



18th International Symposium
on Toxicity Assessment

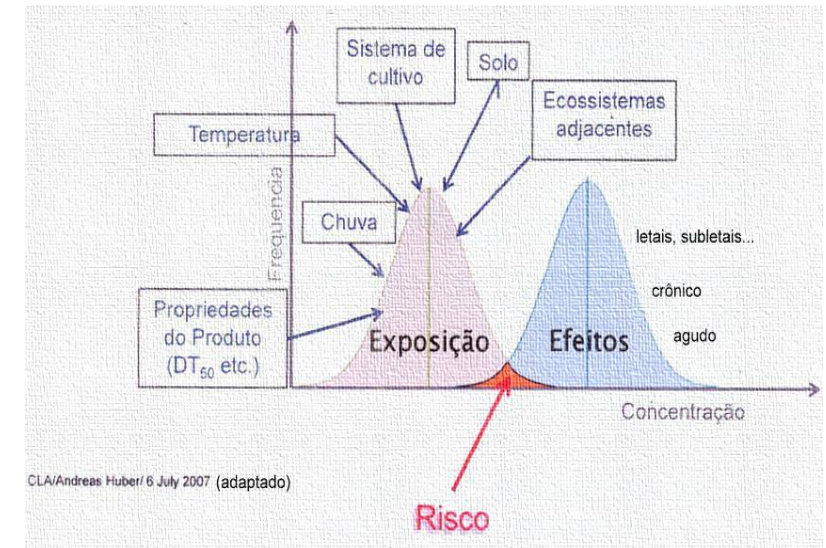
Aquatic Risk Assessment Scheme for Pesticides in Brazil

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Current status of Environmental Risk Assessment (ERA) of pesticides in Brazil

- Carried out by Ibama from 2012:
 - New active ingredients
 - Reevaluation process (neonicotinoids)
- Only Tier 1: Worst case scenarios



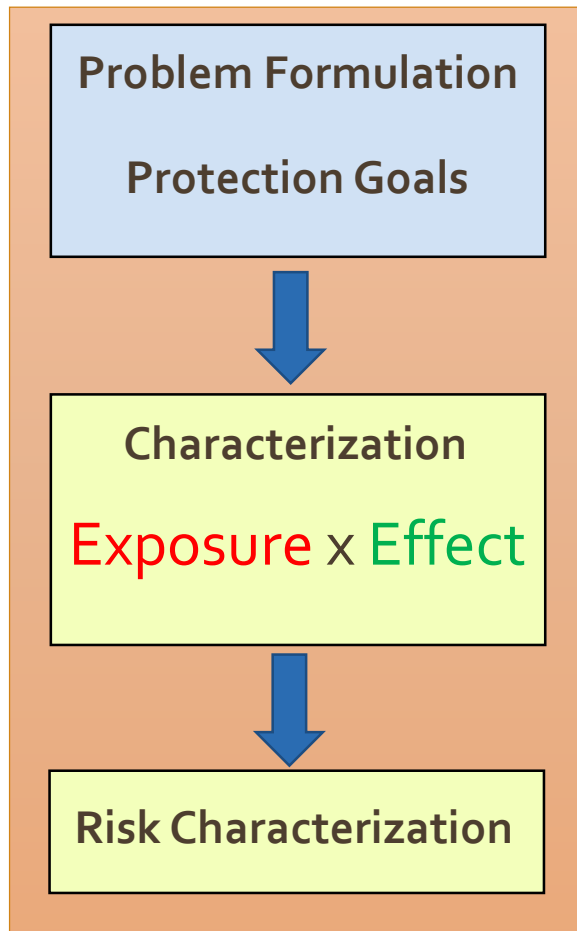
- US EPA Approach: exposure assessment and risk characterization
 - Estimated Environmental Concentrations (EECs): GENEEC¹
 - Toxicity inputs requested by Ordinance Ibama nº 84 (Algae, microcrustacean and fish – acute and chronic)
 - Risk Quotient (EEC/toxicity) compared to the same Levels of Concern (LOCs) established by USEPA

Limitations

- No refinement of the assessments: only Tier 1
- A lot of uncertainty and needs:
 - Are the USA scenarios used conservative enough to Brazil?
 - Are the extrapolation factors adopted in other countries protective to native species?
 - Which additional tests should be requested in the process of risk assessment?
 - Which data will be necessary to develop the different phases of this process?

Working Group (WG): topics under discussion

Risk Assessment Scheme



- Brazilian regulations survey
- General Protection Goal: **“to protect water bodies to guarantee the sustainability of the aquatic ecosystem and to maintain the aquatic organisms, the water supply for the animals and the economical, recreational and subsistence activities”**
- Deriving specific protection goals based in Ecosystem Service Approach

- Vulnerability Assessment of surface water to pesticides
- Selection of a pesticide exposure model
- Safety/extrapolation factors (Phase 1)

US Approach x EU Approach

Risk Assessment Scheme: Protection Goals

- Proposed SPGs for Ecological Treshold Option (ETO)

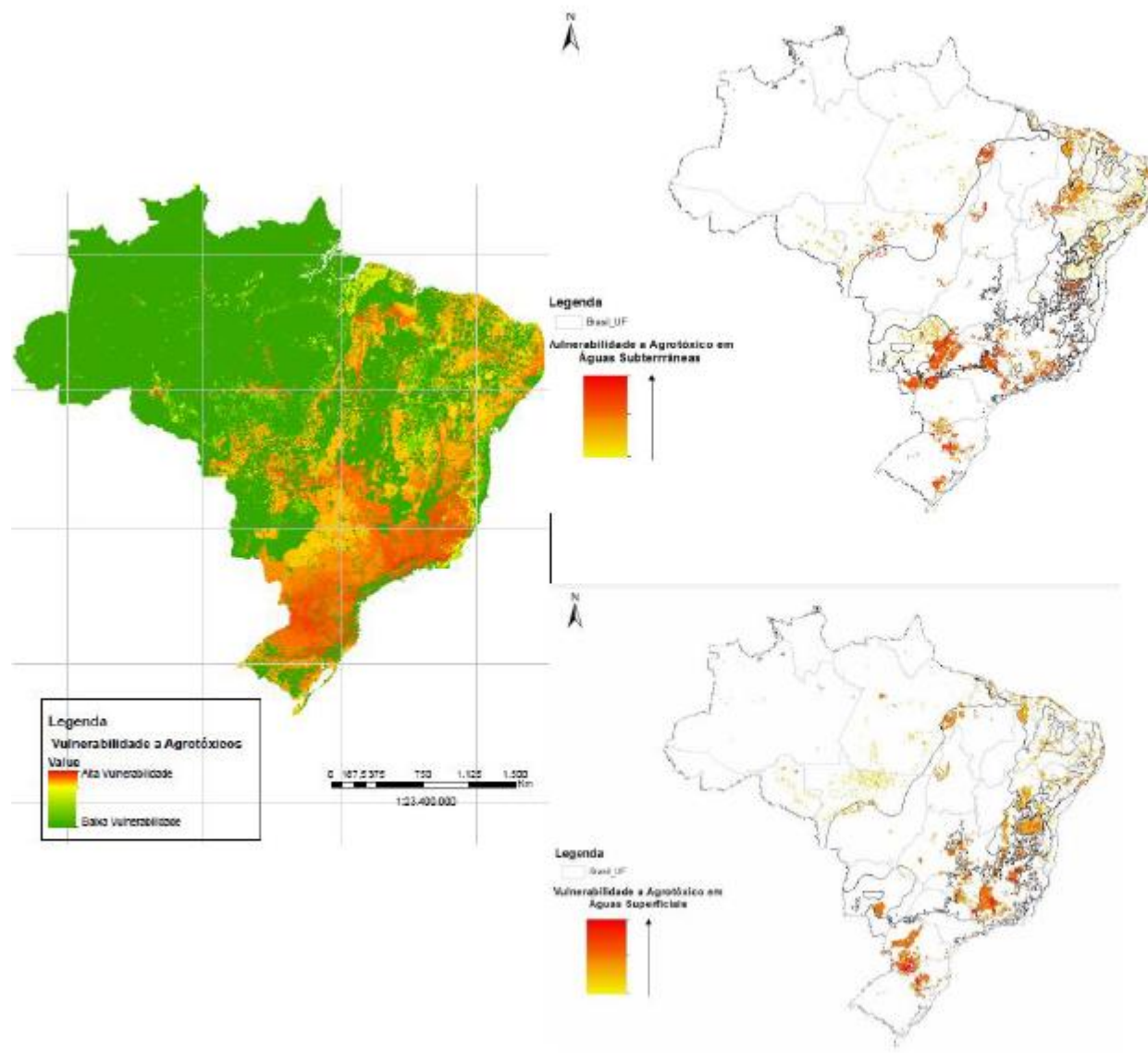
Organism group	Ecological entity	Attribute	Magnitude	Time
Algae	Population	Abundance/biomass	Negligible effect	Not applicable
Aquatic plants	Population	Survival/growth Abundance/biomass		
Aquatic invertebrates	Population	Abundance/biomass		
Vertebrates	Individual	Survival		
	Population	Abundance/biomass		
Aquatic microbes	Functional group	Processes (e.g. litter break down)	RA will not be developed since tier 1 data requirements are not defined	

- Proposed SPGs for Ecological Recovery Option (ERO)

Organism group	Ecological entity	Attribute	Effect allowable on most sensitive/vulnerable population	
			Magnitude	Duration
Algae	Population	Abundance/biomass	Small effect ^(a)	Months
			Medium effect ^(a)	Weeks
			Large effect ^(a)	Days
Aquatic plants ^(b)	Population	Survival/growth	Small effect ^(a)	Months
		Abundance/biomass	Medium effect ^(a)	Weeks
Aquatic invertebrates ^(b)	Population	Abundance/biomass	Small effect ^(a)	Months
			Medium effect ^(a)	Weeks
			Large effect ^(a)	Days
Vertebrates	No recovery option			
Aquatic microbes	Functional group	Processes	RA will not be developed since Tier 1 data Requirements are not defined	

* Dimensions “spatial scale” is fixed (edge-of-field surface water) and “degree of certainty” always should be high

Risk Assessment Scheme: Exposure



Risk Assessment Scheme: safety factors (phase 1)



Could we only adopt one of the available alternatives (US and EU) without any consideration about sensitivity of Brazilian species?

To avoid doubts and questions in the future the WG is working on a methodology that indicates whether the safety factors already adopted by other countries are enough to risk assessment in Brazil.

GAP:

- Limited data about toxicity of pesticides to native species



Thank you!

Ibama – Brazilian Institute for Environment and Renewable Natural Resources

DIQUA – Environmental Quality Division

CGASQ – General Coordination of Evaluation and Control of Chemicals and Hazardous Products

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