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TOPIC 12

Root Causes Analysis of Wetland Loss and Degradation

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ROOT CAUSES ANALYSIS OF WETLAND LOSS AND DEGRADATION

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INTRODUCTION

In the developing world, wetland loss and degradation is leading to substantial impacts upon local communities which depend upon wetland resources for sustenance. To resolve this problem, the precise reasons for wetland threats need to be analysed, and means of addressing them identified.

Root Causes Analysis can also be one of conflict analysis tools, helping stakeholders examine the origins and underlying causes of conflict.

GETTING TO THE ROOT CAUSES OF PROBLEMS

Understanding the true nature of the key problems is crucial in any resource management situation. Too often, little or no effort is spent on developing an understanding of the root causes of problems. This can lead to situations where efforts are wasted by addressing only the immediate causes and never reaching the underlying root causes.

Claridge and O'Callaghan (1997) describe a simple hypothetical example which might illustrate the problem. If a community is over-harvesting a wetland resource which is globally threatened, this represents a conservation problem. The simple solution would appear to be to introduce legislation to prohibit or limit the harvest. But what are the root causes of the problem and would the simple legislative solution address them, or would it merely change the nature of the problem ?

For examples :

- Is the resource used locally or sold for cash ?
- Are there acceptable and affordable substitutes ?
- Has the harvesting level remained constant but some outside influence has reduced the stock of the resource ?
- Is the harvest done by one disadvantaged group in the community with no other source of income, or whose other sources of income have suddenly disappeared ?

- Was harvesting previously sustainable but traditional management regimes have broken down for some reason ?
- Has a government initiative changed, or threatened to change, the traditional tenure patterns for this resource, leading to an open access situation ?
- etc.

Depending on the answers to these questions, different management interventions will need to be made.

WHAT IS ROOT CAUSES ANALYSIS ?

Root Causes Analysis is :

- Finding *real causes* of the problem and dealing with it rather than continuing to deal with the unwanted situation.
- A step by step method that leads to the discovery of a root cause or root causes.
- An investigation that traces the cause and effect trail from the end failure (impact / problem / issue / unwanted situation) back to the root cause.
- Identifying the *linkages* between *issues* affecting the ecosystem / the environment and *their causes* in order to solve the problems more efficiently in a sustainable and cost-effective manner.
- Identifying the *real and potential threats*, and *their underlying root causes*, to the ecological health of wetland ecosystem.

OVERVIEW OF ROOT CAUSES ANALYSIS PROCESS

- A *team* of, probably, 3-6 *knowledgeable people*, brought together to investigate the threats using evidence left behind from the unwanted situation.
- The team *brainstorms* to find as many causes of the unwanted situation as possible.
- Using evidence remained after the unwanted situation, and *discuss with people involved* in the situation, *all the non-contributing causes are removed*, and *the contributing causes retained*.
- A *problem tree is constructed*, starting with the final unwanted situation and progressively tracing each cause that led to the previous cause, this continues till the trail can be traced back no further; each result of a cause must clearly flow from the one before it (if it is clear that a step is missing between causes, it is added in and evidence looked for to support its presence).
- Once the problem tree is completed and *checked for logical flow*, the team then *determines what changes to make* to prevent the sequence of causes and consequences from again occurring.

Once the root cause is determined, then it has to be determined whether it costs more to remove the root cause or simply continue to treat the unwanted situation.

POINTS TO REMEMBER

- Take time to identify the root causes of the major issues and problems;
- Make a thorough analysis of the situation taking all factors (internal and external) into account;
- Utilize a range of problem-solving techniques to identify the root causes of the problem; and
- Be prepared to identify new and non-traditional approaches to address the problems.

CASE STUDIES

An example of the analysis of root causes of threats to wetland biodiversity in the Lower Mekong Basin, carried out by the Mekong River Basin Wetland Biodiversity Conservation and Sustainable Use Programme (UNDP-IUCN-MRCS-GEF), are briefly described and summarized below.

Threats to wetlands in the Lower Songkhram River Basin, Thailand.

Threats	Immediate Causes	Root Causes
Permanent inundation of the site through the proposed construction of a dam at the mouth of Songkhram River	Infrastructure development : Irrigation for agriculture	<ul style="list-style-type: none"> • Uncoordinated sectoral approaches to wetland planning at national and regional level • Weak policy framework and unsupportive economic environment for wetland biodiversity conservation and sustainable use
Infrastructure development – water control systems including weirs	Effort to increase agricultural production, government policy to increase cash-crop production	<ul style="list-style-type: none"> • Weak policy framework and unsupportive economic environment for wetland biodiversity conservation and sustainable use • Uncoordinated sectoral approaches to wetland planning at national and regional level • Inadequate information and awareness base on which to base wetland policy, planning and management decisions
Unsustainable management of natural resources	Unsustainable use of wetlands : Wood harvesting, grazing, harvesting wildlife	<ul style="list-style-type: none"> • Weak policy framework and unsupportive economic environment for wetland biodiversity conservation and sustainable use • Uncoordinated sectoral approaches to wetland planning at national and regional level • Lack of options over resource uses by local people • Inadequate human and technical resources available for wetland biodiversity conservation
Reduction in water quality	Industrial and agro-industrial pollution	<ul style="list-style-type: none"> • Inadequate human and technical resources available for wetland biodiversity conservation • Weak policy framework and unsupportive economic environment for wetland biodiversity conservation and sustainable use • Uncoordinated sectoral approaches to wetland planning at national and regional level
	Domestic waste	<ul style="list-style-type: none"> • Weak policy framework and unsupportive economic environment for wetland biodiversity conservation and sustainable use
Focus of management on terrestrial components of river basin	Management focus on forest systems	<ul style="list-style-type: none"> • Uncoordinated sectoral approaches to wetland planning at national and regional level • Weak policy framework and unsupportive economic environment for wetland biodiversity conservation and sustainable use
	Education activities focused on forest environments	<ul style="list-style-type: none"> • Inadequate human and technical resources available for wetland biodiversity conservation • Uncoordinated sectoral approaches to wetland planning at national and regional level
Introduction of potentially invasive alien fish species	Extensive culture of exotic fish species	<ul style="list-style-type: none"> • Uncoordinated sectoral approaches to wetland planning at national and regional level • Lack of options over resource uses by local people • Inadequate human and technical resources available for wetland biodiversity conservation
Inappropriate fisheries activities resulting in a decrease in fish stocks and related fish biodiversity	Over-harvesting of fisheries resources and unsustainable harvesting practices	<ul style="list-style-type: none"> • Inadequate information and awareness base on which to base wetland policy, planning and management decisions • Inadequate human and technical resources available for wetland biodiversity conservation • Lack of options over resource uses by local people

Many countries share the South China Sea, and the environmental problems of the Sea are common and transboundary in nature with similar root causes, thus the solutions to address the problems require a regional and transboundary approach.

REFERENCES

- Anonymous. 1997. *Wetlands and Integrated River Basin Management : Experiences in Asia and the Pacific*. UNEP/Wetlands International – Asia Pacific, Kuala Lumpur.
- Claridge, G.F. and O’Callaghan, B. (eds.). 1997. *Community Involvement in Wetland Management : Lessons from the Field*. Incorporating the Proceedings of Workshop 3 : Wetlands, Local People and Development, of the International Conference on Wetlands and Development, held in Kuala Lumpur, Malaysia, 9-13 October 1995. Wetlands International, Kuala Lumpur.
- Deka, T.K., Goswami, M.M. and Kakati, M. 2005. Causes of Fish Depletion – a Factor Analysis Approach. *NAGA WorldFish Center Newsletter* 28 (1 & 2) : 37-42, January-June, 2005.
- Dugan, P.J. (ed.). 1993. *Wetlands in Danger*. A Mitchell Beazley World Conservation Atlas. Mitchell Beazley in association with IUCN – The World Conservation Union. Reed International Books Limited.
- Maitland, P.S. and Morgan, N.C. 1997. *Conservation Management of Freshwater Habitats : Lakes, Rivers and Wetlands*. Chapman & Hall.
- UNDP-IUCN-MRCS-GEF. The Mekong River Basin Wetland Biodiversity Conservation and Sustainable Use Programme.

http://www.ramsar.org/key_guide_restoration_e.htm

<http://www.systems-thinking.org/rca/rootca.htm>

<http://www.fao.org/docrep/008/a0032e/a0032e0d.htm>