SWIM and Horizon 2020 Support Mechanism

Working for a Sustainable Mediterranean, Caring for our Future

Internalizing Drought Risk Management (DRM) into policy and development frameworks: preconditions, steps, obstacles

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SWIM-Horizon 2020 SM Regional Training on

"Drought Risk Management Mainstreaming (DRMM)"

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The main 4 steps and actions in DRMM

Step 1– DEVELOP DROUGHT RISK PROFILE

- Drought Hazard Mapping
- Assessment of Water Resources and key components
- Drought & Water Scarcity Vulnerability Assessment
- Synthesize Drought Risk Profile (DRP)

Step 2 – IDENTIFY DRM OPTIONS

- Selection of measures, definition of criteria, screening
- Develop a library of measures (costs-benefits' assessment)
- Parameterize, simulate/test the measures, assess their performance

Step 3 – PRIORITIZE DRM OPTIONS

- Definition of the prioritization process and criteria
- Selection of appropriate tools (multi-criteria optimization, AHP, DSS, Stakeholders' consultation etc.)
- Identification of the optimal mix of measures

Step 4 – ITERNALIZE DRM

- Assessment of the measures' robustness under future scenarios
- Define indicative Policy Targets
- Integration, Implementation, Monitoring & Evaluation

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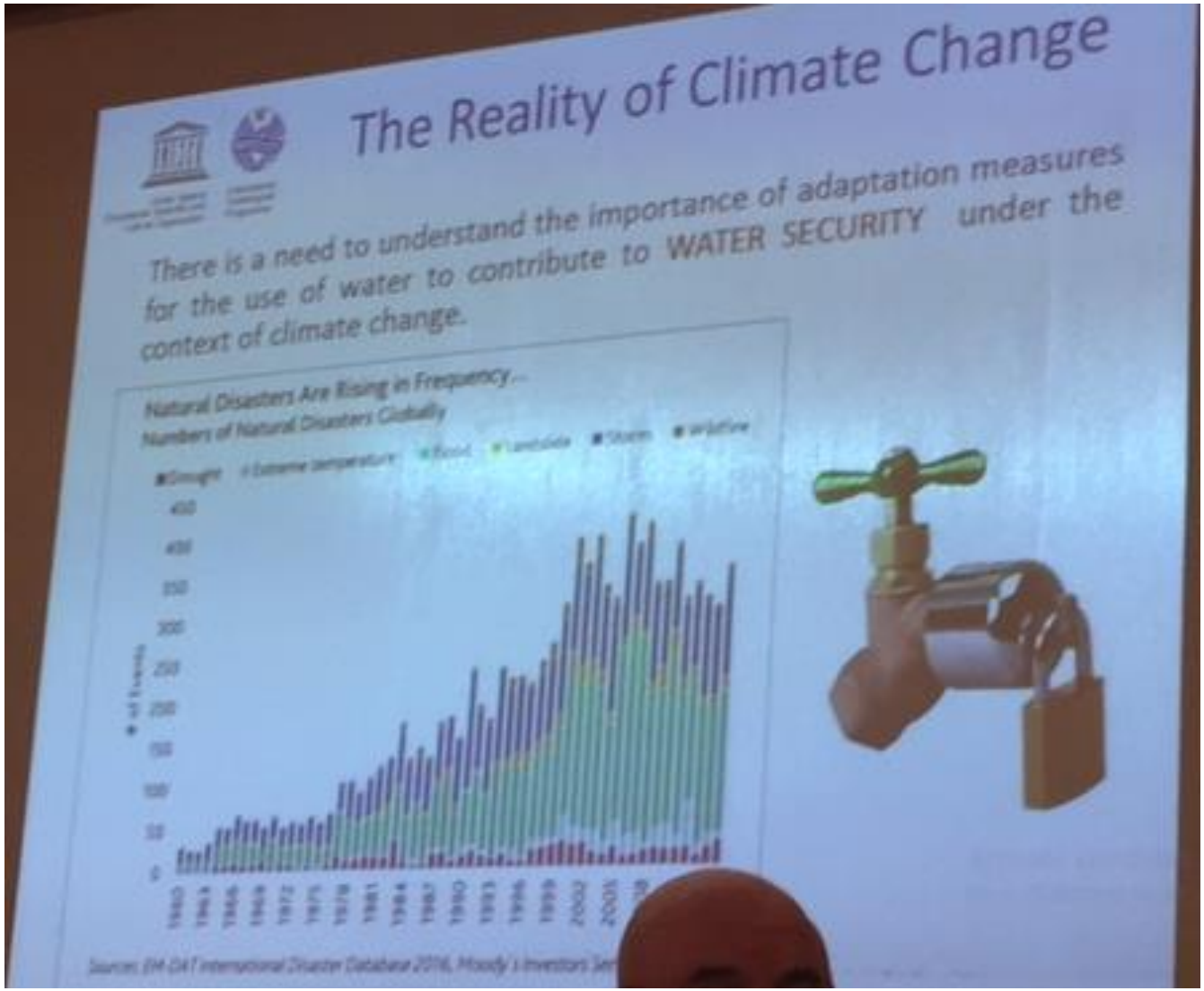
Problem Statement: natural disasters are rising in frequency



Problem Statement

- Drought Management Plans continue to be developed and/or implemented throughout, yet their **mainstreaming is still weak**.

- The cost implications, the possible tensions surrounding water resources, and the **disentanglement** of the suggested adaptation measures **from the development plans and policies** impede concrete implementation.

- Having realized the high economic, social and environmental cost of **inaction** regarding water scarcity and drought (and the likely worsening under climate change), the **importance** of implementing concrete adaptation actions and **internalizing them into development frameworks has been widely recognized**

(Ref.: WMO and GWP, 2014; FAO, 2014; UNCCD, 2013; HMNDP, 2013b; EC, 2012a; EC, 2007a)

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How to achieve “internalization” ?

Two options:

1. Integrate Drought Risk Management (DRM) Considerations into new Plans that are developed (*a priori design*).
2. Integrate Drought Risk Management (DRM) Considerations into existing Plans/already in place (*a posteriori design*).

How to achieve “internalization” ?

Three key elements:

A. **Define Policy Targets** (for reducing the system’s vulnerability)

B. **Integrate them** (along with the accompanying selected measures & policy actions) **into local and national plans and development frameworks**

C. **Implement, Monitor, Re-evaluate**

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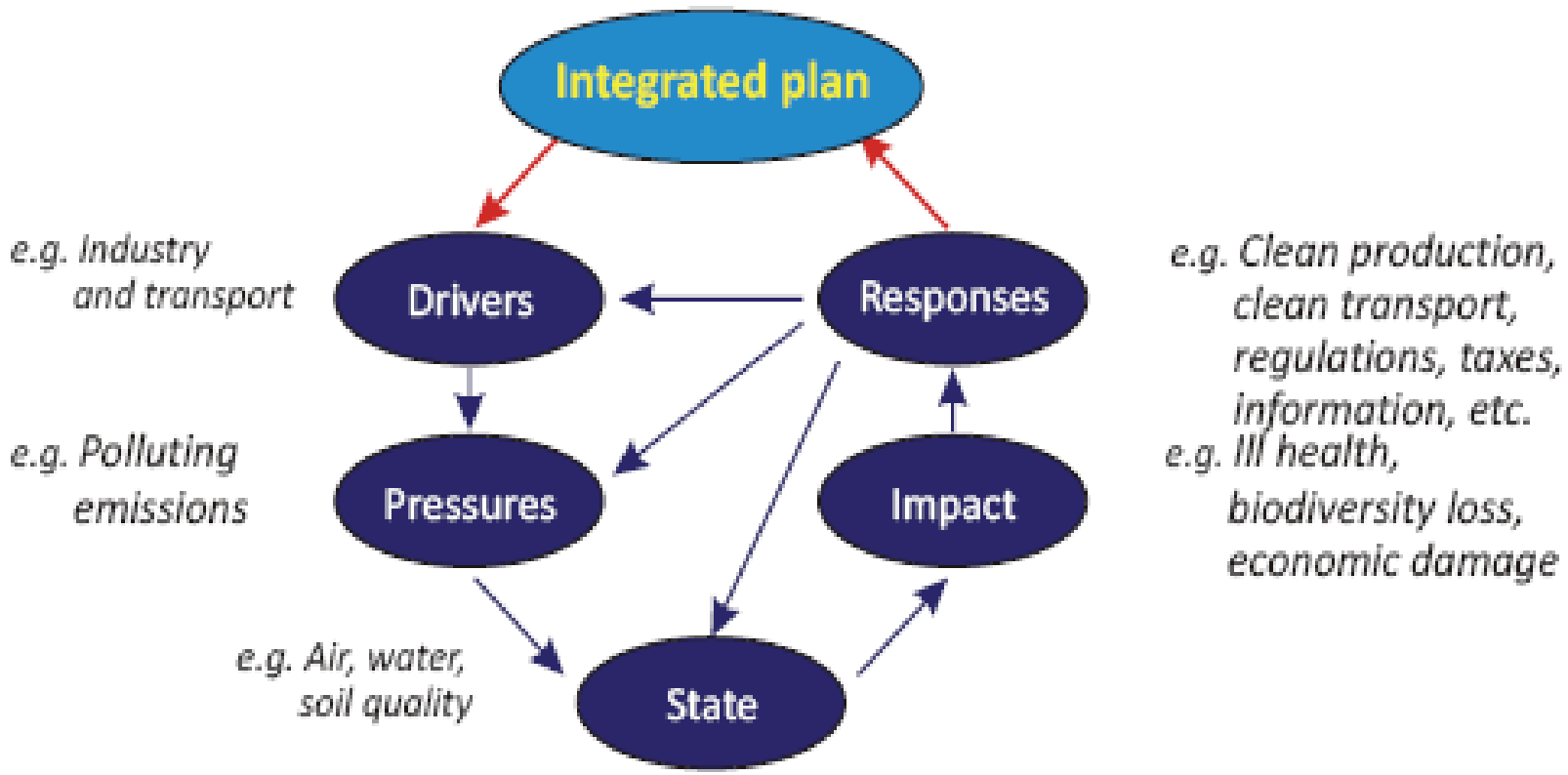
DPSIR framework
Driving Forces-Pressures – State of the Environment- Impacts -Responses

For the definition of policy targets and their integration together with strategies and measures into plans the DPSIR Policy Cycle should be considered.

DPSIR framework
Driving Forces-Pressures – State of the Environment- Impacts -Responses

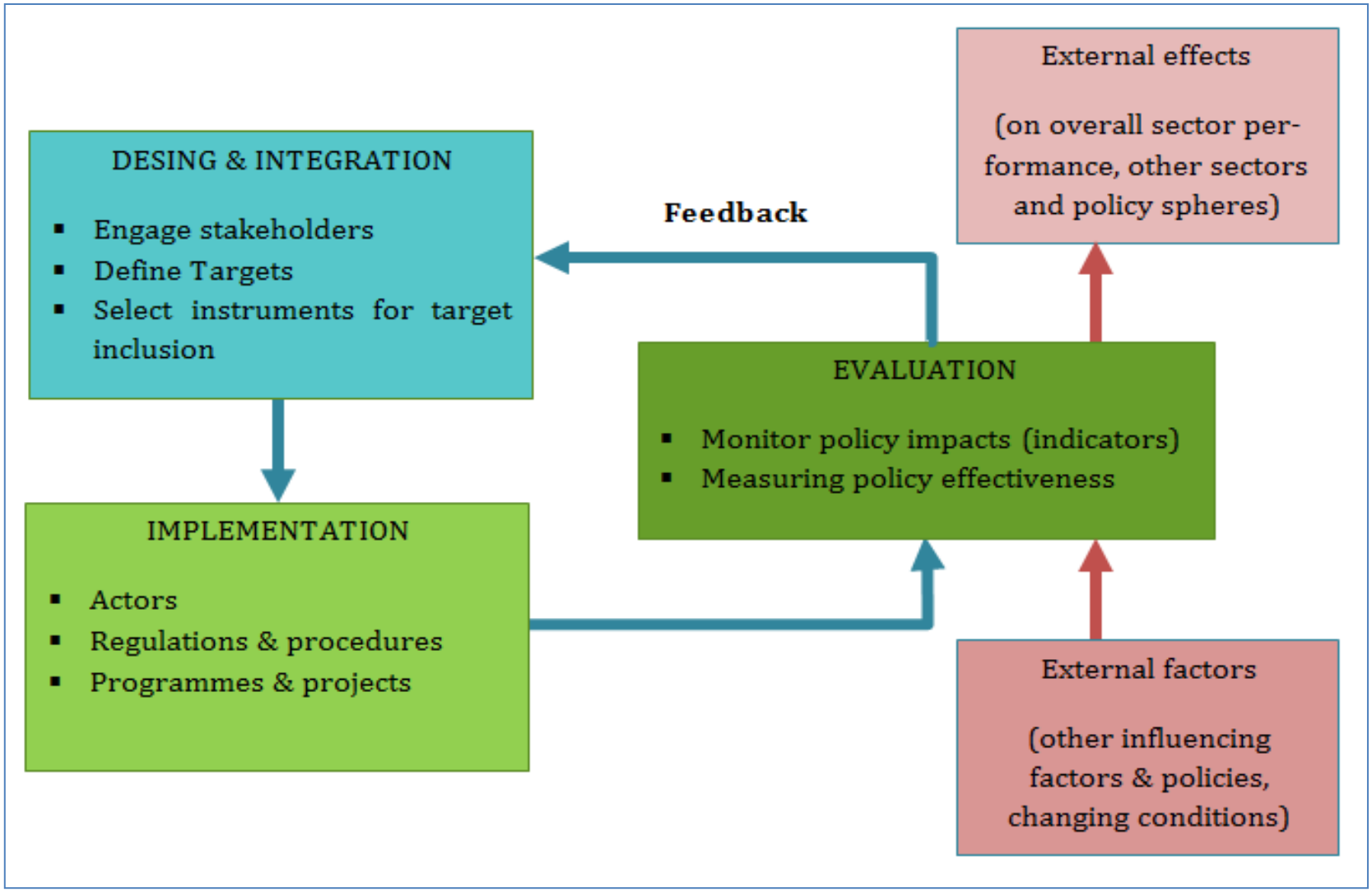


DPSIR Framework informs the preparation of the Integrated Plan

Sequential phases (for A, B, C)

	Phase	Main Activities
A	"Proofing phase":	Development of **future climate change and socio-economic scenarios** (drawing on global and/or regional accepted scenarios) with input from stakeholders. **Testing the robustness of the selected solutions** (of the previous DRMM step) under these future scenarios (against the baseline) and evaluate whether the proposed interventions can maintain their overall performance under future conditions.
A	"Designing phase":	**Negotiation and definition of policy targets**: Explore trade-offs between the optimal robustness-proof solutions in a transparent participatory way, accounting for local specificities and priorities, and identify indicative Policy Targets per sector.
B	"Integration phase":	**Internalize DRM into development frameworks**: definition of **entry points**, initiation of **instruments and mechanisms** to internalize the targets, **translation** of targets into actions, draft suggestions how to implement DRM in action plans, development programmes, etc., identifying the necessary **preconditions and enabling mechanisms**.
C	"Implementation phase":	**Implementation of the policy targets** by national, regional and/or local governmental bodies, stakeholders and actors
C	"Evaluation phase":	**Measuring progress towards the targets, policy impacts and effectiveness:** monitor and disseminate **the impact of the DRM** mainstreaming **using suitable indicators.**

Links between the phases: try to co-relate them with DPSIR and the phases of a new plan "under construction".



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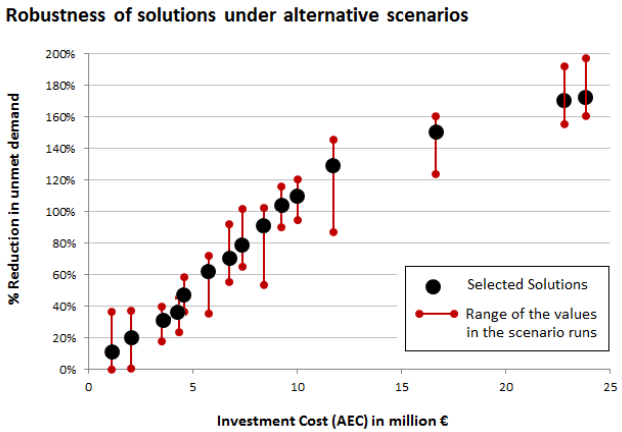
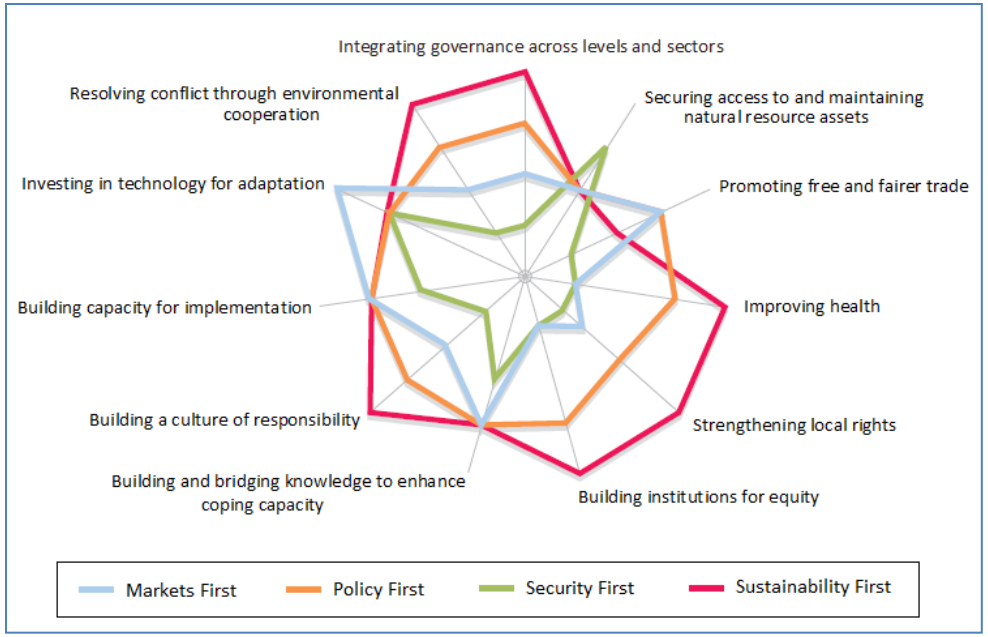
Using Scenaria:
A1: Proofing phase

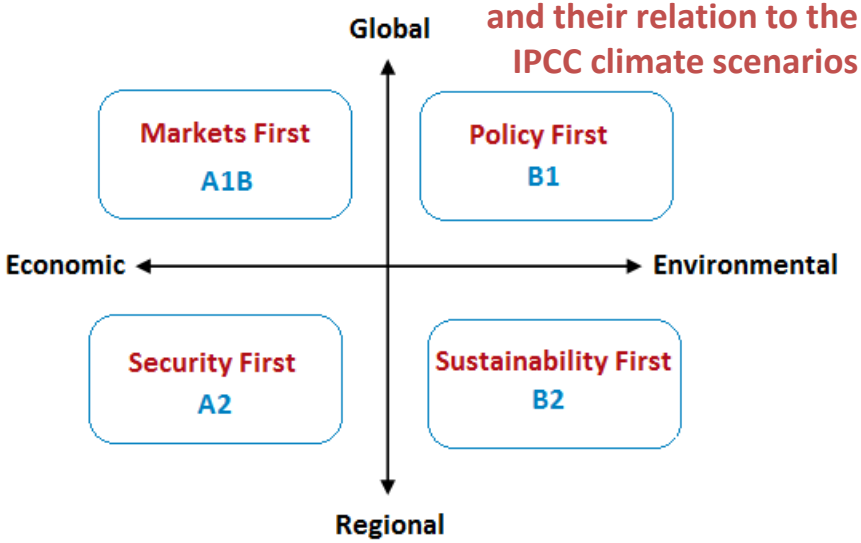
State-of-the-Art
- Scenarios, narratives for CC / SEC
- ENSEMBLES, WATCH, SCENES,
- Downscaling, Tailoring context: IFs



	A1	A2	B1	B2
World:	Market-oriented	Heterogenous	Convergent	Local solutions
Economy:	Fastest per capita growth	Regionally oriented; lowest per capita growth	Service and information based; lower growth A1	Intermediate growth
Population:	2050 peak; then decline	Continuously increasing	2050 peak; then decline	Continuously increasing
Governance:	Strong regional interactions; income convergence	Self-reliance, preservation of local identities	Global solutions to economic, social, and environmental sustainability	Local & regional solutions to environmental protection, social equity
Technology:	Balanced across all (energy) sources	Slowest and most fragmented development	Clean and resource-efficient	less rapid & more diverse than A1/B1



The GEO-4 scenarios and their relation to the IPCC climate scenarios



Defining goals and criteria; A2: Designing phase

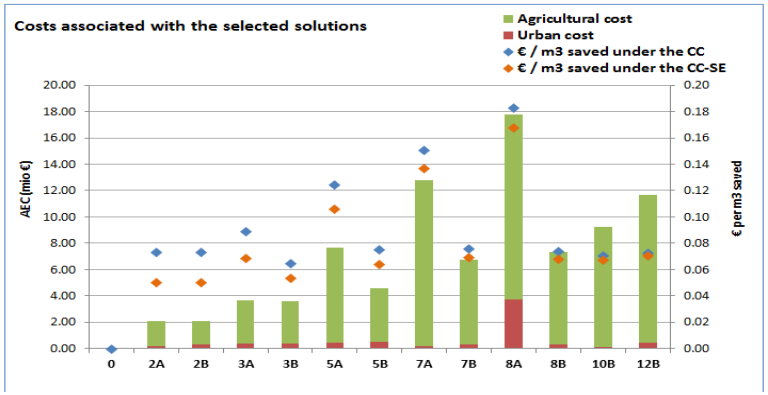
Target: an objective metric of a policy goal.
It is the value of a variable that policy-makers regard as ideal and use as the basis for setting policy actions.
Must be: specific, measurable and time-bounded, and directly contribute to the achievement of the goal

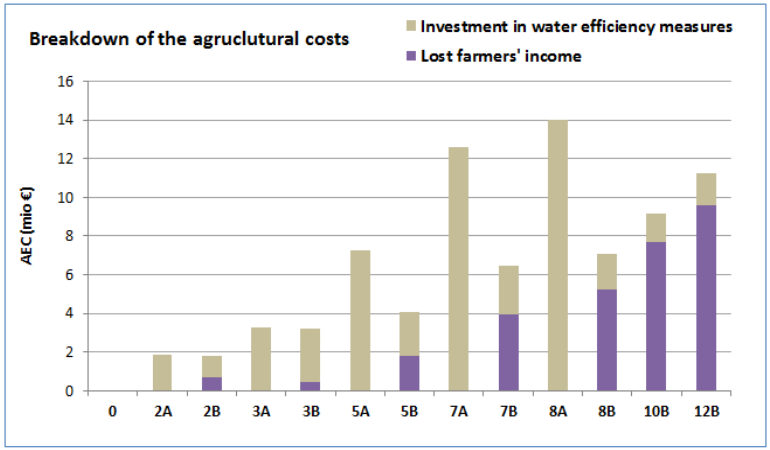
State-of-the-Art
- Participatory approaches
- Create a feeling of ownership
- Weight criteria

Define **the goals of the process:**	credible, transparent, all-inclusive and participatory, accountable, based on best science and policy interfacing, time-bounded
Define **the key questions** to be addressed:	▪ What is the optimal number of targets for development agendas? ▪ How can we prioritize between potential targets? ▪ How can targets, if defined at national level, be differentiated between areas under different prevailing conditions? ▪ How can we account for inter-linkages across targets, thus ensuring an integrating approach that can maximize benefits?
Define **criteria** for selecting & prioritizing **targets**	Policy relevance, Clarity, Robustness, Attainability, Ambition, Scalability, Quantification , Measurability and Ratability, Disaggregation and sub-assessment potential , Multi-purpose and mutli-dimensionality, Compliance and complementarity, Global Cost-effectiveness

Defining Policy Targets; Considerations in defining water saving targets:

- water saved vs. total cost of each solution
- breakdown of costs per sector (urban vs. agriculture)
- breakdown of costs within the agricultural sector (i.e. investment cost for improving efficiency vs. loss of farmers' income)
- unit cost for each m3 saved (€/m3)
- alleviate average or extreme conditions? (more conservative)





Goal	Lowest possible unit cost, with a max AEC of 7 mio m³
Rationale	Limited financial Resources
Solutions	3B (and 2A, 2B)
Policy Targets	▪ Achieve urban water saving of 10% ▪ Increase IrrEff of Karditsa by 2.4% (achieve 77.23%) ▪ Increase IrrEff of Trikala by 7.3% (achieve 83.27%) ▪ Apply 3% deficit irrigation

Goal	Eliminating unmet demand in all cases, without burdening the farmers, at the lowest possible cost
Rationale	Maximize societal welfare
Solutions	7A
Policy Targets	▪ Achieve urban water saving of 2% ▪ Increase IrrEff of Karditsa by 26% (achieve 94.75%) ▪ Increase IrrEff of Trikala by 16% (achieve 90.23%)

Goal	Eliminate unmet demand in average conditions, with and investment cost <7 mio m³ AEC, and assuming an equal share of the agricultural cost among the government (investments) and the farmers (loss of income)
Rationale	Sharing of the financial burden with beneficiaries, budgetary constraints
Solutions	5B (and 7B as second option)
Policy Targets	▪ Achieve urban water saving of 13.5% ▪ Increase IrrEff of Karditsa by 11.5% (achieve 84.08%) ▪ Increase IrrEff of Trikala by 3.3% (achieve 80.17%) ▪ Apply 5% deficit irrigation

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B: Integration phase

Integration phase:

- defining possible entry points
- initiating instruments and mechanisms to internalize the targets
- translating the targets into actions
- draft suggestions how to implement DRM in action plans, development programmes, etc.,
- identifying the necessary preconditions and enabling factors

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Indicative Entry Points

Indicative list of frameworks and plans that can be used as entry points at different levels

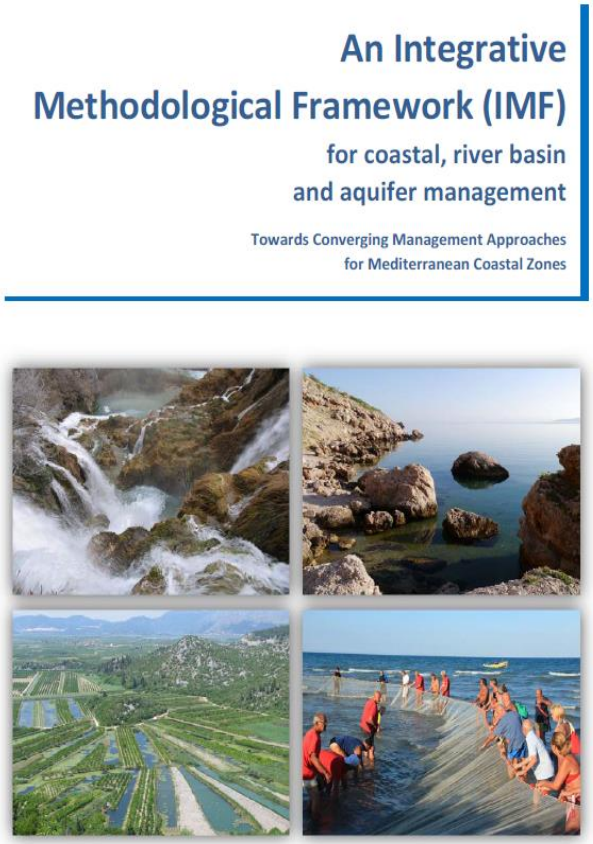
Level	Possible entry point of the target
National	National Development Plans Structural Funds' Planning Programmes Sectoral Strategies and Programmes Sectoral Policies (water, land use and allocation, energy) Environmental and/or Water Laws, Regulations and by-laws Resource efficiency management plans National Action Programmes for International Conventions (e.g. UNCCD[4], UNFCCC[5], DRPC[6])
Regional	Regional actions plans Regional development frameworks District plans Sectoral projects Farming investment plans
Local	Community conservation projects Irrigation projects Local development frameworks Contingency plans Environmental farm planning

- IWRMP
- RBMP
- ICZMP

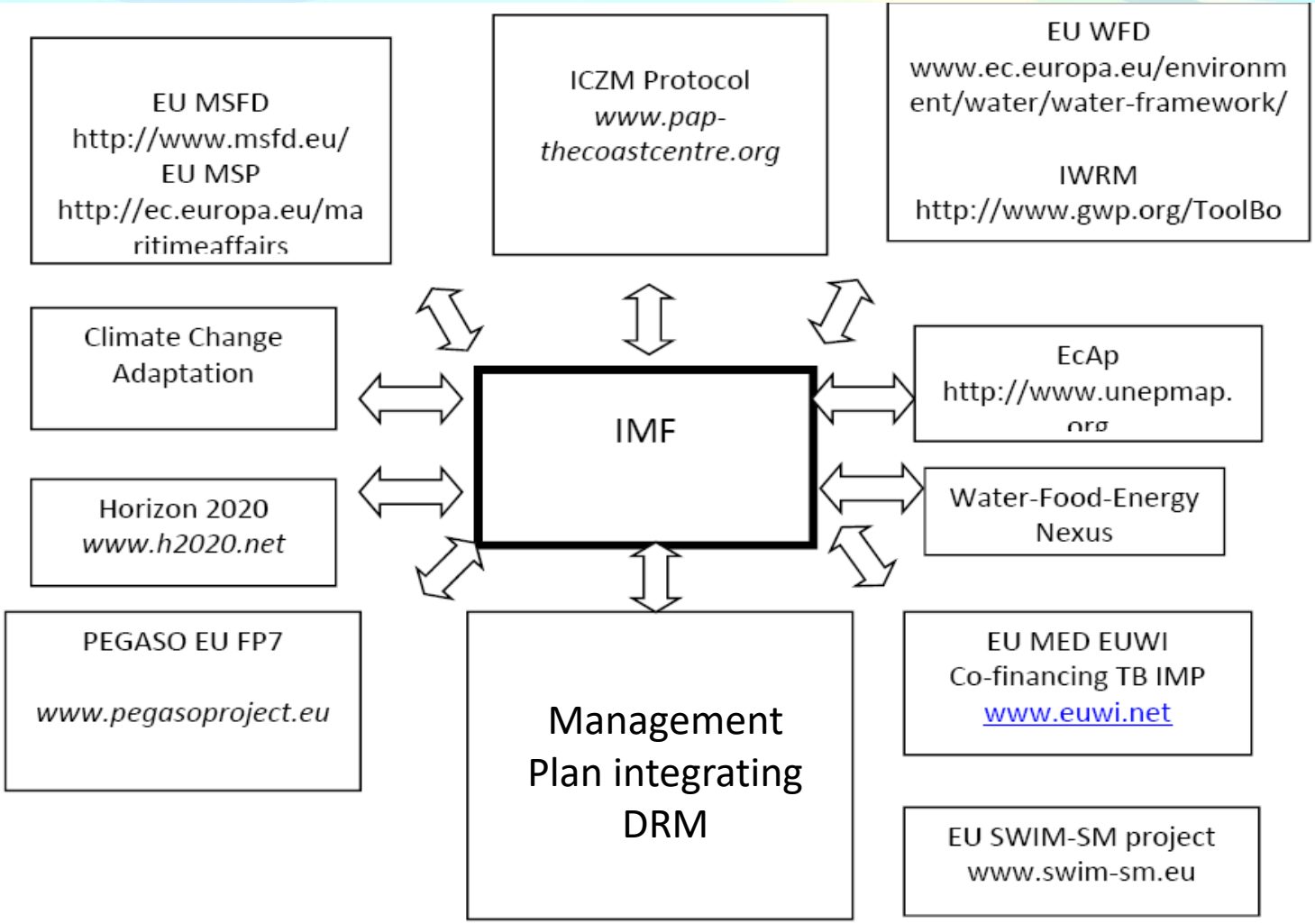
UNCCD: United Nations Convention to Combat Desertification
UNFCCC: United Nations Framework Convention on Climate Change
DRPC: Danube River Protection Convention

A suggested way (in the context of the Med countries) to internalize drought risk management into policy and development frameworks is by employing the Integrative Methodological Framework (IMF).

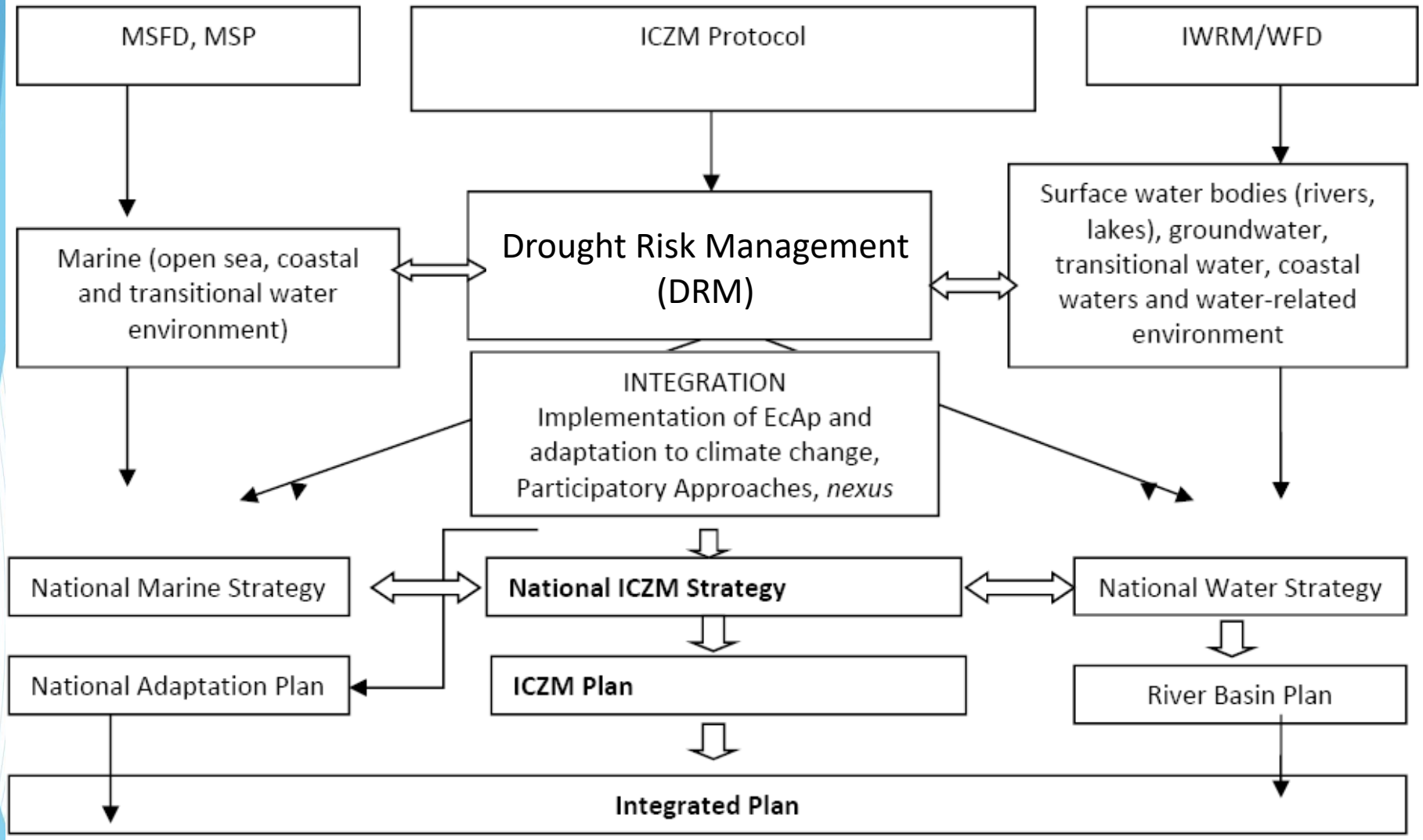
http://www.pap-thecoastcentre.org/pdfs/IMF%20Guidelines.pdf



Synergies


EU MSFD
http://www.msfd.eu/
EU MSP
http://ec.europa.eu/maritimeaffairs
ICZM Protocol
www.pap-thecoastcentre.org
EU WFD
www.ec.europa.eu/environment/water/water-framework/
IWRM
http://www.gwp.org/ToolBo
Climate Change Adaptation
IMF
EcAp
http://www.unepmap.org
Horizon 2020
www.h2020.net
Water-Food-Energy Nexus
PEGASO EU FP7
www.pegasoproject.eu
Management Plan integrating DRM
EU MED EUWI
Co-financing TB IMP
www.euwi.net
EU SWIM-SM project
www.swim-sm.eu

Synergies


MSFD, MSP
ICZM Protocol
IWRM/WFD
Marine (open sea, coastal and transitional water environment)
Drought Risk Management (DRM)
Surface water bodies (rivers, lakes), groundwater, transitional water, coastal waters and water-related environment
INTEGRATION
Implementation of EcAp and adaptation to climate change, Participatory Approaches, *nexus*
National Marine Strategy
National ICZM Strategy
National Water Strategy
National Adaptation Plan
ICZM Plan
River Basin Plan
Integrated Plan

Various aspects of integration of DRM with ICZM, IWRM and other frameworks

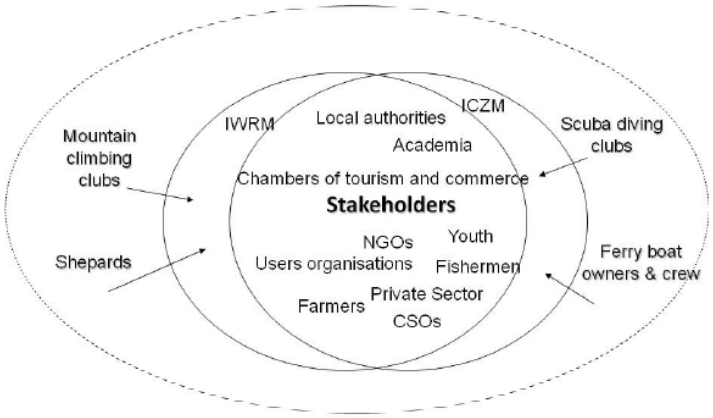


Figure 17: Stakeholders involved in Integration

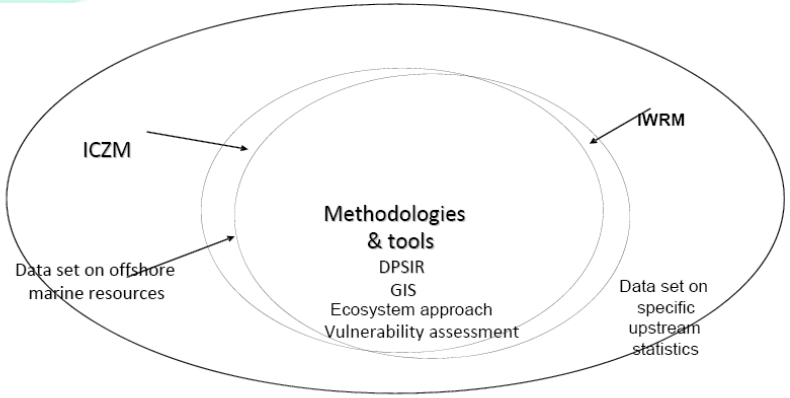


Figure 18: Methodologies employed for integrated planning and management

Figure 21: Three levels of public participation, after WFD Guidance document no 8 (CIS Working group, 2.9, 2003)

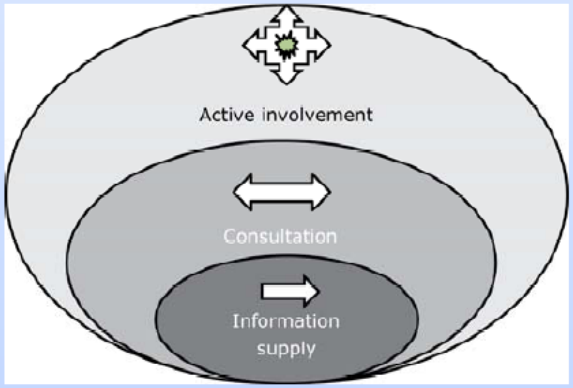


Figure 5.4. Plan preparation and implementation process: detail

Realizing the vision/ Implementation phase

Implementation phase:

- Time-frame to achieve the target (long vs. short, Dual Framework)
- Resources to be secured (financial & human)
- Placement of the target at the appropriate level (national, subnational, regional), i.e. suitable entry points
- Nature of the target (binding, non-binding, conditional, pre-requisite)
- Enforcement method (voluntary agreement, legal requirement, obligation, financial incentives, public accountability)

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Realizing the vision/Monitoring & Evaluation

State-of-the-Art
- Focus on impact indicators
- Include also output and outcome indicators

Goals of the DRM mainstreaming impact evaluation: Assess the:

Relevance,

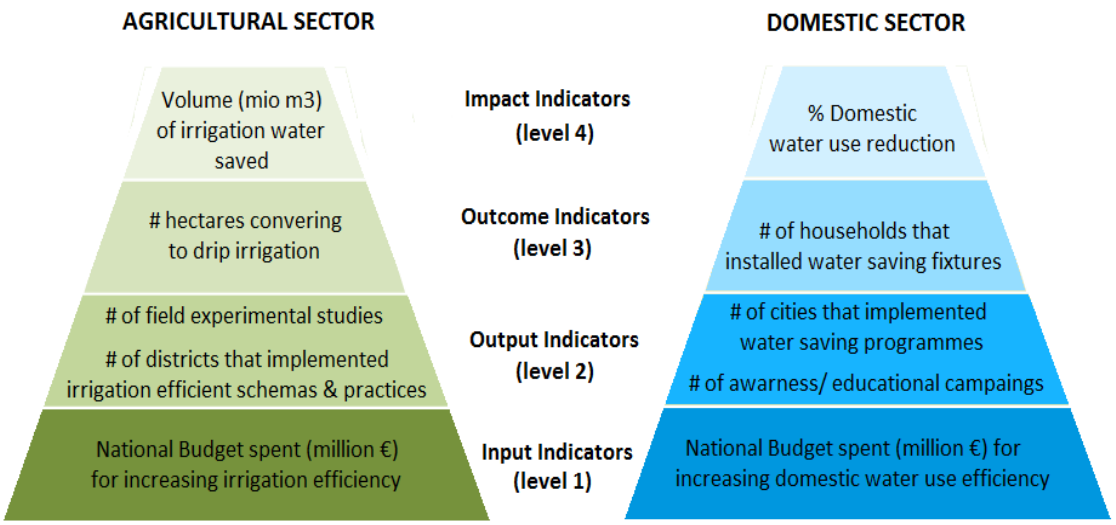
Efficiency, Effectiveness,

Impact, Sustainability,

External Utility

- The selected indicators must be able to measure progress towards the stated targets
- Their results should be reported to stakeholders and the public
- Four categories focusing on: input, output, outcome and impact (pros/cons)

Example: Performance indicators to evaluate policy targets in the agricultural and domestic sectors



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Potential challenges during the evaluation

- Unsuitability and inadequacy of the selected performance indicators
- Influences from externalities and contextual factors
- Length of time required to observe long-term impacts
- Lack of access to appropriate data
- Lack of human resource to collect and evaluate the indicators
- Week relation between targets and impacts

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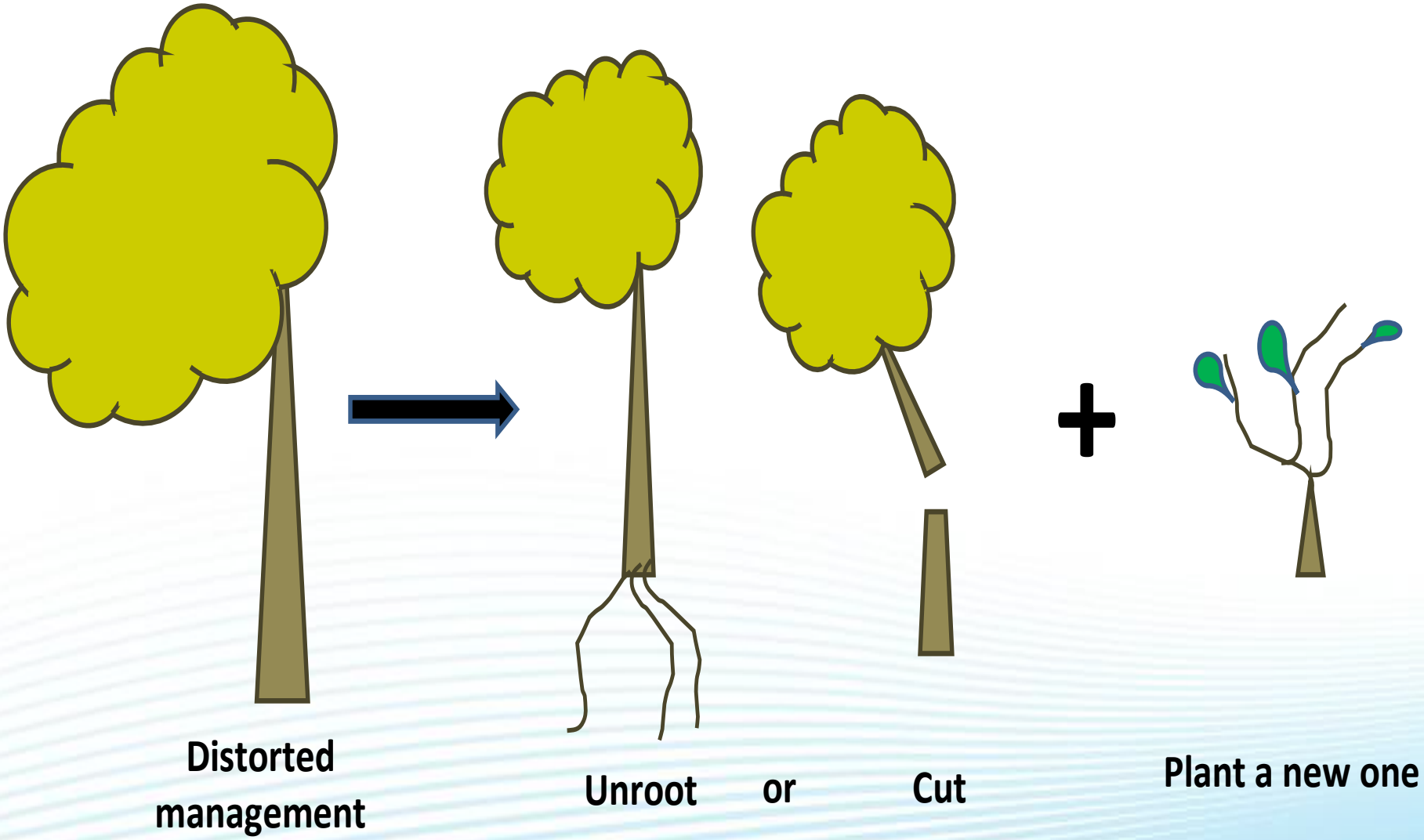
Adaptive Management 1

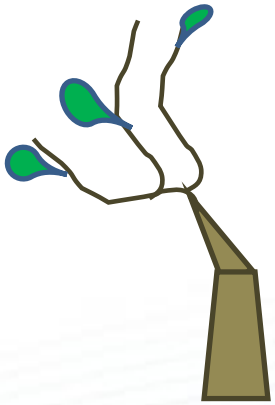
The Common Approach



Adaptive Management 2

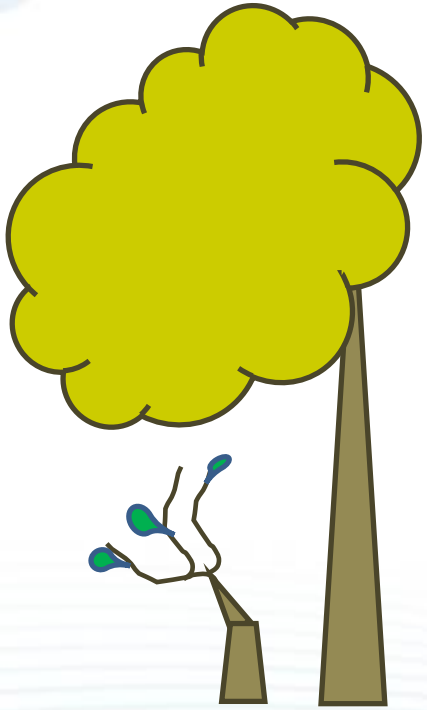
The Usual Result…

Very rarely…

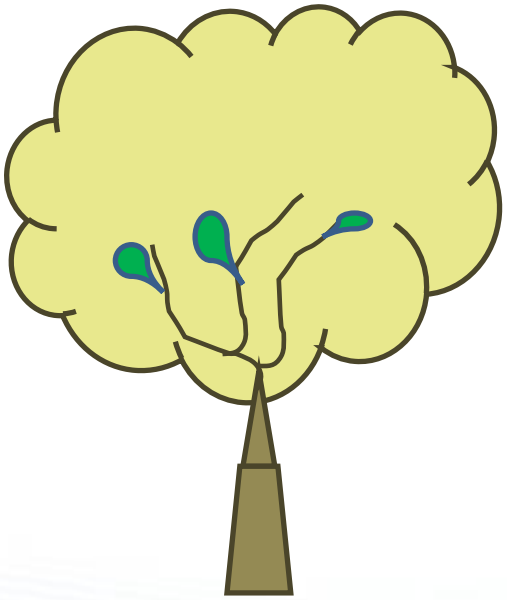


The new management distorted due to inherent conditions

or

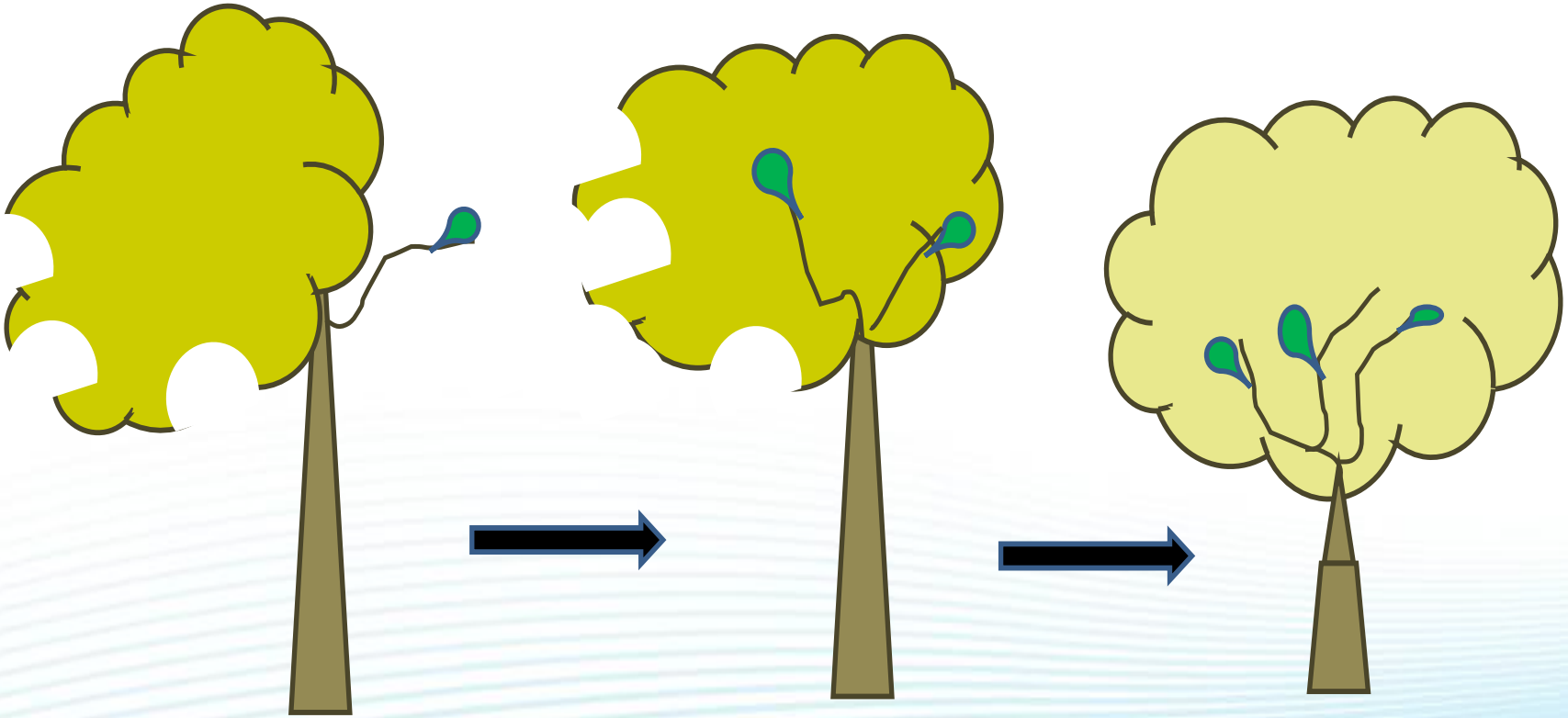


Distorted due to resilience of the old system



Adaptive Management 3

Adaptive management



Conclusions: Internalizing DRM

- Analyse the Robustness of the proposed solutions: evaluating their behavior against alternative future conditions.
- Consider uncertainty of the future scenarios.
- Define policy targets through a participatory approach, involving all stakeholders.
- Select Policy targets, specific, measurable and time-bounded, directly contributing to the achievement of the goal.
- Define criteria and indicators.
- Properly internalize targets into development plans either with *a priori* or *a prosteriori* design.
- Evaluate the progress towards achieving the targets,
- Use adaptive management to refine the integrated plan.

Title

Sustainable Water Integrated Management and Horizon 2020 Support Mechanism

SWIM-H2020 SM

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Working for a Sustainable Mediterranean, Caring for our Future.

This project is funded by the European Union

The SWIM-H2020 SM Project in a Snapshot

Working for a Sustainable Mediterranean, Caring for our Future.

Mediterranean Issues and Challenges

The environmental problems of the Mediterranean are many, complex and interlinked. Uncontrolled coastal development, population growth, increasing tourism, loss of biodiversity and environmental pollution stemming from the above and from poor management of municipal waste, urban wastewater and industrial emissions, including their respective pressures to the quantitative and qualitative characteristics of surface and groundwater resources ending up in the Mediterranean, constitute major pressures on its marine and coastal environment. Their impact is particularly reflected in the land-sea interface, the coastal zone. In addition, economic and social crises, high refugee flows, in combination with climate variability and change have made it more difficult to deal with the accumulated problems. Renewed efforts to address the challenges are made within **the SWIM-H2020 SM Project** (Sustainable Water Integrated Management and Horizon 2020 Support Mechanism 2016-2019) jointly by the Mediterranean countries and the European Union.

The SWIM-H2020 SM Project

The SWIM-H2020 SM Project, funded by the European Union, aims to contribute to reduced marine pollution and a sustainable use of scarce water resources in the Mediterranean Region with emphasis on the countries of North Africa and the Middle East (Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, [Syria] and Tunisia). The Project is the continuation and merging of two successful previous EU-funded service contracts, Horizon 2020 Capacity Building/Mediterranean Environment Programme (H2020 CB/MEP) (2009-2014) and the Sustainable Water Integrated Management Support Mechanism (SWIM SM) (2010-2015).

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SWIM and Horizon 2020 Support Mechanism

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Thank you for your attention.

This Project is funded by the European Union