se han clasificado por nivel de altura.

Se incluye para cada una de las seis Regiones de la OMM un mapa de la densidad de los pluviómetros (número de pluviómetros por 1000 km²).

Cuadro 4.r.08: Estaciones de evaporación

La Columna (4) presenta el número de tanques de evaporación de todo tipo: Clase A de EE.UU., GGI-300 (antigua URSS), etc. Aunque se conoce el número de tanques de diversos tipos, no se ha incluido en esta publicación.

La Columna (5) - Métodos indirectos - incluye métodos de balance de energía, de dinámica de la atmósfera, combinados, y otros métodos de medición de la evaporación.

Cuadros 4.r.09: Estaciones de observación hidrológica - Descarga

Generalmente se trata de estaciones de medición del nivel de agua con una curva de aforo que les permite calcular el caudal. Se encuentran agrupadas como **estaciones registradoras [Columna (4)]** y **no registradoras [Columna (5)]**. **La Columna (6) presenta el total de estos dos grupos y la Columna (7) el número de estaciones de telemetría.**

Se incluye para cada una de las seis Regiones de la OMM, un mapa de la densidad de estaciones de medición de caudal (número de estaciones por 1000 km²).

Cuadros 4.r.10: Estaciones de observación hidrológica - Altura (nivel del agua)

Este cuadro, que se presenta como el Cuadro 4.r.09, indica el número de estaciones de medición del nivel de agua que no se usan para el cálculo del caudal.

Cuadros 4.r.11: Estaciones de observación hidrológica - Sedimentos y calidad del agua

Las estaciones de medición de los sedimentos se agrupan en *estaciones de medición de los sedimentos suspendidos (Columna (4)) y del arrastre de fondo (Columna (5))*. La Columna (6) indica todo tipo de estaciones de medición de la calidad del agua. No se dispone de ningún análisis por parámetro medido.

Cuadros 4.r.12: Estaciones de medición del agua subterránea (pozos)

Las columnas indican los siguientes elementos:

Columna (4): Mediciones de nivel, ya sea en pozos especiales de observación o en pozos de producción (Prod). Los pozos de observación pueden ser registradores (Rec) o no registradores (N-rec)

Columna (5): Estaciones de medición de la temperatura. Agrupadas en la parte correspondiente a los pozos de observación (Obsn) o los pozos de producción (Prod)

Columna (6): Mediciones de la calidad del agua (Obsn o Prod)

Columna (7): Otras mediciones del agua subterránea (Obsn o Prod)

El Cuadro 4.7 resume el número total de estaciones de observación de cada Región de la OMM.

TABLE 4.1.01 - (RA I - AFRICA) PRECIPITATION OBSERVING STATIONS: 0 - 500 M ELEVATION

Page 1

State/Territory	Total Area sq. km.	Data for year	% Area	Non-recording gauges					Recording gauges					Tele- metry	Radar
				Years of record					Years of record						
(1)	(2)	(3)	(4)	<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total	(7)	(8)
Central African Republic	622 984	1988		10	0	12	0	22	0	0	0	6	6	0	0
Congo	342 000	1982		7	4	52	26	89	0	0	0	7	7	0	0
Côte d'Ivoire	322 463	1992		0	2	118	46	166	4	20	9	13	46	0	0
Egypt	1 001 449	1984		1	2	22	20	45	7	10	20	0	37	0	0
France (Réunion)	2 510	1991		1	0	7	22	30	5	2	7	10	24	0	0
Mauritius	1 860	1992	88	8	40	75	150	273	2	4	4	4	14	0	0
Morocco	446 550	1992		7	33	66	18	124	4	2	15	15	36	0	0
Portugal (Madeira)	777	1989	59	0	0	1	12	13	0	0	2	0	2	0	0
Seychelles	278	1983		5	31	10	0	36	0	6	0	0	6	0	0
Spain (Canary Islands)	7 300	1988		38	35	65	8	146	2	0	1	1	4	0	0
Sudan	2 505 813	1992						44					11	0	0
United Republic of Tanzania	945 087	1989		8	15	69	133	225	0	1	11	12	24	0	0
Zambia	753 000	1992		3	2	2	4	11					0	0	0
Zimbabwe	390 580	1983		13	25	38	4	80	4	18	25	13	60	0	0
Totals	7 342 651			101	189	527	443	1304	28	63	94	81	277	0	0

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.
The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.1.02 - (RA I - AFRICA) PRECIPITATION OBSERVING STATIONS: 501 - 1000 M ELEVATION

Page 1

State/Territory	Total Area sq. km.	Data for year	% Area	Non-recording gauges					Recording gauges					Tele- metry	Radar
				Years of record					Years of record						
(1)	(2)	(3)	(4)	<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total	(7)	(8)
Botswana	582 000	1985		0	0	14	0	14	12	0	35	0	47	0	0
Central African Republic	622 984	1988		9	0	16	0	25	0	0	0	6	6	0	0
Congo	342 000	1982		0	0	15	7	22	0	0	2	2	4	0	0
Côte d'Ivoire	322 463	1992		0	0	4	1	5	0	1	0	0	1	0	0
France (Réunion)	2 510	1991		1	0	7	22	30	5	0	8	4	17	0	0
Mauritius	1 860	1992	12	1	0	5	5	11					0	0	0
Morocco	446 550	1992		3	12	34	2	51	0	2	0	3	5	0	0
Portugal (Madeira)	777	1989	24	0	0	3	2	5					0	0	0
Seychelles	278	1983		0	1	0	0	1					0	0	0
Spain (Canary Islands)	7 300	1988		20	15	29	6	70	0	0	0	1	1	0	0
Sudan	2 505 813	1992						9					4	0	0
United Republic of Tanzania	945 087	1989		30	61	354	63	508	6	7	72	18	103	0	0
Zambia	753 000	1992		15	27	58	43	143	0	0	1	3	4	0	0
Zimbabwe	390 580	1983		57	80	146	29	312	30	24	79	89	222	0	0
Totals	6 923 202			136	196	685	180	1206	53	34	197	126	414	0	0

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.1.03 - (RA I - AFRICA) PRECIPITATION OBSERVING STATIONS: 1001 - 1500 M ELEVATION

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	% Area (4)	Non-recording gauges Years of record					Recording gauges Years of record					Tele- metry (7)	Radar (8)
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
				(5)					(6)						
Central African Republic	622 984	1988		4	0	2	0	6	0	0	0	1	1	0	0
France (Réunion)	2 510	1991		0	0	1	0	1	2	2	6	5	15	0	0
Morocco	446 550	1992		3	16	21	0	40	0	0	2	1	3	0	0
Portugal (Madeira)	777	1989	6	0	0	1	2	3					0	0	0
Spain (Canary Islands)	7 300	1988		8	4	15	1	28					0	0	0
Sudan	2 505 813	1992						1					0	0	0
United Republic of Tanzania	945 087	1989		5	2	142	155	304	1	0	0	23	24	0	0
Zambia	753 000	1992		89	92	246	187	614	0	0	8	26	34	0	0
Zimbabwe	390 580	1983		58	204	430	197	889	59	44	249	351	703	0	0
Totals	5 674 601			167	318	858	542	1886	62	46	265	407	780	0	0

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.1.04 - (RA I - AFRICA) PRECIPITATION OBSERVING STATIONS: 1501 - 2000 M ELEVATION

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	% Area (4)	Non-recording gauges Years of record					Recording gauges Years of record					Tele- metry (7)	Radar (8)
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
				(5)					(6)						
France (Réunion)	2 510	1991						0	1	0	3	1	5	0	0
Morocco	446 550	1992		0	3	6	2	11	0	0	0	2	2	0	0
Portugal (Madeira)	777	1989	11	0	0	0	3	3					0	0	0
Spain (Canary Islands)	7 300	1988		2	2	1	1	6					0	0	0
United Republic of Tanzania	945 087	1989		7	4	56	102	169	0	0	3	2	5	0	0
Zambia	753 000	1992		2	11	16	11	40	0	0	0	1	1	0	0
Zimbabwe	390 580	1983		6	29	45	30	110	3	3	20	53	79	0	0
Totals	2 545 804			17	49	124	149	339	4	3	26	59	92	0	0

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.1.05 - (RA 1 - AFRICA) PRECIPITATION OBSERVING STATIONS: 2001 - 2500 M ELEVATION

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	% Area (4)	Non-recording gauges Years of record					Recording gauges Years of record					Tele- metry (7)	Radar (8)
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
				(5)					(6)						
France (Réunion)	2 510	1991						0	1	0	3	0	4	0	0
Morocco	446 550	1992		0	1	0	0	1					0	0	0
Spain (Canary Islands)	7 300	1988		1	0	0	0	1					0	0	0
United Republic of Tanzania	945 087	1989		2	0	10	11	23	0	0	2	0	2	0	0
Zimbabwe	390 580	1983		2	0	1	1	4	0	2	1	0	3	0	0
Totals	1 792 027			5	1	11	12	29	1	2	6	0	9	0	0

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.
The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.1.06 - (RA I - AFRICA) PRECIPITATION OBSERVING STATIONS: OVER 2500 M ELEVATION

Page 1

State/Territory	Total Area sq. km.	Data for year	% Area	Non-recording gauges					Recording gauges					Tele- metry	Radar
				Years of record					Years of record						
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
(1)	(2)	(3)	(4)	(5)					(6)					(7)	(8)
United Republic of Tanzania	945 087	1989		1	1	4	2	8	0	0	1	0	1	0	0
Totals	945 087			1	1	4	2	8	0	0	1	0	1	0	0

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.
The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.1.07 - (RA I - AFRICA) PRECIPITATION OBSERVING STATIONS: TOTALS

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Non-recording gauges Years of record (4)					Recording gauges Years of record (5)					Tele- metry (6)	Radar (7)
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Algeria	2 381 741	1992	249	200	872	223	1544	4	150	26	0	180	8	0
Angola	1 246 700	1973	185	167	212		564	23	1	22		46	0	0
Benin	112 622	1973					65					14	0	0
Botswana	582 000	1985	0	0	14	0	14	12	0	35	0	47	0	0
Burkina Faso	274 200	1973	65	33	87		185	7	3	3		13	0	0
Burundi	27 834	1992	17	14	49	44	124	3	2	11	2	18	0	0
Cameroon	475 422	1973	50	75	60		185	0	2	6		8	0	0
Cape Verde	4 033	1973					0					0	0	0
Central African Republic	622 984	1988	23	0	30	0	53	0	0	0	13	13	0	1
Chad	1 284 000	1987	7	12	45	38	111					1	0	0
Comoros	2 171	1973	19	11	20		50	5	0	3		8	0	0
Congo	342 000	1982	7	4	67	33	111	0	0	2		11	0	0
Côte d'Ivoire	322 463	1992	0	2	122	47	171	4	21	9	13	47	0	0
Djibouti	22 000	1973	5	3	14		22	0	1	1		2	0	0
Egypt	1 001 449	1984	1	2	22	20	45	7	10	20	0	37	0	0
Equatorial Guinea	28 051	1973					0					0	0	0
Eritrea	0													
Ethiopia	1 221 900	1983	76	125	203	2	406	40	17	19	0	76	0	0
France (Réunion)	2 510	1991	2	0	15	44	61	14	4	27	20	65	0	0
Gabon	267 667	1973					61					9	0	0
Gambia	11 295	1973					16					4	0	0
Ghana	238 537	1987	0	0	238	379	617	0	0	64	18	82	0	0
Guinea	245 857	1973					43					6	0	0
Guinea Bissau	36 125	1988					17					12	0	0
Kenya	582 646	1983	298	250	695	0	1243	10	15	14	0	39	0	0
Lesotho	30 355	1976	25	5	9		39	0	0	7		7	0	0
Liberia	111 369	1973					30					1	0	0
Libyan Arab Jamahiriya	1 759 540	1973	4	32	111		147	0	1	0		1	0	0
Madagascar	587 041	1986	152	82	302	305	841	0	0	12	15	27	0	0
Malawi	118 484	1987	25	186	439	124	774	2	14	18	0	34	0	0
Mali	1 240 000	1992					182					34	0	1
Mauritania	1 030 700	1973					33					6	0	0
Mauritius	1 860	1992	9	40	80	155	284	2	4	4	4	14	0	1
Morocco	446 550	1992	13	65	127	22	227	4	4	17	21	46	0	0
Mozambique	783 030	1973	164	77	653		894	13	7	26		46	0	0

TABLE 4.1.07 - (RA 1 - AFRICA) PRECIPITATION OBSERVING STATIONS: TOTALS

Page 2

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Non-recording gauges Years of record (4)					Recording gauges Years of record (5)					Tele- metry (6)	Radar (7)
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Namibia	824 292													
Niger	1 267 000	1992	92	54	132	68	346	1	3	13	0	17	0	0
Nigeria	923 768	1992					880					72	0	0
Portugal (Madeira)	777	1989	0	0	5	19	24	0	0	2	0	2	0	0
Rwanda	26 338	1992	6	12	33	17	68	4	6	1	0	11	0	0
Sao Tome and Principe	964													
Senegal	196 192	1973	3	35	68		106	3	0	7		10	0	0
Seychelles	278	1983	5	32	0	0	37	0	6	0	0	6	0	0
Sierra Leone	71 740													
Somalia	637 657													
South Africa	1 221 037	1973	61	110	841		1012	11	12	61		84	0	0
Spain (Canary Islands)	7 300	1988	69	56	110	16	251	2	0	1	2	5	0	0
Sudan	2 505 813	1992	0	0	63	56	119	0	0	9	6	15	0	0
Swaziland	17 363	1987	10	4	6	30	50	0	2	3	0	5	0	0
Togo	56 000	1973	1	25	65		91	2	9	0		11	0	0
Tunisia	163 610	1973	92	284	274		650					100	0	0
Uganda	236 036	1973	204	77	294		575					38	0	0
United Republic of Tanzania	945 087	1989	53	83	635	466	1237	7	8	89	55	159	0	0
Zaire	2 345 409	1973	0	0	228		228	0	0	44		44	0	0
Zambia	753 000	1992	109	132	322	245	808	0	0	9	30	39	0	0
Zimbabwe	390 580	1983	136	338	660	261	1395	96	91	374	506	1067	0	6
Totals	30 035 377		2237	2627	8222	2614	17036	276	393	959	714	2639	8	9

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Notes: Blank entries indicate data not supplied.

The totals reported in this table may include gauges not classified in previous tables.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

NON-RECORDING PRECIPITATION GAUGES DENSITY (gauges per 1000 km²) AFRICA

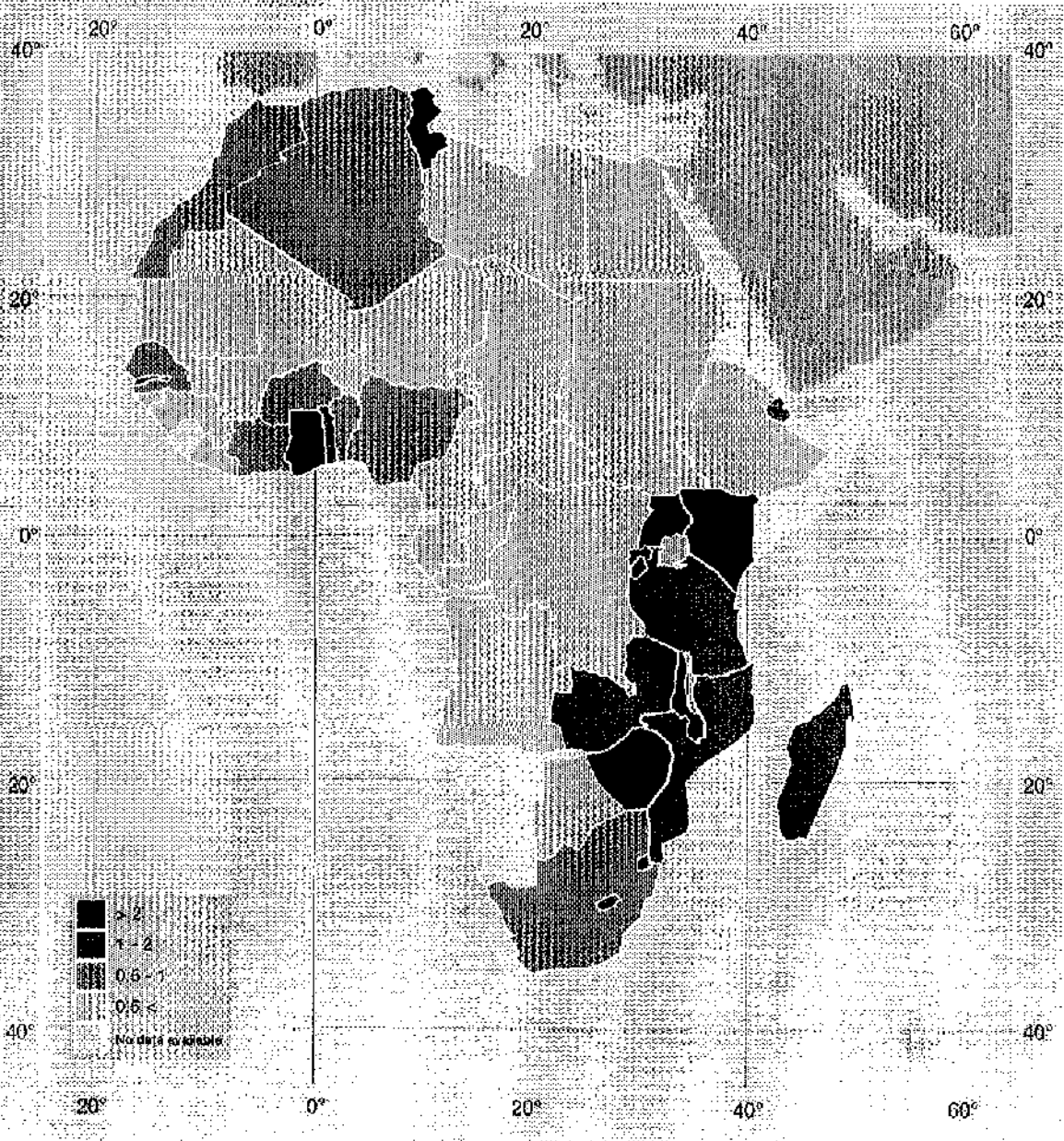


TABLE 4.1.08 - (RA I - AFRICA) EVAPORATION STATIONS

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Evaporation pans Years of record (4)					Indirect Methods Years of record (5)				
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total
Algeria	2 381 741	1992	59	19	28	3	109					0
Angola	1 246 700	1973	5	13	12		30					0
Benin	112 622	1973					17					0
Botswana	582 000	1985	1	1	0	0	2	1	0	0	0	1
Burkina Faso	274 200	1973	10	3	0		13					0
Burundi	27 834	1992	2	3	7	1	51					0
Cameroon	475 422	1973					10					0
Cape Verde	4 033	1973					0					0
Central African Republic	622 984	1988	5	0	0	0	5					0
Chad	1 284 000	1987					10					0
Comoros	2 171	1973	0	1	0		1					0
Congo	342 000	1982	0	0	4	0	4					0
Côte d'Ivoire	322 463	1992	3	14	3	4	24	3	19	7	12	41
Djibouti	22 000	1973	3	1	0		4					0
Egypt	1 001 449	1984	0	0	15	0	15	0	1	0	0	1
Equatorial Guinea	28 051	1973					0					0
Eritrea	0											
Ethiopia	1 221 900	1983	24	17	19	0	60					0
France (Réunion)	2 510	1991	0	0	3	0	3	0	0	1	2	3
Gabon	267 667	1973					2					0
Gambia	11 295	1973					1					0
Ghana	238 537	1987	15	18	24	0	57					0
Guinea	245 857	1973					0					0
Guinea Bissau	36 125	1988					1					0
Kenya	582 646	1983	19	11	106	0	136					0
Lesotho	30 355	1976	0	3	6		9					0
Liberia	111 369	1973					0					0
Libyan Arab Jamahiriya	1 759 540	1973	4	14	0		18					0
Madagascar	587 041	1987	0	0	1	0	1					0
Malawi	118 484	1987	1	19	32	10	62	0	6	0	0	6
Mali	1 240 000	1992	0	0	1	18	19					0
Mauritania	1 030 700											
Mauritius	1 860	1992	2	3	4	7	16	0	2	0	0	2
Morocco	446 550	1986	6	23	30	0	59					0
Mozambique	783 030	1973	17	5	14		36					0

TABLE 4.1.08 - (RA I - AFRICA) EVAPORATION STATIONS

Page 2

State/Territory	Total Area sq. km.	Data for year	Evaporation pans					Total	Indirect Methods					Total
			Years of record						Years of record					
(1)	(2)	(3)	<5	5-10	10-30	>30	(4)	<5	5-10	10-30	>30	(5)		
Namibia	824 292													
Niger	1 267 000	1992	1	7	6	0	14						0	
Nigeria	923 768	1992					65						319	
Portugal (Madeira)	777	1983					0						0	
Rwanda	26 338	1992	6	1	6	2	15						0	
Sao Tome and Principe	964													
Senegal	196 192													
Seychelles	278	1983	4	0	0	0	4		1	0	0	0	1	
Sierra Leone	71 740													
Somalia	637 657													
South Africa	1 221 037	1973	73	51	78		202						0	
Spain (Canary Islands)	7 300	1988	1	0	0	0	1						0	
Sudan	2 505 813	1992	0	1	24	5	30						0	
Swaziland	17 363	1987	4	3	3	0	10						0	
Togo	56 000	1973	4	4	1		9						0	
Tunisia	163 610	1973	10	7	1		18						0	
Uganda	236 036	1973					38						0	
United Republic of Tanzania	945 087	1989	11	22	83	53	169						0	
Zaire	2 345 409	1973	0	0	22		22						0	
Zambia	753 000	1988	4	6	18	0	28						0	
Zimbabwe	390 580	1983					108						0	
Totals	30 035 377		294	270	551	103	1508		5	28	8	14	374	

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Notes: Blank entries indicate data not supplied.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

Indirect methods include aerodynamic, energy budget and similar methods.

DISCHARGE MEASURING STATIONS DENSITY (stations per 1000 km²) AFRICA

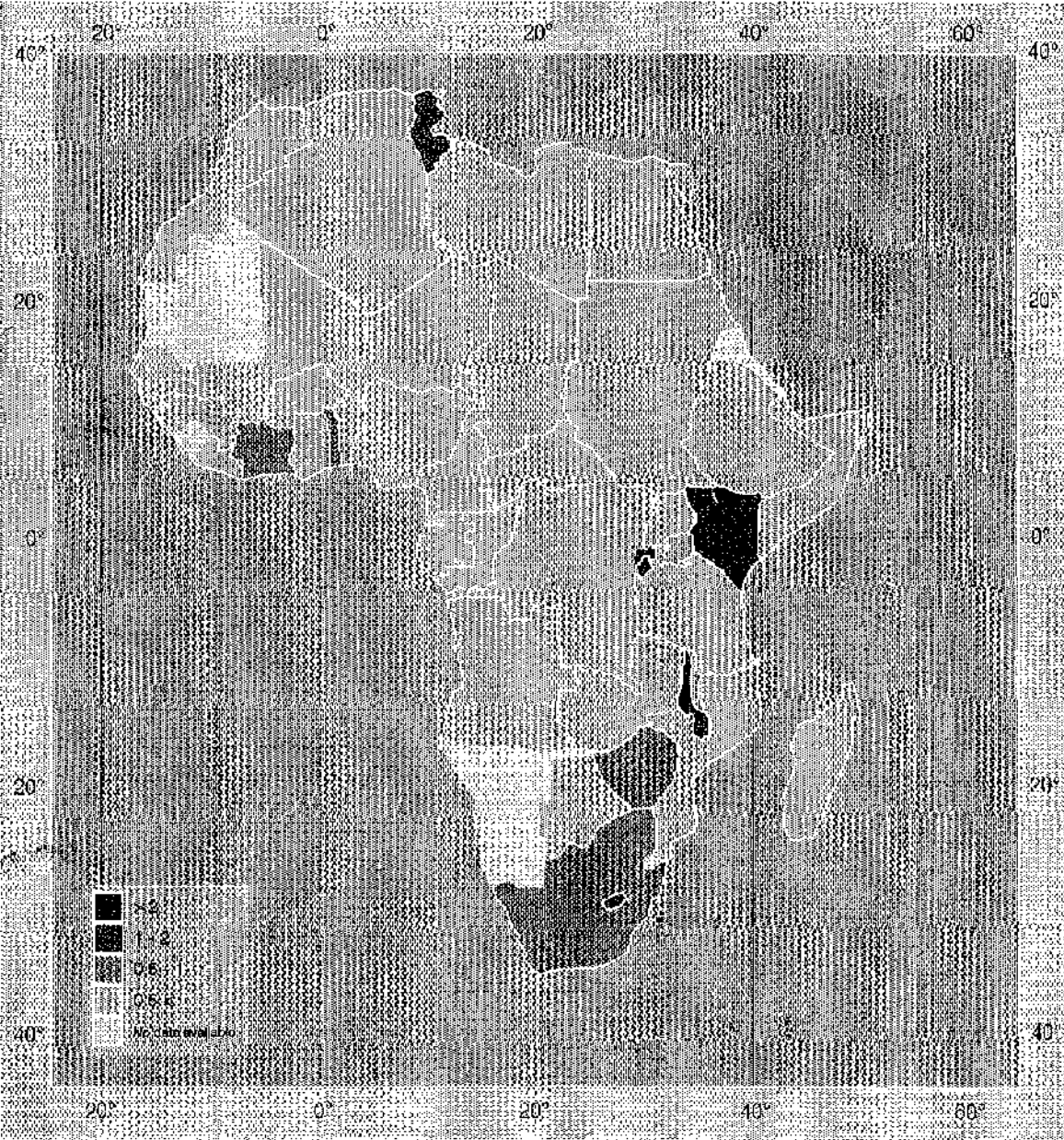


TABLE 4.1.09 - (RA I - AFRICA) HYDROLOGICAL OBSERVING STATIONS - DISCHARGE

Page 1

State/Territory	Total Area sq. km.	Data for year	Recording Years of record					Non-recording, Years of record					Total stns	Tele- metry
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
(1)	(2)	(3)	(4)					(5)					(6)	(7)
Algeria	2 381 741	1992	7	14	105	18	144	56	0	0	0	56	200	5
Angola	1 246 700	1973	14	85	24		123	0	3	2		5	128	0
Benin	112 622	1973					0					0	30	0
Botswana	582 000	1985	5	8	11	0	24	0	0	20	0	20	44	0
Burkina Faso	274 200	1983	2	11	29	3	45	0	0	4	0	4	49	0
Burundi	27 834	1984					0	18	14	0	0	32	32	0
Cameroon	475 422	1973	12	0	0		12	10	22	37		69	81	0
Cape Verde	4 033	1987					8					7	15	0
Central African Republic	622 984	1988	8	0	0	0	8	38	0	3	1	42	50	0
Chad	1 284 000	1987					3	0	0	10	20	34	37	0
Comoros	2 171	1973					0					0	0	0
Congo	342 000	1982	0	0	10	0	10	0	1	43	8	52	62	0
Côte d'Ivoire	322 463	1992	0	15	39	1	55	0	37	85	32	154	209	23
Djibouti	22 000	1973					0	2	0	0		2	2	0
Egypt	1 001 449	1984	5	15	30	20	70	6	4	100	50	160	230	2
Equatorial Guinea	28 051	1973					0					0	0	0
Eritrea	0													
Ethiopia	1 221 900	1992	0	13	58	25	96	3	30	59	11	103	199	0
France (Réunion)	2 510	1988	9	9	4	0	22	35	40	15	0	90	112	0
Gabon	267 667	1973					0					0	43	0
Gambia	11 295	1973					0					0	7	0
Ghana	238 537	1987					0	0	0	71	27	98	98	0
Guinea	245 857	1973					0					34	34	0
Guinea Bissau	36 125	1988	0	4	1	0	5	1	0	0	0	1	6	0
Kenya	582 646	1983	13	5	73	0	91	148	129	470	0	747	838	0
Lesotho	30 355	1976	7	12	14		33	1	0	0		1	34	0
Liberia	111 369	1973					0					0	11	0
Libyan Arab Jamahiriya	1 759 540	1973					0					0	30	0
Madagascar	587 041	1987	5	7	22	0	34	28	10	24	2	64	98	0
Malawi	118 484	1987	2	0	25	24	51	14	17	43	41	115	166	0
Mali	1 240 000	1992	10	21	0	0	31	3	3	32	51	89	120	0
Mauritania	1 030 700													
Mauritius	1 860	1992	8	17	25	4	54	3	6	32	4	45	99	0
Morocco	446 550	1973					0					0	144	0
Mozambique	783 030	1984	1	16	6	0	23	21	46	17	0	84	107	0

TABLE 4.1.09 - (RA I - AFRICA) HYDROLOGICAL OBSERVING STATIONS - DISCHARGE

Page 2

State/Territory	Total Area sq. km.	Data for year	Recording Years of record					Non-recording Years of record					Total stns	Tele- metry
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
(1)	(2)	(3)	(4)					(5)					(6)	(7)
Namibia	824 292													
Niger	1 267 000	1992	0	0	17	11	28	1	0	6	7	14	42	9
Nigeria	923 768	1984	19	7	4	0	30	26	57	90	0	173	203	0
Portugal (Madeira)	777	1983					0					0	0	0
Rwanda	26 338	1992	2	7	3	3	15	0	0	5	10	15	30	0
Sao Tome and Principe	964													
Senegal	196 192	1992	4	0	20	3	27	5	0	4	3	12	39	0
Seychelles	278	1983	0	5	0	0	5	0	12	4	0	16	21	0
Sierra Leone	71 740													
Somalia	637 657	1983					0	0	0	8	0	8	8	0
South Africa	1 221 037	1973	134	164	299		597	38	26	160		224	821	0
Spain (Canary Islands)	7 300	1988					0					0	0	0
Sudan	2 505 813	1992	2	16	13	0	31	3	30	40	132	205	236	0
Swaziland	17 363													
Togo	56 000	1973	0	5	0		5	0	25	12		37	42	0
Tunisia	163 610	1973					0					0	197	0
Uganda	236 036	1973	6	1	3		10	9	13	41		63	73	0
United Republic of Tanzania	945 087	1973	24	22	3		49	38	26	61		125	174	0
Zaire	2 345 409	1983					0					5	5	0
Zambia	753 000	1992	4	1	50	62	117	1	1	3	35	40	157	0
Zimbabwe	390 580	1983					0					0	340	0
Totals	30 035 377		303	480	888	174	1856	508	552	1501	434	3045	5703	39

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Notes: Blank entries indicate data not supplied.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.1.10 - (RA I - AFRICA) HYDROLOGICAL OBSERVING STATIONS - STAGE (WATER LEVEL)

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Recording Years of record (4)					Non-recording Years of record (5)					Total stns (6)	Tele- metry (7)
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Algeria	2 381 741	1992	7	27	148	18	200	0	0	13	0	13	213	0
Angola	1 246 700	1973	9	11	6		26	4	10	6	0	20	46	0
Benin	112 622	1973					0					0	0	0
Botswana	582 000	1985	0	0	1	0	1	0	35	36	0	71	72	0
Burkina Faso	274 200	1983	0	0	1	0	1	1	0	7	1	9	10	0
Burundi	27 834	1992					0	2	1	0	0	3	3	0
Cameroon	475 422	1973					0					0	0	0
Cape Verde	4 033	1973					0					0	0	0
Central African Republic	622 984	1988					0	4	0	1	0	5	5	0
Chad	1 284 000	1987					3					0	3	0
Comoros	2 171	1973					0					0	0	0
Congo	342 000	1982					0					0	0	0
Côte d'Ivoire	322 463	1987					0	0	0	1	1	2	2	0
Djibouti	22 000	1973					0					0	0	0
Egypt	1 001 449	1984	2	70	29	10	111	6	10	100	200	316	427	2
Equatorial Guinea	28 051	1973					0					0	0	0
Eritrea	0													
Ethiopia	1 221 900	1992	5	23	76	20	124	45	58	79	6	188	312	0
France (Réunion)	2 510	1988	2	4	2	2	10	5	11	0	0	16	26	0
Gabon	267 667	1973					0					0	0	0
Gambia	11 295	1973					0					0	0	0
Ghana	238 537	1987	0	1	42	25	68	1	3	186	26	216	284	0
Guinea	245 857	1973					0					0	0	0
Guinea Bissau	36 125	1988	1	4	0	0	5	1	0	0	0	1	6	0
Kenya	582 646	1983	0	0	2	0	2	9	1	33	0	43	45	0
Lesotho	30 355	1976	2	0	0		2					0	2	0
Liberia	111 369	1973					0					0	0	0
Libyan Arab Jamahiriya	1 759 540	1973					0					0	0	0
Madagascar	587 041	1987	7	1	11	0	19	9	9	65	14	97	116	0
Malawi	118 484	1987	0	0	2	3	5	1	5	6	5	17	22	0
Mali	1 240 000	1992	10	26	0	0	36	31	3	32	51	117	153	0
Mauritania	1 030 700													
Mauritius	1 860	1992	5	10	16	2	33	2	4	25	2	33	66	0
Morocco	446 550													
Mozambique	783 030	1984	6	15	14	0	35	128	48	119	1	296	331	0

TABLE 4.1.10 - (RA I - AFRICA) HYDROLOGICAL OBSERVING STATIONS - STAGE (WATER LEVEL)

Page 2

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Recording Years of record (4)					Non-recording Years of record (5)					Total stns (6)	Tele- metry (7)
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Namibia	824 292													
Niger	1 267 000													
Nigeria	923 768	1984	0	3	14	0	17	9	84	166	7	266	283	0
Portugal (Madeira)	777	1983					0					0	0	0
Rwanda	26 338	1992	0	2	6	0	8	0	0	10	20	30	38	0
Sao Tome and Principe	964													
Senegal	196 192	1992	2	3	38	3	46	7	6	9	9	31	77	0
Seychelles	278	1983					0	0	14	0	0	14	14	0
Sierra Leone	71 740													
Somalia	637 657	1983					0					0	0	0
South Africa	1 221 037	1973	2	0	0		2	5	8	10		23	25	0
Spain (Canary Islands)	7 300	1988					0					0	0	0
Sudan	2 505 813	1988	2	4	5	4	15	3	5	11	60	79	94	0
Swaziland	17 363													
Togo	56 000	1973					0	0	10	1		11	0	0
Tunisia	163 610	1973	32	26	34		92					0	92	0
Uganda	236 036	1973	6	1	3		10	4	12	17		33	43	0
United Republic of Tanzania	945 087	1973	4	1	0		5	11	12	16		29	34	0
Zaire	2 345 409	1983					1					51	52	0
Zambia	753 000	1988					0	6	7	126	53	192	192	13
Zimbabwe	390 580	1983					0					0	300	0
Totals	30 035 377		104	232	450	87	877	294	356	1092	461	2244	3410	15

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Notes: Blank entries indicate data not supplied.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.1.11 - (RA I - AFRICA) HYDROLOGICAL OBSERVING STATIONS - SEDIMENT AND WATER QUALITY

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Suspended Years of record (4)					Bedload Years of record (5)					Water Quality Years of record (6)				
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total
Algeria	2 381 741	1992	5	26	157	22	210						5	26	157	22	210
Angola	1 246 700	1973					0					0					0
Benin	112 622	1973					0					0					0
Botswana	582 000	1985					0					0					0
Burkina Faso	274 200	1983					0					0					0
Burundi	27 834	1992	51	0	0	0	51					0					0
Cameroon	475 422	1973	3	0	0		3					0	2	0	0		2
Cape Verde	4 033	1973					0					0					0
Central African Republic	622 984	1988	1	0	0	0	1					0					0
Chad	1 284 000	1987					0					0					0
Comoros	2 171	1973					0					0					0
Congo	342 000	1982					0					0					0
Côte d'Ivoire	322 463	1987					0					0					0
Djibouti	22 000	1973					0					0					1
Egypt	1 001 449	1984	0	2	4	0	6					0	0	5	10	5	20
Equatorial Guinea	28 051	1973					0					0					0
Eritrea	0																
Ethiopia	1 221 900	1992	68	40	0	0	108					0	35	13	0	0	48
France (Réunion)	2 510	1988					0	5	0	0	0	5	15	20	0	0	35
Gabon	267 667	1973					0					0					0
Gambia	11 295	1973					0					0					0
Ghana	238 537	1987					0					0					0
Guinea	245 857	1973					0					0					1
Guinea Bissau	36 125	1988					0					0					0
Kenya	582 646	1983	159	0	0	0	159					0					0
Lesotho	30 355	1976	5	0	0		5					0					0
Liberia	111 369	1973					0					0					0
Libyan Arab Jamahiriya	1 759 540	1973					0					0					0
Madagascar	587 041	1987	0	3	0	0	3					0	2	0	0	0	2
Malawi	118 484	1983	4	6	97	0	107					0	19	6	0	0	25
Mali	1 240 000	1992					0					0	40	4500	0	0	4540
Mauritania	1 030 700																
Mauritius	1 860	1992	1	2	1	0	4					0	10	12	8	0	30
Morocco	446 550																
Mozambique	783 030	1973					46					0					9

TABLE 4.1.11 - (RA I - AFRICA) HYDROLOGICAL OBSERVING STATIONS - SEDIMENT AND WATER QUALITY

Page 2

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Suspended Years of record (4)					Bedload Years of record (5)					Water Quality Years of record (6)				
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total
Namibia	824 292																
Niger	1 267 000	1992	1	0	2	0	3					0	0	0	1	0	1
Nigeria	923 768	1984	0	0	10	0	10					0	23	10	0	0	33
Portugal (Madeira)	777	1983					0					0					0
Rwanda	26 338	1992	3	0	0	0	3					0					0
Sao Tome and Principe	964																
Senegal	196 192	1992					0					0	0	2	8	4	14
Seychelles	278	1983					0					0	0	10	0	0	10
Sierra Leone	71 740																
Somalia	637 657	1983					0					0					0
South Africa	1 221 037	1973	19	5	8		32					0	40	6	3		49
Spain (Canary Islands)	7 300	1988					0					0					0
Sudan	2 505 813	1992	2	3	5	0	10	1	0	0	0	1	2	2	3	1	8
Swaziland	17 363																
Togo	56 000	1973					0					0	3	0	0		3
Tunisia	163 610	1973					0					0					160
Uganda	236 036	1973					0					0					0
United Republic of Tanzania	945 087	1973	90	0	0		90					0					0
Zaire	2 345 409	1973					0					0					0
Zambia	753 000	1984	3	0	0	0	3					0					0
Zimbabwe	390 580	1983	5	0	0	0	5					0	20	76	0	0	96
Totals	30 035 377		420	87	284	22	859	6	0	0	0	6	216	4688	190	32	5297

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Notes: Blank entries indicate data not supplied.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

Page 1

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TABLE 4.1.12 - (RA I - AFRICA) GROUNDWATER STATIONS (WELLS)

Page 2

State/Territory	Total Area sq. km.	Data for year	Water Levels			Temperature		Quality		Other	
			Observation Rec	Levels N-rec	Prod	Obsn	Prod	Obsn	Prod	Obsn	Prod
(1)	(2)	(3)	(4)			(5)		(6)		(7)	
Namibia	824 292										
Niger	1 267 000	1992	14	116	243	130	243	130	243	0	0
Nigeria	923 768	1984	0	0	0	0	0	0	0	0	0
Portugal (Madeira)	777	1983	0	0	0	0	0	0	0	0	0
Rwanda	26 338	1992	0	0	0	0	0	0	0	0	0
Sao Tome and Principe	964										
Senegal	196 192	1992	0	0	0	0	0	0	0	0	0
Seychelles	278	1983	2	44	1	2	0	20	1	0	0
Sierra Leone	71 740										
Somalia	637 657	1983	0	0	0	0	0	0	0	0	0
South Africa	1 221 037										
Spain (Canary Islands)	7 300	1988	0	424	210	0	0	0	210	0	67
Sudan	2 505 813	1992	0	70	140	0	0	70	140	0	0
Swaziland	17 363										
Togo	56 000										
Tunisia	163 610	1973	0	0	0	0	0	0	0	0	0
Uganda	236 036	1973	0	0	0	0	0	0	0	0	0
United Republic of Tanzania	945 087										
Zaire	2 345 409										
Zambia	753 000	1984	0	0	0	0	0	0	0	0	0
Zimbabwe	390 580	1983	5	0	21	0	0	0	0	0	0
Totals	30 035 377		283	4601	31804	287	243	4898	5674	3	70

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Key: Obsn: Observation wells, Prod: Production wells, Rec: Recording stations,
N-Rec: Non-recording.

Notes: Blank entries indicate data not supplied.

TABLE 4.2.01 - (RA II - ASIA) PRECIPITATION OBSERVING STATIONS: 0 - 500 M ELEVATION

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	% Area (4)	Non-recording gauges Years of record					Recording gauges Years of record					Tele- metry (7)	Radar (8)
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
				(5)					(6)						
Afghanistan, Islamic State of	647 497	1983	10	3	2	2	0	7					0	0	0
Cambodia	181 035	1975		154	156	118		428	9	20	20		49		
Democratic People's Republic of Korea	122 762	1992		0	2	14	7	23	16	11	79	41	147	5	2
Hong Kong	1 046	1992	97	25	33	98	38	194	15	49	47	11	122	65	0
India	3 280 483	1975		65	63	3116		3244	78	75	52		205		
Iran, Islamic Republic of	1 648 000	1975		168	184	143		495	15	5	2		22		
Iraq	446 000	1989		3	29	14	28	74	9	11	7	9	36	0	0
Japan	377 682	1988	71	0	5	34	44	83	156	1253	802	566	2777	1087	17
Kazakhstan (Asia)	2 537 250	1993	72	1	4	55	217	277	0	0	4	39	43	0	0
Laos People's Democratic Republic	236 000	1975	35	3	23	5		31	1	14	4		19		
Myanmar	694 120	1989	27	57	190	276	38	561	1	15	38	13	67	0	0
Nepal	140 797	1991		9	5	50	29	93	1	0	5	0	6	0	0
Oman	300 000	1989		3	19	48	3	73	16	27	12	0	55	0	0
Pakistan	776 260	1992		7	7	370	331	715	3	2	10	20	35	21	1
Qatar	11 000	1991		0	3	0	0	3	0	26	0	0	26	0	0
Republic of Korea	98 477	1992		2	0	54	17	73	104	40	220	45	409	331	4
Russian Federation (Asia)	17 881 000	1975	72	181	262	2771		3214	54	209	466		729		
Saudi Arabia	2 149 690	1987		5	1	68	0	74	38	4	30	0	72	0	0
Thailand	514 000	1991		193	174	826	623	1816	17	57	215	60	349	0	13
Totals	32 043 099			879	1162	8062	1375	11478	533	1818	2013	804	5168	1509	37

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Notes: Data are shown only for countries which have reported stations in this elevation range.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.2.02 - (RA II - ASIA) PRECIPITATION OBSERVING STATIONS: 501 - 1000 M ELEVATION

Page 1

State/Territory	Total Area sq. km.	Data for year	% Area	Non-recording gauges					Recording gauges					Tele- metry	Radar
				Years of record					Years of record						
(1)	(2)	(3)	(4)	<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total	(7)	(8)
Afghanistan, Islamic State of	647 497	1983	19	6	3	6	0	15					0	0	0
Cambodia	181 035	1975		4	5	4		13	0	2	2		4		
Democratic People's Republic of Korea	122 762	1992		0	0	4	1	5	12	0	35	1	48	0	0
Hong Kong	1 046	1992	3	1	1	3	1	6	1	4	1	1	7	4	0
India	3 280 483	1975		7	9	590		606	12	12	7		31		
Iran, Islamic Republic of	1 648 000	1975		112	119	67		298	6	1	0		7		
Iraq	446 000	1989		0	0	2	7	9	1	0	1	1	3	0	0
Japan	377 682	1988	20	0	1	4	5	10	44	252	261	103	660	287	8
Kazakhstan (Asia)	2 537 250	1993	17	0	0	18	68	86	0	0	0	15	15	0	0
Mongolia	1 564 663	1983		0	3	3	1	7	0	0	7	3	10	0	0
Myanmar	694 120	1989	7	3	13	27	0	43	0	0	3	2	5	0	0
Nepal	140 797	1991		6	1	19	10	36	1	0	2	0	3	0	0
Oman	300 000	1989		3	6	19	0	28	4	16	4	0	24	0	0
Pakistan	776 260	1992		1	1	30	55	87	2	2	13	8	25	7	1
Republic of Korea	98 477	1992		1	0	1	0	2	17	26	9	0	52	24	1
Russian Federation (Asia)	17 881 000	1975	17	52	88	549		689	13	56	119		188		
Saudi Arabia	2 149 690	1987		9	12	83	2	106	19	16	43	0	78	0	0
Thailand	514 000	1991		8	2	20	0	30	2	2	4	0	8	0	0
Totals	33 360 762			213	264	1449	150	2076	134	389	511	134	1168	322	10

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Notes: Data are shown only for countries which have reported stations in this elevation range.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.2.03 - (RA II - ASIA) PRECIPITATION OBSERVING STATIONS: 1001 - 1500 M ELEVATION

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	% Area (4)	Non-recording gauges Years of record					Recording gauges Years of record					Tele- metry (7)	Radar (8)
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
				(5)					(6)						
Afghanistan, Islamic State of	647 497	1983	9	6	2	2	0	10					0	0	0
Democratic People's Republic of Korea	122 762	1992		0	0	1	0	1	1	0	8	0	9	0	0
India	3 280 483	1975		2	4	123		129	1	7	4		12		
Iran, Islamic Republic of	1 648 000	1975		242	271	140		653	9	6	1		16		
Iraq	446 000	1989		0	0	1	3	4	0	0	1	0	1	0	0
Japan	377 682	1988	6	0	0	2	0	2	16	77	65	21	179	66	3
Kazakhstan (Asia)	2 537 250	1993	2	0	0	4	19	23	1	0	0	6	7	0	0
Mongolia	1 564 663	1983		2	6	3	4	15	0	0	9	6	15	0	0
Myanmar	694 120	1989	26	2	5	21	0	28	0	3	4	2	9	0	0
Nepal	140 797	1991		13	1	24	32	70	0	2	2	0	4	0	0
Oman	300 000	1989						0	3	1	0	0	4	0	0
Pakistan	776 260	1992		1	1	37	32	71	4	4	14	6	28	2	0
Republic of Korea	98 477	1992						0	0	1	0	0	1	0	0
Russian Federation (Asia)	17 881 000	1975	7	36	56	183		275	6	23	32		61		
Saudi Arabia	2 149 690	1987		11	6	16	0	33	25	5	9	0	39	0	0
Totals	32 664 681			315	352	557	90	1314	66	129	149	41	385	68	3

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Notes: Data are shown only for countries which have reported stations in this elevation range.
The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.2.04 - (RA II - ASIA) PRECIPITATION OBSERVING STATIONS: 1501 - 2000 M ELEVATION

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	% Area (4)	Non-recording gauges Years of record (5)					Recording gauges Years of record (6)					Tele- metry (7)	Radar (8)
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Afghanistan, Islamic State of	647 497	1983	1	3	2	2	0	7					0	0	0
Democratic People's Republic of Korea	122 762	1992		0	0	1	0	1	2	0	6	0	8	0	0
India	3 280 483	1975		1	4	97		102	0	5	1		6		
Iran, Islamic Republic of	1 648 000	1975		307	223	87		617	7	5	0		12		
Japan	377 682	1988	2	0	0	0	1	1	3	21	38	6	68	8	4
Kazakhstan (Asia)	2 537 250	1993	1	0	0	0	8	8	0	0	0	3	3	0	0
Mongolia	1 564 663	1983		0	4	3	0	7	0	1	6	4	11	0	0
Myanmar	694 120	1989	15	1	3	0	0	4	0	2	1	0	3	0	0
Nepal	140 797	1991		5	0	26	20	51	0	1	4	0	5	0	0
Oman	300 000	1989		0	0	2	0	2	4	0	1	0	5	0	0
Pakistan	776 260	1992		1	2	25	14	42	0	0	6	1	7	2	0
Russian Federation (Asia)	17 881 000	1975	2	38	32	114		184	4	19	9		32		
Saudi Arabia	2 149 690	1987		6	4	11	0	21	17	6	11	0	34	0	0
Totals	32 120 204			362	274	368	43	1047	37	60	83	14	194	10	4

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.2.05 - (RA II - ASIA) PRECIPITATION OBSERVING STATIONS: 2001 - 2500 M ELEVATION

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	% Area (4)	Non-recording gauges Years of record					Recording gauges Years of record					Tele- metry (7)	Radar (8)
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
				(5)					(6)						
Afghanistan, Islamic State of	647 497	1983	1	3	4	3	0	10					0	0	0
Democratic People's Republic of Korea	122 762	1992						0	0	1	0	0	1	0	0
India	3 280 483	1975		1	1	36		38	0	5	4		9		
Iran, Islamic Republic of	1 648 000	1975		169	109	35		313	4	0	0		4		
Japan	377 682	1988	1					0	1	5	9	0	15	3	0
Kazakhstan (Asia)	2 537 250	1993	1	0	0	2	5	7	0	0	0	1	1	0	0
Mongolia	1 564 663	1983		0	1	2	0	3	0	0	4	0	4	0	0
Nepal	140 797	1991		1	0	11	5	17	0	1	1	0	2	0	0
Oman	300 000	1989						0	2	0	0	0	2	0	0
Pakistan	776 260	1992		0	0	7	17	24	1	1	6	0	8	0	0
Russian Federation (Asia)	17 881 000	1975	1	31	67	112		210	1	4	11		16		
Saudi Arabia	2 149 690	1987		0	3	16	0	19	16	0	6	0	22	0	0
Totals	31 426 084			205	185	224	27	641	25	17	41	1	84	3	0

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.
The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.2.06 - (RA II - ASIA) PRECIPITATION OBSERVING STATIONS: OVER 2500 M ELEVATION

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	% Area (4)	Non-recording gauges Years of record					Recording gauges Years of record					Tele- metry (7)	Radar (8)
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Afghanistan, Islamic State of	647 497	1983	1	1	2	4	0	7					0	0	0
India	3 280 483	1975		1	2	39		42					0		
Iran, Islamic Republic of	1 648 000	1975		69	32	7		108	1	0	0		1		
Japan	377 682	1988						0	1	0	3	0	4	1	1
Kazakhstan (Asia)	2 537 250	1993	1	0	0	0	2	2	0	0	0	1	1	0	0
Mongolia	1 564 663	1983		0	1	0	0	1					0	0	0
Nepal	140 797	1991		2	5	18	5	30					1	0	0
Oman	300 000	1989						0	1	0	0	0	1	0	0
Pakistan	776 260	1992		0	1	3	0	4	0	0	1	0	1	0	0
Russian Federation (Asia)	17 881 000	1975	1	53	149	256		458	0	5	2		7		
Saudi Arabia	2 149 690	1987		0	0	1	0	1	1	0	0	0	1	0	0
Totals	31 303 322			126	192	328	7	653	4	5	6	1	17	1	1

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.
The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

Page 1

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TABLE 4.2.07 - (RA II - ASIA) PRECIPITATION OBSERVING STATIONS: TOTALS

Page 2

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Non-recording gauges Years of record					Recording gauges Years of record					Tele- metry (6)	Radar (7)
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
			(4)					(5)						
United Arab Emirates	83 600	1992	0	1	3	0	4	0	5	31	0	36	0	0
Uzbekistan	447 400													
Viet Nam	332 559	1987	64	151	753	49	1017	0	7	34	24	65	0	0
Totals	45 610 232		2168	2612	12070	2029	39456	804	2447	2875	1037	18864	1916	56

INFOHYDRO 02/08/94

Notes: Blank entries indicate data not supplied.

The totals reported in this table may include gauges not classified in previous tables.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

Page 1

[illegible]

TABLE 4.2.08 - (RA II - ASIA) EVAPORATION STATIONS

Page 2

State/Territory	Total Area sq. km.	Data for year	Evaporation pans Years of record					Indirect Methods Years of record				
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total
(1)	(2)	(3)	(4)					(5)				
United Arab Emirates	83 600	1992	1	1	4	0	6					0
Uzbekistan	447 400											
Viet Nam	332 559	1987	2	4	32	0	38					0
Totals	45 610 232		397	516	982	214	3686	1	4	1	1	7

INFOHYDRO 02/08/94

Notes: Blank entries indicate data not supplied.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

Indirect methods include aerodynamic, energy budget and similar methods.

Page 1

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TABLE 4.2.09 - (RA II - ASIA) HYDROLOGICAL OBSERVING STATIONS - DISCHARGE

Page 2

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Recording Years of record (4)					Non-recording Years of record (5)					Total stns (6)	Tele- metry (7)
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
United Arab Emirates	83 600	1992	0	10	7	0	17	0	0	5	0	5	22	0
Uzbekistan	447 400													
Viet Nam	332 559	1987					0	1	14	53	8	76	76	0
Totals	45 610 232		359	650	1645	410	3064	1407	1583	4318	884	8479	11543	2033

INFOHYDRO 02/08/94

Notes: Blank entries indicate data not supplied.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

DISCHARGE MEASURING STATIONS DENSITY (stations per 1000 km²)

ASIA

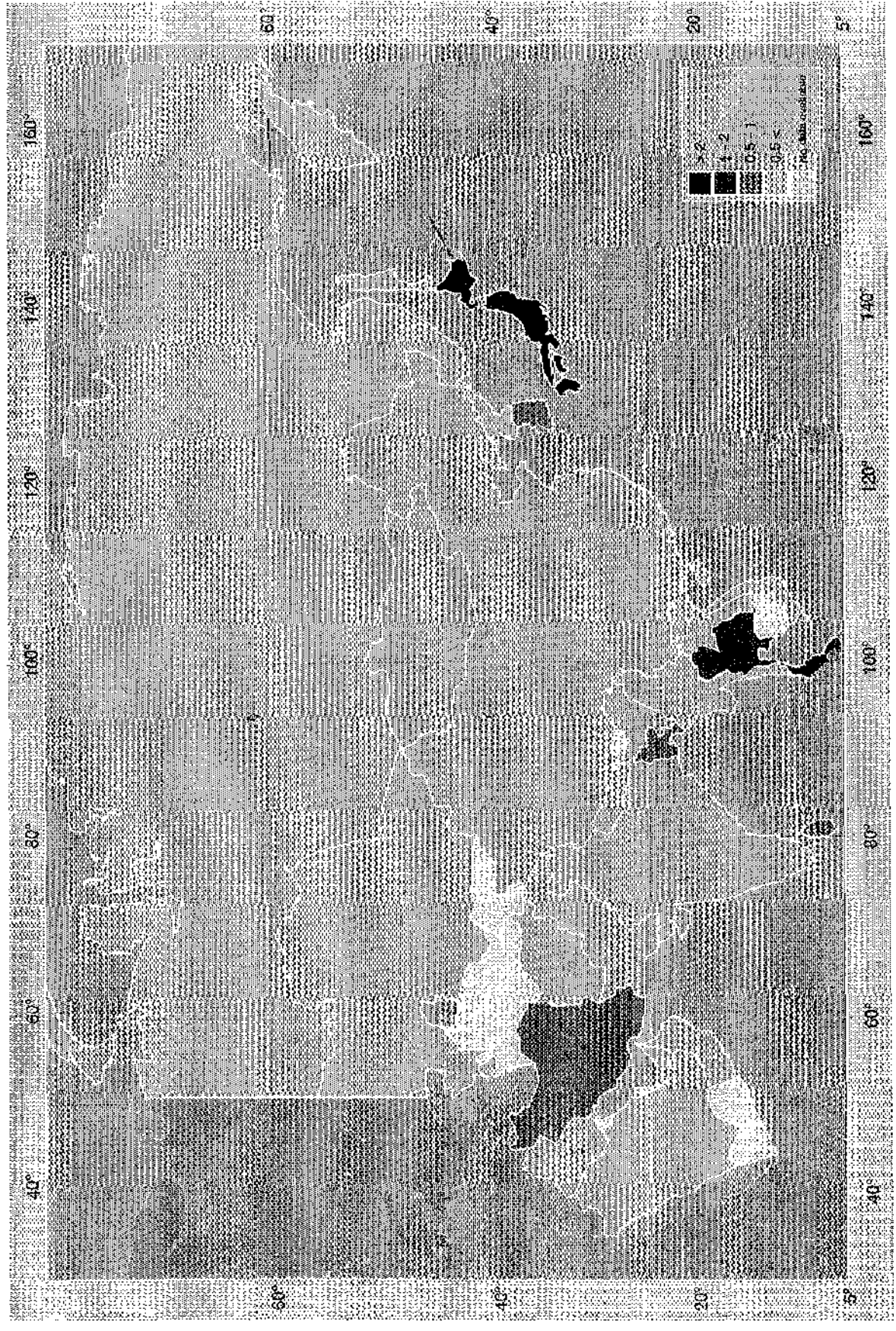


TABLE 4.2.10 - (RA II - ASIA) HYDROLOGICAL OBSERVING STATIONS - STAGE (WATER LEVEL)

[illegible]

TABLE 4.2.11 - (RA II - ASIA) HYDROLOGICAL OBSERVING STATIONS - SEDIMENT AND WATER QUALITY

[illegible]

Page 1

[illegible]

TABLE 4.3.01 - (RA III - SOUTH AMERICA) PRECIPITATION OBSERVING STATIONS: 0 - 500 M ELEVATION

Page 1

State/Territory	Total Area sq. km.	Data for year	% Area	Non-recording gauges Years of record					Recording gauges Years of record					Tela- metry	Radar
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
(1)	(2)	(3)	(4)	(5)					(6)					(7)	(8)
Bolivia	1 098 581	1985		6	18	15	12	51					0	0	0
Brazil	8 511 965	1992		775	921	3131	1914	6741	89	132	665	305	1187	79	1
Chile	756 945	1992		50	35	120	46	251	13	7	26	1	47	0	0
Colombia	1 141 748	1988		115	144	441	12	712	22	10	21	1	54	0	0
Ecuador	283 561	1990	40	0	3	44	3	50	0	1	36	6	43	0	0
France (Guyane)	91 000	1982		4	15	26	2	47	0	27	2	2	31	0	0
Paraguay	406 752	1993		1	13	38	19	71					0	0	0
Uruguay	176 215	1988	100	0	1	4	516	521	6	7	11	4	28	0	0
Venezuela	916 445	1993	42	5	29	57	13	104	6	1	258	281	546	0	0
Totals	13 383 212			956	1179	3876	2537	8548	136	185	1019	600	1936	79	1

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.3.02 - (RA III - SOUTH AMERICA) PRECIPITATION OBSERVING STATIONS: 501 - 1000 M ELEVATION

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	% Area (4)	Non-recording gauges Years of record					Recording gauges Years of record					Tele- metry (7)	Radar (8)
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Bolivia	1 098 581	1985		0	27	7	2	36					0	0	0
Brazil	8 511 965	1992		177	196	1493	1065	2931	11	22	216	215	464	26	0
Chile	756 945	1992		12	6	39	28	85	6	2	12	0	20	0	0
Colombia	1 141 748	1988		13	34	230	13	290	3	11	18	2	34	0	0
Ecuador	283 561	1990	12	0	0	4	2	6	0	0	12	0	12	0	0
Paraguay	406 752	1993		0	0	0	1	1					0	0	0
Venezuela	916 445	1993	30	0	4	25	8	37	2	0	34	79	115	7	0
Totals	13 115 997			202	267	1798	1119	3386	22	35	292	296	645	33	0

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.3.03 - (RA III - SOUTH AMERICA) PRECIPITATION OBSERVING STATIONS: 1001 - 1500 M ELEVATION

Page 1

State/Territory	Total Area sq. km.	Data for year	% Area	Non-recording gauges					Recording gauges					Tele- metry	Radar
				Years of record					Years of record						
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
(1)	(2)	(3)	(4)	(5)					(6)					(7)	(8)
Bolivia	1 098 581	1985		2	12	11	1	26					0	0	0
Brazil	8 511 965	1992		18	17	108	59	202	3	3	22	27	55	0	0
Chile	756 945	1992		9	5	15	14	43	5	0	1	0	6	0	0
Colombia	1 141 748	1988		18	69	242	39	368	8	10	19	4	41	0	0
Ecuador	283 561	1990	12	0	0	7	1	8	0	1	5	0	6	0	0
Venezuela	916 445	1993	15	0	2	7	7	16	1	0	27	25	53	0	0
Totals	12 709 245			47	105	390	121	663	17	14	74	56	161	0	0

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.
The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.3.04 - (RA III - SOUTH AMERICA) PRECIPITATION OBSERVING STATIONS: 1501 - 2000 M ELEVATION

Page 1

State/Territory	Total Area sq. km.	Data for year	% Area	Non-recording gauges					Recording gauges					Tele- metry	Radar
				Years of record					Years of record						
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
(1)	(2)	(3)	(4)	(5)					(6)					(7)	(8)
Bolivia	1 098 581	1985		0	14	20	2	36					0	0	0
Brazil	8 511 965	1992		1	1	14	24	40	1	0	1	2	4	0	0
Chile	756 945	1992		4	1	11	3	19	2	0	0	0	2	0	0
Colombia	1 141 748	1988		6	51	212	36	305	13	17	29	9	68	0	0
Ecuador	283 561	1990	12	0	0	14	1	15	0	0	8	2	10	0	0
Venezuela	916 445	1993	6	0	1	5	1	7	2	0	15	18	35	0	0
Totals	12 709 245			11	68	276	67	422	18	17	53	31	119	0	0

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.3.05 - (RA III - SOUTH AMERICA) PRECIPITATION OBSERVING STATIONS: 2001 - 2500 M ELEVATION

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	% Area (4)	Non-recording gauges Years of record					Recording gauges Years of record					Tele- metry (7)	Radar (8)
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
				(5)					(6)						
Bolivia	1 098 581	1985		4	22	16	6	48					0	0	0
Chile	756 945	1992		1	1	10	2	14	0	1	0	0	1	0	0
Colombia	1 141 748	1988		10	20	120	15	165	6	6	24	14	50	0	0
Ecuador	283 561	1990	12	0	1	18	4	23	0	0	8	2	10	0	0
Venezuela	916 445	1993	4	0	0	4	2	6	1	0	7	8	16	0	0
Totals	4 197 280			15	44	168	29	256	7	7	39	24	77	0	0

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.
The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.3.06 - (RA III - SOUTH AMERICA) PRECIPITATION OBSERVING STATIONS: OVER 2500 M ELEVATION

Page 1

State/Territory	Total Area sq. km.	Data for year	% Area	Non-recording gauges					Recording gauges					Tele- metry	Radar
				Years of record					Years of record						
(1)	(2)	(3)	(4)	<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total	(7)	(8)
Bolivia	1 098 581	1985		6	98	102	27	233					0	0	0
Chile	756 945	1992		15	16	48	7	86	0	2	7	0	9	0	0
Colombia	1 141 748	1988		23	18	156	39	236	5	10	20	9	44	0	0
Ecuador	283 561	1990	12	0	3	58	6	67	0	0	30	6	36	0	0
Venezuela	916 445	1993	3	0	0	1	3	4	0	0	4	5	9	0	0
Totals	4 197 280			44	135	365	82	626	5	12	61	20	98	0	0

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.
The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.3.07 - (RA III - SOUTH AMERICA) PRECIPITATION OBSERVING STATIONS: TOTALS

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Non-recording gauges Years of record					Recording gauges Years of record					Tele- metry (6)	Radar (7)
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Argentina	2 776 889	1992	200	300	2600	1400	4500	16	20	40	120	196	90	2
Bolivia	1 098 581	1985	18	191	171	50	430					0	0	0
Brazil	8 511 965	1992	971	1136	4758	3148	10013	104	157	909	552	1722	105	1
Chile	756 945	1992	91	64	243	100	498	26	12	46	1	85	0	0
Colombia	1 141 748	1988	185	336	1401	154	2076	57	64	131	39	291	0	0
Ecuador	283 561	1990	0	7	145	16	168	0	2	99	16	117	0	0
France (Guyane)	91 000	1982	4	15	25	2	47	0	27	2	2	31	0	0
Guyana	214 969	1992	62	34	85	115	296	0	2	15	14	31	0	0
Paraguay	406 752	1993	1	13	38	20	72					0	0	0
Peru	1 285 216	1991	40	68	146	7	261	1	10	163	43	217	0	0
Suriname	163 265	1976	51	40	100		191	19	9	0		28	0	0
Uruguay	176 215	1988	0	1	4	516	521	6	7	11	4	28	0	0
Venezuela	916 445	1993	5	36	99	34	174	12	1	345	416	774	7	0
Totals	17 823 551		1628	2241	9816	5562	19247	241	311	1761	1207	3520	202	3

INFOHYDRO 02/08/94

Notes: Blank entries indicate data not supplied.

The totals reported in this table may include gauges not classified in previous tables.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

NON-RECORDING PRECIPITATION GAUGES DENSITY (gauges per 1000 km²) SOUTH AMERICA

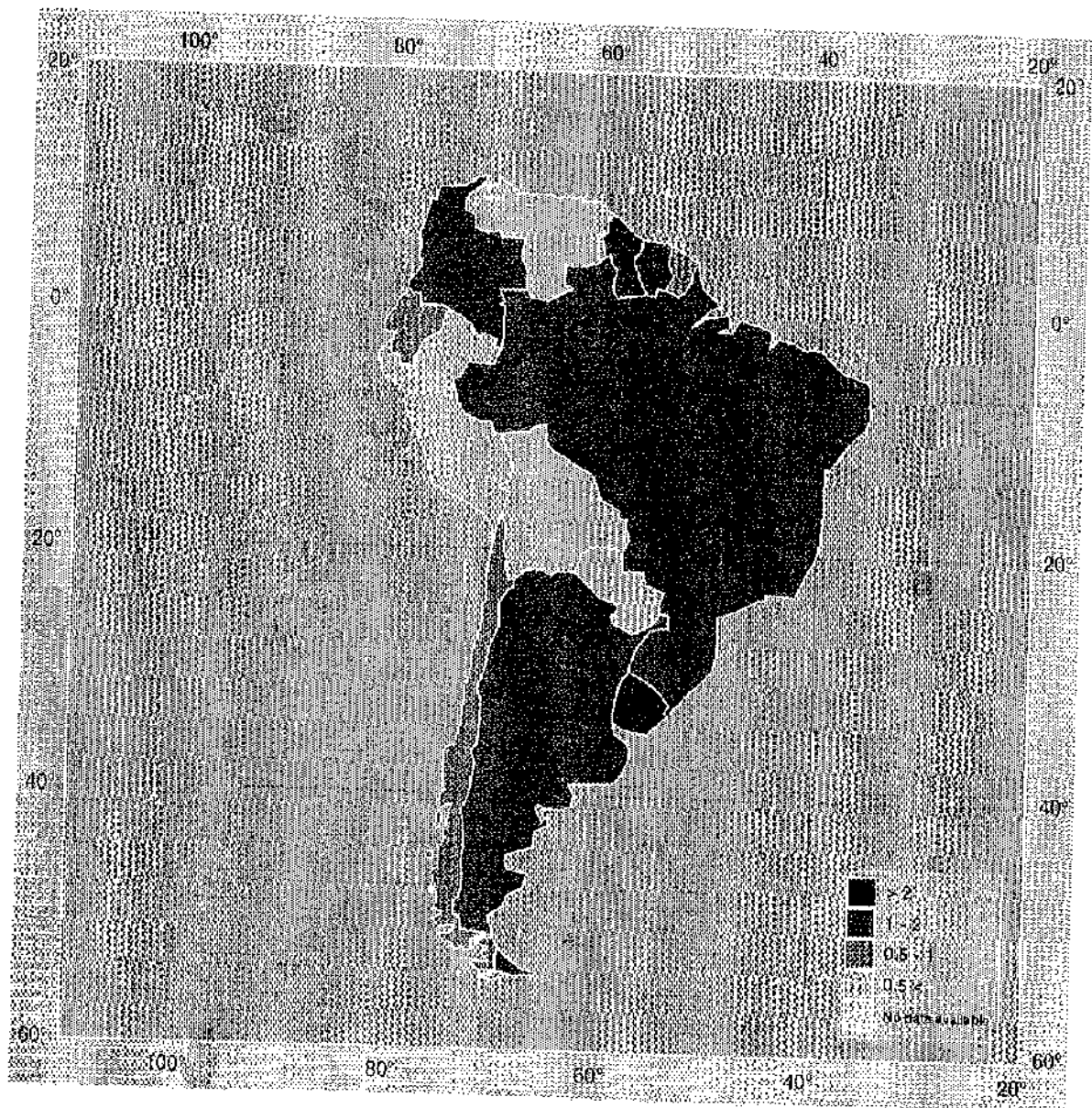


TABLE 4.3.08 - (RA III - SOUTH AMERICA) EVAPORATION STATIONS

Page 1

State/Territory	Total Area sq. km.	Data for year	Evaporation pans					Indirect Methods				
			Years of record					Years of record				
(1)	(2)	(3)	<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total
			(4)					(5)				
Argentina	2 776 889	1992	26	116	122	30	294					0
Bolivia	1 098 581	1985	0	40	0	0	40					0
Brazil	8 511 965	1992	5	20	98	99	222					0
Chile	756 945	1992	29	34	83	4	150					0
Colombia	1 141 748	1988	147	178	192	1	518					0
Ecuador	283 561	1990	0	2	42	16	60					0
France (Guyane)	91 000	1982	1	3	4	0	8	0	10	0	0	10
Guyana	214 969	1992	1	3	5	10	19					0
Paraguay	406 752											
Peru	1 285 216	1991	44	83	189	9	325					0
Suriname	163 265	1976	5	1	0		6					0
Uruguay	176 215	1988	0	12	6	1	19	0	0	30	0	30
Venezuela	916 445	1993	2	1	53	28	84					0
Totals	17 823 551		260	493	794	198	1745	0	10	30	0	40

INFOHYDRO 02/08/94

Notes: Blank entries indicate data not supplied.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

Indirect methods include aerodynamic, energy budget and similar methods.

TABLE 4.3.09 - (RA III - SOUTH AMERICA) HYDROLOGICAL OBSERVING STATIONS - DISCHARGE

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Recording Years of record (4)					Non-recording Years of record (5)					Total stns (6)	Tele- metry (7)
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Argentina	2 776 889	1992	63	18	13	0	94	113	114	85	60	372	466	50
Bolivia	1 098 581	1985	0	69	0	0	69					119	188	0
Brazil	8 511 965	1992	89	92	425	156	762	588	599	1755	653	3595	4357	105
Chile	756 945	1992	72	51	184	28	335	161	80	164	48	453	788	0
Colombia	1 141 748	1992	83	71	333	85	572	132	84	263	21	500	1072	0
Ecuador	283 561	1990	11	18	77	0	106	8	9	44	0	61	167	3
France (Guyane)	91 000	1982	1	1	1	0	3	3	4	6	5	18	21	0
Guyana	214 969	1992	4	3	22	8	37	36	4	0	0	40	77	0
Paraguay	406 752	1993	0	0	2	2	4					0	4	0
Peru	1 285 216	1991					30					471	501	0
Suriname	163 265	1976	2	11	20		33					0	33	0
Uruguay	176 215	1988					0	1	1	0	12	14	14	0
Venezuela	916 445	1992	4	0	67	1	72	1	6	40	1	48	120	0
Totals	17 823 551		329	334	1144	280	2117	1043	901	2357	800	5691	7808	158

INFOHYDRO 02/08/94

Notes: Blank entries indicate data not supplied.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

DISCHARGE MEASURING STATIONS DENSITY (stations per 1000²) SOUTH AMERICA

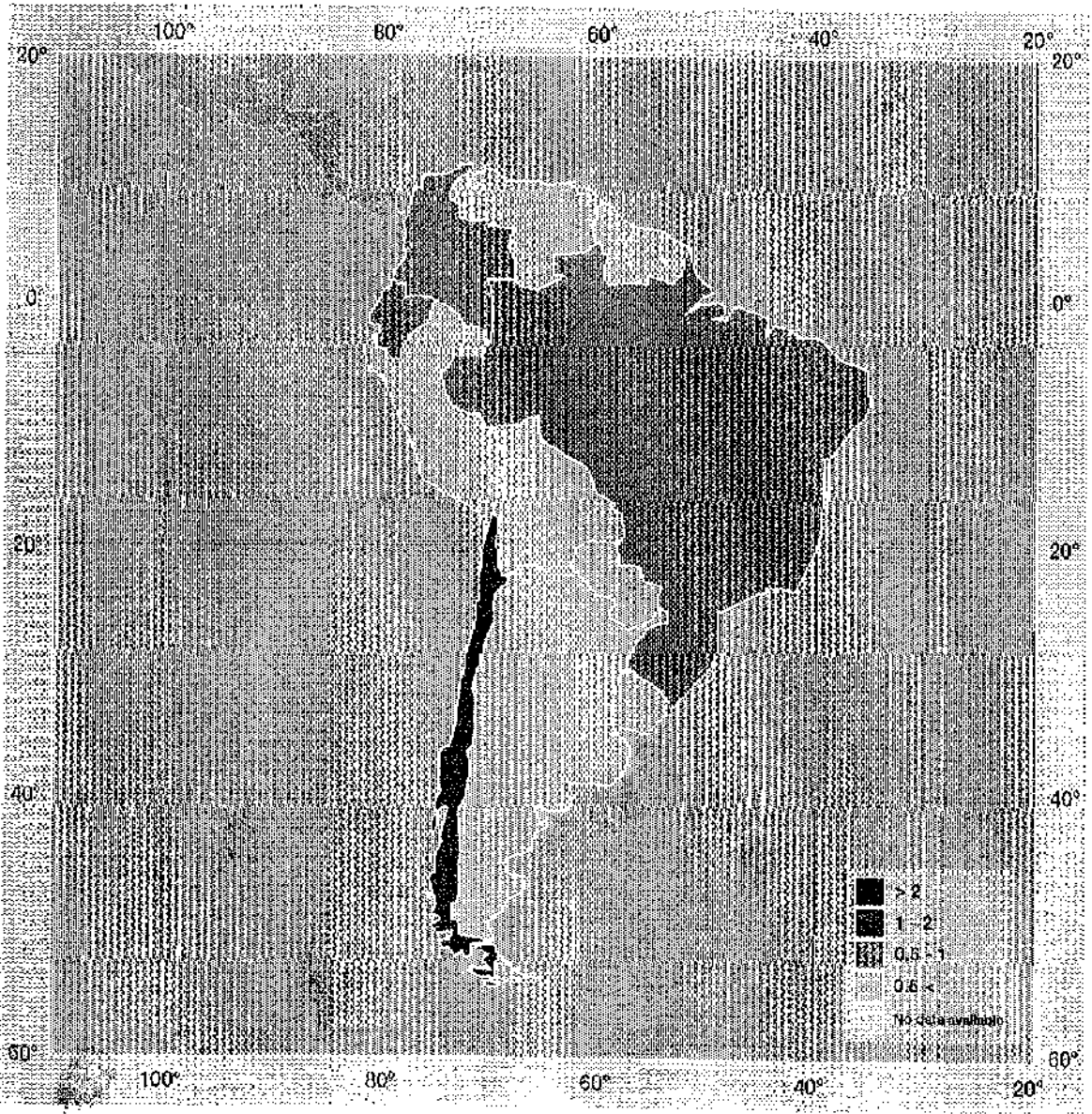


TABLE 4.3.10 - (RA III - SOUTH AMERICA) HYDROLOGICAL OBSERVING STATIONS - STAGE (WATER LEVEL)

Page 1

State/Territory	Total Area sq. km.	Data for year	Recording Years of record					Non-recording Years of record					Total stns	Tele- metry
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
(1)	(2)	(3)	(4)					(5)					(6)	(7)
Argentina	2 776 889	1992	55	80	30	0	165	110	260	190	60	620	785	50
Bolivia	1 098 581	1985	0	21	0	0	21	0	100	0	0	100	121	0
Brazil	8 511 965	1992	30	35	64	48	177	559	270	614	550	1993	2170	105
Chile	756 945	1984					0					0	0	0
Colombia	1 141 748	1992	10	82	417	115	624	30	165	461	106	762	1386	31
Ecuador	283 561	1990	1	23	97	1	122	4	16	74	1	95	217	3
France (Guyane)	91 000	1982	2	0	0	0	2	0	0	1	0	1	3	0
Guyana	214 969	1992	34	31	14	0	79	3	1	1	1	6	85	0
Paraguay	406 752	1993	0	0	13	14	27					0	27	0
Peru	1 285 216	1991					83					418	501	0
Suriname	163 265	1976	15	22	31		68	0	0	4		4	72	0
Uruguay	176 215	1992	3	3	9	9	24	25	37	51	45	158	182	0
Venezuela	916 445	1992	0	8	114	57	179	13	15	57	2	87	266	5
Totals	17 823 551		150	305	789	244	1571	744	864	1453	765	4244	5815	194

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Notes: Blank entries indicate data not supplied.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.3.11 - (RA III - SOUTH AMERICA) HYDROLOGICAL OBSERVING STATIONS - SEDIMENT AND WATER QUALITY

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Suspended Years of record (4)					Bedload Years of record (5)					Water Quality Years of record (6)				
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total
Argentina	2 776 889	1992	86	15	46	0	147					0	50	25	0	0	75
Bolivia	1 098 581	1985	0	30	0	0	30	0	2	0	0	2	20	0	0	0	20
Brazil	8 511 965	1992	24	52	186	81	346	8	12	38	16	74	656	214	98	0	968
Chile	756 945	1992	20	28	34	0	82					0	483	221	205	0	909
Colombia	1 141 748	1992	151	98	81	0	330	155	54	15	0	224	105	26	11	0	142
Ecuador	283 561	1990	131	56	87	0	274					0	16	28	12	0	56
France (Guyane)	91 000	1982	0	3	0	0	3					0	2	0	0	0	2
Guyana	214 969	1992	11	0	0	0	11	6	0	0	0	6	21	13	0	0	34
Paraguay	406 752	1993	0	0	1	0	1					0	0	0	1	0	1
Peru	1 285 216	1991					0					0					0
Suriname	163 265	1976	4	4	0		8					0	4	4	1		9
Uruguay	176 215	1988					0					0	0	5	239	19	263
Venezuela	916 445	1991	198	110	21	0	329	116	77	6	0	199	0	182	0	0	182
Totals	17 823 551		625	396	456	81	1561	285	145	59	16	505	1357	718	567	19	2661

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Notes: Blank entries indicate data not supplied.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.3.12 - (RA III - SOUTH AMERICA) GROUNDWATER STATIONS (WELLS)

Page 1

State/Territory	Total Area sq. km.	Data for year	Water Levels			Temperature		Quality		Other	
			Observation Rec	Prod N-rec	Prod	Obsn	Prod	Obsn	Prod	Obsn	Prod
(1)	(2)	(3)	(4)			(5)		(6)		(7)	
Argentina	2 776 889	1992	0	90	60	2000	0	65	2000	0	4500
Bolivia	1 098 581	1985	0	0	0	0	0	0	0	0	0
Brazil	8 511 965	1992	0	0	0	0	0	0	0	0	0
Chile	756 945	1992	0	500	0	0	0	0	0	0	0
Colombia	1 141 748	1988	0	0	0	0	0	0	0	1299	0
Ecuador	283 561	1990	0	0	3400	0	0	0	0	0	0
France (Guyane)	91 000	1982	0	0	0	0	0	0	0	0	0
Guyana	214 969	1984	6	5	200	0	0	0	0	0	0
Paraguay	406 752	1993	0	0	0	0	0	0	0	0	0
Peru	1 285 216	1983	0	0	10000	3200	0	0	500	0	0
Suriname	163 265	1976	0	0	0	0	0	0	0	0	0
Uruguay	176 215	1988	0	0	0	0	0	0	426	0	0
Venezuela	916 445	1991	0	532	9665	532	5007	532	5007	532	2118
Totals	17 823 551		6	1127	23325	5732	5007	597	7933	1831	6618

INFOHYDRO 02/08/94

Key: Obsn: Observation wells, Prod: Production wells, Rec: Recording stations,
N-Rec: Non-recording.

Notes: Blank entries indicate data not supplied.

TABLE 4.4.01 - (RA IV - NORTH AND CENTRAL AMERICA) PRECIPITATION OBSERVING STATIONS: 0 - 500 M ELEVATION

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	% Area (4)	Non-recording gauges Years of record					Recording gauges Years of record					Tele- metry (7)	Radar (8)
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Antigua and Barbuda	457	1992	100	2	5	10	1	18	0	0	1	0	1	0	0
Belize	22 965	1987		0	5	13	3	21	1	4	1	1	7	0	0
British Caribbean Territories	1 025	1992	96	3	7	10	5	25	4	2	1	0	7	0	0
Canada	9 976 185	1992	66	287	239	631	485	1642	45	63	242	37	387	0	0
Costa Rica	51 000	1992		58	52	159	29	298	16	12	42	12	82	0	0
Cuba	114 524	1992	94	178	155	1621	758	2712	35	30	207	25	297	0	2
Dominica	751	1992	55	4	15	10	1	30	1	2	1	0	4	0	0
Dominican Republic	48 442	1989	70	6	11	40	65	122	13	26	24	1	64	0	0
El Salvador	20 000	1983	50	19	11	95	29	154	4	3	28	4	39	0	0
France (Guadeloupe)	1 780	1992		1	7	26	17	51	12	7	12	12	43	0	0
France (Martinique)	1 090	1992		5	1	39	19	64	6	9	29	6	50	8	0
Guatemala	131 800	1984		0	8	23	16	47	0	4	20	2	26	0	0
Haiti	27 750	1988		33	31	10	44	118	1	0	2	2	5	0	0
Honduras	112 088	1987		21	48	66	7	142	13	9	24	3	49	0	0
Netherlands Antilles	996	1983		16	6	29	19	70	1	1	3	0	5	0	0
Panama	77 082	1991	81	2	26	161	55	244	1	12	48	29	90	33	1
Trinidad and Tobago	5 121	1992	100	0	0	113	52	165	0	11	38	0	49	0	0
Totals	10 593 056			635	627	3056	1605	5923	153	195	723	134	1205	41	3

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.4.02 - (RA IV - NORTH AND CENTRAL AMERICA) PRECIPITATION OBSERVING STATIONS: 501 - 1000 M ELEVATION

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	% Area (4)	Non-recording gauges Years of record (5)					Recording gauges Years of record (6)					Tele- metry (7)	Radar (8)
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Belize	22 965	1987		0	0	0	2	2	0	1	0	0	1	0	0
British Caribbean Territories	1 025	1992	4	0	0	1	0	1	1	0	0	0	1	0	0
Canada	9 976 185	1992	27	117	108	337	148	710	12	11	55	13	91	0	0
Costa Rica	51 000	1992		8	17	42	9	76	1	11	41	6	59	0	0
Cuba	114 524	1992	5	1	3	80	2	86	4	0	8	0	12	0	2
Dominica	751	1992	45	0	1	0	0	1					0	0	0
Dominican Republic	48 442	1989	18	7	5	4	6	22	5	11	4	0	20	0	0
El Salvador	20 000	1983	38	6	16	67	28	117	2	4	15	3	24	0	0
France (Guadeloupe)	1 780	1992						0	0	0	3	0	3	0	0
France (Martinique)	1 090	1992		0	0	1	2	3	3	3	3	1	10	1	0
Guatemala	131 800	1984		0	8	20	17	45	0	1	8	1	10	0	0
Haiti	27 750	1988		6	4	3	4	17	2	0	0	0	2	0	0
Honduras	112 088	1987		6	24	63	0	93	4	10	16	0	30	0	0
Panama	77 082	1991	8	0	3	15	5	23	1	0	1	4	6	1	0
Totals	10 586 482			151	189	633	223	1196	35	52	154	28	269	2	2

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.4.03 - (RA IV - NORTH AND CENTRAL AMERICA) PRECIPITATION OBSERVING STATIONS: 1001 - 1500 M ELEVATION

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	% Area (4)	Non-recording gauges Years of record (5)					Recording gauges Years of record (6)					Tele- metry (7)	Radar (8)
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Canada	9 976 185	1992	5	37	22	89	21	169	2	1	5	1	9	0	0
Costa Rica	51 000	1992		9	22	48	13	92	4	9	26	6	45	5	0
Cuba	114 524	1992	1	0	0	7	0	7	0	0	1	0	1	0	1
Dominican Republic	48 442	1989	8	11	2	2	0	15	16	4	2	0	22	0	0
El Salvador	20 000	1983	10	5	5	18	2	30	1	2	5	0	8	0	0
France (Guadeloupe)	1 780	1992						0	0	4	1	0	5	0	0
France (Martinique)	1 090	1992						0	4	0	1	0	5	3	0
Guatemala	131 800	1984		0	2	34	9	45	0	5	9	0	14	0	0
Haiti	27 750	1988		0	1	0	2	3					0	0	0
Honduras	112 088	1987		7	11	34	1	53	0	1	7	2	10	0	0
Panama	77 082	1991	5	0	4	8	2	14	1	2	7	0	10	1	0
Totals	10 561 741			69	69	240	50	428	28	28	64	9	129	9	1

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.
The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.4.04 - (RA IV - NORTH AND CENTRAL AMERICA) PRECIPITATION OBSERVING STATIONS: 1501 - 2000 M ELEVATION

Page 1

State/Territory	Total Area sq. km.	Data for year	% Area	Non-recording gauges Years of record					Recording gauges Years of record					Tele- metry	Radar
(1)	(2)	(3)	(4)	<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total	(7)	(8)
Canada	9 976 185	1992	1	1	9	41	3	54					0	0	0
Costa Rica	51 000	1992		6	2	16	3	27	1	4	9	2	16	1	0
Cuba	114 524	1992		0	1	0	0	1					0	0	0
Dominican Republic	48 442	1989	3	4	0	0	0	4	5	0	0	0	5	0	0
El Salvador	20 000	1983	2	0	0	7	0	7	0	0	5	0	5	0	0
Guatemala	131 800	1984		0	5	13	5	23	0	2	17	1	20	0	0
Haiti	27 750	1988		0	0	0	2	2	1	0	0	0	1	0	0
Honduras	112 088	1987		3	1	5	0	9					0	0	0
Panama	77 082	1991	3	0	0	3	0	3	0	1	1	0	2	0	0
Totals	10 558 871			14	18	85	13	130	7	7	32	3	49	1	0

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.4.05 - (RA IV - NORTH AND CENTRAL AMERICA) PRECIPITATION OBSERVING STATIONS: 2001 - 2500 M ELEVATION

Page 1

State/Territory	Total Area sq. km.	Data for year	% Area	Non-recording gauges					Recording gauges					Tele- metry	Radar
				Years of record					Years of record						
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
(1)	(2)	(3)	(4)	(5)					(6)					(7)	(8)
Canada	9 976 185	1992	1	2	4	15	1	22					0	0	0
Costa Rica	51 000	1992		1	0	6	0	7	1	1	4	3	9	0	0
Dominican Republic	48 442	1989	1					0	1	0	1	0	2	0	0
El Salvador	20 000	1983		0	0	1	1	2	0	0	1	1	2	0	0
Guatemala	131 800	1984		0	0	7	0	7	1	0	7	0	8	0	0
Panama	77 082	1991	2					0	0	0	2	0	2	0	0
Totals	10 304 509			3	4	29	2	38	3	1	15	4	23	0	0

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.4.06 - (RA IV - NORTH AND CENTRAL AMERICA) PRECIPITATION OBSERVING STATIONS: OVER 2500 M ELEVATION

Page 1

State/Territory	Total Area sq. km.	Data for year	% Area	Non-recording gauges Years of record					Recording gauges Years of record					Tele- metry	Radar
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
(1)	(2)	(3)	(4)	(5)					(6)					(7)	(8)
Canada	9 976 185	1992		0	0	1	0	1					0	0	0
Costa Rica	51 000	1992		1	0	6	0	7	0	0	4	3	7	0	0
Dominican Republic	48 442	1989		1	0	0	0	1	1	1	0	0	2	0	0
Guatemala	131 800	1984		0	0	7	0	7	0	0	1	0	1	0	0
Totals	10 207 427			2	0	14	0	16	1	1	5	3	10	0	0

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.
The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.4.07 - (RA IV - NORTH AND CENTRAL AMERICA) PRECIPITATION OBSERVING STATIONS: TOTALS

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Non-recording gauges Years of record (4)					Recording gauges Years of record (5)					Tele- metry (6)	Radar (7)
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Antigua and Barbuda	457	1992	2	5	10	1	18	0	0	1	0	1	0	0
Bahamas	13 500	1988	3	0	95	0	98	0	0	1	0	1	0	1
Barbados	430	1978	9	1	62		72	0	4	3		7	0	0
Belize	22 965	1987	0	5	13	5	23	1	5	1	1	8	0	1
British Caribbean Territories	1 025	1992	3	7	11	5	26	5	2	1	0	8	0	0
Canada	9 976 185	1992	444	382	1114	658	2598	59	75	302	51	487	288	17
Colombia (San Andrés Providencia)	44													
Costa Rica	51 000	1992	83	93	277	54	507	23	37	126	32	218	6	0
Cuba	114 524	1992	179	159	1708	760	2806	39	30	216	25	310	0	5
Dominica	751	1992	4	16	10	1	31	1	2	1	0	4	0	0
Dominican Republic	48 442	1989	29	18	46	71	164	41	42	31	1	115	0	0
El Salvador	20 000	1983	30	32	188	60	310	7	9	54	8	78	0	0
France (Guadeloupe)	1 780	1992	1	7	26	17	51	12	11	16	12	51	0	0
France (Martinique)	1 090	1992	5	1	40	21	67	13	12	33	7	65	12	1
Guatemala	131 800	1984	0	23	104	47	174	1	12	62	4	79	0	0
Haiti	27 750	1988	39	36	13	52	140	4	0	2	2	8	0	0
Honduras	112 088	1987	37	84	168	8	297	17	20	47	5	89	0	0
Jamaica	11 400	1976	63	85	392		540	9	12	6		27	0	0
Mexico	1 972 547	1973	575	462	1132		2169	80	88	116		284	0	0
Netherlands Antilles	996	1983	16	6	29	19	70	1	1	3	0	5	0	0
Nicaragua	130 000	1973	158	45	127		330	53	2	4		59	0	0
Panama	77 082	1991	2	33	187	62	284	3	15	59	33	110	35	1
Saint Lucia	616	1993	7	1	18	3	29	3	0	9	0	12	0	0
Trinidad and Tobago	5 121	1992	0	0	113	52	165	0	11	38	0	49	0	0
United States of America	9 355 615	1990	453	384	1462	6705	9004	93	125	698	2289	3205	682	56
Totals	22 077 208		2142	1885	7345	8601	19973	465	515	1830	2470	5280	1023	82

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Notes: Blank entries indicate data not supplied.

The totals reported in this table may include gauges not classified in previous tables.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

NON-RECORDING PRECIPITATION GAUGES DENSITY (gauges per 1000 km²)

NORTH AMERICA AND CENTRAL AMERICA

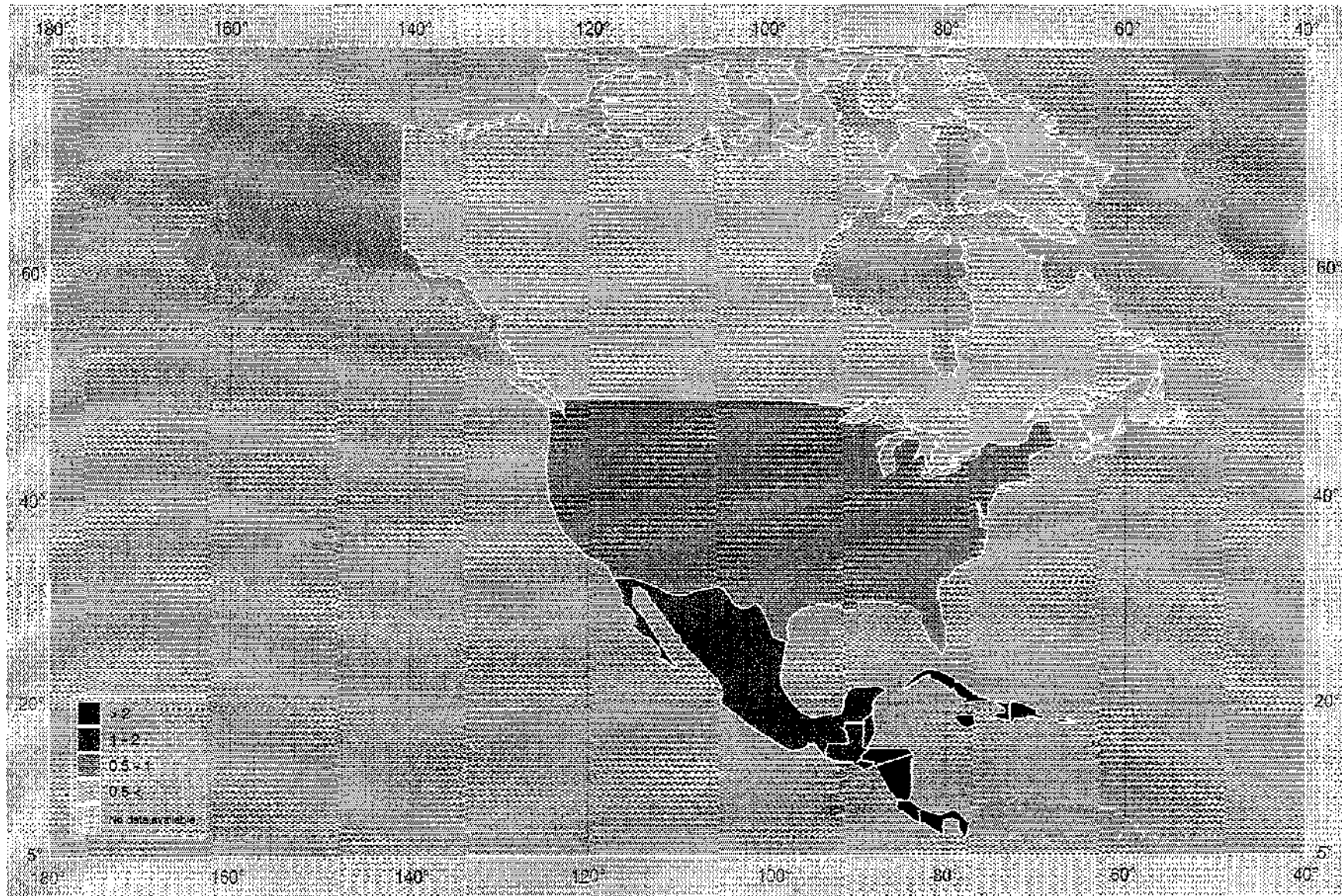




TABLE 4.4.08 - (RA IV - NORTH AND CENTRAL AMERICA) EVAPORATION STATIONS

Page 1

State/Territory	Total Area sq. km.	Data for year	Evaporation pans Years of record					Total	Indirect Methods Years of record					Total
			<5	5-10	10-30	>30	<5		5-10	10-30	>30			
(1)	(2)	(3)	(4)						(5)					
Antigua and Barbuda	457	1992					0		0	0	1	0	1	
Bahamas	13 500	1988	0	4	1	0	5						0	
Barbados	430	1978	0	3	0		3						0	
Belize	22 965	1987	0	4	5	0	9						0	
British Caribbean Territories	1 025	1992	2	6	0	0	8		5	0	0	0	5	
Canada	9 976 185	1992	19	22	89	10	140						0	
Colombia (San Andrés Providencia)	44	1988	0	3	0	0	3						0	
Costa Rica	51 000	1992	5	5	29	0	39						0	
Cuba	114 524	1992	0	19	9	48	76						0	
Dominica	751	1992	1	1	1	0	3		1	1	0	0	2	
Dominican Republic	48 442	1989	15	28	28	0	71						0	
El Salvador	20 000	1983	3	7	11	0	21						0	
France (Guadeloupe)	1 780	1992	1	1	0	0	2						0	
France (Martinique)	1 090	1992	0	5	17	3	25						0	
Guatemala	131 800	1984	3	4	20	2	29						0	
Haiti	27 750	1988	1	2	0	1	4						0	
Honduras	112 088	1987	17	11	46	0	74						0	
Jamaica	11 400	1976	3	10	9		22						0	
Mexico	1 972 547	1973	660	361	536		1557						0	
Netherlands Antilles	996	1983	1	0	1	0	2						0	
Nicaragua	130 000	1973	114	2	4		120						0	
Panama	77 082	1988	2	4	21	2	29						0	
Saint Lucia	616	1993	0	0	2	0	2		0	3	0	0	3	
Trinidad and Tobago	5 121	1992	0	1	7	0	8						0	
United States of America	9 355 615	1990	30	22	158	254	464						0	
Totals	22 077 208		877	525	994	320	2716		6	4	1	0	11	

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Notes: Blank entries indicate data not supplied.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

Indirect methods include aerodynamic, energy budget and similar methods.

TABLE 4.4.09 - (RA IV - NORTH AND CENTRAL AMERICA) HYDROLOGICAL OBSERVING STATIONS - DISCHARGE

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Recording Years of record (4)					Non-recording Years of record (5)					Total stns (6)	Tele- metry (7)
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Antigua and Barbuda	457	1992					0	0	0	1	0	1	1	0
Bahamas	13 500	1988					0					0	0	0
Barbados	430	1978					0					0	0	0
Belize	22 965	1987	1	0	0	0	1	7	10	0	0	17	18	0
British Caribbean Territories	1 025	1992	2	0	0	0	2					0	2	0
Canada	9 976 185	1992	178	378	1583	280	2419	263	235	399	252	1149	3568	887
Colombia (San Andrés Providencia)	44	1988	0	0	2	0	2	0	0	2	0	2	4	0
Costa Rica	51 000	1992	23	10	65	19	117	1	5	4	0	10	127	6
Cuba	114 524	1992	0	0	51	0	51	0	0	12	1	13	64	0
Dominica	751	1992	5	1	0	0	6	12	0	0	0	12	18	0
Dominican Republic	48 442	1989	15	12	39	0	66	24	9	26	0	59	125	0
El Salvador	20 000	1983	12	16	40	0	68					0	68	0
France (Guadeloupe)	1 780	1992	0	6	9	2	17					0	17	0
France (Martinique)	1 090	1992	1	1	10	3	15					0	18	3
Guatemala	131 800	1984	9	26	42	0	77	13	31	17	0	61	138	0
Haiti	27 750	1988	10	0	0	0	10	36	30	0	0	66	76	0
Honduras	112 088	1987	10	1	40	0	51	13	29	32	0	74	125	0
Jamaica	11 400	1976	22	33	33		88	40	29	13		82	170	0
Mexico	1 972 547	1973	77	146	246		469	123	40	346		509	978	0
Netherlands Antilles	996	1983					0					0	0	0
Nicaragua	130 000	1973	35	1	11		47	4	0	0		4	51	0
Panama	77 082	1988	2	10	39	16	67	0	6	10	5	21	88	12
Saint Lucia	616	1993	3	2	0	0	5					0	5	0
Trinidad and Tobago	5 121	1992	1	7	27	0	35					0	35	0
United States of America	9 355 615	1990	754	739	2265	3757	7515					0	7515	2705
Totals	22 077 208		1160	1389	4502	4077	11128	536	424	862	258	2080	13211	3613

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Notes: Blank entries indicate data not supplied.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

NON-RECORDING PRECIPITATION GAUGES DENSITY (gauges per 1000 km²) SOUTH WEST PACIFIC

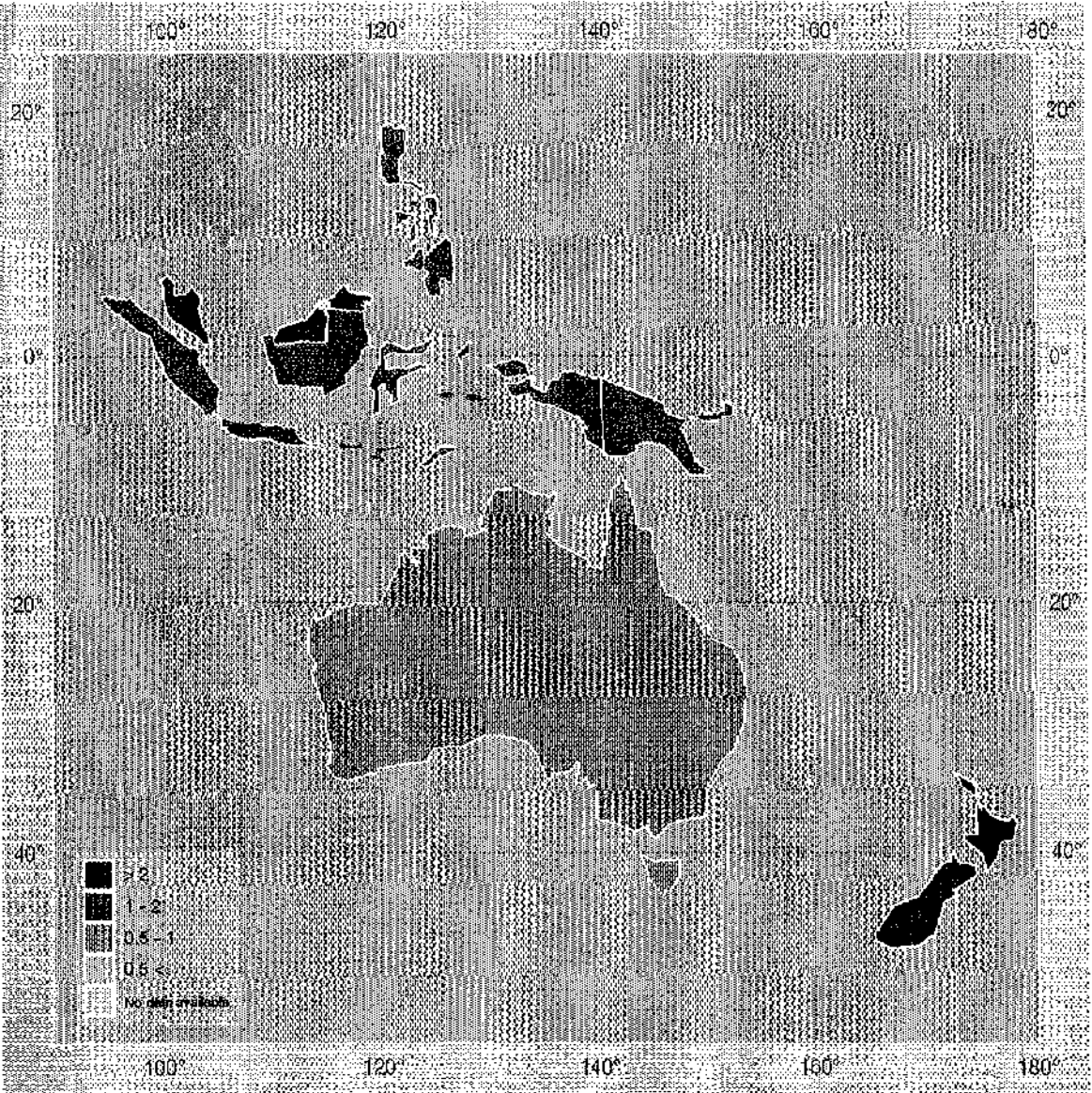


TABLE 4.4.10 - (RA IV - NORTH AND CENTRAL AMERICA) HYDROLOGICAL OBSERVING STATIONS - STAGE (WATER LEVEL)

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Recording Years of record (4)					Non-recording Years of record (5)					Total stns (6)	Tele- metry (7)
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Antigua and Barbuda	457	1992					0	0	0	1	0	1	1	0
Bahamas	13 500	1988					0					0	0	0
Barbados	430	1978	4	0	0		4					0	4	0
Belize	22 965	1987					0	0	2	1	0	3	3	0
British Caribbean Territories	1 025	1992	2	0	0	0	2	1	0	0	0	1	3	0
Canada	9 976 185	1992	68	99	327	116	610	81	58	235	130	504	1114	229
Colombia (San Andrés Providencia)	44													
Costa Rica	51 000	1992	4	0	0	0	4					0	4	0
Cuba	114 524	1992					0	208	9	0	0	217	217	0
Dominica	751	1992	5	1	0	0	6	12	0	0	0	12	18	0
Dominican Republic	48 442	1989					0					0	0	0
El Salvador	20 000	1983	0	2	3	0	5					0	5	0
France (Guadeloupe)	1 780	1992	1	1	0	0	2					0	2	0
France (Martinique)	1 090	1992	0	0	2	0	2					0	2	0
Guatemala	131 800	1984	0	0	2	0	2	0	0	6	0	6	8	0
Haiti	27 750													
Honduras	112 088	1987					0	8	1	0	0	9	9	0
Jamaica	11 400	1976	0	0	3		3	0	1	3		4	7	0
Mexico	1 972 547	1973					0	0	88	152		240	240	0
Netherlands Antilles	996	1983					0					0	0	0
Nicaragua	130 000	1973	5	1	0		6	1	1	1		3	9	0
Panama	77 082	1988	2	1	2	4	9	0	1	2	0	3	12	5
Saint Lucia	616	1993	1	2	0	3	6					0	6	0
Trinidad and Tobago	5 121	1992	0	3	0	0	3	32	38	0	0	70	73	0
United States of America	9 355 615	1990					8885					652	9537	1500
Totals	22 077 208		92	110	339	123	9549	343	199	401	130	1725	11274	1734

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Notes: Blank entries indicate data not supplied.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.4.11 - (RA IV - NORTH AND CENTRAL AMERICA) HYDROLOGICAL OBSERVING STATIONS - SEDIMENT AND WATER QUALITY

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Suspended Years of record (4)					Bedload Years of record (5)					Water Quality Years of record (6)				
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total
Antigua and Barbuda	457																
Bahamas	13 500	1988					0	0					20	0	0	0	20
Barbados	430	1978					0	0					0				0
Belize	22 965	1987					0	0	3	10	0	0	0			0	13
British Caribbean Territories	1 025	1992					0	0	10	20	26	3	0			3	59
Canada	9 976 185	1992	115	98	99	0	312	0	1863	3426	8082	0	13371				
Colombia (San Andrés Providencia)	44																
Costa Rica	51 000	1992	10	7	69	0	86	0	0	26	13	44	83				
Cuba	114 524	1992	3	0	20	0	23	0					0				0
Dominica	751	1992					0	0	0	0	40	0	40				
Dominican Republic	48 442	1989	227	31	0	0	258	0	329	31	0	0	360				
El Salvador	20 000	1983	16	23	4	0	43	0	19	46	0	0	65				
France (Guadeloupe)	1 780	1992					0	0					0				0
France (Martinique)	1 090	1992					0	0					0				0
Guatemala	131 800	1984	15	0	0	0	15	0					0				0
Haiti	27 750	1988	0	2	0	0	2	0	12	0	0	0	12				
Honduras	112 088	1987	14	4	10	0	28	0	0	1	0	0	1				
Jamaica	11 400	1976	5	0	0		5	0	92	0	0		92				
Mexico	1 972 547	1973	50	80	126		256	0					0				0
Netherlands Antilles	996	1983					0	0					0				0
Nicaragua	130 000	1973	2	6	0		8	0					0				0
Panama	77 082	1988	12	14	13	0	39	0	58	76	83	0	217				
Saint Lucia	616	1993					0	0					0				0
Trinidad and Tobago	5 121	1992	1	7	27	0	35	0	0	0	9	0	9				
United States of America	9 355 615	1983	1464	919	1294	430	4107	0	7125	4318	4786	891	17120				
Totals	22 077 208		1934	1191	1662	430	5217	0	0	0	0	0	9531	7954	13039	938	31462

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Notes: Blank entries indicate data not supplied.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.4.12 - (RA IV - NORTH AND CENTRAL AMERICA) GROUNDWATER STATIONS (WELLS)

Page 1

State/Territory	Total Area sq. km.	Data for year	Water Levels			Temperature		Quality		Other	
			Observation Rec	Prod N-rec	Prod	Obsn	Prod	Obsn	Prod	Obsn	Prod
(1)	(2)	(3)	(4)			(5)		(6)		(7)	
Antigua and Barbuda	457										
Bahamas	13 500	1988	0	0	0	0	0	0	0	200	0
Barbados	430	1978	0	0	28	0	0	0	0	0	0
Belize	22 965	1987	0	0	0	0	0	0	0	0	0
British Caribbean Territories	1 025	1992	4	0	4	0	0	0	0	0	0
Canada	9 976 185	1992	822	360	35	0	0	18	0	0	0
Colombia (San Andrés Providencia)	44										
Costa Rica	51 000	1992	15	32	3500	45	160	45	160	45	160
Cuba	114 524	1992	101	2395	0	0	0	356	0	0	0
Dominica	751	1992	0	0	0	0	0	0	0	0	0
Dominican Republic	48 442	1989	0	252	375	0	0	216	328	0	0
El Salvador	20 000	1983	0	162	0	0	0	0	0	0	0
France (Guadeloupe)	1 780	1992	0	27	0	0	0	0	0	0	0
France (Martinique)	1 090	1992	1	53	10	0	4	0	0	0	0
Guatemala	131 800	1984	0	9	303	9	303	9	303	0	0
Haiti	27 750	1988	12	103	39	43	34	107	39	0	0
Honduras	112 088	1987	0	0	0	0	0	0	0	0	0
Jamaica	11 400	1976	0	0	346	0	0	0	834	0	77
Mexico	1 972 547	1973	0	0	0	0	0	0	0	0	0
Netherlands Antilles	996	1983	0	0	0	0	0	0	0	0	0
Nicaragua	130 000	1973	0	646	2126	0	0	0	0	0	0
Panama	77 082	1988	0	0	0	0	0	0	0	0	0
Saint Lucia	616	1993	0	0	0	0	0	0	0	0	0
Trinidad and Tobago	5 121	1992	3	155	0	0	0	6	161	0	0
United States of America	9 355 615	1983	7333	7333	7333	21000	21000	13000	13000	3500	3500
Totals	22 077 208		8291	11527	14099	21097	21501	13757	14825	3745	3737

INFOHYDRO 02/08/94

Key: Obsn: Observation wells, Prod: Production wells, Rec: Recording stations,
N-Rec: Non-recording.

Notes: Blank entries indicate data not supplied.

TABLE 4.5.01 - (RA V - SOUTH-WEST PACIFIC) PRECIPITATION OBSERVING STATIONS: 0 - 500 M ELEVATION

Page 1

State/Territory	Total Area sq. km.	Data for year	% Area	Non-recording gauges					Recording gauges					Tele- metry	Radar
				Years of record					Years of record						
(1)	(2)	(3)	(4)	<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total	(7)	(8)
Australia	7 682 300	1992	87	340	338	1754	4075	6507	264	324	677	123	1388	128	0
Fiji	18 272	1983		34	25	77	64	200	27	20	31	2	80	0	0
French Polynesia	4 000	1992	90	22	36	25	0	83	1	3	3	0	7	0	0
Indonesia	1 919 464	1988		461	77	431	1273	2242	4	123	65	10	202	10	0
Malaysia	332 000	1988	69	34	108	313	536	991	58	77	225	7	367	0	0
New Caledonia	19 100	1988	80	0	0	0	13	13	0	49	5	1	55	0	0
New Zealand	268 675	1992		302	348	879	683	2212	71	55	197	8	331	0	0
Papua New Guinea	466 200	1975	48	75	69	178		322	8	6	7		21		
Philippines	300 000	1992	80	20	23	205	45	293	15	16	72	42	145	75	1
Singapore	518	1991	100	0	0	2	0	2	3	16	48	22	89	13	0
Solomon Islands	28 370	1989	50	0	0	4	3	7	7	0	0	0	7	0	0
Vanuatu	14 673	1989		5	4	0	0	9	6	2	0	0	8	0	0
Totals	11 053 572			1293	1028	3868	6692	12881	464	691	1330	215	2700	226	1

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.5.02 - (RA V - SOUTH-WEST PACIFIC) PRECIPITATION OBSERVING STATIONS: 501 - 1000 M ELEVATION

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	% Area (4)	Non-recording gauges Years of record					Recording gauges Years of record					Tele- metry (7)	Radar (8)
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
				(5)					(6)						
Australia	7 682 300	1992	13	31	60	214	491	796	45	50	105	26	226	40	0
Fiji	18 272	1983		3	2	5	1	11	14	15	1	0	30	0	0
French Polynesia	4 000	1992		1	10	12	0	23	1	0	0	0	1	0	0
Indonesia	1 919 464	1988		34	6	35	181	256	1	18	4	1	24	0	0
Malaysia	332 000	1988	19	0	2	3	2	7	0	2	13	0	15	0	0
New Caledonia	19 100	1988	19					0	8	5	0	0	13	0	0
New Zealand	268 675	1992		44	54	115	63	276	15	8	35	2	60	0	0
Papua New Guinea	466 200	1975	26	13	15	25		53	2	1	1		4		
Philippines	300 000	1992	11	9	5	23	1	38	2	6	5	1	14	31	0
Solomon Islands	28 370	1989	35					0	2	0	0	0	2	0	0
Vanuatu	14 673	1989		3	0	0	0	3					0	0	0
Totals	11 053 054			138	154	432	739	1463	90	105	164	30	389	71	0

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.
The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.5.03 - (RA V - SOUTH-WEST PACIFIC) PRECIPITATION OBSERVING STATIONS: 1001 - 1500 M ELEVATION

Page 1

State/Territory	Total Area sq. km.	Data for year	% Area	Non-recording gauges					Recording gauges					Tele- metry	Radar
				Years of record					Years of record						
(1)	(2)	(3)	(4)	<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total	(7)	(8)
				(5)					(6)						
Australia	7 682 300	1992		15	45	58	83	201	26	18	37	4	85	8	0
Fiji	18 272	1983		1	0	0	0	1	4	0	0	0	4	0	0
French Polynesia	4 000	1992		1	0	4	0	5					0	0	0
Indonesia	1 919 464	1988		5	2	13	67	87	2	3	0	0	5	1	0
Malaysia	332 000	1988	8	1	1	3	7	12	0	1	2	0	3	0	0
New Caledonia	19 100	1988	1	3	1	0	0	4	2	0	0	0	2	0	0
New Zealand	268 675	1992		6	3	11	1	21	3	0	4	0	7	0	0
Papua New Guinea	466 200	1975	8	10	7	35		52	1	1	1		3		
Philippines	300 000	1992	8	4	2	10	4	20	4	0	3	1	8	5	0
Solomon Islands	28 370	1989	10					0	1	0	0	0	1	0	0
Totals	11 038 381			46	61	134	162	403	43	23	47	5	118	14	0

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.
The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.5.04 - (RA V - SOUTH-WEST PACIFIC) PRECIPITATION OBSERVING STATIONS: 1501 - 2000 M ELEVATION

Page 1

State/Territory	Total Area sq. km.	Data for year	% Area	Non-recording gauges					Recording gauges					Tele- metry	Radar
				Years of record					Years of record						
(1)	(2)	(3)	(4)	<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total	(7)	(8)
Australia	7 682 300	1992		24	15	22	4	65	3	2	4	1	10	1	0
French Polynesia	4 000	1992		0	1	1	0	2					0	0	0
Indonesia	1 919 464	1988		3	0	2	14	19					0	0	0
Malaysia	332 000	1988	2	0	0	2	1	3					0	0	0
New Zealand	268 675	1992		5	4	4	0	13	1	0	0	0	1	0	0
Papua New Guinea	466 200	1975	15	15	24	56		95	2	2	2		6		
Philippines	300 000	1992	1	0	0	1	1	2	1	0	1	1	3	2	1
Solomon Islands	28 370	1989	4					0	1	0	0	0	1	0	0
Totals	11 001 009			47	44	88	20	199	8	4	7	2	21	3	1

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.
The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.5.05 - (RA V - SOUTH-WEST PACIFIC) PRECIPITATION OBSERVING STATIONS: 2001 - 2500 M ELEVATION

Page 1

State/Territory	Total Area sq. km.	Data for year	% Area	Non-recording gauges					Recording gauges					Tele- metry	Radar
				Years of record					Years of record						
(1)	(2)	(3)	(4)	<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total	(7)	(8)
				(5)					(6)						
Australia	7 682 300	1992		1	5	0	0	6	0	0	1	0	1	0	0
Indonesia	1 919 464	1988		1	0	0	1	2					0	0	0
Malaysia	332 000	1988	2	0	0	1	0	1	0	0	1	0	1	0	0
Papua New Guinea	466 200	1975	2	1	7	12		20	0	1	1		2		
Totals	10 399 964			3	12	13	1	29	0	1	3	0	4	0	0

INFOHYDRO 02/08/94

Notes: Data are shown only for countries which have reported stations in this elevation range.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.5.07 - (RA V - SOUTH-WEST PACIFIC) PRECIPITATION OBSERVING STATIONS: TOTALS

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Non-recording gauges Years of record					Recording gauges Years of record					Tele- metry (6)	Radar (7)
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
			(4)					(5)						
Australia	7 682 300	1992	411	463	2048	4653	7575	338	394	824	154	1710	177	0
Brunei Darussalam	5 765	1973					0					0	0	0
Fiji	18 272	1983	38	27	82	65	212	45	35	32	2	114	0	0
French Polynesia	4 000	1992	24	47	42	0	113	2	3	3	0	8	0	0
Indonesia	1 919 464	1988	504	85	481	1536	2606	7	144	69	11	231	11	0
Malaysia	332 000	1988	35	111	322	546	1014	58	80	241	7	386	36	6
New Caledonia	19 100	1988	3	1	0	13	17	10	54	5	1	70	0	0
New Zealand	268 675	1992	357	409	1009	747	2522	90	63	236	10	399	165	0
Papua New Guinea	466 200	1975	114	122	306		542	13	11	12		36	0	0
Philippines	300 000	1992	33	30	239	51	353	22	22	81	45	170	113	2
Singapore	518	1991	0	0	2	0	2	3	16	48	22	89	13	0
Solomon Islands	28 370	1989	0	0	4	3	7	11	0	0	0	11	0	0
United States of America (South West Pacific)	19 300	1990	13	28	62	198	301	3	16	44	37	100	0	0
Vanuatu	14 673	1989	8	4	0	0	12	6	2	0	0	8	0	0
Totals	11 078 637		1540	1327	4597	7812	15276	608	840	1595	289	3332	515	8

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Notes: Blank entries indicate data not supplied.

The totals reported in this table may include gauges not classified in previous tables.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.5.08 - (RA V - SOUTH-WEST PACIFIC) EVAPORATION STATIONS

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Evaporation pans Years of record (4)					Indirect Methods Years of record (5)				
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total
Australia	7 682 300	1992	95	96	311	11	513	177	139	252	481	1049
Brunei Darussalam	5 765	1973					0					0
Fiji	18 272	1983	3	3	7	0	13					0
French Polynesia	4 000	1992					0					0
Indonesia	1 919 464	1988	6	39	25	0	70					0
Malaysia	332 000	1988	7	20	74	0	101					0
New Caledonia	19 100	1988	0	3	0	0	3					0
New Zealand	268 675	1992	31	60	76	3	170					0
Papua New Guinea	466 200	1975	4	4	0		8					0
Philippines	300 000	1992	4	2	25	0	31					0
Singapore	518	1991	1	1	2	0	4					0
Solomon Islands	28 370	1989	0	0	2	1	3					0
United States of America (South West Pacific)	19 300	1990	0	2	3	198	203					0
Vanuatu	14 673	1983	1	0	0	0	1					0
Totals	11 078 637		152	230	525	213	1120	177	139	252	481	1049

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Notes: Blank entries indicate data not supplied.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

Indirect methods include aerodynamic, energy budget and similar methods.

TABLE 4.5.09 - (RA V - SOUTH-WEST PACIFIC) HYDROLOGICAL OBSERVING STATIONS - DISCHARGE

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Recording Years of record (4)					Non-recording Years of record (5)					Total stns (6)	Tele- metry (7)
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Australia	7 682 300	1992	261	406	1090	576	2333	104	117	350	381	952	3285	710
Brunei Darussalam	5 765	1973					0					0	0	0
Fiji	18 272	1983	22	31	6	0	59	27	19	8	0	54	113	0
French Polynesia	4 000	1992	4	15	4	0	23					0	23	0
Indonesia	1 919 464	1988	131	31	34	0	196	102	48	74	0	224	420	0
Malaysia	332 000	1988	45	83	123	2	253	48	18	47	34	147	400	6
New Caledonia	19 100	1988	13	10	16	2	41					0	41	0
New Zealand	268 675	1992	100	111	320	60	591					0	591	264
Papua New Guinea	466 200	1975					0					0	0	0
Philippines	300 000	1992	109	32	25	0	166	88	172	334	71	665	831	50
Singapore	518	1991	0	0	1	0	1					0	1	0
Solomon Islands	28 370	1989	8	0	1	0	9					0	9	0
United States of America (South West Pacific)	19 300	1990	6	6	37	63	112					0	112	45
Vanuatu	14 673	1989	8	3	0	0	11	0	1	0	0	1	12	0
Totals	11 078 637		707	728	1657	703	3795	369	375	813	486	2043	5838	1075

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Notes: Blank entries indicate data not supplied.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

DISCHARGE MEASURING STATIONS\$ DENSITY (stations per 1000 km²) SOUTH WEST PACIFIC

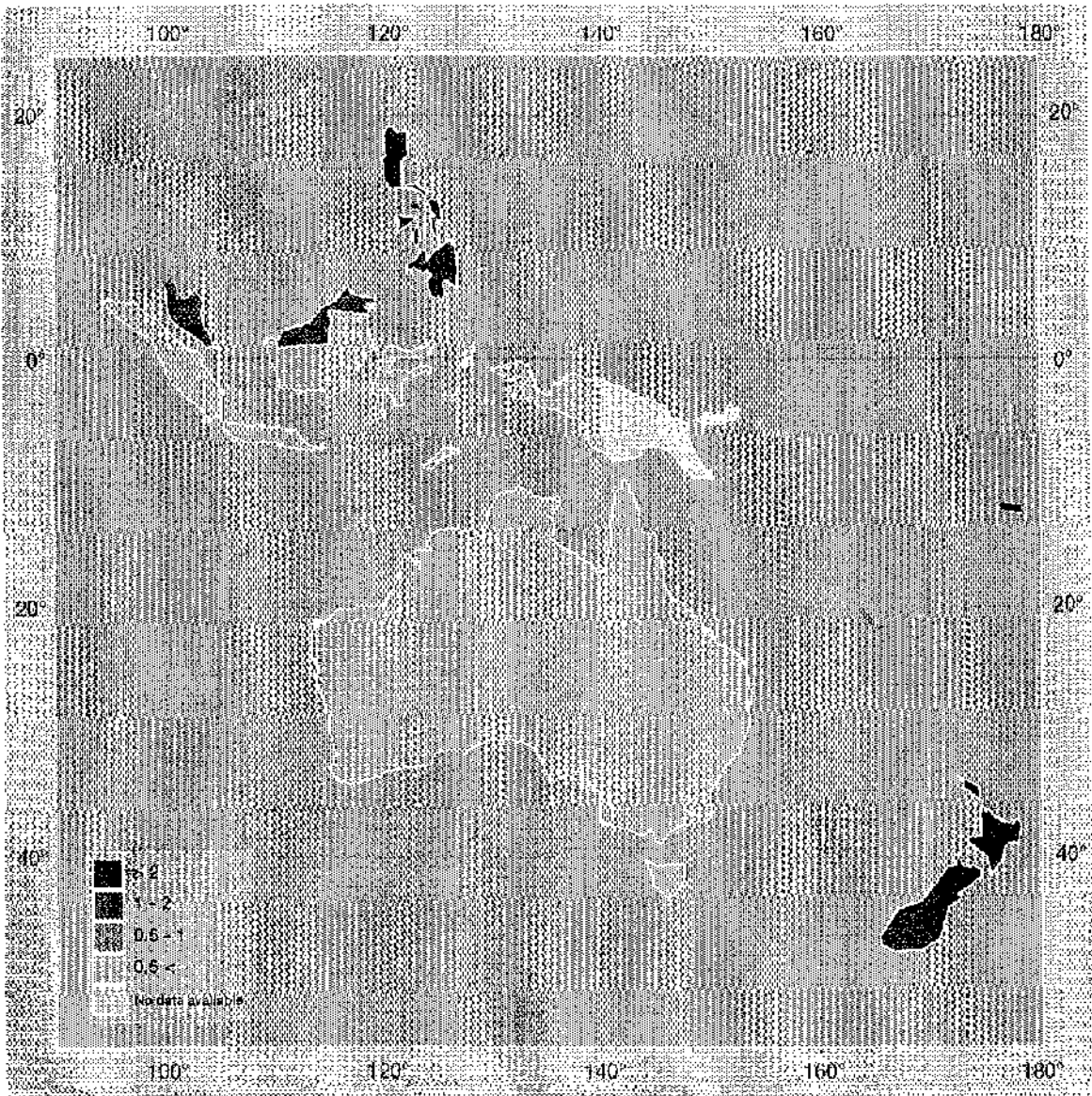


TABLE 4.5.10 - (RA V - SOUTH-WEST PACIFIC) HYDROLOGICAL OBSERVING STATIONS - STAGE (WATER LEVEL)

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Recording Years of record (4)					Non-recording Years of record (5)					Total stns (6)	Tele- metry (7)
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Australia	7 682 300	1992	96	77	76	35	284	119	52	112	72	355	639	145
Brunei Darussalam	5 765	1973					0					0	0	0
Fiji	18 272	1983					0					0	0	0
French Polynesia	4 000	1992					0					0	0	0
Indonesia	1 919 464	1988	7	6	0	0	13	11	6	2	0	19	32	0
Malaysia	332 000	1988	45	83	123	2	253	48	18	47	34	147	400	35
New Caledonia	19 100	1988					0					0	0	0
New Zealand	268 675	1992	24	10	23	13	70					0	70	0
Papua New Guinea	466 200	1975					0					0	0	0
Philippines	300 000	1992					0					0	0	0
Singapore	518	1991	3	4	6	0	13					0	13	12
Solomon Islands	28 370	1989	8	0	1	0	9					0	9	0
United States of America (South West Pacific)	19 300	1983					0					0	3	0
Vanuatu	14 673	1989					0	1	0	0	0	1	1	0
Totals	11 078 637		183	180	229	50	642	179	76	161	106	522	1167	192

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Notes: Blank entries indicate data not supplied.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.5.11 - (RA V - SOUTH-WEST PACIFIC) HYDROLOGICAL OBSERVING STATIONS - SEDIMENT AND WATER QUALITY

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Suspended Years of record (4)					Bedload Years of record (5)					Water Quality Years of record (6)				
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total
Australia	7 682 300	1992	1	10	15	0	26					0	138	68	257	0	463
Brunei Darussalam	5 765	1973					0					0					0
Fiji	18 272	1983	3	0	0	0	3					0	0	0	16	0	16
French Polynesia	4 000	1992					0					0	1	0	0	0	1
Indonesia	1 919 464	1988	151	0	0	0	151					0					0
Malaysia	332 000	1988	12	45	70	0	127					0	37	18	58	0	113
New Caledonia	19 100	1988					0					0					0
New Zealand	268 675	1992					169					0					312
Papua New Guinea	466 200	1975					0					0					0
Philippines	300 000	1992	105	21	0	0	126					0	411	79	1	0	491
Singapore	518	1991					0					0	5	17	57	0	79
Solomon Islands	28 370	1989					0					0					0
United States of America (South West Pacific)	19 300	1983					17					1					215
Vanuatu	14 673	1989					0					0					0
Totals	11 078 637		272	76	85	0	619	0	0	0	0	1	592	182	389	0	1690

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Notes: Blank entries indicate data not supplied.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.5.12 - (RA V - SOUTH-WEST PACIFIC) GROUNDWATER STATIONS (WELLS)

Page 1

State/Territory	Total Area sq. km.	Data for year	Water Levels			Temperature		Quality		Other	
			Observation Rec	Prod N-rec	Prod	Obsn	Prod	Obsn	Prod	Obsn	Prod
(1)	(2)	(3)	(4)			(5)		(6)		(7)	
Australia	7 682 300	1992	1580	16345	13010	4100	800	7570	3000	0	5000
Brunei Darussalam	5 765										
Fiji	18 272	1983	2	33	0	0	0	6	10	0	0
French Polynesia	4 000	1992	0	0	0	0	0	0	0	0	0
Indonesia	1 919 464	1975	0	0	0	0	0	0	0	0	0
Malaysia	332 000	1988	0	70	6	0	0	66	6	0	0
New Caledonia	19 100	1988	0	0	0	0	0	0	0	0	0
New Zealand	268 675	1992	136	134	0	700	0	132	0	0	0
Papua New Guinea	466 200										
Philippines	300 000	1992	15	53	294	0	0	0	0	0	0
Singapore	518	1991	0	0	0	0	0	0	0	0	0
Solomon Islands	28 370	1989	0	27	100	0	0	27	21	0	0
United States of America (South West Pacific)	19 300	1983	89	90	90	88	88	134	135	0	0
Vanuatu	14 673	1989	0	11	4	0	0	0	0	0	0
Totals	11 078 637		1822	16763	13504	4888	888	7935	3172	0	5000

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Key: Obsn: Observation wells, Prod: Production wells, Rec: Recording stations,
N-Rec: Non-recording.

Notes: Blank entries indicate data not supplied.

TABLE 4.6.01 - (RA VI - EUROPE) PRECIPITATION OBSERVING STATIONS: 0 - 500 M ELEVATION

Page 1

State/Territory	Total Area sq. km.	Data for year	% Area	Non-recording gauges Years of record					Recording gauges Years of record					Tele- metry	Radar
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
(1)	(2)	(3)	(4)	(5)					(6)					(7)	(8)
Albania	28 748	1987	43	0	0	30	90	120	0	0	27	8	35	0	0
Austria	83 849	1988	35	23	23	59	218	323	10	12	33	16	71	0	0
Belarus	207 600	1992	100	1	2	17	115	135	0	1	2	7	10	0	0
Belgium	30 513	1983	98	7	13	80	197	297	2	6	27	0	35	0	0
Bulgaria	110 912	1986						454					59	0	0
Cyprus	9 251	1992	80	0	9	56	39	104	2	8	20	1	31	0	0
Czech Republic	78 864	1992		60	51	157	288	556	11	19	56	58	144	0	1
Denmark	43 069	1992	100	111	135	179	242	667	5	3	40	0	48	48	0
Finland	337 009	1988	100	46	59	288	247	640	2	5	49	12	68	0	0
France	551 695	1984		323	386	1917	0	2626	54	49	98	0	201	0	0
Georgia	69 700	1993		0	0	1	10	11					2	0	0
Germany	356 755	1988	84	253	443	1027	3275	4998	302	415	379	136	1232	0	0
Greece	131 944	1988		35	189	403	296	923	30	56	55	0	141	0	0
Hungary, Republic of	93 030	1992	98	4	14	171	610	799	1	0	12	12	25	0	0
Iceland	102 752	1989		13	8	53	58	132	0	0	1	1	2	0	0
Ireland	70 283	1992	99	28	136	144	272	580	10	12	14	44	80	0	0
Israel	27 000	1983	84	27	37	213	193	470	11	5	43	9	68	0	0
Italy	301 225	1973		2	33	983		1018	17	49	1077		1143		
Jordan	90 000	1989	10	3	40	37	0	80	1	8	0	0	9	0	0
Kazakhstan (Europe)	176 500	1993	100	0	0	3	17	20	0	0	0	2	2	0	0
Latvia	64 589	1993	100	0	1	11	67	79	0	0	0	8	8	0	0
Lebanon	10 400	1973		4	25	14		43	3	15	8		26		
Luxembourg	2 586	1990	100	5	3	0	20	28	1	7	0	0	8	0	0
Malta	316	1983		25	0	12	0	37	0	0	16	0	16	0	0
Netherlands	41 863	1992	100	7	4	21	288	320	11	0	11	5	27	0	0
Norway	324 219	1983	52	59	63	241	286	649	11	11	28	2	52	0	0
Poland, Republic of	312 683	1989	92	11	19	338	861	1229	55	82	221	27	385	0	0
Portugal	92 082	1983	77	110	4	90	306	510	74	6	30	59	169	0	0
Romania	237 500	1992						689					139	0	0
Russian Federation (Europe)	5 571 000	1992	10	0	0	160	1447	1607	0	0	33	303	336	0	0
Slovakia	49 035	1993	63	22	32	79	419	552	3	2	44	97	146	0	0
Spain	504 782	1988	36	191	340	975	624	2130	18	15	32	31	96	0	0
Sweden	449 964	1992	80	130	60	195	328	713	16	0	0	0	16	16	0
Switzerland	41 288	1992	21	3	1	29	76	109	1	6	20	0	27	0	0
Syrian Arab Republic	185 180	1973	63	13	36	77		126	3	5	24		32		

TABLE 4.6.02 - (RA VI - EUROPE) PRECIPITATION OBSERVING STATIONS: 501 - 1000 M ELEVATION

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	% Area (4)	Non-recording gauges Years of record (5)					Recording gauges Years of record (6)					Tele- metry (7)	Radar (8)
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Albania	28 748	1987	28	0	2	19	57	78	0	1	8	0	9	0	0
Austria	83 849	1988	28	19	13	61	203	296	14	13	34	8	69	0	0
Belgium	30 513	1983	2	1	2	1	7	11	0	0	2	0	2	0	0
Bulgaria	110 912	1986						139					24	0	0
Cyprus	9 251	1992	15	1	0	28	14	43	0	0	13	0	13	0	0
Czech Republic	78 864	1992		39	22	77	96	234	10	19	30	24	83	0	0
France	551 695	1984		27	63	424	0	514	4	12	44	0	60	0	0
Georgia	69 700	1993		0	0	0	15	15					5	0	0
Germany	356 755	1988	15	48	87	195	562	892	27	54	74	34	189	0	0
Greece	131 944	1988		40	77	149	0	266	12	32	32	0	76	0	0
Hungary, Republic of	93 030	1992	2	0	1	14	4	19					0	0	0
Iceland	102 752	1989		0	0	7	0	7	0	0	1	0	1	0	0
Ireland	70 283	1992	1	0	1	1	5	7	0	0	1	0	1	0	0
Israel	27 000	1983	15	12	3	48	13	76	3	3	9	2	17	0	0
Italy	301 225	1973		1	17	468		486	3	28	489		520		
Jordan	90 000	1989	83	2	10	14	3	29	10	5	44	4	63	0	0
Lebanon	10 400	1973		3	36	16		55	1	12	4		17		
Norway	324 219	1983	32	8	20	50	47	125	0	0	2	0	2	0	0
Poland, Republic of	312 683	1989	7	1	1	38	46	86	13	5	8	9	35	0	0
Portugal	92 082	1983	20	89	4	17	26	136	29	2	9	14	54	0	0
Romania	237 500	1992						182					55	0	0
Slovakia	49 035	1993	32	1	15	13	118	147	0	4	1	24	29	0	0
Spain	504 782	1988	45	138	372	1058	624	2192	12	3	17	19	51	0	0
Sweden	449 964	1992	17	5	5	24	24	58	0	2	0	0	2	2	0
Switzerland	41 288	1992	32	5	4	74	110	193	1	1	10	0	12	0	1
Syrian Arab Republic	185 180	1973	33	21	19	35		75	1	1	7		9		
Turkey	780 576	1985	27	5	21	486	0	512	2	22	164	0	188	0	0
United Kingdom of Great Britain and Northern Ireland	244 046	1992	9	1	1	25	15	42	0	2	2	0	4	3	1
Yugoslavia	255 804	1992		1	1	6	160	168	2	0	4	13	19	0	0
Totals	5 624 080			468	797	3348	2149	7083	144	221	1009	151	1609	5	2

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Notes: Data are shown only for countries which have reported stations in this elevation range.
The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.6.03 - (RA VI - EUROPE) PRECIPITATION OBSERVING STATIONS: 1001 - 1500 M ELEVATION

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	% Area (4)	Non-recording gauges Years of record					Recording gauges Years of record					Teler- metry (7)	Radar (8)
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Albania	28 748	1987	20	0	4	13	9	26	0	0	5	1	6	0	0
Austria	83 849	1988	17	6	6	37	92	141	4	9	7	2	22	0	0
Bulgaria	110 912	1986						62					3	0	0
Cyprus	9 251	1992	4	0	0	6	10	16	0	0	4	2	6	0	0
Czech Republic	78 864	1992		0	0	1	2	3	2	0	3	1	6	0	0
France	551 695	1984		7	12	301	0	320	5	4	36	0	45	0	0
Georgia	69 700	1993		0	0	0	10	10					4	0	0
Germany	356 755	1988	1	1	5	6	17	29	3	7	3	1	14	0	0
Greece	131 944	1988		16	11	13	0	40	5	4	12	0	21	0	0
Hungary, Republic of	93 030	1992						0	0	0	0	1	1	0	0
Israel	27 000	1983	1	1	2	2	0	5	0	2	0	0	2	0	0
Italy	301 225	1973		1	4	161		166	1	6	116		123		
Jordan	90 000	1989	7	0	1	2	1	4	0	2	11	6	19	0	0
Lebanon	10 400	1973		3	27	9		39	0	11	1		12		
Norway	324 219	1983	13	0	4	7	3	14	0	2	0	0	2	0	0
Poland, Republic of	312 683	1989	1	0	1	3	3	7	0	2	1	0	3	0	0
Portugal	92 082	1983	2	7	2	0	6	15	1	1	0	4	6	0	0
Slovakia	49 035	1993	5	0	0	0	5	5	0	0	0	2	2	0	0
Spain	504 782	1988	14	45	76	337	164	622	2	0	5	4	11	0	0
Switzerland	41 288	1992	15	0	2	41	71	114	1	2	8	0	11	0	0
Syrian Arab Republic	185 180	1973	3	7	3	14		24	1	0	3		4		
Turkey	780 576	1985	30	16	5	494	0	515	2	18	88	0	108	0	0
Yugoslavia	255 804	1992		0	0	5	52	57	0	0	3	2	5	0	0
Totals	4 489 022			110	165	1452	445	2234	27	70	306	26	436	0	0

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Notes: Data are shown only for countries which have reported stations in this elevation range.
The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.6.04 - (RA VI - EUROPE) PRECIPITATION OBSERVING STATIONS: 1501 - 2000 M ELEVATION

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	% Area (4)	Non-recording gauges Years of record (5)					Recording gauges Years of record (6)					Tele- metry (7)	Radar (8)
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Austria	83 849	1988	11	6	6	19	23	54	2	9	2	0	13	0	0
Bulgaria	110 912	1986						26					0	0	0
Cyprus	9 251	1992	1	0	0	1	0	1	0	0	1	0	1	0	0
France	551 695	1984		2	2	31	0	35	0	0	11	0	11	0	0
Georgia	69 700	1993		1	0	0	7	8					2	0	0
Germany	356 755	1988		0	0	1	2	3	0	2	0	0	2	0	0
Greece	131 944	1988		2	0	0	0	2					0	0	0
Italy	301 225	1973		0	5	88		93	0	4	47		51		
Lebanon	10 400	1973		2	4	2		8	0	2	1		3		
Poland, Republic of	312 683	1989						0	0	1	1	1	3	0	0
Portugal	92 082	1983	1	0	0	1	0	1	0	0	0	1	1	0	0
Slovakia	49 035	1993	1	0	0	0	3	3					0	0	0
Spain	504 782	1988	4	4	4	37	22	67	0	1	1	1	3	0	0
Switzerland	41 288	1992	12	5	3	40	41	89	3	4	6	0	13	0	1
Syrian Arab Republic	185 180	1973	1	0	1	1		2					0		
Turkey	780 576	1985	16	1	52	83	0	136	4	2	0	0	6	0	0
Yugoslavia	255 804	1992		0	0	2	0	2					0	0	0
Totals	3 847 161			23	77	306	98	530	9	25	70	3	109	0	1

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Notes: Data are shown only for countries which have reported stations in this elevation range.

The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.6.05 - (RA VI - EUROPE) PRECIPITATION OBSERVING STATIONS: 2001 - 2500 M ELEVATION

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	% Area (4)	Non-recording gauges Years of record					Recording gauges Years of record					Tele- metry (7)	Radar (8)
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
				(5)					(6)						
Austria	83 849	1988	6	8	1	20	10	39	1	0	0	0	1	0	0
Bulgaria	110 912	1986						4					0	0	0
France	551 695	1984			1	2	0	4	1	0	1	0	2	0	0
Georgia	69 700	1993		0	0	0	5	5					2	0	0
Slovakia	49 035	1993		0	0	0	1	1					0	0	0
Spain	504 782	1988	1	1	1	16	4	22					0	0	0
Switzerland	41 288	1992	10	3	1	17	23	44	0	0	4	0	4	0	0
Turkey	780 576	1985	9	3	7	14	0	24					0	0	0
Totals	2 191 837			16	11	69	43	143	2	0	5	0	9	0	0

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Notes: Data are shown only for countries which have reported stations in this elevation range.
The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.6.06 - (RA VI - EUROPE) PRECIPITATION OBSERVING STATIONS: OVER 2500 M ELEVATION

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	% Area (4)	Non-recording gauges Years of record					Recording gauges Years of record					Tele- metry (7)	Radar (8)
				<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
				(5)					(6)						
Austria	83 849	1988	3	5	2	17	10	34						0	0
Bulgaria	110 912	1986						1						0	0
France	551 695	1984		0	0	1	0	1	0	0	1	0	1	0	0
Georgia	69 700	1993		0	0	0	2	2						0	0
Germany	356 755	1988		0	0	0	1	1						0	0
Slovakia	49 035	1993		0	0	0	1	1						0	0
Spain	504 782	1988		0	0	4	2	6						0	0
Switzerland	41 288	1992	10	0	1	14	33	48	0	0	2	0	2	0	0
Totals	1 768 016			5	3	36	49	94	0	0	3	0	3	0	0

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Notes: Data are shown only for countries which have reported stations in this elevation range.
The values in the Total columns may exceed the sum of the values in previous columns when not all gauges have been classified by length of record.

TABLE 4.6.07 - (RA VI - EUROPE) PRECIPITATION OBSERVING STATIONS: TOTALS

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Non-recording gauges Years of record					Recording gauges Years of record					Tele- metry (6)	Radar (7)
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
			(4)					(5)						
Albania	28 748	1987	0	6	62	156	224	0	1	40	9	50	0	0
Armenia	29 800													
Austria	83 849	1988	67	51	213	556	887	31	43	76	26	176	0	0
Azerbaijan	86 600													
Belarus	207 600	1992	1	2	17	115	135	0	1	2	7	10	0	0
Belgium	30 513	1983	8	15	81	204	308	2	6	29	0	37	0	0
Bosnia and Herzegovina	51 129													
Bulgaria	110 912	1986					686					86	0	0
Croatia	56 538													
Cyprus	9 251	1992	1	9	91	63	164	2	8	38	3	51	0	0
Czech Republic	78 864	1992	99	73	235	386	793	23	38	89	83	233	0	1
Denmark	43 069	1992	111	135	179	242	667	5	3	40	0	48	48	2
Estonia	45 226													
Finland	337 009	1988	46	59	288	247	640	2	5	49	12	68	0	0
France	551 695	1984	360	464	2676	0	5000	64	65	191	0	320	0	0
Georgia	69 700	1993	1	0	1	49	51					15	0	0
Germany	356 755	1988	302	535	1229	3857	5923	332	478	456	171	1437	30	1
Greece	131 944	1988	93	277	565	296	1231	47	92	99	0	238	0	4
Hungary, Republic of	93 030	1992	4	15	185	614	818	1	0	12	13	26	23	3
Iceland	102 752	1989	13	8	60	58	139	0	0	2	1	3	0	0
Ireland	70 283	1992	28	137	145	277	587	10	12	15	44	81	0	0
Israel	27 000	1983	40	42	263	206	551	14	10	52	11	87	0	0
Italy	301 225	1973	4	59	1700		1763	21	87	1729		1837	0	0
Jordan	90 000	1989	5	51	53	4	113	11	15	55	10	91	0	0
Kazakhstan (Europe)	176 500	1993	0	0	3	17	20	0	0	0	2	2	0	0
Latvia	64 589	1993	0	1	11	67	79	0	0	0	8	8	0	0
Lebanon	10 400	1973	12	92	41		145	4	40	14		58	0	0
Lithuania	65 200													
Luxembourg	2 586	1990	5	3	0	20	28	1	7	0	0	8	0	0
Malta	316	1983	25	0	12	0	37	0	0	16	0	16	0	0
Moldova	33 700													
Netherlands	41 863	1992	7	4	21	288	320	11	0	11	5	27	0	0
Norway	324 219	1983	67	87	298	336	788	11	13	30	2	56	0	0
Poland, Republic of	312 683	1989	12	21	379	910	1322	68	90	231	37	426	0	1
Portugal	92 082	1983	206	10	108	338	662	104	9	39	78	230	0	0

NON-RECORDING PRECIPITATION GAUGES DENSITY (gauges per 1000 km²) EUROPE

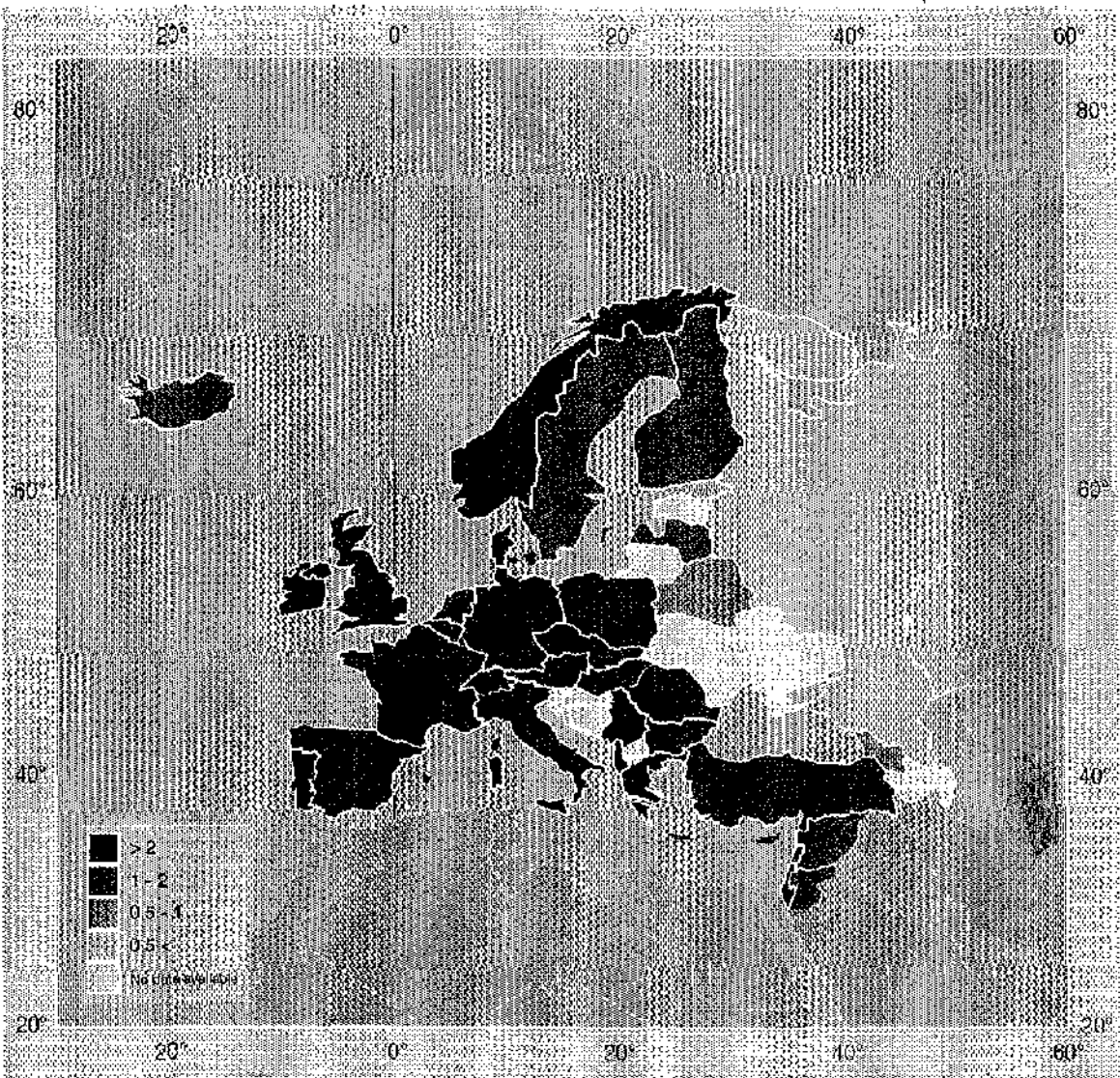


TABLE 4.6.08 - (RA VI - EUROPE) EVAPORATION STATIONS

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Evaporation pans Years of record (4)					Indirect Methods Years of record (5)				
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total
Albania	28 748	1987	0	11	10	0	21					0
Armenia	29 800											
Austria	83 849	1988	12	13	2	0	27					0
Azerbaijan	86 600											
Belarus	207 600											
Belgium	30 513	1983	0	0	10	0	10	1	0	18	0	19
Bosnia and Herzegovina	51 129											
Bulgaria	110 912	1986					0					0
Croatia	56 538											
Cyprus	9 251	1992	2	5	22	0	29					0
Czech Republic	78 864	1992					3					0
Denmark	43 069	1983	4	6	28	0	38					0
Estonia	45 226											
Finland	337 009	1992	1	3	5	13	22	0	1	1	0	2
France	551 695	1982	1	1	1	0	3					0
Georgia	69 700	1993	0	0	13	3	16					0
Germany	356 755	1988	1	3	25	0	29	5	16	195	0	216
Greece	131 944	1988	43	60	52	0	155					0
Hungary, Republic of	93 030	1992	5	0	56	0	61	0	0	0	49	49
Iceland	102 752	1989	0	0	1	0	1					0
Ireland	70 283	1992	0	1	7	14	22					0
Israel	27 000	1983	57	28	33	0	118	0	0	1	0	1
Italy	301 225	1975					0					0
Jordan	90 000	1989	4	4	14	0	22	3	2	8	0	13
Kazakhstan (Europe)	176 500	1993	0	0	1	4	5					0
Latvia	64 589	1993	0	1	0	2	3					0
Lebanon	10 400	1973					18					0
Lithuania	65 200											
Luxembourg	2 586	1990	1	0	11	14	26					0
Malta	316	1983	0	8	0	0	8					0
Moldova	33 700											
Netherlands	41 863	1992					0	10	0	9	6	25
Norway	324 219	1983	5	0	19	0	24					0
Poland, Republic of	312 683	1989	5	11	29	0	45	0	0	10	43	53
Portugal	92 082	1983	11	3	11	0	25					0

TABLE 4.6.09 - (RA VI - EUROPE) HYDROLOGICAL OBSERVING STATIONS - DISCHARGE

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Recording Years of record (4)					Non-recording Years of record (5)					Total stns (6)	Tele- metry (7)
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Albania	28 748	1987	0	0	11	17	28	0	0	21	20	41	69	0
Armenia	29 800	1993	1	1	38	15	55	0	2	16	36	54	109	0
Austria	83 849	1988	70	45	164	113	392	0	2	13	8	23	415	0
Azerbaijan	86 600													
Belarus	207 600	1992					0	3	3	19	83	108	108	0
Belgium	30 513	1983	12	26	72	3	113	0	6	73	0	79	192	0
Bosnia and Herzegovina	51 129													
Bulgaria	110 912	1986					150					128	278	278
Croatia	56 538													
Cyprus	9 251	1992	9	10	46	0	65	0	0	10	0	10	75	0
Czech Republic	78 864	1992	31	32	120	280	463	6	2	6	20	34	497	5
Denmark	43 069	1983	38	92	39	26	195	1	0	3	0	4	199	0
Estonia	45 226													
Finland	337 009	1992	1	5	54	41	101	5	11	34	34	84	185	10
France	551 695	1988	200	240	1244	300	1984	0	0	0	16	16	2000	400
Georgia	69 700	1993					0	1	5	23	81	110	110	0
Germany	356 755	1988	287	348	1956	679	3270	230	103	176	70	579	3849	179
Greece	131 944	1988					72	50	56	58	19	183	255	0
Hungary, Republic of	93 030	1992	14	45	50	29	138	2	5	16	12	35	173	23
Iceland	102 752	1989	15	7	47	26	95	0	0	2	4	6	101	1
Ireland	70 283	1992					421					719	1140	0
Israel	27 000	1986	2	4	42	43	91					0	91	0
Italy	301 225	1975					0					0	0	0
Jordan	90 000	1984					0					48	48	0
Kazakhstan (Europe)	176 500	1993					0	0	1	3	9	13	13	0
Latvia	64 589	1993	0	1	4	20	25	0	1	4	24	29	54	0
Lebanon	10 400	1973					83					71	154	0
Lithuania	65 200													
Luxembourg	2 586	1983	10	0	0	3	13	3	0	0	10	13	26	0
Malta	316	1983					0					0	0	0
Moldova	33 700													
Netherlands	41 863	1992	0	8	0	0	8					0	8	8
Norway	324 219	1983	98	105	263	27	493	27	30	153	126	336	829	18
Poland, Republic of	312 683	1989	33	16	45	140	234	8	40	190	330	568	802	0
Portugal	92 082	1983	59	36	51	16	162	0	0	6	14	20	182	6

DISCHARGE MEASURING STATIONS DENSITY (stations per 1000 km²) EUROPE

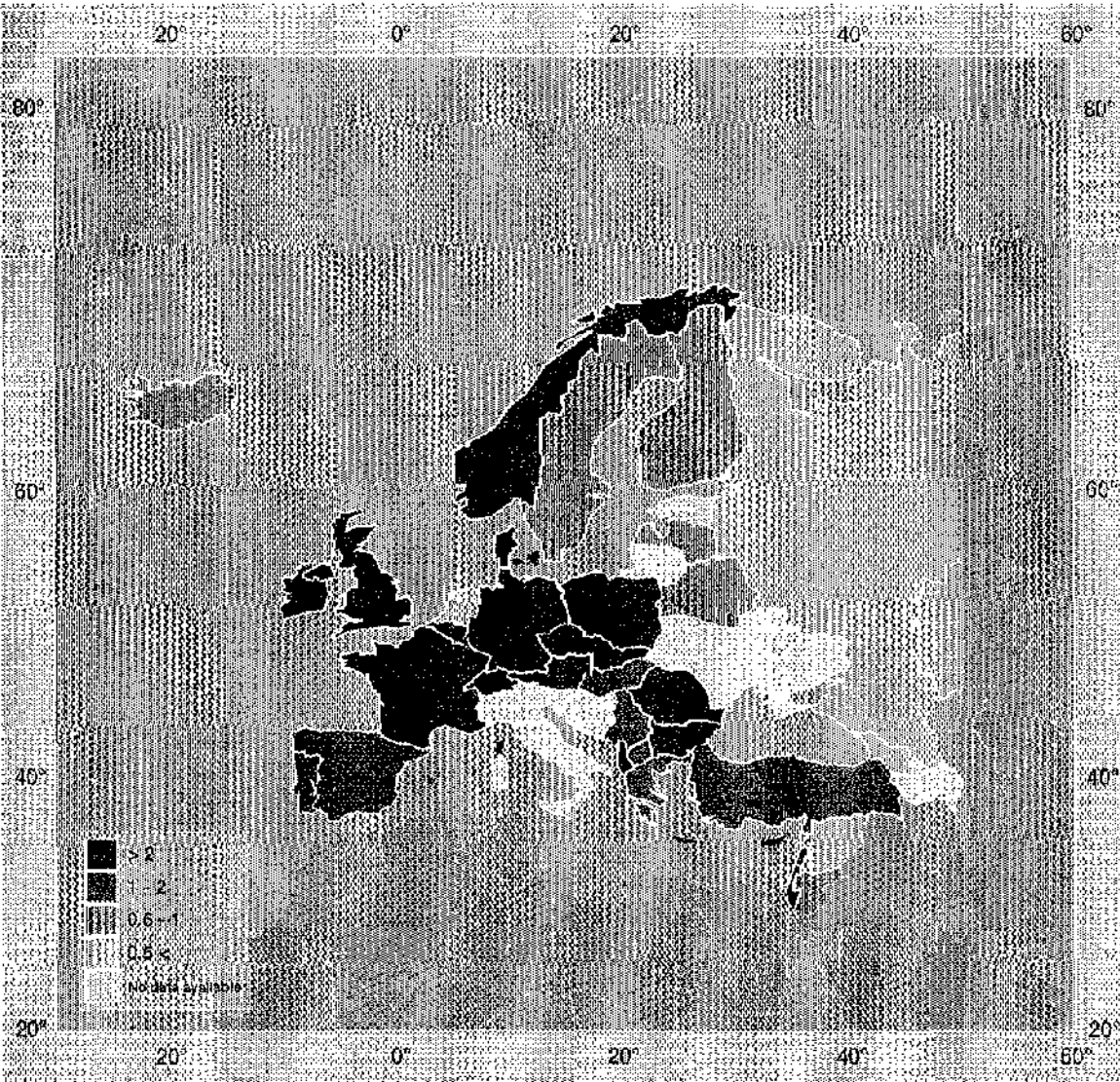


TABLE 4.6.10 - (RA VI - EUROPE) HYDROLOGICAL OBSERVING STATIONS - STAGE (WATER LEVEL)

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Recording Years of record (4)					Non-recording Years of record (5)					Total stns (6)	Tele- metry (7)
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total		
Albania	28 748	1987	3	9	40	5	57	8	30	63	22	123	180	0
Armenia	29 800	1993	0	0	1	0	1	0	1	1	7	9	10	0
Austria	83 849	1988					206					93	299	76
Azerbaijan	86 600													
Belarus	207 600	1992	1	9	69	4	83	4	1	12	33	50	133	0
Belgium	30 513	1983	2	0	0	0	2	1	1	1	0	3	5	0
Bosnia and Herzegovina	51 129													
Bulgaria	110 912	1986					0					0	0	0
Croatia	56 538													
Cyprus	9 251	1992					0					0	0	0
Czech Republic	78 864	1992	1	0	0	2	3	3	0	1	0	4	7	0
Denmark	43 069	1983	7	12	22	3	44	5	0	4	0	9	53	0
Estonia	45 226													
Finland	337 009	1992	3	12	20	47	82	2	20	190	130	342	424	21
France	551 695	1988	8	10	50	17	85	50	60	350	60	520	605	400
Georgia	69 700	1993					9	0	0	1	0	1	10	0
Germany	356 755	1988	78	163	443	374	1058	256	151	1310	111	1828	2886	170
Greece	131 944	1988					46	8	1	13	8	30	76	0
Hungary, Republic of	93 030	1992	8	20	7	4	39	8	69	45	15	137	176	13
Iceland	102 752	1989	0	0	9	0	9					0	9	1
Ireland	70 283	1992	0	0	0	21	584	0	0	0	2	788	1372	0
Israel	27 000	1986	5	0	0	0	5					0	5	0
Italy	301 225	1975					0					0	0	0
Jordan	90 000	1984					31					32	63	0
Kazakhstan (Europe)	176 500	1993					0	0	0	1	5	6	6	0
Latvia	64 589	1993	0	0	1	5	6	0	0	3	15	18	24	0
Lebanon	10 400	1973					0					0	0	0
Lithuania	65 200													
Luxembourg	2 586	1983	0	0	0	2	2	0	0	0	3	3	5	0
Malta	316	1983					0					0	0	0
Moldova	33 700													
Netherlands	41 863	1992					0					0	100	70
Norway	324 219	1983	4	3	20	0	27	4	24	110	167	305	332	0
Poland, Republic of	312 683	1989	5	12	18	45	80	9	65	80	100	254	334	0
Portugal	92 082	1983	0	10	9	5	24	2	3	6	18	29	53	0

TABLE 4.6.11 - (RA VI - EUROPE) HYDROLOGICAL OBSERVING STATIONS - SEDIMENT AND WATER QUALITY

Page 1

State/Territory (1)	Total Area sq. km. (2)	Data for year (3)	Suspended Years of record (4)					Bedload Years of record (5)					Water Quality Years of record (6)				
			<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total	<5	5-10	10-30	>30	Total
Albania	28 748	1987	4	5	47	5	61					0	0	1	28	0	29
Armenia	29 800	1993	1	5	23	24	53					0	1	1	21	22	45
Austria	83 849	1988					9					0					4
Azerbaijan	86 600																
Belarus	207 600	1992	0	3	8	0	11					0	1	8	47	37	93
Belgium	30 513	1983					0					0					0
Bosnia and Herzegovina	51 129																
Bulgaria	110 912	1986					130					0					160
Croatia	56 538																
Cyprus	9 251	1992	9	10	56	0	75					0	9	10	56	0	75
Czech Republic	78 864	1992	11	22	9	0	42					0	216	26	270	0	512
Denmark	43 069	1983					0					0					0
Estonia	45 226																
Finland	337 009	1992					0					0	4700	9000	28800	400	42900
France	551 695	1984					725					23	0	0	125	0	125
Georgia	69 700	1993	0	1	38	28	67					0	2	19	77	15	113
Germany	356 755	1988	14	72	1068	18	1172	24	8	10	0	42	472	337	1929	327	3065
Greece	131 944	1988					25	1	6	26	2	35					21
Hungary, Republic of	93 030	1992	0	0	20	17	37					0	30	47	114	0	191
Iceland	102 752	1989	37	22	29	0	88					0					0
Ireland	70 283	1992					0					0	100	250	1000	0	1350
Israel	27 000	1986					0					0					0
Italy	301 225	1975					0					0					0
Jordan	90 000	1984					33					0					38
Kazakhstan (Europe)	176 500	1993	0	0	4	1	5					0	3	0	4	4	11
Latvia	64 589	1993	0	1	4	1	6	0	0	1	0	1	0	3	91	19	113
Lebanon	10 400	1973					0					0					0
Lithuania	65 200																
Luxembourg	2 586	1983					0					0					0
Malta	316	1983					0					0					0
Moldova	33 700																
Netherlands	41 863	1992	70	0	0	0	0					0	0	250	35	5	290
Norway	324 219	1983	0	0	1	0	1	0	0	1	0	1	79	10	2	0	91
Poland, Republic of	312 683	1989					94					0					3945
Portugal	92 082	1983	7	15	0	0	22	2	4	0	0	6	23	10	0	0	33

TABLE 4.6.12 - (RA VI - EUROPE) GROUNDWATER STATIONS (WELLS)

Page 1

State/Territory	Total Area sq. km.	Data for year	Water Levels			Temperature		Quality		Other	
			Observation Rec	N-rec	Prod	Obsn	Prod	Obsn	Prod	Obsn	Prod
(1)	(2)	(3)	(4)			(5)		(6)		(7)	
Albania	28 748	1987	11	670	340	146	340	154	340	480	0
Armenia	29 800	1993	0	0	0	0	0	0	0	0	0
Austria	83 849	1990	152	2653	0	265	0	0	0	0	0
Azerbaijan	86 600										
Belarus	207 600	1992	0	37	0	0	4	0	1	0	0
Belgium	30 513	1983	0	179	0	0	0	50	0	0	0
Bosnia and Herzegovina	51 129										
Bulgaria	110 912	1986	80	1120	0	80	1120	260	0	0	0
Croatia	56 538										
Cyprus	9 251	1992	19	50	1200	0	0	69	1200	0	13400
Czech Republic	78 864	1992	168	1732	0	549	0	312	0	505	0
Denmark	43 069	1983	8	76	65	0	0	0	0	0	0
Estonia	45 226										
Finland	337 009	1991	58	580	0	25	0	54	0	0	0
France	551 695	1982	314	3285	0	150	0	475	1875	0	0
Georgia	69 700	1993	0	0	0	0	0	0	0	0	0
Germany	356 755	1988	2294	31372	260	307	120	788	1200	0	0
Greece	131 944	1988	0	20	7000	6790	21	1	0	8000	2600
Hungary, Republic of	93 030	1992	140	1810	40	16	0	30	560	0	0
Iceland	102 752	1989	11	0	0	0	0	0	0	0	0
Ireland	70 283	1992	4	0	0	0	0	0	0	0	0
Israel	27 000	1986	0	416	8507	0	0	200	3000	0	0
Italy	301 225	1975	0	0	0	0	0	0	0	0	0
Jordan	90 000	1984	0	1	5600	1560	0	3	0	0	1300
Kazakhstan (Europe)	176 500	1993	0	0	0	0	0	0	0	0	0
Latvia	64 589	1993	0	24	0	3	0	0	0	0	0
Lebanon	10 400	1973	0	326	25	1	0	325	25	50	0
Lithuania	65 200										
Luxembourg	2 586	1983	0	29	0	0	0	0	0	0	0
Malta	316	1983	54	0	0	0	0	54	0	0	0
Moldova	33 700										
Netherlands	41 863	1992	16000	0	0	0	0	8000	0	0	0
Norway	324 219	1983	35	747	6	1000	30	2	5001	3800	260
Poland, Republic of	312 683	1989	0	0	5501	6950	6	5	8000	0	0
Portugal	92 082	1983	10	20	500	0	0	0	9	0	0

TABLE 4.7 - HYDROLOGICAL OBSERVING STATIONS - SUMMARY *
(Number of Stations)

TYPE OF STATIONS	WMO REGIONS						
	AFRICA (RA I) (1)	ASIA (RA II) (2)	S. AMERICA (RA III) (3)	N. & C. AMERICA (RA IV) (4)	S.W. PACIFIC (RA V) (5)	EUROPE (RA VI) (6)	TOTAL (GLOBAL) (7)
PRECIPITATION							
Non-recording: TOTAL ***	17 036	39 456	19 247	19 973	15 276	40 367	151 355
(0- 500m)	1 304	11 478	8 548	5 923	12 881	28 681	68 815
(501-1000m)	1 206	2 076	3 386	1 196	1 463	7 083	16 410
(1001-1500m)	1 886	1 314	663	428	403	2 234	6 928
(1501-2000m)	339	1 047	422	130	199	530	2 667
(2001-2500m)	29	641	256	38	29	143	1 136
(over 2500m)	8	653	626	16	0	94	1 397
Recording: TOTAL ***	2 639	18 864	3 520	5 280	3 332	8 422	42 057
(0- 500m)	277	5 168	1 936	1 205	2 700	6 233	17 519
(501-1000m)	414	1 168	645	269	389	1 609	4 494
(1001-1500m)	780	385	161	129	118	436	2 009
(1501-2000m)	92	194	119	49	21	109	584
(2001-2500m)	9	84	77	23	4	9	206
(over 2500m)	1	17	98	10	0	3	129
Telemetry	8	1 916	202	1 023	515	459	4 123
Radar	9	56	3	82	8	35	193
EVAPORATION							
Pans	1 508	3 686	1 745	2 716	1 120	1 499	12 274
Indirect method	374	7	40	11	1 049	488	1 969
DISCHARGE: TOTAL **	5 703	11 543	7 808	13 211	5 838	20 008	64 111
Recording	1 856	3 064	2 117	11 128	3 795	13 871	35 831
Non-recording	3 045	8 479	5 691	2 080	2 043	6 137	27 475
Telemetry	39	2 033	158	3 613	1 075	2 761	9 679
STAGE (WATER LEVEL): TOTAL **	3 410	6 405	5 815	11 274	1 167	10 704	38 775
Recording	877	2 300	1 571	9 549	642	4 829	19 768
Non-recording	2 244	3 800	4 244	1 725	522	5 826	18 361
Telemetry	15	1 257	194	1 734	192	1 768	5 160
SEDIMENT DISCHARGE							
Suspended	859	3 820	1 561	5 217	619	3 712	15 788
Bedload	6	685	505	0	1	549	1 746

V - NATIONAL HYDROLOGICAL DATA BANKS

TABLES 5.1.1 to 5.8

Explanatory notes

A "data bank" here implies a **computerized** data bank only. A complete national hydrological data bank would contain data and statistics covering all hydrological variables for all parts of a country and would permit any user to easily extract and use these data without extensive manipulation. It is not necessarily a single physical data bank controlled by one agency at one site. If hydrological data in different banks can easily be accessed, transferred, and used by standard computer programs and formats, it is considered that a national bank exists at a certain level of development.

Tables 5.r.1: Hydrological data banks and archiving (by Region)

This table presents, for each country, the status of data-processing facilities, the data banks and the archives. The letter "r" above denotes the WMO Region (I to VI as 1 to 6) in the table numbers. The column headings are:

Column (3) - Method: indicates computer or manual method of data processing and archiving.

Column (4) - No. of agencies: number of Agencies for which information is given in Tables 5.r.1 and 5.r.2.

Column (5) - Type of data bank: the data banks are classified as:

- (a) **Centralized:** one national data bank covering all hydrological parameters for all parts of the country, permitting any user to easily obtain and transfer these data using standardized computer programs and formats, etc.;
- (b) **Co-ordinated:** several data banks covering all hydrological parameters with some type of co-ordinating arrangement between banks or agencies so that data in different banks can easily be obtained and transferred without extensive manipulation aimed at making different formats compatible for computer treatment;
- (c) **Limited:** a centralized data bank but covering only one or a few of the many hydrological parameters.

Column (6) - Percentage (%) total data in archives: this column consists of seven sub-columns representing archived data on:

- Lvl - Water levels (stages)
- Dis - Discharges (streamflow)
- GW - Groundwater
- WQ - Water quality
- Sed - Sediment
- Ppt - Precipitation
- Evp - Evaporation

V - BANQUES DE DONNÉES HYDROLOGIQUES NATIONALES

TABLEAUX 5.1.1 à 5.8

Notes explicatives

Le terme "banques de données" désigne ici uniquement des banques de données **informatisées**. Une banque nationale de données hydrologiques complète devrait contenir des données et des statistiques concernant l'ensemble des variables hydrologiques pour toutes les parties d'un pays et permettre à tout utilisateur d'extraire et d'utiliser facilement ces données sans trop de manipulations. Il ne s'agit pas nécessairement d'une banque de données unique gérée par un seul organisme en un seul endroit. Si l'on peut facilement avoir accès à des données hydrologiques dans différentes banques, les transférer et les utiliser à l'aide de programmes et de formats informatiques standard, on considère alors qu'il existe une banque de données nationale, avec un certain niveau de développement.

Tableau 5.r.1 : Banques de données hydrologiques et archivage (par Région)

Ce tableau présente, pour chaque pays, la situation concernant les moyens et installations de traitement de données, les banques et les archives. La lettre "r" correspond au chiffre (de 1 à 6) qui, dans l'en-tête des tableaux, désigne la Région de l'OMM (de I à VI). Les en-têtes des colonnes sont les suivants :

Colonne (3) - Méthode : méthode, informatique ou manuelle, de traitement et d'archivage.

Colonne (4) - Nombre d'organismes : nombre des organismes auxquels correspondent les informations figurant dans les tableaux 5.r.1 et 5.r.2.

Colonne (5) - Type de banque : on distingue trois catégories de banques de données, classées selon le type d'organisation :

- a) **banques centralisées** : banques nationales contenant des données pour tous les paramètres hydrologiques et toutes les régions du pays, ce qui permet à n'importe quel usager d'obtenir et de transférer aisément les données en utilisant des programmes informatiques et des modes de présentation normalisés, etc.;
- b) **banques régies par un accord de coordination**, conclu entre banques ou organismes, qui, à eux tous, couvrent l'ensemble des paramètres hydrologiques pour tout le pays et aux termes duquel il est possible d'obtenir et de transférer des données de ces banques, sans manipulations complexes visant à rendre compatibles leurs modes de présentation pour leur traitement informatique;
- c) **banques de données partielles** : banques centralisées, mais ne contenant de données que pour quelques paramètres hydrologiques, voire un seul.

La mention "YES" (OUI) à la place d'un chiffre indique que les données sont reçues sous forme numérique ou traitées par ordinateur, mais que le pourcentage n'est pas connu.

Les tableaux 5.7 et 5.8 présentent un état récapitulatif, par Région de l'OMM, respectivement pour les banques de données hydrologiques et les activités d'archivage, et pour la collecte et les activités de traitement des données hydrologiques.

У - НАЦИОНАЛЬНЫЕ БАНКИ ГИДРОЛОГИЧЕСКИХ ДАННЫХ

ТАБЛИЦЫ 5.1.1-5.8

Пояснительные записки

В настоящем Наставлении "банк данных" понимается только как компьютеризированный банк данных. Полный национальный банк гидрологических данных мог бы содержать данные и статистические параметры, охватывающие все гидрологические переменные по всем частям страны, и мог бы дать возможность любому пользователю легко извлекать и использовать эти данные без больших манипуляций. Не обязательно, чтобы физически единый банк данных управлялся одним агентством в одном месте. Если к гидрологическим данным, находящимся в различных банках, можно легко осуществлять доступ, осуществить их передачу и использовать с помощью стандартных компьютерных программ и форматов, то можно считать, что существует национальный банк на определенном уровне развития.

Таблица 5.1.1: Банки и архивация гидрологических данных (по Региону)

В данной таблице по каждой стране представляются сведения о состоянии технических средств обработки данных, банков данных и архивов. В номерах таблиц вышеуказанная буква "г" определяет Регион ВМО (I-VI как 1-6). Заголовки колонок следующие:

Колонка (3) - Метод: указывает компьютерный или ручной метод обработки и архивации данных.

Колонка (4) - Количество агентств: количество агентств, по которым приводится информация в таблицах 5.1.1 и 5.1.2.

Колонка (5) - Тип банка данных: банки данных классифицированы следующим образом:

- a) *централизованный:* один национальный банк данных, охватывающий все гидрологические параметры для всех частей страны, позволяющий любому пользователю легко получить и передать эти данные с использованием стандартизированных компьютерных программ и форматов и т.д.; **или**
- b) *координированный:* несколько банков данных, охватывающих все гидрологические параметры при наличии некоторых координационных соглашений между банками или агентствами, с тем чтобы данные, содержащиеся в различных банках, могли быть легко получены и переданы без больших манипуляций, предназначенных для того, чтобы сделать различные форматы совместимыми для компьютерной обработки; **или**
- c) *ограниченный:* централизованный банк данных, но охватывающий только один или небольшое количество из многих гидрологических параметров.

Колонка (6) - Процентная доля (%) от общего количества данных, которая находится в архивах: данная колонка состоит из семи подколонок, представляющих помещенные в архив данные по следующим параметрам:

- Lvl - уровни воды (уровни)
- Dis - расходы (сток)
- GW - подземные воды
- WQ - качество воды

V - BANCOS DE DATOS HIDROLÓGICOS NACIONALES

CUADROS 5.1.1 a 5.8

Notas explicativas

En este caso "banco de datos" sólo significa banco de datos en **ordenador**. Un banco nacional de datos hidrológicos completo contendría datos y estadísticas que abarcarían todas las variables hidrológicas para todas las regiones de un país y permitiría a cualquier usuario extraer y utilizar fácilmente esos datos sin un tratamiento extenso. No se trata necesariamente de un banco de datos físico único controlado por un organismo dado en un sitio dado. Si los datos hidrológicos de bancos diferentes pueden obtenerse, transferirse y utilizarse fácilmente mediante programas y formatos de ordenador normalizados, se puede considerar que un banco nacional existe a determinado nivel de desarrollo.

Cuadros 5.r.1: Bancos y archivo de datos hidrológicos (por Región)

Este cuadro presenta para cada país el estado de los medios e instalaciones de proceso de datos, los bancos de datos y los archivos. La letra "r" de los números del cuadro indica la Región de la OMM (I a VI como 1 a 6). Los encabezamientos de las columnas son los siguientes:

Columna (3) - Método: Indica el método computarizado o manual de proceso y archivo de datos.

Columna (4) - Número de organismos: Número de organismos para los cuales se brinda información en los Cuadros 5.r.1 y 5.r.2.

Columna (5) - Tipos de bancos de datos: Los bancos de datos se clasifican de la siguiente manera:

- a) **centralizados:** bancos de datos nacionales que abarcan todos los parámetros hidrológicos para todas las zonas del país, permitiendo a cualquier usuario obtener y transferir fácilmente dichos datos mediante la utilización de programas y formatos de ordenador normalizados, etc.;
- b) **coordinados:** varios bancos de datos que abarcan todos los parámetros hidrológicos con cierto tipo de arreglo para la coordinación entre los bancos o los organismos, de modo tal que los datos de los diferentes bancos puedan conseguirse y transferirse con facilidad sin un tratamiento extenso tendiente a lograr que los diferentes formatos sean compatibles para el tratamiento por ordenador;
- c) **limitados:** bancos de datos centralizados pero que abarcan sólo uno o unos pocos de los muchos parámetros hidrológicos.

Columna (6) - Porcentaje (%) del total de datos de los archivos: esta columna consta de siete subcolumnas que representan los datos archivados relativos a los siguientes elementos:

Lvl	-	Niveles de agua (altura)
Dis	-	Caudal (flujo de corriente)
GW	-	Agua subterránea
WQ	-	Calidad del agua
Sed	-	Sedimentos
Ppt	-	Precipitación
Evp	-	Evaporación

TABLE 5.1.1 - (BA I - AFRICA) HYDROLOGICAL DATA BANKS AND ARCHIVING

State or Territory	Date for year	Method	No. Agen- cies	Type of data bank	% Total data in archives							Arch. data	Update frequency (months)	Age data last archived (months)	Cata- logues	Data Supp- lied
					Lvl	Dis	GW	WA	Sed	Ppt	Evp					
(1)	(2)	(3)	(4)	(5)	(6)							(7)	(8)	(9)	(10)	(11)
Algeria	1992	Computer	2	Coordinated	Yes	Yes	Yes	Yes	Yes	Yes	Yes		0-6	0-12		
Angola																
Benin																
Botswana	1985	Computer	1	None	0	0	0	0	0	15	15					
Burkina Faso	1983	Computer	1	Limited	0	100	0	0	0	0	0		1-12	0-24		
Burundi	1992	Manual														
Cameroun																
Cape Verde																
Central African Republic																
Chad	1987	Computer	1	Limited	0	0	0	0	0	0	0		0-12	0-24		
Comoros																
Congo	1982	Computer	2	Limited	100	100	0	0	0	100	100		0-12			
Côte d'Ivoire	1992	Computer	2	Coordinated	100	100				100	100		0-1	0-1		
Djibouti																
Egypt	1984	Computer	2	Coordinated	0	0	0	0	0	0	0		6-12	6-12		
Equatorial Guinea																
Eritrea																
Ethiopia	1992	Computer	1	None	50	50	0	0	0	0	0					
France - Réunion	1974	Computer	1	Limited	0	0	0	0	0	100	100		1-6	0-1		
Gabon																
Gambia																
Ghana	1987	Computer	4	Limited	100	100	100	100	100	100	100		0-12	0-12		
Guinea																
Guinea Bissau	1988	Manual														
Kenya	1983	Computer	1	None	90	90	40	0	0	0	0		6-12	0-24		
Lesotho	1976	Manual														
Liberia																
Libyan Arab Jamahiriya	1975	Manual														
Madagascar	1987	Computer	1	Limited	Yes	Yes	100	50	0	100	100		0-12	0-12		
Malawi	1987	Computer	2	Limited	Yes	60	0	50	0	Yes	0		0-60	0-24		
Mali	1992	Computer	2	Computer	100	100	100	0	0	0	0		0-12	0-12		
Mauritania																
Mauritius	1992	Computer	2	Coordinated	40	70	50	10	0	60	30		6-12	12-24		
Morocco	1975	Computer	2	Limited	80	90	100	0	0	60	60		0-6	0-6		
Mozambique	1973	Computer	1	None												
Namibia																
Niger	1992	Computer	1	None	075	75	10	10	0	100	30		0-12	12-24		
Nigeria	1984	Computer	1	None	20	10	0	0	0	25	0		1-12	0-1		
Portugal - Madeira	1983	Computer	1	Limited	0	0	0	0	0	100	0		0-12	6-12		
Rwanda	1992	Manual														

TABLE 5.1.2 - (RA I - AFRICA) HYDROLOGICAL DATA COLLECTION AND PROCESSING

Page 1

State or Territory (1)	Data for year (2)	Levels a b (3)	Flows a b (4)	Ground water a b (5)	Water quality a b (6)	Suspended sediment a b (7)	Other data a b (8)	Precipi- tation a b (9)	Evapo- ration a b (10)
Algeria	1992	0 Yes	0 Yes	0 Yes	0 Yes	0 Yes		0 Yes	0 Yes
Angola									
Benin									
Botswana	1985	0 0	0 0	0 0	0 0	0 0	1 1	1 0	1 0
Burkina Faso	1983	0 0	0 100	0	0	0	0	0 0	0 0
Burundi	1992								
Cameroon									
Cape Verde									
Central African Republic									
Chad	1983	0 0	0 0						
Comoros									
Congo	1982	0 100	0 100					0 100	0 100
côte d'Ivoire	1992	0 100	0 100					0 100	0 100
Djibouti									
Egypt	1984							90	60
Equatorial Guinea									
Eritrea									
Ethiopia	1992	0 50	0 50		0 0	0 0		0	0 0
France - Réunion	1974							100 100	100 100
Gabon									
Gambia									
Ghana	1987	70 0	100 0	90 0	100 0	100 0		90 0	100 0
Guinea									
Guinea Bissau	1988								
Kenya	1983	0 10	0 10	0	0	0			
Lesotho	1976	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
Liberia									
Libyan Arab Jamahiriya									
Madagascar	1986	Yes 50	Yes 40	100 0	100 0			100 100	
Malawi	1987	0 Yes	0 60	0 0	0 Yes	0 0	0 0	0 Yes	0 0
Mali	1992	100	100	100 100	0 0	0 0	0 0	0 0	0 0
Mauritania									
Mauritius	1992	0 40	30 50	0 20				20 30	0 10
Morocco	1975	Yes 80	Yes 90	Yes 100				0 100	0 0
Mozambique	1973	0	0 Yes	0	0	0		0	0
Namibia									
Niger	1992	0 75	0 75	50	50	0 30		0 100	0 30
Nigeria	1984	0 0	0 0	0 0	0 0	0 0			
Portugal - Madeira	1983							100	
Rwanda	1992								

TABLE 5.2.1 - (RA II - ASIA) HYDROLOGICAL DATA BANKS AND ARCHIVING

Page 1

State or Territory	Data for year	Method	No. Agencies	Type of data bank	% Total data in archives							Arch. data	Update frequency (months)	Age data last archived (months)	Data- logues	Data Supp- lied
(1)	(2)	(3)	(4)	(5)	(6)							(7)	(8)	(9)	(10)	(11)
Afghanistan																
Bahrain																
Bangladesh	1975	Manual														
Cambodia																
China	1984	Computer	1	None												
Dem. People's Rep. of Korea	1992	Computer	1	Limited	80	80	0	0	80	95	80		0-12	12-24		
Hong Kong	1992	Computer	2	Coordinated	100	100	100	0	0	100	50		0-60	0-60		
India	1983	Computer	3	None	35	35	0	0	0	0	0			12-24		
Iran	1976	Computer	1	None	20	20	0	0	0	0	0		6-12	6-12		
Iraq	1975	Manual														
Japan	1988	Computer	2	Centralized	0	26	0	0	0	100	0		0-1	0-3		
Kazakhstan (Asia)	1993	Manual														
Kuwait																
Kyrgyzstan																
Lao People's Dem. Rep.																
Maldives																
Mongolia	1983	Manual														
Myanmar	1989	Computer	1	Limited	60	20			10	20						
Nepal	1991	Computer	1	Centralized	5	5	0	0	0	0	0					
Oman	1983	Manual														
Pakistan	1984	Computer	3													
Qatar	1991	Computer	1		0	0	100	100	0	100	100		1-12	1-12		
Republic of Korea	1992	Computer	1	Limited	100	0	100	0	0	100	100			1-24		
Republic of Yemen																
Russian Federation in Asia	1975	Computer	2	Coordinated	Yes	100	0	80	0	0	0		0-12	0-12		
Saudi Arabia	1987	Computer	2	Coordinated	70	70	60	70	100	65	70		0-12	0-12		
Sri Lanka	1986	Computer	0		0	100	0	0	0	0	0		0-24	0-24		
Tajikistan																
Thailand	1991	Computer	4	Limited	40	50		80	80				0-12	0-12		
Turkmenistan																
United Arab Emirates																
Uzbekistan																
Viet Nam	1984	Manual														

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Key: Data in archives: Lvl - Levels, Dis - Discharges, GW - Groundwater, WQ - Water Quality, Sed - Sediment, Ppt - Precipitation, Evp - Evaporation.

Arch. data: B - Basic, A - Analyzed data archived.

Catalogues: A - Available, D - Distributed.

Data supplied: B - Basic, A - Analyzed, C - Charge for supplying data.

Note: Blank entries indicate data not supplied.

TABLE 5.2.2 - (RA II - ASIA) HYDROLOGICAL DATA COLLECTION AND PROCESSING

Page 1

State or Territory	Data for year	Levels a b	Flows a b	Ground water a b	Water quality a b	Suspended sediment a b	Other data a b	Precipi- tation a b	Evapo- ration a b
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Afghanistan									
Bahrain									
Bangladesh									
Cambodia									
China	1984								
Dem. People's Rep. of Korea	1987	100						100	
Hong Kong	1992	0 100	0 0	0 100	0 0	0 0		21 100	0 50
India	1983	0 35	0 35		0 0	0 0			
Iran	1976	0 20	0 20						
Iraq									
Japan	1988	0 0	0 0	0 0	0 0	0 0		100 100	0 0
Kazakhstan (Asia)									
Kuwait									
Kyrgyzstan									
Lao People's Dem. Rep.									
Maldives									
Mongolia	1983								
Myanmar	1989	Yes Yes	Yes Yes	0 0	0 0	Yes Yes			
Nepal	1991								
Oman	1983								
Pakistan	1984								
Qatar	1991	100 50		100 50	100 50			100 100	100 100
Republic of Korea	1992	100		100				100	100
Republic of Yemen									
Russian Federation in Asia	1975	Yes Yes	Yes Yes		Yes Yes	Yes Yes			
Saudi Arabia									
Sri Lanka	1988	100	100						
Tajikistan									
Thailand	1991	60	60			10		80	30
Turkmenistan									
United Arab Emirates									
Uzbekistan									
Viet Nam	1984								

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Key to column labels: a - % field data in digital form,
b - % data processed by computer.

Note: Blank entries indicate data not supplied.

TABLE 5.3.1 - (RA III - SOUTH AMERICA) HYDROLOGICAL DATA BANKS AND ARCHIVING

Page 1

State or Territory	Data for year	Method	No. Agen- cies	Type of data bank	% Total data in archives							Update frequency (months)	Age data last archived (months)	Data- logues	Data Supp- lied	
					Lvl	Dis	GW	WR	Sed	Ppt	Evp					Arch. data
(1)	(2)	(3)	(4)	(5)	(6)							(7)	(8)	(9)	(10)	(11)
Argentina	1992	Computer	3	Coordinated	80	80	80	60	85	80	70		6-12	12-24		
Bolivia	1985	Computer	1	Centralized	100	50		80	80	90	90			0-10		
Brazil	1992	Computer	37	Coordinated	95	90	0	90	80	95	80		0-1	0-3		
Chile	1992	Computer	13	Centralized	100	100	100	100	50	100	50		0-12	0-24		
Colombia	1983	Computer	1	Centralized	100	100	0	100	100	100	100		0-1	0-1		
Ecuador	1990	Computer	1	Centralized	17	17	17	17	17	23	23		6-12	0-60		
France - Guyane	1982	Computer	1	Centralized	100	100	0	0	0	100	0		6-12	0-6		
Guyana	1992	Manual														
Paraguay	1993	Manual														
Peru	1991	Computer	3	Centralized	83	30	0	0	0	0	0		12-24	6-12		
Suriname	1975	Computer	2	Centralized	15	0	0	80	0	0	0		0-6	0-10		
Uruguay	1988	Computer	4	Coordinated	86	85	0	0	0	90	90		1-6	0-30		
Venezuela	1991	Computer	3	Coordinated	100	70	100	80	10	100	100		1-5	2-5		

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Key: Data in archives: Lvl - Levels, Dis - Discharges, GW - Groundwater, WQ - Water Quality, Sed - Sediment, Ppt - Precipitation, Evp - Evaporation.

Arch. data: B - Basic, A - Analyzed data archived.

Catalogues: A - Available, D - Distributed.

Data supplied: B - Basic, A - Analyzed, C - Charge for supplying data.

Note: Blank entries indicate data not supplied.

TABLE 5.3.2 - (RA III - SOUTH AMERICA) HYDROLOGICAL DATA COLLECTION AND PROCESSING

Page 1

State or Territory	Data for year	Levels a b	Flows a b	Ground water a b	Water quality a b	Suspended sediment a b	Other data a b	Precipi- tation a b	Evapo- ration a b
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Argentina	1992	0 80	0 60	0 50	0 60	0 85		80	70
Bolivia	1985	100	100		80	80		90	90
Brazil	1992	0 95	0 90	0 0	0 90	0 80		0 95	0 80
Chile	1992	0 100	0 100	0 100	0 100	0 100		0 100	0 100
Colombia	1983	100	100		100 0	0 100		100	100
Ecuador	1990	17	17	17	17	17		23	23
France - Guyane	1982	0 100	0 100	0 0	100 0	0 0	0 0	0 100	0 0
Guyana	1992								
Paraguay	1993								
Peru	1991	81	18						
Suriname	1975	1 75	0 95		0 80	0 0			
Uruguay	1988	0 0	0 100	0 0	0 0	0 0		0 100	0 100
Venezuela	1991	100 0	0 70	0 100	80 0	10 0	100 0	100 0	100 0

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Key to column labels: a - % field data in digital form,
b - % data processed by computer.

Note: Blank entries indicate data not supplied.

TABLE 5.4.1 - (RA IV - NORTH AND CENTRAL AMERICA) HYDROLOGICAL DATA BANKS AND ARCHIVING

Page 1

State or Territory	Data for year	Method	No. Agencies	Type of data bank	% Total data in archives							Arch. data	Update frequency (months)	Age data last archived (months)	Catalogues	Data supplied
(1)	(2)	(3)	(4)	(5)	(6)							(7)	(8)	(9)	(10)	(11)
Antigua and Barbuda																
Bahamas	1988	Manual														
Barbados	1986	Manual														
Belize	1982	Manual														
British Caribbean Territories	1992	Computer	10	Limited	50	50	40	40	0	100	100		0-6	0-6		
Canada	1991	Computer	3	Coordinated	100	100	0	100	100	100	100		1-12	3-24		
Colombia S Andrés Providencia																
Costa Rica	1986	Computer	2	Coordinated	0	100	0	100	50	100	100		6-12	6-12		
Cuba	1992	Computer	1	Limited	6	90	68	27	6	90	61		0-12	0-12		
Dominica	1992	Computer	5	Centralized	100	100	0	0	0	100	100		0-6	0-6		
Dominican Republic	1989	Computer	2	Coordinated	100	100	85	60	60	100	80		0-1	0-1		
El Salvador	1975	Computer	1	Coordinated	0	0	0	0	0	0	0					
France - Guadeloupe	1992	Computer	1	Centralized	100	100	0	0	0	100	100		0-12	0-12		
France - Martinique	1992	Computer	1	Centralized	100	100	0	0	0	100	100		0-12	0-12		
Guatemala	1984	Computer	2	Limited	100	100	0	0	0	100	100		6-12	6-12		
Haiti	1988	Computer	1	Limited	10	3	25	0	0	5	0		6-12	6-9		
Honduras	1983	Computer	2	Coordinated	15	15	0	0	0	15	15		0-6	0-8		
Jamaica	1975	Computer	1	Limited	5	95	0	0	0	0	0		6-12	6-12		
Mexico	1984	Computer	4	Coordinated	70	70	0	80	70	30	30		1-12	1-12		
Netherlands Antilles	1983	Computer	1	Limited	0	0	0	0	0	2	0		0-12	0-18		
Nicaragua																
Panama	1991	Computer	2	Limited	100	100	0	75	100	100	25		0-6	1-12		
Saint Lucia																
Trinidad and Tobago	1992	Manual														
USA	1983	Computer	4	Coordinated	30	95	10	50	40	40	40		0-6	0-6		

INFOHYDRO 07Jan94

Key: Data in archives: Lvl - Levels, Dis - Discharges, GW - Groundwater, WQ - Water Quality, Sed - Sediment, Ppt - Precipitation, Evp - Evaporation.
 Arch. data: B - Basic, A - Analyzed data archived.
 Catalogues: A - Available, D - Distributed.
 Data supplied: B - Basic, A - Analyzed, C - Charge for supplying data.

Note: Blank entries indicate data not supplied.

TABLE 5.4.2 - (RA IV - NORTH AND CENTRAL AMERICA) HYDROLOGICAL DATA COLLECTION AND PROCESSING

Page 1

State or Territory	Data for year	Levels a b	Flows a b	Ground water a b	Water quality a b	Suspended sediment a b	Other data a b	Precipi- tation a b	Evapo- ration a b
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Antigua and Barbuda									
Bahamas	1988								
Barbados									
Belize	1982	0 100	0 100		0 0			0 100	0 0
British Caribbean Territories	1992	75 25	75 25	20 80	20 80	0 0		10 90	0 50
Canada	1991	30 100	30 100		0 90	0 100		0 100	0 100
Colombia S Andrés Providencia									
Costa Rica	1987	0 100	0 100	0 0	0 100	0 100		0 100	0 100
Cuba	1987		100	100	27	6		70	50
Dominica	1992	0 100	0 100	0 0	10 90	0 0		10 90	0 100
Dominican Republic	1989	0 100	100	0 100	60	60		0 100	0 100
El Salvador	1975	0	0 Yes	0	0	0			
France - Guadeloupe	1992	0 100	0 100	0 0	0 0	0 0	0 0	0 100	0 100
France - Martinique	1992	10 100	0 100	0 0	0 0	0 0		10 100	0 100
Guatemala	1984	0 100	0 100	0 100	0 0	0 100		0 100	0 100
Haiti	1988	5 0	0 0	0 0	0 0	0 0	0 0	3 0	0 0
Honduras	1983	75 25	75 25					50 50	50 50
Jamaica	1975	0 60	0 100	0 0	0 0	0 0	0 100		
Mexico	1984	0 100	0 100	0 0	0 100	0 100	0	0 100	0 100
Netherlands Antilles	1983							0 8	
Nicaragua									
Panama	1991	100 100	100 100	0 0	75 50	100 100		100 100	25 100
Saint Lucia									
Trinidad and Tobago	1992	0 0	0 100	0 70	0 0	0 0		0 50	0 50
USA	1983	80 90	80 90	10 20	100 100	0 80		10 90	0 80

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Key to column labels: a - % field data in digital form,
b - % data processed by computer.

Note: Blank entries indicate data not supplied.

TABLE 5.5.1 - (RA V - SOUTH-WEST PACIFIC) HYDROLOGICAL DATA BANKS AND ARCHIVING

Page 1

State or Territory	Data for year	Method	No. Agencies	Type of data bank	% Total data in archives								Update frequency (months)	Age data last archived (months)	Catalogues	Data supplied
					Lvl	Dis	GW	WQ	Sed	Ppt	Evp	Arch. data				
(1)	(2)	(3)	(4)	(5)	(6)								(8)	(9)	(10)	(11)
Australia	1992	Computer	24	Coordinated	90	95	85	75	50	90	90		1-6	1-6		
Brunei Darussalam																
Fiji	1983	Computer	3	Coordinated	20	0	0	10	0	30	20		0-1	2-3		
French Polynesia	1992	Computer	1	Centralized	100	100	0	0	0	100	0		0-12	12-24		
Indonesia	1988	Computer	2	Limited	0	0	0	0	0	Yes	Yes		0-24	0-24		
Malaysia	1988	Computer	2	Coordinated	100	100	0	100	100	100	100		6-12	6-12		
New Caledonia	1982	Computer	1	Centralized	100	100	0	0	0	100	0		0-12	12-24		
New Zealand	1983	Computer	1	Centralized	80	70	30	10	60	5	0		0-6	0-6		
Papua New Guinea																
Philippines	1992	Computer	4	Centralized	0	90	60	50	85	85	85		6-12	1-6		
Singapore	1991	Computer	3	Coordinated	100	100	0	50	0	90	30		1-12	1-12		
Solomon Islands	1989	None														
USA South West Pacific	1983	Computer	2	Coordinated	30	95	10	50	40	40	40		0-6	0-6		
Vanuatu	1989	Computer	1	Coordinated	50	50	0	0	0	80	0		0-6	0-48		

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Key: Data in archives: Lvl - Levels, Dis - Discharges, GW - Groundwater, WQ - Water Quality,
Sed - Sediment, Ppt - Precipitation, Evp - Evaporation.

Arch. data: B - Basic, A - Analyzed data archived.

Catalogues: A - Available, D - Distributed.

Data supplied: B - Basic, A - Analyzed, C - Charge for supplying data.

Note: Blank entries indicate data not supplied.

TABLE 5.5.2 - (RA V - SOUTH-WEST PACIFIC) HYDROLOGICAL DATA COLLECTION AND PROCESSING

Page 1

State or Territory (1)	Data for year (2)	Levels a b (3)	Flows a b (4)	Ground water a b (5)	Water quality a b (6)	Suspended sediment a b (7)	Other data a b (8)	Precipi- tation a b (9)	Evapo- ration a b (10)
Australia	1992	10 95	Yes 95	Yes 85	Yes 80	5 80		Yes 90	Yes 90
Brunei Darussalam									
Fiji	1983	32 17	0 0	0 0	0 0	0 0		70 20	80 0
French Polynesia	1992	10 80	5 80	0 0	0 0	0 0	0 0	30 80	0 0
Indonesia	1975	0 0	0 0	0 0	0 0	0 0		0 0	0 0
Malaysia	1988	0 Yes	0 Yes	0 0	0 Yes	0 Yes		0 Yes	0 Yes
New Caledonia	1988	0 75	0 60	0 0	0 0	0 100	0 0	0 60	0 50
New Zealand	1981	70 95	60 70	50 80		60 80		5 5	
Papua New Guinea									
Philippines	1992	0 y	0 y	0 y	0 y	0 y	0 y	0 y	0 y
Singapore	1991	90 90	0 0	0 0	0 100	0 0	0 0	90 90	30 30
Solomon Islands	1989	0 100	0 100	100	0 0	0 0	0 0	50 50	50 50
USA South West Pacific	1983	80 90	80 90	10 20	100 100	0 80		10 90	0 80
Vanuatu	1990	50 100	0 100	Yes Yes	0 0	0 Yes	0 0	50 100	0 0

INFOHYDRO 07Jan94

Key to column labels: a - % field data in digital form,
b - % data processed by computer.

Note: Blank entries indicate data not supplied.

Page 1

State or Territory	Data for year	Method	No. Agencies	Type of data bank	% Total	data in archives						Arch. data	Update frequency (months)	Age data last archived (months)	Data-logues	Data Supp- lied	
(1)	(2)	(3)	(4)	(5)		Lvl	Dis	GW	WQ	Sed	Ppt	Evp	(7)	(8)	(9)	(10)	(11)
Albania	1987	Computer	1	Limited	100	69	100	100	100	100	100	100					
Armenia																	
Austria	1979	Computer	1	Limited	100	100	100	0	0	100	0	0		6-12	6-12		
Azerbaijan																	
Belarus																	
Belgium	1983	Computer	4	Coordinated	100	100	100	100	0	100	100	100		6-12	6-12		
Bosnia and Herzegovina																	
Bulgaria	1983	Manual															
Croatia																	
Cyprus	1992	Computer	2	Centralized	0	90	0	0	0	0	100	0		0-12	3-12		
Czech Republic	1992	Computer	2	Coordinated	5	100	100	100	100	100	100	100		0-12	12-24		
Denmark	1983	Computer	4		50	100	20	0	0	0	100	100		0-12	0-12		
Estonia																	
Finland	1992	Computer	3	Coordinated	100	100	60	100	0	30	100	100		0-6	0-6		
France	1985	Computer	6	Coordinated	85	80	30	100	100	100	100	100		0-12	0-6		
Georgia																	
Germany	1984	Computer	3	Coordinated	50	50	30	70	50	80	100	100		0-12	0-24		
Greece	1988	Computer	5	Coordinated	20	20	0	0	0	0	30	20		0-12	0-6		
Hungary	1992	Computer	14	Coordinated	70	70	70	100	0	50	50	50		0-12	12-24		
Iceland	1983	Computer	2	Coordinated	100	100	100	0	100	80	0	0		3-12	3-12		
Ireland	1992	Computer	6	Limited	35	30	0	100	0	100	0	0					
Israel	1986	Computer	1	Coordinated	0	0	100	90	0	100	100	100		0-6	0-6		
Italy	1975	Manual															
Jordan	1984	Computer	1	Centralized	0	0	Yes	Yes	0	0	0	0					
Kazakhstan (Europe)	1993	Manual															
Latvia	1992	Manual															
Lebanon																	
Lithuania																	
Luxembourg	1990	Computer	1	Centralized	60	50	100	0	0	0	100	100		0-12	0-18		
Macedonia, The former Yugoslav																	
Malta	1983	Manual															
Moldova																	
Netherlands	1987	Computer	3	Coordinated	80	100	100	20	0	0	100	90		0-12	0-24		
Norway	1983	Computer	4	Coordinated	95	95	95	95	100	100	0	0		0-6	0-6		
Poland	1989	Computer	1	Limited	20	90	20	10	20	20	50	50		6-12	6-12		
Portugal	1983	Computer	2	Coordinated	90	100	0	0	50	100	100	100		0-12	0-6		
Romania	1992	Computer	1	Centralized	100	100	100	100	0	0	56	56		6-12	0-12		
Russian Federation in Europe	1992	Computer	4	Coordinated	100	100	100	100	100	100	0	0		6-12	6-12		
Slovakia	1993	None															
Slovenia																	

Page 1

[illegible]

TABLE 5.7 - HYDROLOGICAL DATA BANKS AND ARCHIVING - SUMMARY *
(Number of Countries)

	WMO REGIONS																		TOTAL		
	AFRICA (RA I) (1)			ASIA (RA II) (2)			S. AMERICA (RA III) (3)			N. & C. AMERICA (RA IV) (4)			S.W. PACIFIC (RA V) (5)			EUROPE (RA VI) (6)			(GLOBAL) (7)		
States/Territories Reporting	55			32			13			24			13			48			185		
	38			20			13			22			11			38			142		
Using computers	29			14			11			17			10			27			108		
TYPE OF DATA BANK																					
Centralized	0			2			7			3			4			5			21		
Co-ordinated	5			2			5			7			5			16			40		
Limited	13			4			0			8			1			5			31		
TOTAL DATA IN COMPUTERIZED ARCHIVES **																					
	<20%	>80%	NS	<20%	>80%	NS	<20%	>80%	NS	<20%	>80%	NS	<20%	>80%	NS	<20%	>80%	NS	<20%	>80%	NS
Water level	11	9	3	5	2	0	2	9	0	9	7	0	2	5	0	5	14	0	34	46	3
Discharge	11	11	2	4	2	0	2	6	0	5	12	0	2	6	0	3	19	0	27	56	2
Groundwater	20	5	1	7	3	0	8	2	0	14	1	0	7	1	0	5	17	1	61	29	2
Water quality	24	2	1	9	1	0	4	4	0	11	2	0	6	1	0	9	17	1	63	27	2
Sediment Discharge	27	2	1	10	1	0	7	2	0	12	3	0	6	2	0	15	11	0	77	21	1
Precipitation	15	10	2	5	5	0	2	8	0	7	10	0	1	6	1	3	20	1	33	59	4
Evaporation	19	8	1	6	2	0	3	5	0	7	7	0	4	3	1	9	14	0	48	39	2
FREQUENCY OF UPDATING																					
0- 6 months	20			12			8			11			5			18			74		
0-12 months	17			6			4			11			5			20			63		
6-12 months	6			1			3			4			2			7			23		
>12 months	1			2			1			0			1			0			5		
CATALOGUES																					
Available - Distributed	21-6			8-1			8-2			13-6			7-3			22-8			79-26		
Charges for supplying data	8			4			8			10			5			19			54		

* Summary, by Regions, of information given in Tables 5.r.1

** NS = number of countries which responded that data are available in computerized archives, but did not specified percentages
Updated August 1994

TABLE 5.8 - HYDROLOGICAL DATA COLLECTION AND PROCESSING - SUMMARY *
(Number of Countries)

	WHO REGIONS																				
	AFRICA (RA I) (1)			ASIA (RA II) (2)			S. AMERICA (RA III) (3)			N. & C. AMERICA (RA IV) (4)			S.W. PACIFIC (RA V) (5)			EUROPE (RA VI) (6)			TOTAL (GLOBAL) (7)		
States/Territories Reporting	55			32			13			24			13			48			185		
	35			16			13			20			11			33			128		

FIELD DATA COLLECTED IN DIGITAL FORM																					
Water levels (stage)	2			4			4			7			6			13			36		
Discharge (flows)	2			1			3			7			6			13			32		
Groundwater	2			2			1			5			6			13			29		
Water quality	2			1			3			6			5			11			28		
Suspended sediment	2			0			3			6			6			11			28		
Other data	0			0			1			1			3			5			10		
Precipitation	2			3			2			7			6			11			31		
Evaporation	2			2			2			7			5			10			28		

DATA PROCESSED BY COMPUTERS	<20%	>80%	NS	<20%	>80%	NS	<20%	>80%	NS	<20%	>80%	NS	<20%	>80%	NS	<20%	>80%	NS	<20%	>80%	NS
Water level (stage)	8	6	3	1	1	1	3	4	0	2	11	0	3	5	1	0	20	0	17	47	5
Discharge (flows)	6	8	3	2	0	1	2	6	0	1	14	1	4	3	1	0	19	0	15	50	6
Groundwater	7	4	2	2	1	0	4	2	0	8	3	0	7	2	1	2	18	0	30	30	3
Water quality	8	2	3	3	0	0	5	2	0	7	5	0	7	1	1	4	15	0	34	25	4
Suspended sediment	8	1	2	4	0	1	5	3	0	8	5	0	6	1	2	8	9	0	39	19	5
Other data	4	0	1	0	0	0	2	0	0	2	1	0	6	0	0	3	4	0	17	5	1
Precipitation	5	9	3	0	3	0	1	5	0	2	12	0	3	3	1	3	19	0	14	51	4
Evaporation	9	4	1	1	1	0	2	3	0	2	9	0	5	1	1	5	10	0	24	28	2

* Summary, by Regions, of information given in Tables 5.r.2
Updated August 1994

VI - INTERNATIONAL DATA BANKS RELATED WITH HYDROLOGY AND WATER RESOURCES

Explanatory Notes

The purpose and scope of Section VI of the Manual is to provide information on international data banks, which can be useful for hydrology and water resources related activities, by means of a brief presentation of each of them.

For each of the international data banks included in this section information is given on:

- the type of data stored (actual data, metadata),
- the status of collection (dates, record lengths),
- how the data are stored, handled and updated,
- how to request data.

Generally, extracts from data bank outputs are shown as examples.

Additional selected international data banks in the field of hydrology and water resources are listed in **Table VI.1**

VI - BANQUE DE DONNÉES INTERNATIONALES CONCERNANT L'HYDROLOGIE ET LES RESSOURCES EN EAU

(Notes explicatives)

La Section VI du Manuel a pour objectif de fournir des renseignements sur les banques de données internationales, qui peuvent être utiles aux activités se rapportant à l'hydrologie et aux ressources en eau, chacune de ces banques de données faisant l'objet d'une brève présentation.

Pour chaque banque de données internationale comprise dans cette Section, des renseignements seront fournis sur :

- le type de données enregistrées (données réelles, données globales),
- la collecte des données (dates, longueur des relevés),
- la façon dont les données sont enregistrées, gérées et mises à jour,
- la façon de procéder pour demander des données.

En général des extraits de documents élaborés à partir de ces banques de données sont fournis à titre d'exemple.

Une sélection d'autres banques de données internationales dans le domaine de l'hydrologie et des ressources en eau figure au Tableau VI.1.

VI - МЕЖДУНАРОДНЫЕ БАНКИ ДАННЫХ, ОТНОСЯЩИХСЯ К ГИДРОЛОГИИ И ВОДНЫМ РЕСУРСАМ

Пояснительные записки

Цель и сфера применения, описанные в разделе VI Наставления, состоят в обеспечении информацией по международным банкам данных, которые могут быть использованы в деятельности, связанной с гидрологией и водными ресурсами, посредством краткого описания каждого из них.

По каждому из международных банков данных, включенных в этот раздел, приводится следующая информация:

- тип хранящихся данных (текущие данные, метаданные);
- состояние сбора данных (даты, длина записей);
- способ хранения, обработки и обновления;
- способ запроса данных.

Как правило, в качестве примеров приводятся образцы выходных данных.

Избранные международные банки данных в области гидрологии и водных ресурсов составлены в таблице VI.1.

VI - Bancos de datos internacionales relacionados con la hidrología y los recursos hídricos

Notas explicativas

La finalidad y el alcance de la Sección VI del Manual es proporcionar información sobre bancos de datos internacionales, que pueden ser útiles para las actividades relacionadas con la hidrología y los recursos hídricos, mediante una breve presentación de cada uno de ellos.

Con respecto a cada uno de los bancos de datos internacionales incluidos en esta sección se facilita información sobre:

- el tipo de datos almacenados (datos reales, metadatos);
- el estado de recopilación (fechas, duraciones de los registros);
- manera de almacenar, tratar y actualizar los datos;
- manera de solicitar datos.

En general, se muestran extractos de salidas de bancos de datos, a título de ejemplo.

Una selección de otros bancos de datos internacionales en el campo de la hidrología y recursos hídricos figura en la Tabla VI.1.

INTERNATIONAL DATA BANKS

VI.1 GLOBAL RUNOFF DATA CENTRE

VI.1.1 Introduction

On 1 May 1987, a permanent Global Runoff Data Centre (GRDC) was established at the Federal Institute of Hydrology in Koblenz, Federal Republic of Germany, under the auspices of the World Meteorological Organization (WMO).

The GRDC operates for the benefit of WMO Members and the international scientific community. It provides a mechanism for the international exchange of data pertaining to river flows and surface water runoff on a continuous long-term basis. The GRDC receives data from many sources, principally through WMO. While every attempt is made to assure reasonable standards for data quality and related documentation, the ultimate responsibility for data lies with the data contributors and not with the GRDC.

All data archived at the GRDC are available to users upon written request or personal visit.

VI.1.2 Data bank

The GRDC data bank, in March 1993, consisted of flows for 3070 stations from 140 countries. Complete daily flows are available for 1834 stations and monthly flows are available for 1509 stations.

The core of the data bank is the daily flows for 1,327 stations from 75 countries which were collected initially by the WMO Hydrology and Water Resources Department under the WMO/ICSU Global Atmosphere Research Programme (GARP), for use in validation of atmospheric general circulation models (GCMs), and later within the World Climate Programme (WCP).

The first available year for this set of data is 1978 and nearly all stations are complete up to 1980. Data from 40 countries are also available up to 1982-83 and from Australia up to 1984-85. The data base is being updated from time to time.

The stations have been selected according to the following criteria:

- Uniform national distribution (consistent with network conditions), with higher densities in areas of rapid variation of flow.
- Coverage, to the greatest extent possible, of each type of hydrological homogeneous region of each country.
- Relatively small river basins (up to about 5,000 km², and in exceptional cases, up to 10,000 km²).
- Flow data representing natural river flow, i. e. they should be corrected for diversions, abstractions and redistributions by storage.
- Good quality of records.

BANQUE DE DONNÉES INTERNATIONALES

VI.1 CENTRE MONDIAL DE DONNÉES SUR L'ÉCOULEMENT

VI.1.1 Introduction

Le 1er mai 1987, un Centre mondial de données sur l'écoulement (GRDC) permanent a été créé à l'Institut fédéral d'hydrologie de Coblençe (Allemagne) sous les auspices de l'Organisation météorologique mondiale (OMM).

Le GRDC, qui fonctionne au profit des Membres de l'OMM et de la communauté scientifique internationale assure un mécanisme d'échange international, permanent et de longue durée, de données sur le débit des fleuves et l'écoulement de surface. Il reçoit, principalement par l'intermédiaire de l'OMM, des données provenant de nombreuses sources. Même si le centre fait tout son possible pour garantir des normes de qualité correctes, en particulier dans les documents qu'il produit, il n'en reste pas moins que ce sont ceux qui fournissent les données et non le centre qui sont en fin de compte responsables de ces données.

Toutes les données archivées au GRDC sont disponibles et les usagers peuvent se les procurer sur demande écrite ou en se rendant personnellement au centre.

VI.1.2 Banque de données

En mars 1993, la banque de données du GRDC portait sur l'écoulement mesuré dans 3070 stations situées dans 140 pays différents. A cette date, étaient disponibles des séries complètes de données journalières pour 1834 stations et de données mensuelles pour 1509 stations.

La base autour de laquelle s'articule la banque de données est constituée par les données journalières sur l'écoulement fournies par 1327 stations situées dans 75 pays. Ces données, qui ont été rassemblées à l'origine par le Département d'hydrologie et de mise en valeur des ressources en eau de l'OMM, au titre du Programme de recherche sur l'atmosphère globale (GARP) OMM/CIUS, devaient tout d'abord servir à valider les modèles de la circulation générale (MCG) de l'atmosphère, avant d'être utilisées dans le cadre du Programme climatologique mondial (PCM).

La première année pour laquelle cet ensemble de données est disponible est 1978 et les données concernant presque toutes les stations sont complètes jusqu'en 1980. De plus, les données provenant de 40 pays différents sont disponibles jusqu'en 1982-1983 et celles fournies par l'Australie sont complètes jusqu'en 1984-1985. La base de données est mise à jour périodiquement.

La sélection des stations s'est effectuée selon les critères suivants :

- répartition nationale uniforme des stations (conforme aux caractéristiques du réseau), les densités étant supérieures dans les zones où le débit varie rapidement;
- à l'intérieur de chaque pays, représentation, dans toute la mesure du possible, de chaque type de région hydrologique homogène;
- bassins fluviaux relativement petits (jusqu'à environ 5000 km² et, dans certains cas exceptionnels, jusqu'à 10 000 km²);

BANQUE DE DONNÉES INTERNATIONALES

Les demandes d'information doivent être adressées à :

Global Runoff Data Centre (GRDC)
Bundesanstalt für Gewässerkunde
Kaiserin-Augusta-Anlagen 15-17
W - 5400 Koblenz
Allemagne

Téléphone : National :	0261 1306-0
International :	+49 261 1306-0
Télex :	08-62499
Télécopie :	+49 261 1306302

МЕЖДУНАРОДНЫЕ БАНКИ ДАННЫХ

VI.1 ГЛОБАЛЬНЫЙ ЦЕНТР ДАННЫХ ПО СТОКУ

VI.1.1 Введение

Постоянный глобальный центр данных по стоку (ГЦДС) был основан 1 мая 1987 г. в Федеральном институте гидрологии в Кобленце, Федеративная Республика Германия, под эгидой Всемирной Метеорологической Организации (ВМО).

ГЦДС обеспечивает продукцией страны-члены ВМО и международное научное сообщество. Он представляет собой механизм для международного обмена данными, касающимися речного стока и стока поверхностных вод на постоянной долгосрочной основе. ГЦДС получает данные из различных источников, в основном через ВМО. Хотя прилагаются все усилия для обеспечения приемлемых стандартов качества данных и связанной с ними документации, основная ответственность за данные лежит не на ГЦДС, а на тех, кто их предоставляет.

Все данные, хранящиеся в ГЦДС, предоставляются пользователям по письменной заявке или в ходе персонального посещения.

VI.1.2 Банк данных

В марте 1993 г. в банке данных ГЦДС содержались данные о стоках, поступившие от 3070 станций из 140 стран. Данные о полном суточном стоке были представлены 1834 станциями, а данные о месячном стоке - 1509 станциями.

Основой банка данных являются данные о дневном стоке, представленные 1327 станциями из 75 стран, которые были собраны первоначально Департаментом гидрологии и водных ресурсов ВМО в рамках Программы исследований глобальных атмосферных процессов (ПИГАП) под эгидой ВМО/МСНС для их использования в оценке атмосферных моделей общей циркуляции (МОЦ), а в дальнейшем в рамках Всемирной климатической программы (ВКП).

Этот набор данных впервые был подготовлен в 1978 г., и почти все станции были укомплектованы до 1980 г. Кроме того, были подготовлены данные из 40 стран до 1982-1983 гг. и данные из Австралии до 1984-1985 гг. База данных обновляется время от времени.

Станции были выбраны с учетом следующих критериев:

- равномерное распределение на национальном уровне (с учетом состояния сети) при обеспечении более высокой плотности в районах с быстрым изменением стока.
- как можно более широкий охват различных видов гидрологических однородных регионов каждой страны.
- относительно небольшие речные бассейны (приблизительно до 5 000 км², и, в исключительных случаях, до 10 000 км²).
- данные по стоку, представляющие естественный речной сток, то есть они должны быть скорректированы с учетом отвода, забора и перераспределения запаса воды.
- хорошее качество записей.

VI.1 CENTRO MUNDIAL DE DATOS DE ESCORRENTÍA

VI.1.1 Introducción

El 1 de mayo de 1987 se estableció en el Instituto Federal de Hidrología de Coblenza (República Federal de Alemania), el Centro Mundial de Datos de Escorrentía (GRDC), bajo los auspicios de la Organización Meteorológica Mundial (OMM).

El GRDC funciona para los Miembros de la OMM y la comunidad científica internacional. Constituye un mecanismo para el intercambio internacional de datos correspondientes a corrientes fluviales y escorrentía de agua de superficie de forma continua y a largo plazo. El GRDC recibe datos de numerosas fuentes, sobre todo a través de la OMM. Si bien se hace todo lo posible para lograr normas razonables de calidad de los datos y documentación conexas, la responsabilidad de los datos corresponde en última instancia a quienes las proporcionan y no al GRDC.

Los usuarios pueden disponer de todos los datos archivados en el GRDC mediante solicitud escrita o visita personal.

VI.1.2 Banco de datos

El banco de datos del GRDC constaba, en marzo de 1993, de escurrimientos para 3070 estaciones de 140 países. Se dispone de caudales diarios completos para 1834 estaciones y de escurrimientos mensuales para 1509 estaciones.

La parte esencial del banco de datos la constituyen los escurrimientos diarios para 1327 estaciones de 75 países, que se recopilaron inicialmente por el Departamento de Hidrología y Recursos Hídricos de la OMM, en el marco del Programa de Investigación de la Atmósfera Global (PIAG) OMM/CIUC, para utilizarlos en la validación de modelos de circulación general (MCG) de la atmósfera, y posteriormente del Programa Mundial sobre el Clima (PMC).

El primer año en que se dispuso de esta serie de datos fue en 1978, y casi todas las estaciones están completas hasta 1980. También se dispone de datos de 40 países hasta 1982-1983 y de Australia hasta 1984-1985. La base de datos se actualiza de vez en cuando.

Las estaciones se han elegido con arreglo a los siguientes criterios:

- distribución nacional uniforme (compatible con las condiciones de la red), con densidades más altas en zonas de rápida variación de caudal;
- cobertura, en la mayor medida posible, de cada tipo de región homogénea hidrológica de cada país;
- cuencas hidrográficas relativamente pequeñas (hasta unos 5.000 km² y, en casos excepcionales hasta 10.000 km²);
- datos que representan el escurrimiento natural de un río, es decir, que deben corregirse para derivaciones, abstracciones y redistribuciones por almacenamiento;
- registros de buena calidad.

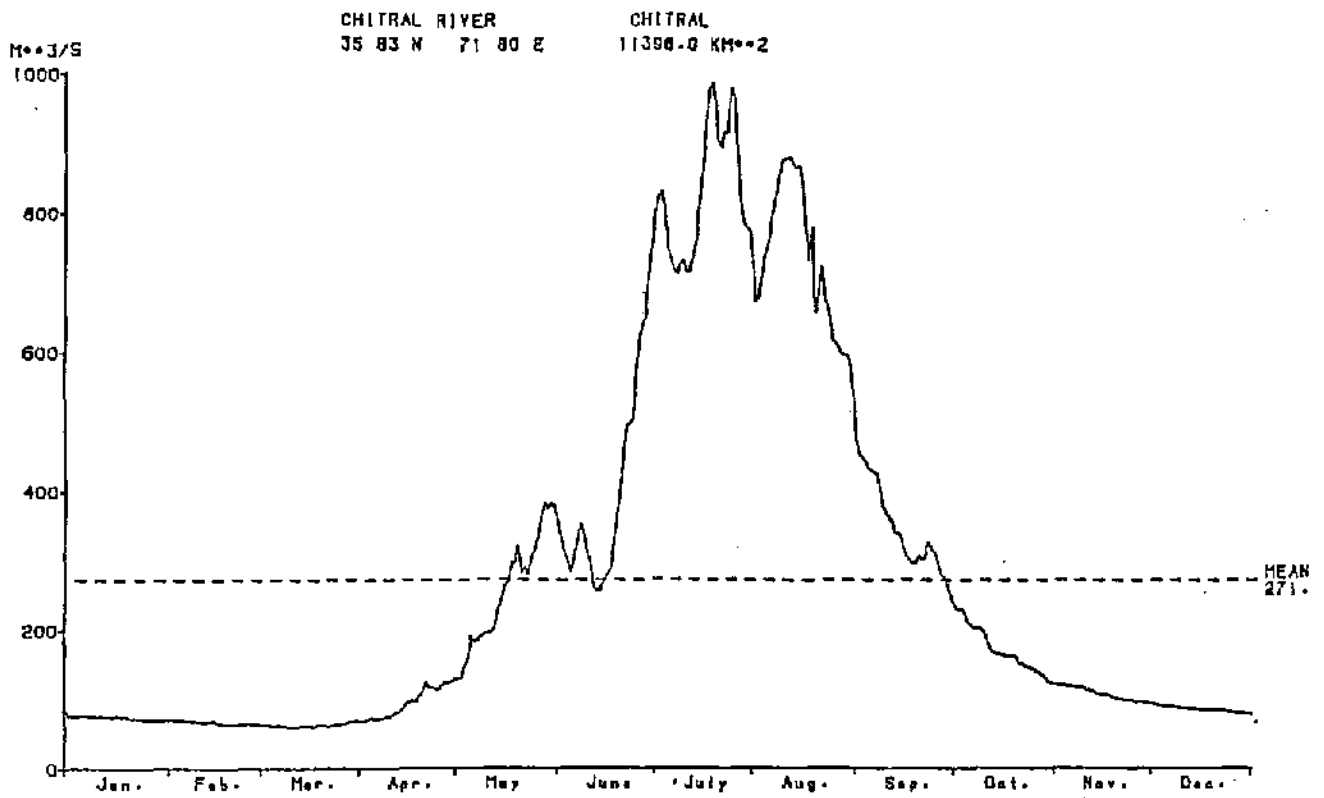
GLOBAL RUNOFF DATA CENTRE (GRDC)												
River : DYLE Station : SINT-JORIS-WEERT Country : BELGIUM							Catchment Area : 645.0 km**2 Geographic Location : 50 80 N 4 63 E WMO Basin No :					
1981 RUNOFF (MM**3/S) 1981												
Day	Jan.	Febr.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.28	7.03	6.89	5.44	5.27	8.14	4.50	5.34	3.38	3.85	7.13	15.3
2	5.81	6.92	5.05	5.35	5.05	10.4	4.83	7.47	3.19	3.84	6.58	8.90
3	12.8	8.32	5.08	5.27	5.19	12.8	5.09	4.88	3.74	4.45	5.94	7.14
4	10.5	9.80	5.63	4.85	5.40	14.5	5.21	4.06	3.34	4.08	5.55	8.84
5	8.11	9.43	4.76	4.34	5.33	7.63	5.16	3.98	3.35	3.78	5.37	13.0
6	8.55	8.33	4.66	3.91	5.27	3.54	5.09	3.81	3.25	4.88	5.26	11.7
7	9.04	7.03	4.95	4.24	4.94	5.18	5.03	4.81	3.23	7.22	4.91	11.4
8	8.03	7.59	4.85	4.79	5.10	4.79	4.95	4.11	3.35	4.80	4.79	14.5
9	7.41	7.32	6.40	4.77	6.86	4.93	4.93	3.83	3.58	4.69	4.42	14.3
10	10.2	7.11	15.2	4.65	6.71	4.09	4.93	4.00	3.47	5.18	4.64	9.88
11	7.45	6.98	11.7	4.56	6.19	3.81	4.88	4.17	3.35	6.32	4.89	11.2
12	6.21	6.89	7.57	4.57	5.48	3.79	4.88	3.90	3.54	5.28	4.98	11.7
13	6.62	6.83	6.50	4.57	5.17	3.77	4.80	3.87	3.93	5.61	4.77	8.52
14	8.36	6.69	10.4	4.57	4.66	3.71	4.74	3.66	4.56	4.64	4.66	9.47
15	21.6	6.50	8.44	4.57	4.43	3.62	4.74	3.72	5.05	5.24	4.64	15.4
16	18.2	6.32	6.40	4.39	4.32	3.26	4.30	3.59	4.39	5.27	4.56	10.1
17	14.2	6.27	6.40	4.21	4.28	2.86	3.80	3.61	3.80	4.17	4.82	7.43
18	11.5	6.22	6.21	4.08	4.21	2.44	3.79	3.54	3.79	6.84	4.71	6.60
19	9.82	6.15	6.60	4.11	4.28	2.62	3.76	3.48	4.44	5.21	7.92	6.17
20	9.30	6.11	5.24	4.19	4.27	2.96	3.73	5.30	7.16	9.80	6.04	5.81
21	8.05	6.05	4.85	4.27	4.37	3.31	3.75	4.61	8.77	9.43	6.34	6.06
22	8.69	5.94	4.85	4.35	5.72	3.50	3.78	3.75	6.25	6.29	6.31	6.21
23	8.64	6.02	5.08	4.34	5.93	3.45	3.70	3.65	5.21	4.53	5.59	6.31
24	8.68	5.92	5.13	4.60	5.53	3.42	3.67	3.61	4.35	6.11	5.69	6.21
25	8.49	5.92	5.17	5.67	5.24	3.41	3.94	3.64	4.20	5.74	5.05	6.12
26	8.24	5.92	5.21	6.80	5.14	3.46	3.78	3.97	4.12	6.15	4.83	5.88
27	8.68	5.92	5.22	7.52	4.74	3.65	3.77	3.44	4.02	7.62	6.76	5.74
28	8.73	6.02	5.23	6.96	4.65	3.67	3.76	3.93	3.81	5.82	11.4	5.57
29	8.21		5.32	6.10	4.57	3.83	3.73	3.80	3.81	6.41	11.2	6.90
30	7.65		5.33	5.63	4.50	4.15	3.62	3.42	3.82	8.77	11.0	7.90
31	7.21		5.39		5.86		3.73	3.36		7.98		13.2
Mean	7.38	6.88	6.31	4.93	5.12	4.87	4.33	4.03	4.21	6.06	6.02	9.14
Mean	Jan.-June 6.25			July-Dec. 5.64			Year 5.94					

Option 1 : Table of daily flows

GLOBAL RUNOFF DATA CENTRE (GRDC)															
River : DYLE Station : SINT-JORIS-WEERT Country : BELGIUM								Catchment Area : 645.0 km ² Geographic Location : 50 80 N 4 63 E WMO Basin No :							
MEAN FLOW (MM ³ /S)															
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	J-J	J-D	Year
1978	4.08	4.14	4.43	3.67	5.30	3.46	3.49	2.75	2.67	2.88	2.96	4.23	4.18	3.16	3.67
1979	4.29	5.34	6.16	4.29	3.93	3.35	2.83	3.14	2.82	3.18	4.57	5.82	4.56	3.70	4.13
1980	5.06	5.42	4.56	4.90	4.10	3.69	7.52	3.56	3.23	3.95	4.15	5.63	4.62	4.67	4.66
1981	9.38	6.88	6.31	4.93	5.12	4.87	4.33	4.03	4.21	6.06	4.02	9.14	6.25	5.63	5.94
1982	M	5.61	6.30	5.42	5.42	4.99	3.99	4.17	3.96	4.48	5.54	7.01	M	5.19	M
1978-1982	M	5.46	5.57	4.64	4.77	4.07	4.39	3.53	3.38	4.51	4.65	6.37	M	4.47	M

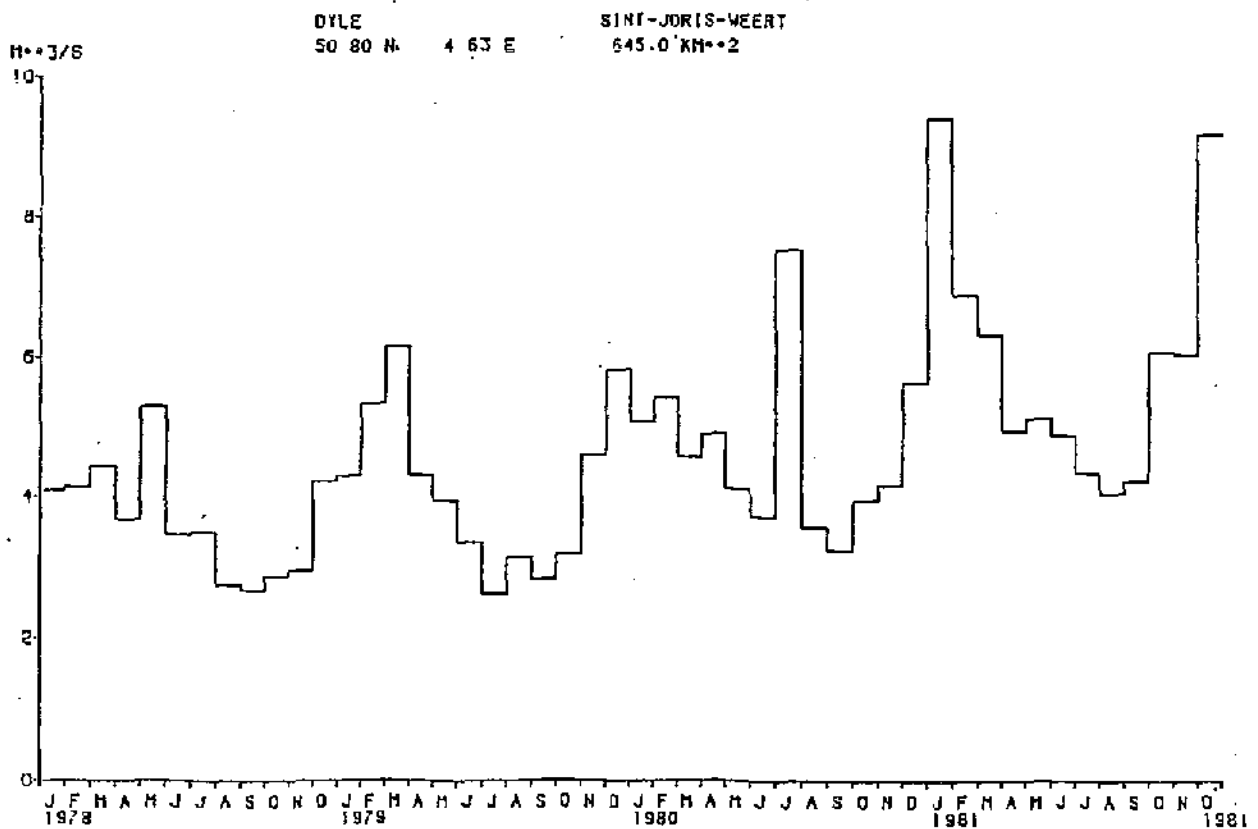
Option 2 : Table of monthly flows

MEAN DAILY DISCHARGE 1981



Option 3 : Hydrograph of daily flows

MEAN MONTHLY DISCHARGE 1978/81



Option 4 : Hydrograph of monthly flows

GLOBAL RUNOFF DATA CENTRE (GRDC)

Name of station : TREIA
 Name of river : TREENE
 Country : FED.REP. OF GERMANY
 Latitude : 54 52 N
 Longitude : 9 30 E
 Catchment area (km**2) : 480
 Station elevation (m) : 5
 Accuracy of measurement : A
 Internal station no : 552610
 GRDC station no : 6338800
 Begin of observation : 1937

Name of station : GREENE
 Name of river : LEINE
 Country : FED.REP. OF GERMANY
 Latitude : 51 37 N
 Longitude : 9 33 E
 Catchment area (km**2) : 2920
 Station elevation (m) : 95
 Accuracy of measurement : A
 Internal station no : 488237
 GRDC station no : 6337500
 Begin of observation : 1937

Name of station : GOCH
 Name of river : NIEBS
 Country : FED.REP. OF GERMANY
 Latitude : 51 58 N
 Longitude : 6 15 E
 Catchment area (km**2) : 1220
 Station elevation (m) : 12
 Accuracy of measurement : A
 Internal station no : 286070
 GRDC station no : 6321100
 Begin of observation : 1949

Name of station : BIENENBUETTEL
 Name of river : ILMENAU
 Country : FED.REP. OF GERMANY
 Latitude : 51 15 N
 Longitude : 10 47 E
 Catchment area (km**2) : 1457
 Station elevation (m) : 14
 Accuracy of measurement : A
 Internal station no : 594117
 GRDC station no : 6340500
 Begin of observation : 1954

DYLE

SINT-JORIS-WEERT
 5.278 5.81012.58810.497 8.109 8.546 9.038 8.026 7.41310.193 9999. XXXX 1 11981
 7.455 6.206 6.419 8.36021.56518.24214.20311.478 9.818 9.295 9999. XXXX 2 11981
 8.853 8.886 8.643 8.605 8.991 8.244 8.678 8.734 8.212 7.654 7.213 XXXX 3 11981
 7.028 6.919 8.321 9.800 9.428 8.531 7.827 7.591 7.317 7.108 9999. XXXX 1 21981
 6.980 6.887 6.828 6.687 6.499 6.325 6.267 6.217 6.149 6.108 9999. XXXX 2 21981
 6.050 5.964 6.020 5.920 5.920 5.920 5.920 6.020 9999. 9999. 9999. XXXX 3 21981
 6.890 5.050 5.050 5.630 4.760 4.660 4.950 4.850 6.40015.208 9999. XXXX 1 31981
 11.700 7.570 6.50010.400 8.440 6.400 6.400 6.210 6.600 5.240 9999. XXXX 2 31981
 4.850 4.850 5.050 5.132 5.172 5.211 5.216 5.229 5.321 5.327 5.388 XXXX 3 31981
 5.438 5.345 5.273 4.851 4.344 3.915 4.243 4.792 4.765 4.654 9999. XXXX 1 41981
 4.560 4.574 4.575 4.574 4.572 4.591 4.208 4.083 4.113 4.191 9999. XXXX 2 41981
 4.271 4.353 4.342 4.400 5.656 6.796 7.620 8.957 8.104 5.628 9999. XXXX 3 41981
 5.270 5.048 5.185 5.396 5.532 5.265 4.937 5.103 6.859 4.707 9999. XXXX 1 51981
 6.192 5.694 5.172 4.664 4.428 4.318 4.277 4.213 4.280 4.270 9999. XXXX 2 51981
 4.370 5.720 5.530 5.530 5.240 5.140 4.744 4.652 4.570 4.495 5.863 XXXX 3 51981
 8.14410.35712.60514.512 7.628 5.542 5.180 4.794 4.427 4.493 9999. XXXX 1 61981
 3.808 3.783 3.774 3.714 3.622 3.263 2.856 2.456 2.619 2.960 9999. XXXX 2 61981
 3.309 3.502 3.448 3.420 3.413 3.456 3.653 3.668 3.829 4.155 9999. XXXX 3 61981
 4.501 4.829 5.098 5.211 5.161 5.094 5.030 4.955 4.930 4.928 9999. XXXX 1 71981
 4.879 4.880 4.798 4.739 4.739 4.302 3.803 3.794 3.758 3.726 9999. XXXX 2 71981
 3.748 3.777 3.781 3.673 3.944 3.781 3.771 3.758 3.729 3.622 3.729 XXXX 3 71981
 5.338 7.474 4.876 4.057 3.978 3.806 4.809 4.107 3.833 3.999 9999. XXXX 1 81981
 4.172 3.902 3.868 3.665 3.721 3.593 3.647 3.542 3.481 5.298 9999. XXXX 2 81981
 4.611 3.746 3.648 3.406 3.637 3.566 3.460 3.530 3.504 3.419 3.364 XXXX 3 81981
 3.383 3.189 3.739 3.339 3.346 3.252 3.229 3.347 3.582 3.471 9999. XXXX 1 91981
 3.352 3.536 3.929 4.560 5.850 4.591 3.795 3.789 4.440 7.162 9999. XXXX 2 91981
 8.765 6.252 5.211 4.350 4.197 4.116 4.019 3.805 3.811 3.816 9999. XXXX 3 91981
 3.853 3.838 4.452 4.076 3.785 4.880 7.219 6.800 4.487 5.177 9999. XXXX 1101981
 6.322 5.283 5.613 4.642 5.238 5.267 4.469 6.842 5.204 9.803 9999. XXXX 2101981
 9.431 6.293 8.332 6.115 5.737 8.148 7.619 5.819 8.410 8.766 7.978 XXXX 3101981
 7.134 6.552 5.942 5.546 5.373 5.262 4.907 4.787 4.419 4.641 9999. XXXX 1111981
 4.892 4.979 4.772 4.660 4.660 4.560 4.821 4.714 7.921 6.037 9999. XXXX 2111981
 6.338 6.311 5.593 5.886 5.053 4.831 6.76011.39111.20210.953 9999. XXXX 3111981
 5.292 8.898 7.139 8.84212.97511.67311.39914.50314.317 9.883 9999. XXXX 1121981
 11.24711.699 8.523 9.46515.37110.111 7.427 6.603 6.172 5.815 9999. XXXX 2121981
 6.062 6.210 6.310 6.210 6.118 5.875 5.738 5.575 4.901 7.89713.235 XXXX 3121981

Daily flows

DANUBE

DRSOVA
 196105540.04650.04780.04650.06840.06540.04140.03360.02530.02120.03690.03820.0XXXX
 19620870.05310.07600.012140.9150.06800.05650.03740.02550.02106.03220.04460.0XXXX
 19630400.04720.07150.09050.06390.05100.04180.02270.0110.03490.03060.03650.0XXXX
 196402350.03030.04850.07890.06340.04520.04390.03170.02960.04370.07220.06870.0XXXX
 196506280.05960.06670.08800.01100.12200.10360.0190.05060.03840.03190.07010.0XXXX
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 196706190.06336.08368.010750.9732.08065.06012.03685.03520.03158.02845.03067.0XXXX
 196805785.06452.06277.06456.04867.04930.03652.04652.04716.05254.04104.04893.0XXXX
 196903000.05800.08690.07270.06820.06430.05860.03490.04810.02534.04760.0XXXX
 197006720.08740.09500.012560.12600.11460.0136.06340.05300.03300.04200.04450.0XXXX
 Traj Jan. Dec.

Monthly flows

Option 7: Station and catchment information

Option 8 - Creation of data files

INTERNATIONAL DATA BANKS

VI.2 INFOCLIMA

VI.2.1 Introduction

The Climate Data Information Referral Service - INFOCLIMA - is a service for the collection and dissemination of information on the existence and availability of climate data in the world. The information comprises in particular:

- (a) descriptions of available data sets, held at data centres and/or published;
- (b) climatological and radiation station networks in the world, and their histories;
- (c) national climatological data banks - status of collection, processing and archiving of data.

The INFOCLIMA referral service is implemented by the WMO Secretariat under the World Climate Programme (WCP). Its development is guided by the general policies of the WCP and detailed working plans as contained in the Third WMO Long-Term Plan (1992-2001), Part II, Volume 2 (WMO No. 762; 1992).

INFOCLIMA information is obtained from Member countries of WMO and, as regards data sets, also from contributions by individual data centres and international organizations. The nature of the referral service is international; it has been developed in co-ordination with other international systems. **It should be emphasized that INFOCLIMA does not handle actual climate data but provides information on the existence and availability of climate data in the world.**

INFOCLIMA is maintained as a computerized data base. The information is published in different forms, depending on the nature of the information:

- Catalogue of Climate System Data Sets;
- Statistics on regional networks of climatological and radiation stations; in several volumes;
- Climatological data banks - regional status surveys.

VI.2.2 INFOCLIMA catalogue

The Catalogue contains descriptions of data sets which originate from a particular data collection or data processing programme. A single description may thus cover a number of "data sets" listed separately in inventories of data centres. The principle has been extended to cover an entire data inventory under one description where the various data sets all refer to a special research activity or a particular international scientific experiment.

Within the framework of the WCP, the data set references apply to data which are:

- (a) organized and, preferably, quality controlled;
- (b) considered to be of use in regional or global studies concerning climate;
- (c) available internationally (on conditions as indicated by the data centre).

INTERNATIONAL DATA BANKS

Methods of observations are not distinguished by separate categories. For instance, data sets derived from satellite and other remote sensing observations are described under the relevant subject categories.

VI.2.3 Structure of the catalogue

The catalogue is structured in four sections:

Section 1, concerns the arrangement of the catalogue and how to use it and contains, inter-alia, all the necessary codes.

Section 2, gives all the data centres included in the catalogue, listed according to WMO Region and country. For each centre the following information is provided:

- name and address
- terms of making available data sets
- title(s) of published catalogue(s) of data
- general description of data held by the centre

Section 3, deals with the data sets description. Data sets are arranged according to:

- data category
- area covered by the set

For each data category, data sets concerning global/regional areas and countries are shown in two different sub-sections.

Section 4, is the Index of data set titles arranged according to the same organization as for Section 3.

Tables V and VI from Section 1 enables **search of data sets**, starting from country (centre) for country sets and from region, for global/regional sets.

Section 3, enables search of data set description according to the following sequence:

- Data category
- Area covered by the data set
- Data set description and corresponding data centres.

A schematic lay out and examples for sections 2 and 3 from the hydrological data extract of the INFOCLIMA catalogue are shown here after.

One copy of the entire catalogue, April 1989 edition and March 1992 supplement or of the Hydrological data extract, October 1989 edition can be provided, **free of charge**, by the Secretariat upon request to:

The World Climate Data and Monitoring (WCDMP) Programme
World Meteorological Organization
C.P. 2300
CH-1211 GENEVA 2
Switzerland

BANQUE DE DONNÉES INTERNATIONALES

VI.2 INFOCLIMA

VI.2.1 Introduction

Le Service mondial d'information sur les données climatologiques - INFOCLIMA - est chargé de la collecte et de la diffusion des renseignements sur l'existence et la disponibilité dans le monde des données climatologiques. Cette information comprend notamment :

- a) descriptions des ensembles de données disponibles, se trouvant dans les centres de données et/ou faisant l'objet de publications;
- b) descriptions des réseaux de stations climatologiques et radiométriques existant dans le monde, accompagnées de l'historique de ces réseaux;
- c) banques de données climatologiques nationales - situation concernant la collecte, le traitement et l'archivage des données.

Le Service d'information INFOCLIMA est exploité par le Secrétariat de l'OMM dans le cadre du Programme climatologique mondial (PCM). Pour le développer, le Secrétariat suit les politiques générales du PCM et les plans de travail détaillés contenus dans le Volume 2 de la Partie II du troisième Plan à long terme de l'OMM (1992-2001) (OMM N° 762; 1992).

Les informations du service INFOCLIMA sont fournies par les pays Membres de l'OMM et, en ce qui concerne les ensembles de données, également par des contributions faites par des centres de données individuels ainsi que par des organisations internationales. Ce service d'information est par nature international puisqu'il a été mis au point en collaboration avec d'autres systèmes internationaux. **Il convient de souligner que le service INFOCLIMA ne traite pas à proprement parler de données climatologiques, mais fournit plutôt des informations sur l'existence et la disponibilité des données climatologiques dans le monde.**

INFOCLIMA fonctionne comme une base de données informatisée. L'information qu'il contient est publiée sous différentes formes, selon la nature de celle-ci :

- catalogue des ensembles de données de systèmes climatologiques;
- statistiques des réseaux régionaux des stations climatologiques et radiométriques, contenues dans plusieurs volumes;
- banques de données climatologiques - études régionales sur l'état de ces banques.

BANQUE DE DONNÉES INTERNATIONALES

Données maritimes et océaniques :

données fondées sur des observations météorologiques en surface effectuées dans des stations maritimes et/ou données fondées sur des observations de la surface des océans et des couches supérieures de la mer. Le cas échéant, un renvoi est ajouté à "données climatologiques de surface", précisant que ces ensembles de données se réfèrent à des zones côtières.

Données cryosphériques :

données concernant la cryosphère (terre et océans).

Données sur la composition de l'atmosphère :

données concernant la composition chimique et celle des particules de la troposphère et de la basse stratosphère, y compris les données concernant les polluants.

Données hydrologiques :

données concernant les eaux de surface et les eaux souterraines, les débits solides, le régime des glaces, des fleuves et des lacs, les sécheresses et les inondations. Lorsque des données sur la précipitation ou l'évaporation sont comprises dans un ensemble de données hydrologiques, un renvoi sera alors ajouté à "données climatologiques de surface".

Données anciennes et données indirectes :

données qui fournissent indirectement une indication sur le climat tel qu'il se présente actuellement, mais aussi tel qu'il se présentait par le passé et dans les temps anciens (par exemple, données tirées des renseignements disponibles concernant les inondations, la sédimentation, les dates des moissons, les cercles des troncs d'arbres, etc.), et également données sur les paléoclimats. Si un ensemble de données indiqué dans une autre catégorie porte sur des données ayant plus de cent ans d'âge, un renvoi sera alors ajouté à "données anciennes et données indirectes".

Les méthodes d'observations ne font pas l'objet de catégories distinctes. Par exemple, les ensembles de données tirées d'observations par satellite et autres moyens de télédétection sont décrits dans les catégories correspondant au type d'observation.

VI.2.3 Structure du catalogue

Le catalogue comprend quatre sections :

Section 1 : porte sur l'organisation du catalogue et son utilisation. Cette section contient notamment tous les codes nécessaires.

МЕЖДУНАРОДНЫЕ БАНКИ ДАННЫХ

VI.2 ИНФОКЛИМА

VI.2.1 Введение

Информационно-справочная служба климатических данных - ИНФОКЛИМА - является одной из служб по сбору и распространению информации о существующих и имеющихся в наличии климатических данных в мире. Информация, в частности, включает:

- a) описание имеющихся в наличии комплектов данных, хранящихся в центрах данных и/или опубликованных;
- b) сети климатологических и радиологических станций в мире и соответствующую о них информацию;
- c) национальные климатологические банки данных - состояние сбора, обработки и архивации данных.

Справочная служба ИНФОКЛИМА осуществляется Секретариатом ВМО в рамках Всемирной климатической программы (ВКП). Она развивается в соответствии с общей политикой ВКП и подробными рабочими планами, содержащимися в Третьем долгосрочном плане ВМО (1992-2001 гг.), часть II, том 2 (Публикация ВМО № 762; 1992 г.).

ИНФОКЛИМА получает информацию от стран-членов ВМО и, в том, что касается комплектов данных, также информацию, получаемую от индивидуальных центров данных и международных организаций. Справочная служба имеет международный характер; она создавалась в сотрудничестве с международными системами. Необходимо подчеркнуть, что ИНФОКЛИМА не занимается фактическими климатическими данными, а предоставляет информацию о существовании и наличии климатических данных в мире.

ИНФОКЛИМА представляет собой компьютеризированную базу данных. Информация публикуется в различных формах, в зависимости от ее характера:

- каталог комплектов данных климатической системы;
- статистические данные по региональным сетям климатологических и радиологических станций; в нескольких томах;
- банки климатологических данных - обзоры состояния на региональном уровне.

VI.2.2 Каталог ИНФОКЛИМА

Каталог содержит описание комплектов данных, которые формируются на основе конкретной совокупности данных или программы обработки данных. Общее описание может охватывать ряд "комплектов данных", перечисленных отдельно в каталогах центров данных. Этот принцип был использован для того, чтобы охватить в рамках одного описания весь каталог данных, где различные комплекты данных в целом относятся к конкретной научно-исследовательской деятельности или конкретному международному научному эксперименту.

МЕЖДУНАРОДНЫЕ БАНКИ ДАННЫХ

Гидрологические данные:

данные, касающиеся поверхностных и подземных вод, расхода наносов, ледового режима в реках и озерах, засух и наводков. В том случае, если в комплект гидрологических данных включены данные по осадкам/испарению, то перекрестная ссылка вставляется в "приземные климатологические данные".

Исторические и косвенные данные:

данные, дающие косвенное представление о климате в настоящий, истекший и древний период (например, паводки, наводки, сроки сбора урожаев, годовые кольца на срубках деревьев и т.д.), а также данные о палеоклимате. В том случае, если комплект данных другой категории содержит данные за более чем 100-летний период, то вставляется перекрестная ссылка в "исторические и косвенные данные".

Методы наблюдений не подразделяются на отдельные категории. Например, комплекты данных, полученные в результате наблюдений со спутников и других средств дистанционного зондирования, описаны в рамках соответствующих конкретных категорий.

VI.2.3 Структура каталога

Каталог состоит из четырех разделов:

Раздел 1 содержит информацию, касающуюся структуры каталога, порядка его использования и, в частности, все необходимые коды.

Раздел 2 содержит список всех центров данных, включенных в каталог, перечисленных по Регионам ВМО и странам. По каждому центру предоставляется следующая информация:

- название и адрес
- условия предоставления комплектов данных
- наименования опубликованных каталогов данных
- общее описание данных, которыми располагает центр.

Раздел 3 содержит описание комплектов данных. Комплекты данных сформированы соответственно из:

- категории данных
- охватываемой комплектом данных области.

Для каждой категории данных, комплекты данных, касающихся глобальных/региональных областей и стран, представлены в двух различных подразделах.

Раздел 4. В этом разделе содержится указатель наименований комплектов данных, составленный в том же порядке, что и раздел 3.

Таблица V и VI, содержащиеся в разделе 1, позволяют вести поиск комплектов данных начиная со стран (центров) для поиска комплектов данных по странам, до регионов для поиска комплектов глобальных/региональных данных.

Раздел 3 обеспечивает возможность поиска описания комплекта данных в следующем порядке:

- категория данных

VI.2 INFOCLIMA

VI.2.1 Introducción

El Servicio Mundial de Referencias e Información sobre Datos Climáticos - INFOCLIMA - es un servicio para la recopilación y difusión de información sobre la existencia y disponibilidad de datos climáticos en el mundo. La información comprende en particular:

- a) descripciones de series de datos disponibles, mantenidas en centros de datos y/o publicadas;
- b) redes de estaciones climatológicas y de radiación mundiales, y su historial;
- c) bancos de datos climatológicos nacionales: estado de recopilación, proceso y archivo de datos.

El Servicio de Referencia INFOCLIMA está a cargo de la Secretaría de la OMM en el marco del Programa Mundial sobre el Clima (PMC). Su desarrollo sigue las políticas generales del PMC y los planes de trabajo detallados contenidos en el Tercer Plan a Largo Plazo de la OMM (1992-2001), Parte II, Volumen 2 (OMM-Nº 762; 1992).

La información de INFOCLIMA se obtiene de los países Miembros de la OMM y, por lo que se refiere a las series de datos, también de contribuciones de distintos centros de datos y organizaciones internacionales. El servicio de referencia tiene carácter internacional; se ha desarrollado en coordinación con otros sistemas internacionales. **Procede destacar que el INFOCLIMA no trata datos reales sobre el clima, sino que proporciona información acerca de la disponibilidad de datos climáticos en el mundo.**

El INFOCLIMA se mantiene como base de datos computarizada. La información se publica en diferentes formas, según su naturaleza:

- catálogo de series de datos del sistema climático;
- estadísticas sobre redes regionales de estaciones climatológicas y de radiación, en varios volúmenes;
- bancos de datos climatológicos: estudios sobre la situación regional.

VI.2.2 Catálogo del INFOCLIMA

El Catálogo contiene descripciones de series de datos que proceden de una recopilación de datos particular o de un programa de proceso de datos. Una sola descripción puede abarcar, pues, varias "series de datos" enumeradas por separado en inventarios de centros de datos. El principio se ha ampliado para abarcar un inventario de datos completo bajo una descripción, cuando la totalidad de las diversas series de datos se refieren a una actividad de investigación especial o a un experimento científico internacional determinado.

En el marco del PMC, las referencias de las series de datos se aplican a datos:

- a) organizados y, preferentemente, de calidad controlada;
- b) que se considera se utilizan en estudios regionales o mundiales sobre el clima;
- c) de que se dispone internacionalmente (en las condiciones indicadas por el centro de datos).

Los métodos de observaciones no se distinguen por categorías separadas. Por ejemplo, las series de datos derivadas de observaciones por satélite y otras observaciones por teledetección se describen en las categorías pertinentes.

VI.2.3 Estructura del catálogo

El catálogo se divide en cuatro secciones:

La **Sección 1** concierne la disposición del catálogo y a la manera de utilizarlo, y contiene, entre otras cosas, todas las claves necesarias.

La **Sección 2** contiene todos los centros de datos incluidos en el catálogo, enumerados por Regiones de la OMM y países. Para cada centro se proporciona la siguiente información:

- nombre y dirección;
- condiciones en que se ponen a disposición las series de datos;
- título(s) de catálogo(s) publicado(s) de datos;
- descripción general de datos mantenidos por el centro.

La **Sección 3** trata de la descripción de las series de datos. Las series de datos se disponen con arreglo a:

- la categoría de datos;
- la zona abarcada por la serie.

Para cada categoría de datos, las series de datos referentes a zonas mundiales/regionales y países se muestran en dos subsecciones distintas.

La **Sección 4** es el índice de títulos de series de datos dispuestas con arreglo a la misma organización que para la Sección 3.

Los Cuadros V y VI de la Sección 1 permiten la **búsqueda de series de datos**, a partir de un país (centro) para las series de países, y a partir de una región para las series mundiales/regionales.

La Sección 3 permite la búsqueda de la descripción de series de datos con arreglo al siguiente orden:

- categoría de los datos;
- zona abarcada por la serie de datos;
- descripción de la serie de datos y centros de datos correspondientes.

A continuación se muestran una presentación esquemática y ejemplos de las Secciones 2 y 3 del extracto de datos hidrológicos del catálogo INFOCLIMA.

La Secretaría puede proporcionar **gratuitamente** un ejemplar de todo el catálogo, edición de abril de 1989 y del suplemento de marzo de 1992 o del extracto de datos hidrológicos, edición de octubre de 1989, a quienes lo soliciten a la siguiente dirección:

Programa Mundial de Datos y Vigilancia Climáticos
Organización Meteorológica Mundial
C.P. 2300
CH-1211 GINEBRA 2
Suiza

General description
of AREA covered by
data sets on the page

DATA CATEGORY
code
see Table I

AREA code(s)
see
Tables II & III

INFOCLIMA
data set number

Data category and area codes

#0435 (H.01) :

DATA SET TITLE

FORM AND MEDIA :

PERIOD :

AREA :

ELEMENTS :

ARRANGEMENT :

STATISTICS :

PUBLISHED AS :

DETAILS :

FREQUENCY/GRID :

SITES / LEVELS :

DATA SET DESCRIPTION

MEDIA DETAILS :

VOLUME OF DATA :

QUALITY CONTROL:

ORIGIN OF DATA :

REMARKS :

PUBLISHED :

freq./size :

title :

author/editor:

publisher :

enquiry addr.:

Date of entry

Centre 676W (1988)

Hydrological Information Referral Service (INFOHYDRO), WMO - Switzerland

Data centre code (see Table IV):

6

76

W

WMO Region

Country

Centre

Name of

data centre

406 - CANADA

406B CENTRE : Aquatic Ecology Division, Canada Centre for Inland Waters
National Water Research Institute
P.O. Box 5050
Burlington, Ontario L7R 4A6
Canada
TELEPHONE: (416) 336-4788
TERMS : By negotiation.
DATA HELD: Paleoclimatic data primarily from Holocene sediments of
Canadian prairies.

406F CENTRE : Northern Forestry Centre, Edmonton - Canada
5320-122 Street, Edmonton
Alberta
Canada T6H 3S5
TELEPHONE: (403) 435-7210
TERMS : Copies of summarized data available on request.
PUBLISHED: Alberta Naturalist Vols 7-16 (Annual Supplement up to Vol.14)
Compilation of Hydrometeorological Record: Marmot Creek Basin
(1967-1982).
DATA HELD: Results of annual survey of plants in flower on the last
weekend in May in Alberta, Canada; annual totals, year to
year and area to area comparisons included.
Meteorological snow survey and radiation data.
Tree-ring data.

406H CENTRE : Water Survey of Canada, Water Resources Branch, Environment
Canada
Ottawa
Ontario K1A 0H3
Canada
TELEPHONE: 819-997-1474
TERMS : No charge; agreement that any reports based in whole or in
part on these data should acknowledge the Water Survey of
Canada as their source.
PUBLISHED: Surface Water Data; Reference Index; Canada; 1986.
Sediment Data; Reference Index; Canada; 1984.
DATA HELD: No. stations: active discontinued
river discharges 2666 3062
river/lake water levels 773 995
sediment discharge 185 492
water temperatures 28 16

420 - COSTA RICA

420B CENTRE	: Instituto Costarricense de Electricidad - Costa Rica Departamento de Estudios Básicos Apartado 10032 San José 1000 Costa Rica		
TELEPHONE:	20-73-09 or 20-75-31		
PUBLISHED:	Boletines Hidrológicos (16 publications). Boletín de Sedimentos (1 publication). Boletín de Calidad Físico-Química del Agua (1 publication).		
DATA HELD:	Processed data include discharge, precipitation, temperature, humidity, evaporation, sediment and quality of water. All processed data are kept as a computerized data bank (computerized lists available).		

430 - JAMAICA

430B CENTRE	: Jamaica Office of Disaster Preparedness & Emergency Relief Co-ordination 2a Devon Road Kingston 10 Jamaica West Indies		
TELEPHONE:	94400-4		
TERMS	: On request; occasionally cost of mailing only is charged.		
DATA HELD:	Occurrence of disasters in the country including: casualties economic losses damages to the country's infrastructure.		

TABLE VI.I - OTHER SELECTED INTERNATIONAL DATA BANKS

Name	Address
Global Precipitation Climatology Centre (GPCC)	Deutscher Wetterdienst Postfach 100465 D-6050 Offenbach a.M. Federal Republic of Germany
Global Environment Monitoring System - Water (GEMS - Water)	WHO Collaborative Centre on Surface and Ground Water Quality (WHO/CC). National Water Research Institute Canada Centre for Inland Waters (CCIW) P.O. Box 5050, Burlington Ontario L7R 4A6 Canada
World Glacier Monitoring Service	NAW/ETH Zürich ETH Zentrum CH-8092 Zürich Switzerland