
Asian Water Cycle Initiative (AWCI) Flood Management WG - Seeds for discussion -

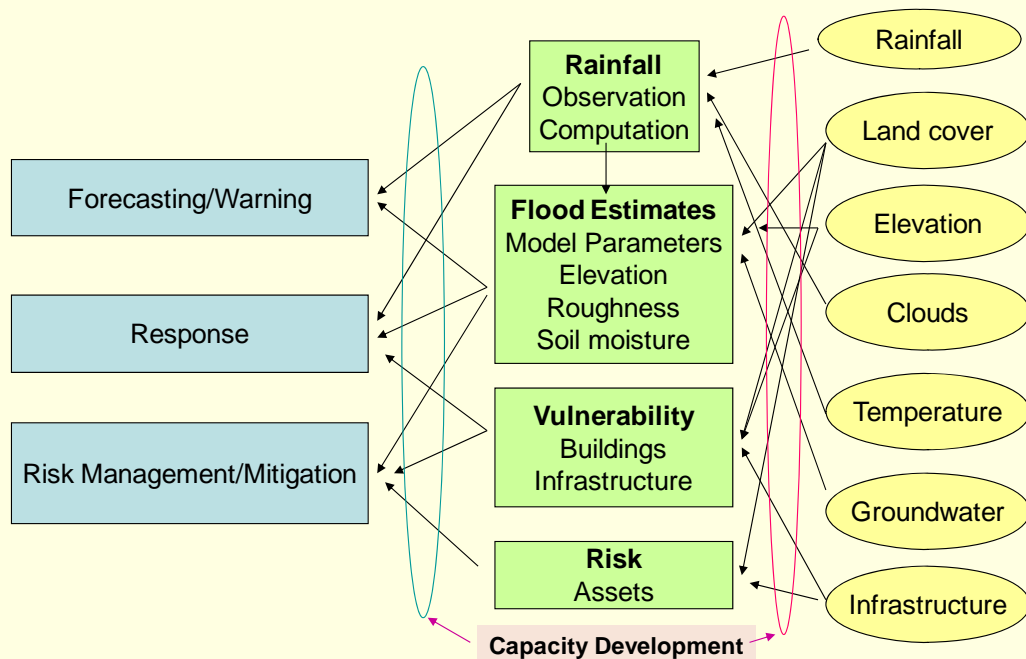
Kazu FUKAMI (ICHARM)
Srikantha HERATH (UNU)

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Activities of Flood Management WG

- 1st WG at the GEOSS Symposium on Integrated Observation for Sustainable Development in the Asia-Pacific Region, January 11-12, 2007, Tokyo, Japan - establishment of Flood Management WG
- Preparation of Generic template for demonstration projects in GEO on use of satellite information for flood risk Management (Prof. Herath)
- Questionnaire to member countries for their needs and resources (Through Prof. Koike)
- Proposal to 2007 Annual Regional Call for Proposals (ARCP) , APN (Asia-Pacific Network for Global Change Research)

Generic template for demonstration projects in GEO on use of satellite information for flood risk Management (Prof. Herath)



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Proposal to 2007 Annual Regional Call for Proposals (ARCP) , APN

With in the context of the APN support the flood research project will address following specific objectives:

- 1. Converting observations and data, both through space borne platforms and data integration initiatives, to usable information for flood reduction.
- 2. Improvement of quantitative forecasts for coupled precipitation - flood-forecasting systems.
- 3. Facilitate risk assessment through the provision of scenarios and data for exposure estimation.
- It is essential to enhance and utilize regional cooperation to achieve these objectives using the resources and knowledge available at various specialized institutions. Training programs on the use of tools and data will form the basis for to capacity development activities.

Just for your reference,.....

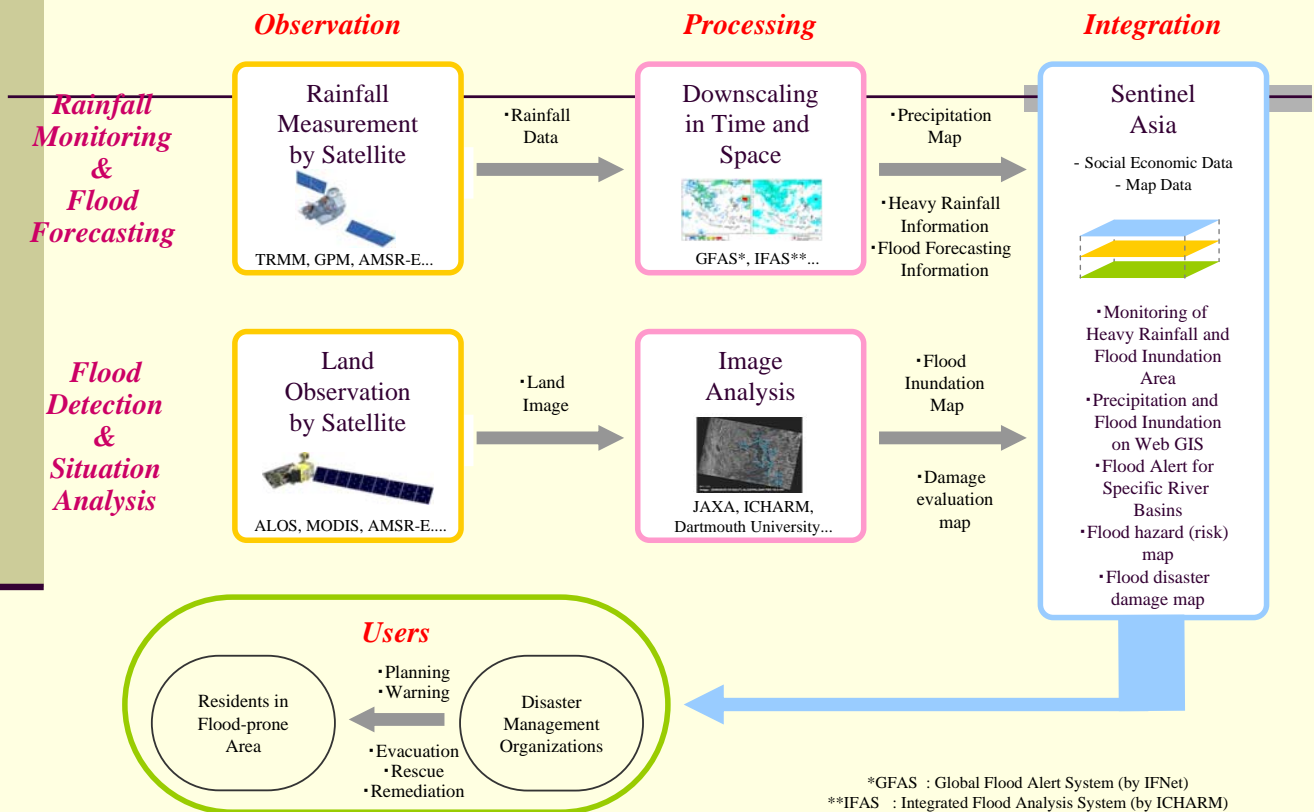
- Introduction of activities of Flood Monitoring WG at the Sentinel Asia Project organized by Asia-Pacific Region Space Agency Forum (APRSAF) and International Flood Network (IFNet)
- Any linkage and mutual cooperation with Sentinel-Asia Flood Monitoring WG and IFNet-GFAS project should be enhanced and promoted.

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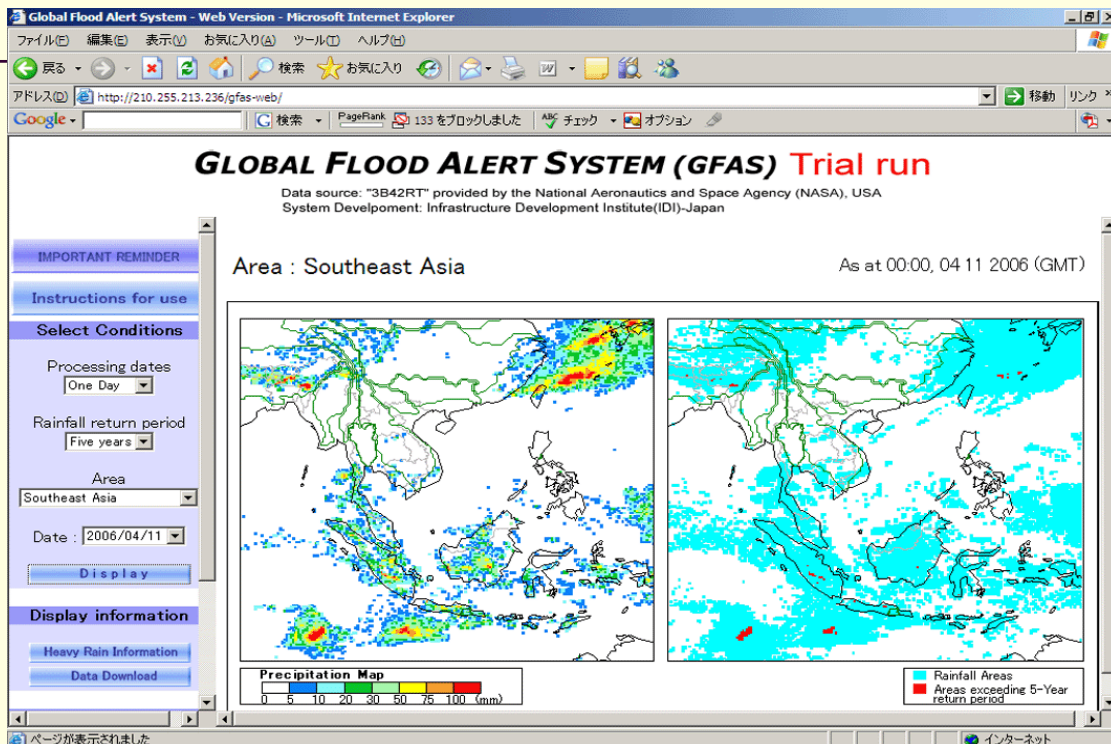
Outcome of Flood WG (1st Step) at Sentinel Asia Project, APRSAF

- *Global cloud cover image and its overlay on Digital Asia*
 - Provided by Japan Meteorological Agency (JMA)
- *Global satellite-based daily rainfall map & heavy rainfall identification and its overlay on Digital Asia (1st phase)*
 - Provided by IFNet (International Flood Network)
= "GFAS" (Global Flood Alert System) based on NASA-3B42RT
- *Global flood identification using AMSR-E (1st phase)*
 - Provided by Dartmouth Flood Observatory
= "Surface Water Watch" on the basis of AMSR-E
- *Mini-projects for flood disaster management using satellite and GIS databases*
 - Conducted by JAXA and AIT

Outline of Sentinel-Asia Flood Monitoring WG



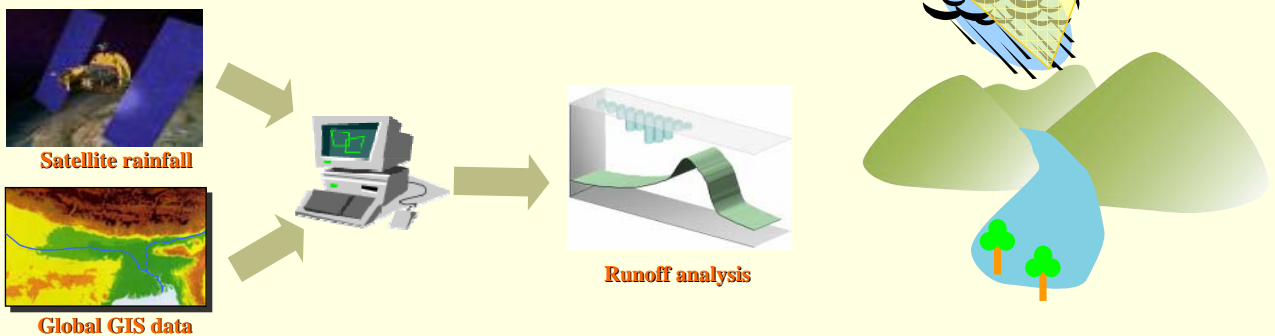
Global Flood Alert System (GFAS)



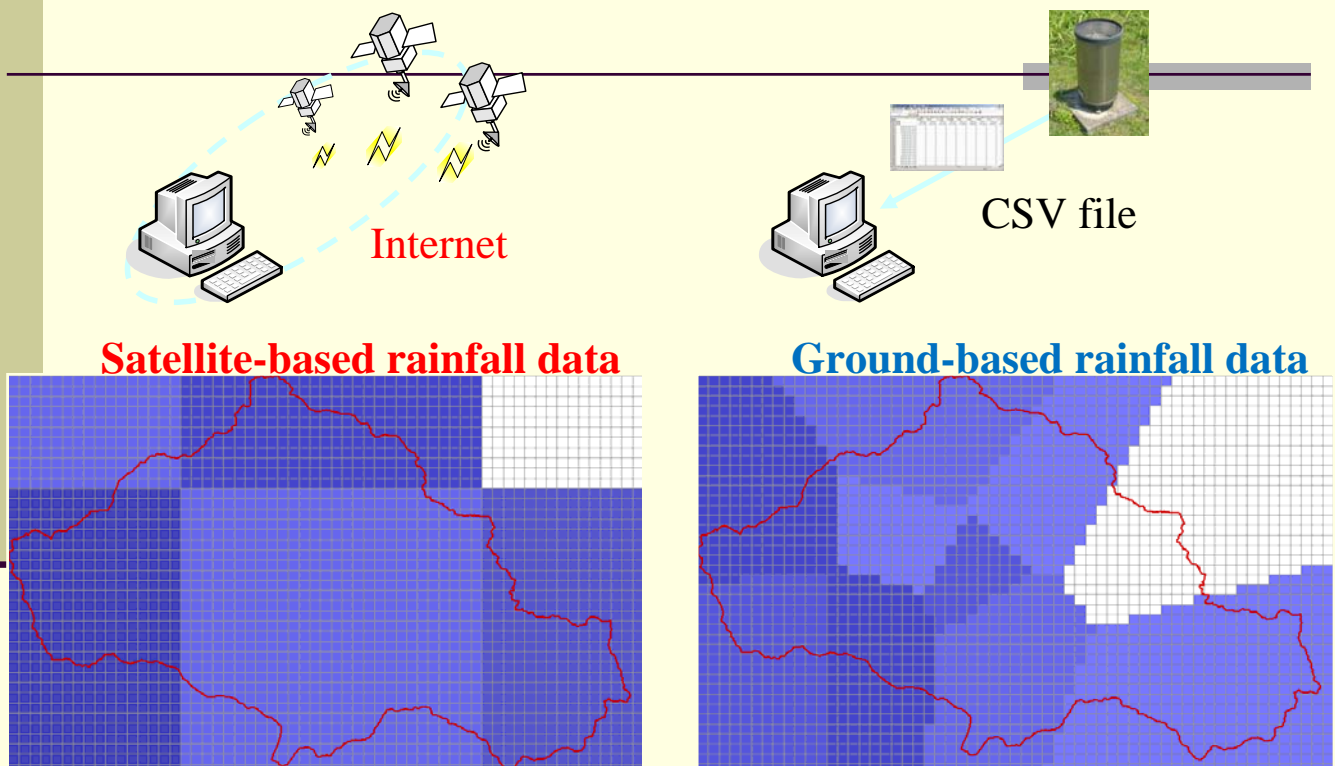
Development of Integrated Flood Analysis System (IFAS)

A computer software package specifically for flood runoff analyses with GUI using ground-based and satellite-based rainfall data

Being developed by a joint research (FY2005-2007)
at ICHARM/PWRI,
Infrastructure Development Institute (IDI/IF-Net),
and nine major civil-engineering consulting companies

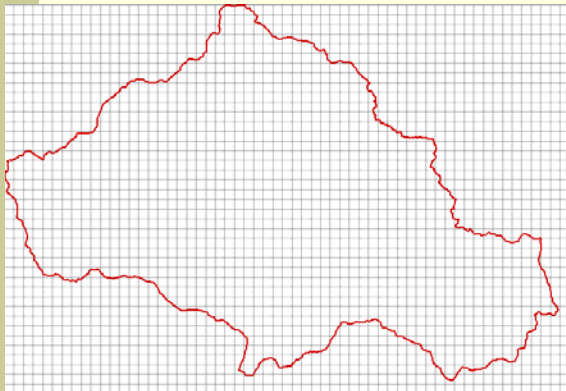


Utilization of satellite-based rainfall

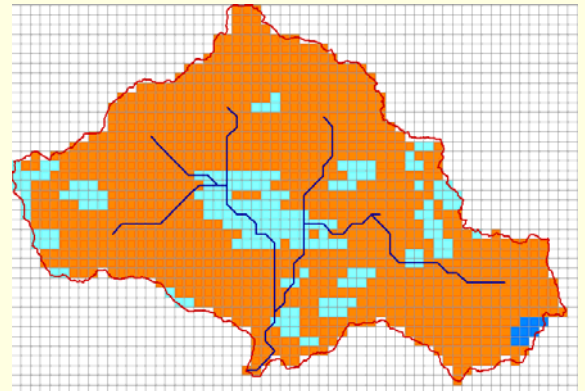
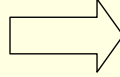


Automatic Estimate of Parameters as a first approximation

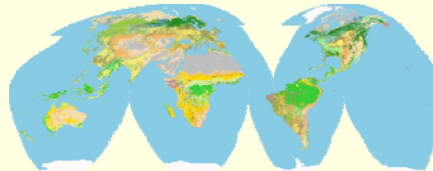
by use of globally available GIS datasets



automatically



Use global GIS data such as USGS-GTOPO30, GLCC, etc.



User friendly graphical interfaces

The screenshot displays a software interface with a main map area and several configuration windows. The main map shows a grid-based representation of a region with a green and blue color scheme. The interface includes a menu bar (File, Tools, Help), a toolbar (Zoom In, Zoom Out, Zoom Reset, AreaZoom), and a status bar (ステータス).

The main window is titled "IFAS (プロジェクト:四十四田test) - [プロジェクト情報管理]". It contains a "プロジェクト名: 四十四田test" field and a "プロジェクト情報設定" button. Below this, there are fields for "流域データ範囲" (Basin Data Range) with coordinates: "左下 緯度: 39' 44' 49\"

There are three configuration windows open:

- 外部ファイル-インポート**: A dialog for importing external files. It includes a dropdown menu for "インポートデータ種別" (Import Data Type) set to "SRTM30", an "インポートフォルダー" field, and buttons for "Import" and "Close".
- プロジェクト情報設定**: A dialog for setting project information. It includes fields for "左下 緯度" (44' 49\"
- パラメータ**: A dialog for setting parameters. It includes a table with columns for "パラメータ名" (Parameter Name), "初期値" (Initial Value), "単位" (Unit), and "範囲" (Range). The table contains four rows of data.

The main window also features a "View" section with a table:

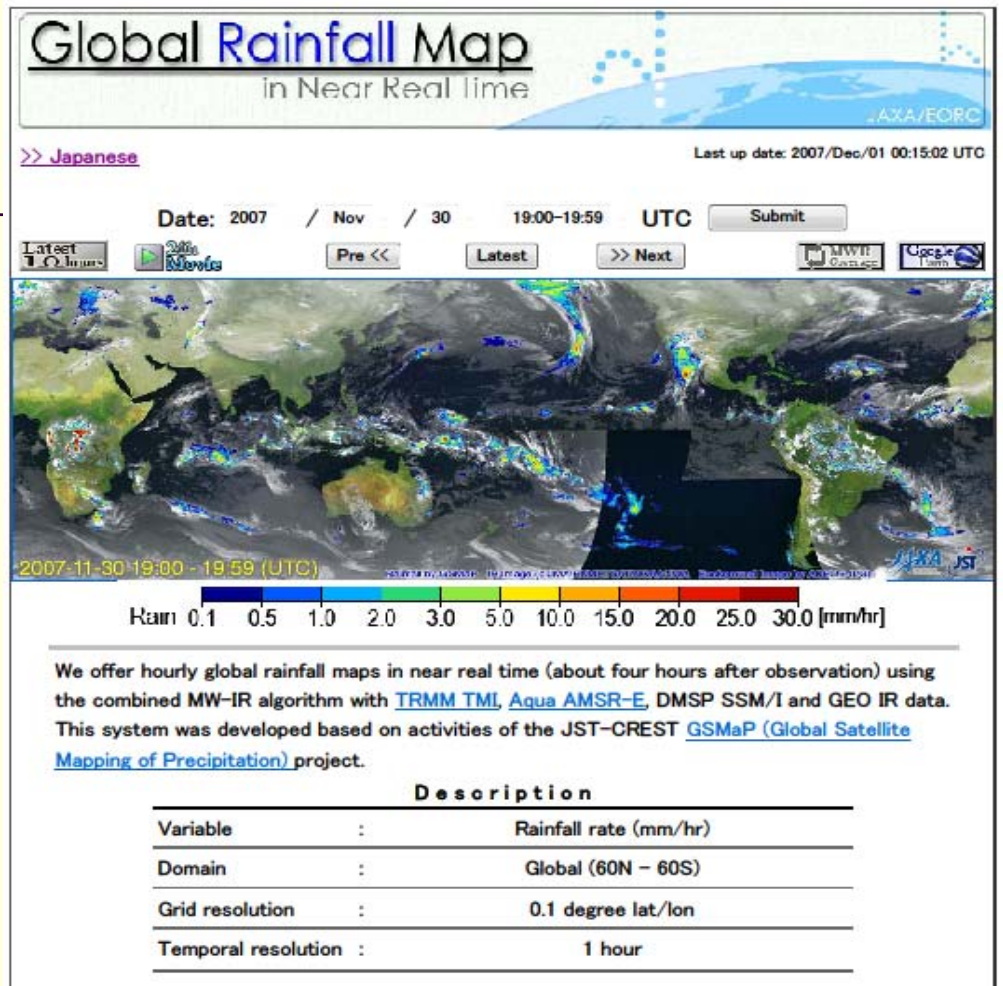
View	Data	Trans	
<input checked="" type="checkbox"/>	流域標高データ	0%	Move Top
<input checked="" type="checkbox"/>	落水線	0%	Move Up
<input checked="" type="checkbox"/>	流域境界	0%	Move Down
<input checked="" type="checkbox"/>	降雨	0%	表示設定

Below the "View" section, there are tabs for "外部データファイル" (External Data File), "土壌・地質データ" (Soil/Geology Data), "土地利用データ" (Land Use Data), "地形標高データ" (Topographic Data), "流域標高モデル" (Basin Elevation Model), and "背景図" (Background Map). The "地形標高データ" tab is active, showing fields for "データタイプ" (Data Type), "元データファイルパス" (Original Data File Path), "保存データファイルパス" (Save Data File Path), "データ取得日" (Data Acquisition Date), "データ修正日" (Data Correction Date), and "データ修正の経緯コメント" (Data Correction Comment).

Real-Time GSMaP

JAXA,
JST-CREST
(Prof. Ken'ichi
OKAMOTO,
Osaka Pref. Univ. et al.)

ICHARM/PWRI



Preliminary discussions on the target of 2nd phase of Flood Monitoring WG

at 3rd WG in Manila, Philippines

1. **Global satellite-based hourly/10km-grid rainfall mapping**
 1. **JAXA** and **ICHARM/PWRI** are planning to jointly develop the prototype system based on the JST-CREST GSMaP led by Prof. Okamoto (Osaka Prefectural Univ.); (Start before the end of March 2009)
2. **Next-phase GFAS**
 1. Flood forecasting and inundation mapping using the above satellite-based rainfall products using **IFAS (Integrated Flood Analysis System, ICHARM)** (Start before the end of March 2010)
 2. Select few Pilot demonstration river watersheds with the participation of Sentinel Asia Flood Working Group (Start: Before the end of March 2009)
 3. Parallel exploration of assimilating river-and rain-gauge observation
3. **DEM: Create DEM of flood prone areas (Pilot Study) by members using ALOS data and validate** (Start: Before the end of March 2009)
4. **Sharing the local studies and achievements through the Sentinel Asia Portal - [member countries/organizations](#)**

What is IFNet ?

1. Beginning

IFNet was set up as **an open network** everyone can join on the flood day of the 3rd World Water Forum in Kyoto, March 2003



Background:

- ◆ **Rising trend** of flood damages
- ◆ View of flood issues as **locally limited problems**
- ◆ **Few networks** then dedicated to flood issues
- ◆ Necessity to **give priority** to flood issues

2. Objectives

To contribute to flood disaster reduction by:

- ◆ **Sharing** knowledge and lessons learned,
- ◆ **Promoting** good practices,
- ◆ **Raising** awareness of flood issues and flood risk among policy makers and the general public.

3. Membership

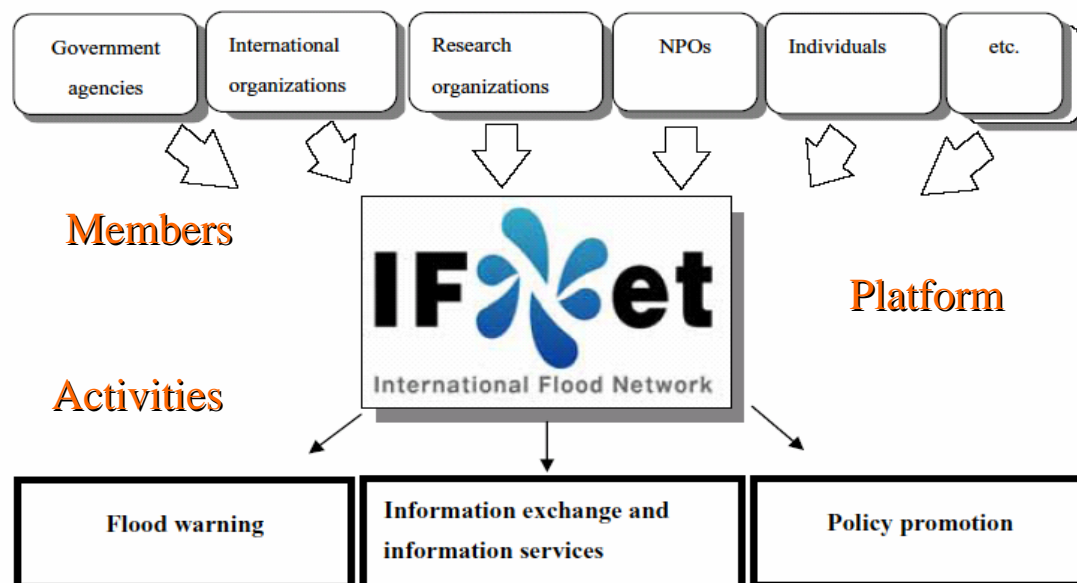
- ◆ IFNet is an **open, free of charge**, network to everyone.
- ◆ **Advantage:** Opportunity to present activities in forums etc.
Custom-made GFAS information (plan)

4. Ongoing projects

- ◆ **IFNet Action Report**
 - *Good practices, lessons learned, etc.*
- ◆ **Global Flood Alert System (GFAS)**
 - *Flood early warning, evacuation, etc.*
- ◆ Information Exchange/Dissemination
 - *Participation in forum, training programme, list of worst floods, newsletters, etc.*



Illustrative Framework of IFNet



Governance of IFNet

Chairperson: **Mr. Avinash C. Tyagi**
Director of Hydrology and Water Resources, World Meteorological Organization (WMO)



New face

Vice Chairperson: **Mr. Toshiyuki Adachi**
Since April 1, 2007
Director of River Planning Division, River Bureau, Ministry of Land, Infrastructure and Transport (MLIT), JAPAN

New face

Director of Secretariat : **Mr. Kazuhisa Ito**
since August 18, 2006
Director of 2nd Research Department, Infrastructure Development Institute (IDI) JAPAN

