Assessing impacts of TBT on multiple coastal uses

An overview

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Structure of the presentation

- Project background
- Concerns
- Project activities
- Diagrammatic representation of the project
- Objectives
- Work-packages and partners
- Deliverables and months
- Feedback between work-packages
- Project co-ordination

Project background

- Antifouling paints
- TBT based paints - Superior performance
- Described as a toxic substance
- Biodiversity and human health concerns
- IMO resolution: complete prohibition of organotin compounds by 2008

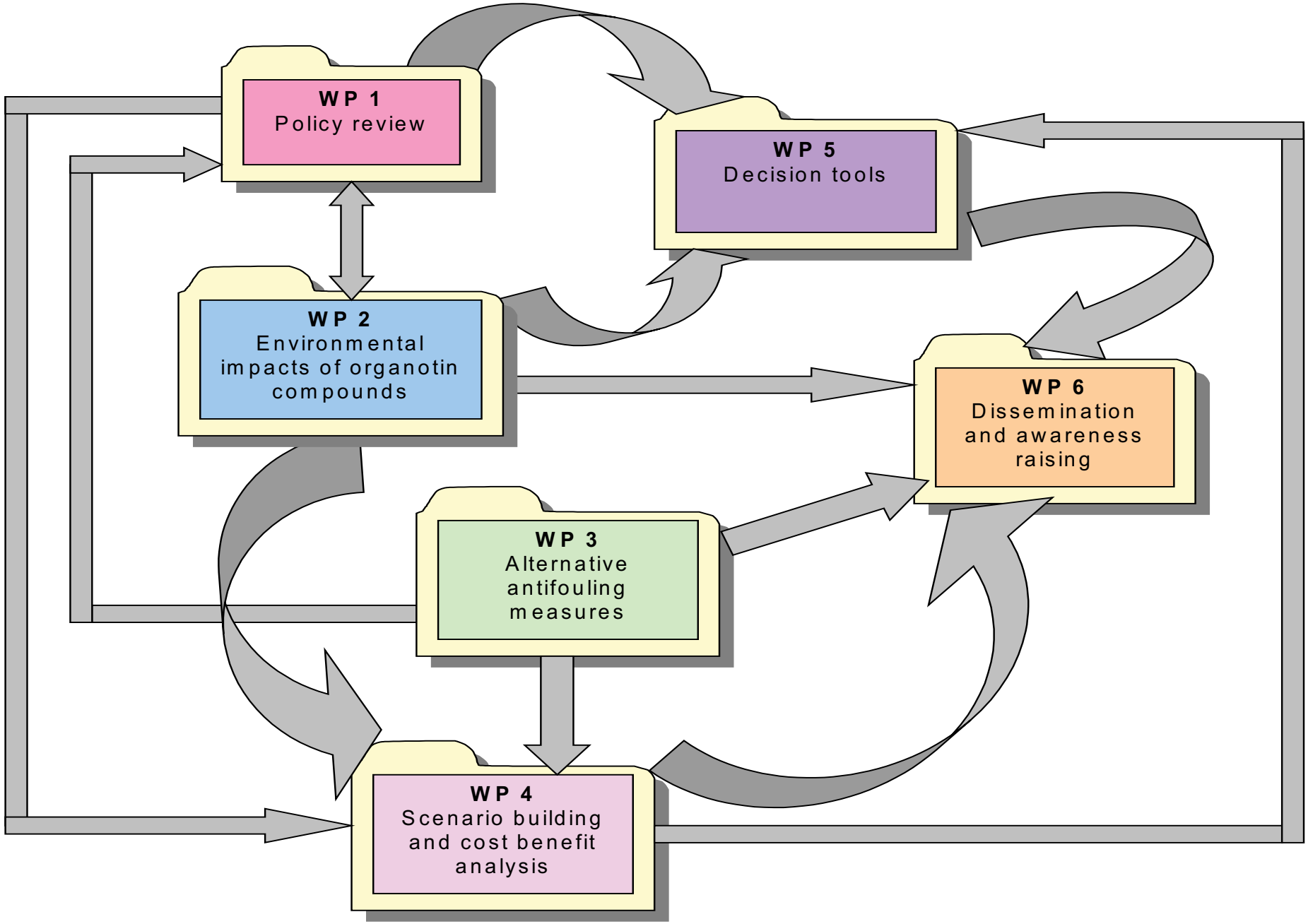
Concerns

- Inadequate tools for monitoring and managing environmental impacts of TBT
- Little thought has been given to a technical rather than a legislative solution
- Long-term biocidal properties and environmental impacts of existing alternatives are largely untested
- The indicator used for determining environmental impacts such as imposex has been challenged
- Environmental impacts will be shifted to the less regulated developing countries
- Environmental benefits of TBT have been ignored and environmental impacts of not using TBT have not been given adequate consideration

Project activities

- Review of policies in the context of TBT
- Environmental distribution of TBT in India and Europe
- The implications of TBT pollution and its ban
- Costs and benefits of TBT-based antifoulants and other alternatives
- Suggest alternative antifouling strategies
- Develop tools for monitoring and managing environmental impacts of organotin compounds
- Develop a biomonitoring system to regulate TBT impacts that exist in coastal environments
- Raise awareness towards this

Diagrammatic representation of the project



Objectives of the project

1. Assess **current policy concerns** and developments
2. Assess the **impacts of organotin based and other existing antifouling paints**
3. Investigate **alternative antifouling strategies**
4. Analyse **costs and benefits** of using and not using organotin compounds
5. Generate **decision tools** for better coastal health
6. Create **awareness** and build capacity

Work-Packages

WP1. Assess **current policy concerns** and developments

- Review current national, EU and international policies
- Analyse gaps in policies
- Suggest better policies/management strategies

Partners: ***TERI and UGOT***

WP2. Assess the **impacts of organotin based and other existing antifouling paints on coastal environment** such as water, sediment, mangrove ecosystem, fish and other biota.

- Environmental distribution of TBT in European and Indian coastal waters and sediments
- Evaluate effect of TBT on the biochemical composition of micro-organisms
- Assess impact of TBT on breeding and feeding grounds of fish
- Assess impact of TBT on marine animals including fish
- Assess environmental impacts of other existing antifouling paints through literature review, questionnaire surveys and interviews of key informants

Partners: ***ENEA, NIO, TERI***

WP3. Investigate **alternative antifouling strategies**

- Inventory of existing alternative antifouling paints
- Investigate other novel antifouling measures
- Isolation of micro-organisms for biodegradation of TBT

Partners: ***TERI with QC, NSDRC, RU, NIOT***

WP4. Analyse costs and benefits of using and not using organotin compounds

- Assess the environmental and economic implications of the IMO led policy changes to ban TBT
- Arrive at the costs and benefits of using organotin compounds and alternatives
- Build scenarios

Partners: ***TERI, NSDRC***

WP5. Generate **decision tools** for better coastal health in the context of organotin based antifouling paints.

- Establish a baseline data of the level of organotin in coastal ecosystems (waters, sediments, mangroves and animals) in order to monitor trends in concentration of TBT in coastal environments
- Develop indicators of coastal health such as fatty acid biomarkers and sentinel organisms
- Produce quality control tools for validation of analytical data
- Individuate safer fishing areas in the context of organotin compounds
- Develop a waste disposal strategy for TBT
- A simple biomonitoring system to regulate TBT impacts and help implementation of legislation

Partners: ***TERI, ENEA, NIO, NIOT, UGOT, RU, NSDRC***

WP6. Create awareness and build capacity

- Awareness raising campaigns amongst fishers and aquaculture farmers documenting impacts of TBT on marine organisms and implications to human health
- Dissemination of information on safer fishing areas to the fishers and aquaculture farmers and on alternatives to organotin compounds to shipping and cruise tourism industry
- Establish e-mail forum involving relevant stakeholders to discuss the divide on TBT issue
- Sensitising national governments on the issue
- Strengthening institutional capacity through better policy suggestions
- Help capacity building of research institutions by appropriate transfer of technical knowledge

Partners: ***TERI, NIOT, NSDRC***

Deliverables and milestones

D1 A document on review of existing policies M- 10

D1.1 Report on policies in India M- **7**

D1.2 State of art report on policies in European Countries M- **7**

D1.3 International best practice approaches M- **9**

D1.4 Gap analysis M-10

D1.5 Report on policy review M- 44

D2 Environmental impacts of using TBT and other alternatives on fishing, aquaculture and coastal environments M - 40

D2.1A report on environmental distribution of TBT in European and Indian coastal waters, sediments, fish and other biota M - 40

D 2.2 Report on environmental impacts of TBT on biochemical composition of micro-organisms M - 40

D2.3 State of art report on contribution of major harbours in terms of public exposure to TBT M - 32

D 2.4 Historic data on alien species invasion M - 34

D 2.5 State of the art information on the impact of TBT on mangrove ecosystems M - 36

D 2.6 Identification of safer zone for fishing M - 38

D3. A document providing knowledge on alternative antifouling paints M-18, 30

D4 Alternative antifouling strategies

D4.1 A working model of ceramic-based diffusible antifouling delivery for protection of moving surfaces against biofouling M-36

D4.2 Micro-organisms for detoxification of TBT M-38

D5 Scenarios on: environmental impacts of using TBT based organotin compounds and other existing as well as more efficient alternatives likely to be developed in future

Three scenarios – M- 32

Scenario 1 : If the ban does not exist i.e. with the organotin based antifouling compounds

Scenario 2 : With the ban and using presently available tin free antifouling compounds

Scenario 3 : Assuming that more efficient antifouling measures would be available

D6. Cost-benefit analysis of organotin based antifouling compounds and alternatives M-38

D7 Indicators of marine and coastal health M-38

D7.1 A report on indicators

D7.2 Fatty acid biomarkers

D7.3 Sentinel organisms and others

D8 Quality control programme M- 40

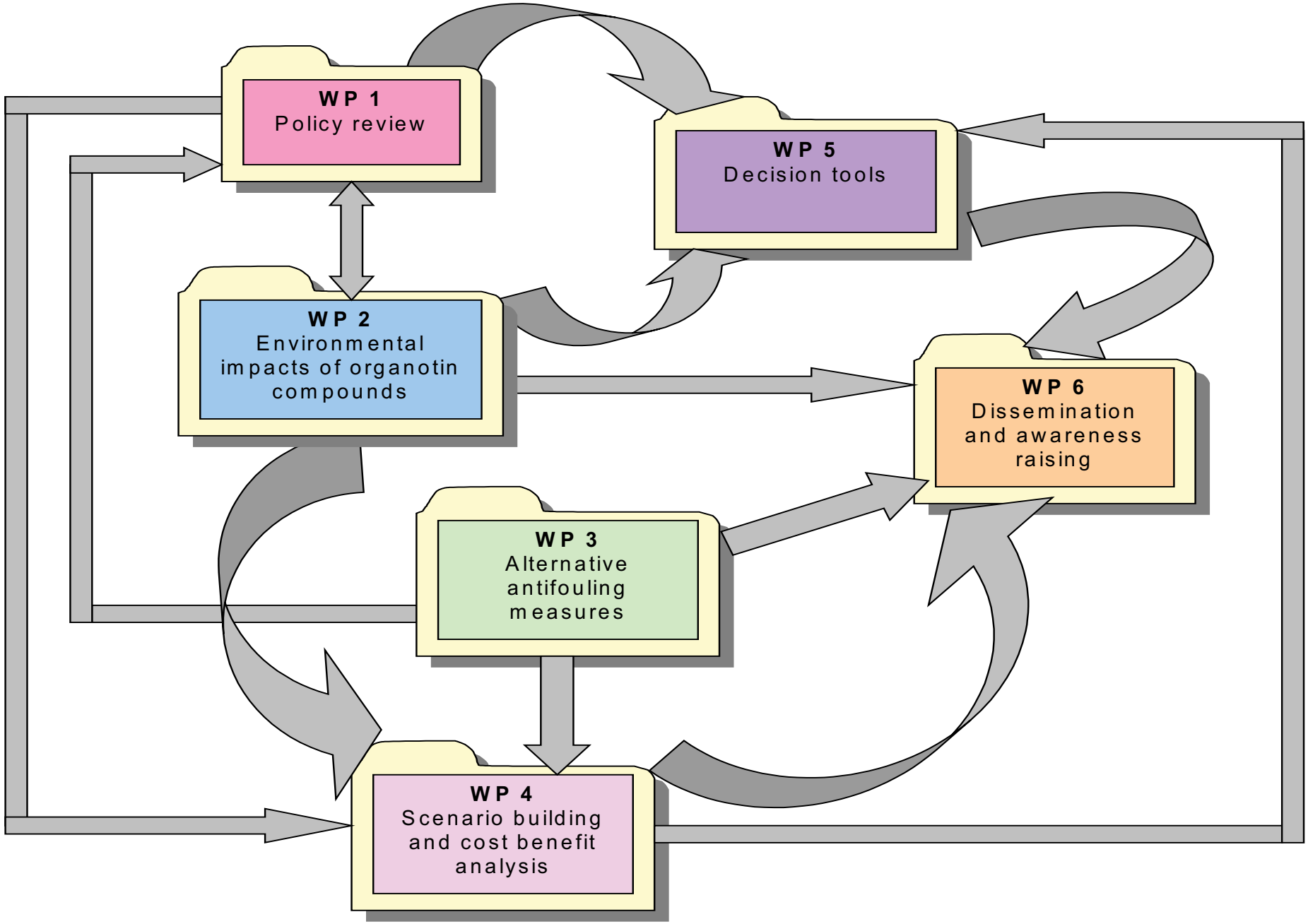
D9 Waste disposal strategy for TBT M- 41

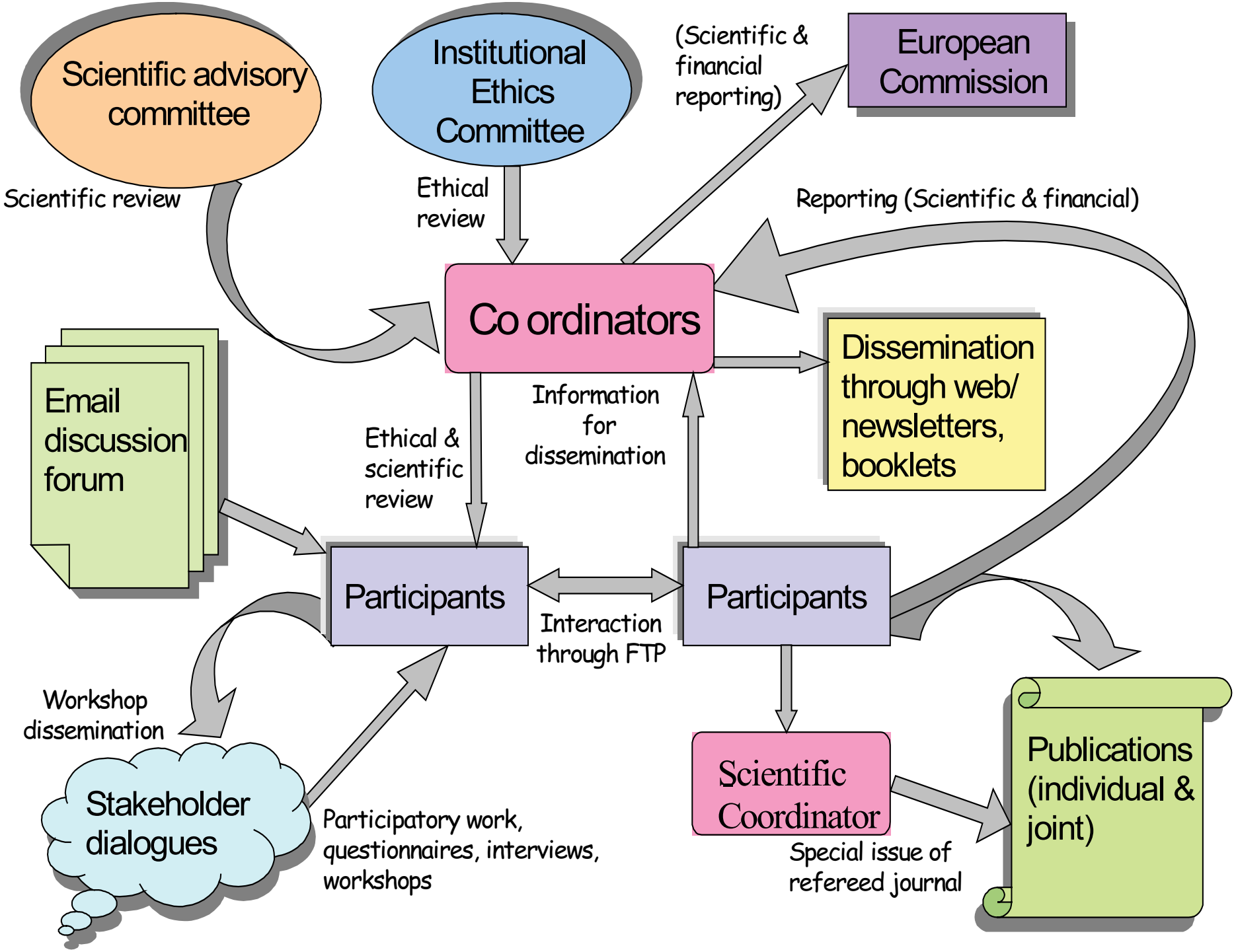
D10 A simple bio-monitoring system to assess coastal health M- 42

D11 Recommendations/ management strategies to help policy formulation M- 44

D12 Dissemination activities through workshops (4), newsletters (3), booklet (1), website etc. M-25- 48

Feedback between the work-packages

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