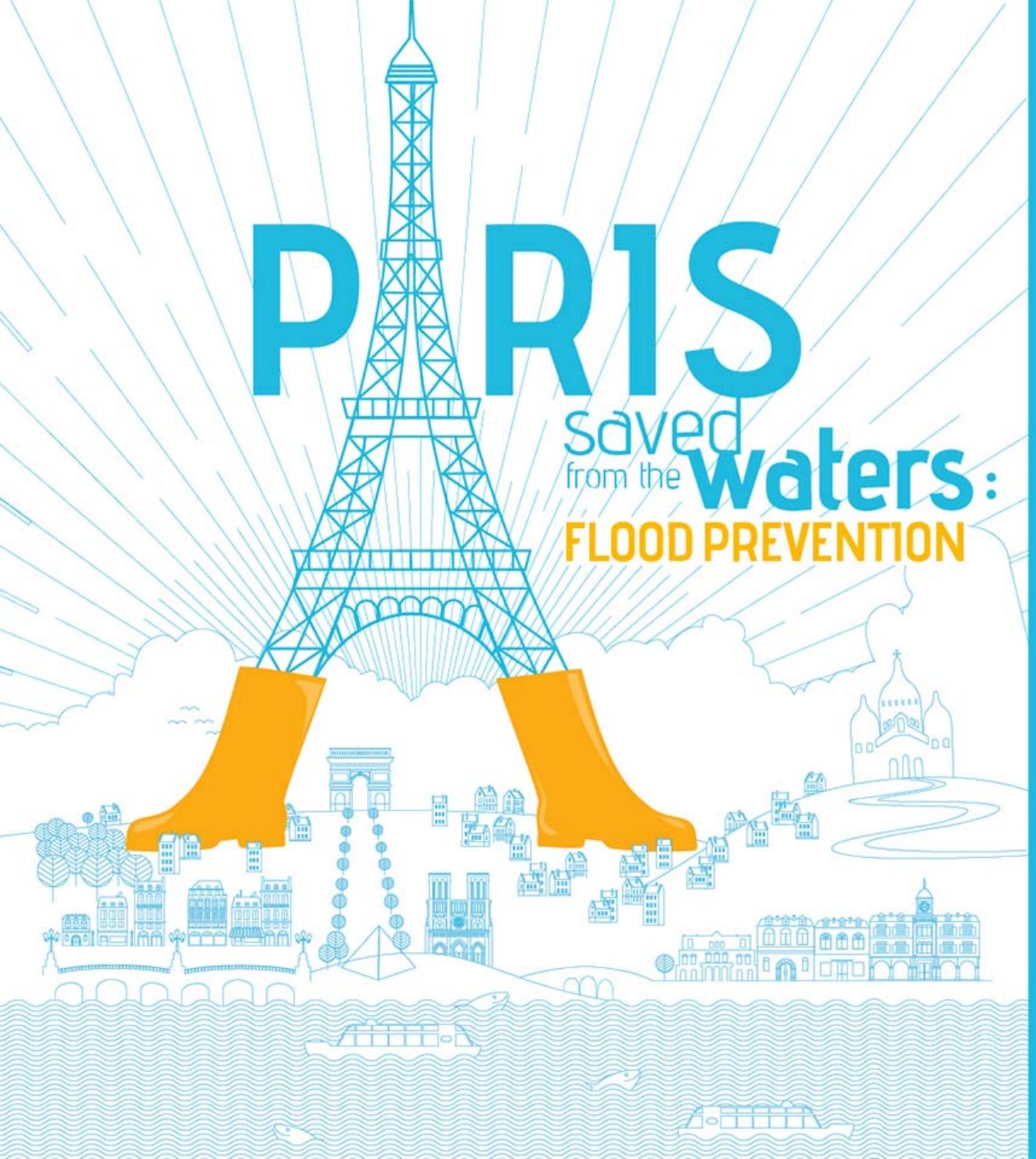

Side event
Sendai - Japan

Monday 16 March 2015
Guest speaker : Professor Takeuchi
Tohoku University - room B104 - 1:00 pm / 4:00 pm

「パリを 水害から 守る
洪水災害 予防対策」

UN World Conference on
Disaster Risk Reduction
2015 Sendai Japan

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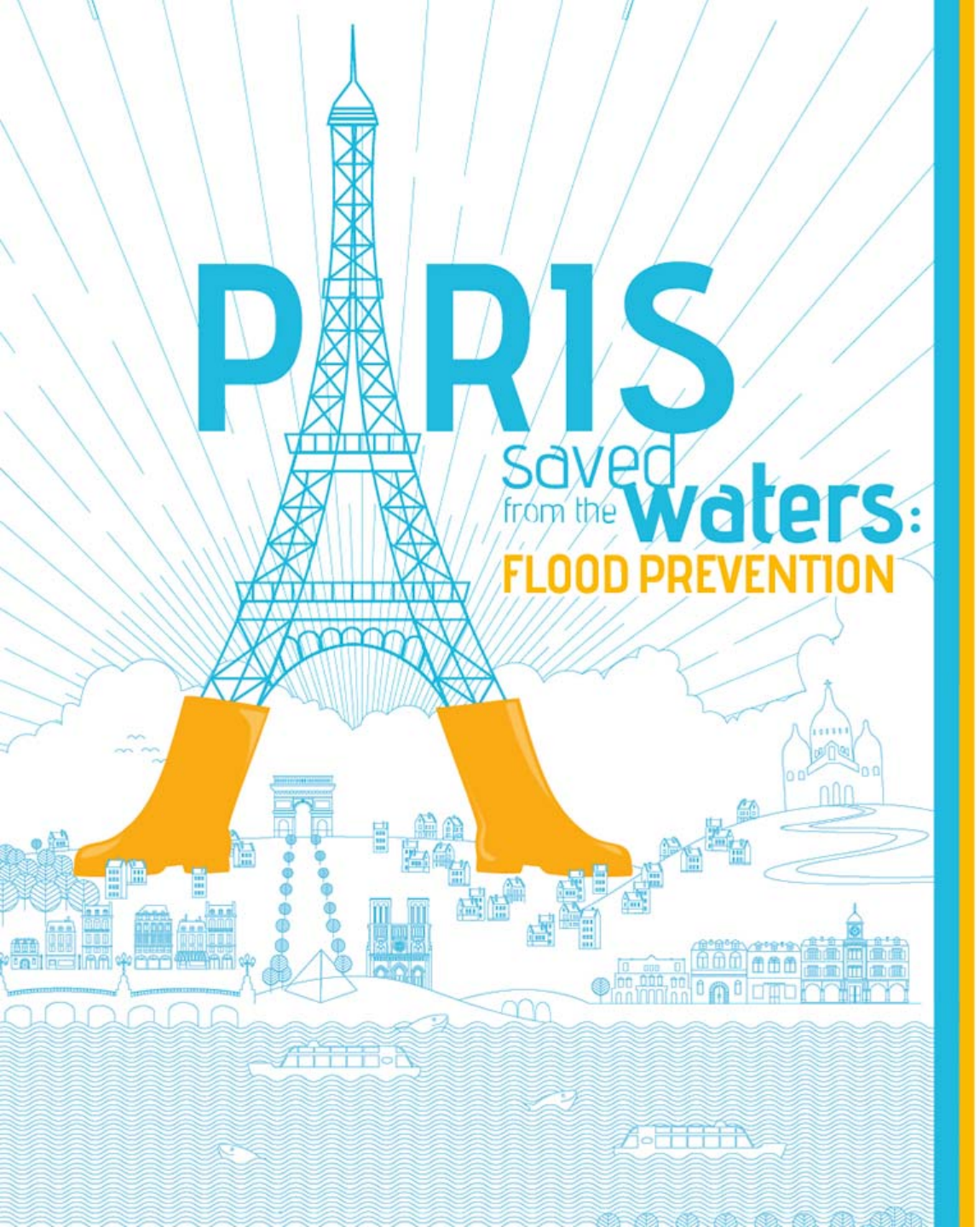
RÉPUBLIQUE FRANÇAISE
Ministère
de l'Écologie,
du Développement
durable
et de l'Énergie



Part 1

Understanding and state of play

Bérangère BASIN

French Ministry of Ecology

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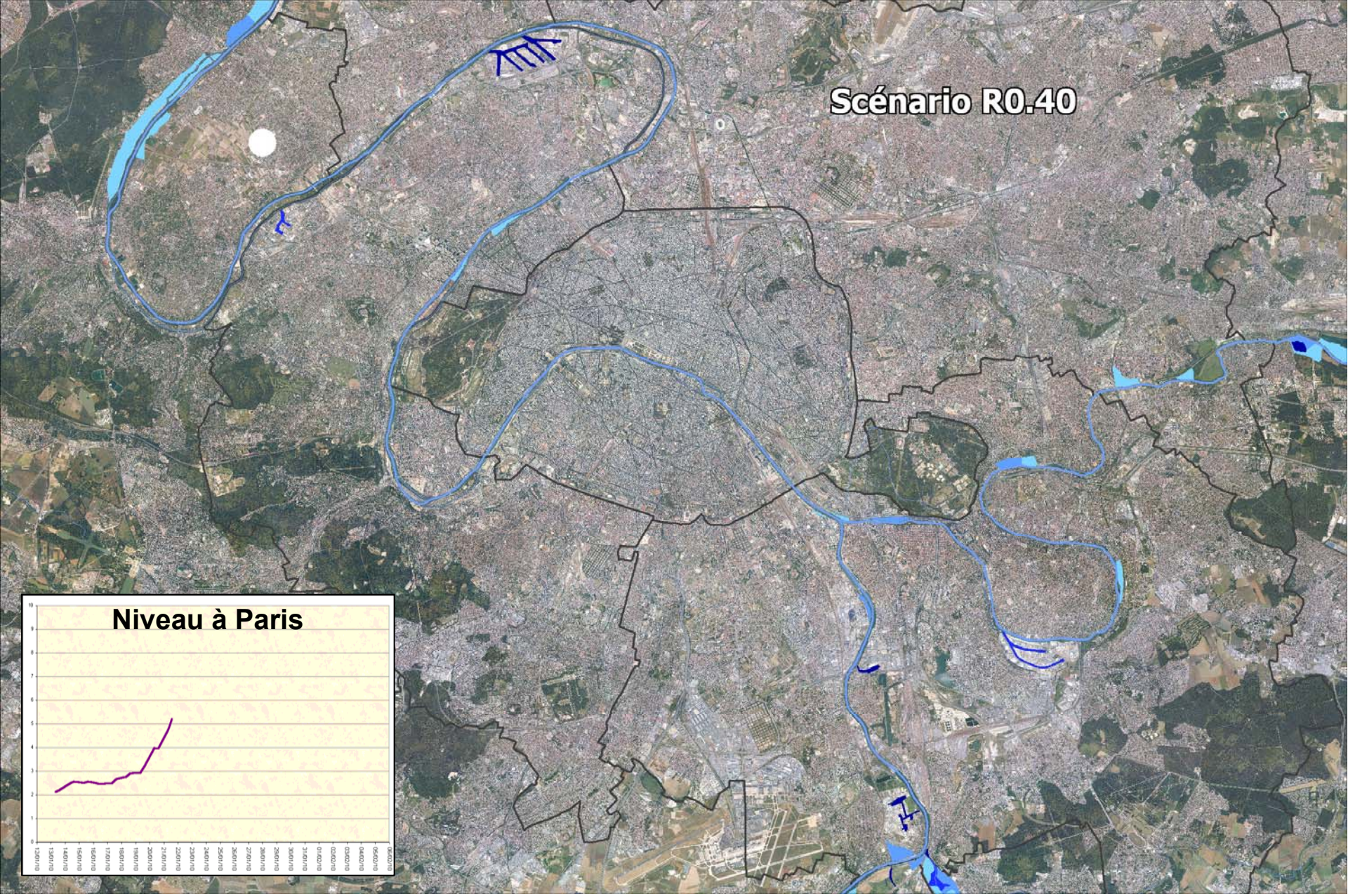
Ministère de l'Écologie, du Développement durable et de l'Énergie

PARIS AUSTERLITZ FLOOD MARKERS

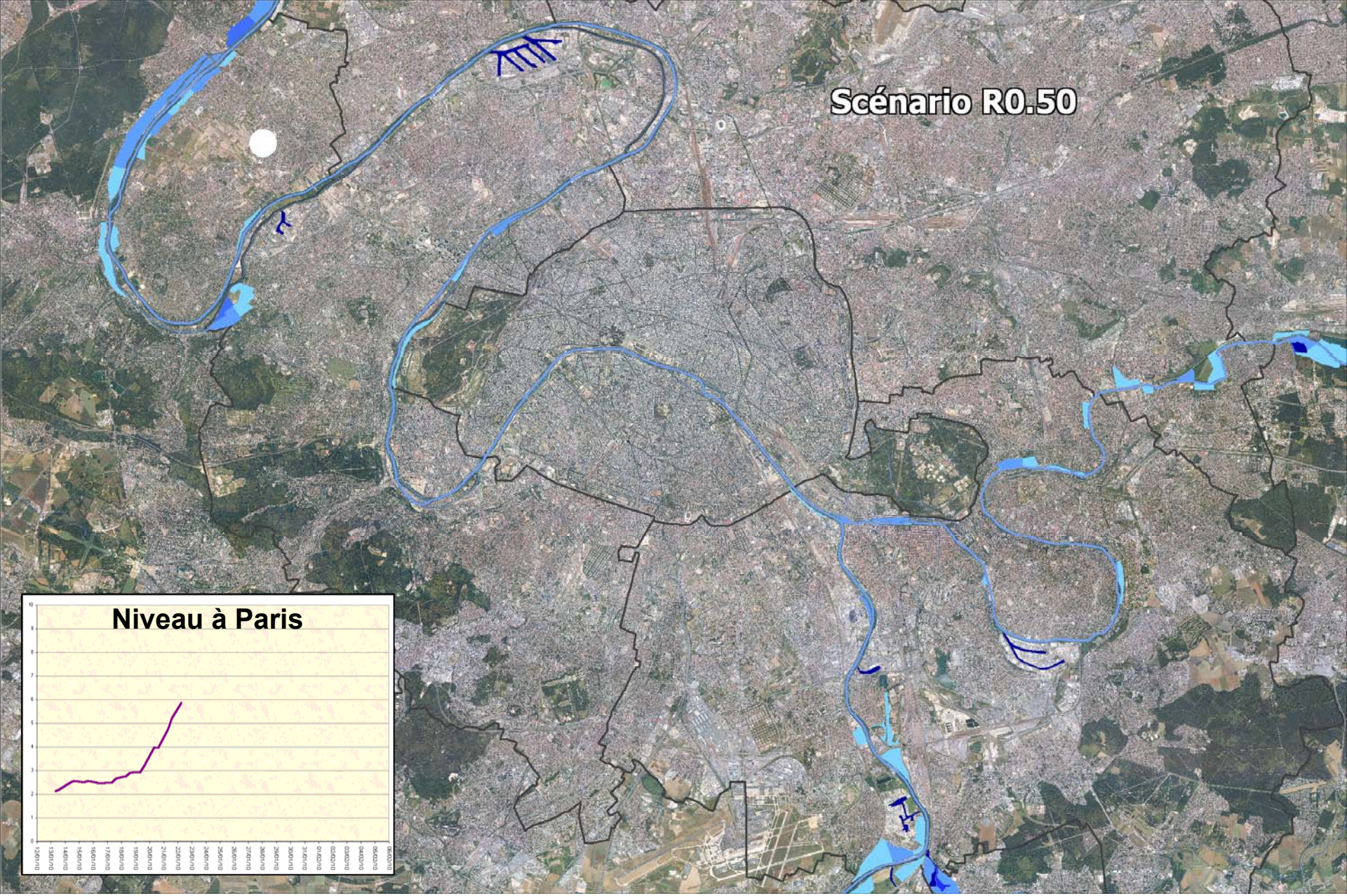
The statue on the right is an historical flood marker in Paris located at the Alma bridge

		Heigth
VIGILANCE ROUGE	8.62 meters (m) - flood of 1910	9.00
		8.50
	Power outages occur 8m	8.00
	7.32 m – flood of 1924	7.50
	Some districts beginn to be flooded (12è, 13è, 4è, 7è, 15è) 7.3m	
	7.14 m – flood of 1955	7.00
	Telephone communications cut off 7m	
VIGILANCE ORANGE	6.85 m – flood of 1945	6.50
	The roads on the banks of the Seine are closed 6.18m	
	Some metro stations are closed 6.1m	
	6.18 m – flood of 1982	6.00
	The RER C beginns to be flooded 6m	
	Basements beginn to be flooded 5.5m	5.50
VIGILANCE JAUNE	5.39 m – flood of 1988	
	5.21 m – floods of 2000 and 2001	5.00
		4.50
	Navigation and harbours activities are stopped 4.3m	
	4.13 m – flood of 2003	4.00
		3.50
	The roads on the banks of the Seine beginn to be closed 3.3m	
		3.00
		2.50
	Docks beginn to be flooded 2.4m	
		2.00
		1.50
VIGILANCE VERTE		1.00
	Water retained as usual by the Suresnes dam 0.82m	
		0.50
		0.00

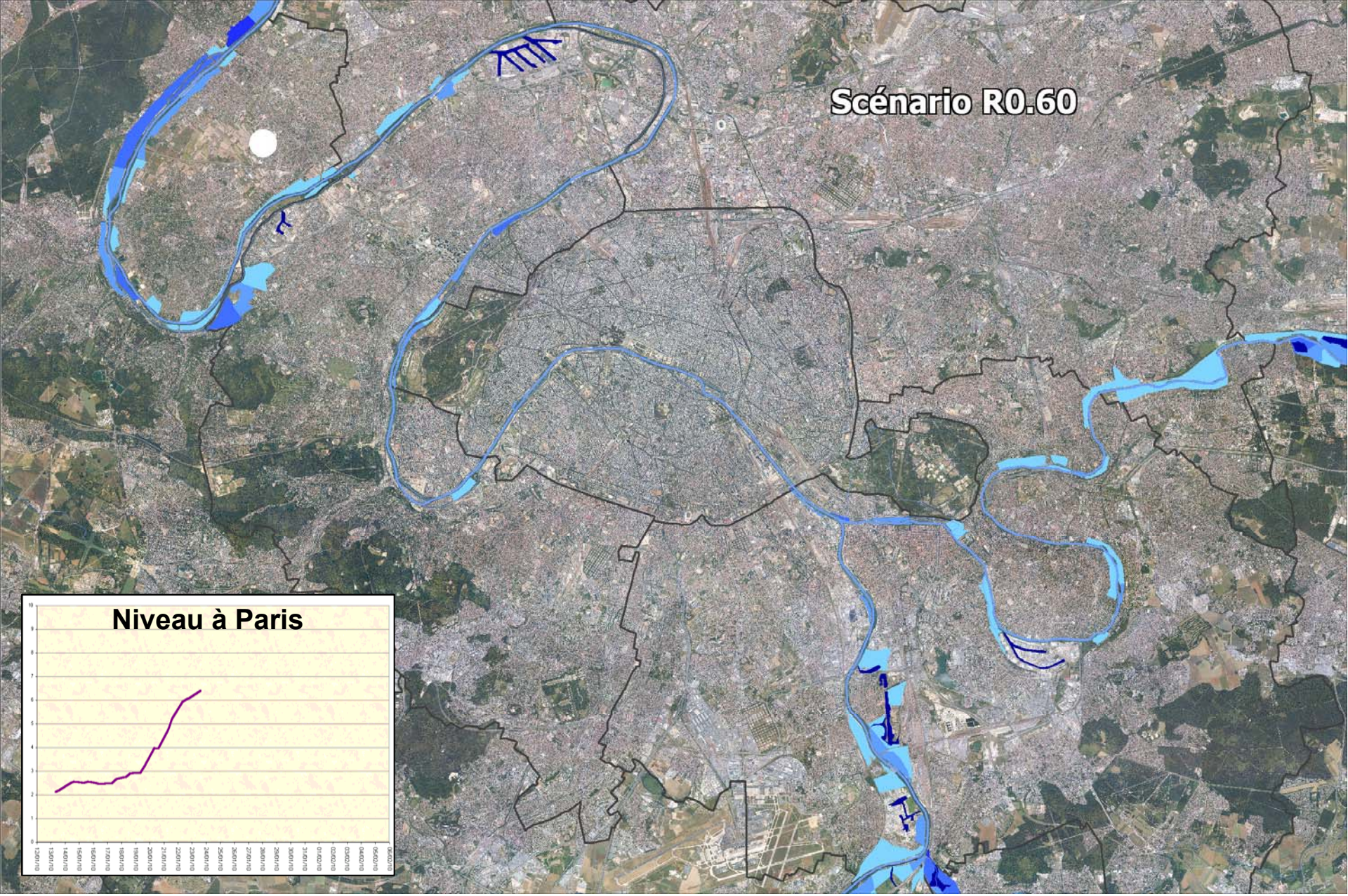
Le zouave du Pont de l'Alma est un indicateur historique du niveau des crues à Paris.Compte tenu des modifications qui l'ont affecté au cours des aménagements du Pont de l'Alma, il ne constitue qu'un repère indicatif.



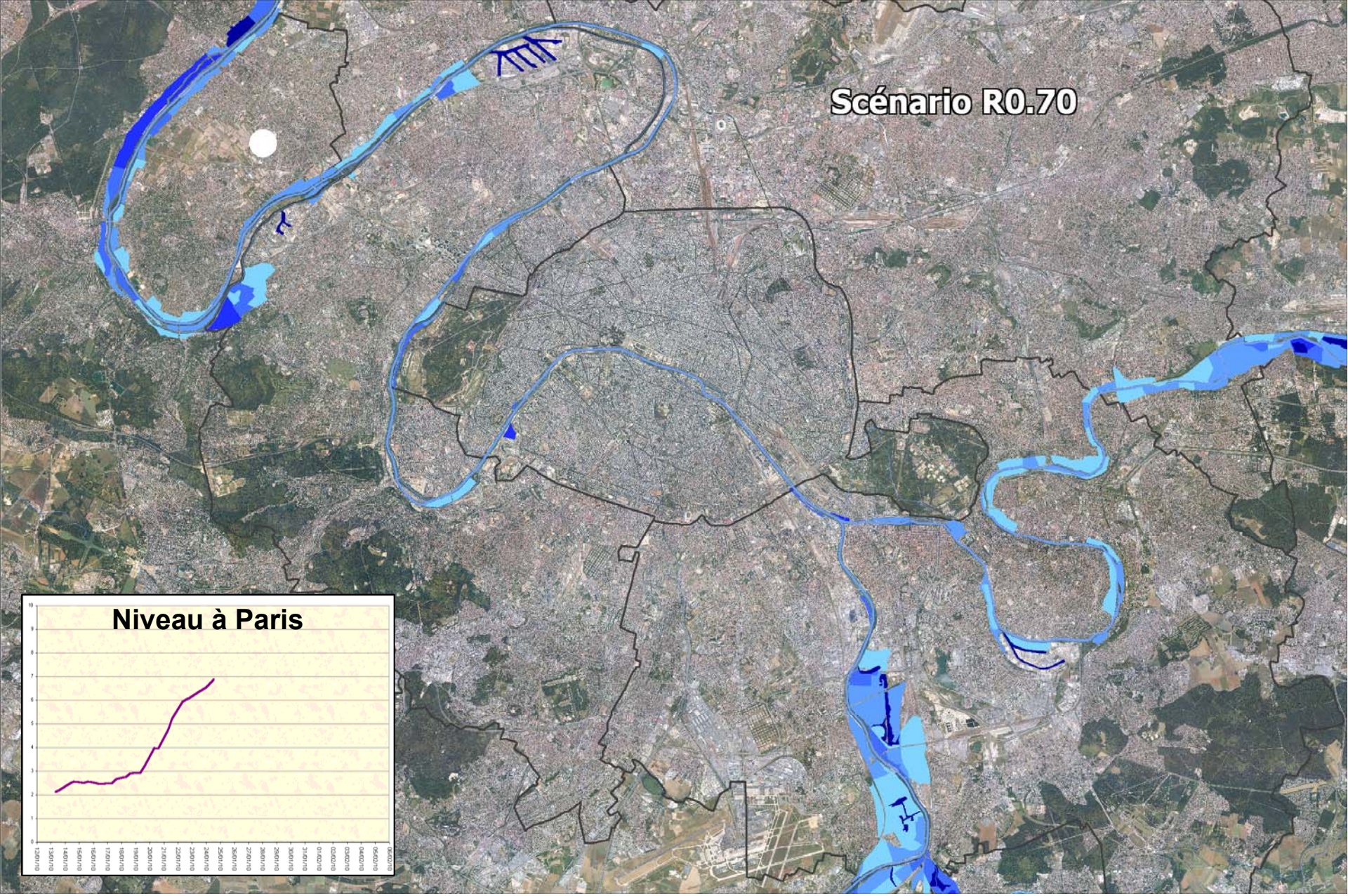
H < 0,5 m | 0,5 - 1m | 1 - 1,5 m | 1,5 – 2m | > 2m

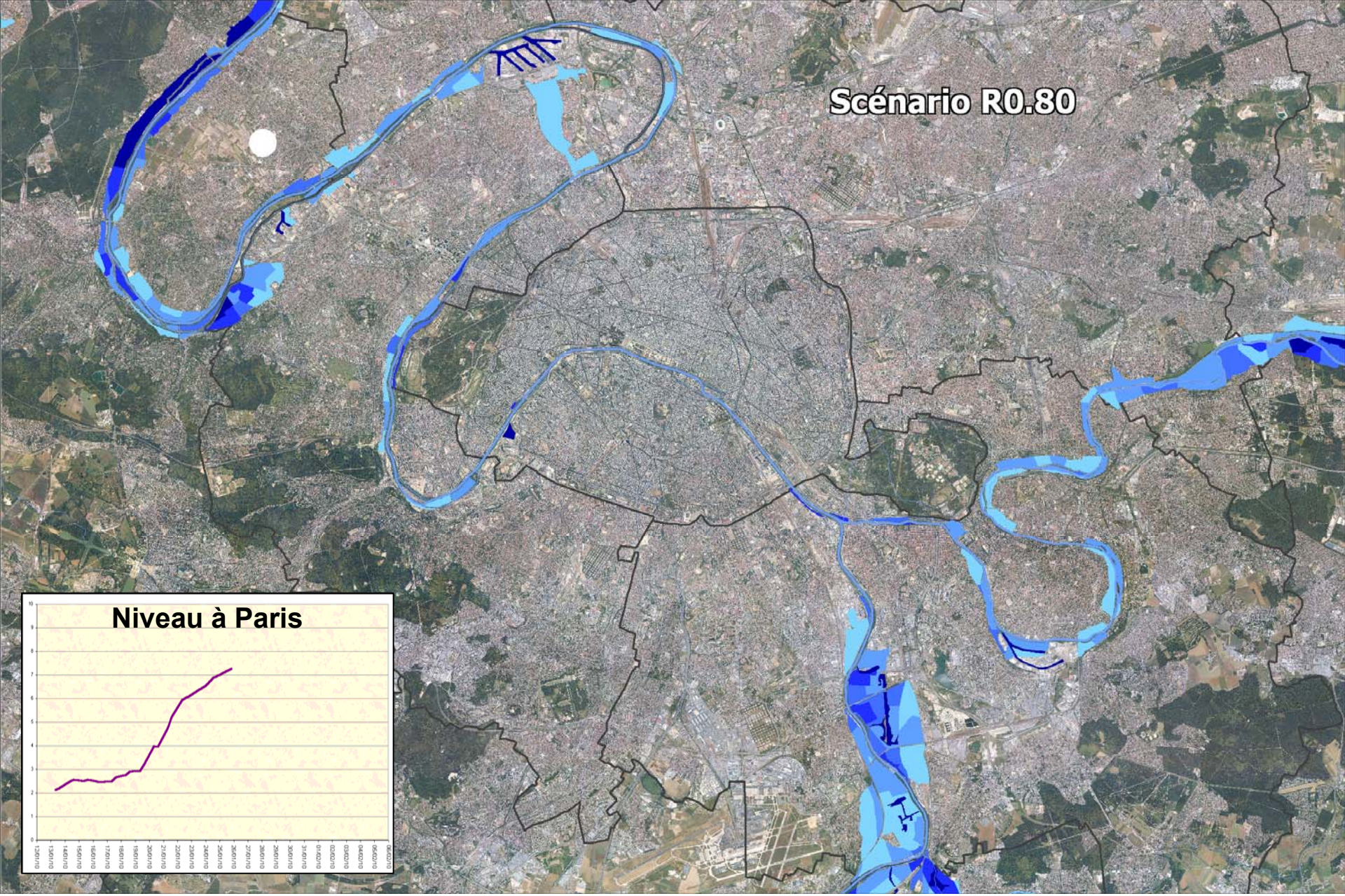


H < 0,5 m | 0,5 - 1m | 1 - 1,5 m | 1,5 – 2m | > 2m

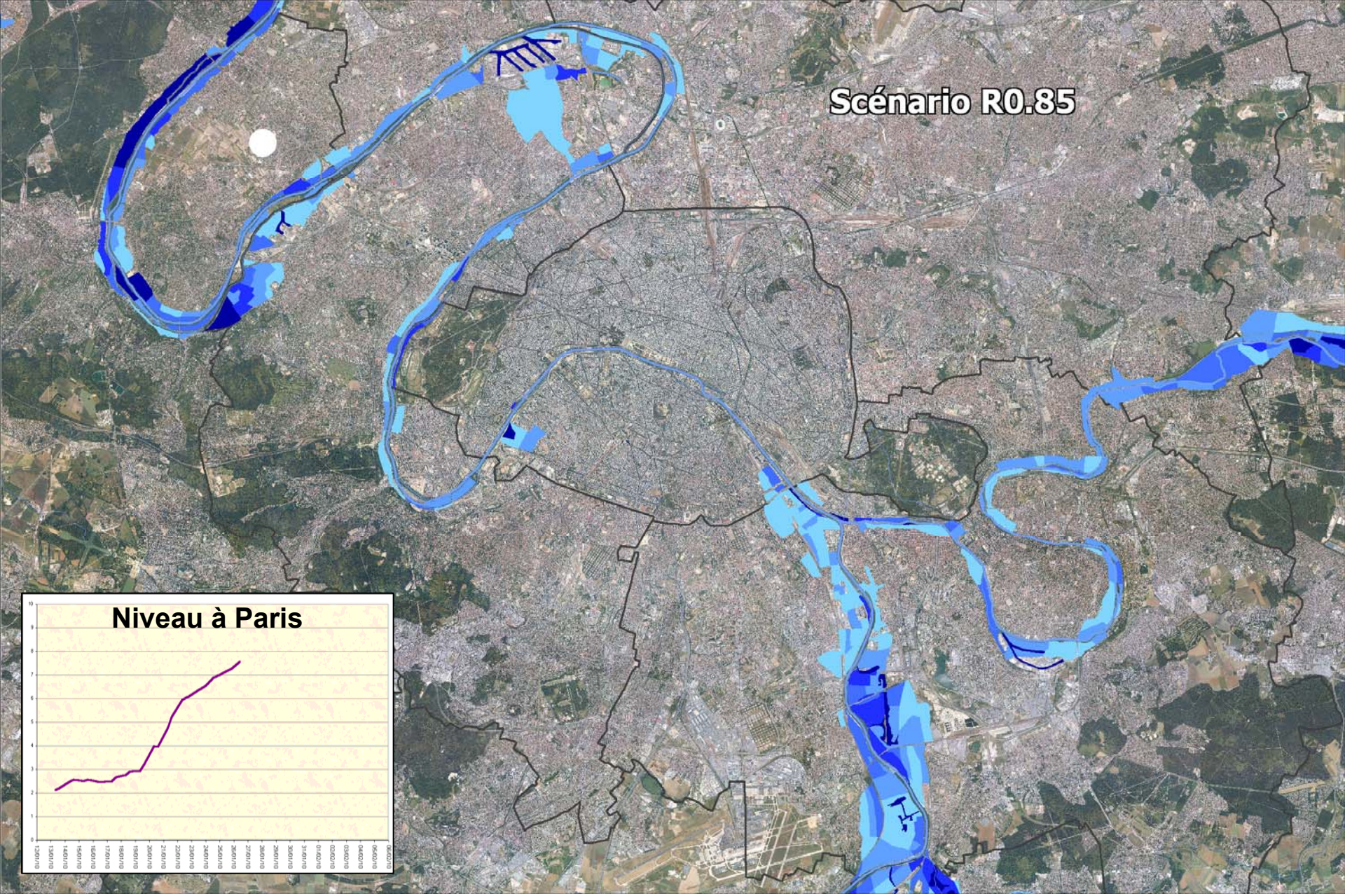


H < 0,5 m | 0,5 - 1m | 1 - 1,5 m | 1,5 – 2m | > 2m

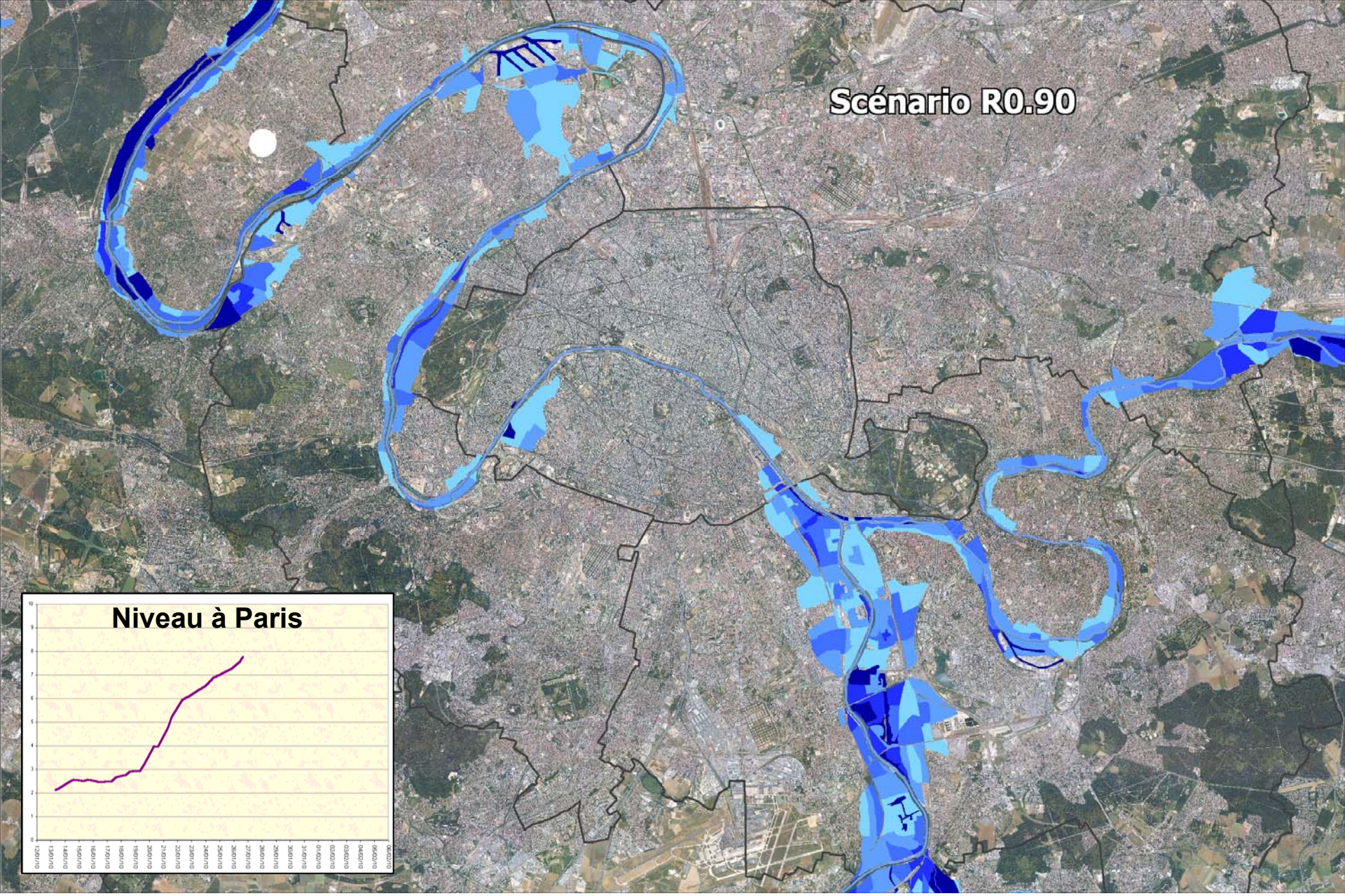

Scénario R0.70
Niveau à Paris
H < 0,5 m
0,5 - 1m
1 - 1,5 m
1,5 – 2m
> 2m



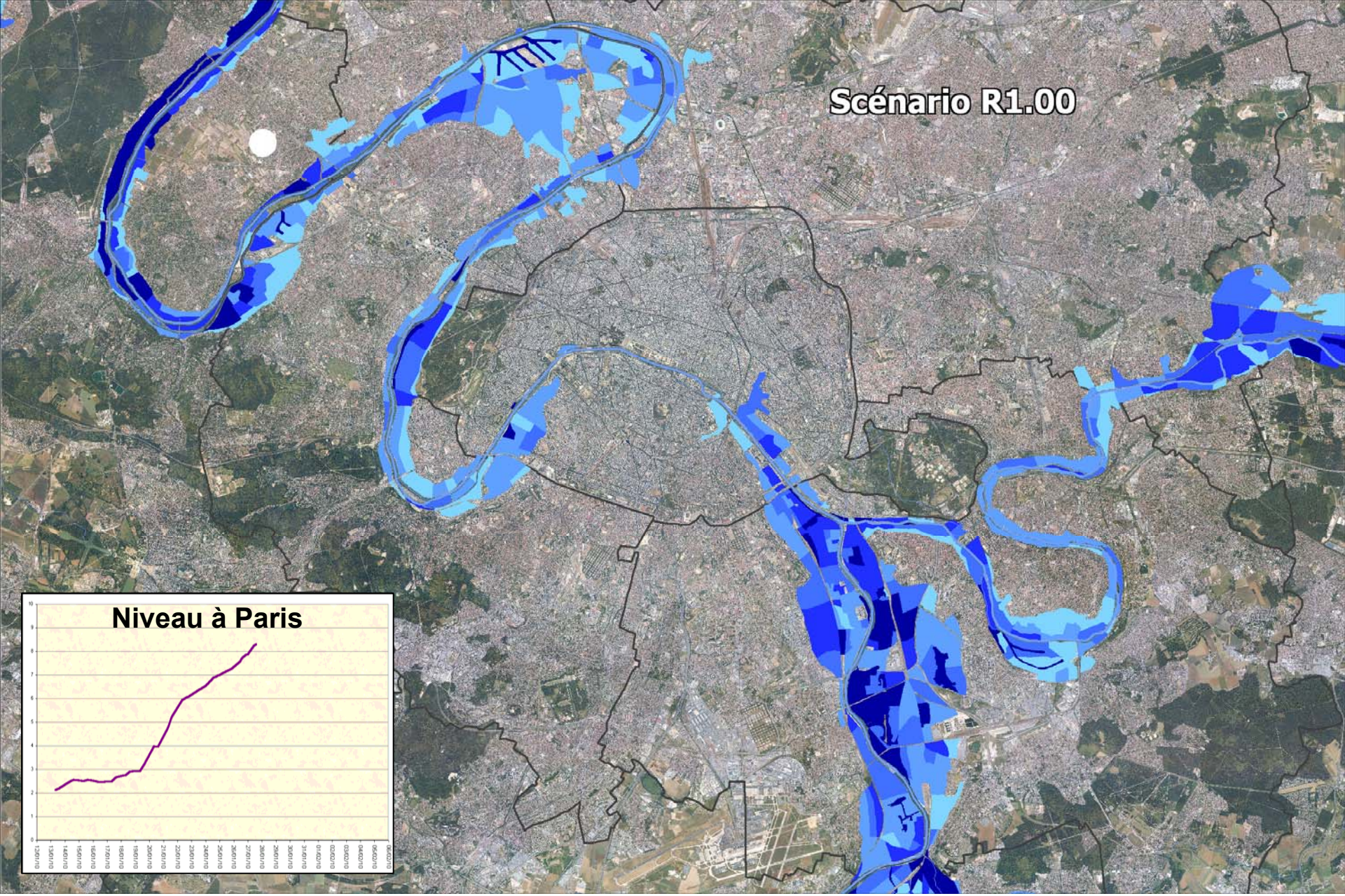
H < 0,5 m | 0,5 - 1m | 1 - 1,5 m | 1,5 – 2m | > 2m



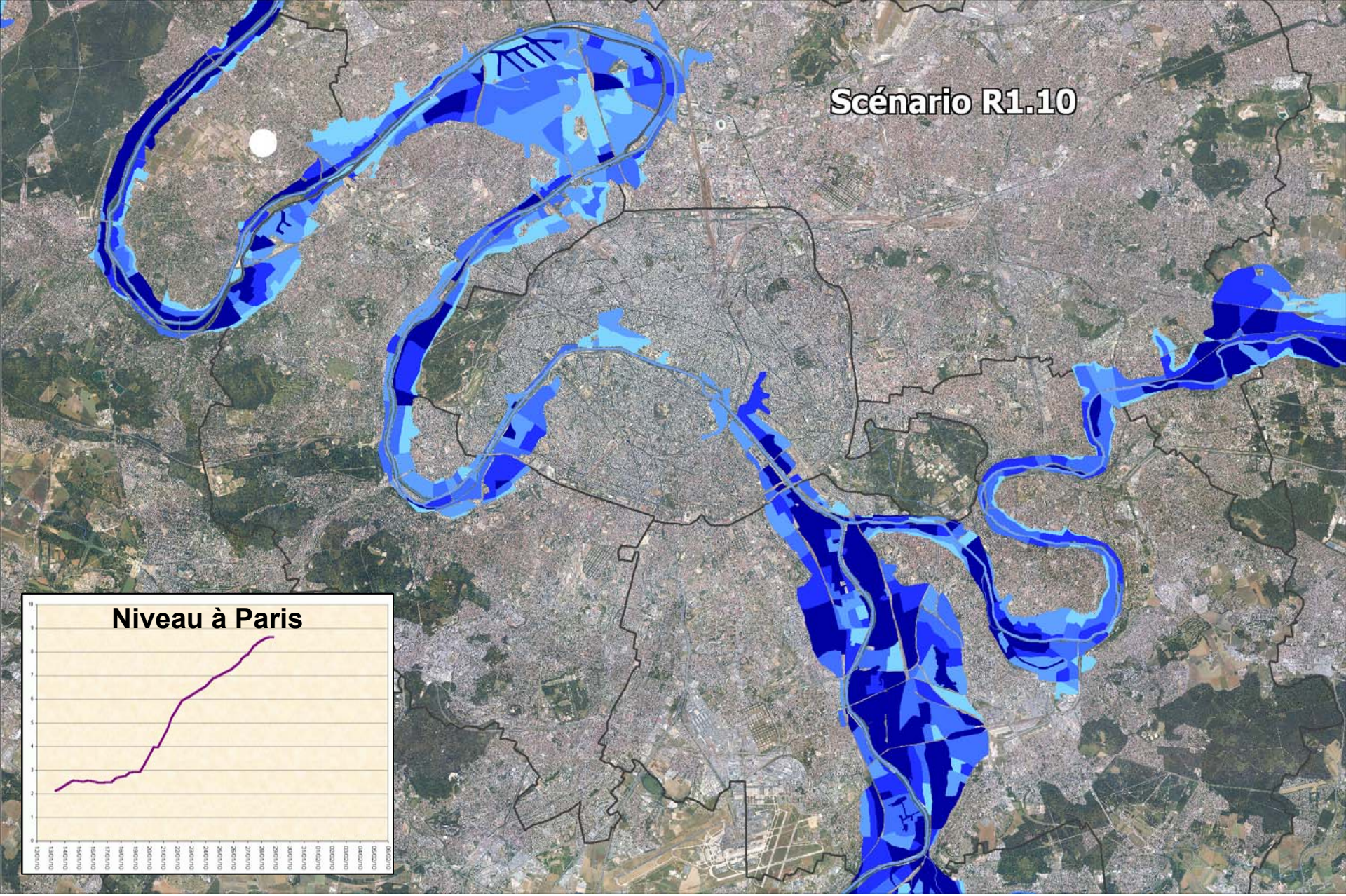
H < 0,5 m | 0,5 - 1m | 1 - 1,5 m | 1,5 – 2m | > 2m

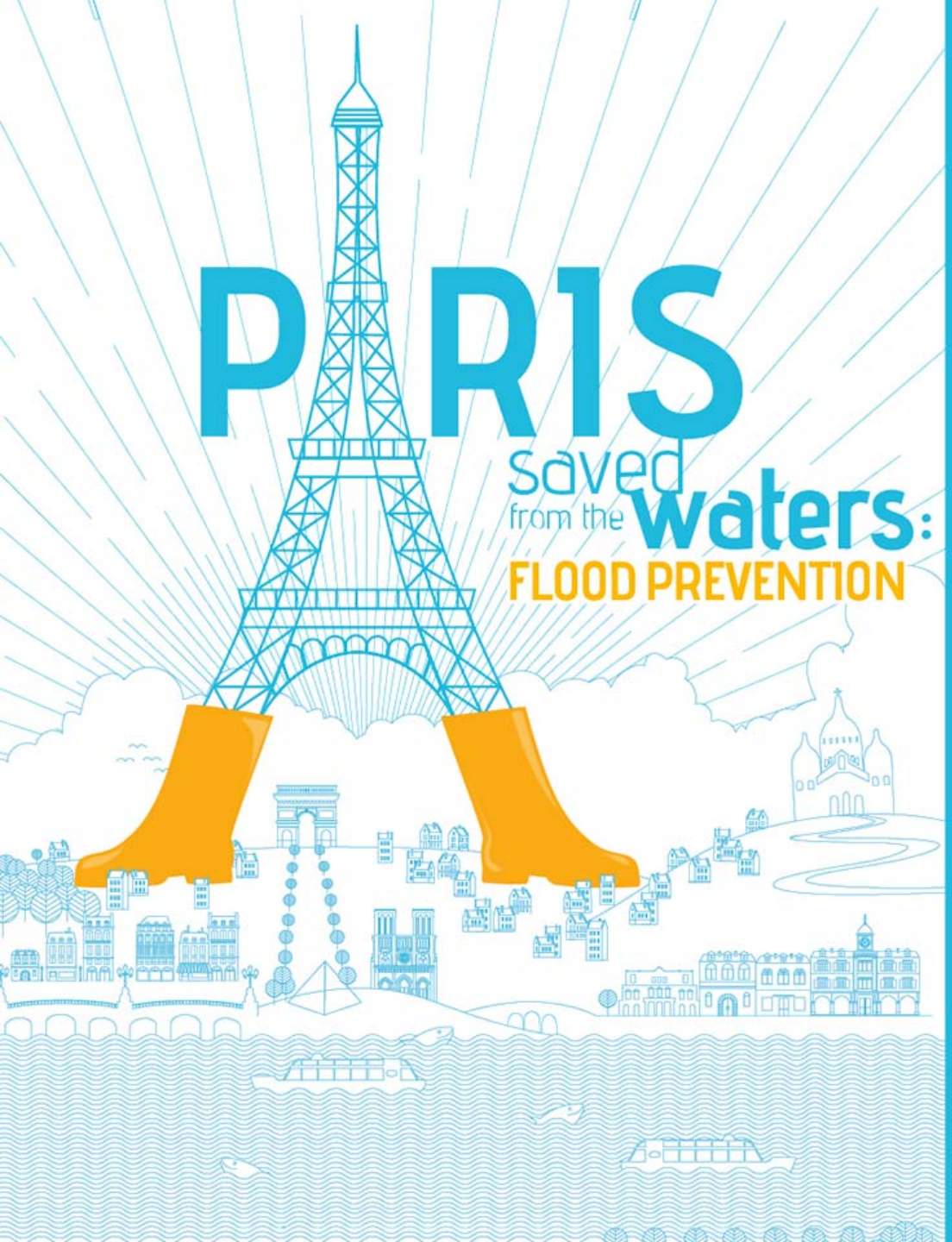


H < 0,5 m | 0,5 - 1m | 1 - 1,5 m | 1,5 – 2m | > 2m



H < 0,5 m | 0,5 - 1m | 1 - 1,5 m | 1,5 – 2m | > 2m


Scénario R1.10
Niveau à Paris
H < 0,5 m
0,5 - 1m
1 - 1,5 m
1,5 – 2m
> 2m



OECD Review on the risk of flood from the Seine river in Paris

Charles Baubion

High-Level Risk Forum
OECD

UN World Conference on Disaster Risk Reduction
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Ministère de l'Écologie, du Développement durable et de l'Énergie

Water disasters in large cities

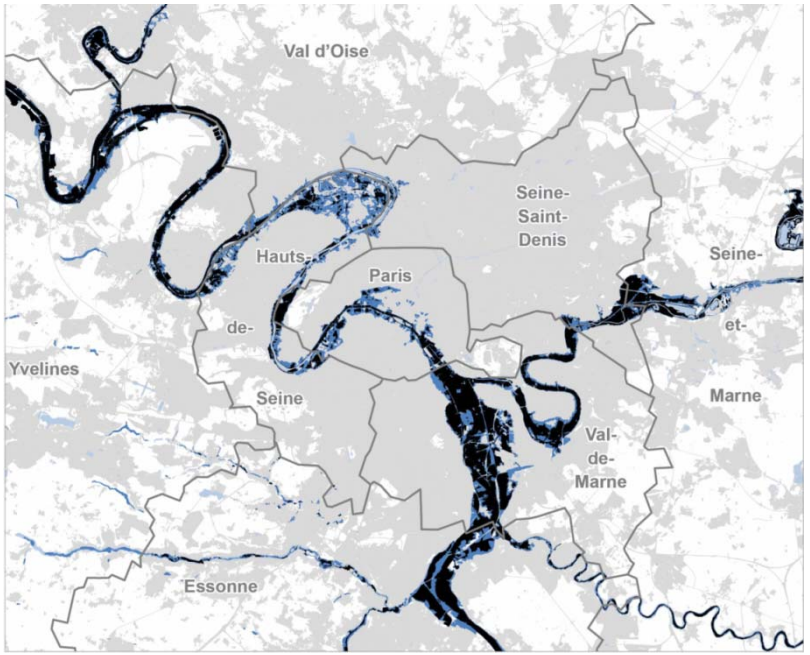
Cities or country	Year	River or event	Return period	Damages and losses (Bio €)
Prague	2002	Vlatva	500 y	3,1
New-Orleans	2005	Katrina floods		90
UK	2007	Severn & Thames	200 y	4,6
Brisbane	2011	Brisbane	120 y	11,7
Bangkok	2011	Chao Phraya	> 100 y	36,1
New-York	2012	Sandy floods	400-800 y	14,8
Central Europe	2013	Danube & Elbe	100 y	12,1

New-Orleans after Katrina 2005

Source: Romain Huret, 2010

What about Paris area?

Economic impacts of a major flood today ?



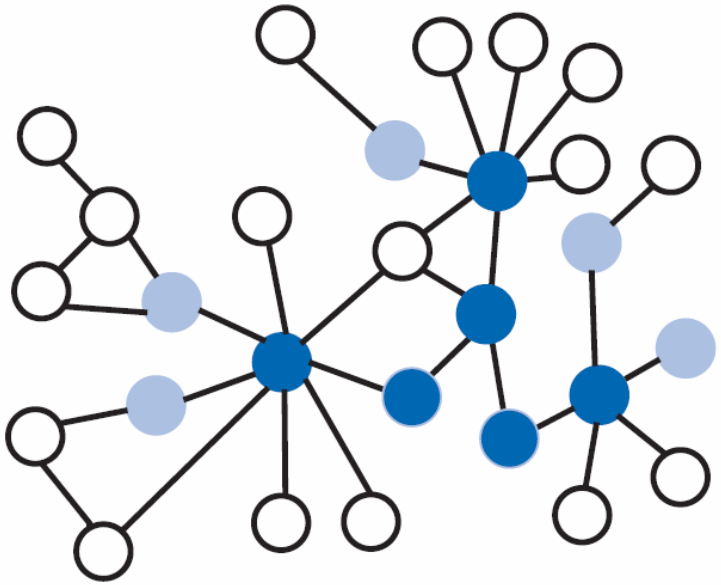
Major assets at risks

Protection levels in major OECD metropolitan areas

City	Protection levels	Area protected
Paris area	30-50 years 100 years	Paris sub-urban area Paris
Frankfort Cologne Oslo	100 years 200 years	Urban and residential areas New developments / critical infrastructures
Tokyo	200 years	Fluvial and coastal areas
London Netherlands	1 000 years 10 000 years	Coastal areas (tidal floods and storm surges)

Assessing the impacts and its multiple dimensions

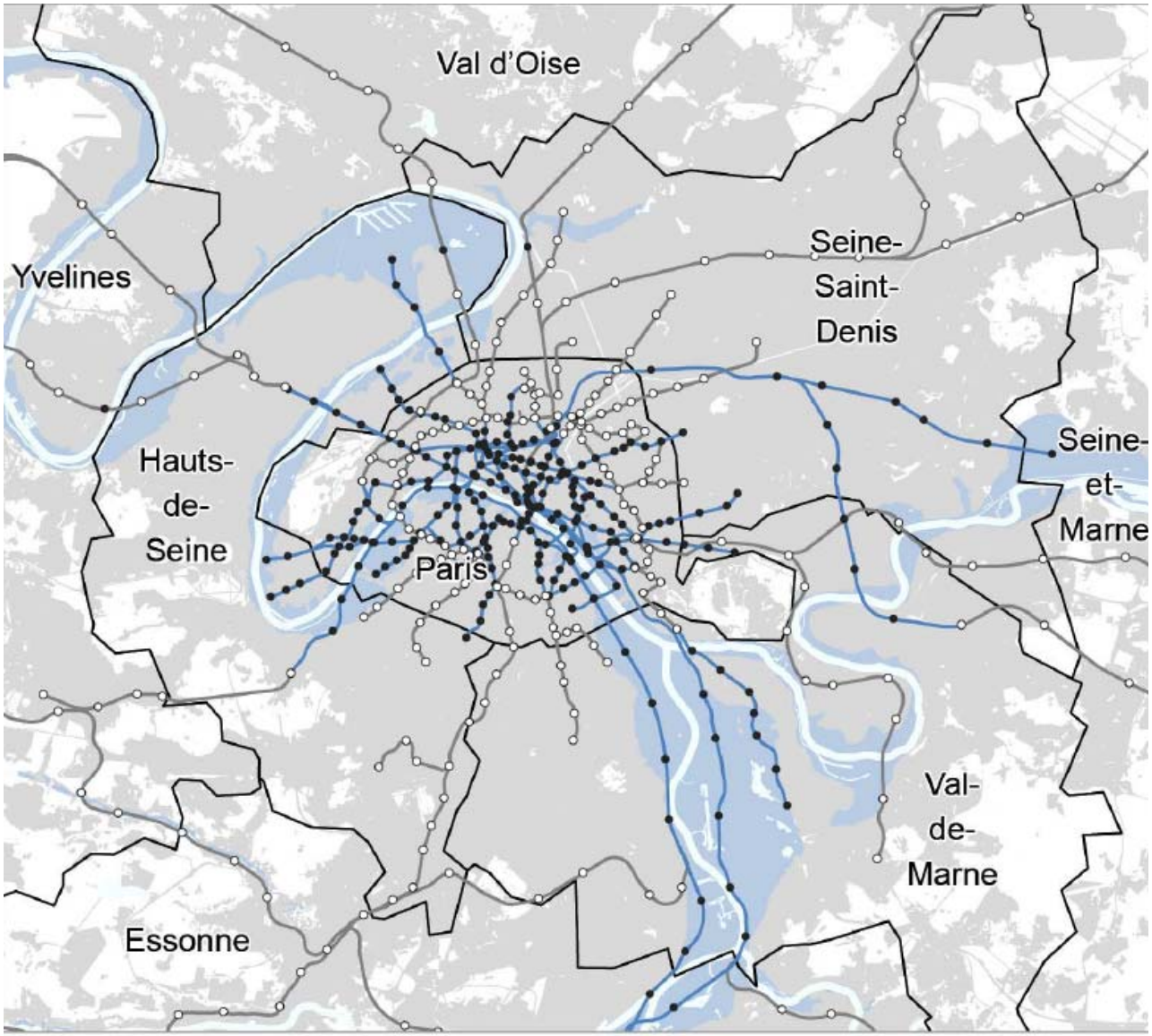
- Impacts on well-being, functioning of the institutions and companies
- Impacts on the environment and the cultural heritage



- **Cascading impacts** linked to network interruptions
- **Macro-economic impacts**: Ile-de-France represents 30 % of the national french GDP

Impacts on critical networks : Electricity

Impacts on critical networks : Transportation



3 scenarios around the historic 1910 flood

	Scenario 1	Scenario 2	Scenario 3
Discharge	80 %	100 %	115 %
Duration	1 week	2 weeks	1 month
Population affected	100 000	600 000	1 000 000
Impacts on networks	Partial disturbance	Large disturbance	Global disturbance
Disturbance to economy	2 weeks	1-2 month	2-5 month

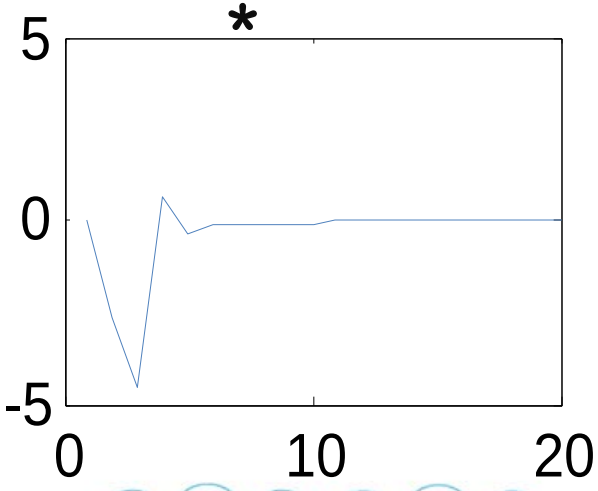
Openness and transparency

Micro / Macro economic impact

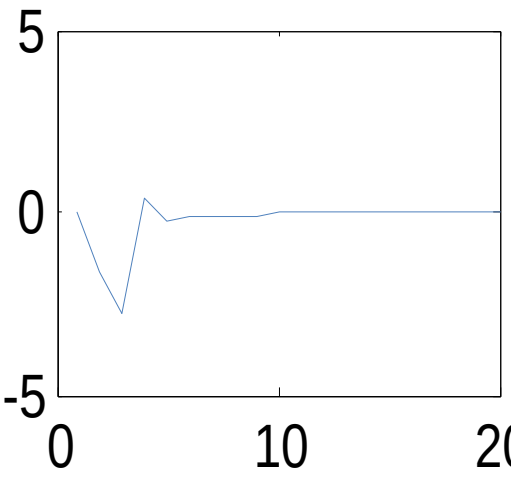
- Public and private capital destruction
- Business losses

⇨ Macroeconomic effects

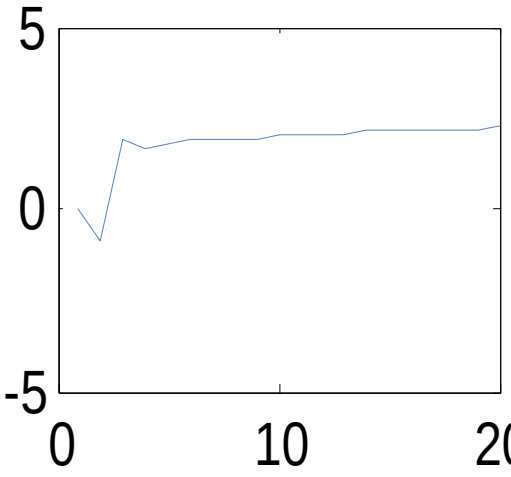
GDP*



Jobs*



Public debt*



* Impacts are measured in % compared to the initial state on a quarterly basis

Key messages

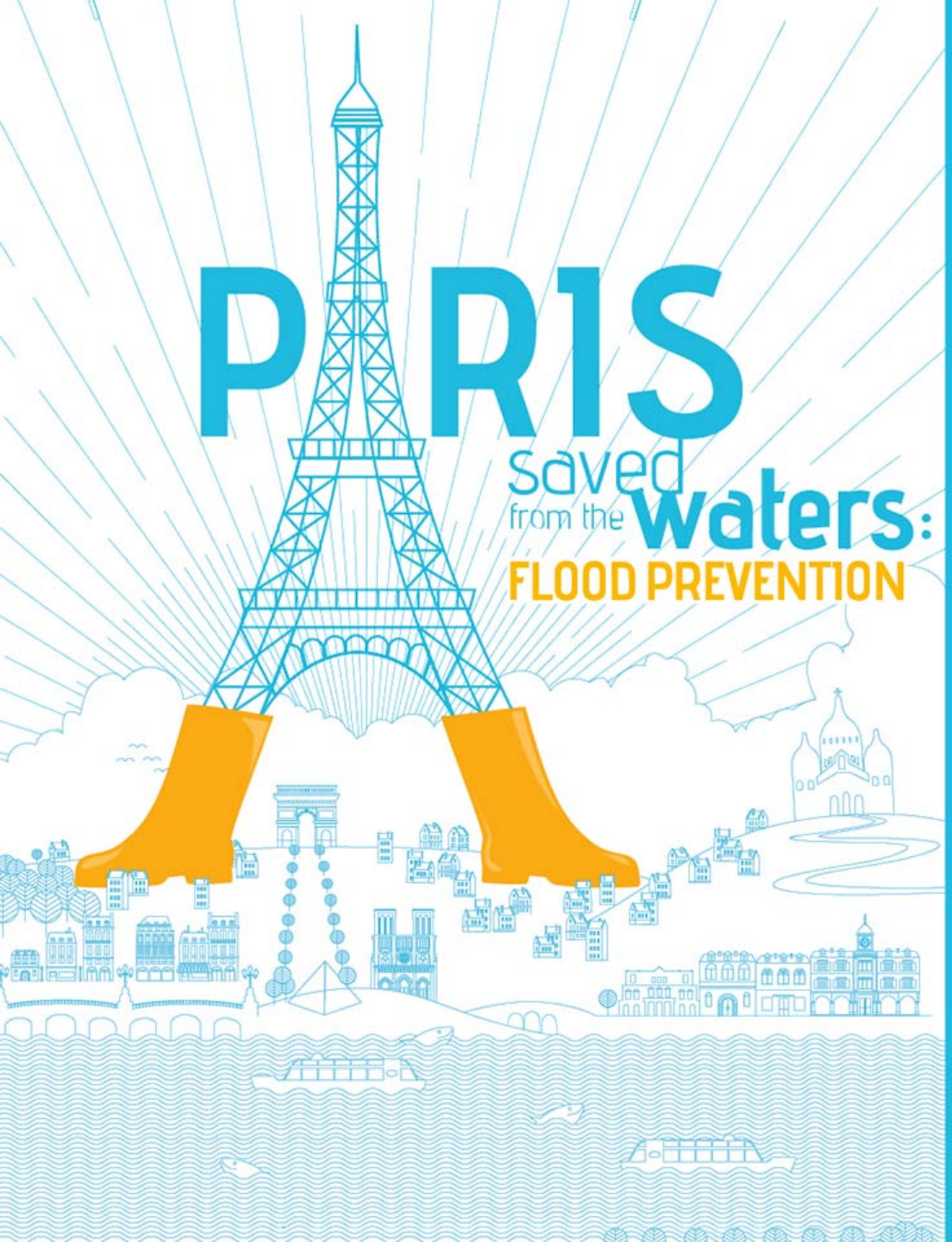
A major event with large consequences

- ✓ Direct and indirect impacts on nearly 5 millions citizens and many companies
- ✓ Continuity of government
- ✓ Long duration that could exceed a trimester

A significant macroeconomic impact

- ✓ 3-30 Bio € of direct damages
- ✓ 0.1 to 3 % cumulated GDP losses over 5 years
- ✓ 10 000 - 400 000 job losses following the crisis

⇨ Towards a new approach for the governance of this critical risks



Part 2

Governance

Rolf ALTER

Director for Public Governance and Territorial Development of the OECD

UN World Conference on Disaster Risk Reduction
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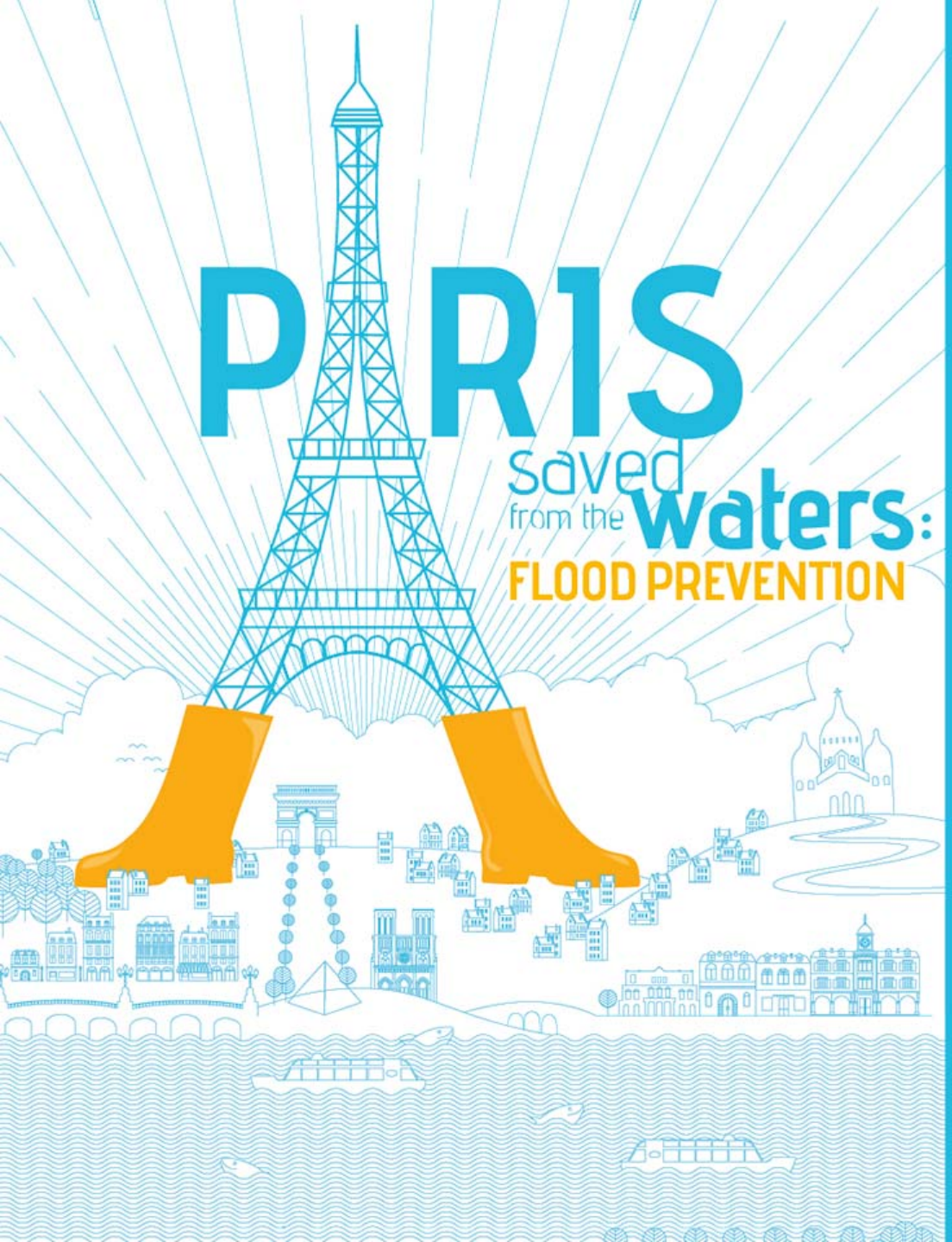
Ministère de l'Écologie, du Développement durable et de l'Énergie



Flood Risk Governance in the Parisian Region

Sandra MASSON-PLANCHON

General Secretary of the Paris and Defense and Safety Zone

Benoit JOURJON

Regional Service of the Ministry of Ecology

UN World Conference on Disaster Risk Reduction
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Floods caracteristics stress the need for a specific governance

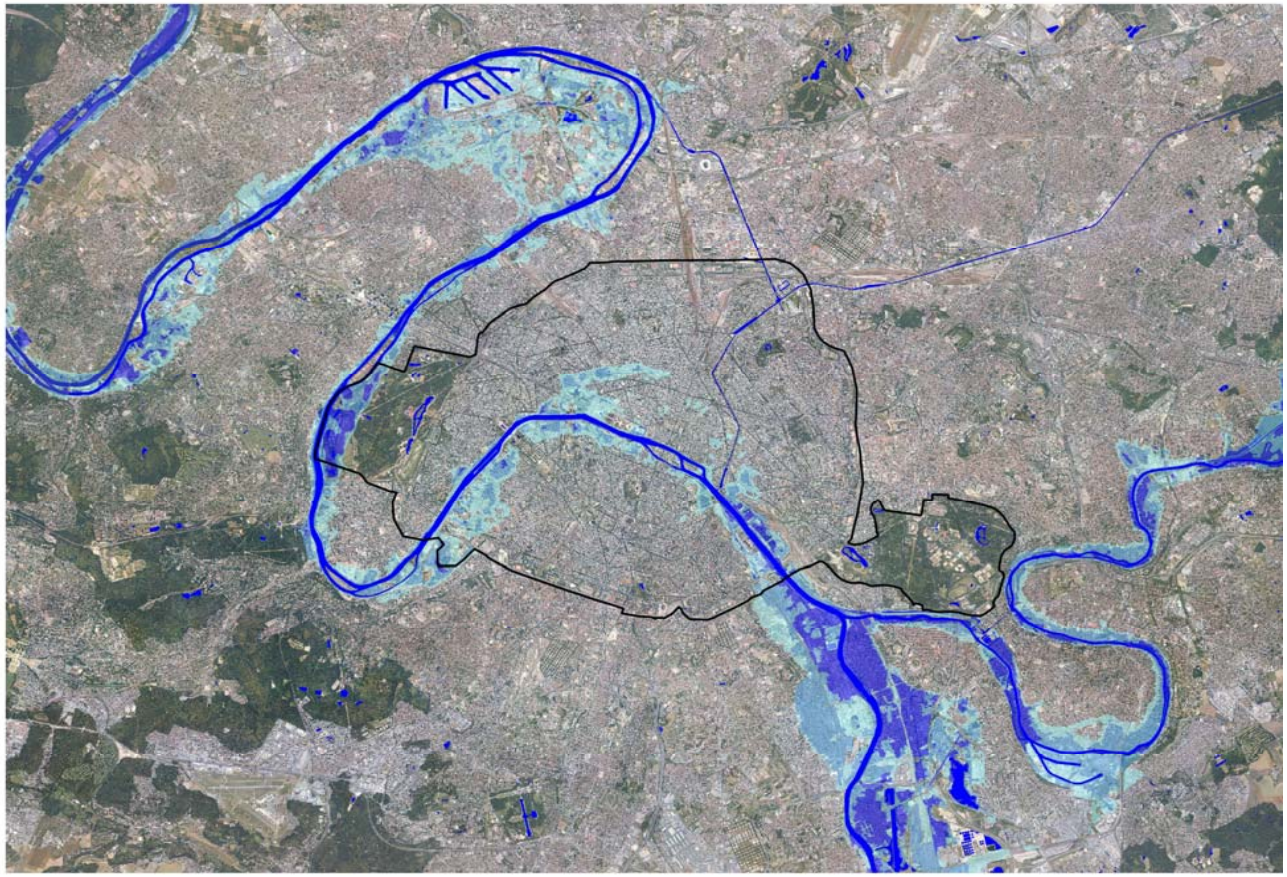
- Slow rise in water level (1m/day max)
- Long flooding period (~ 1 month)

→

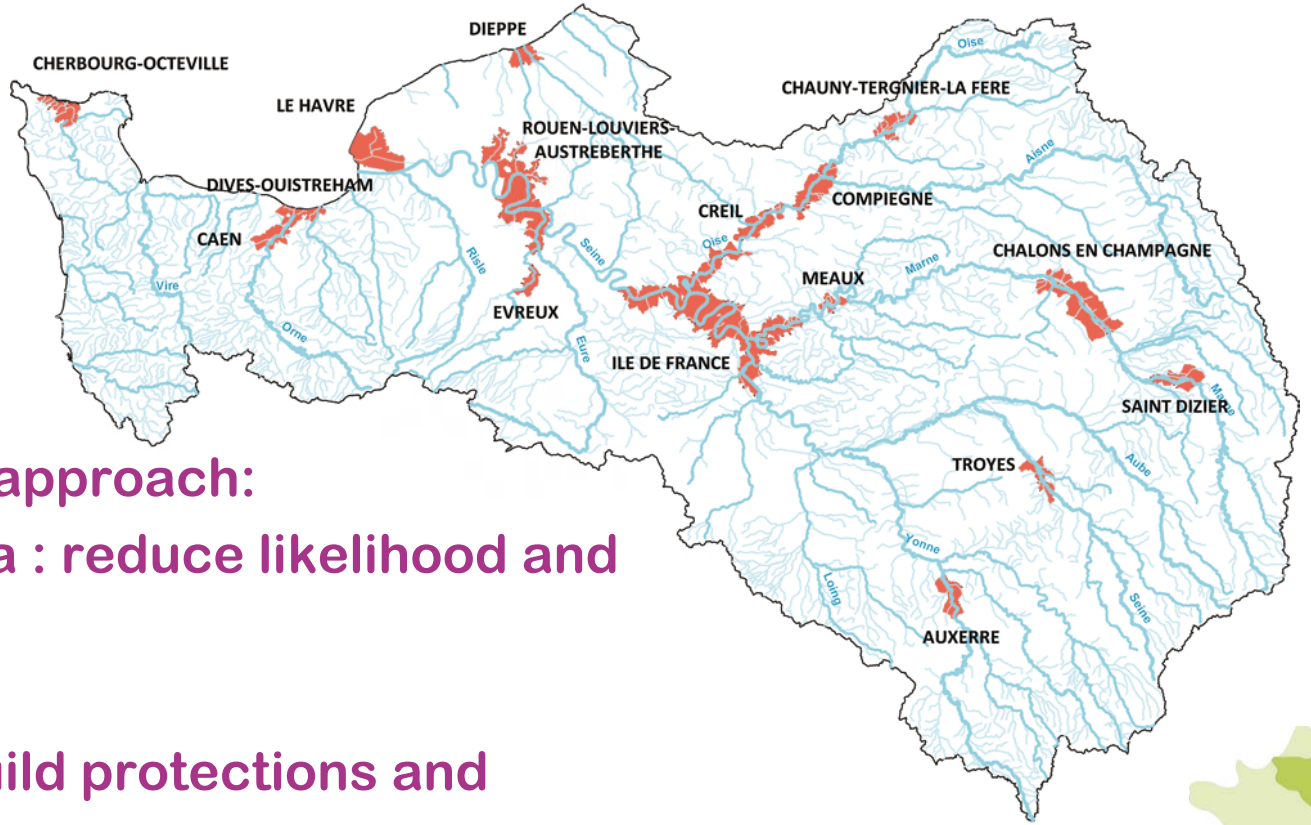
- Strong impact on buildings
- Utilities and networks shutdowns
- Economic freeze and short term unemployment

Estimated impacts of a 100-year flood

- 830,000 inhabitants living in flood-prone areas
- Up to 3 % GDP loss
- Estimated direct damages : 3.4 – 34 billion USD
- Up to 400k job losses
- Major national decision-making centers flooded



What is the appropriate scale for risk reduction policy ?



Need of a 2-scale approach:

- Catchment area : reduce likelihood and level of hazard

→ global strategy

- Local scale : build protections and improve resilience

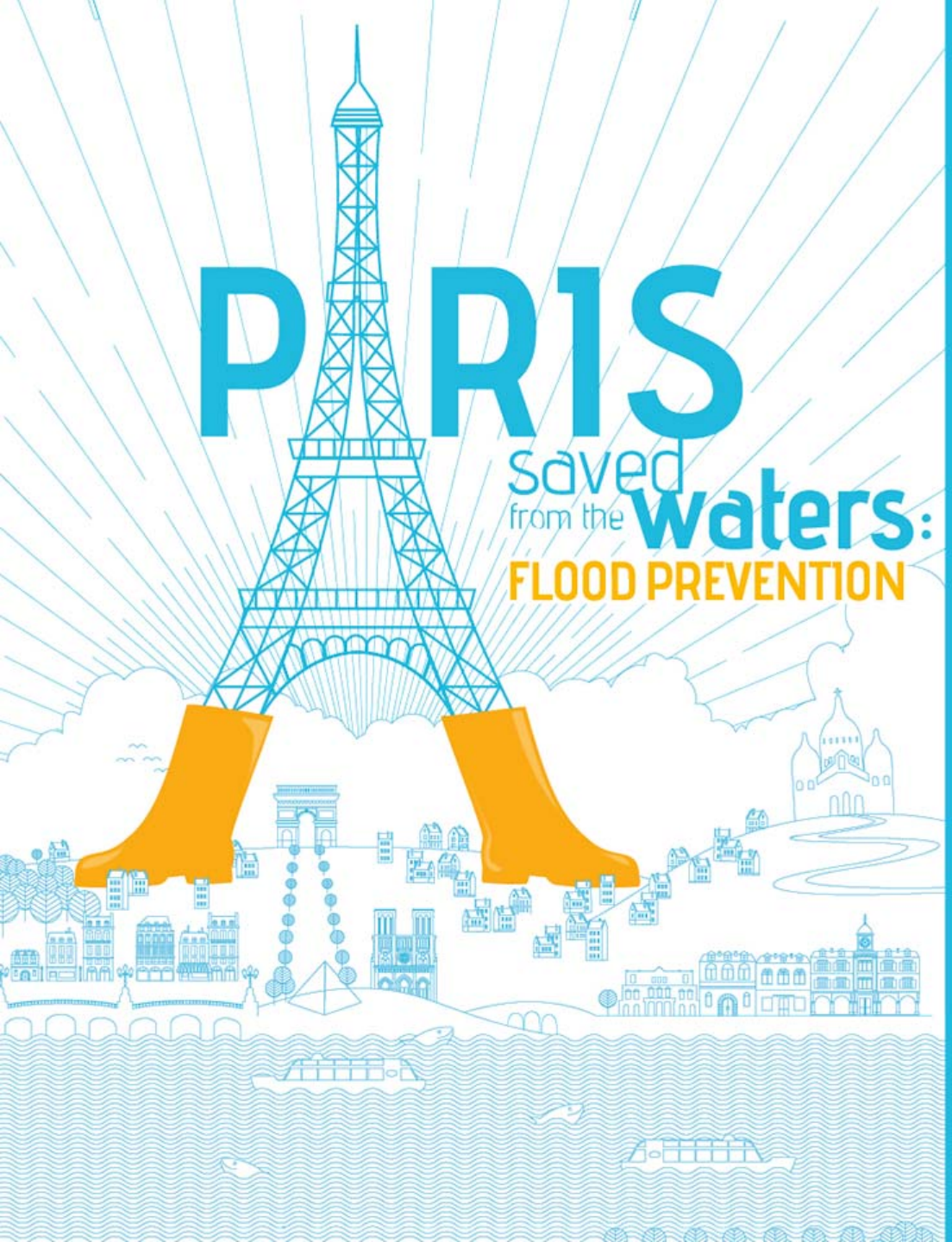
→ local systemic strategy

A multi-shakeholders panorama

Flood Risk Management Governance

Round table - Governance

- Rolf ALTER
- Benoît JOURJON
- Sandra MASSON-PLANCHON
- Régis THEPOT
- Daniel MARCOVITCH
- Laurent MONTADOR



Part 3

Professor Kuniyoshi TAKEUCHI

International Centre for Water Hazard and Risk Management under the auspices of UNESCO (ICHARM), Tsukuba, Japan

UN World Conference on Disaster Risk Reduction
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Grands Lacs at Troyes　2013.2.9

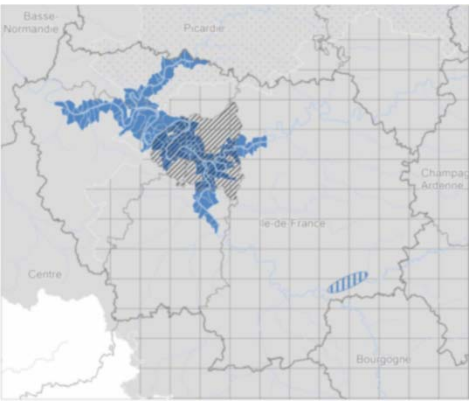
Régis THEPOT　Michelle DE CLERCQ

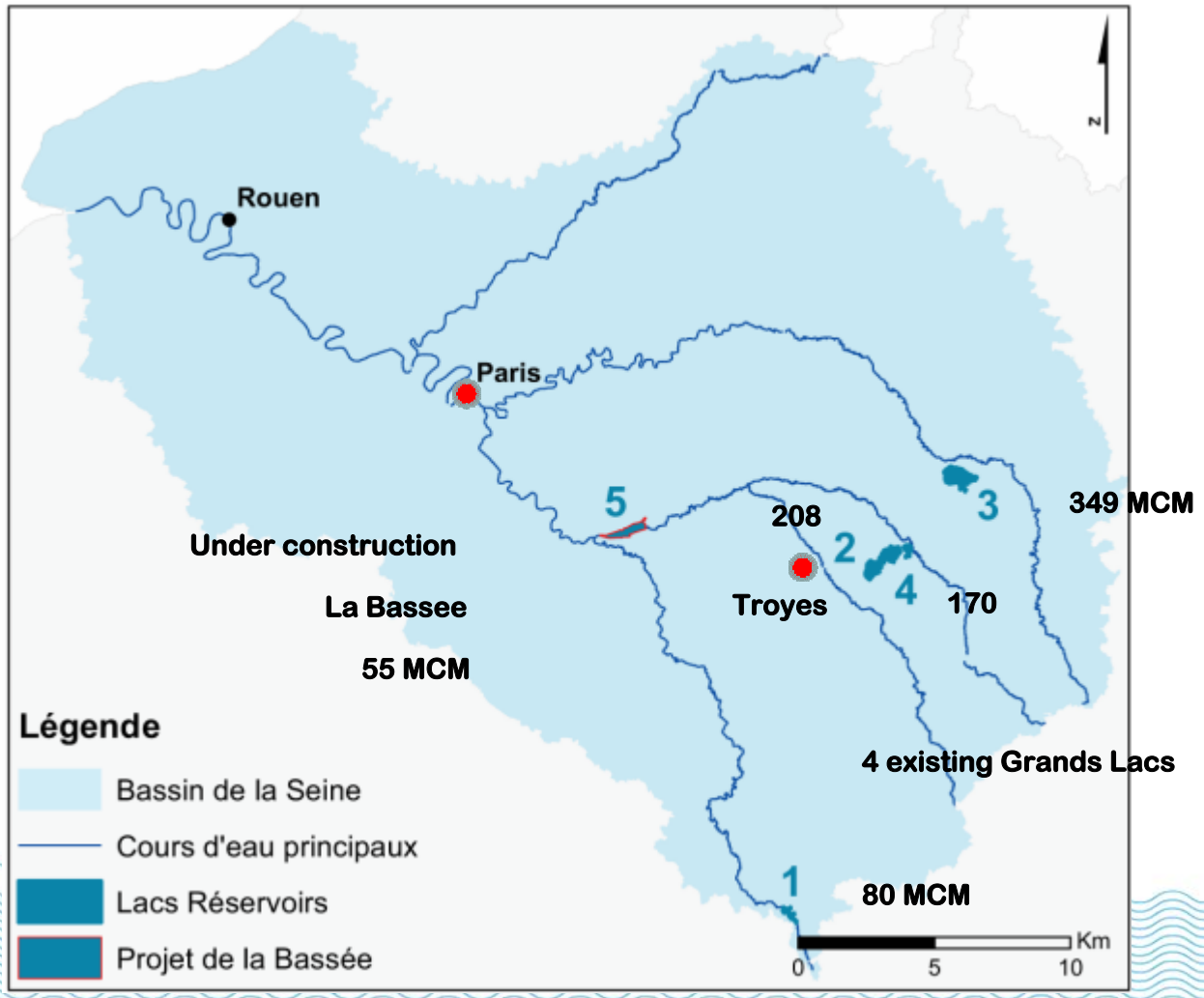
Seine Grands Lacs 800 MCM

can lower Paris flooding by 70 cm and damages by half.

EPTB Seine Grands Lacs is extending the objective to other IWRM

High flood risk area





OECD Reviews of Risk Management Policies: Seine Basin, Île-de-France, 2014 - Resilience to Major Floods

Impressions of Grands Lacs (2013.2.9)

- Appreciation of local priorities over land and water.
- The lakes were planned to protect Metropolitan Paris after large floods in 1907 and 1910. In the long construction stage, the priority of the lake services shifted **from the protection of Metropolitan Paris to local priorities of water and environmental needs**. It is a result of **participatory approach with high interest of local people** vs **low awareness of the Paris citizens**.
- Currently the Metropolitan Paris is not protected if the floods as large as 1907's or 1910's occur and will be greatly damaged.
- This is basically an upstream-downstream issue.

OECD Recommendations (2014)

- **Ensure the appropriate linkages between the various levels of flood prevention** – from the exposed Ile-de-France **metropolis** to the **river basin**.
- Engage a differentiated approach with the stakeholders at local level in the Ile-de-France risk basin, and the upstream territories **by means of a partnership from which they will also benefit, and which can also draw on the implementation of the EU Floods Directive**.
- The **governance structure** between the State and the local authorities at sub-basin level should be thoroughly explained to the local authorities.

Flood Management in Japan

- Rivers are administered by the River Law: 1896 local priorities, 1964 basinwide, 1997 participatory
  - Basin wide management including lakes & dams
  - 109 Class A rivers by National Governments
  - Other class B rivers by Prefectural Gov’ts
- Each river basin has to prepare (1997)
  - River management basic policy. E.g. 200 year flood
    - For flood control: national government’s council
  - River management plan. In 20-30 years aim at 70 year flood
    - For water use and environment: river basin committee (multi-stakeholders)

Redirecting the Tone River to the East

Shin-kawa-dori open 1621

Akabori-gawa open 1654

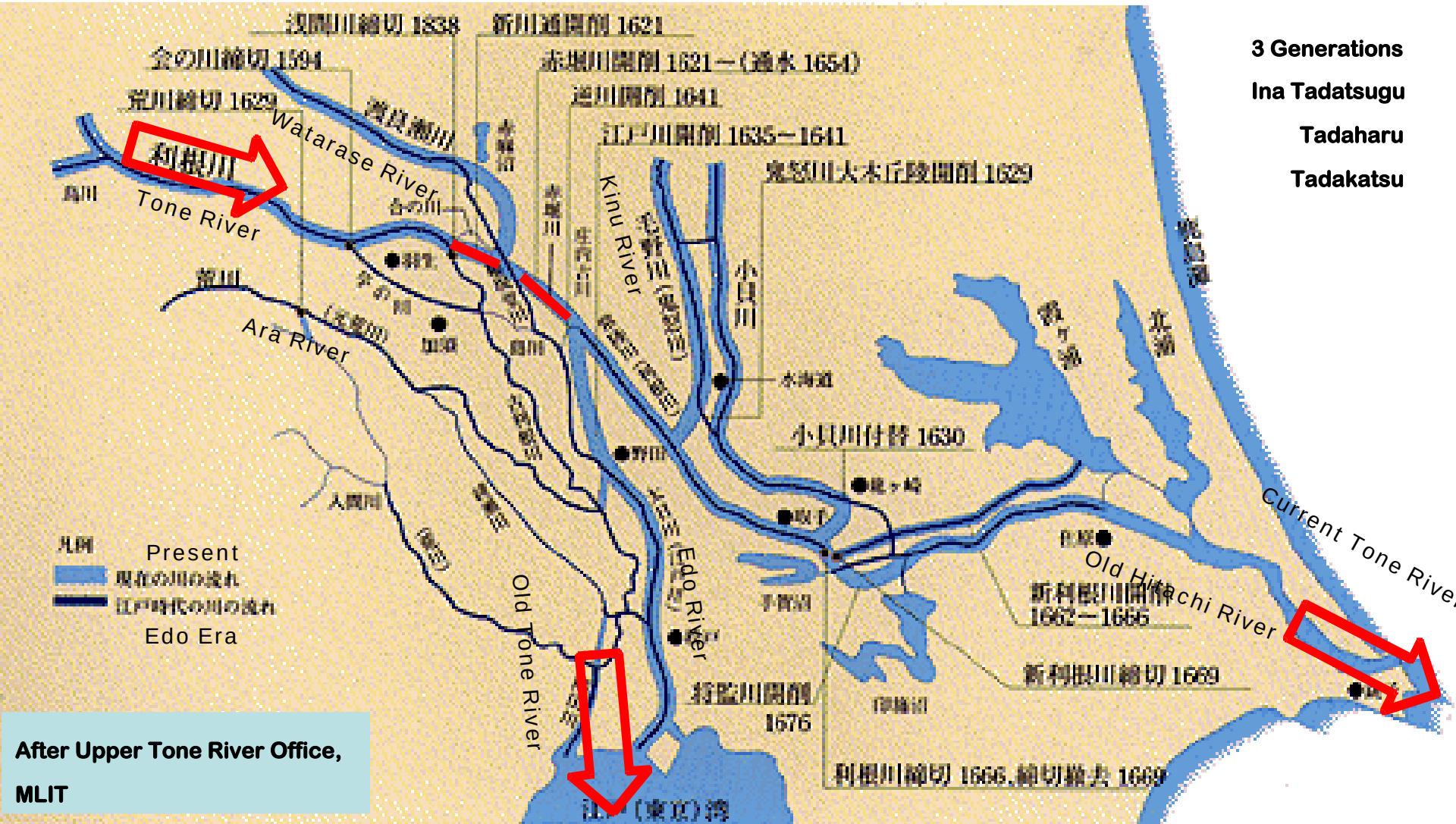
From navigation to flood control

3 Generations

Ina Tadatsugu

Tadaharu

Tadakatsu



After Upper Tone River Office, MLIT

16 Dams in the Tone, Ara and Tama Rivers

Over 1.1 BCM in total capacity
Less than 300 MCM for flood control

for FC & WS.
Very serious upstream downstream relation

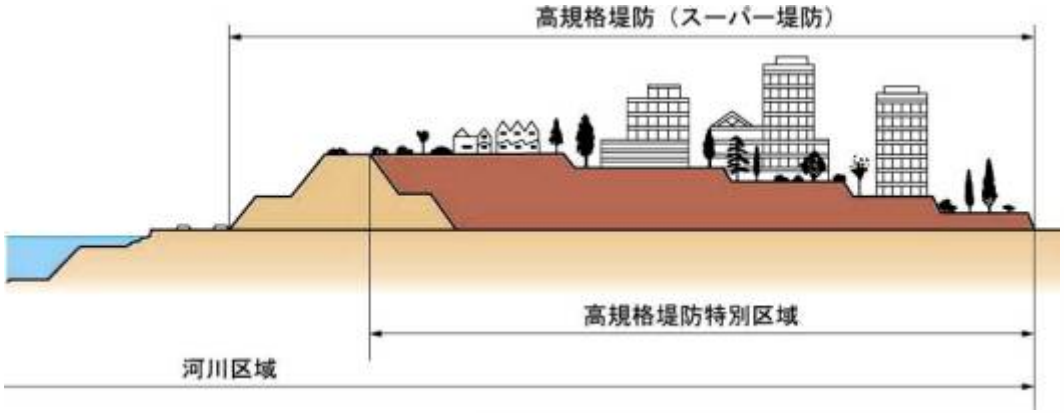
Upstream-Downstream Communication

Downstream citizens in Komae City come to an upstream village Makomo of the Tama River to help forest planting.

八ッ場ダム上下流交流会 by MLIT Dam construction

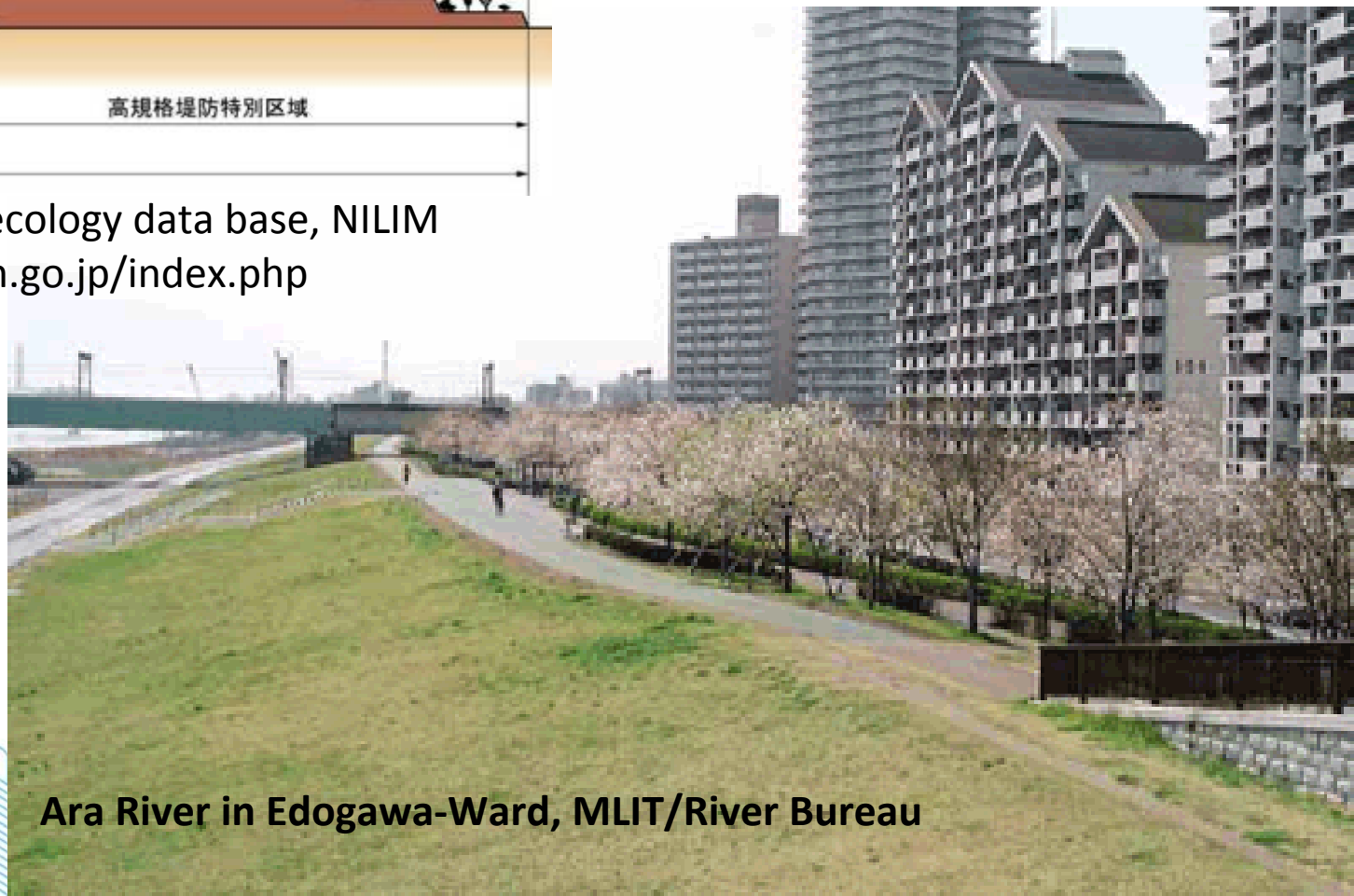
Elementary school children in the area of “Yamba” dam construction meet with the children in the downstream flooded areas and water use areas.

Super Levees since 1987



Urban redevelopment & the cost will be recovered by the increase of land value

Knowledge of Stream ecology data base, NILIM
http://kasenseitai.nilim.go.jp/index.php

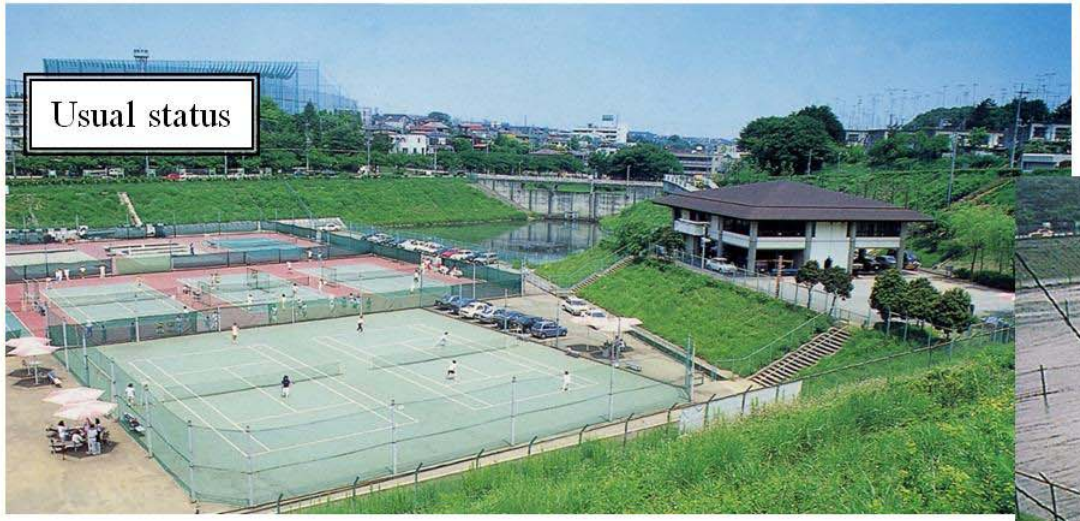


Ara River in Edogawa-Ward, MLIT/River Bureau

Flood retardation ponds

Slide by Kehin Koji, MLIT

Storage Measures



▲The Example of the Multi Purpose Pond
The Pond is normally used as tennis courts

Kirigaoka retardation Pond
(Yokohama City)

▼Storage at School Playground

▼Use ponds as **Biotope**

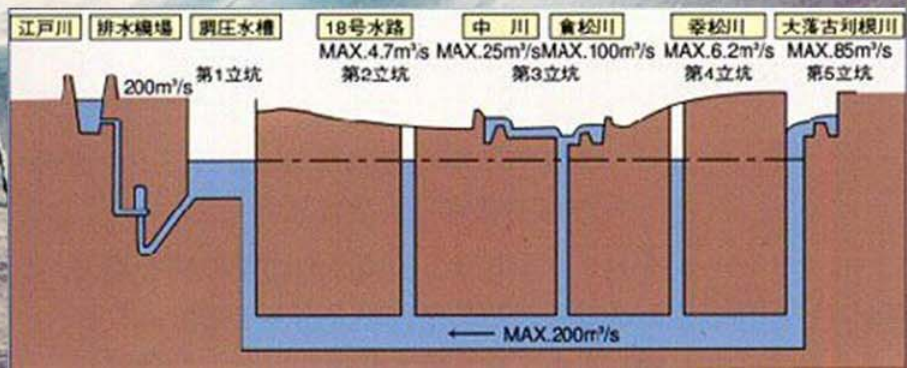
しゅとけんがいかくほうすいろ

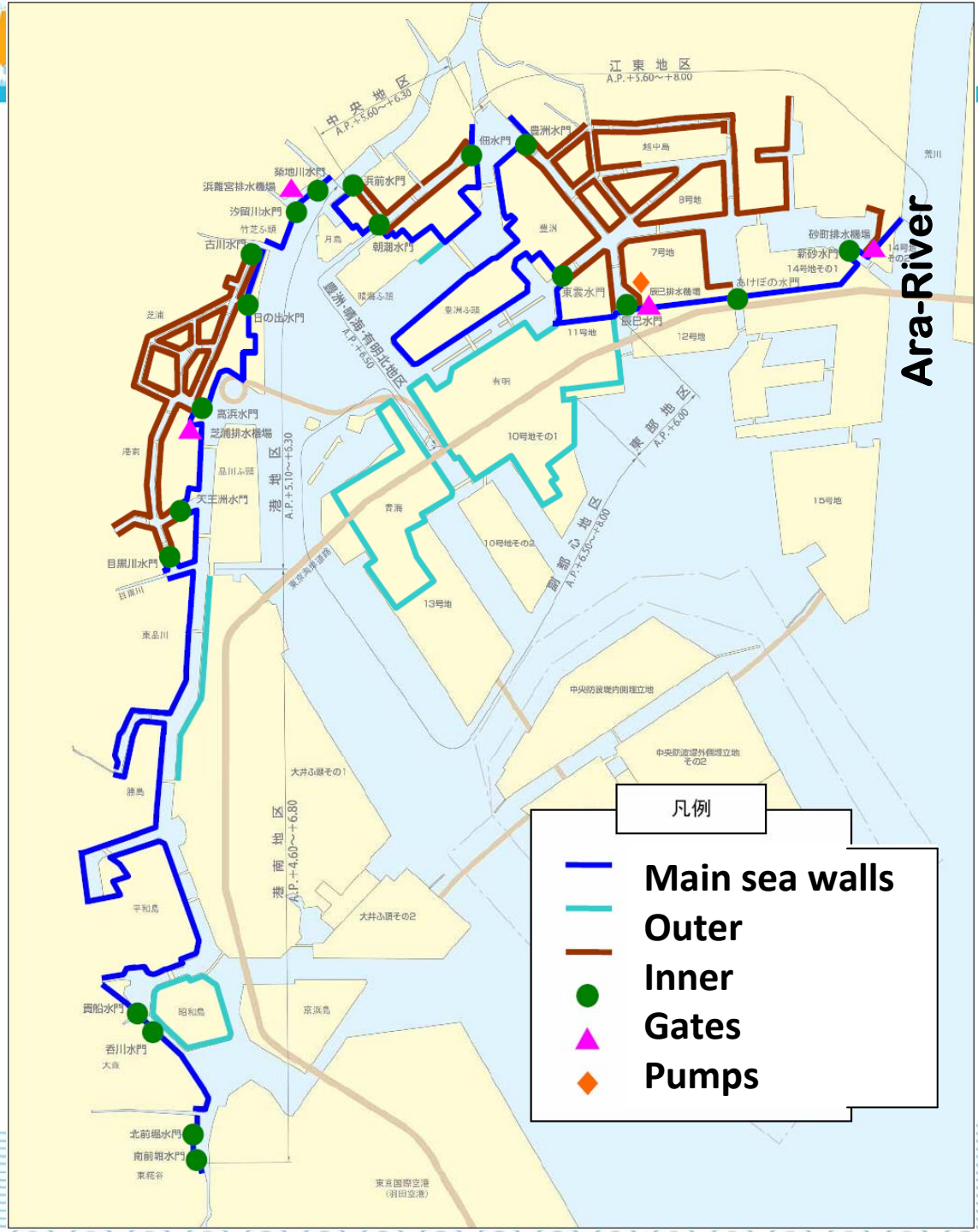
首都圏外郭放水路

The Metropolitan Area Outer Underground Discharge Channel

Completed in 2006
Connecting bet Naka and Edo Rivers

Diameter	10.0 m
Length	6.3 km
Slope	1/1,500
Depth	about 50 m
Capacity	200 m3/s
Storage cap	670,000 m3





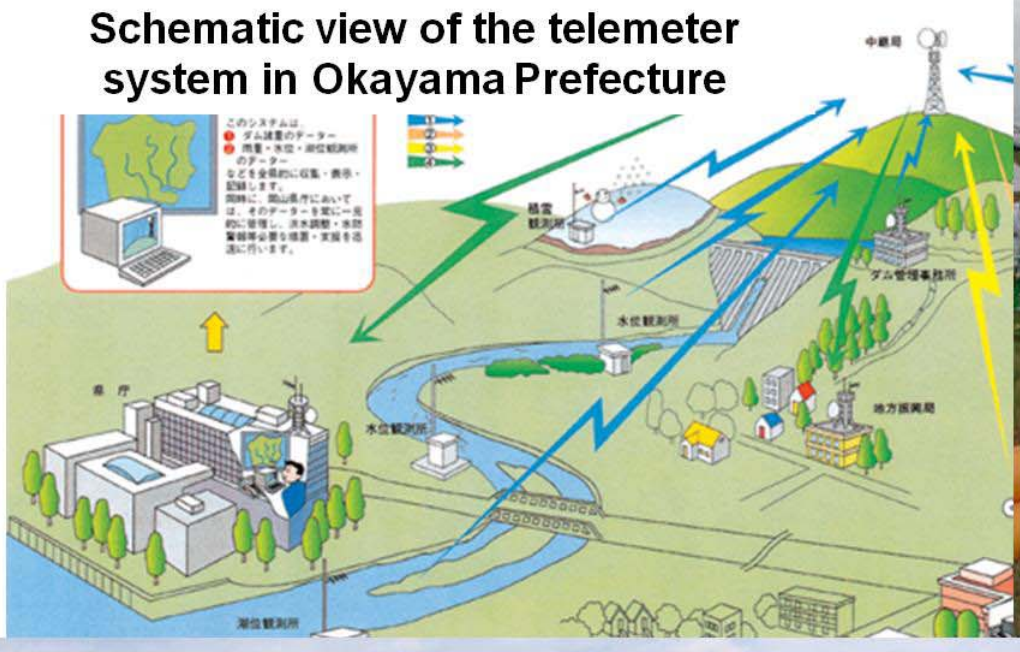
Sea walls to protect Tokyo harbor, 4.8-8m above LWL

3 million people below 5m from the low tide. AP+5m

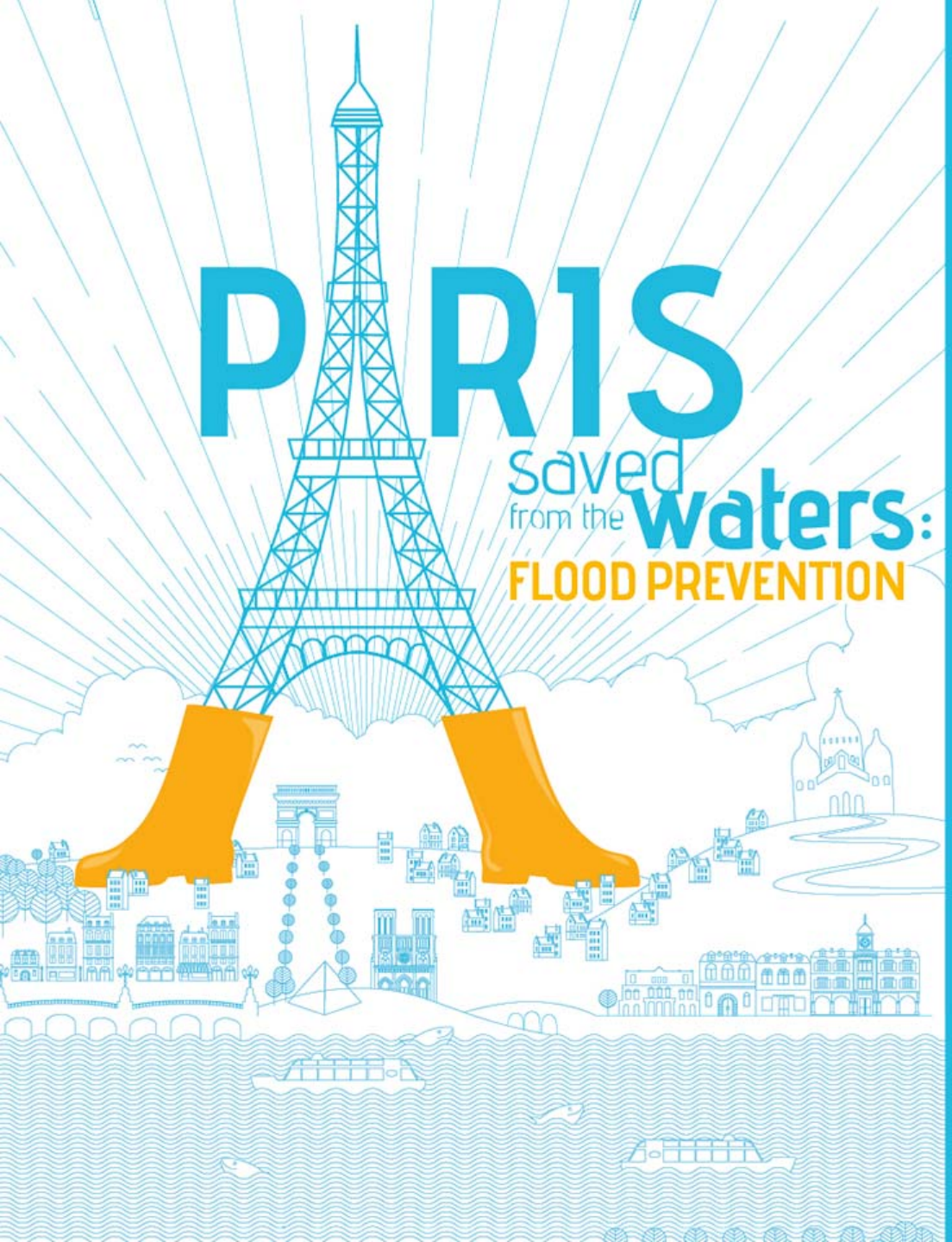
1.5 million people below the high tide (0 m area). AP+2m

Tokyo metropolitan harbor office, Dec. 2012

Schematic view of the telemeter system in Okayama Prefecture



Flood preparedness drill



Tokyo saved from the waters: flood prevention and water supply

Integrated river basin management by upstream-downstream cooperation

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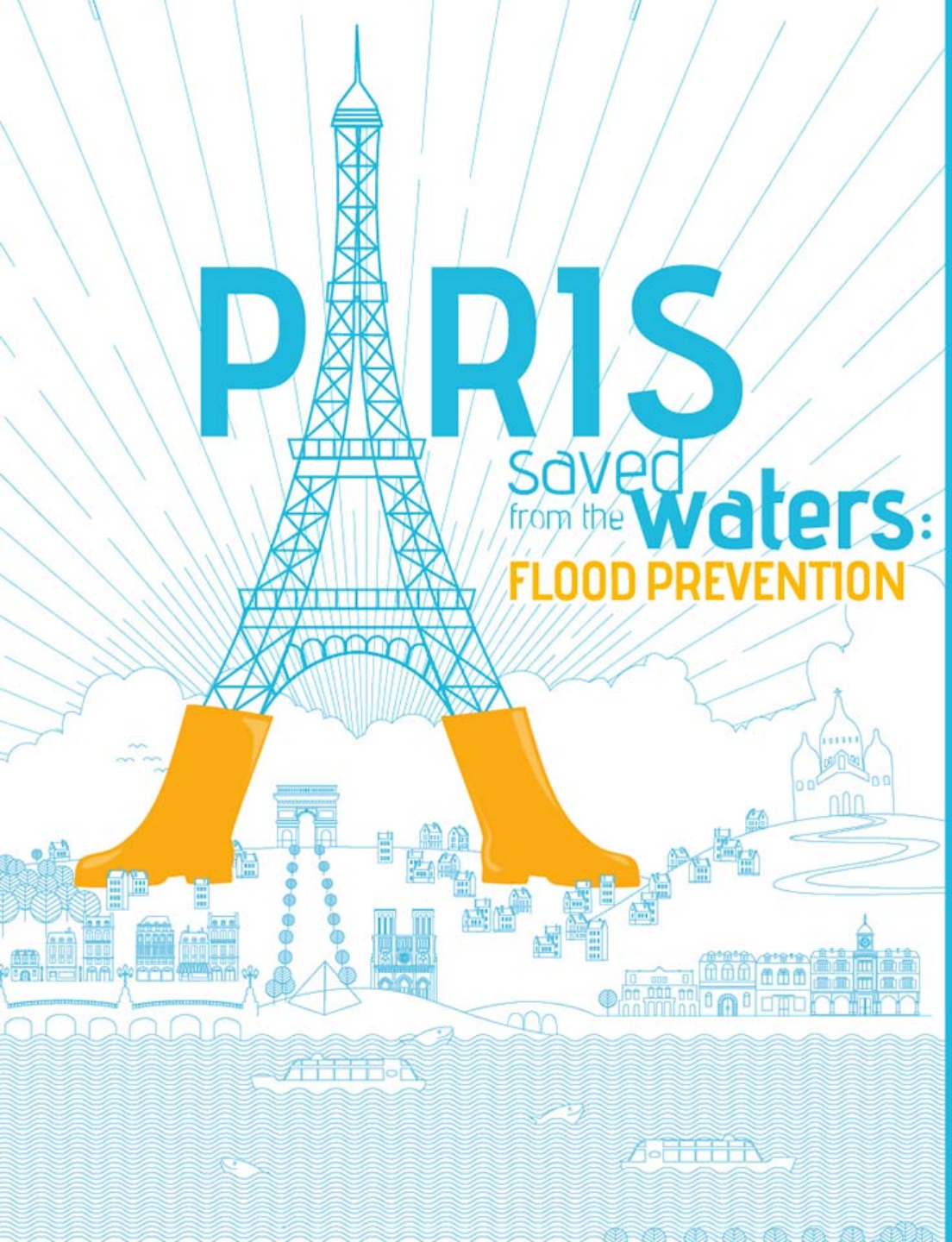

Part 4

Concrete Actions

Daniel Marcovitch

President of the French Joint Flood Commission

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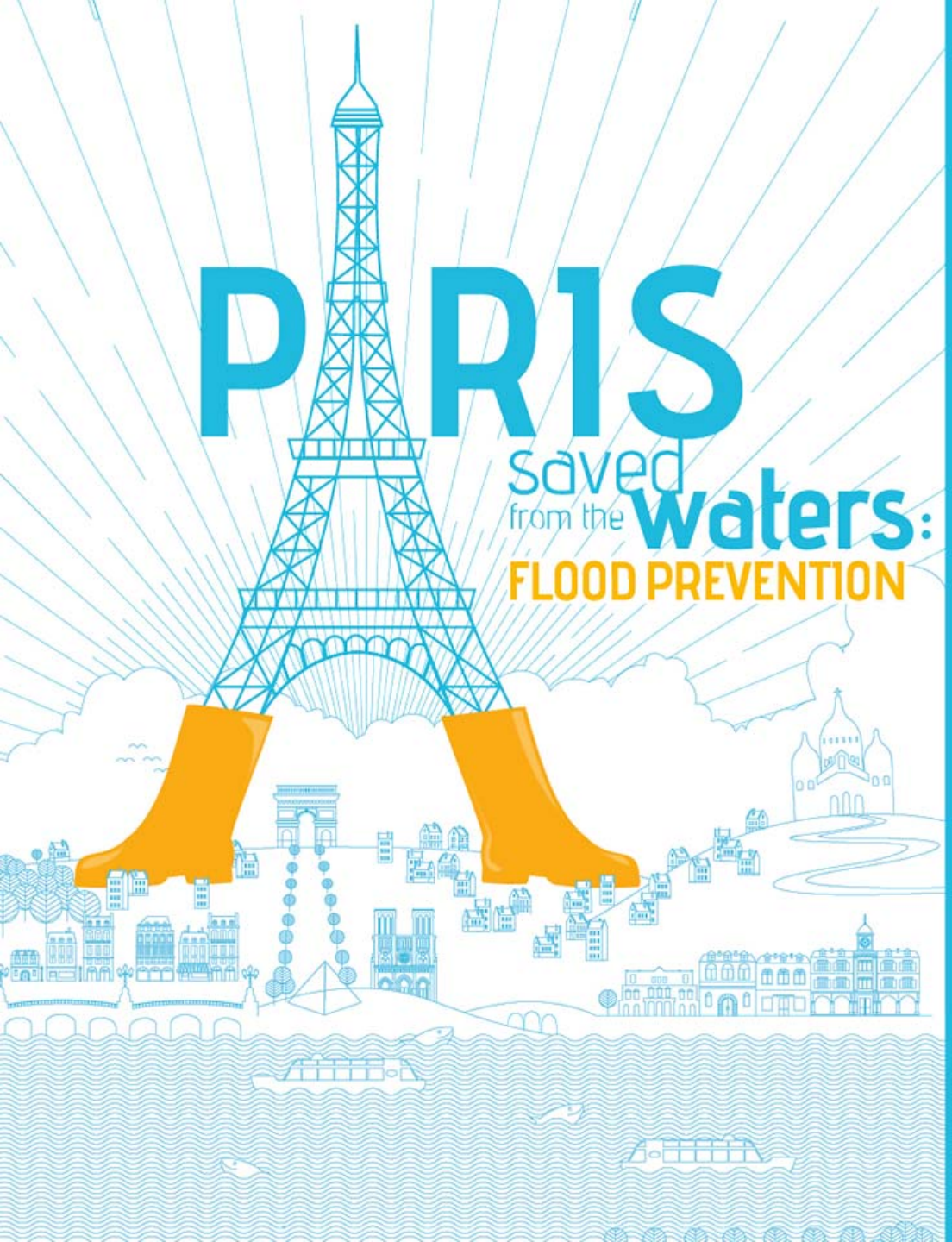

Building more resilient cities:

Reducing the vulnerability of a new urban area

-

Les Ardoines

Clarisse DURAND

Regional Service of the Ministry of Ecology

UN World Conference on Disaster Risk Reduction
2015 Sendai Japan

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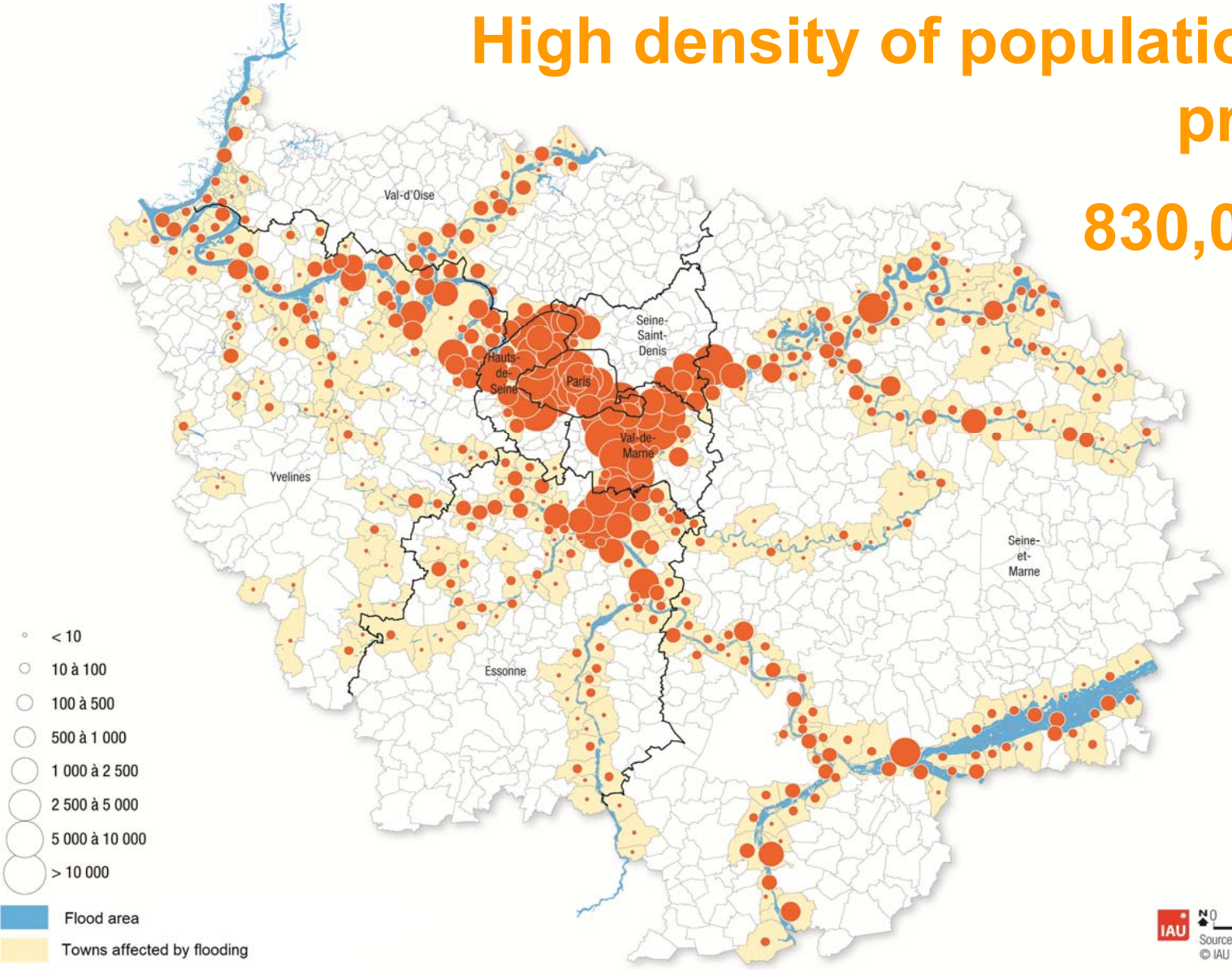
Accommodations in flood areas

High density of population in flood prone areas

830,000 people



Urban renewal: an opportunity to reduce vulnerability

- Flood-prone areas already and densely urbanized
- “Grand Paris” project
  - Additional public transportations
  - Need of new accommodations and urban renewal

  →Opportunity to build resilient cities:

  ✔Build outside flood prone-areas

  ✔Build resilient networks and infrastructures

Les Ardoines

- 3km south from Paris
- 9000 jobs and 400 firms
- In 2020= 2 new subway stations

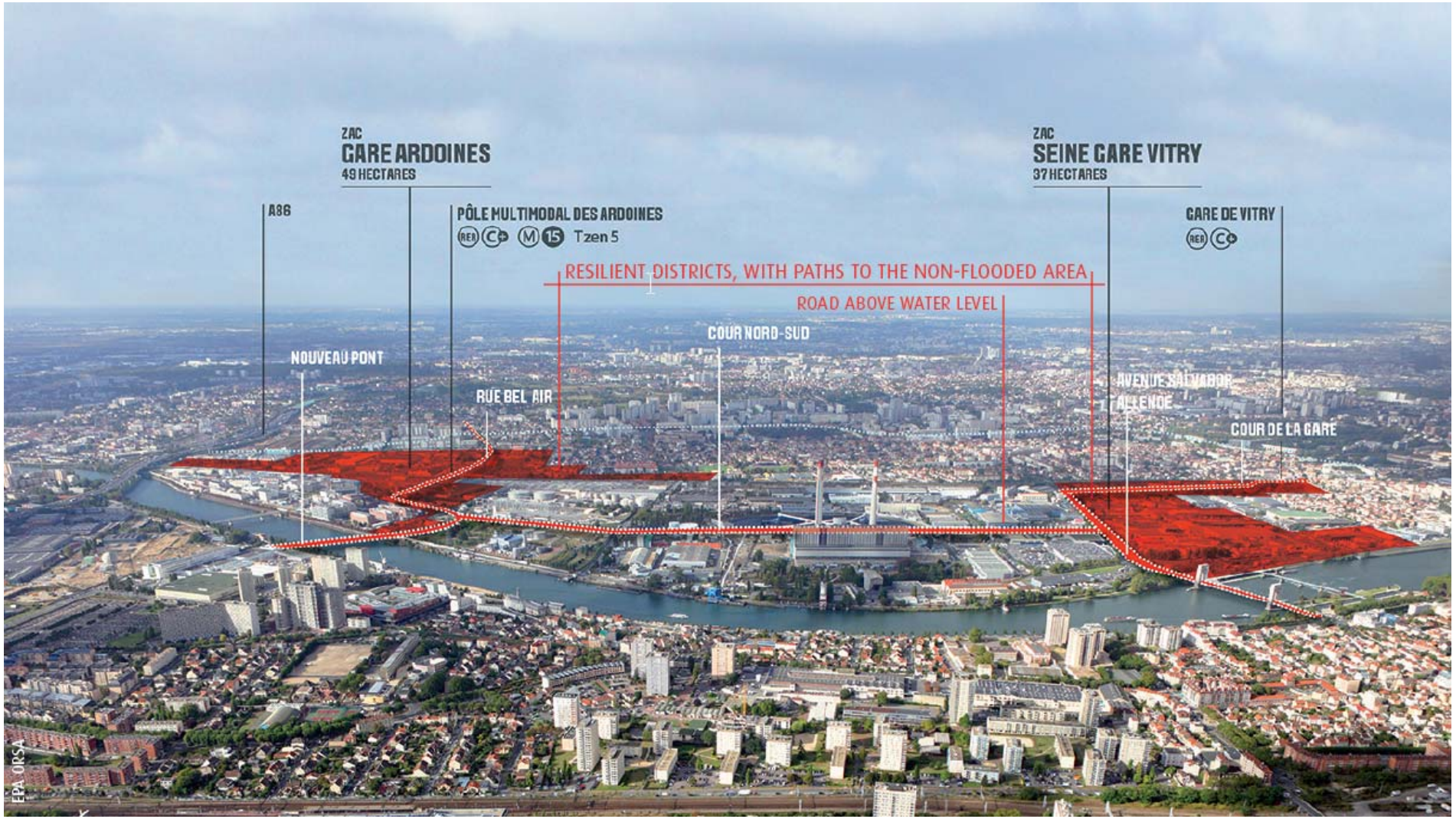
→ Need of additional housings

Les Ardoines

Submersion higher than 2 meters in some parts

⇨Transform into a whole resilient urban area:

- ✔ **Choice of design and materials**
- ✔ **Improve resilience of networks**
- ✔ **Prepare crisis management = enable**
  - people to stay home and reach non-flooded areas
  - emergency services to reach flooded areas

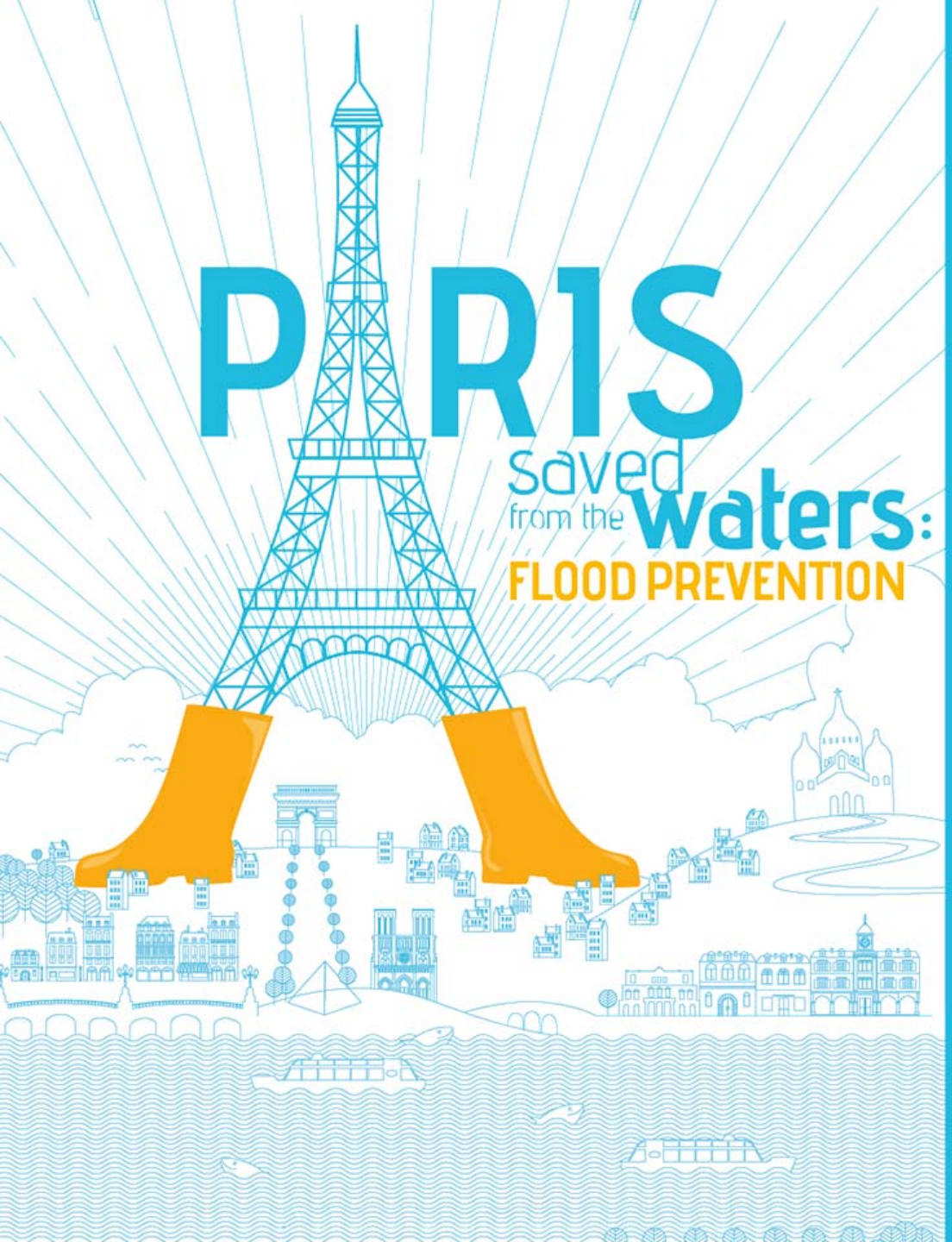


13,000 housings – 32,500 people

Les Ardoines: opportunities and challenges

- **Opportunity**
  - Design a whole urban project from the beginning at a large scale

- **Challenges**
  - Develop **risk awareness** and **risk culture**
  - **Maintain them** over time



SEINE GRANDS LACS
ÉTABLISSEMENT PUBLIC TERRITORIAL DE BASSIN

Storage reservoirs upstream from Paris :

the story of a major hazard reduction project

Régis THEPOT

General director of EPTB Seine Grands Lacs

UN World Conference on Disaster Risk Reduction
2015 Sendai Japan

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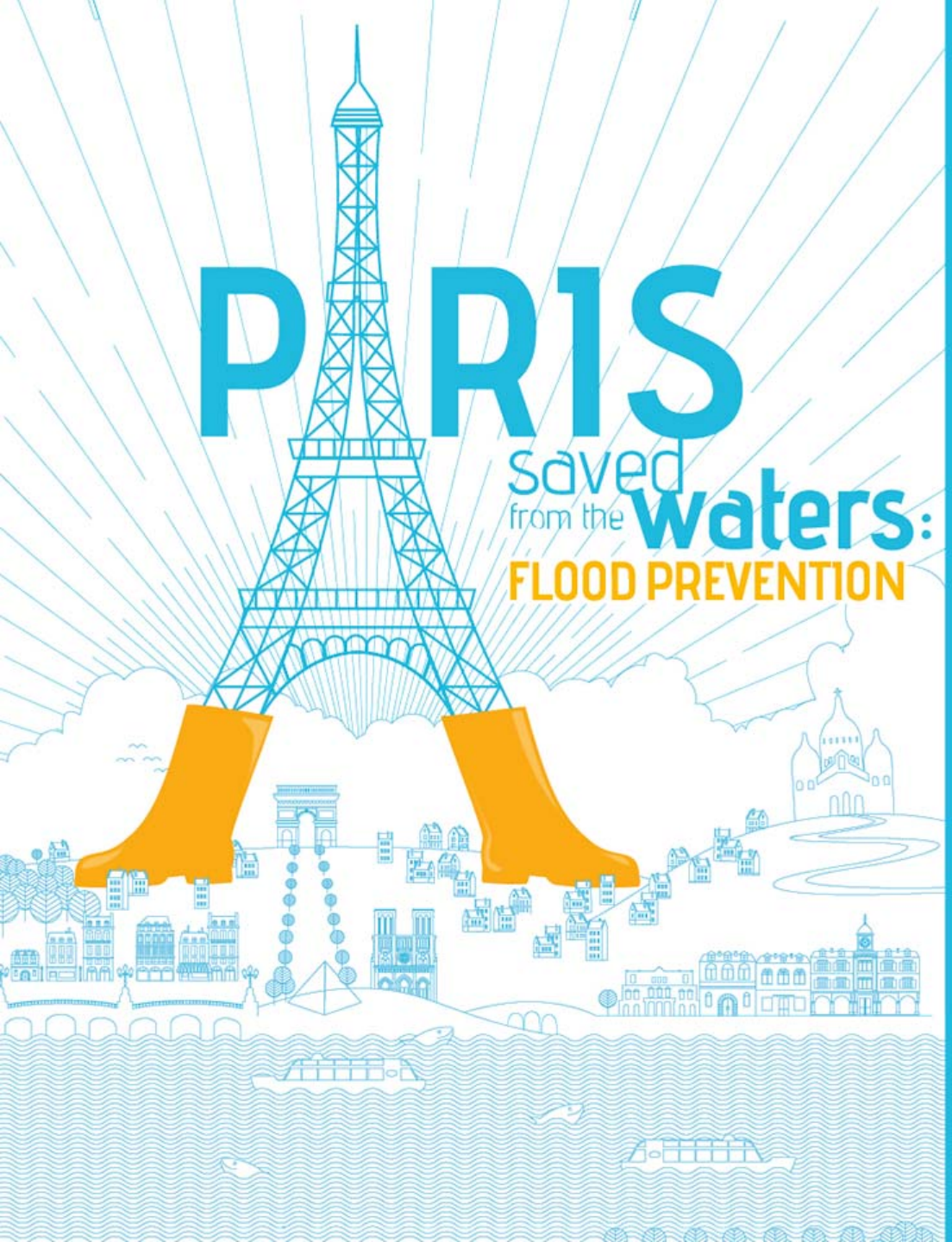

Plouf 75: a risk awareness project on the Seine riverbank

Sidonie THOMAS

General Secretary of the Paris and Defense and Safety Zone

Evelyne ALLAIN

Iffo-RME

UN World Conference on Disaster Risk Reduction
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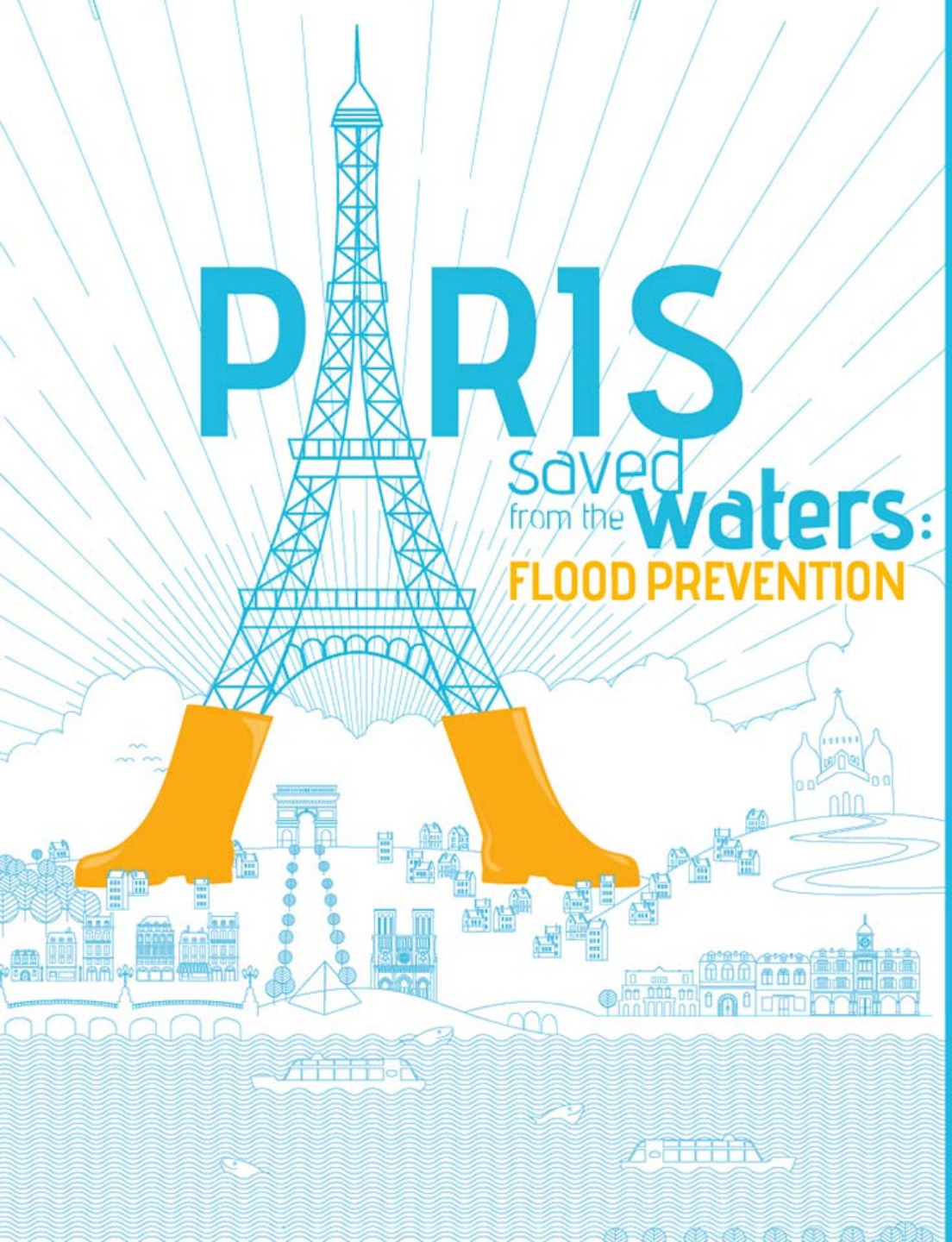

ÉLECTRICITÉ RÉSEAU DISTRIBUTION FRANCE

ERDF
In Paris

Paul MORDANT,
Paris network director
ERDF

UN World Conference on Disaster Risk Reduction
2015 Sendai Japan

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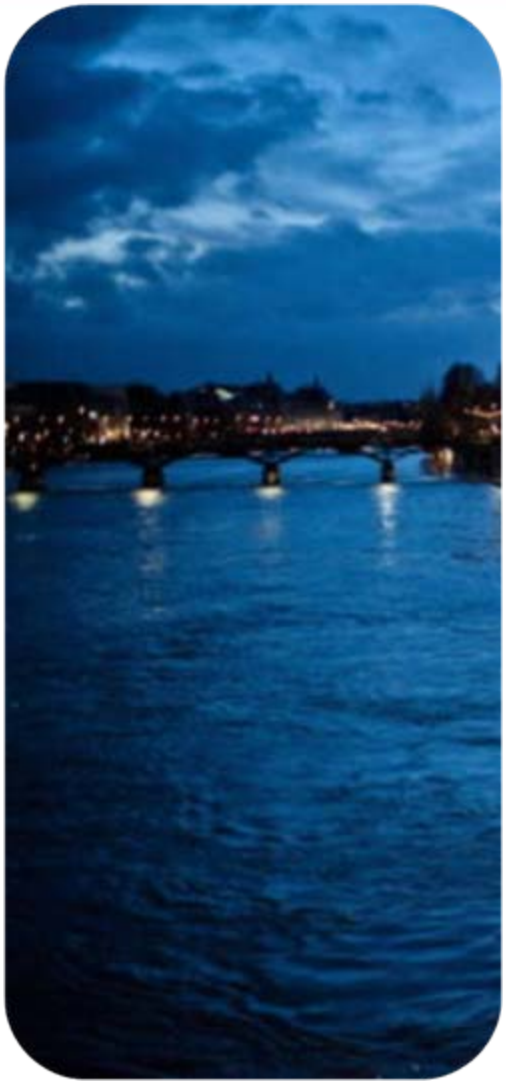
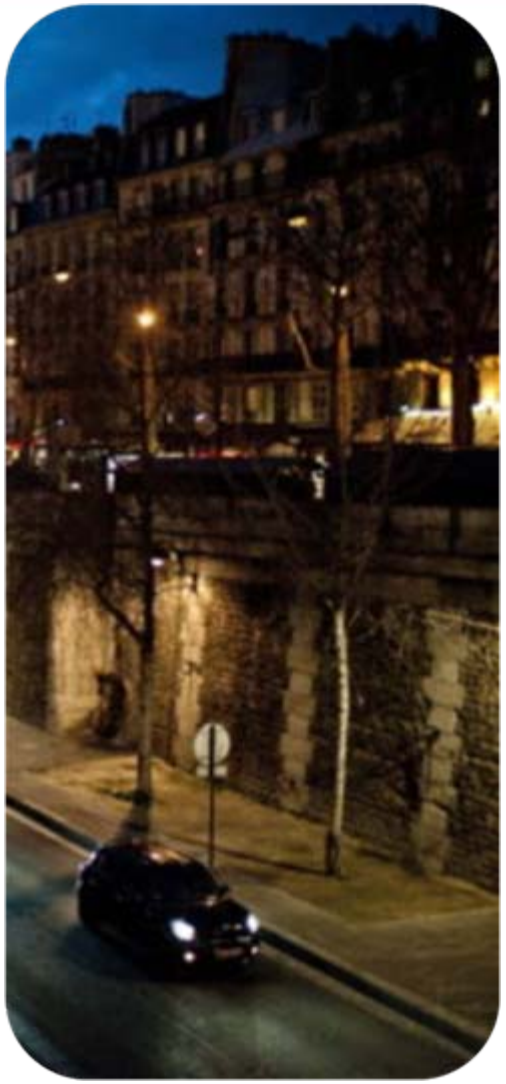
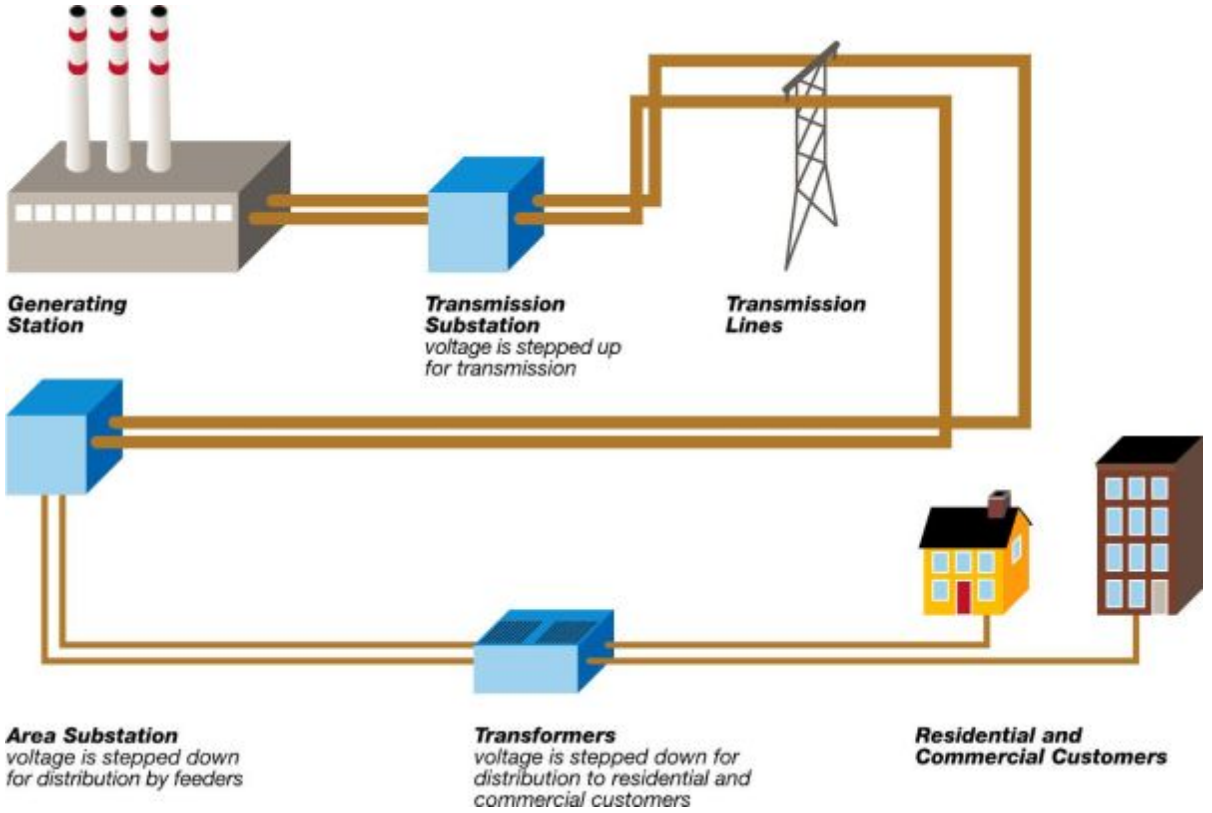




Impact of flooding on the grid

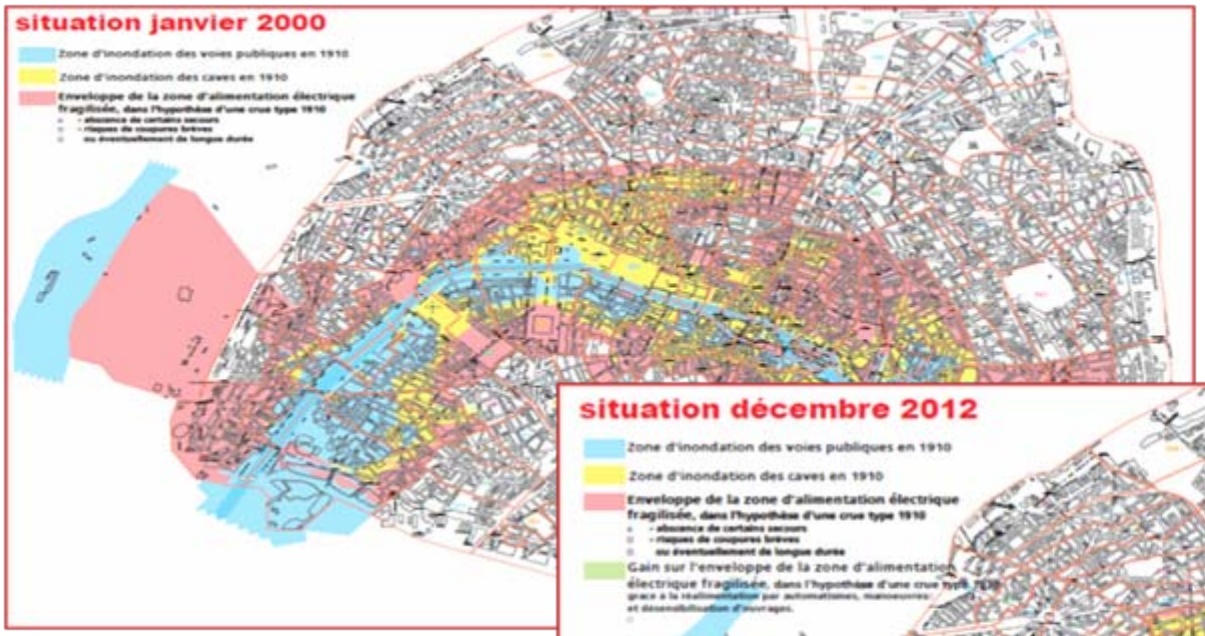
2 over 36 substations needs to be protected

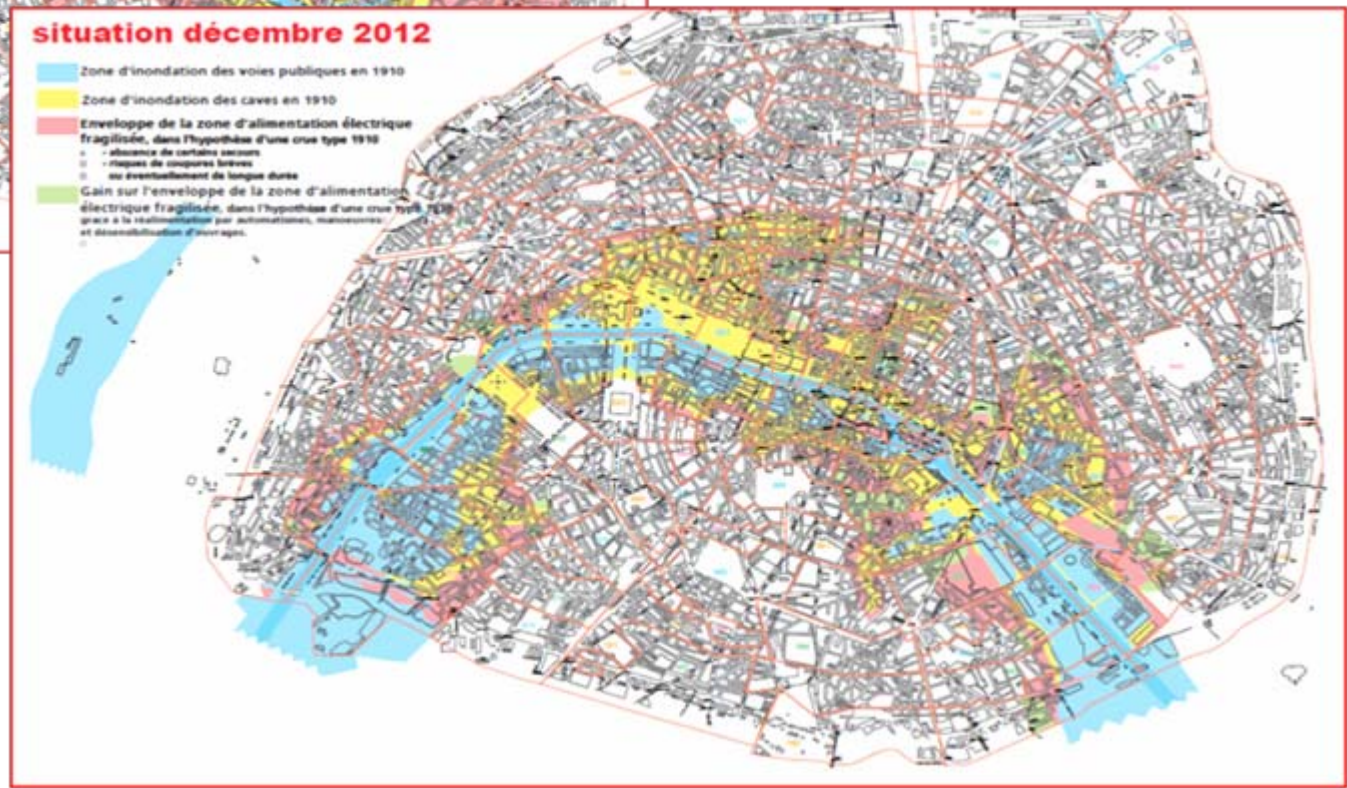


700 Transformers flooded

+ 400 Transformers
To be cut for safety reasons

ERDF investments



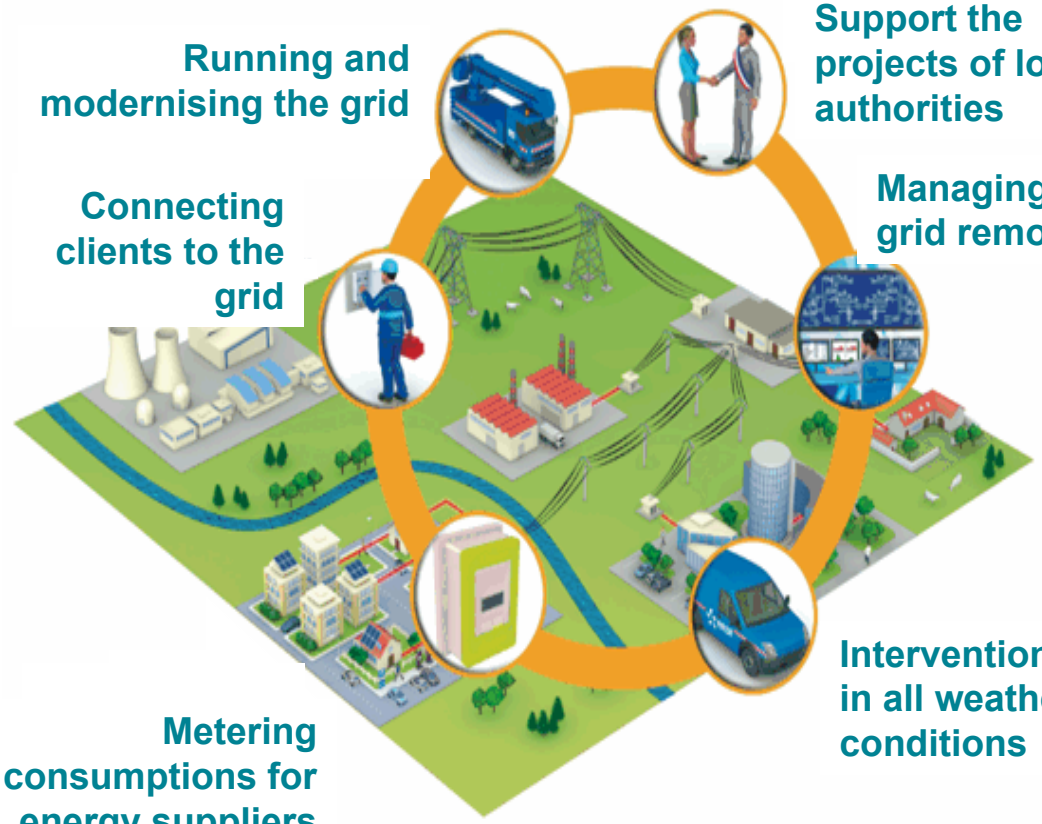


Impact reduced
From 500,000
to 330,000
clients

Mobilisation of staff to limit the impacts on clients

1 : Protection of sensitive points of the network and safety cut off
2 : Network optimizations
3 : Mobile safety engines for specific clients and protection of the population
4 : Mobilization of national support teams to pump, clean, repare and switch on

What are the missions of ERDF



Running and modernising the grid

Support the projects of local authorities

Connecting clients to the grid

Managing the grid remotely

Metering consumptions for energy suppliers and producers

Interventions 24/7 in all weather conditions

Ensuring Service Continuity and Quality

Non discriminatory access to the network

ERDF in Paris : Key figures

€75m
invested

2,000
Client substations

1.6 million
customers

10,000km
of underground power lines

1,160
employees

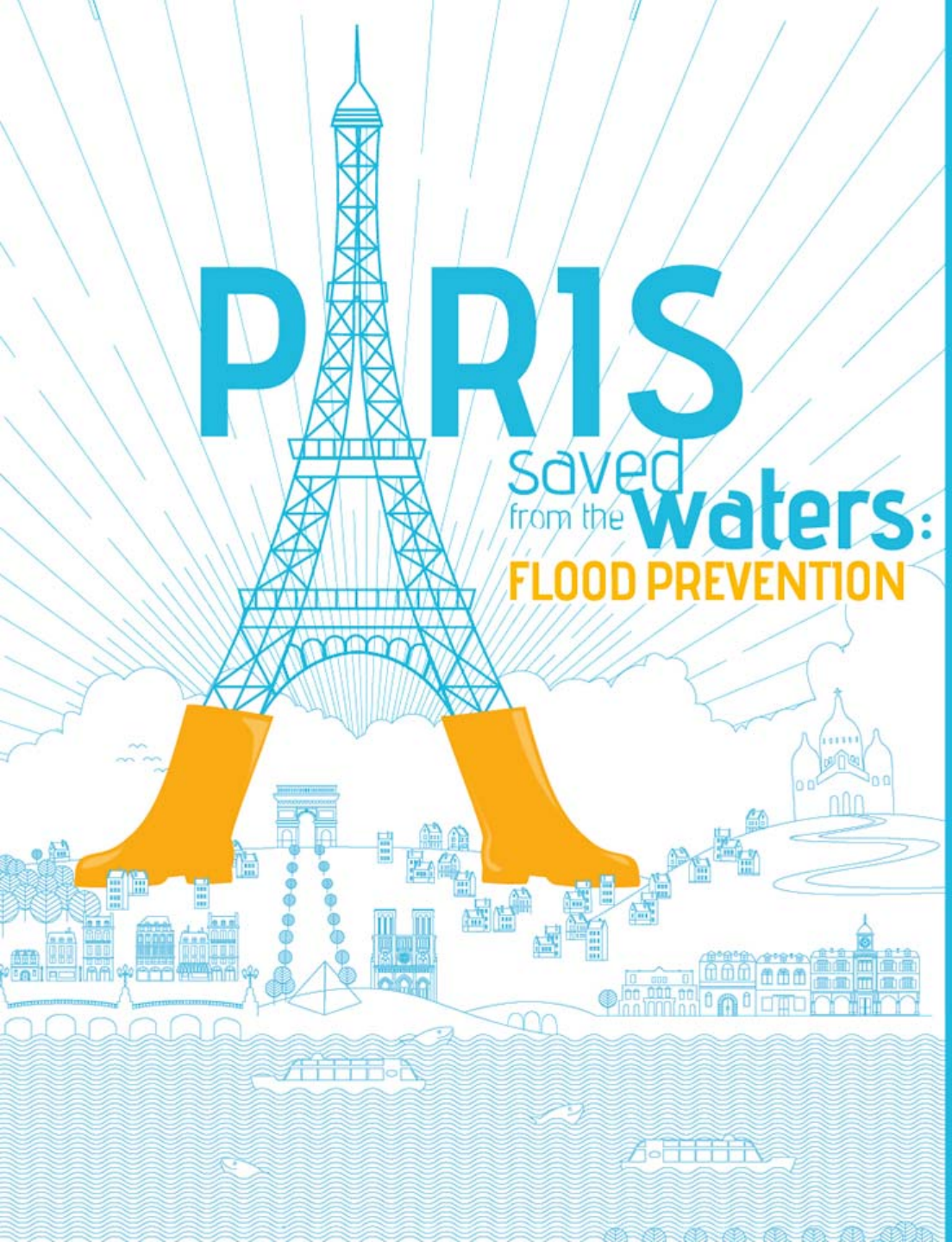
36
source substations

58
high-voltage transformers

9 mn
SAIDI

5,000
Public distribution substations

ERDF
ÉLECTRICITÉ RÉSEAU DISTRIBUTION FRANCE



Flood risk in the public transport network in Paris (RATP)

Clarisse DURAND

Regional service of the Ministry of Ecology

UN World Conference on Disaster Risk Reduction
2015 Sendai Japan

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Comparison between 1910 and today

1910

Subway lines flooded = 30 / 60km

Restoration time = 3 to 4 months

Damage costs = ~9 Million USD

Today

(without protection) **potentially**

Subway lines flooded = 140 / 322km

41 stations directly flooded (+ 126 affected)

Restoration time = 2 years

Damage costs = 3.4 to 4.5 Billion USD

Protection measures

1) Protection against surface water

- ➔ 421 water entrances
- ➔ 1000 maintenance workers
- ➔ 2.8 M USD of stored material

2) Protection against ground water

- ➔ More powerful pumps (in comparison to usual infiltrations)
- ➔ Secured electrical delivery

Organisation : crisis management

During rising stage and flood peak

✔Network gradually **closed** (protections installed and rolling stock placed in safe locations)

Challenges

➢**Public transportation** to be strenghtened on **surface**

➢**Increased absenteeism**

During receding stage

✔ Before putting back into operation: **pumping** and **cleaning + inspections on** structures and equipment

Challenges

➢ **Prioritize** works between lines

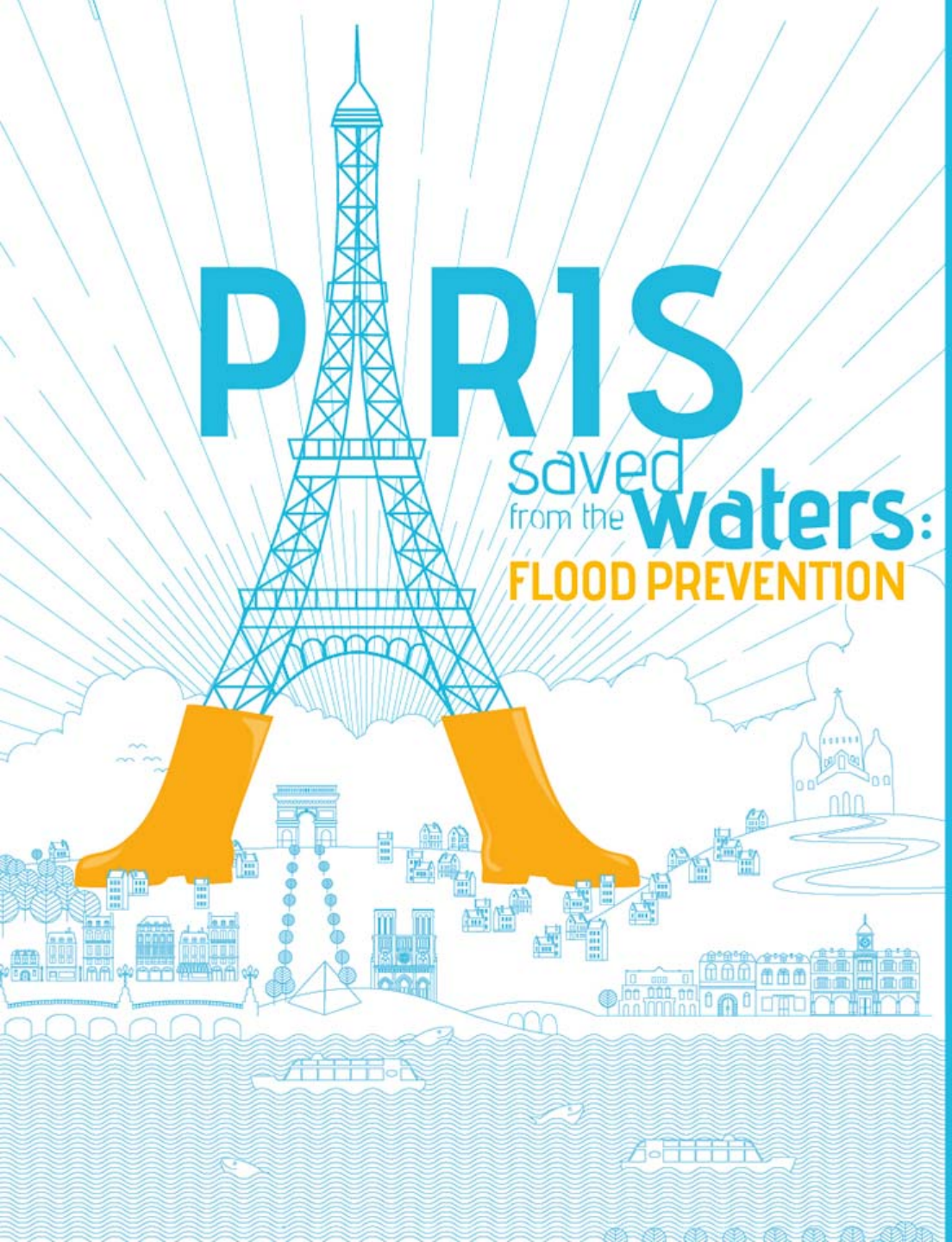
➢ Address (potential) **failures** on the re-opened lines

Conclusion

- → Flood = several weeks (7 in 1910)
- → Potential crisis = several months
- → Restoration time = 2 years

Crucial issue = triggering the crisis management at the right time in order to ease the return to normal

Challenge = decision taken during the rising stage (uncertainty on the flood development)



Flooding risks for railway operations: a need for systemic management

鉄道網における洪水ハザードを防止するためのグローバルな取組み

Vincent ROQUE

Head of Defense sector

SNCF

UN World Conference on Disaster Risk Reduction
2015 Sendai Japan

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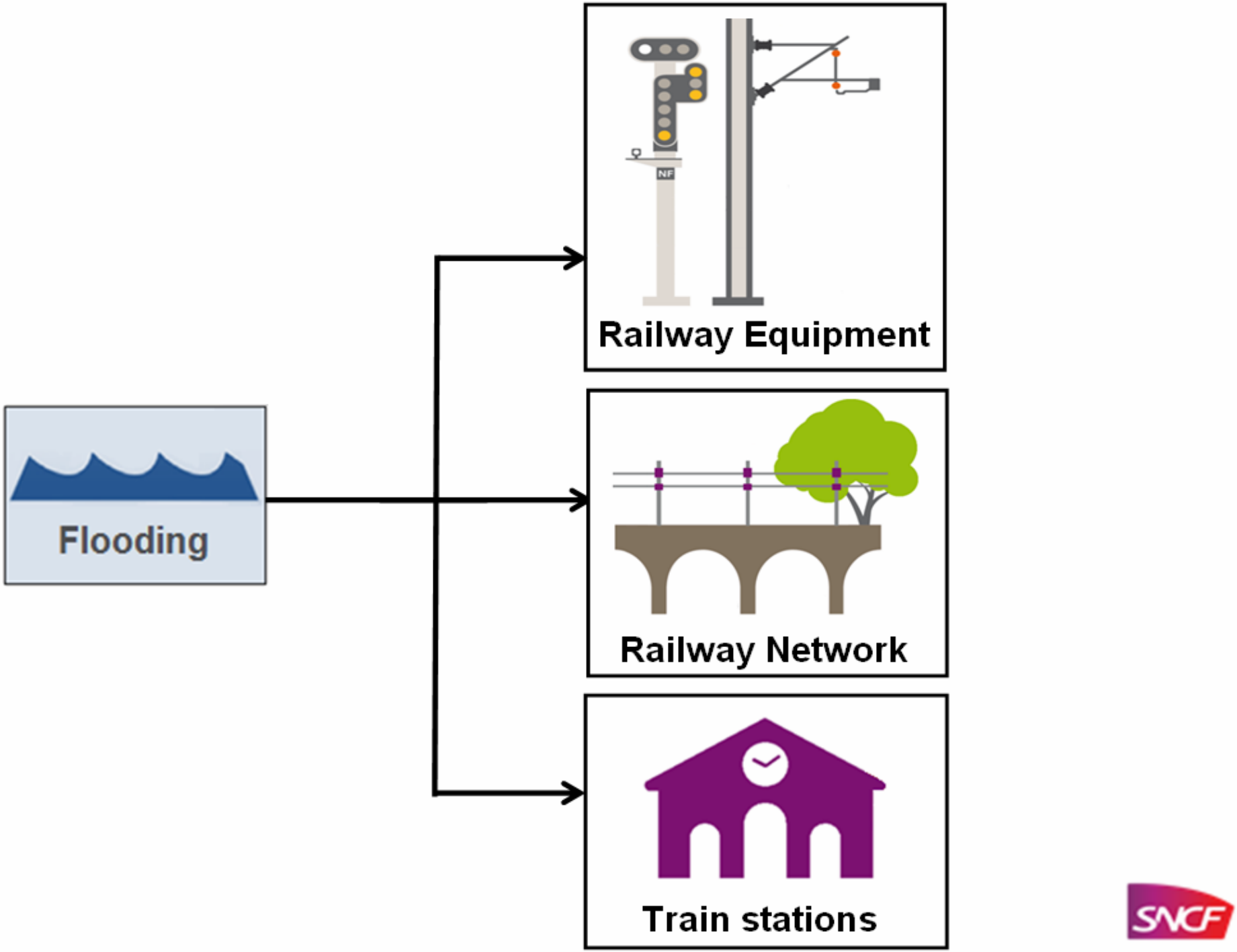
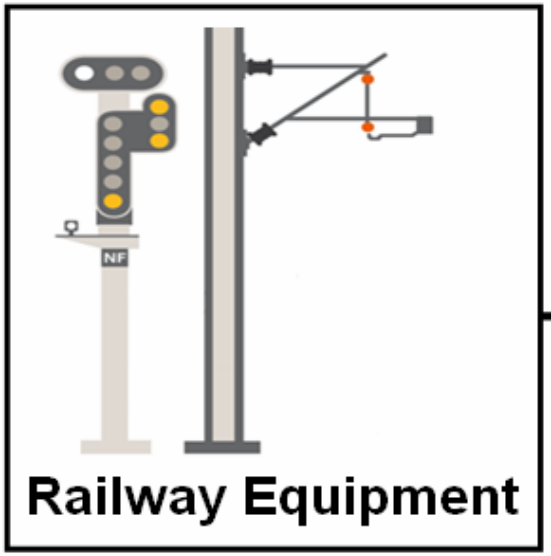
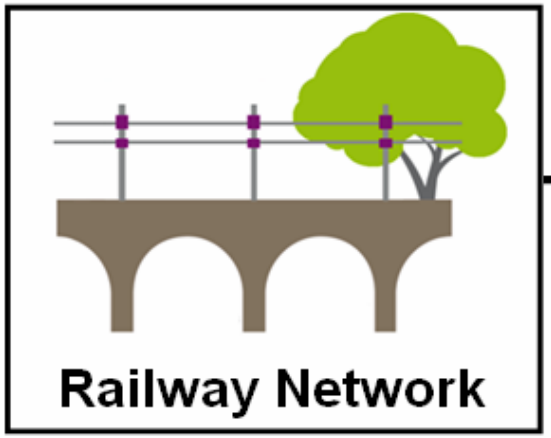

Flooding
Railway Equipment
Railway Network
Train stations

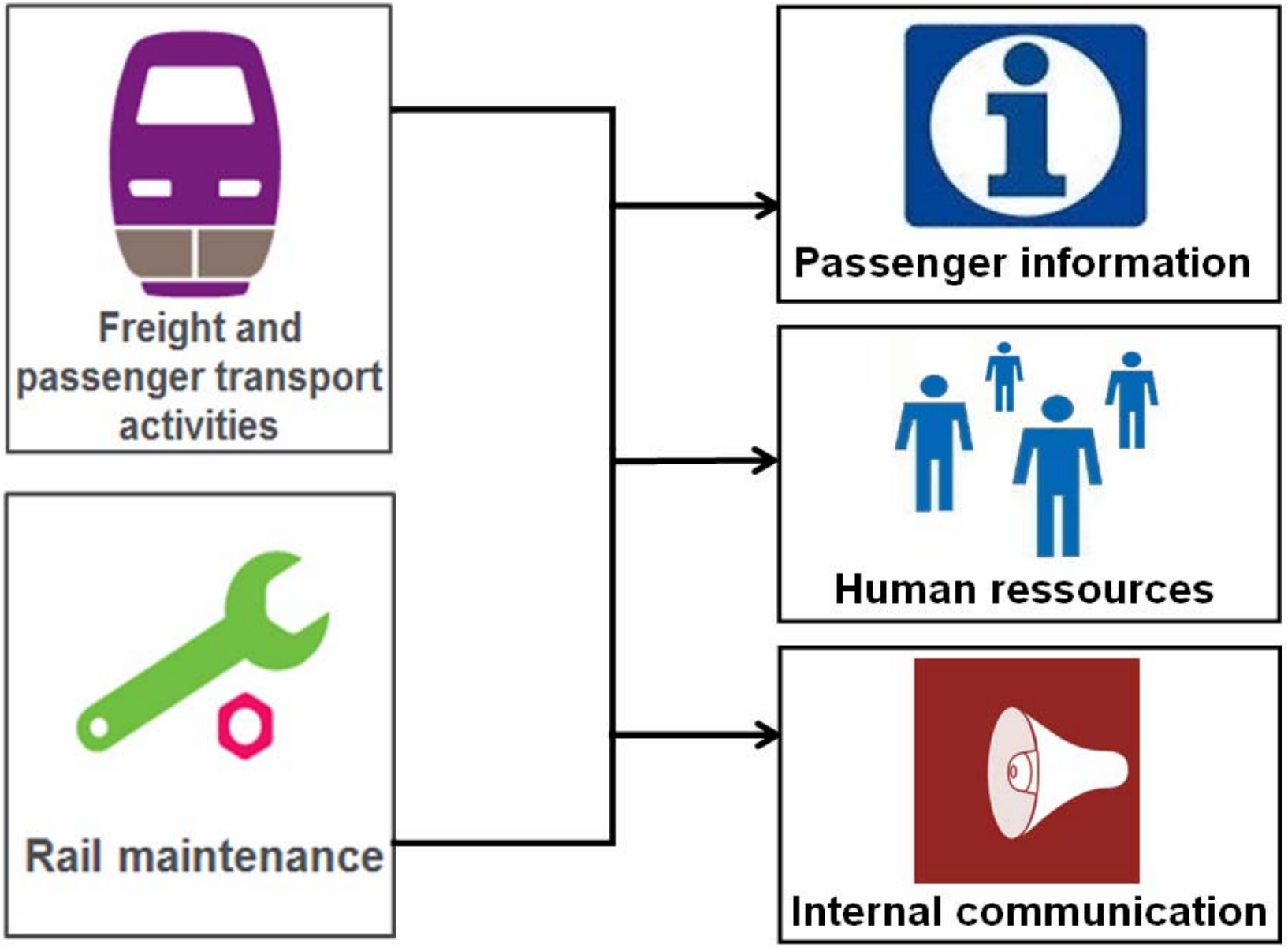

Railway Equipment


Railway Network

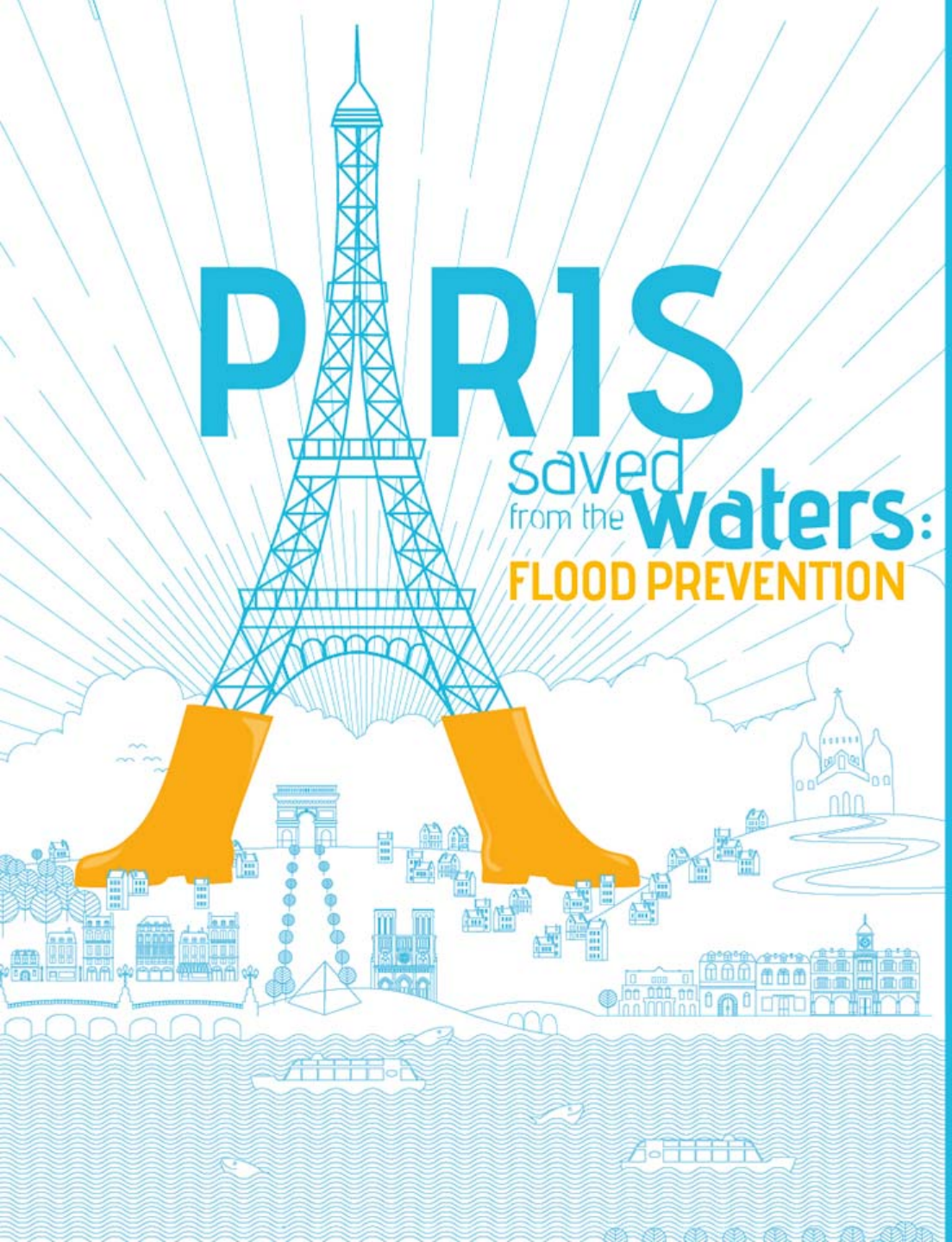

Train stations


Freight and passenger transport activities


Rail maintenance


Freight and passenger transport activities
Rail maintenance
Passenger information
Human ressources
Internal communication

	Network	Freight	TGV	Régional services	Human ressources
Risks owners	Impacts on railway infrastructure and equipment	Impacts on freight services	Requirements for the stabling and protection of rolling stock	Customer information and explanation of the situation	Modification of employment contracts



MAIRIE DE PARIS

Actions aimed at reducing vulnerability against the risk of flooding in Paris

Eric DEFRETIN

Head of crisis management department
City of Paris

UN World Conference on Disaster Risk Reduction
2015 Sendai Japan

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The 1910 flood

The Seine river near City Hall

Prevention tools

- Forecast tools: Vigicrue website (www.vigicrues.gouv.fr)
- Modernization of the piezometer network in Paris
- Flood marks

Flood mark

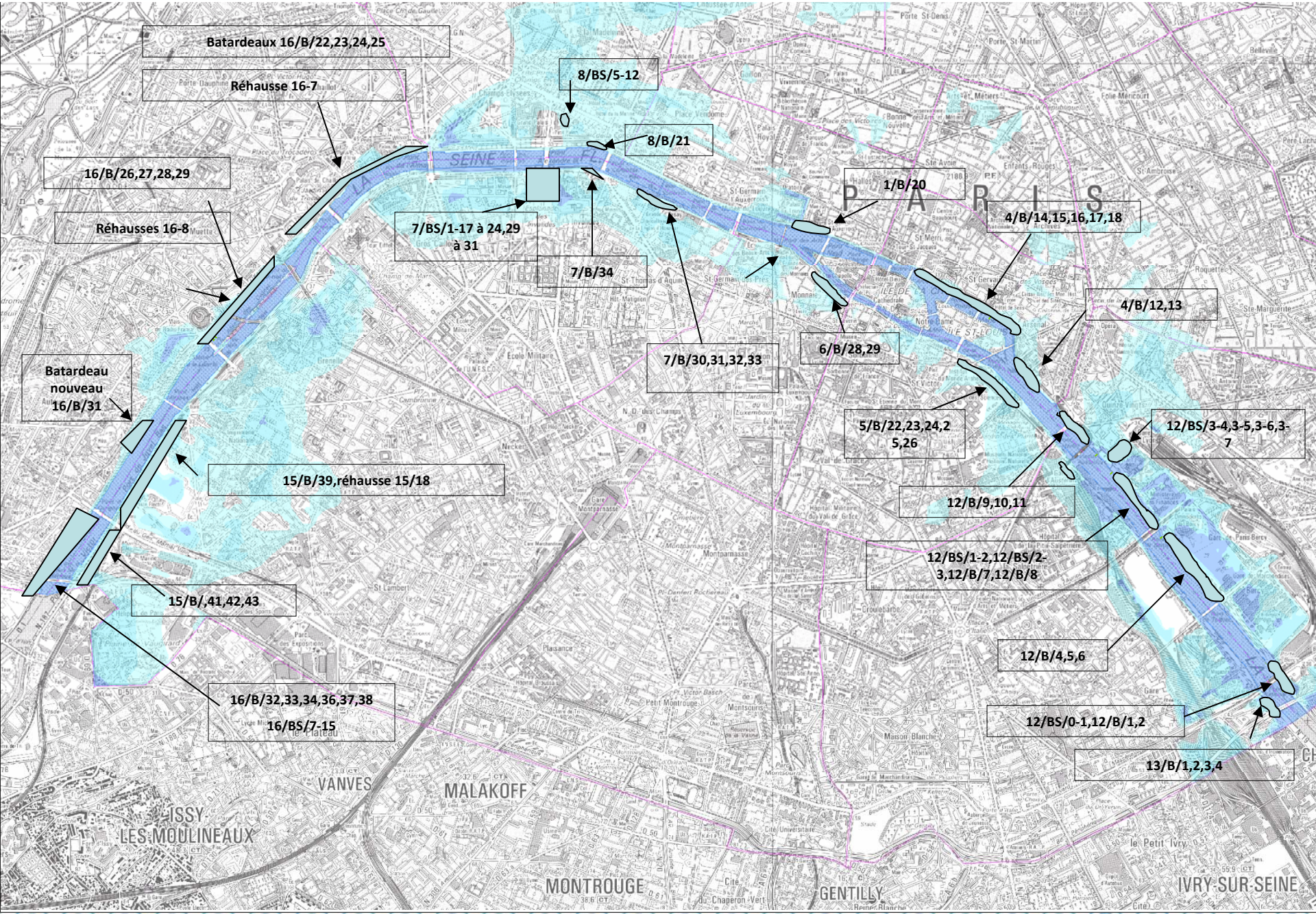
Removable protection system

- Removable protection system to protect the streets of Paris.
- Study to identify weak points
- This system was designed so as to prevent water overflows as long as the water level remains under the peak height of the 1910 flood.
- Cofferdams, anti flood barriers and parapet extensions

Removable protection system

- Setting up of the system by the municipal services in a very short time
- Stored in different places outside the flood zone and checked annually
- Exercises to set up the equipments.

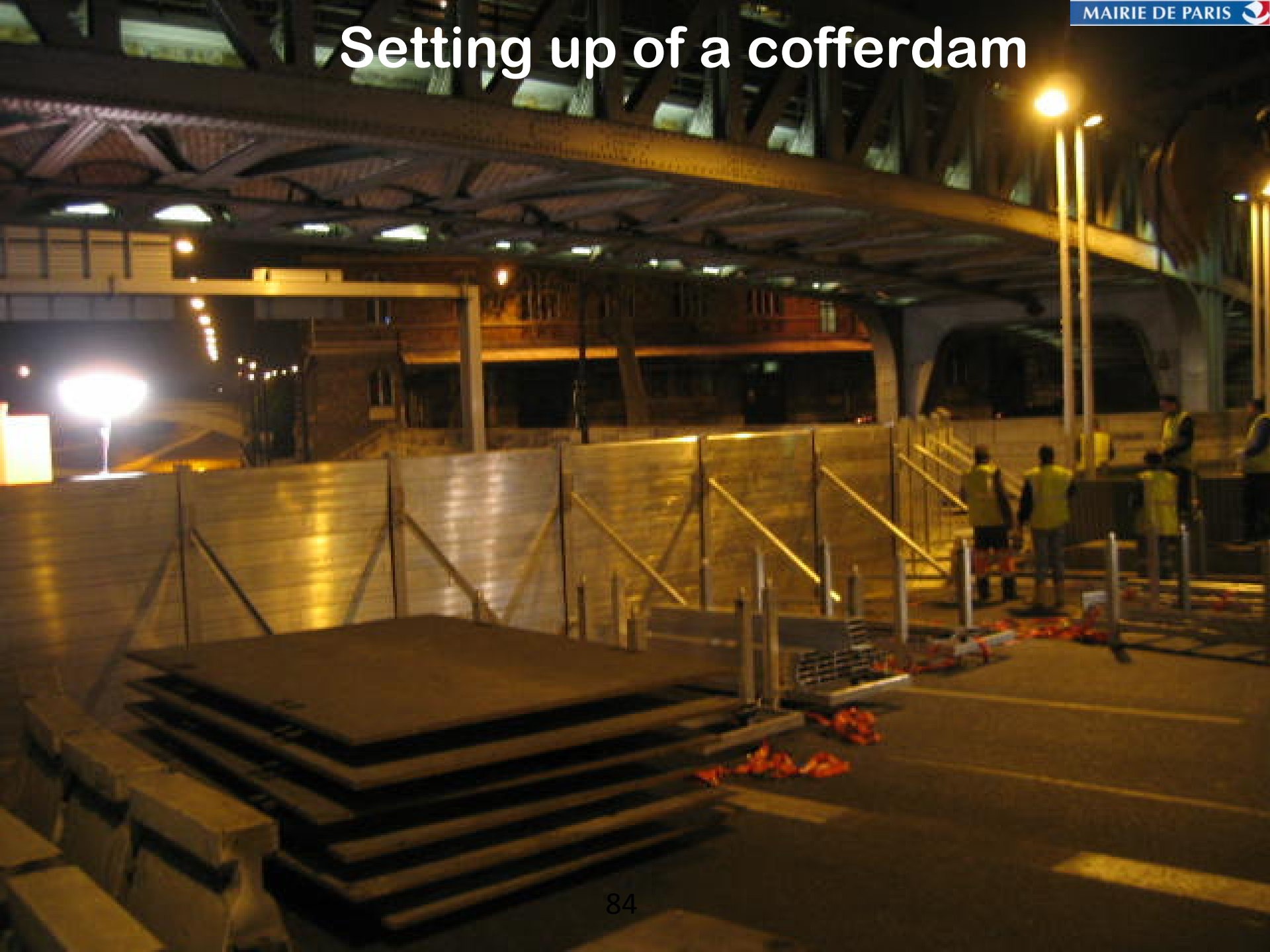
Cofferdams and parapet extensions



Setting up of a cofferdam

Setting up of a cofferdam

Setting up of a cofferdam




MAIRIE DE PARIS
Quai de Grenelle, 15ème

Flood risk prevention plan

- This document determines :

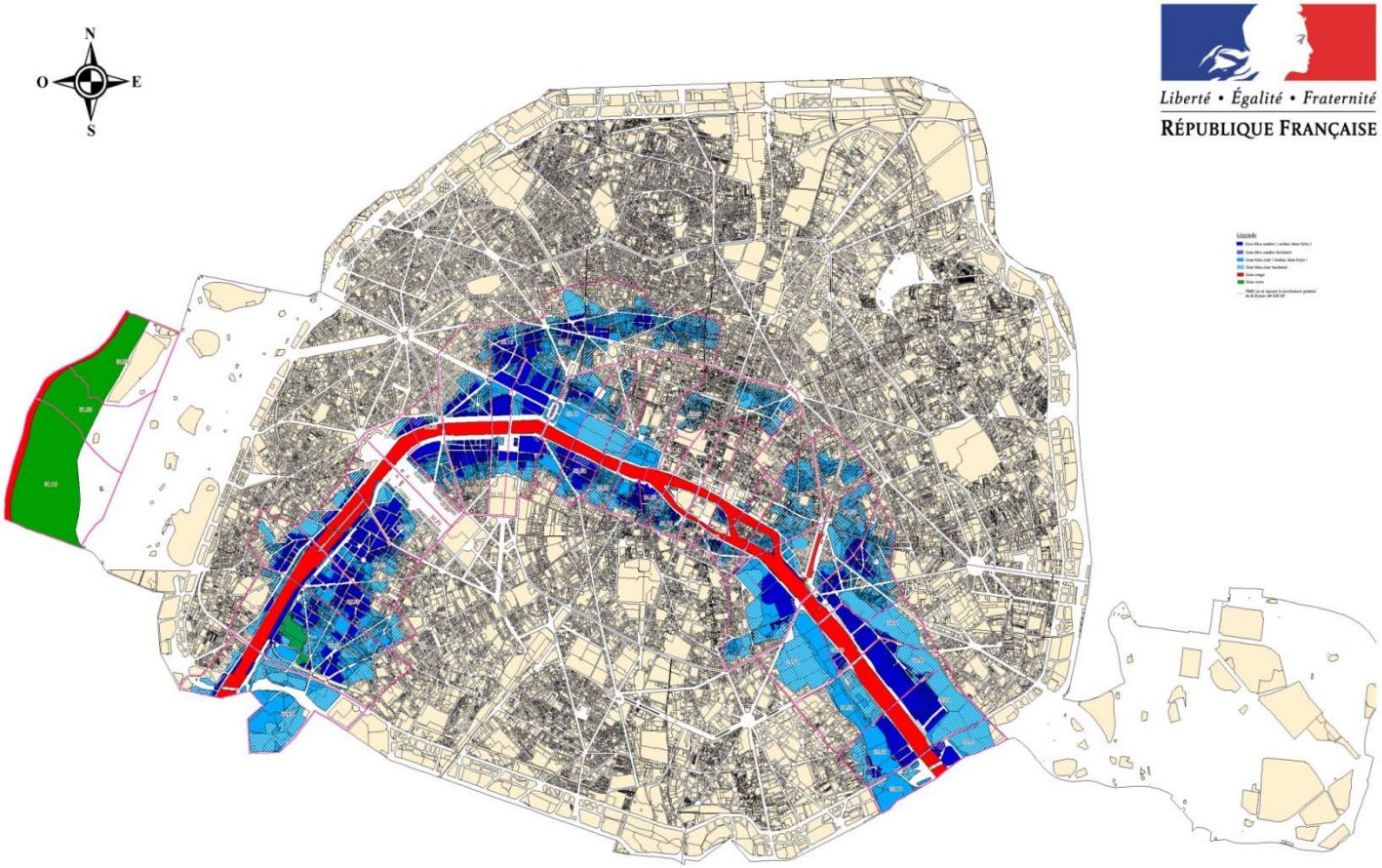
  - the flood area map

  - the construction rules in flood areas for new constructions

  - the arrangements to be made during the rehabilitation of old buildings

- To draw up flood protection plans

Map of potential flood areas



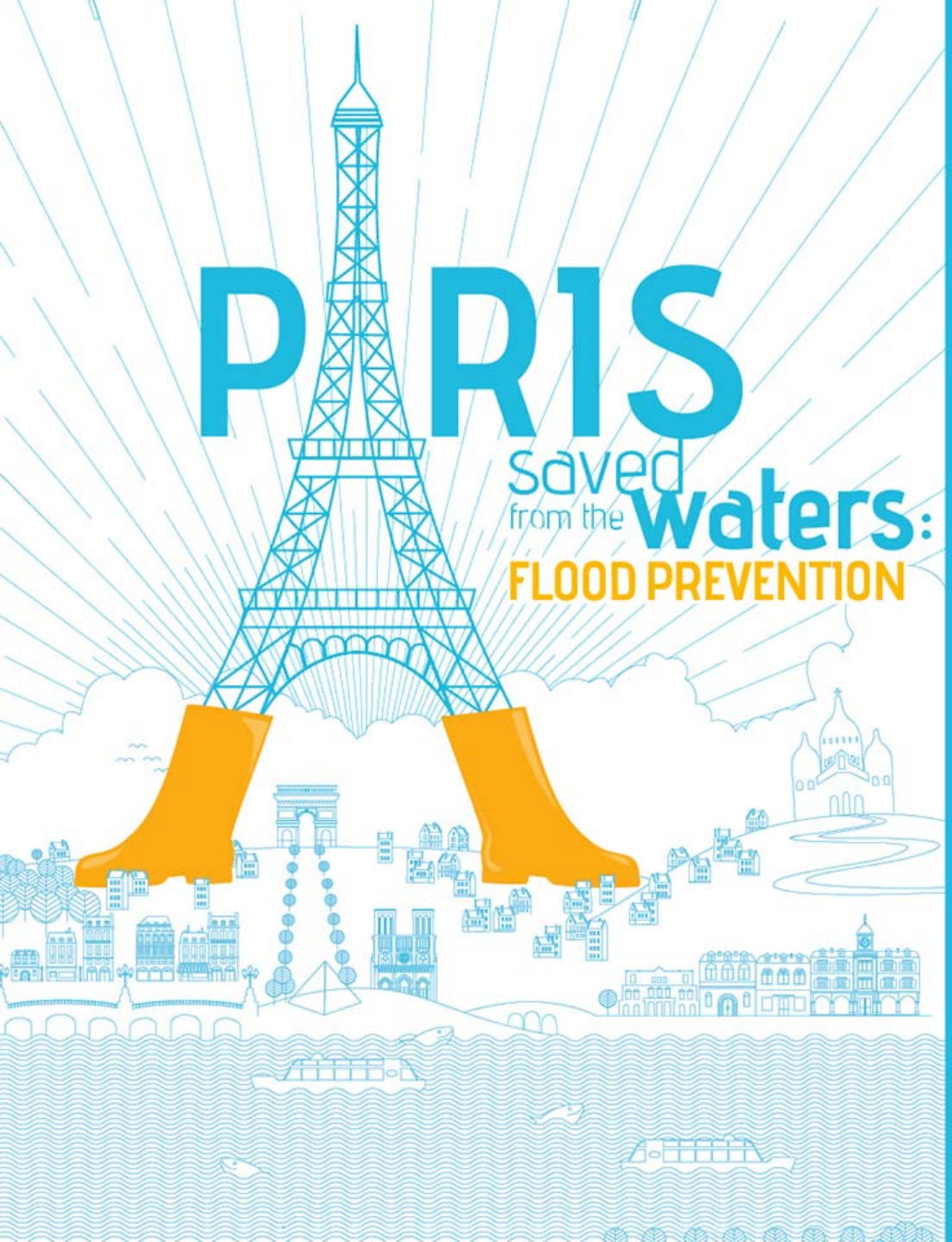
Business continuity plans

- A flood generates power outages and disruptions in transportation

- Neccessity to develop a business continuity plan in case of flooding of the Seine river

→ Identifying the core tasks

→ Identifying actions to be taken to make sure these essential tasks are performed if the flood occurs



LOUVRE

The Louvre museum : cultural heritage protection actions

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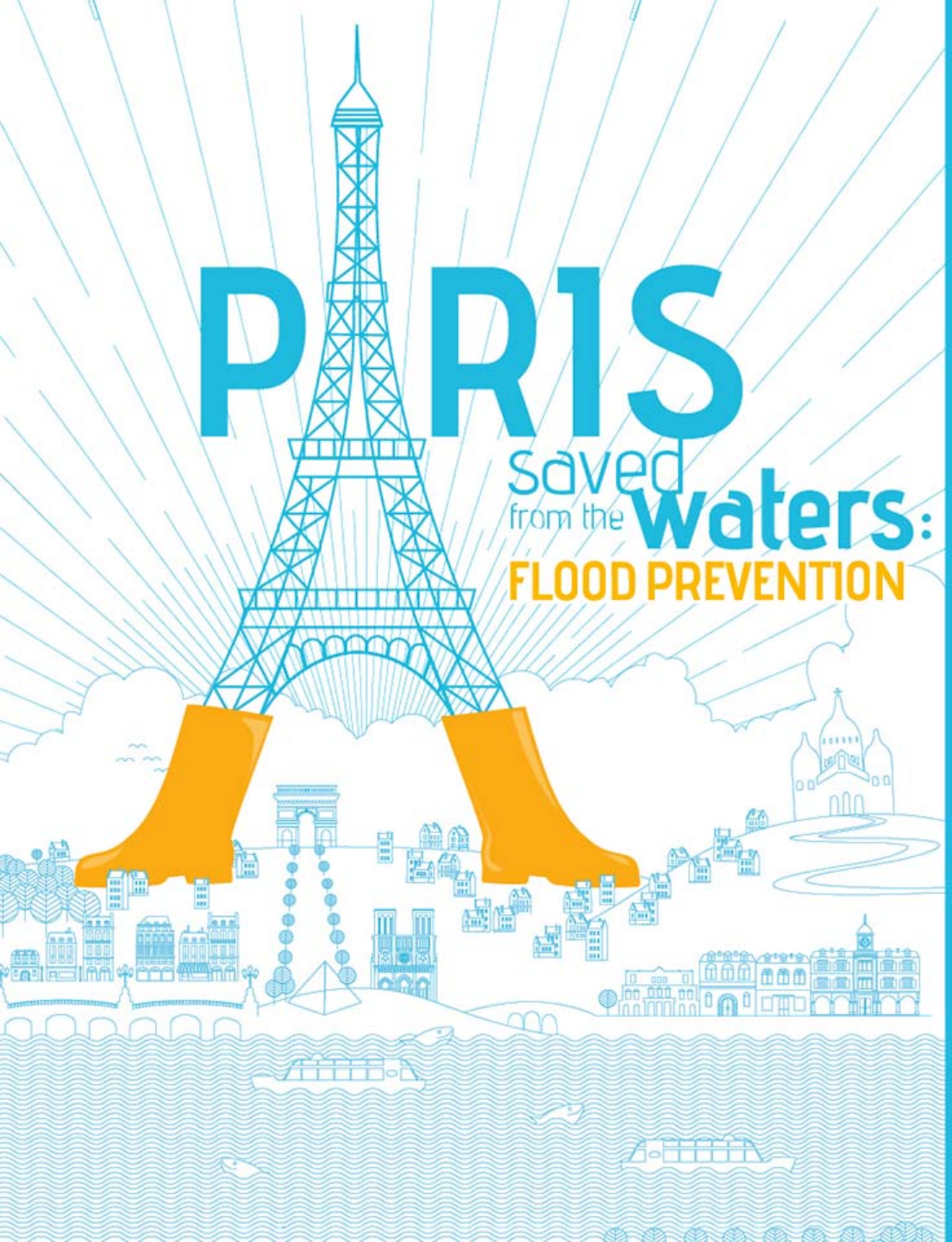

SIGNALERT

gecina

The involvement of GECINA, a real estate promoter

Richard GUILLANDE

Signalert Director

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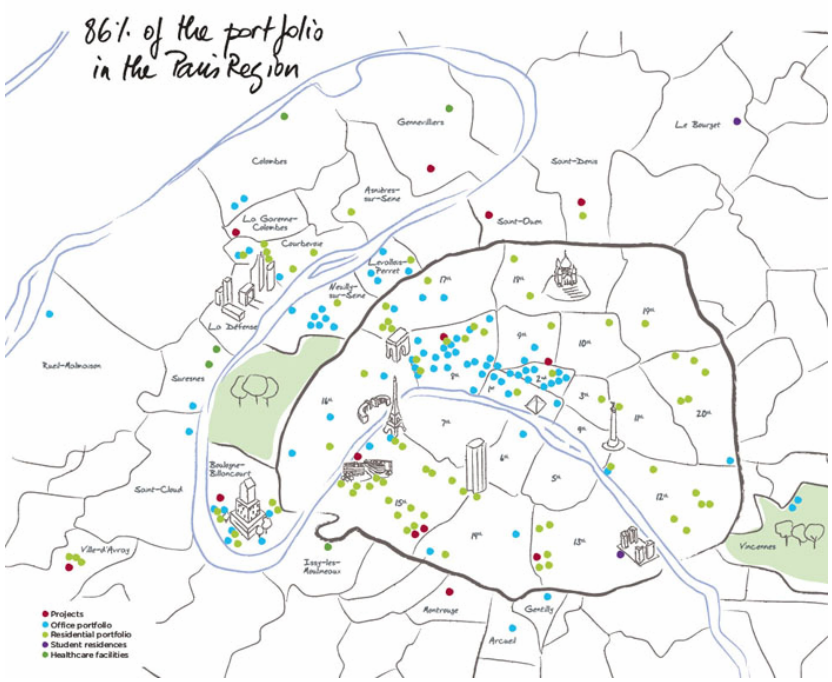
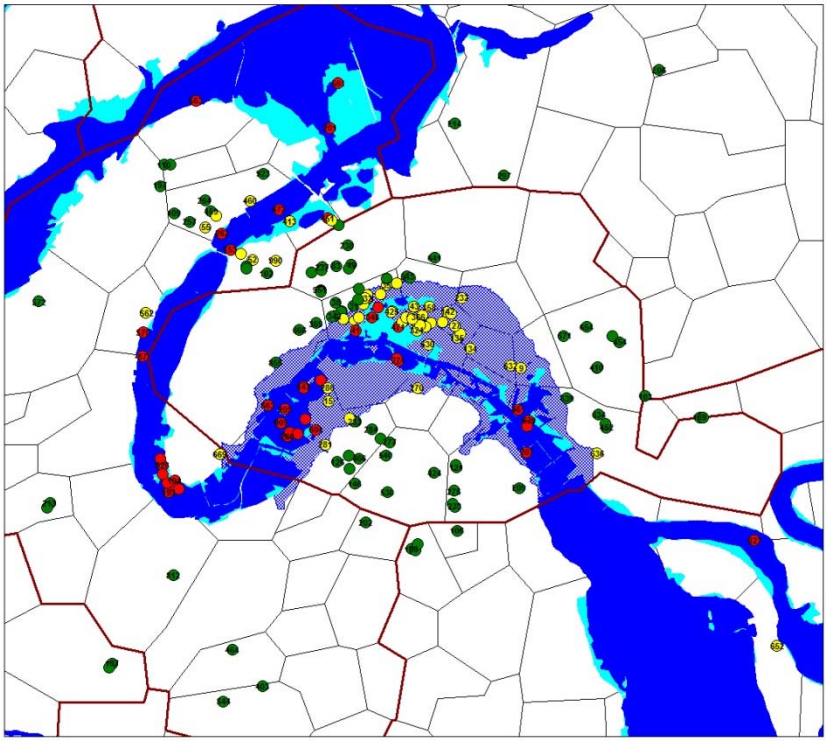


THE GECINA GROUP

- Offices
- Residential
- Student residences
- Healthcare
- Mostly in France concentrated in Paris region
- 11 billion euros of assets

PATRIMOINE	PLANÈTE	COLLABORATEURS	SOCIÉTÉ
Energy performance and RE	GHG emissions and climate change	Integration of CSR into GECINA's businesses	Integration into the surrounding areas
Labeling, certification and environmental performance	Natural resources and waste	Talent and skill sets	Relationship with stakeholders
Immaterial value, confort wellbeing and productivity	Biodiversity	Diversity and equal treatment	Business ethics
Safety and risks control	Water	Working conditions	Responsible buying Sponsoring and partnerships

FLOOD HAZARD EXPOSURE ASSESSMENT : A COMPONENT OF GLOBAL RISKS ASSESSMENT AT GROUP LEVEL



- GIS mapping of assets exposure
- Preliminary assessment of exposure and potential direct and indirect impact level on each building location

FLOOD HAZARD VULNERABILITY ASSESSMENT PROCESS

step1

- Precise Water depth assessment in the building for various scenarios
- Effect of water table rise on underground levels and equipments

step2

- Site visite of all submersible parts and environment
- Analysis of damages to each element of building operation and function

step3

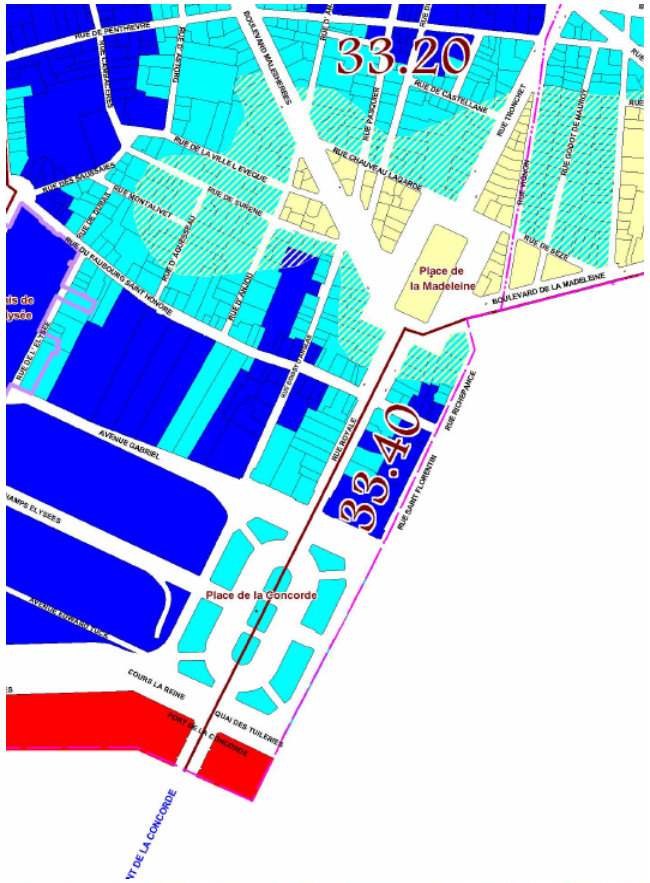
- Reporting on direct and indirect consequences of selected flood scenarios for both the Building and its equipement and the residents
- Recommandation for structural or non structural vulnerability reduction measures

step4

- Decision of asset and possible work and adaptation

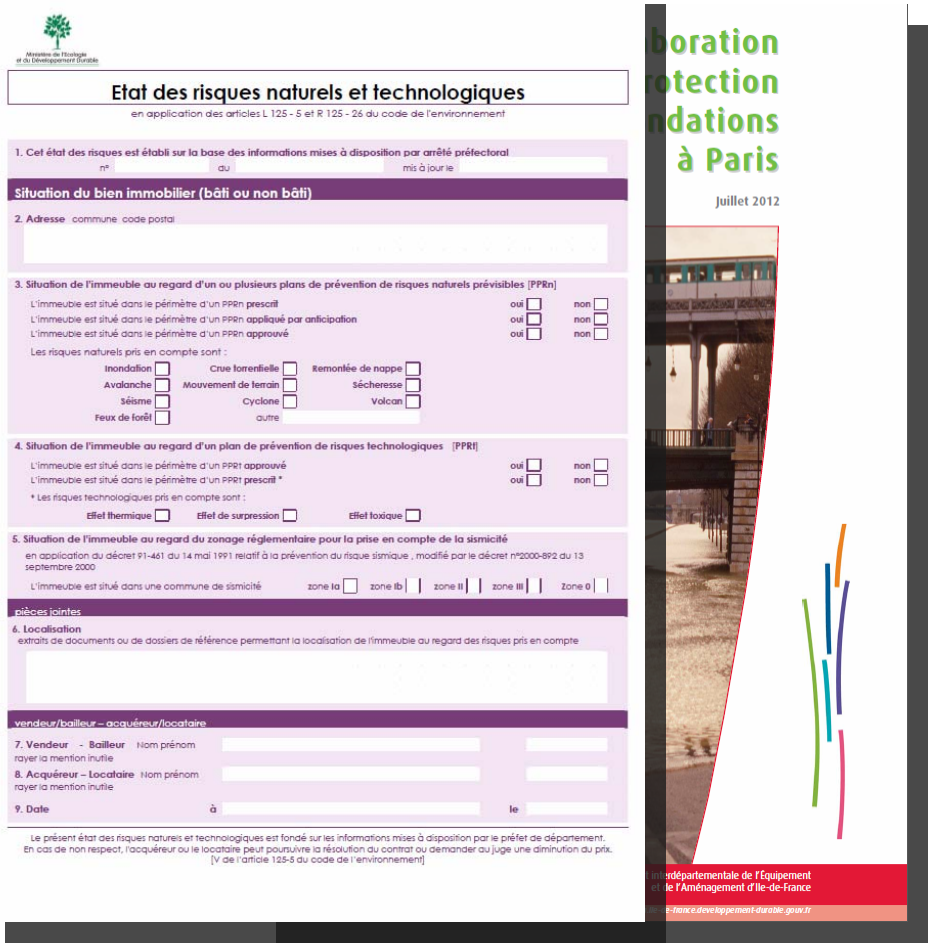
FLOOD HAZARD VULNERABILITY REDUCTION ON BUILDINGS

- In the framework of the flood risk prevention plan (PPRI)
- Modification of building to make them less vulnerable



FLOOD HAZARD VULNERABILITY REDUCTION OF PEOPLE

Based on French regulation of citizen information on hazard exposure and crisis organization for strategic buildings



Ministère de l'Écologie et du Développement Durable

Etat des risques naturels et technologiques

en application des articles L 125 - 5 et R 125 - 26 du code de l'environnement

1. Cet état des risques est établi sur la base des informations mises à disposition par arrêté préfectoral

n° du mis à jour le

Situation du bien immobilier (bâti ou non bâti)

2. Adresse commune code postal

3. Situation de l'immeuble au regard d'un ou plusieurs plans de prévention de risques naturels prévisibles [PPRn]

L'immeuble est situé dans le périmètre d'un PPRn prescrit oui ☐ non ☐

L'immeuble est situé dans le périmètre d'un PPRn appliqué par anticipation oui ☐ non ☐

L'immeuble est situé dans le périmètre d'un PPRn approuvé oui ☐ non ☐

Les risques naturels pris en compte sont :

Inondation ☐ Crue torrentielle ☐ Remontée de nappe ☐

Avalanche ☐ Mouvement de terrain ☐ Sécheresse ☐

Séisme ☐ Cyclone ☐ Volcan ☐

Feux de forêt ☐ autre

4. Situation de l'immeuble au regard d'un plan de prévention de risques technologiques [PPRt]

L'immeuble est situé dans le périmètre d'un PPRt approuvé oui ☐ non ☐

L'immeuble est situé dans le périmètre d'un PPRt prescrit * oui ☐ non ☐

* Les risques technologiques pris en compte sont :

Effet thermique ☐ Effet de surpression ☐ Effet toxique ☐

5. Situation de l'immeuble au regard du zonage réglementaire pour la prise en compte de la sismicité

en application du décret 91-461 du 14 mai 1991 relatif à la prévention du risque sismique , modifié par le décret n°2000-892 du 13 septembre 2000

L'immeuble est situé dans une commune de sismicité zone Ia ☐ zone Ib ☐ zone II ☐ zone III ☐ Zone 0 ☐

pièces jointes

6. Localisation

extraits de documents ou de dossiers de référence permettant la localisation de l'immeuble au regard des risques pris en compte

vendeur/bailleur – acquéreur/locataire

7. Vendeur - Bailleur Nom prénom

rayer la mention inutile

8. Acquéreur – Locataire Nom prénom

rayer la mention inutile

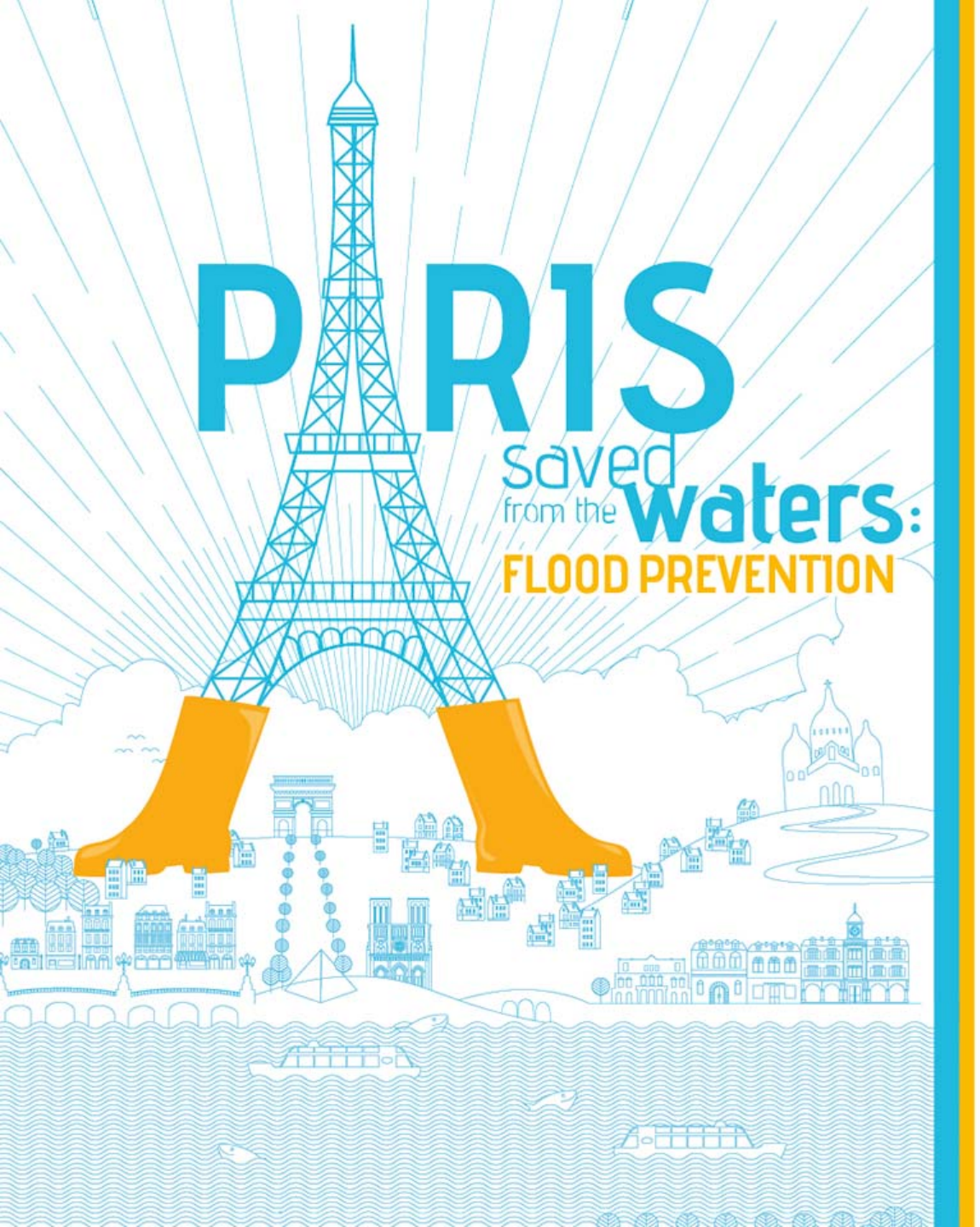
9. Date à le

Le présent état des risques naturels et technologiques est fondé sur les informations mises à disposition par le préfet de département.
En cas de non respect, l'acquéreur ou le locataire peut poursuivre la résolution du contrat ou demander au juge une diminution du prix.
[V de l'article 125-5 du code de l'environnement]

boration
otection
ndations
à Paris

Juillet 2012

départementale de l'Equipement
le l'Aménagement d'Ile-de-France



Part 5

Conclusion

Patricia BLANC

Director-General for risk prevention and interministerial delegate for major risks in France

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2015 Sendai Japan

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Ministère de l'Écologie, du Développement durable et de l'Énergie

Merci de votre attention !

ご清聴頂いてどうもありがとうございます

Thank you for your attention!