

The Capacity Building on Flood Hazard Maps (The Activities of Typhoon Committee-HC)

**Integrated Flood Risk Management through Approach
Knowledge Sharing and Capacity Building Systems**

World Conference of Disaster Reduction

20. January. 2005

HONG, IL-PYO

Korea Institute of Construction Technology

REPUBLIC OF KOREA

Contents of Presentation

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Introduction of TC

- ◆ **UN/ESCAP · WMO Typhoon Committee**
 - Established 1968
 - Mitigate Typhoon related Disasters
 - 10 member countries in West-Pacific region(1968)
 - 14 members (since 1998)
 - 3 major components
 - Meteorology
 - Hydrology
 - Disaster Prevention and Preparedness (DPP)

TC-HC Activities

- **Member countries are implementing various projects under the framework of Regional Cooperation Project Implementation Plan (RCPIP)**
 - **Implement Integrated Flood Risk Management through Approach Knowledge Sharing and Capacity Building Systems**
- **9 RCPIP Projects are being implemented by several member countries;**
 - **China, Japan, Malaysia, Philippines, and Republic of Korea**

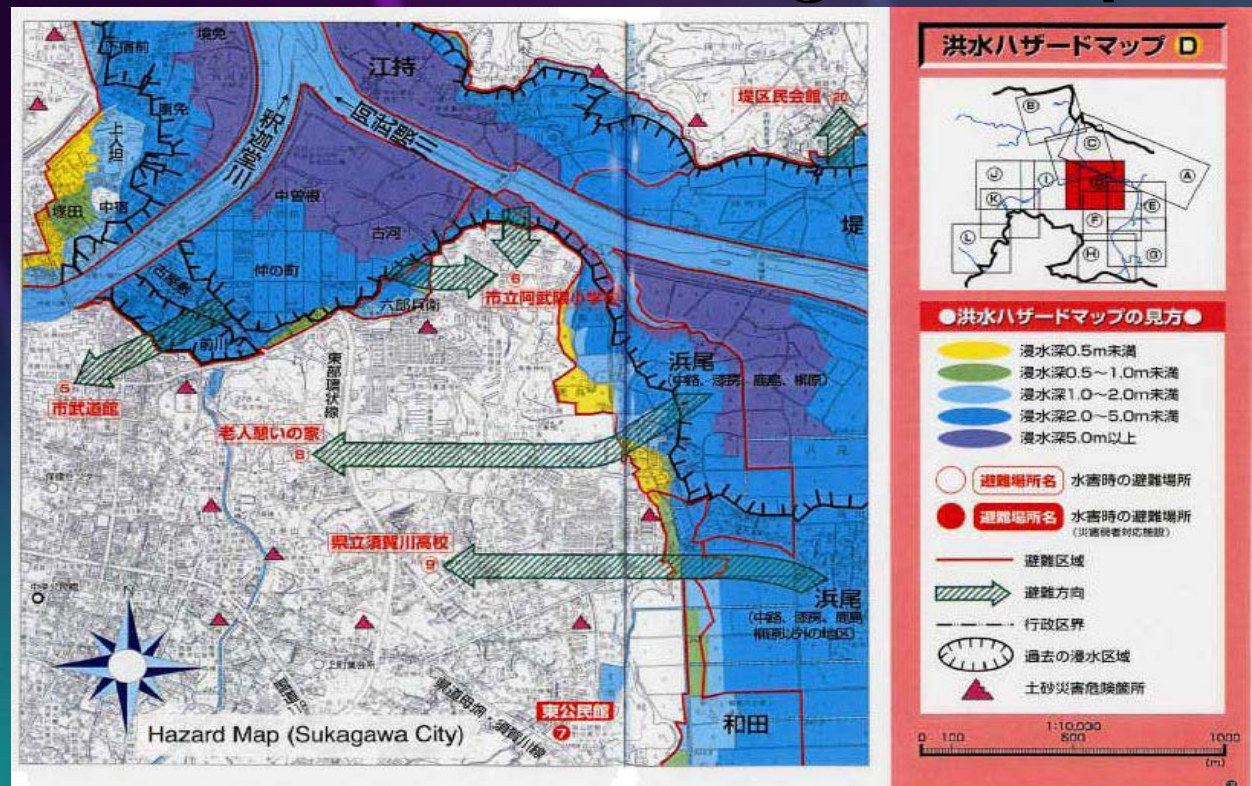
Background of Flood Hazard Map Project

- **Pilot project on the preparation of inundation and water-related Hazard Maps (leading by Japan)**
- **Workshop in Manila, July 2002**
 - **Introduce FHM by Japan**
 - **Explanation of Hazard Mapping Manual**
 - **Nomination of Pilot Area**

What is Flood Hazard Map

- Information of FHM
 - Inundation area and depth
 - Evacuation routes, shelters, dangerous spots, etc..

Example of
Japan
(Sukagawa
City)



Schedule for FHM Project

July 2002

Workshop in Manila

- **Explanation of Hazard Mapping Manual**

Nomination of Pilot Area

Mar. 2003

Participation in WWF3, Japan

Sept.

Workshop in China

- **Inundation Record (Prediction) Map**
- **Warning and Evacuation System**

Sep. 2004

Workshop in Seoul

- **Field Training in Pyontaek City**

Future Schedule for FHM Project

Feb. 2005 PWRI Training of Flood Hazard Mapping

2005 Workshop in Malaysia

- Revision of the Manuals for each country
- Expansion of the projects to other river basins

2006 Workshop

- Project evaluation

The purposes of producing Flood Hazard Maps

- **For local residents:**
 - To promote proper and prompt evacuation actions by providing them with prior information of flood risk and evacuation
- **For local municipalities:**
 - To promptly and smoothly accomplish evacuation of residents using FHM to reduce human losses

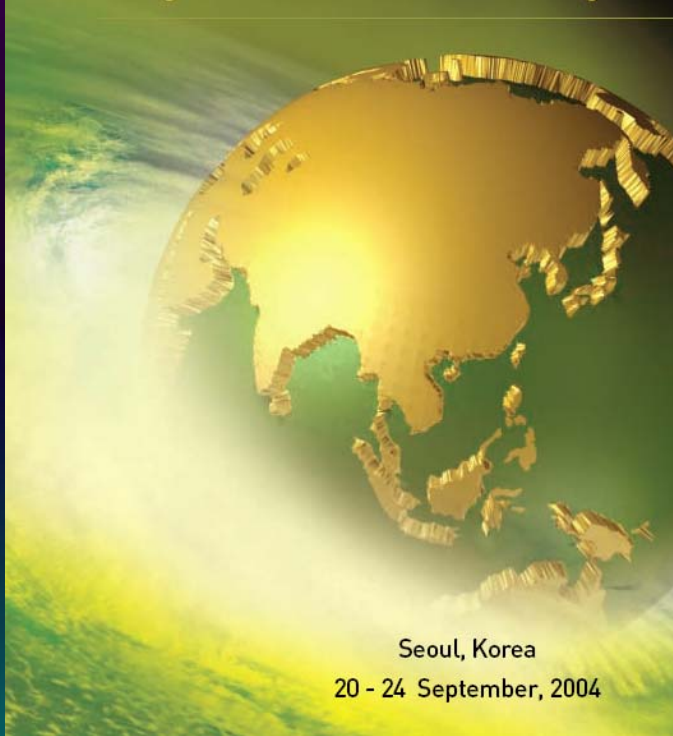
2004 Seoul Workshop

ESCAP/WMO TYPHOON COMMITTEE

Workshop on Living with Risk

Dealing with Typhoon-related Disasters as part of
Integrated Water Resources Management

20-24
September,

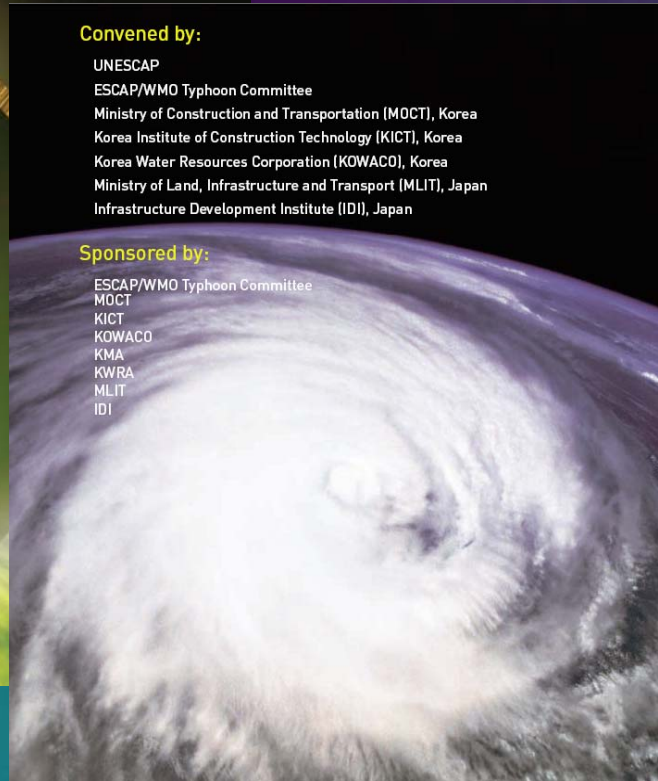


Convened by:

UNESCAP
ESCAP/WMO Typhoon Committee
Ministry of Construction and Transportation (MOCT), Korea
Korea Institute of Construction Technology (KICT), Korea
Korea Water Resources Corporation (KOWACO), Korea
Ministry of Land, Infrastructure and Transport (MLIT), Japan
Infrastructure Development Institute (IDI), Japan

Sponsored by:

ESCAP/WMO Typhoon Committee
MOCT
KICT
KOWACO
KMA
KWRA
MLIT
IDI



Overview of Seoul Workshop

- **International Symposium**
 - MOCT adopted new format – combined international symposium and workshop
 - Invite Meteorologists
- **Workshop**
- **Presentations, Discussion, Panel**
 - Field Training on Flood Hazard Mapping



Field Training in Seoul WS

- **Date: Sep.22 2004**

AM: Field Survey PM: Mapping and Presentation

- **Place: The Anseong River with cooperation of Pyeontaek City**
- **Inundation Map: KIWE/KOWACO, Korea**

Training Method

- **Asian Disaster Reduction Center's Town Watching (Group Training)**
- **Manual: IDI's FHM Manual**

Field Study An-Seong River / Pyongtaek City



Group Mapping and Presentation

Construction
of
Flood Hazard Map

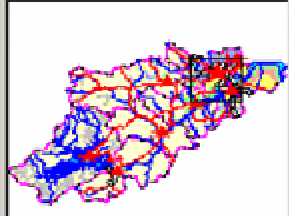
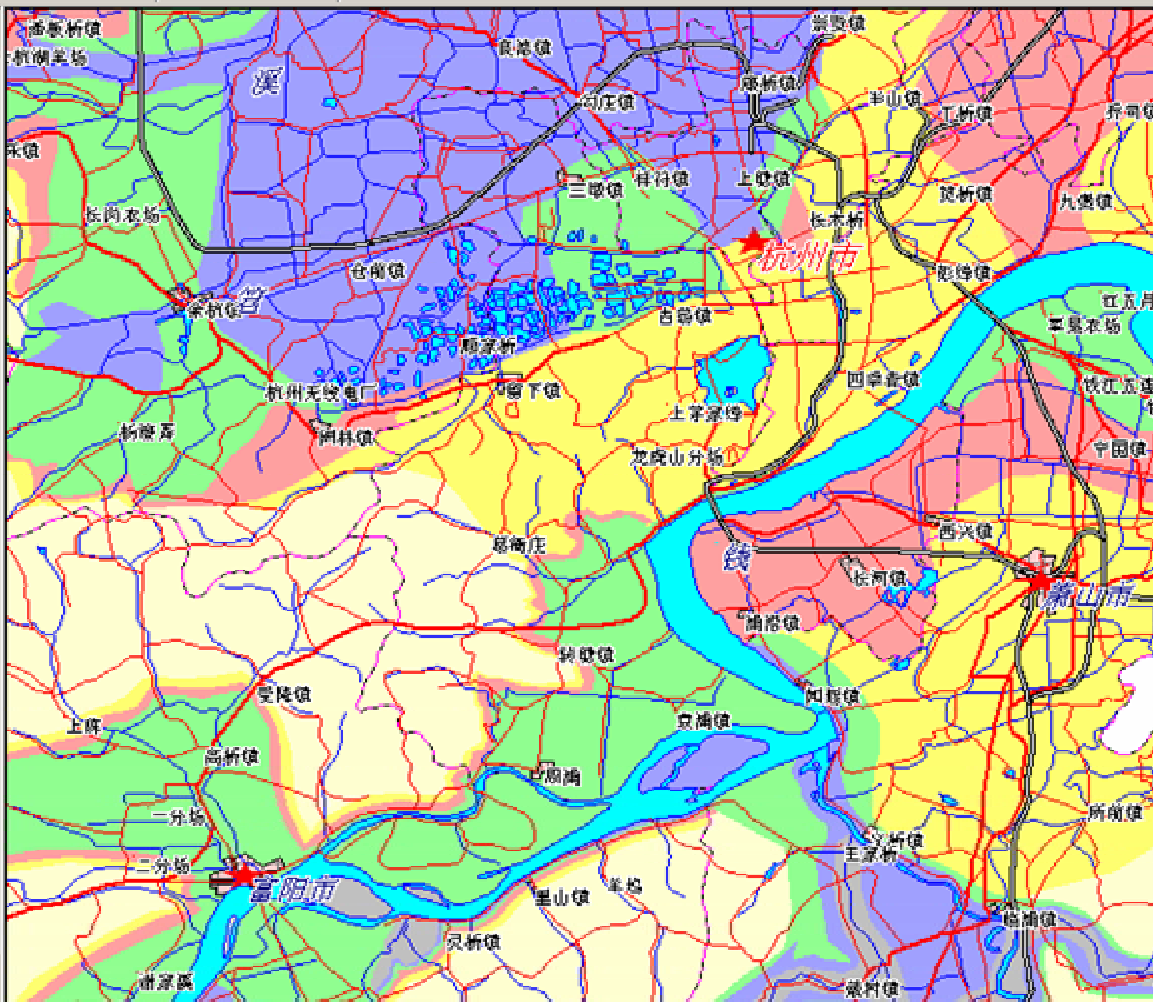


Flood hazard map management system for Hangzhou city

录入修改 查询浏览 统计报表 系统设置 退出系统

地市 城区 流域

- 全省
- 丽水市
 - 台州市
 - 嘉兴市
 - 宁波市
 - 杭州市
 - 温州市
 - 湖州市
 - 绍兴市
 - 舟山市
 - 衢州市
 - 金华市



频率控制 确定

年份	颜色	状态	数据
五年	灰色	<input checked="" type="checkbox"/>	<input type="checkbox"/>
十年	蓝色	<input checked="" type="checkbox"/>	<input type="checkbox"/>
二十年	绿色	<input checked="" type="checkbox"/>	<input type="checkbox"/>
五十年	红色	<input checked="" type="checkbox"/>	<input type="checkbox"/>
一百年	黄色	<input checked="" type="checkbox"/>	<input type="checkbox"/>

损失数据	关系图
村庄	202 个
户数	17400 户
人口	6.09 万人
农田	9.80 万亩
年产值	1.35 亿元
厂企	1389 家
年产值	4.97 亿元
固定资产	7.20 亿元

地图 文字 图表

全省统计 指标

单一地市 风险级

杭州市

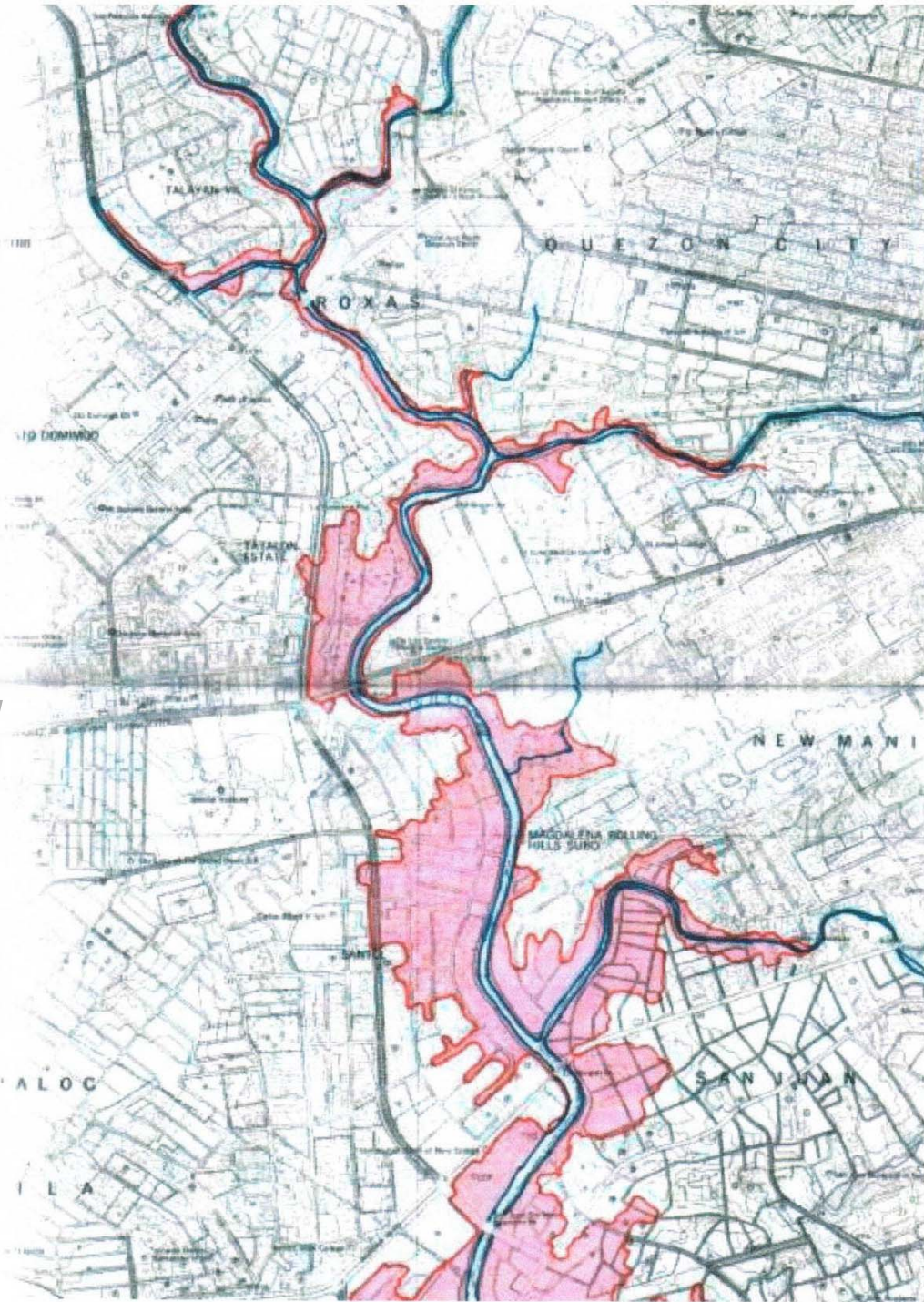
统计

所在地区	所在县市	风险级	村庄	户数	人口	农田	农业年产值	工企业	企业年产值
杭州市	杭州市区	5	16	120	0.045	0.057	0.0086	1.03	
杭州市	淳安县	5	18	2360	0.825	0.48	0.1	0.069	
杭州市	淳安县	10	71	5430	1.9	1.49	0.42	0.369	
杭州市	淳安县	20	359	23570	8.25	2.23	0.57	1.44	
杭州市	淳安县	50	539	70720	26.88	11.17	2.12	2.81	
杭州市	淳安县	100	718	82510	31.36	13.13	3.18	4.517	
杭州市	建德市	5	37	440	0.227	2.7	0.097	0.05	
杭州市	建德市	150	150	16200	3.05	5.89		1.44	

Example: Presented by China at Seoul WS

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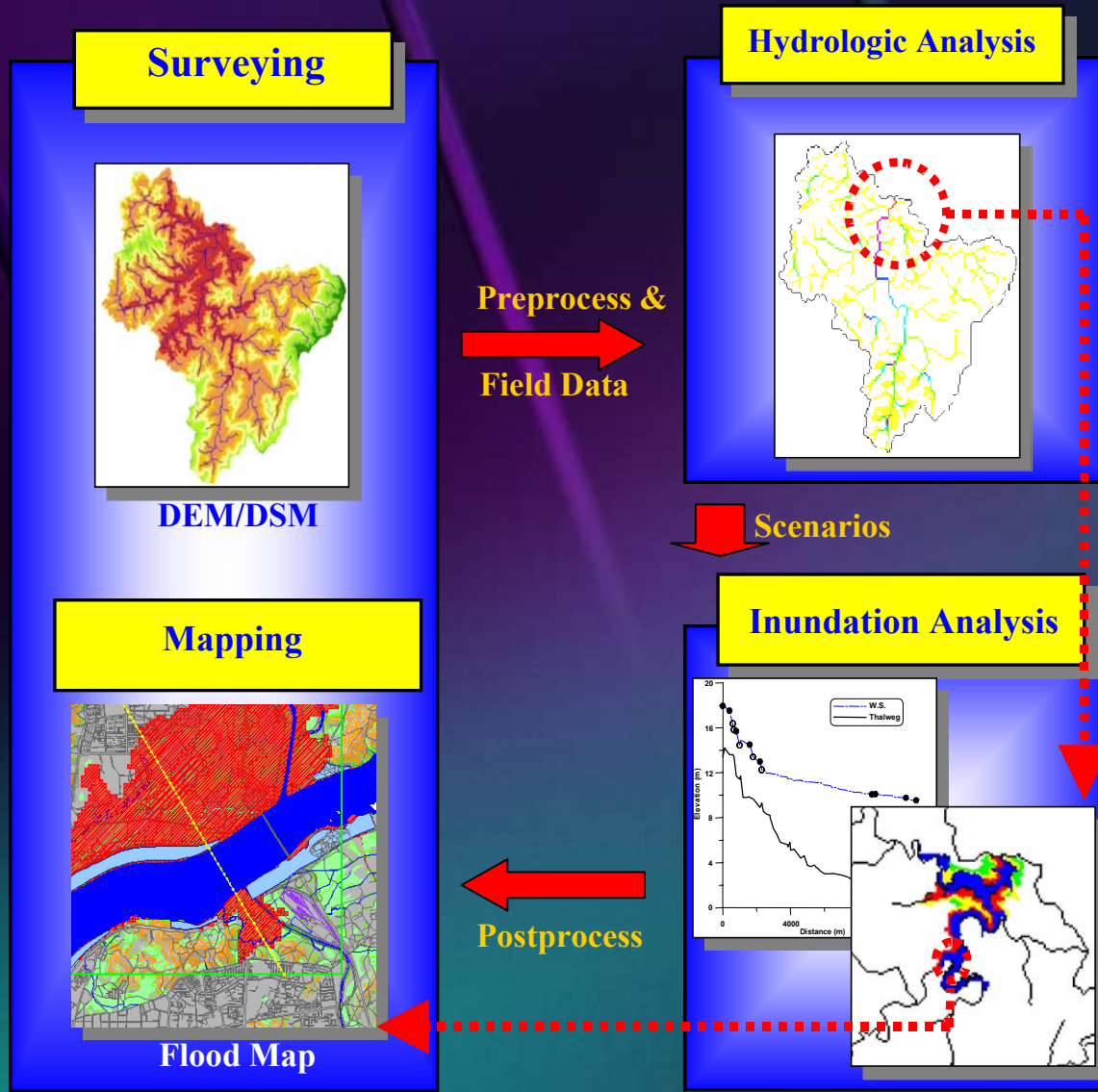
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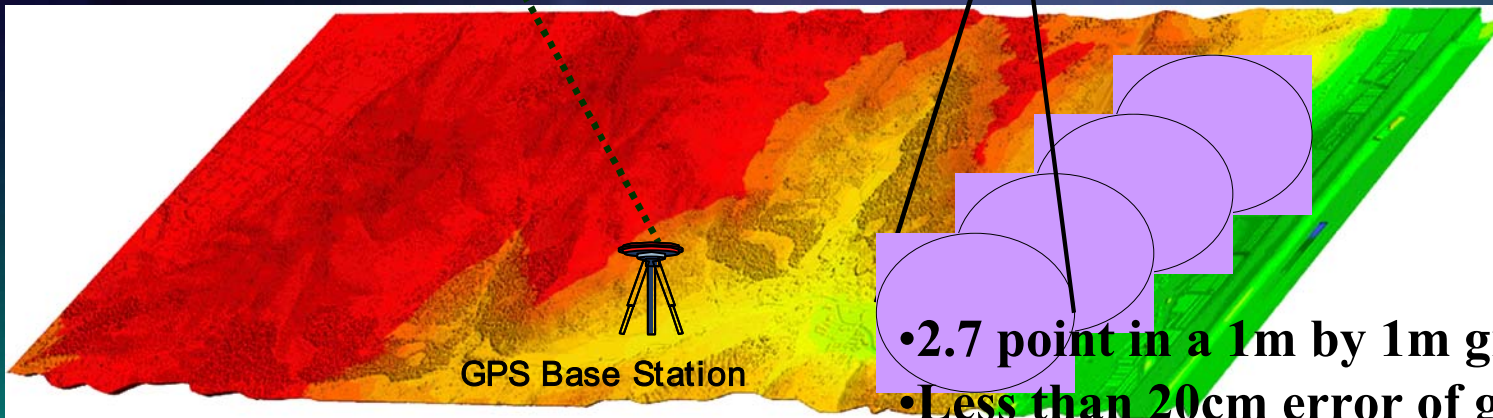
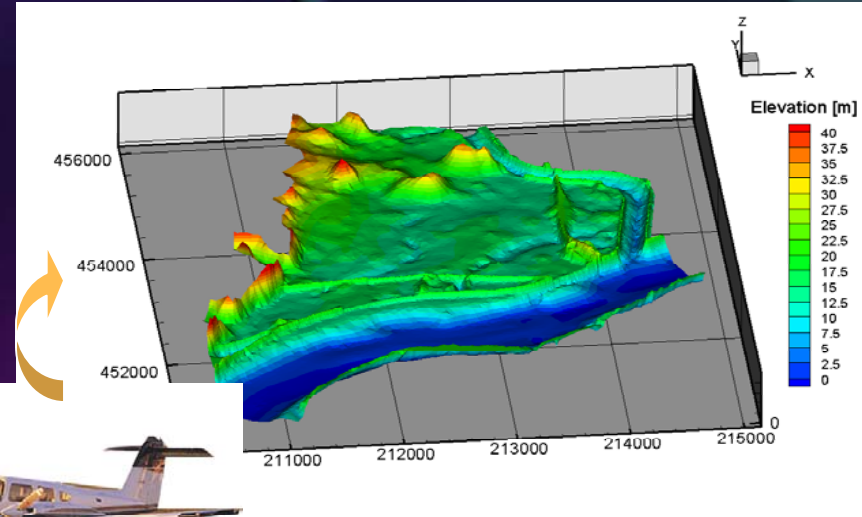
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Procedure of Flood Mapping/ Korea



LiDAR Surveying / / Korea

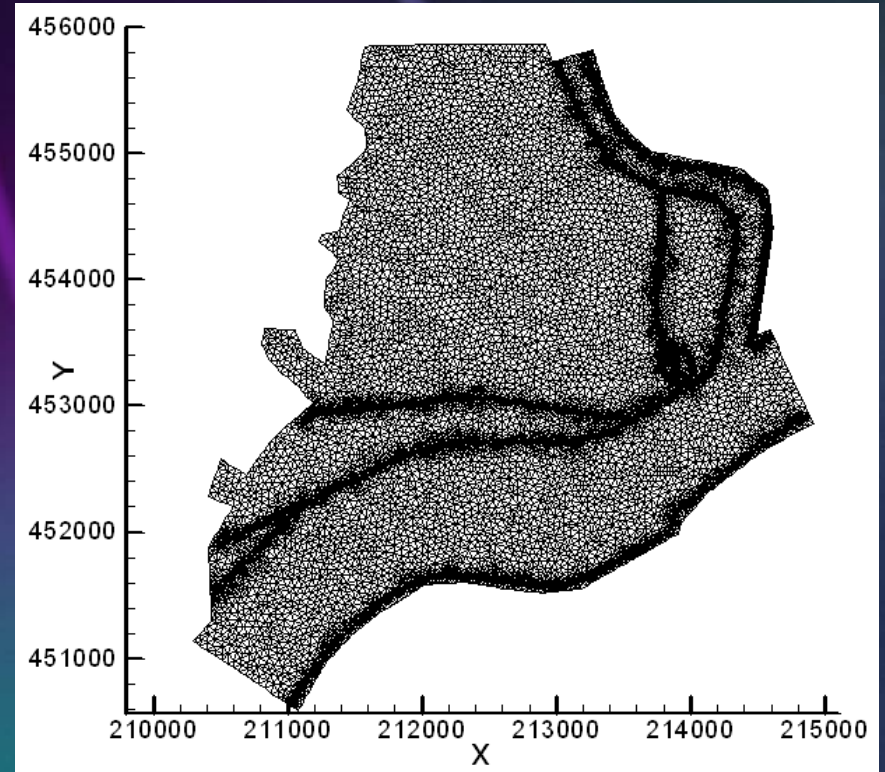
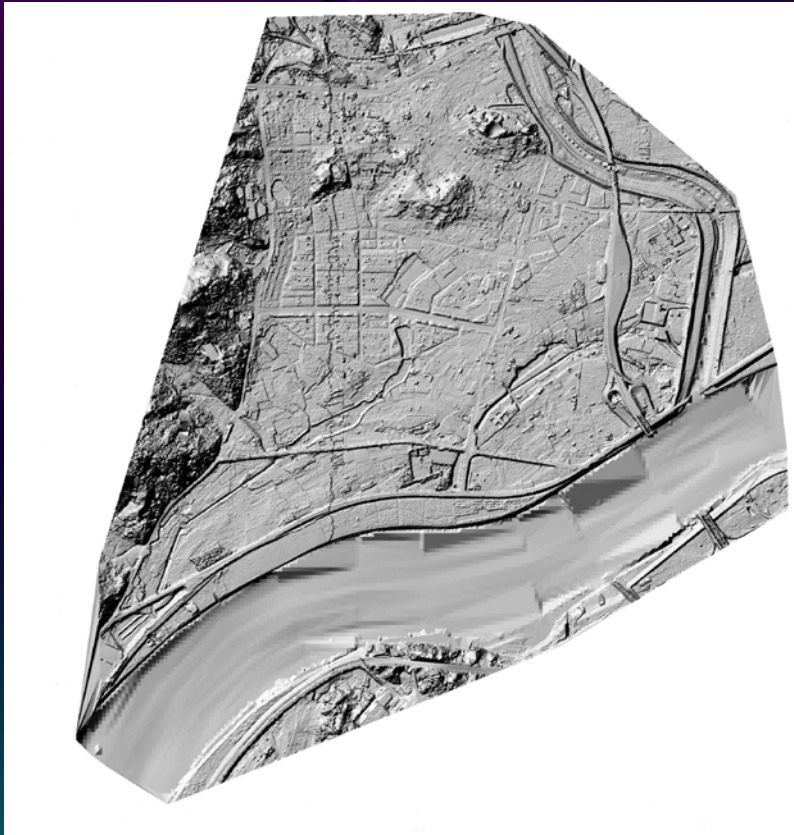


- 2.7 point in a 1m by 1m grid
- Less than 20cm error of ground elevation

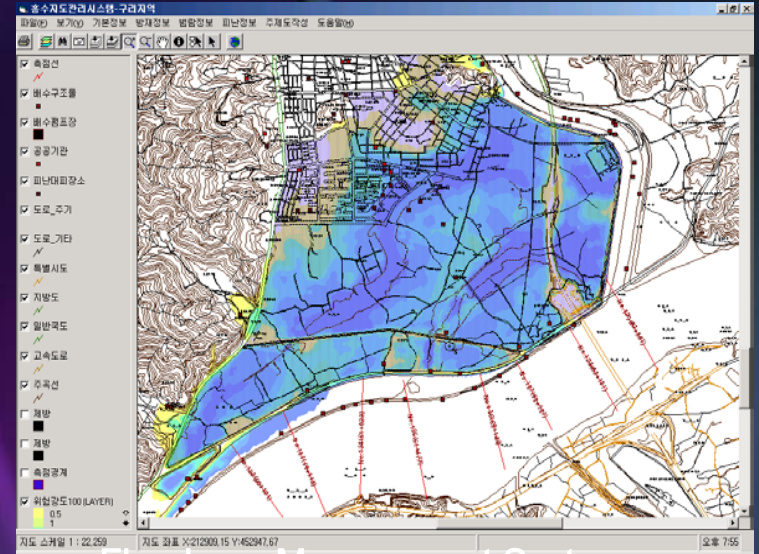
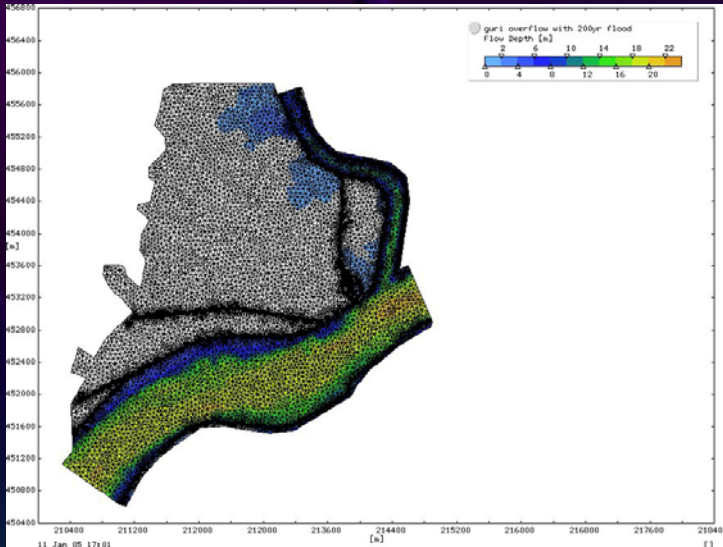
Hydrologic Analysis/ / Korea

- Estimation of design flood
 - Rainfall-Runoff Modeling for the area with short history record of flow discharge
 - Clark Unit Hydrograph Method using the using SCS Curve Number and effective rainfall method
 - Huff rainfall distribution 3rd section
 - Recurrence year of 100, 200 and 500 years

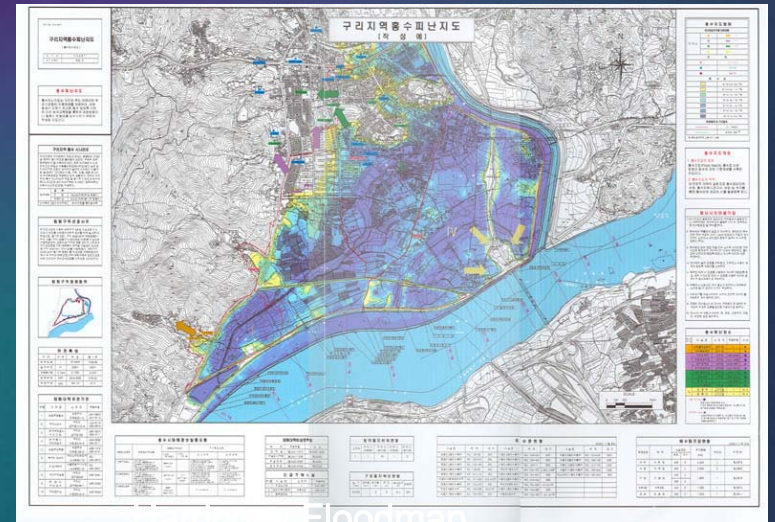
Inundation Analysis / / Korea



Post Processing/ / Korea



Floodmap Management System



Hardcopy Floodmap

Conclusion and Remarks

- **Forecast and warning of inundation to the public :**
 - **Forecast and warning of inundation to the public will be available with the development of Flood Hazard Map.**
- **Planning evacuation and relief of the residents:**
 - **The residents can learn emergency actions from the flood evacuation maps**
 - **The people in charge of disaster prevention can use the maps for planning the disposition of evacuation places and routes, and other facilities**

Conclusion and Remarks

- **Inducing appropriate land use :**
 - **In the past, most of the land use planning has been setup without consideration on the vulnerability to the flood damage .**
- **Evaluation of river works:**
 - **By analyzing the decrease of inundation damage, which can be achieved by river works, economic benefit can be assessed. Planning evacuation and relief of the residents**

Conclusion and Remarks

- **Flood insurance:**
 - **The map can be used to settle down the flood insurance for the local residents in the vulnerable areas.**
- **The activities of TC-HC encourage many member countries to develop and implement the FHM for practical purpose and provide good references.**
- **Evidence of Knowledge Sharing and Capacity Building System of TC**

Thank you for your
attention....

