

# Adaptation of the Meuse to the Impacts of Climate Evolutions



**4<sup>th</sup> workshop on water and adaptation to climate change**

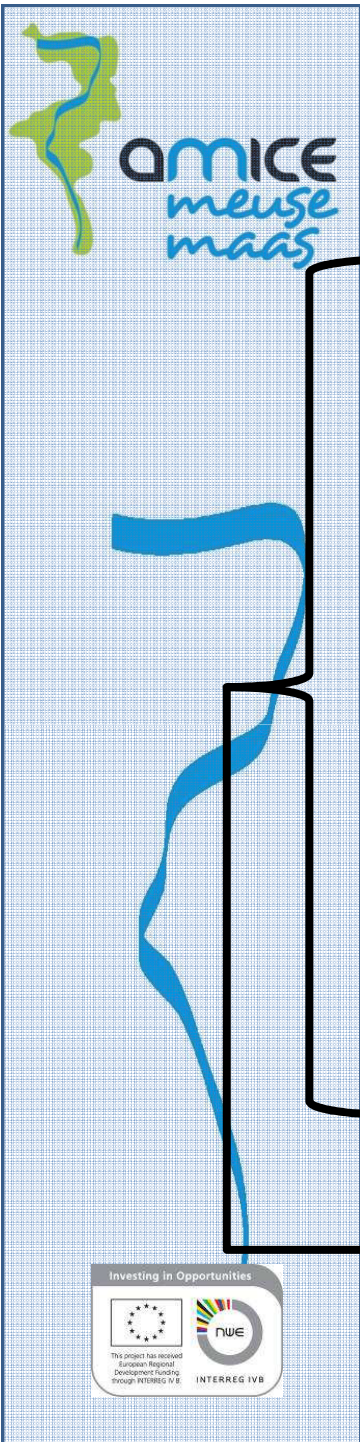
**“Market of tools”: Communication in AMICE**



## ✓ Organization of the project

- ❖ 4 years of studies and works : 2009-2013
- ❖ 4 countries involved: FR, BE, DE, NL
- ❖ budget 8,9 M€ dont 2,8 M€ ERDF
- ❖ EPAMA lead partner
- ❖ 17 organizations





# ✓ Organization of the project



**WP1 : Risk assesement**  
**Assessment of damages caused by floods and low-flows events, basing on common climate scenarios**

**WP2 : Natural water retention**  
**Promote the natural areas as a water retention tool**

**WP3 : Structural protections**  
**Improve the existing measures according to climate scenarios**

**WP4 : Crisis management**  
**Transnational flood crisis exercice**

Coordination

Communication



A lot of tools!!!

# ✓ The communication tools

A Book...



[www.amice-film.eu](http://www.amice-film.eu)

Boards...  
Meetings...



Leaflets...  
Newsletters...

HOW TO FACE THE CRISIS ?

DO NOT FORGET :  
KEEP YOUR SENS OF HUMOUR DARLING...



Graf  
<http://igubinaire.net/>



Softwares for crisis  
management...



# ✓ Awareness and decision-support tool

(CC) by-nc-sa, EPAMA, IRSTEA, 2013

Based on the Wat-a-game concept (IRSTEA-France): use models to facilitate the collaborative water management



Local elected



(CC)by-nc-sa Wat-A-Game, IRSTEA,CIRAD, 2005-2013

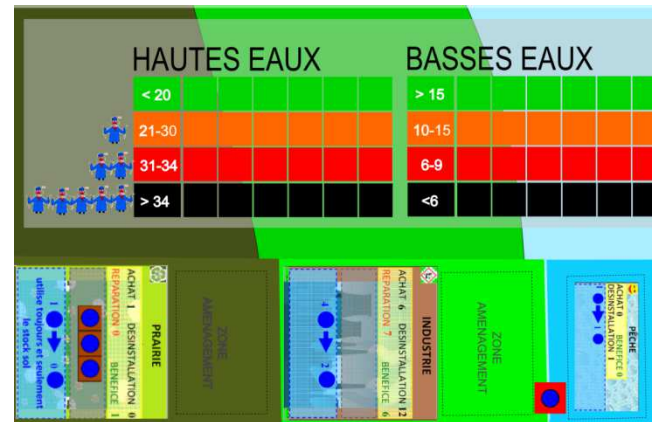
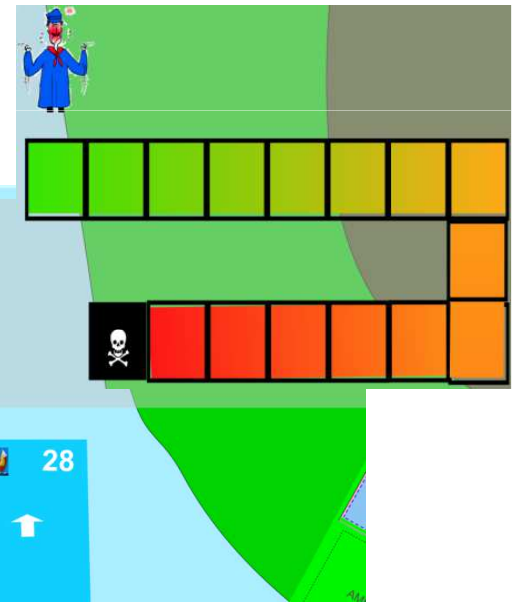


## ✓ Awareness and decision-support tool

➤ 6 rounds (based on an hydrologic year) in 3 phases:

- Land-use management
- Flood event (more or less abundant)
- Drought event (more or less severe)

➤ Individual and collaborative purposes

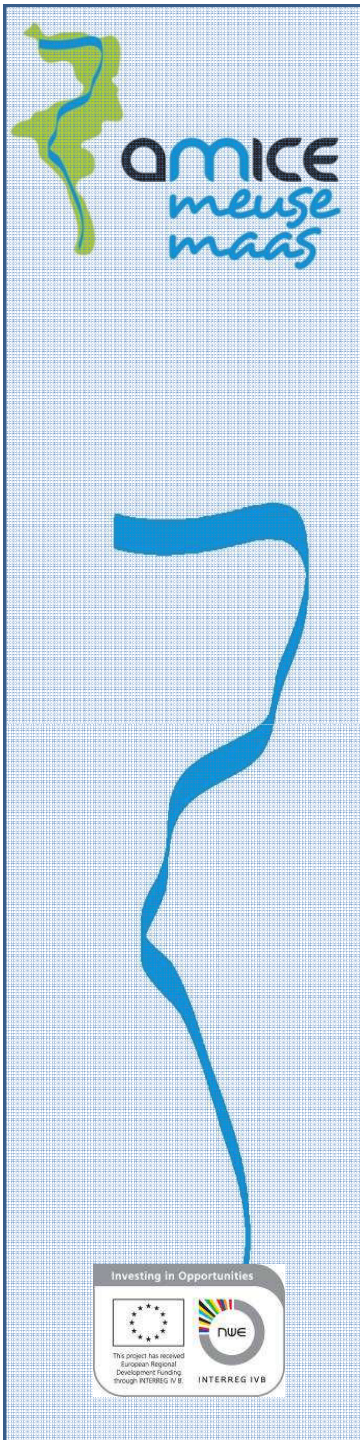


**BUT**

The winner is the richest territory after 6 rounds!!

All the players fail if the dissatisfaction threshold of Belgian people downstream is reached!!

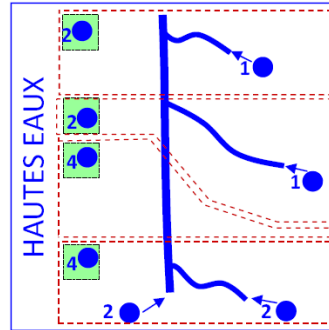




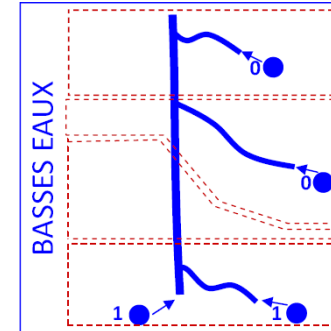
# ✓ Awareness and decision-support tool

➤ Take into account climate events

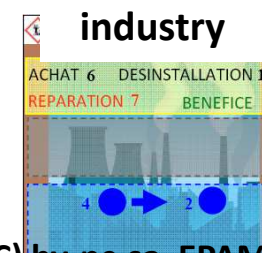
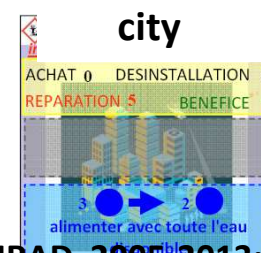
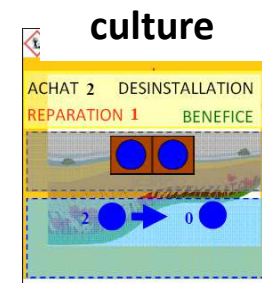
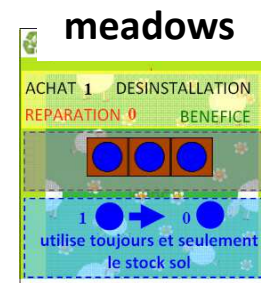
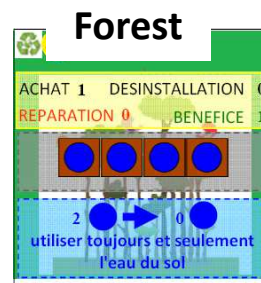
Floods

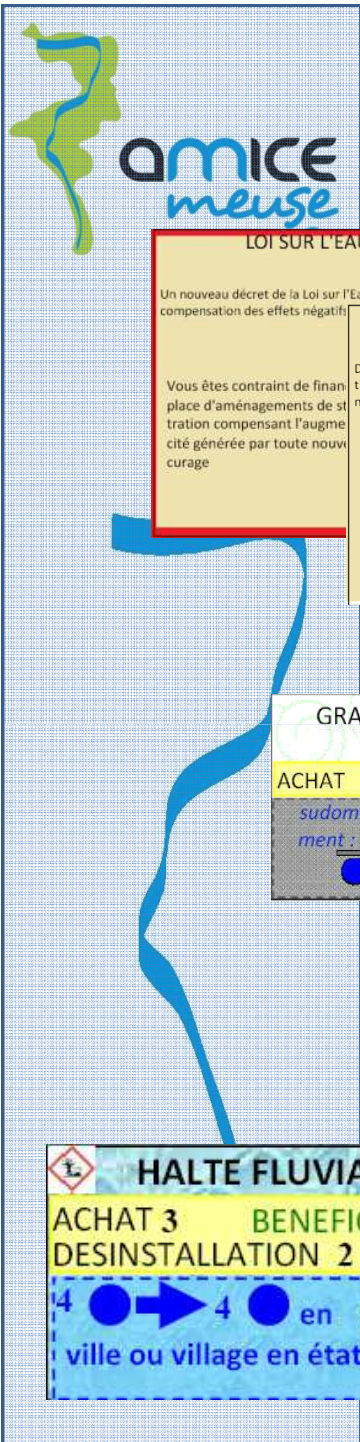


Low-flows



➤ Manage the territory according to the capacity of water retention of facilities and the revenues of each activity





✓ Awareness and decision-support tool

➤ Take into account public policies and environmental impact

**LOI SUR L'EAU**  
Un nouveau décret de la Loi sur l'Eau impose la compensation des effets négatifs

**NATURA 2000**  
Vous êtes contraint de financer des aménagements de gestion compensant l'augmentation générée par toute nouvelle curage

**DÉVELOPPEMENT DE L'AGRICULTURE BIOLOGIQUE** Achat 2  
Les cultures ne produisent plus d'impact environnemental négatif tant que cette politique est maintenue

Dans le cadre de la loi Natura 2000, l'Etat subventionne la création et le fonctionnement de parcs naturels  
Mettez en place gratuitement un PNR ou recevez 2 pour maintenir votre PNR si il est déjà en place

*Laws, subsidies, local measures...*

➤ Adaptation facilities

**GRANDE DIGUE**

**ACHAT 5**  
surdommage en cas de dommage : + 2 de cout de réfection

**BASSIN D'INFILTRATION**  
**ACHAT 3**  
sur le ruissellement

*Dykes, retention bassins, wetlands, grass strips...*

➤ Obtain some extra-revenues from aquatic activities

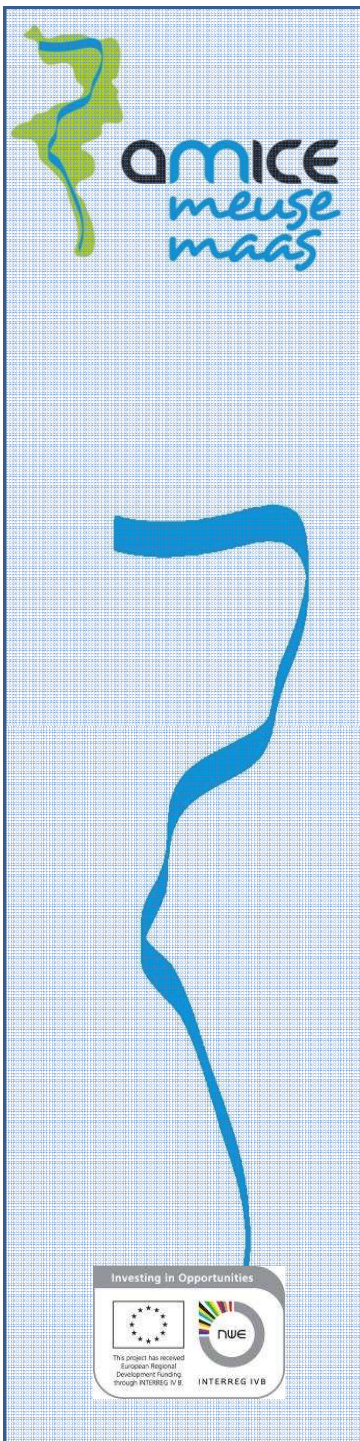
**HALTE FLUVIALE**

**ACHAT 3** **BENEFICE 2**  
**DESINSTALLATION 2**

4 ● ➔ 4 ● en bord d'une ville ou village en état de marche







## ✓ Additional concepts

### ➤ Modelling: a mean to catch the World

- ✗ Thanks to several types of models (concept, softwares, board games etc...)
- ✗ Hypothesis organized in interaction

### ➤ Stakes of such modelling

- ✗ Be adapted for complex systems, hard to describe with a linear approach, with a diversity of people (condition to efficiency and robustness)
- ✗ Be comprehensive by a wide range of stakeholders
- ✗ Improve exchanges between stakeholders through shared scenarios, common vision
- ✗ Help to coordination through the exploration of collective rules
- ✗ Encourage reflexivity

**For more information about this tool and its adaptation on other basins, you can directly contact Mr. Nils Ferrand [nils.ferrand@irstea.fr]**

(CC)by-nc-sa Wat-A-Game, IRSTEA,CIRAD, 2005-2013; (CC) by-nc-sa, EPAMA, IRSTEA, 2013




*Thanks for your attention...  
Merci de votre attention...*

[www.amice-project.eu](http://www.amice-project.eu)

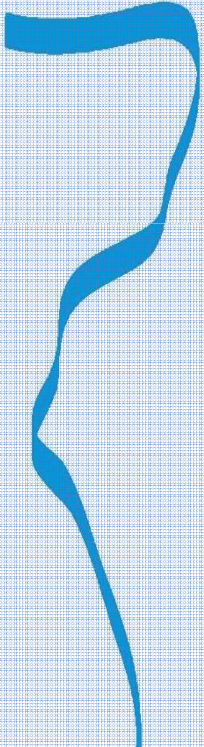


*Climate Changing ? Meuse Adapting !*







AMICE  
meuse  
maas



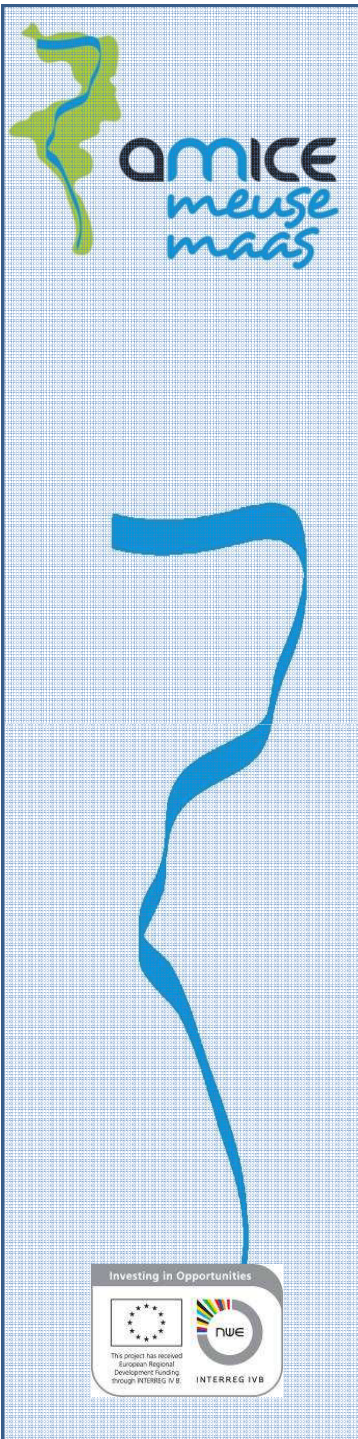
Investing in Opportunities



This project has received  
European Regional  
Development funding  
through INTERREG IVC

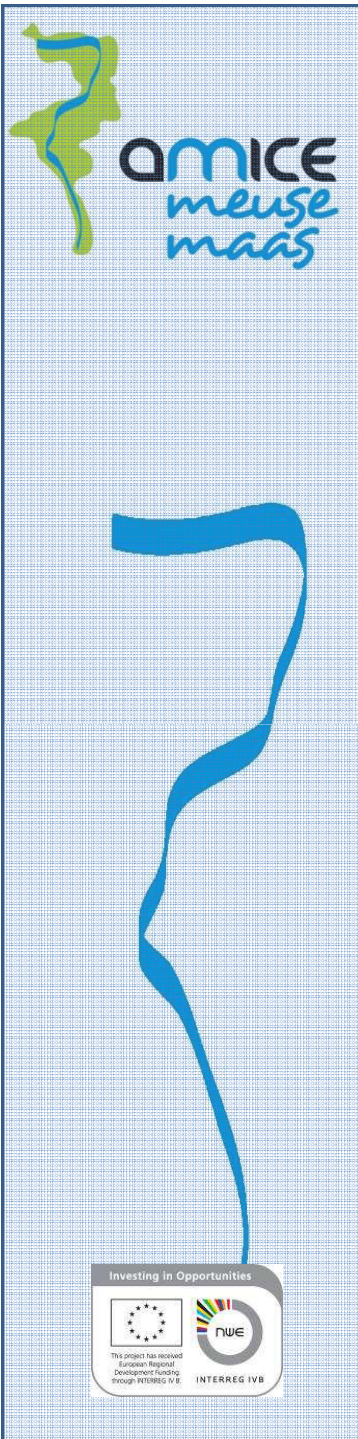
INTERREG IVC

*Questions??*



*What are the advantages??*

*What are the disadvantages??*



*Sharing of experiences...*

*Have participants already used this kind of tool?*



# ✓ Share information to improve flood crisis management



Plateforme d'échange d'informations pour la gestion des crises d'inondation

CARTE ADMINISTRATION DÉCONNEXION

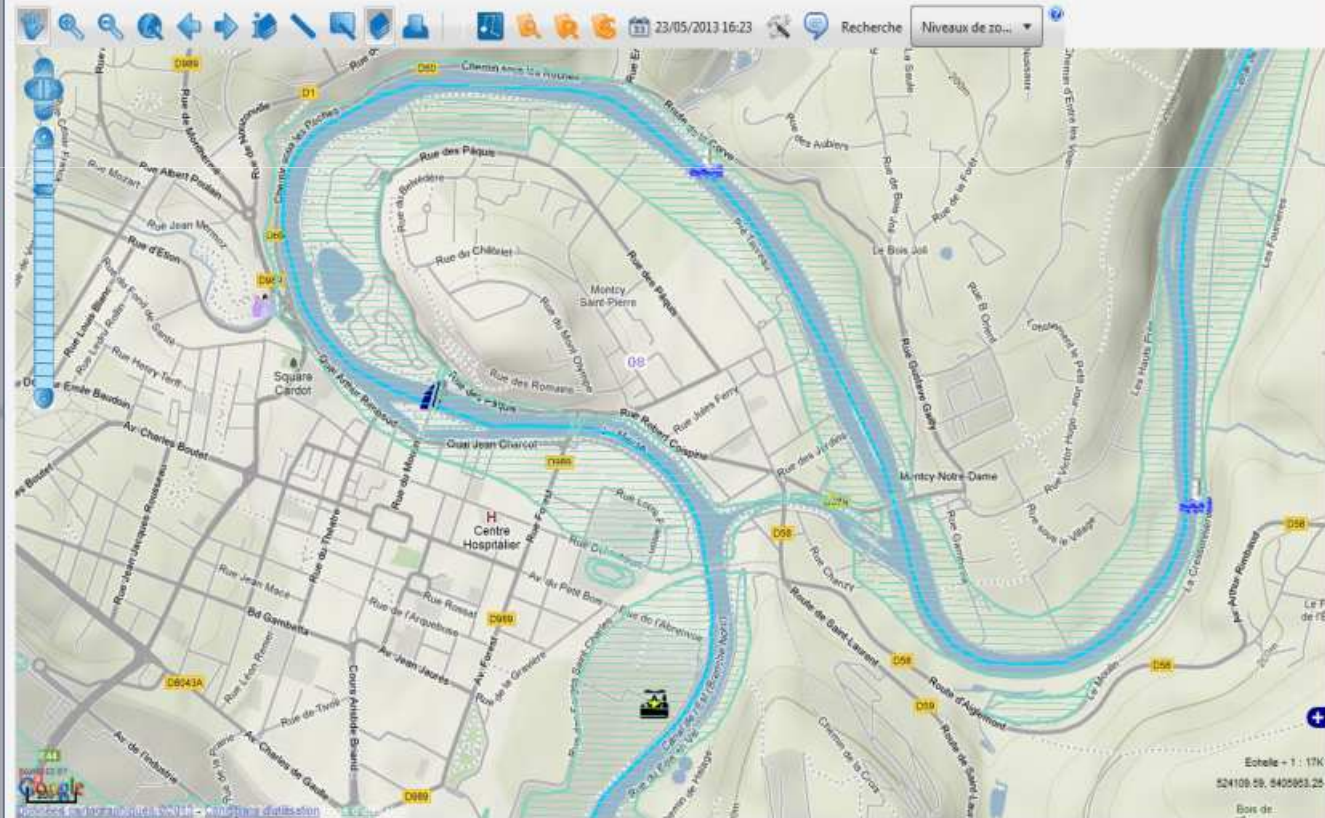
SARAH COMBALBERT

23/05/2013

Paramètres de la Carte

- Essai Cartonique
  - Meuse - Crue de AVRIL\_MAL\_1983 (WMS)
  - Ardennes - Crue de 1995 (WMS)
- ESSAI\_EPAMA
- Survi des Enjeux
  - Relevés
  - Catégories des enjeux
  - Enjeux Départementaux**
  - Enjeux Communaux
- Crue et Inondation
  - Stations de référence
  - Vigicrue
  - Contours d'inondation
- Situations opérationnelles
  - Syntheses
- Ressources
  - Ressources et communales
  - Ressources départementales
- Hydrographie
  - Tous les affluents
  - Principaux affluents
  - Le fleuve Meuse
- Limites administratives
  - Communes\_Riveraines
  - Communes
  - Départements
- Fonds de plan

Carte



Date de la vue : 23/05/2013 16:23

Echelle + 1 : 17K  
524108.59, 5405853.25  
Bois de :