Recent Developments of Water Management in Japan

-Towards comprehensive and collaborative flood control-

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Japan has been prone to a variety of water disaster (flood, tsunami).

- Meteorological conditions: typhoons and active weather-front systems
- Geographical conditions: precipitous terrains and steep rivers
- Settlement conditions: many cities on river plains.
- One-half of the population is concentrated in possible inundation areas = cir. 10% of the national land
- Climate Change : Increase of risk

Need for effective disaster law

Japan must

develop effective measures to adapt to the enhanced risks of disasters

and

ensure that these are successfully implemented.

Legal System of Water Law

- 1 Basic Laws
- (1) Basic Law on the Water Cycle
- (2) Basic Act on Ocean Policy
- 2 Flood control, Utilization of river/coast
- (1) River Act, (2) Coast Act
- 3 Water Quality
- (1) Water Pollution Control Act
- (2) Act on Prevention of Marine Pollution and Maritime Disaster

Disaster Laws concerning Water

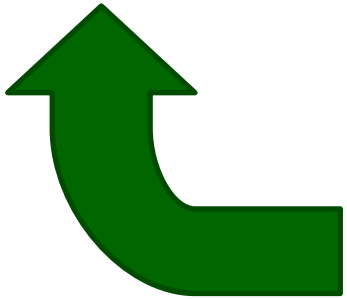
- 1 Basic laws
- (1) Disaster Countermeasures Basic Act (1961)
- (2) Basic Act for National Resilience Contributing to Preventing and Mitigating Disasters for Developing Resilience in the Lives of the Citizenry (2013)
- 2 Flood control
- (1) Act on Special Measures for Disaster Prevention in Typhoon-prone Areas (1958)
- (2) Specified Urban River Inundation Countermeasures Act (2003)
- (3) Flood Prevention Act (1949)

Policy and plan based on River Act

1 Fundamental River Management Policy for each river basin

Opinion of the River Council

2 River Improvement Plan



(1) Opinions from experts

(2) Whenever necessary, opinion of the public concerned (public hearings etc.)

Development of Water Management Policy

Isewan Typhoon in 1959

Classical policy
Hard measures approach

1 Big State liability lawsuits concerning floods

State liability concerning defects in the establishment and management of public facilities such as rivers, airports, roads.

2 Some victory cases for victims

Hard measures approach

Structural measures (infrastructure development)

Construction of dams/embankments

Need for new/innovative approach

1 Heavy destruction of nature

Conflicts/lawsuits:

Administrative authorities

vs

ENGOs/local residents

2 Demand for huge financial resources

3 Unanticipated disaster

Change of Policy

Unilateral and monothematic policy (Hard measures approach)

Comprehensive and collaborative approach

Importance of soft (nonstructural) measures

Local Initiatives for Comprehensive and Collaborative Flood Control
Example of Shiga Prefecture

Japanese Administrative System

1 No federation system

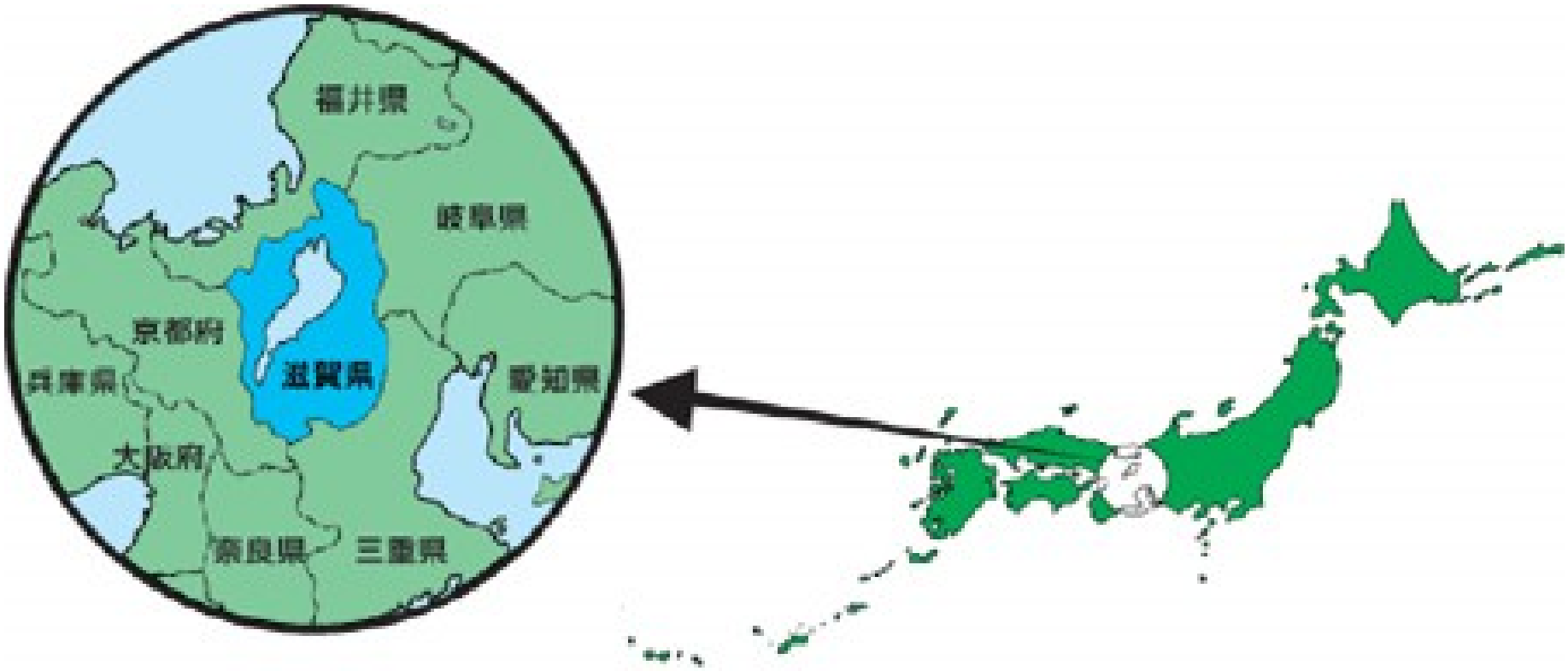
2 2 levels of local governments

- **47 prefectural governments**
- **1,746 municipal governments**

3 Local autonomy

- Local governments have the right to enact their own ordinances.
- It is possible to introduce tougher environmental standard and regulation than national laws under the certain conditions.

Shiga and Lake Biwa



Landscape of Lake Biwa

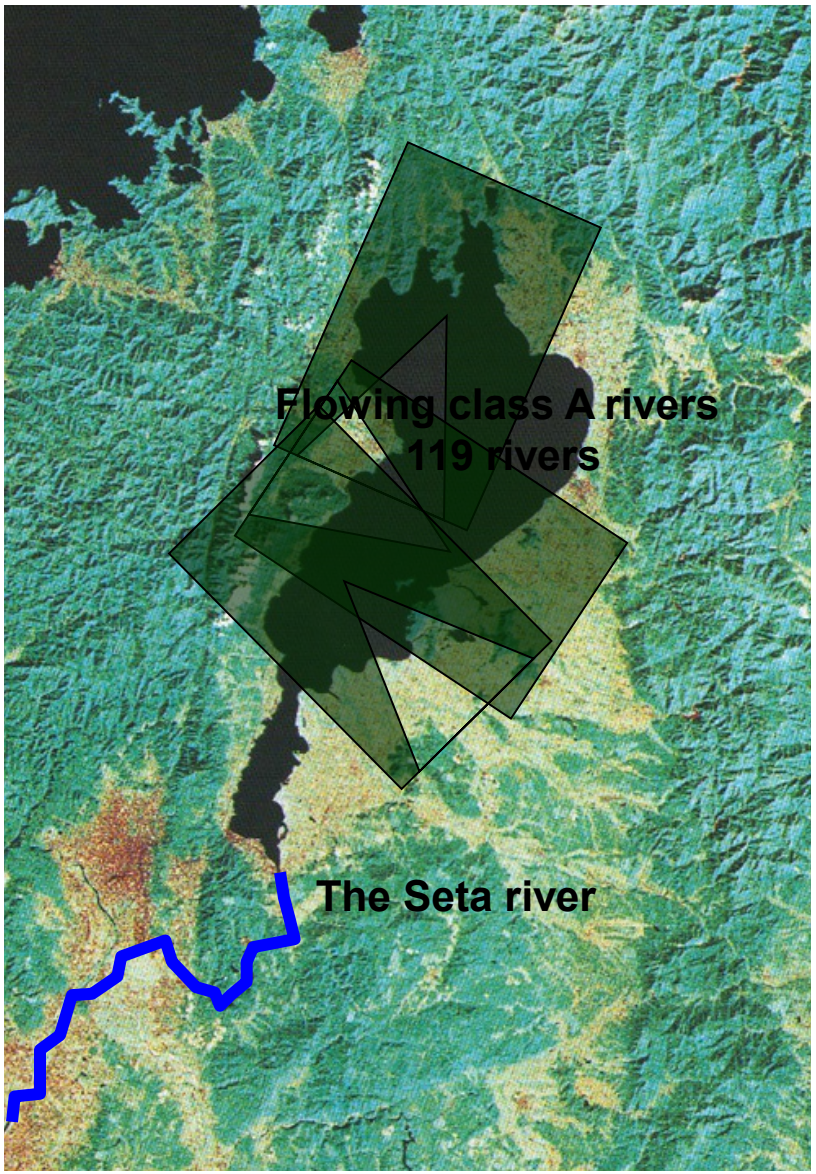
http://www.pref.shiga.lg.jp/multilingual/english/about/lake.html

Lake Biwa

- Four million years of history

  One of the world's most precious ancient lakes
- Important role in industry, in agriculture, and in supporting the lives of 14 million people
- 1,000 or more species of aquatic fauna and flora, more than 60 indigenous species

Lake Biwa and Flood



1. 119 Class A rivers flowing into the Lake Biwa
2. Most rivers: shorter than 50 km
3. Most of them are rivers with the bed above the ground

Long History of Collaborative Water Management

- **Red tide in 1977**
- **Cause of eutrophication**

  Discharge of nitrogen and phosphorous
- **Citizen's movement**

  "Stop synthetic detergent!",

  "Use soap powder"

- **Ordinance for the Prevention of Eutrophication of Lake Biwa of Shiga Prefecture (Lake Biwa Ordinance) in 1979**

Former Governor, Yoshiko KATA

Natural springs and small rivers surrounding Lake Biwa

Koi (Carp) in the river

Good sake (rice wine) needs good water

Lapse of local knowledge

- Traditional/Local knowledge

- Improvement of the infrastructure based on modern dyke techniques

Disregard of traditional/local knowledge

- Younger generation/new comers

Less interests in the river dynamics

New Motto

"Not relied on the modern dam and dyke too much"

and

"Integrate and combine the self-help, mutual aid and public aid"

Unique Flood Control Ordinance in 2014

Disaster risk map

- Analyze the risk in details
- Open access to the map

Visualize estimated depth of inundation in case of the floods

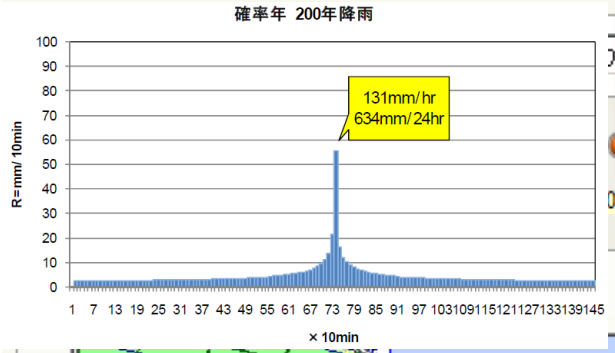
- Basic data for flood control
- Important information for individuals to know how risky their houses' location might be.
- Revised in each 5 years

“Visualization” of Disaster Risk
What will happen at Home or Work place?

SHIGA Disaster Risk Map

2013年8月13日 更新

滋賀県トップページ | 防災ポータルトップページ | 使用上の注意 | 使い方 | 用語の説明 | リンク集 | お問い合わせ

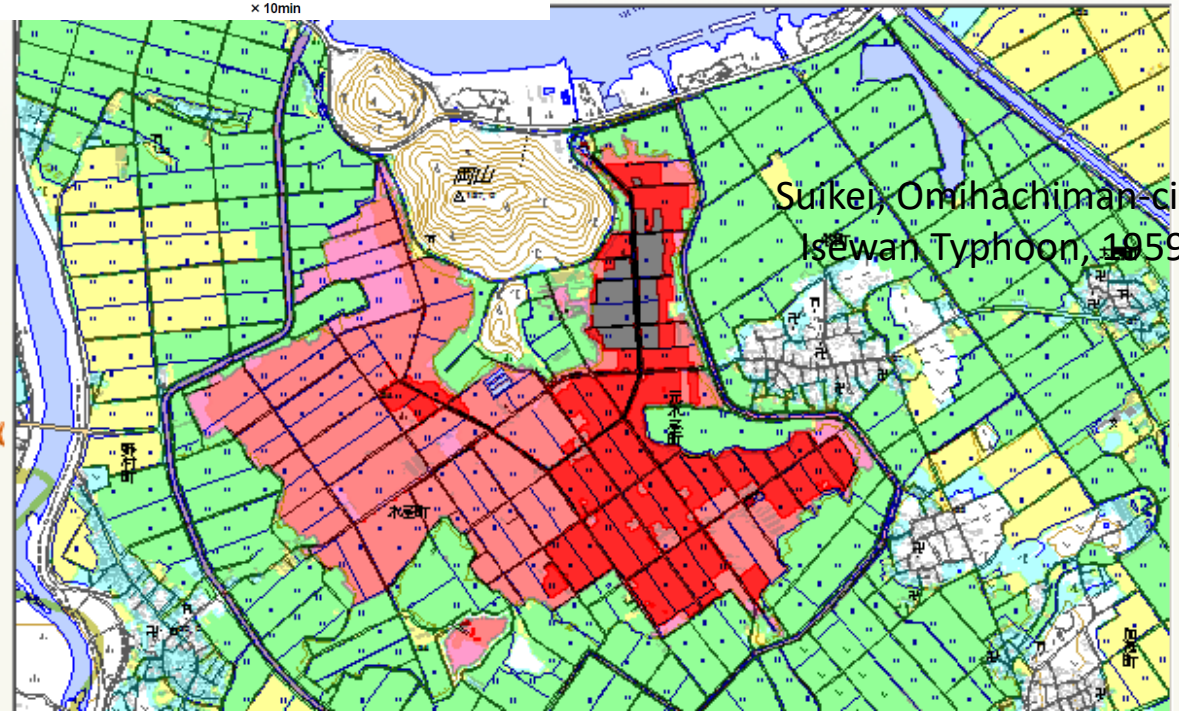


Risk of “Inundation” “Sediment disaster” “Earthquake” are available

浸水 土砂災害 地震

彦根市_100年確率
彦根市_200年確率
長浜市_10年確率
長浜市_100年確率
長浜市_200年確率
近江八幡市_10年確率
近江八幡市_100年確率
近江八幡市_200年確率
草津市_10年確率
草津市_100年確率

選択解除



Suikei, Omihachiman-city, Isewan Typhoon, 1959

大雨が降った場合に想定される浸水深さ

2F軒下までつかる程度 5m
4m
3m
1F軒下までつかる程度 2m
大人の腰までつかる程度 1m
大人のヒザまでつかる程度 0.5m

◆10年確率（10年に一度の大雨）
時間最大50mm程度の雨が降った場合

◆100年確率（100年に一度の大雨）
時間最大109mm程度の雨が降った場合

◆200年確率（200年に一度の大雨）
時間最大131mm程度の雨が降った場合

4 pillars of the Shiga Ordinance

- Draining the rising water smoothly, rapidly and safely: structural measures

+

Additional measures

- Storing water on site
- Minimizing damage
- Preparing for the flood

1 Storing water on site

<To reduce the amount of water which flows into the rivers at a time>

- Artificial reservoir as well as rainwater pit
- Broad-leave forest,
- Rice fields and sports ground
- Rainwater collectors
- Street constructed with rain permeating materials

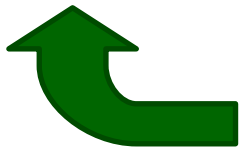
Various Storages

▲ My garden

▲The rainfall water storage facility with function as bio tope at Takatoki Primary school (Nagahama city)

2 Minimizing damage

- To regulate land use and to limit or forbid construction of buildings on high risk areas
- Designation of warning areas



Public concerned

Opinion Flood Control Commission

- New construction is limited.
- Real estate agents: to disseminate information on water disaster in business transactions

3 Preparing for the flood

- Most collaborative one
- Capacity building of all concerned
- To organize a communication system to timely provide information on flooding
- To conduct various kinds of evacuation drills and to offer support to the municipalities

Drills based on local Knowledge

We should talk about flood with children.

This bridge does not have any guardrail….

A person would die if fall from here!

Consultation Committee for Enhancing Resilience of the Community

<Members>

Prefecture, cities and towns, communities

Local residents

<Purpose>

- **To discuss disaster risks in the process of designation of warning area**
- **To promote various voluntary and community based activities**
- **To promote activities of voluntary groups and NGOs concerning the food control**

Activities of Consultation Committee

What are the challenges in Japan?

Best mix is important, however…..

- In Japan, the measures for the water disaster policy are changing.
- It does not mean that traditional ways or modern measures such as infrastructure improvement have been abandoned.
- The postmodern concept is the best mix of various measures.

Problem: How to balance hard and soft measures?

Great East Japan Earthquake

- 11 March 2011
- Compound disaster of earthquakes, tsunami and a nuclear accident
- 9.0Mw magnitude and 559 aftershocks of 5Mw or greater
- 15,889 dead, 2,598 missing

Rikuzentakata before Earthquake

http://image.search.yahoo.co.jp/search?rkf=2&ei=UTF-8&p=%E9%AB%98%E7%94%B0%E6%9D%BE%E5%8E%9F#mode%3Ddetail%26index%3D24%26st%3D894

Rikuzentakata after Earthquake

Rikuzentakata in 2013

What is the future we want?

The concept is same.

However, the concrete image is……..

Construction of Sea Wall in 2015

Construction of Sea Wall in 2016

There is another way. Miracle of Kamaishi

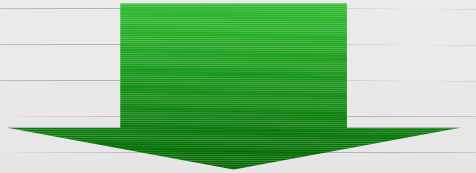
http://ikiikiikiyou.naganoblog.jp/e973028.html

Access to justice for the public on this construction project?

- Main hurdle:
  Standing for administrative litigation
  Person who has legally-protected interest
- Problem: Narrow interpretation of standing based on Shoutznormtheorie
  Many environmental cases: dismissal without prejudice
- No PIL (Public Interest Litigation) in environmental matters
- NGOs don’t have standing.

Role of Judiciary

- Access to justice
- Indispensable for securing the proper consideration of environment



- Need for expansion of standing and/or introduction of EPIL

Green Access Project promotes such process in Japan

http://greenaccess.law.osaka-u.ac.jp/

Thank you for your attention!
GRACIAS DE CORAZÓN