THINK CREATIVELY – PLAN FLEXIBLY – IMPLEMENT RELIABLY

Expert Training on Risk and Vulnerability Assessment and Adaptation Planning

Cooperation and coordination among authorities

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European Commission

Enviroment and Climate Regional Accession Network ECRAN

Warm up / quotes … HAVE YOU HEARED THIS BEFORE?

1. Adaptation is something for pessimists!
   I am positive person, I do not believe in this stuff.
2. Adaption is a luxury. We have really other more important tasks and no time and no money for that.
3. Our department is not responsible for CC.
   So we do not develop CC-actions. Ask … someone else!
4. If CC-effects happen in 2050, we do not have to take measures now. We can save money now!



Peter Heiland, INFRASTRUKTUR & UMWELT

- Flood risk management
- **Adaptation to climate change**
- **Climate protection**
- **Energy Concepts**
- Traffic infrastructure (Rail, Airports, Roads)
- Sustainable regional development
- Conversion of brownfields
- Waste management
- Consulting in developing countries
- Project management


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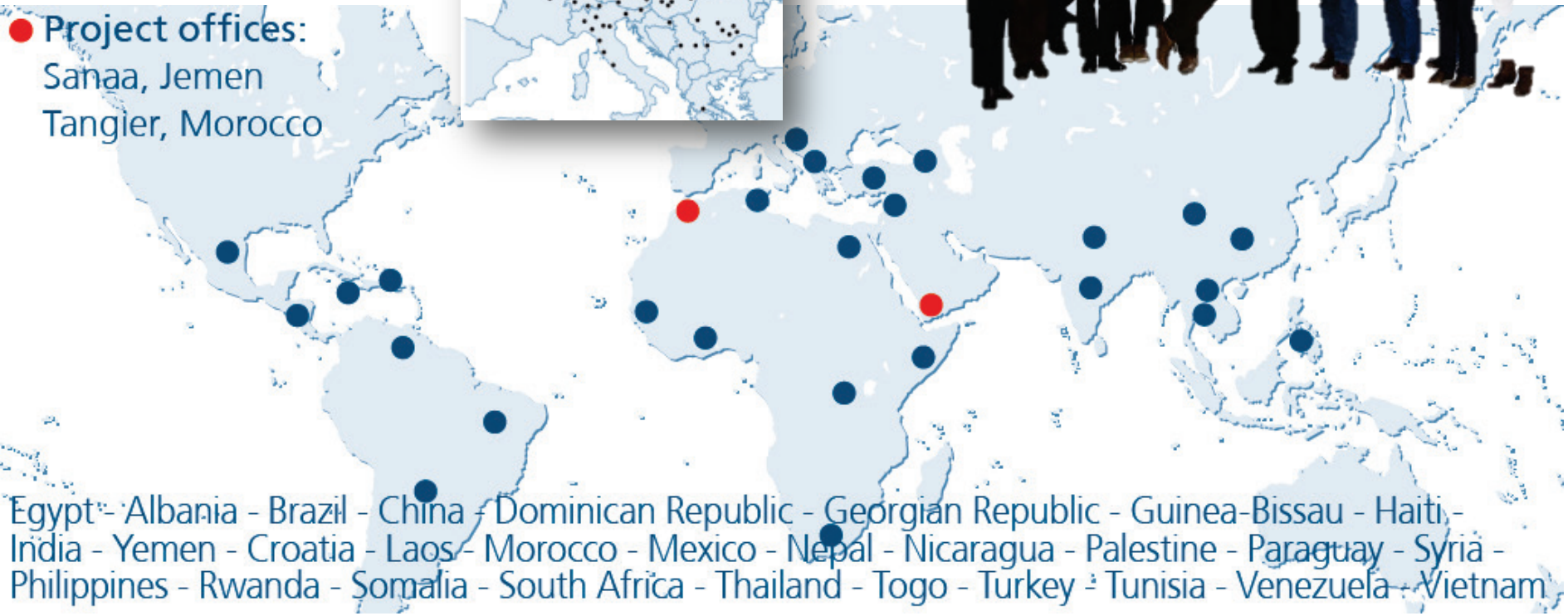
(Inter)national projects – in different fields



EU-Project / INTERREG

safer – STRATEGIES AND ACTIONS FOR FLOOD EMERGENCY RISK MANAGEMENT

Future Cities – urban networks to face climate change

Freude am Fluss – Europe

SDF

TIMIS flood

ELAPP

Danube FLOODRISK

LABEL – LABE-ELBE Adaptation to flood risk

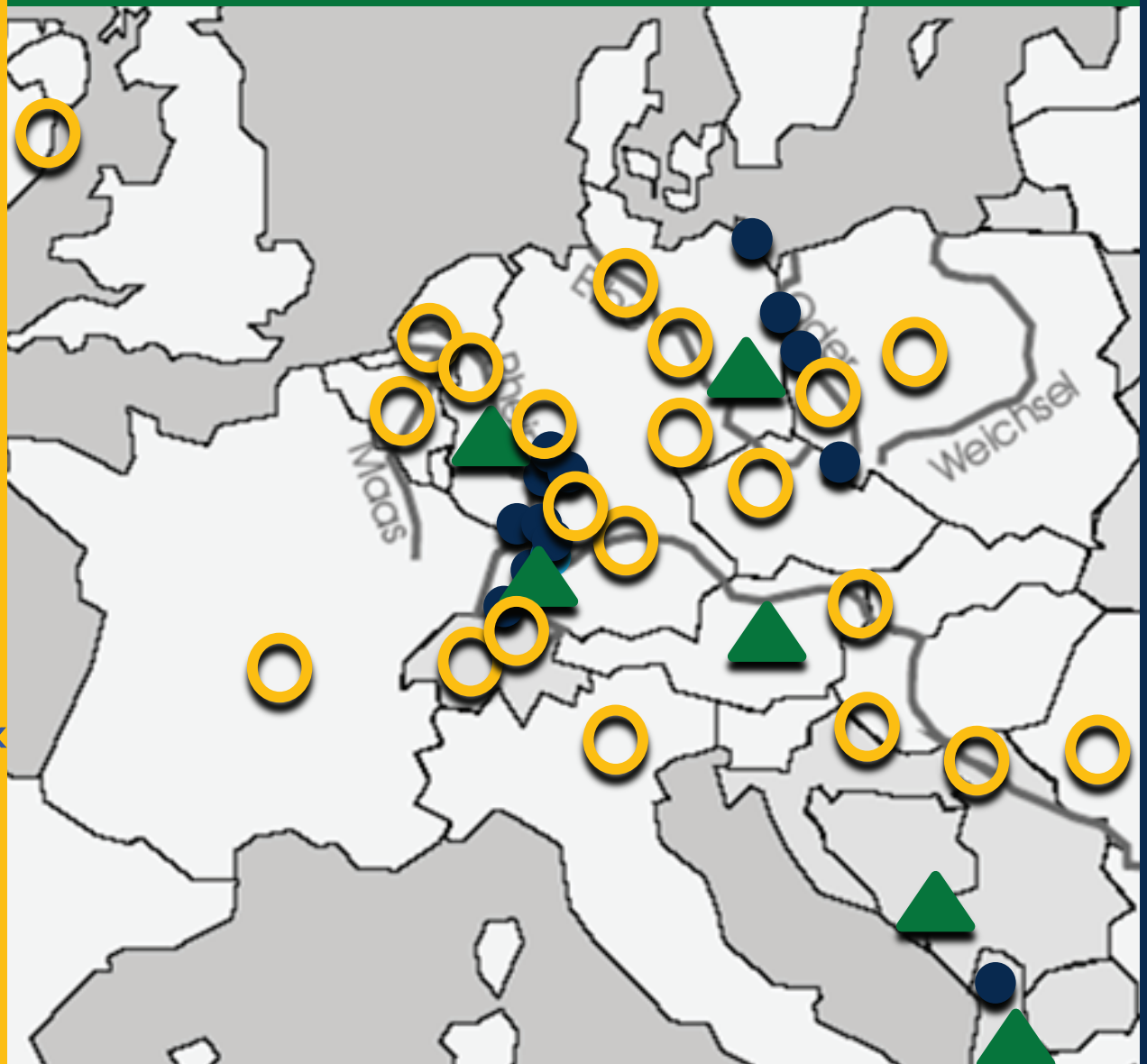
ELLA

OderRegio – INTERREG IIIB Cadses

CC-Adaptation + FRM strategies

Germayn, Federal Ministries
Baden-Württemberg
Nordrhein-Westfalen
Austria

Albania (GIZ) / Tirana / Shkodra
Montenegro (GIZ) / Podgorica
Serbia (GIZ) / Belgrade
(Vietnam, Lao)



Flood-risk-man. plans

Rhine River
(10 FRM plans)

Neckar
(with tributaries)

Main
(u.a. Schwarzbach)

Oder
(mit Lausitzer Neiße, Oderbruch und Stromoder)

Coast / Vorpommern/ Usedom

Drin / Skhoder (Albanien)

Content

1. **Why is adaptation so difficult to communicate?**
   … to decision makers and public and …
2. **Cooperation (and communication) as instruments**
   to drive infrastructure planning (and adaptation) forward
3. **Levels of cooperation, involved actors**
   (Inter Communal Cooperation; Regional Cooperation between stakeholders, Inner-municipal cooperation)
4. **Lessons learnt:**
   Success factors, regarded bottlenecks and problems

… presented with examples of cooperations on the different levels.


Heat stress


Flooding (Rivers, Coast, Cities)
… including flash floods


Drought


Storms

We have to adapt!

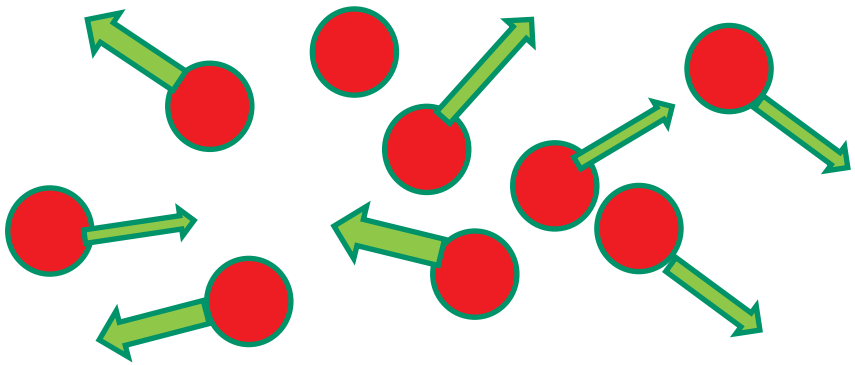
BUT: NOT ALL Adaptation actions are that attractive!

Adaptation to changing conditions in the energy sector

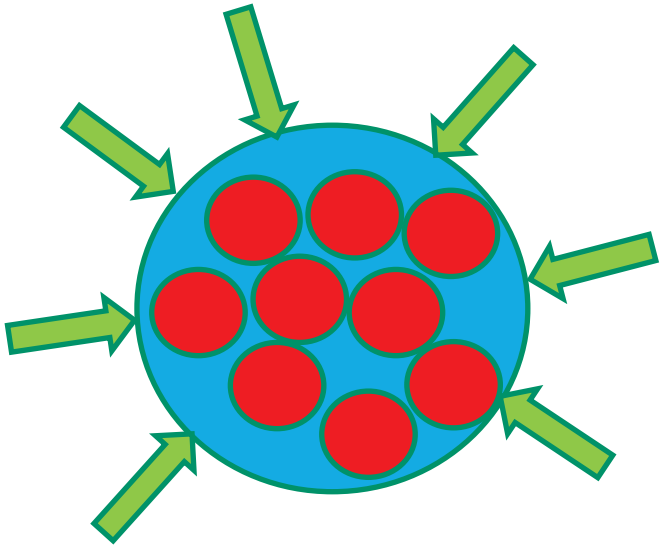
Market / demand	Ressources / techniques	Climate protection	Climate change	Society / Trends
Increasing demand	Availability / limitation	Carbon gas reduction	Draughts	Risks
Prices	Costs / price	Efficiency	Floods	Sustainability
Substitution potential	Storage capacities	Policies / standards	Heat	Fair production /
Security / availability	Production techniques		Storms	Fair distribution
√√√	√√√	√ !!	!! √	√ !!

Adaptation is not attractive … (?)

- Freedom to develop
- Growth
- Extension / Increase
- Individual ideas …

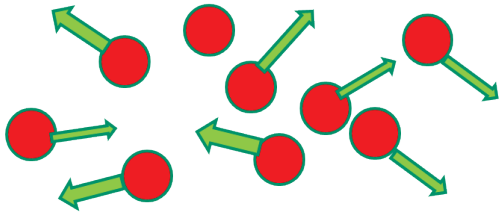


- Restrictions
- Recommendations
- Changes
- Uncertainty
- Additional costs



Opportunities – chances!!

- Freedom to develop
- Growth
- Extension / Increase
- Individual ideas …



- Restrictions
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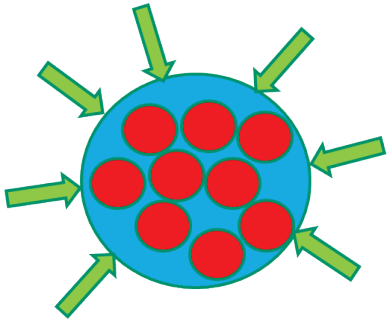
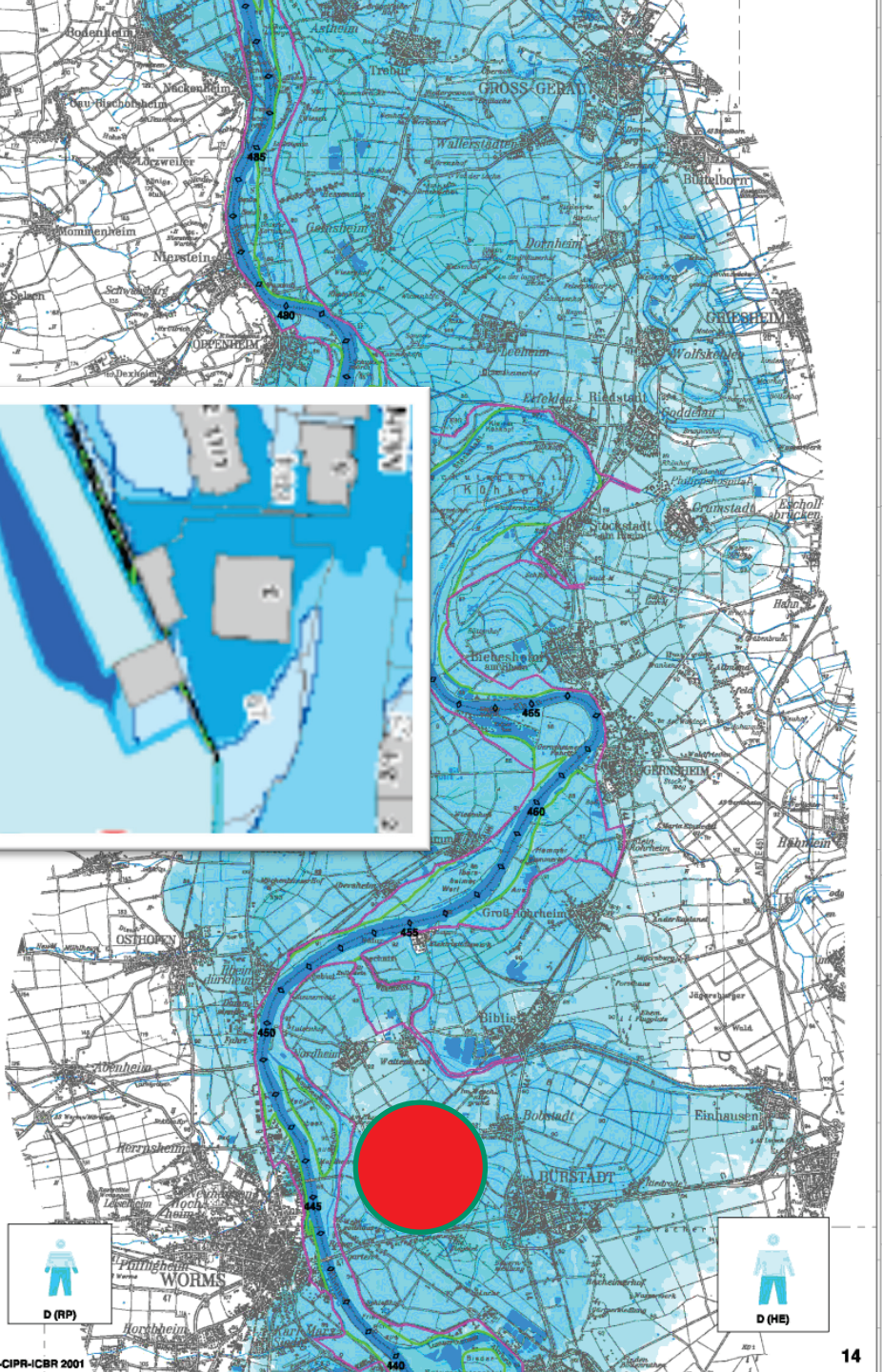
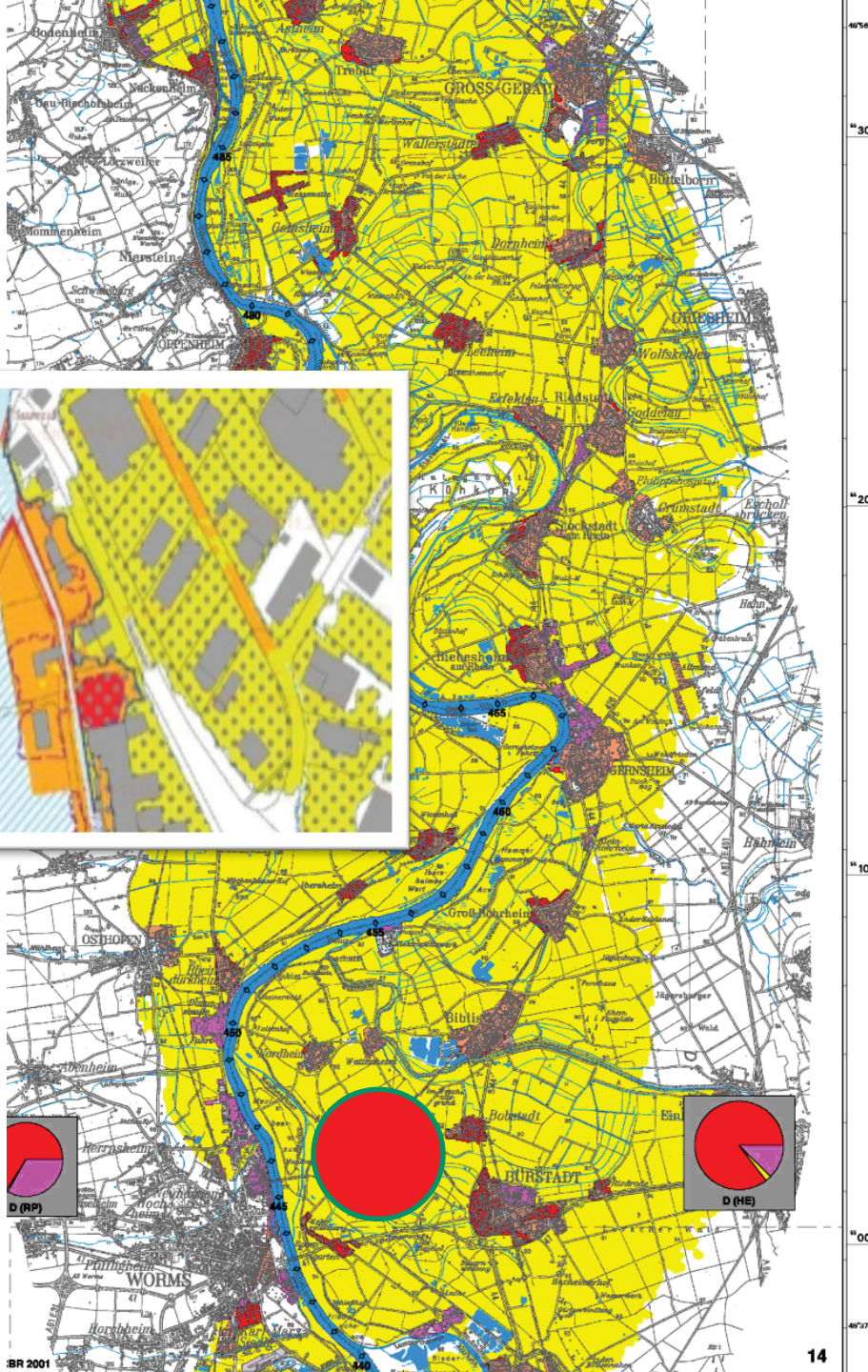


Opportunities, like:

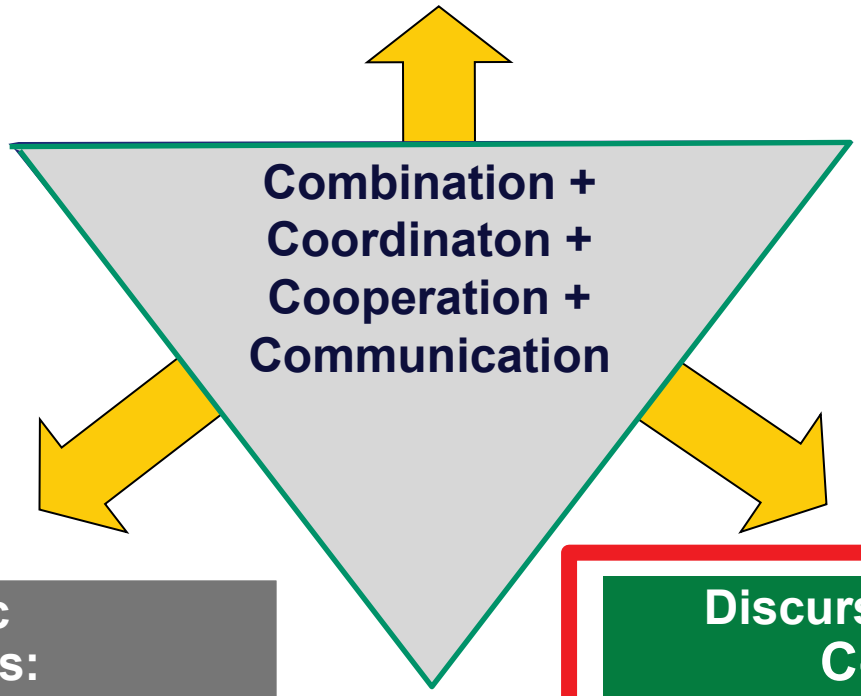
- **Combination with MITIGATION (in public debate!)**
- **Low (No)-Regret measures**
- **Fund for combined measures**
- **Use windows of opportunity**





Instruments of environmental and urban politics

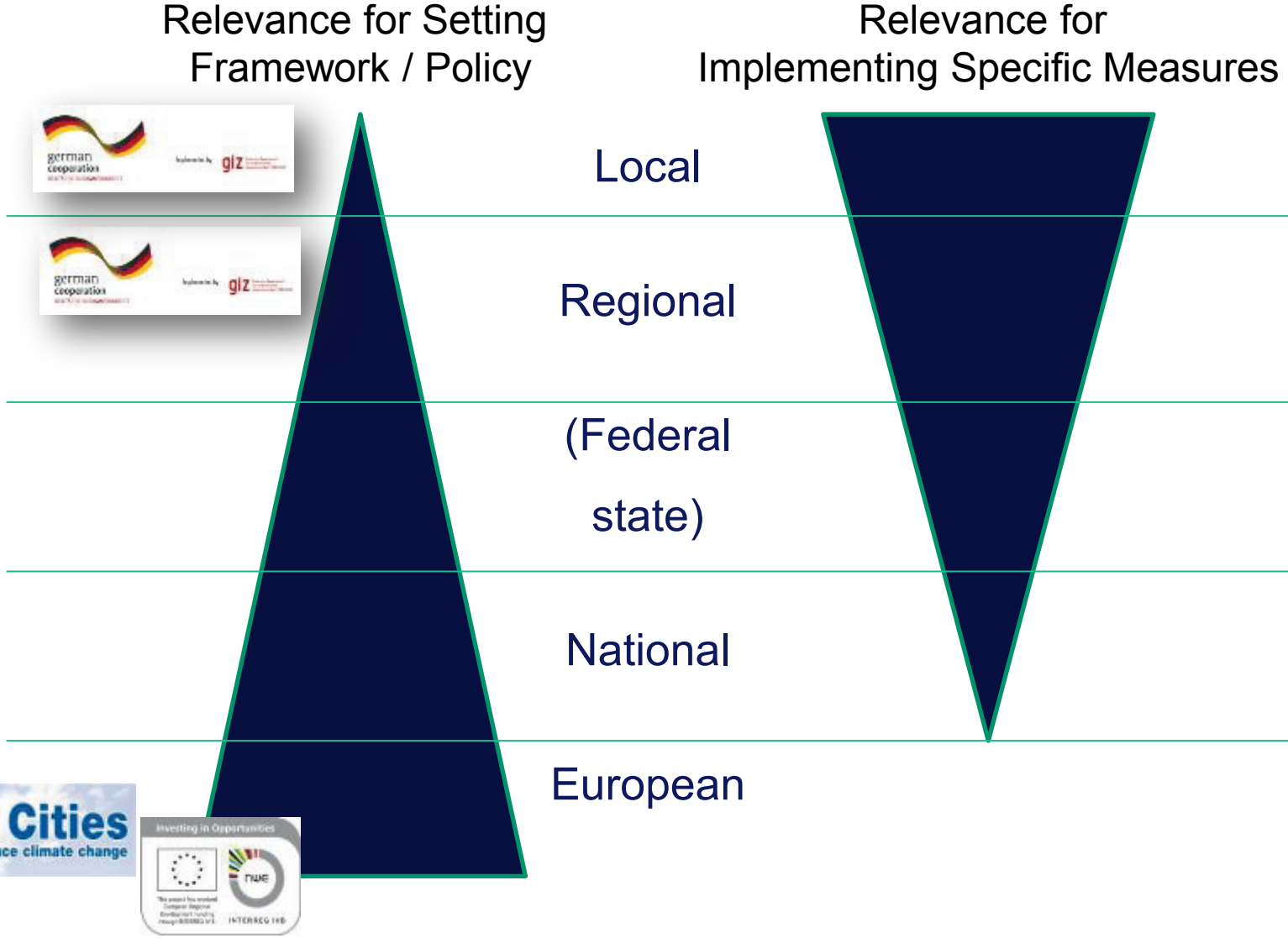
Regulative Instruments
(„forbid“ / „allow“)



Economic Instruments:
(compensation, negotiation, incentives, taxes)

Discursive Instruments:
Cooperation
(Communal / Intercomm. / regional Co-operations, Commissions)

Levels of cooperation: practical relevance for adaptation

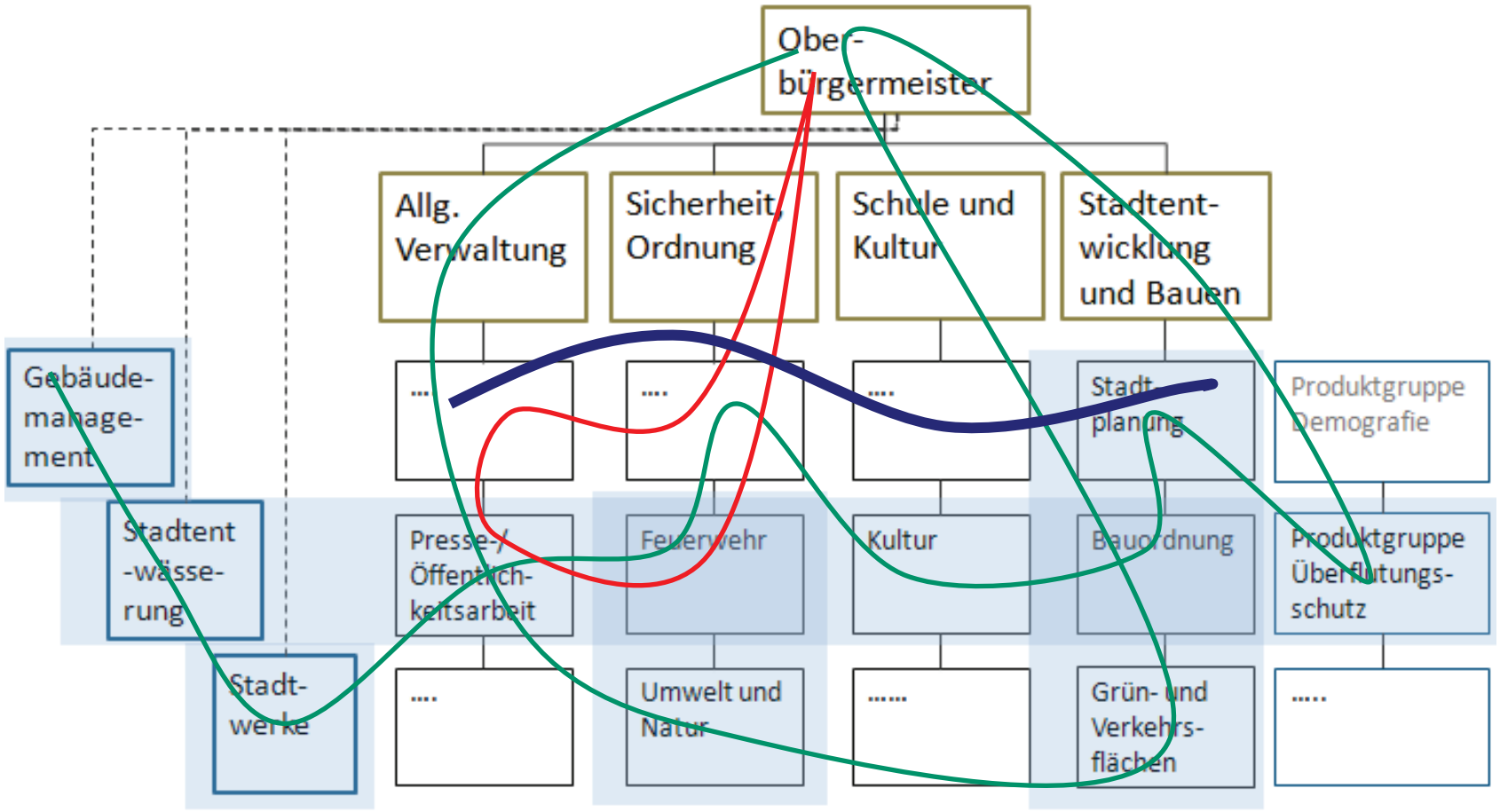


Cooperation levels (for municipalities)

Type of municipality's cooperation	Cooperation goal / benefit
A. Within the municipality	• Cross sector coordination (strategy, exchange) • Implementation of cross sector CCA-measures • Awareness raising (in municipality, public) • Political visibility of CCA-actions
B. Between the municipality and stakeholders	• Joint realisation of CCA-measures • Integration of stakeholders in strategy development • Awareness raising
C. Between municipalities	• Exchange of experiences • Joint lobbying • Joint development of transferable tools

Cooperation within municipalities: cross sector approach

Identification of relevant players in the city administration: interdisciplinary

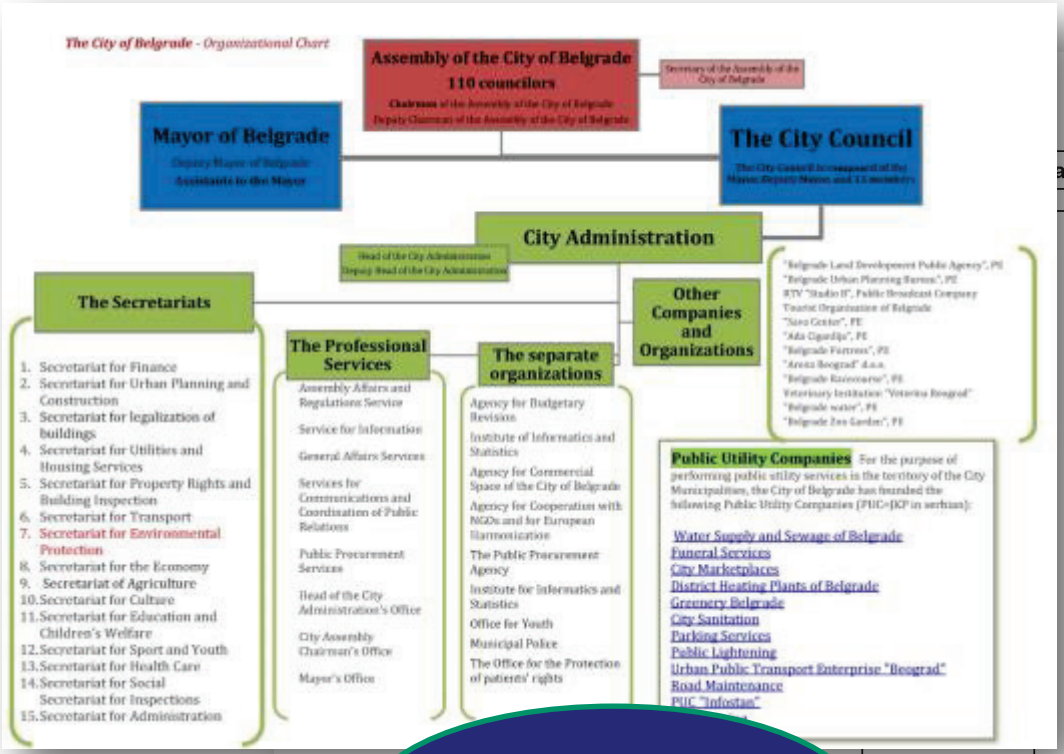


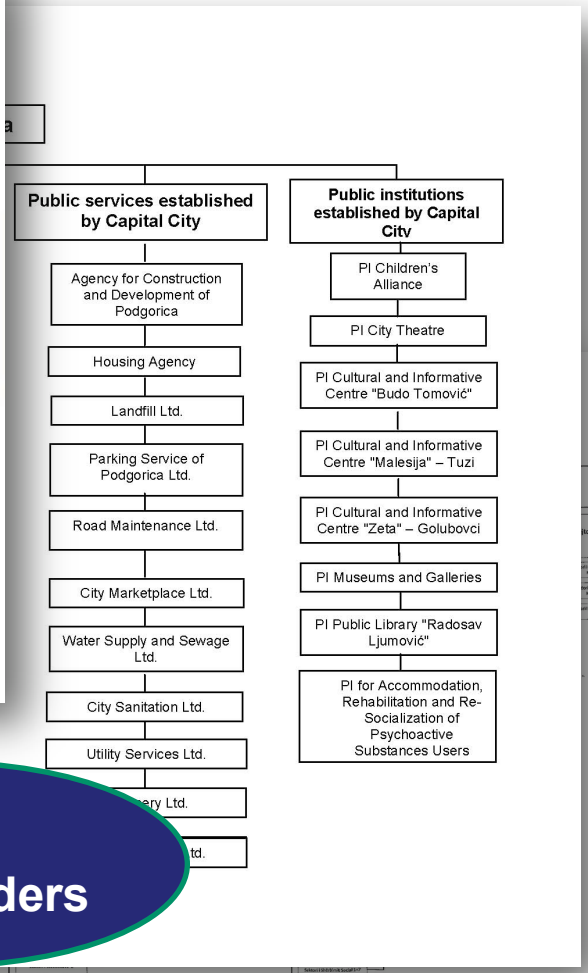
Sectors that must be involved

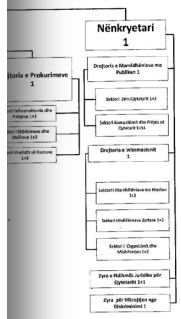
CCA impacts and adaptation can concern all sectors of a city

☑ Population	☑ Infrastructure	☑ Built environment	☑ Economy	☑ Natural resources
				
• Health services • Social services • Rescue services / civil protection	• Water supply • Waste water management • Water management / Flood protection • Transport / public transport • **Energy sector**	• Urban planning • Housing departments / companies • (architects) • („handcraft people“)	• “relevant” Public companies • „relevant“ Private companies	• Green urban planning • Landscape planning • Urban climate protection • Water management (= see left)

Who has to be involved in an adaptation strategy?







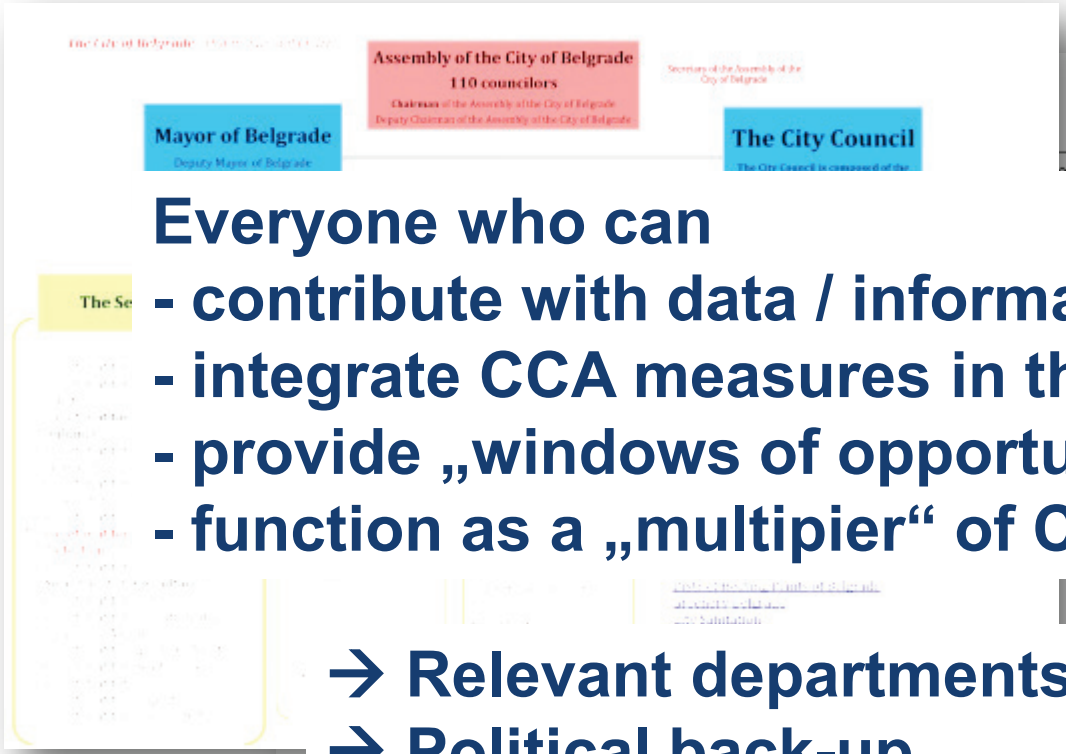
Energy companies

Infrastructure providers

Diff. Stakeholders

Economy / industry

Who has to be involved in an adaptation strategy?



Everyone who can
- **contribute with data / information**
- **integrate CCA measures in the own processes**
- **provide „windows of opportunity“**
- **function as a „multipier“ of CCA awareness**

→ **Relevant departments of the administration**
→ **Political back-up**
→ **Infrastructure providers**
→ **Economy / industry**
→ **Stakeholders, environmental groups**

Stakeholder involvement

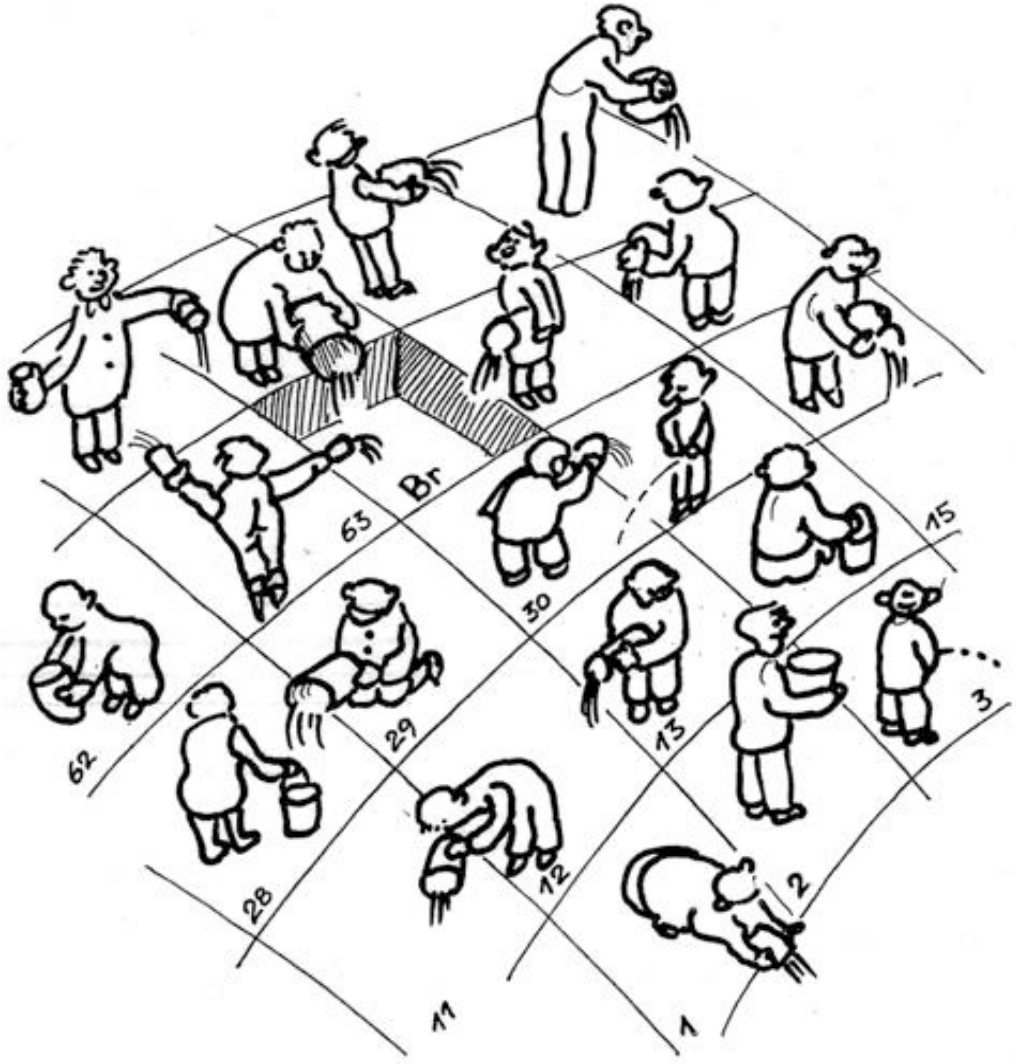
Ask the question:

What will

<u>YOU</u> CONTRIBUTE

TO THE ADAPTATION

ACTION PLAN?



Never ask:

… what do need …

Flood Risk Management plan
SHKODËR REGION
(Albania)

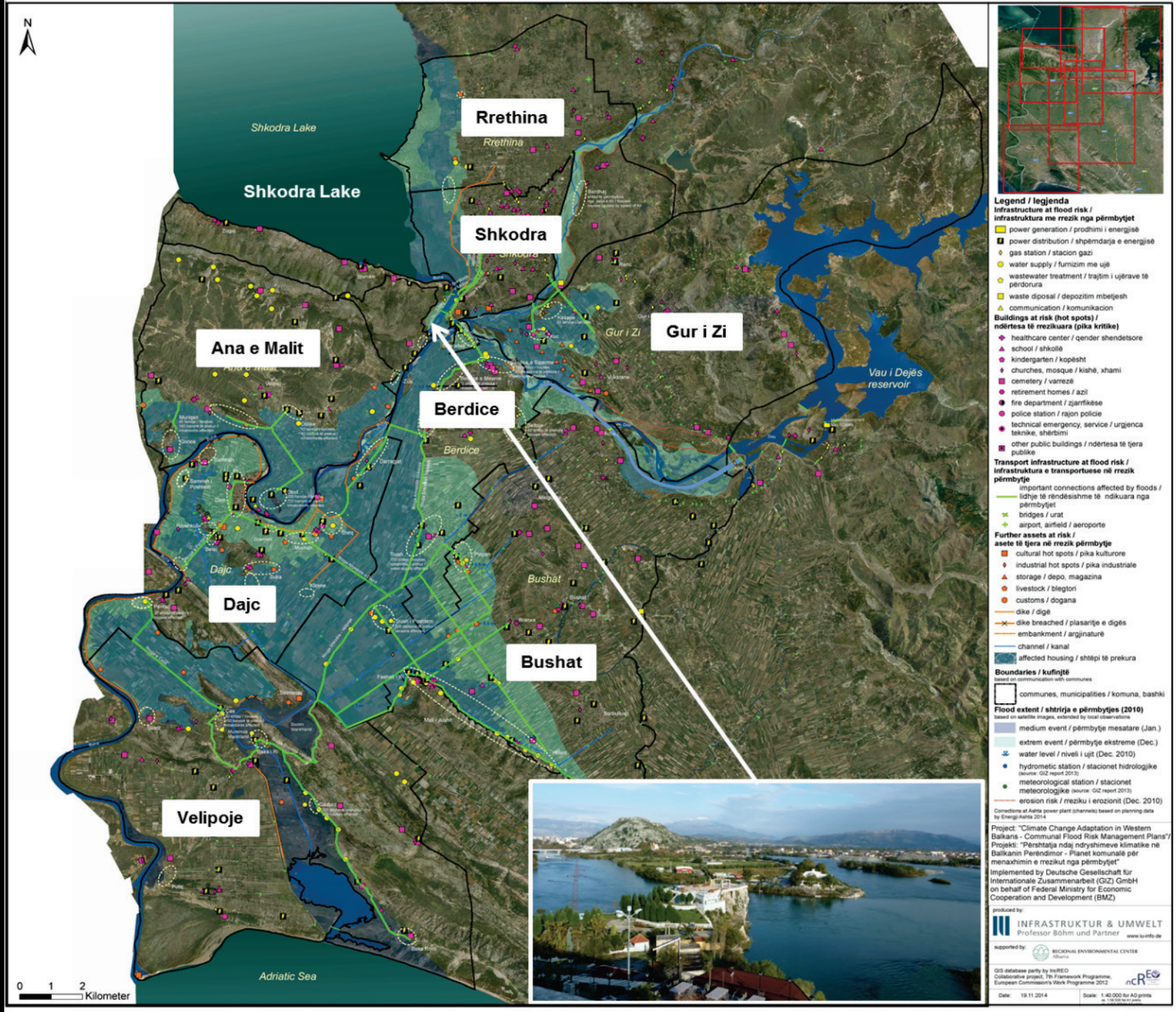
INFRASTRUKTUR & UMWELT
Professor Böhm und Partner

REGIONAL ENVIRONMENTAL CENTER
Albania

german cooperation
DEUTSCHE ZUSAMMENARBEIT

giz


Drina
Moraca
Shkodra
White
Drin
Drin
N
W
E
S
Buna
Fan
Black
Drin
Project area
(Shkodër Region)
Mat
Ishëm
Erzen
Shkumbin
Ohrid


N
Shkodra Lake
Shkodra Lake
Rrethina
Rrethina
Shkodra
Ana e Malit
Gur i Zi
Gur i Zi
Vau i Dejës reservoir
Berdice
Berdice
Dajc
Dajc
Bushat
Bushat
Velipoje
Adriatic Sea
0 1 2
Kilometer
Legend / legjenda
Infrastructure at flood risk / infrastruktura me rrezik nga përmbytjet
power generation / prodhimi i energjisë
power distribution / shpërndarja e energjisë
gas station / stacion gazi
water supply / furnizim me ujë
wastewater treatment / trajtim i ujërave të përdorura
waste diposal / depozitim mbetjesh
communication / komunikacion
Buildings at risk (hot spots) / ndërtesa të rrezikuara (pika kritike)
healthcare center / qender shendetsore
school / shkollë
kindergarten / kopësht
churches, mosque / kishë, xhami
cemetery / varrezë
retirement homes / azil
fire department / zjarrfikëse
police station / rajon policie
technical emergency, service / urgjenca teknike, shërbimi
other public buildings / ndërtesa të tjera publike
Transport infrastructure at flood risk / infrastruktura e transportuese në rrezik përmbytje
important connections affected by floods / lidhje të rëndësishme të ndikuara nga përmbytjet
bridges / urat
airport, airfield / aeroporte
Further assets at risk / asete të tjera në rrezik përmbytje
cultural hot spots / pika kulturore
industrial hot spots / pika industriale
storage / depo, magazina
livestock / blegtori
customs / dogana
dike / digë
dike breached / plasaritje e digës
embankment / argjinaturë
channel / kanal
affected housing / shtëpi të prekura
Boundaries / kufinjtë
based on communication with communes
communes, municipalities / komuna, bashki
Flood extent / shtrirja e përmbytjes (2010)
based on satellite images, extended by local observations
medium event / përmbytje mesatare (Jan.)
extrem event / përmbytje ekstreme (Dec.)
water level / niveli i ujit (Dec. 2010)
hydrometic station / stacionet hidrologjike (source: GIZ report 2013)
meteorological station / stacionet meteorologjike (source: GIZ report 2013)
erosion risk / reziku i erozionit (Dec. 2010)
Corrections at Ashta power plant (channels) based on planning data by Energji Ashta 2014
Project: "Climate Change Adaptation in Western Balkans - Communal Flood Risk Management Plans"/ Projekti: "Përshtatja ndaj ndryshimeve klimatike në Ballkanin Perëndimor - Planet komunale për menaxhimin e rrezikut nga përmbytjet"
Implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on behalf of Federal Ministry for Economic Cooperation and Development (BMZ)
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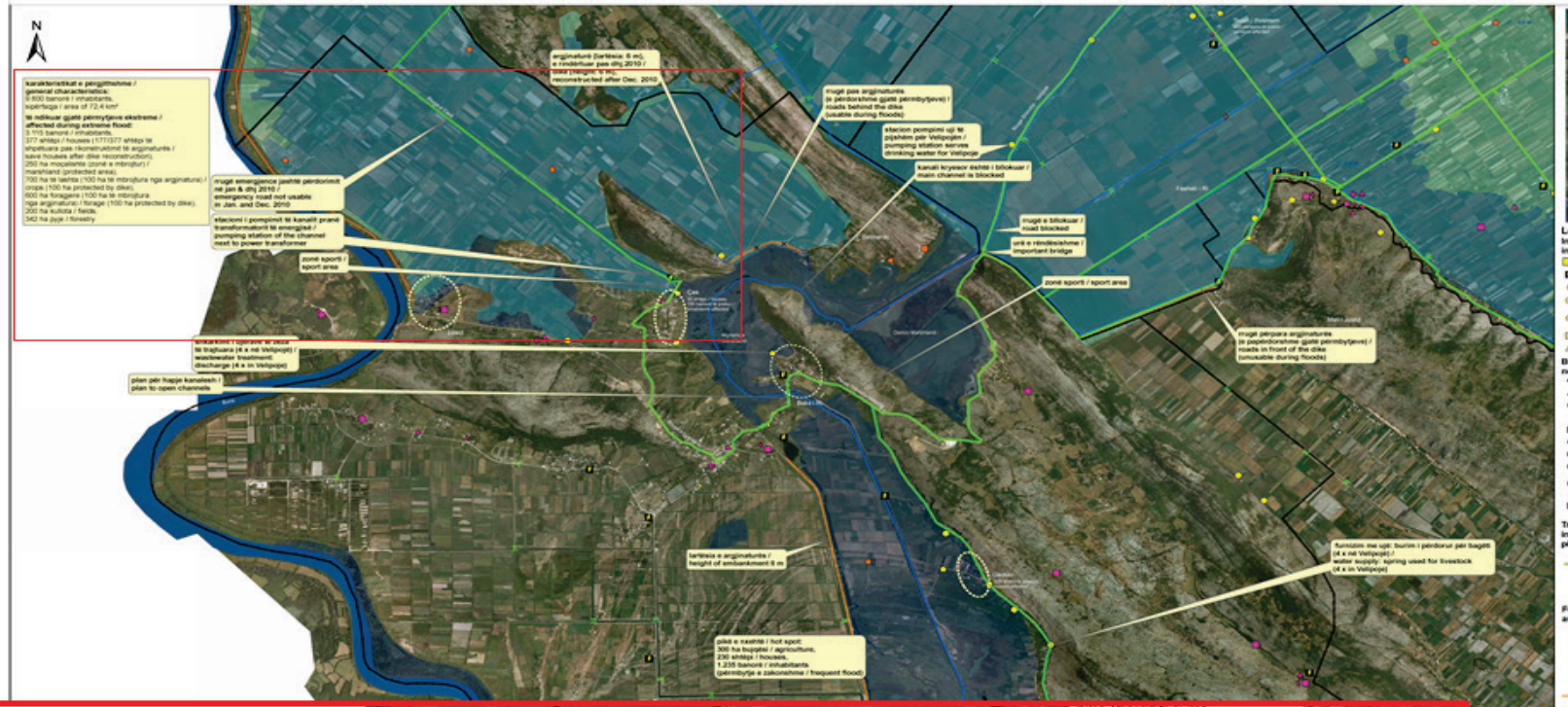
Albania
GIS database partly by IncREO
Collaborative project, 7th Framework Programme, European Commission's Work Programme 2012
Date: 19.11.2014
Scale: 1:40.000 for A0 prints

Flood Risk Map, Velipoje /
Harta e rrezikut nga përmbytjet, Velipojë

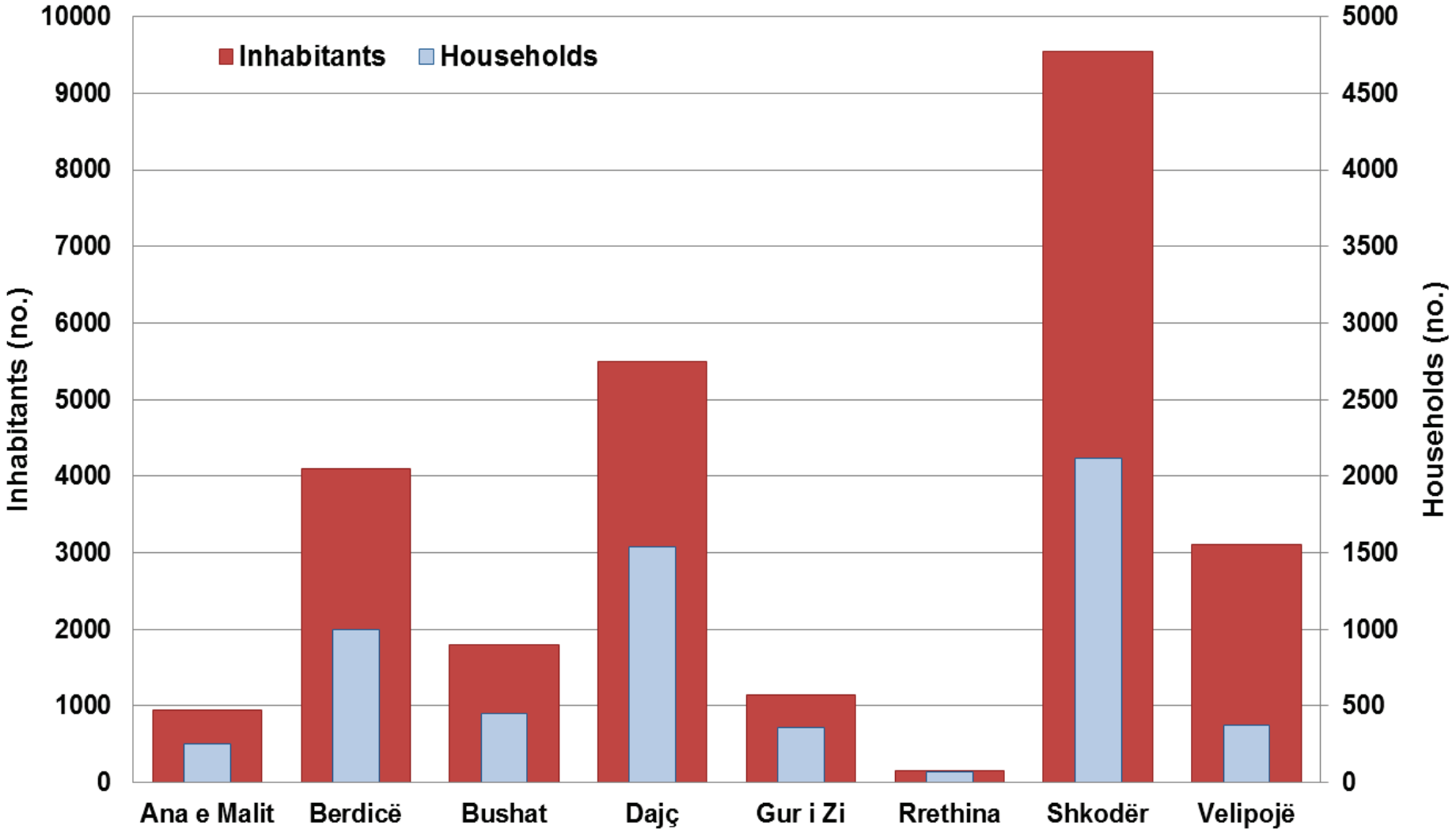


karakteristikat e përgjithshme / general characteristics:
9.800 banorë / inhabitants,
sipërfaqja / area of 72,4 km²

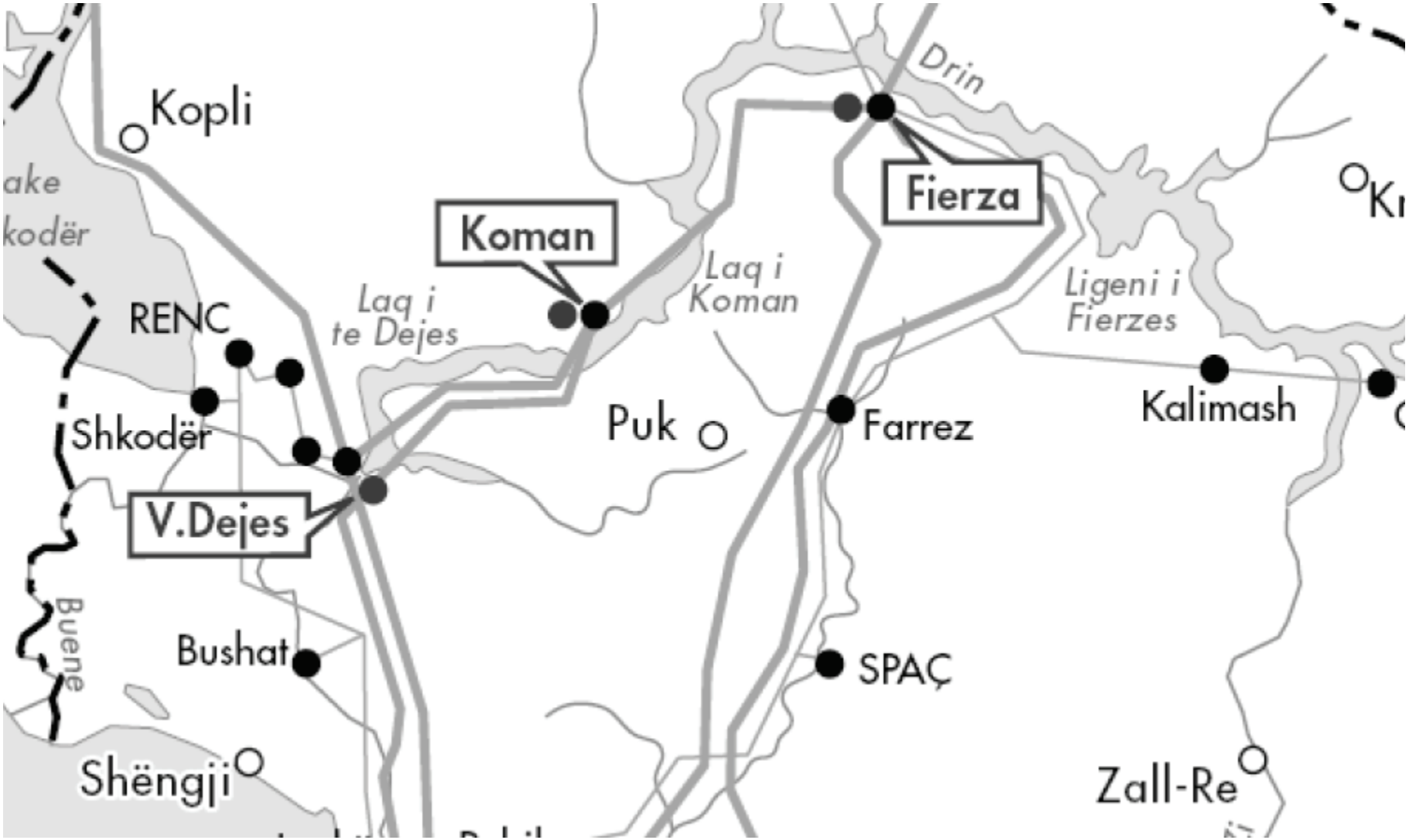
të ndikuar gjatë përmytjeve ekstreme / affected during extreme flood:
3.115 banorë / inhabitants,
377 shtëpi / houses (177/377 shtëpi të shpëtuara pas rikonstruktimit të argjinaturës / save houses after dike reconstruction),
250 ha moçalishte (zonë e mbrojtur) / marshland (protected area),
700 ha të lashta (100 ha të mbrojtura nga argjinatura) / crops (100 ha protected by dike),
600 ha foragjere (100 ha të mbrojtura nga argjinatura) / forage (100 ha protected by dike),
200 ha kullota / fields,
342 ha pyje / forestry

dike (height: 6 m), reconstructed after Dec. 2010
rrugë emergjence jashtë përdorimit në jan & dhj 2010 / emergency road not usable in Jan. and Dec. 2010
stacioni i pompimit të kanalit pranë transformatorit të energjisë / pumping station of the channel next to power transformer
zonë sportë / sport area
Ças
30 shtëpi / houses,
150 banorë të prekur / inhabitants affected
Luarz

Affected people and households (flood Dec 2010)



Important Hydro Power Plants in northern Albania

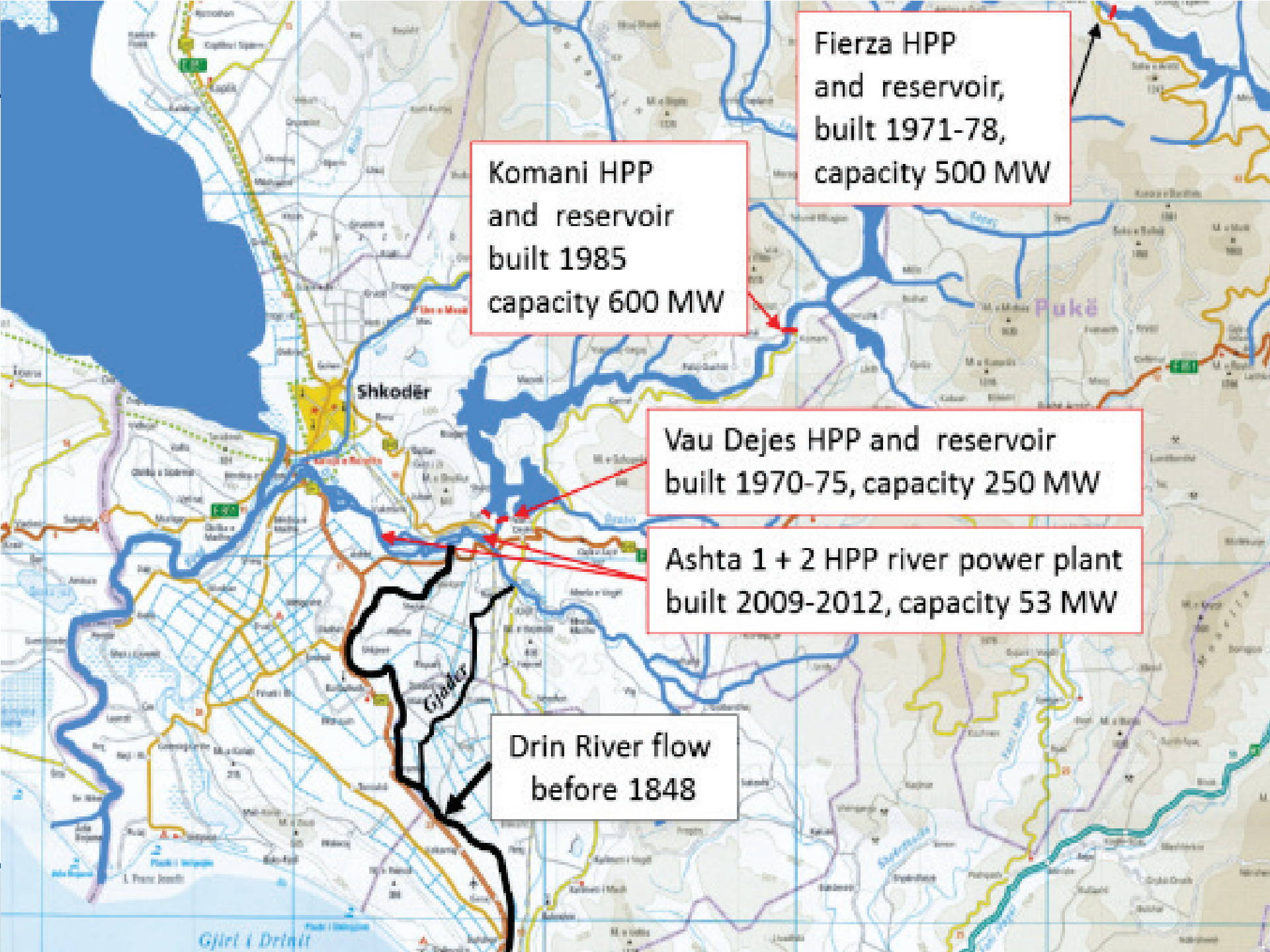


Energy production in Albania

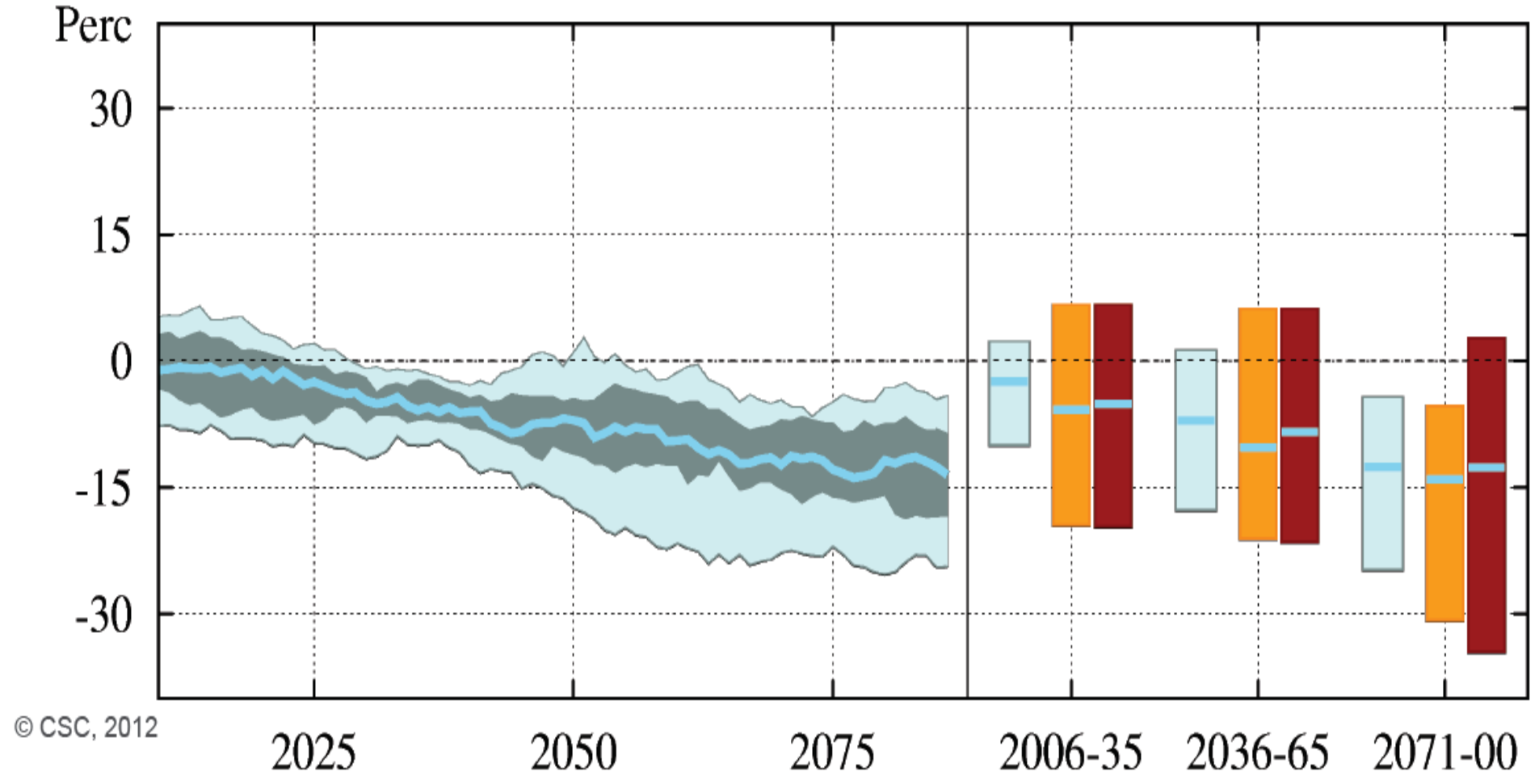
Table 1: Electricity production in South Eastern Europe in 2006, as % of total

Country	Hydropower	Fossil fuel combustion	Nuclear
Albania	98	2	0
Bosnia and Herzegovina	44	56	0
Bulgaria	9	48	43
Croatia	49	51	0
Greece	10	88	0
Kosovo	0	100	0
FYR Macedonia	24	77	0
Montenegro	59	41	0
Romania	29	62	9
Serbia	30	70	0
TOTAL SEE	24	65	10

(World Bank, 2009a; International Energy Agency, 2009). Note: Grey highlights a dependence above 50 percent.

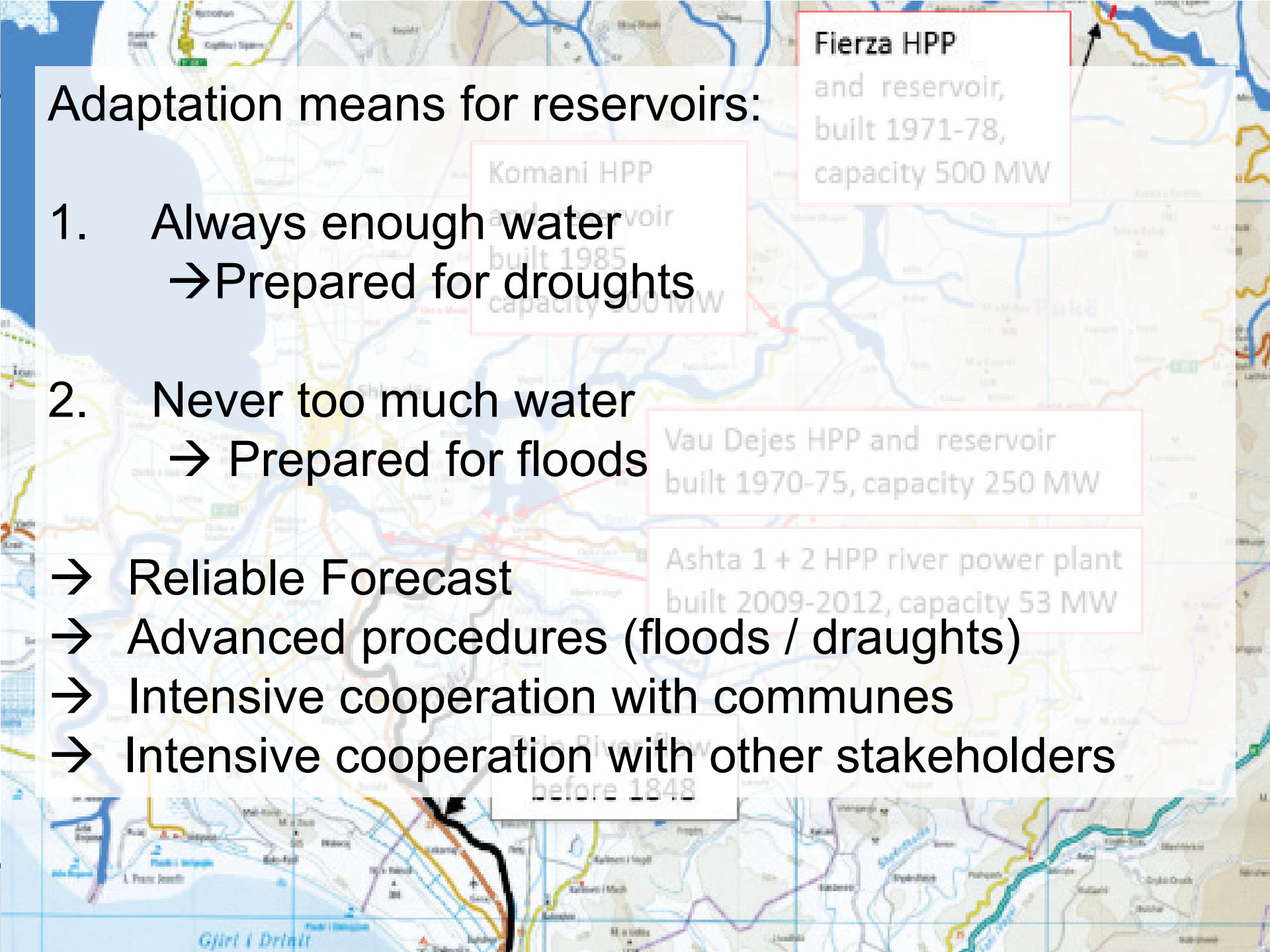

Fierza HPP
and reservoir,
built 1971-78,
capacity 500 MW
Komani HPP
and reservoir
built 1985
capacity 600 MW
Shkodër
Pukë
Vau Dejes HPP and reservoir
built 1970-75, capacity 250 MW
Ashta 1 + 2 HPP river power plant
built 2009-2012, capacity 53 MW
Drin River flow
before 1848
Gjirit
Gjirë i Drinit

Projected precipitation for Albania (source: CSC 2012)



Projected heavy rain events for Albania (source: CSC 2012)

in %	Variable	Measure	2006 to 2035	2036 to 2065	2071 to 2100
Change in Heavy rains*	Frequency	Median **likely** full range	0 **-1 to 0** -2 to 0	0 **-1 to 0** -2 to 0	-1 **-2 to 0** -2 to 0
	Intensity	Median **likely** full range	4 **1 to 5** -1 to 6	5 **3 to 9** 0 to 12	9 **7 to 13** 4 to 15



Adaptation means for reservoirs:

1. Always enough water
   → Prepared for droughts

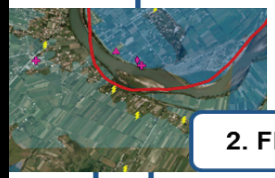
2. Never too much water
   → Prepared for floods

→ Reliable Forecast
→ Advanced procedures (floods / draughts)
→ Intensive cooperation with communes
→ Intensive cooperation with other stakeholders

1. Flood Hazard Maps

Input from the project / Experts

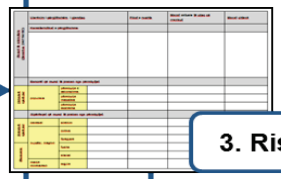
Dec 13 - Feb 14



2. Flood Risk Maps

By local actors / supported by experts

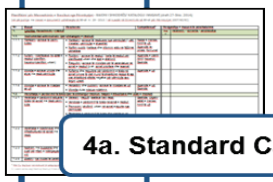
a) 27th / 28th Feb 2014 (meeting of work group)
b) Work by communes Mar / Apr 2014
c) 7th - 9th Apr 2014 (meeting of work group)



3. Risk Assessment

By local actors / supported by experts

a) Work by communes Mar / Apr 2014
b) Meeting 17th Mar 2014
b) 7th - 9th Apr 2014
(meeting of work group)



4a. Standard Catalogue of measures

Input from the project / Experts

a) Feb - Mar 14
b) 7th - 9th Apr 2014
(meeting of work group)

4b. Identification of measures

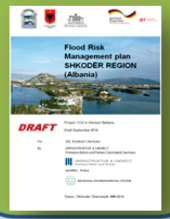
By local actors / supported by experts

Apr - Oct 2014

Meetings of work group:
a) 7th – 9th Apr 2014
b) 19th – 21st May 2014
c) 14th – 16th Oct 2014

5. FRM Plan

Regional FRM Plan



Eight Communal FRM Plans

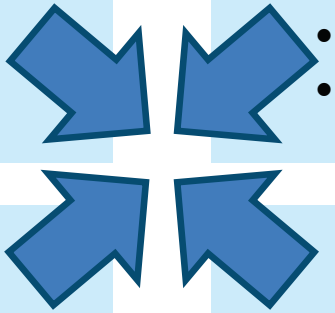
Cooperation of responsible bodies in adaptation strategies: here Flood Risk Management Plan

National Actors

Ministries in charge of
- Agriculture,
- Environment,
- Internal affairs
- Hydrometeorological Service

Other involved Stakeholders

- UNDP,
- CIMA Foundation (INCREO),
- Construction Companies,
- University of Shkodër,
- Local NGOs



Regional Actors

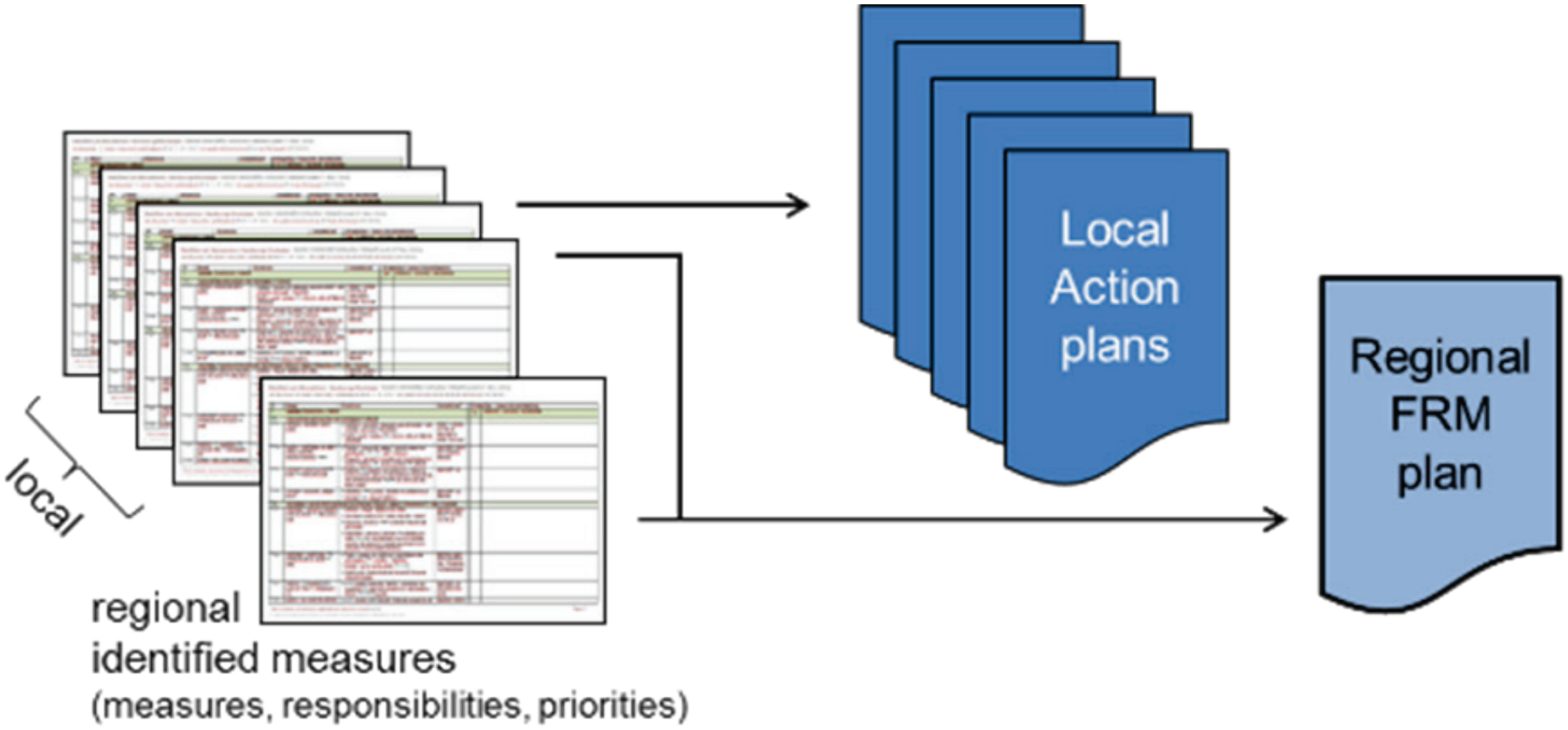
- Prefecture,
- Qark,
- Regional Directorate of Agriculture
- Regional Directorate of Forestry,
- Drainage Board,
- River Basin Agency,
- Regional Environmental Directorate,
- State Inspectorate of Environment, Forest and Water,
- **Hydro-Power Plants (KESH, Ashta)**

Local Actors

Dependent on the territorial reform:

Scenario 1 - 8 Communes
(Ana e Malit, Berdicë, Bushat, Dajç, Gur i Zi, Rrethina, Shkodër, Velipojë)

Scenario 2 - 2 Municipalities
(Shkodër and Vau Dejës)


Local
Action
plans
Regional
FRM
plan
local
regional
identified measures
(measures, responsibilities, priorities)

Regional Flood Risk Management Plan (FRM)

(FRM Shkodra Region = Regional action plan)

Measures of regional actors

- Prefecture
- Qark
- Drainage Board
- River Basin Agency
- Regional Directorates
- State Inspectorate
- HPP (KESH, Ashta)

National actors / others / observers

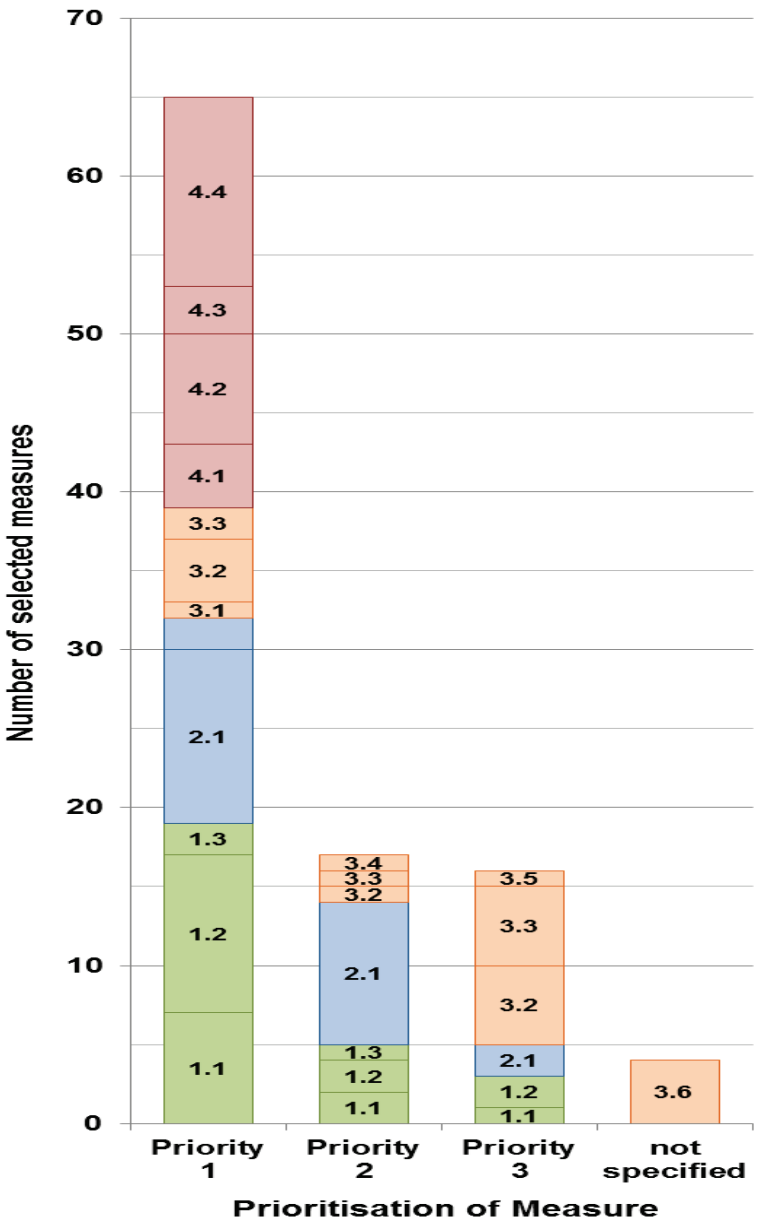
- Ministries in charge of Agriculture, Environment and Internal Affairs
- National bodies
- Hydromet Service
- NGOs
- University of Shkodër
- CIMA Foundation (IncREO)
- UNDP
- Construction companies

Communal Flood Risk Management Plans

(= local action plans)

- Shkodër
- Berdicë
- Bushat
- Dajç
- Gu i Zi
- Rrethina
- Ana e Malit
- Velipojë

Measures / actions of the FRM-plan



Prevention of risks

1.1 Administrative Instruments

1.2 Adaptation of Land Use

1.3 Risk prevention by flood adapted building

Natural Flood Protection

2.1 Natural flood management

2.2 Reactivation of retention areas

Technical Flood Protection

3.1 Water Flow Regulation / Flood plain works

3.2 Water Flow Regulation (e.g. dikes)

3.3 Water Flow Regulation (e.g. river training)

3.4 Surface water management

3.5 Protection of object / facilities

3.6 Other protection measures

Preparedness and information

4.1 Economical / financial preparedness

4.2 Informational preparedness

4.3 Behavior-related preparedness

4.4 Allowance, preparation, post-processing

Table 9: Administrative Instruments (for avoidance of risk)

1.1.1. Mapping of flood risk areas

Regional measures	Communal measures
- Development and distribution of flood risk maps on regional scale - Instructions for the use of risk maps in the community centers in the whole region - Information campaigns (distribution of leaflets to the population) about flood risks, measures to be taken and flood emergency response (including public and private precautionary measures)	- Digital mapping (GIS) - development and update of database (for different purposes of urban and environmental planning, including FRM; based on GIS layers for land use, infrastructure etc.) - Distribution of flood risk maps, flood hazard maps and emergency guidelines to communes (via community centers, leaflets and website)

P	Q	DB	A_{ca}	A	D_A	D_R	HP	CC	M	NB	An	Be	Bu	Da	Gu	Rr	Sh	Ve
x	x										x	x	x	x	x	x	x	x

1.1.2. Restriction for building in risk areas (in spatial planning / urban planning)

Regional measures	Communal measures
- Review of existing local and regional urban development plans and integration of flood risk aspects - Systematic communication with communes about developments in flood risk areas - Support of LGUs in taking action against illegal construction in risk areas - Distribution / explanation of risk areas to urban planners (seminars, university lectures, workshops)	- Review of existing local development plans and integration of flood risk aspects; adjust local development plans to flood risk areas - Distribution / explanation of risk areas to urban planners - Stronger restrictions for illegal building development (especially in risk areas) Rrethina - Support inhabitants, who had built illegal constructions, to move from flood risk areas.(information, consultation, support in finding land) (Q)

P	Q	DB	A_{ca}	A	D_A	D_R	HP	CC	M	NB	An	Be	Bu	Da	Gu	Rr	Sh	Ve
x	x				x					x	x	x	x	x	x	x	x	x

1.1.3. Protection of flood plains and retention areas

Regional measures	Communal measures
- Draw and establish specific monitoring/	- Public information about importance of flood

Table 21: Other protection measures

3.6.1. Improvement of the storage management of dammed river systems / reservoirs	
Regional measures	**Communal measures**
- Improve the current regulations, instructions for Hydro Power Plants (HPP) and Reservoirs - Introduction of new standards for communication (exchange of information in situations of heavy rainfall) - Early warning of discharge and notification of appropriate structures and community at risk - Training and seminars on rules of discharge and critical levels with head of HPP, LGUs	-

P	Q	DB	ARB	A	DA	DR	HP	CC	M	NB	An	Be	Bu	Da	Gu	Rr	Sh	Ve
							x		x	x								

Lessons learnt (success factors, bottlenecks …)

- All involved partners need to agree at the begin:
  - CCA is a cross cutting task.
  - Everyone needs to do something in his/her responsibility
- The process needs a strong coordinator; but there can't be one "realizer"
- Cooperation / Involvement starts from the begin on; start with joint understanding of CC-impacts, trends, CCA-objectives …
- Do not wait forever for more data and more certainty: START with cooperation! Start with what you have.
- Make clear that adaptation measures are not something completely NEW or ADDITIONAL: in many cases they IMPROVE ongoing activities.
- …

THINK CREATIVELY – PLAN FLEXIBLY – IMPLEMENT RELIABLY

Expert Training on Risk and Vulnerability Assessment and Adaptation Planning

Cooperation and coordination among authorities

Dr.-Ing. Peter Heiland; Darmstadt, Germany

INFRASTRUKTUR & UMWELT
Professor Böhm und Partner

Darmstadt ■ Potsdam

European Commission

Enviroment and Climate Regional Accession Network ECRAN