

# Pesticide Risk Reduction Programme – Ethiopia

## Definition of protection goals

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joint collaborative programme on pesticide registration and post-registration



MoA



ALTERRA



**Towards a sustainable use of pesticides in Africa**

# Definition of protection goals

## Outline

- Introduction to protection goals
- Stepped approach, today and tomorrow focus on:
  - One scenario zone or split Ethiopia in more zones ?
  - Define and describe options for protection goals: select and prioritise
  - Coupling of protection goals to scenario zones
  - Design conceptual models for protection goals
- Needs, tasks to distribute, planning



# Definition of protection goals

How to define protection goals into detail ?

Answer questions:

- What do you want to protect ?
- Where ?
- When and how strict ?

# Definition of protection goals



Example protection goal: aquatic ecosystem

- What should be protected ?
  - Which aquatic organisms represent the ecosystem ?
- Where ?
  - Big rivers, lakes or field ditches ?
  - Single watercourse or network of watercourses ?
- When and how strict ?
  - No effects at all or temporary effects are accepted ?



# Definition of protection goals

Example protection goal: groundwater

- What should be protected ?
  - Groundwater for drinking water ?
- Where ?
  - Individual abstraction of farmers or public (large scale) abstraction ?
  - At which depth ?
- When and how strict ?
  - Protection on long term or protection against peak concentrations ?
  - Exceedance of standard NOT acceptable or 10% exceedance accepted ?



# Definition of protection goals

Example protection goal: groundwater

- What should be protected ?
  - Groundwater for drinking water ?
- Where ?
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  - At which depth ?
- When and how strict ?
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  - Exceedance of standard NOT acceptable or 10% exceedance accepted ?



# Definition of protection goals

Why is definition of protection goals important?

If protection goals have been defined into detail

# we know which exposure concentrations we need to assess, so

# we can design scenarios

Example:

Protection goal for aquatic ecosystem:

no effects are accepted in field ditches

Required exposure scenario:

peak concentration of dissolved pesticide in water  
of field ditches

# Definition of protection goals

What is role political level / risk managers ?:

They have to strike the balance between environment and socio-economic considerations

Example: no effects acceptable for aquatic ecosystem in ditches

Implication: 50% of pesticides currently used in Ethiopia cannot be registered

- minister of environment in Ethiopia 😊
- minister of agriculture in Ethiopia 😞
- farmers 😞
- pesticide industry 😞

So, specification of a protection goal is a political choice !



# Definition of protection goals

Therefore:

Political support for selected protection goals is crucial !

In the EU:

- Scientists define options
- Risk managers decide

How to organise this in Ethiopia ? Procedure ?

Point to discuss in break-out groups or central discussion during reporting back ?

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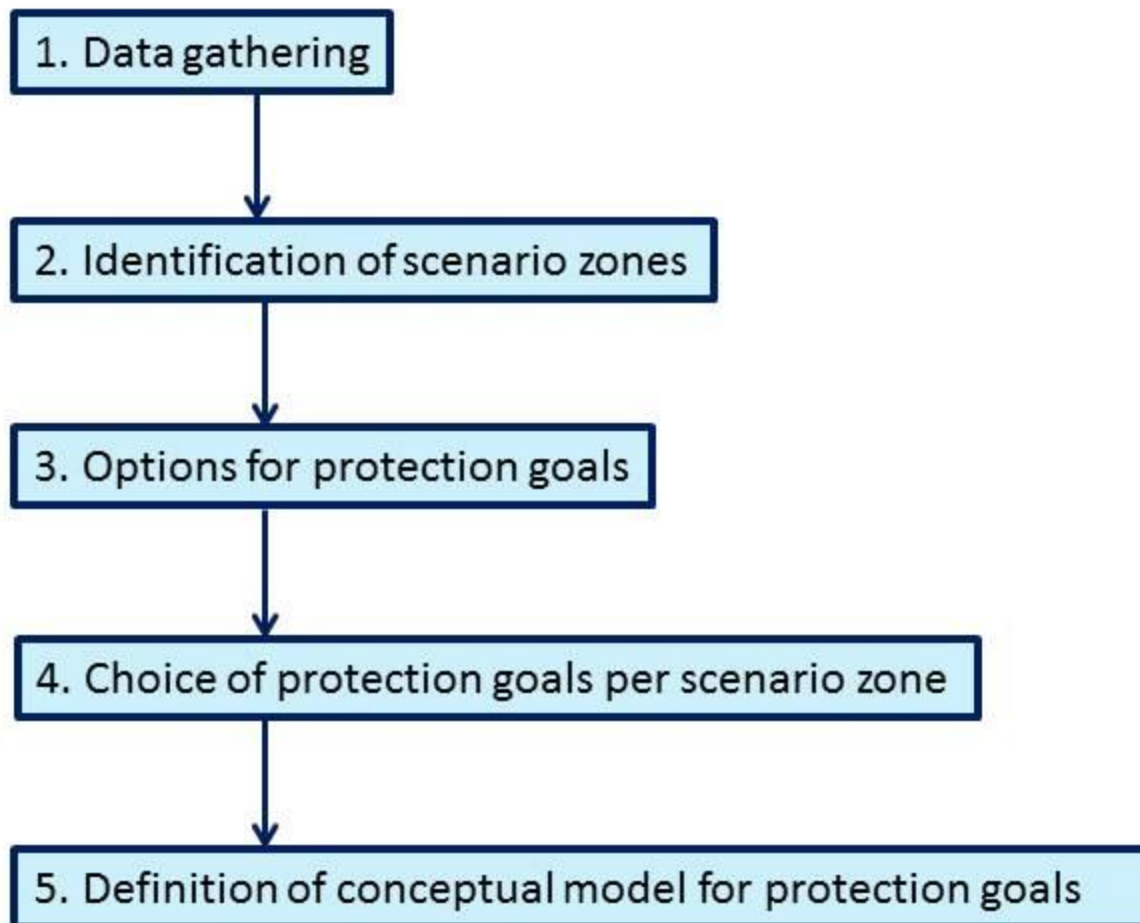
# Definition of protection goals

- Stepped approach
- Focus first on what and where, so the spatial component
- Later focus on when and how strict, the temporal component (workshop criteria in 2012)

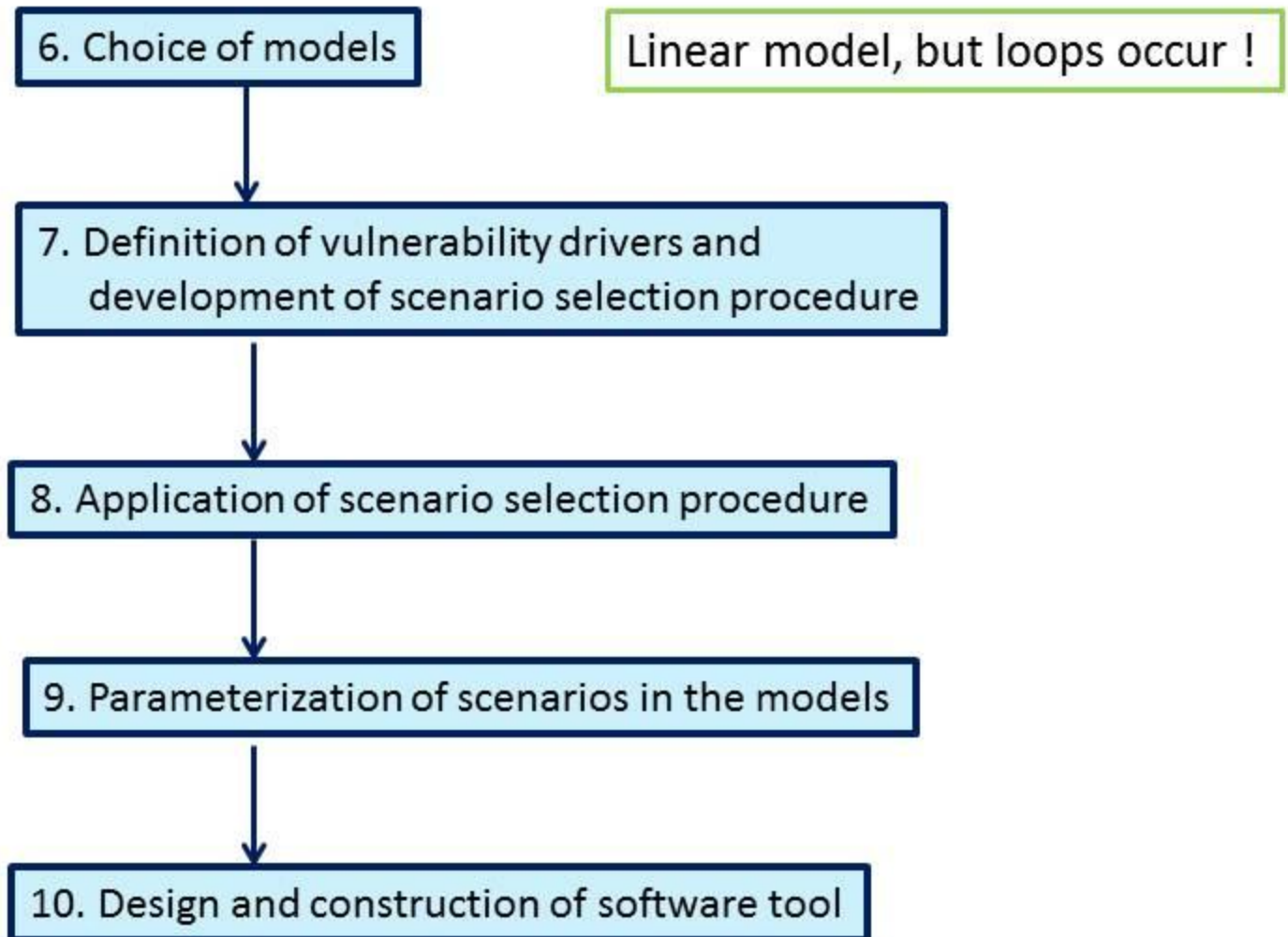
# Definition of protection goals

- Stepped approach, steps for this workshop
  - One scenario zone or split Ethiopia in more zones ?
  - Define and describe options for protection goals: select and prioritise
  - Coupling of protection goals to scenario zones
  - Design conceptual models for protection goals
- First, brief explanation of the steps
- Next, three crucial steps treated into more detail today and tomorrow, each time followed by work in break-out groups and a consecutive central discussion

# Definition of protection goals



## Later: (after definition of protection goals)



# Definition of protection goals

## 1. Data gathering

- For groundwater and surface water systems:
  - Climate
  - Land use
  - Crops
  - Agricultural practices
  - Depth groundwater, catchment size
  - Pesticide use and application techniques

# Definition of protection goals

## 2. Identification of scenario zones

- One scenario covering the entire country or split the country into scenario zones ?
- N.B. Political decision !
- Consequences:
  - One scenario: compound fails: NO registration
  - More scenarios: compound may pass some scenarios and fail some other scenarios: registration in some zones and in other zones no registration or e.g. registration with restrictions, -> so more flexibility in registration



# Definition of protection goals

## 3. Options for protection goals

- Definitions of options for protection goals, e.g. drinking water from groundwater, drinking water from surface water, aquatic ecosystem, birds, bees, ...
- What should be protected, where and how strict ?  
Emphasis on what and where, so the spatial component
- N.B. Role for scientists

# Definition of protection goals

## 4. Choice of protection goals per scenario zone

- Policy makers select protection goals
- Listing validity of protection goals for scenario zones
- If necessary: policy makers set priorities in operationalizing the protection goals

# Definition of protection goals

## 5. Definition of conceptual model for protection goals

- Define conceptual model for each protection goal:
  - Lay out scenario: e.g. catchment size, size adjacent field to surface water, surrounding fields, size surface water body
  - Entry routes of pesticides
  - Farm types (smallholders or large-scale investment farming)
  - Application techniques used
  - Relevant crops
  - Relevant pesticide processes

# List of Important Protection Goals

- Ground water
- Surface water
- Aquatic ecosystem  
(water life: fish: daphnia:sediment:algae)
- Soil ecosystem
- Terrestrial ecosystem (bees, birds, plants)

# Ranking

PG	1st	2nd	3rd	4th	5th
GROUND WATER		2		3	1
Surface water	10	-	-	-	-
Aquatic ecosystem		2	2	-	1
Soil ecosystem		6	2	1	
Terrestrial ecosystem			6	2	

# Selected protection goals in order of priority

1. Surface water as drinking water for humans and livestock
2. Soil ecosystem
3. Terrestrial ecosystem( bees (including honey bees),birds,-endemic and migratory water birds
4. Ground water
5. Aquatic ecosystem

# **Identification of Scenario zones** **and Options for Protection Goals**

**Summary of 3 groups**

November 17,2011

# **Identification of Scenario zones** **and Options for Protection Goals**

**Summary of 3 groups**

November 17,2011



# Question number 1.

Could you design and outline the procedure to obtain political support.

GP 1 = none

GP 2 = . Elaborate strong justification based on available data

. Involve the Pesticide Advisory Board

## GP 3

Need to do a lot of work!

(i) Number of scenario zones?

Not decided

(ii) The protection goals to be used in the  
Ethiopian pesticide registration  
procedure?

(iii) Their coupling to relevant scenario  
zones?

(iv) Their priority setting?

- Development of clear scientific and technical document.
- The document should be evaluated by APHRD according to the Proclamation and other national laws (EPA, Investment...)
- The document should be presented for discussion (workshop) – enriched, to the Minister

## Question number 2

Should the registration of pesticides in Ethiopia be based upon one scenario zone, or should more scenario zones be considered? If yes , how many and how should they be defined? What are the criteria to define Zones?

## 2.1 One or more than scenario?

GP 1 = More than one

GP 2 = More than one

GP 3 = Not decided (should have more data)

## 2.2. How many

GP 1 = Two

GP 2 = More than one may be three

GP 3 = Not decided (should have more data)

## Why more than one scenario zones (GP 1 and 2)

- there is ecological diversity in the country,
- pesticides are used on limited areas,
- pesticides are moved long distance by man
- pastoralists are unique,
- there are regulated pests,
- Efficacy trial required from different locations for pesticide registration
- etc

- Decision on number of scenario zones
  - MORE THAN ONE

## To be done

- Number of scenario zones?
- How should they be defined?
- What are the criteria to define Zones?

## **Question number 3.**

Which environmental protection goals you judge important to consider in the Ethiopia's registration procedure? Consider environmental compartments as well as organisms.



**All 3 groups identified the following protection goals**

### **Aquatic ecosystems**

- Fish
- Daphnia
- Algae
- Aquatic plants
- Sediment organisms'

Where? These organisms are intended to be protected in the lakes

### **Drinking water for cattle**

- Livestock

Where? To be protected in ponds which are mostly seasonal (dries out during dry time)

## Organisms

- Bees (including honey bees)
- Non-target terrestrial arthropods (natural enemies)
- Birds (endemic and migratory)
- Other terrestrial vertebrates

## Plants

Non target terrestrial plants

Where? Wherever pesticide is applied

## Soil

- Persistence

## Soil Organisms

- Soil micro-organisms
- Earthworms
- Saprophygeous invertebrates found in the soil

Where??

Thank You