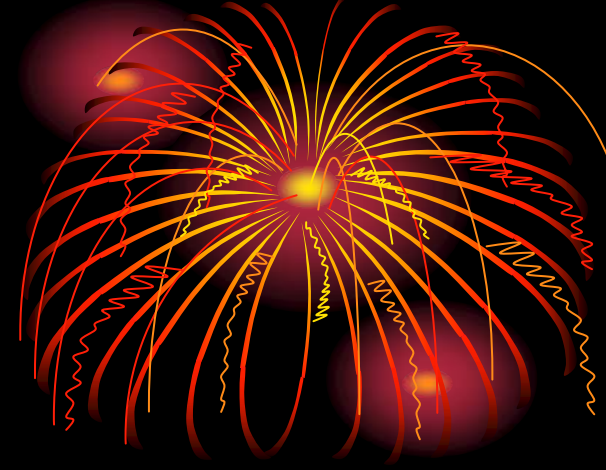


CAUSAL CHAIN ANALYSIS



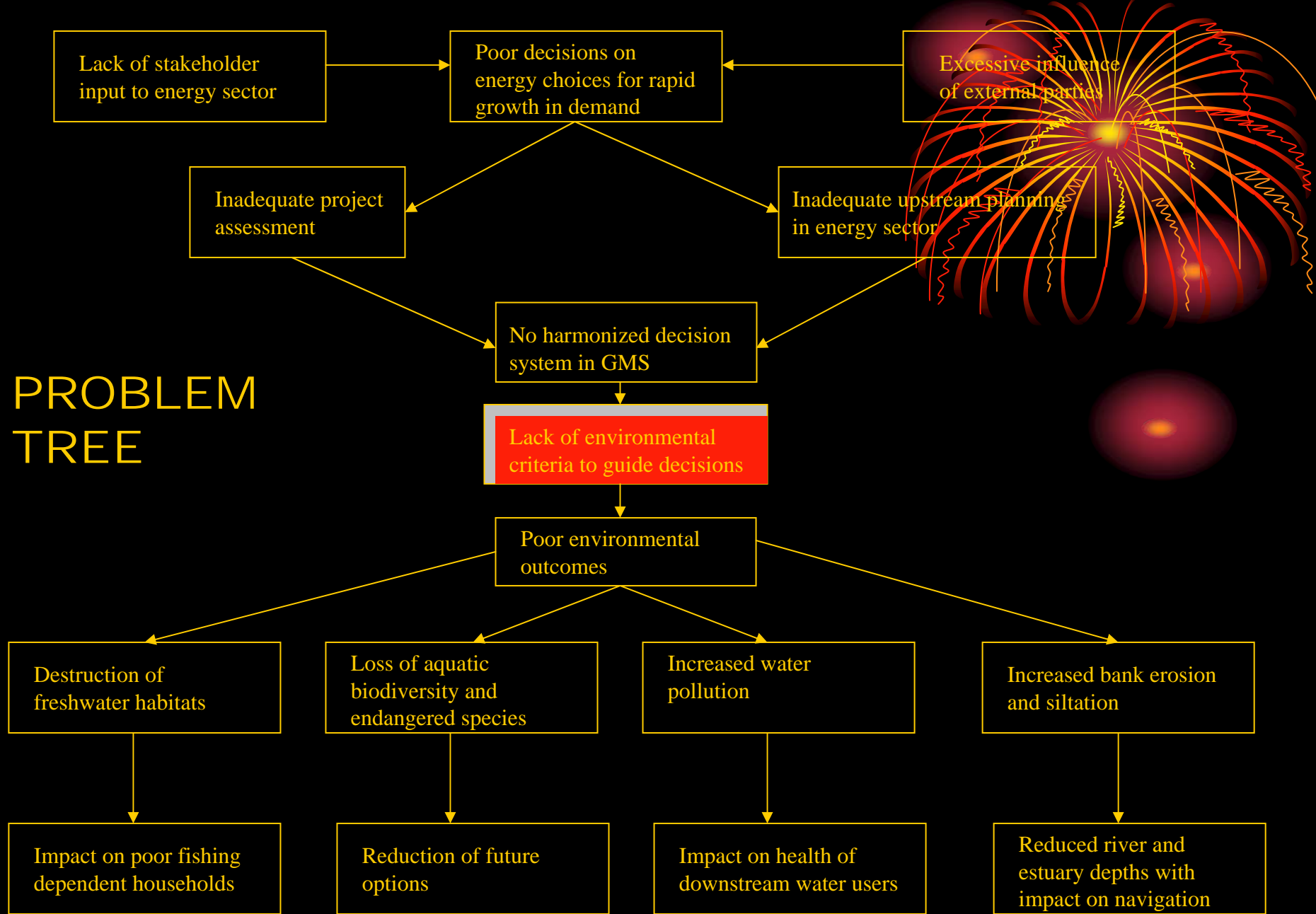
- What is CCA?
- What are problem and objective trees?
- Why use CCA in SEAs?
- How can CCA be used in an SEA for the tourism sector?
- Group Exercise

WHAT IS CCA?

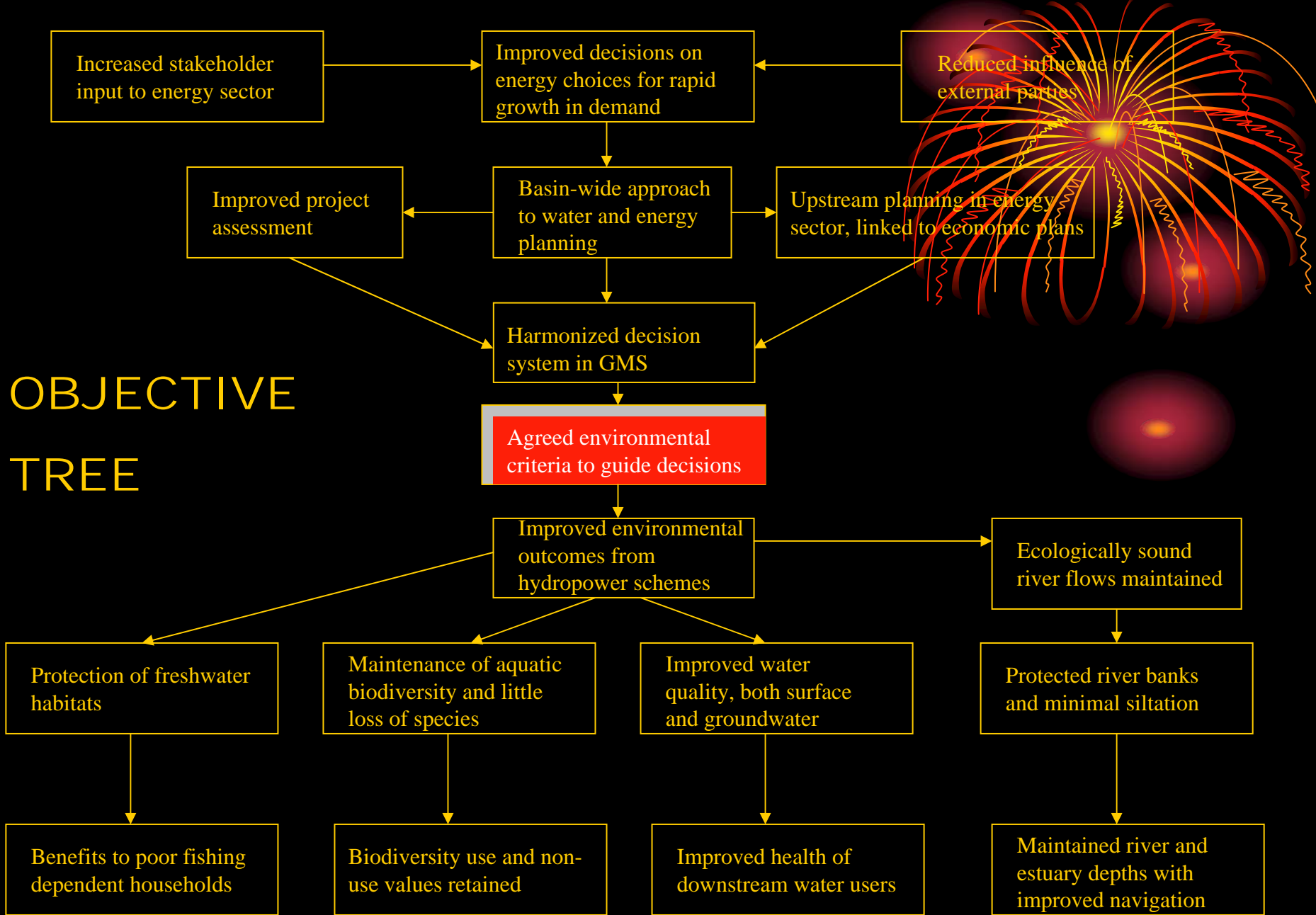
Causal chain analysis (CCA) is a means of tracing the immediate or direct causes of an impact or problem back to its root causes. Often the immediate cause of an impact is not its fundamental cause. Tackling direct causes may not solve the problem; tackling the root cause may solve more than one problem. CCA requires the development of conceptual models that represent the chain of cause-effect relationships in which *activities* lead to changes, *changes* lead to impacts, and *impacts* lead to responses. It is possible to trace both forwards and backwards linkages, and often deeper understanding can be achieved by doing both.



PROBLEM TREE



OBJECTIVE TREE



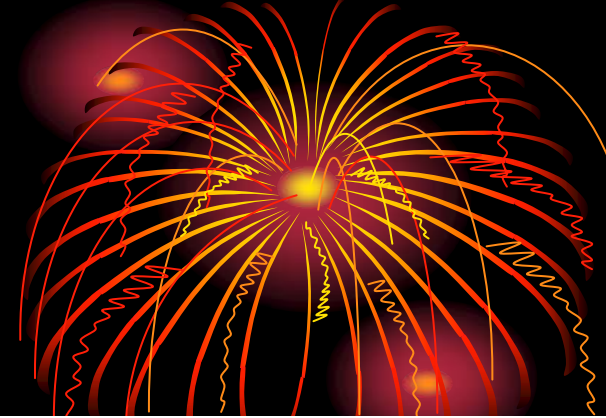
Steps in CCA



- Step 1: Setting baseline conditions – what is the problem
- Step 2: Identifying impacts – who does the problem affect and what are the consequences
- Step 3: Building a network of cause-effect relationships – activities => change => impacts => responses

Economic activities		Change in environmental conditions	Impacts	Potential areas for responses
Increased agricultural production for export Increased agricultural production for export	Monoculture cropping systems	<ul style="list-style-type: none"> -changes in land use pattern -simplification of ecosystems -reduced flood control functions 	<ul style="list-style-type: none"> -vulnerability to pests -Loss of biodiversity -Loss of multi-functionality -Soil erosion -Climate change 	<ul style="list-style-type: none"> -commodity support schemes encouraging diversified cropping -special lending scheme to family farms
	Shifting cultivation	<ul style="list-style-type: none"> -deforestation and land clearance -change in land-use pattern -soil erosion -reduced flood control functions 	<ul style="list-style-type: none"> -increased flood hazard -loss of biodiversity -reduced forest cover -incidence of climate change 	<ul style="list-style-type: none"> -rationalization of land tenure system -conversion of shifting cultivation land into permanent cultivated land -compensation scheme for reverting shifting cultivation land back to forest
	Use of pesticides and chemical fertilizers	<ul style="list-style-type: none"> -pest resistance -physical and chemical change in soil -water contamination from runoff -human exposure to contaminants 	<ul style="list-style-type: none"> -loss of wildlife -worker contamination -higher incidence of diseases -limited water resources 	<ul style="list-style-type: none"> -biological pest control -restrict use of chemicals -change cropping systems -higher tax on inorganic fertilizers and rebates on organic fertilizers -certification scheme

ROOT CAUSES LINKED TO ULTIMATE EFFECTS



Ultimate Effects

Reduced Multi-functionality Loss of biodiversity Higher rate of climate change Higher incidence of disease Limited water resources Increased flood hazard Decreased productivity

Immediate Effects

Deforestation and land clearance Surface and groundwater pollution Soil erosion Drainage of wetlands Reduced flood control function Increased short-term revenues

Immediate Causes

Unsustainable agricultural extension

Lack of incentives for environmentally-friendly agricultural practice Monoculture cropping Shifting cultivation Increased use of pesticides and fertilisers Inappropriate irrigation management Rigid markets, inadequate finance, lack of institutional and technical capacity

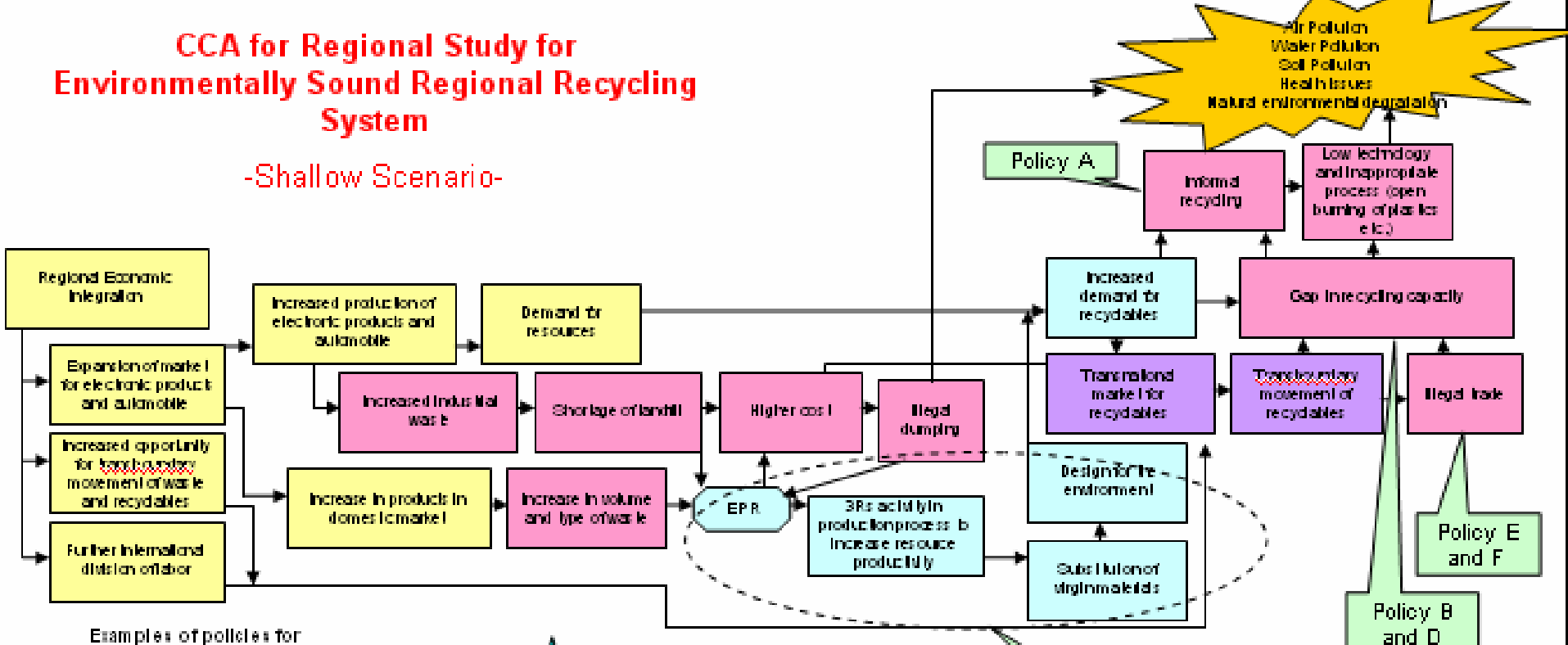
Root Causes

Increased production for exports

Weak environmental regulation and management Liberalisation of agricultural trade Improved markets access for exports

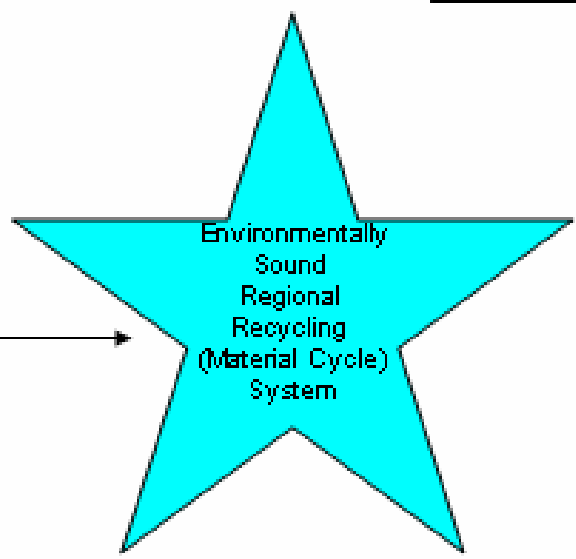
CCA for Regional Study for Environmentally Sound Regional Recycling System

-Shallow Scenario-

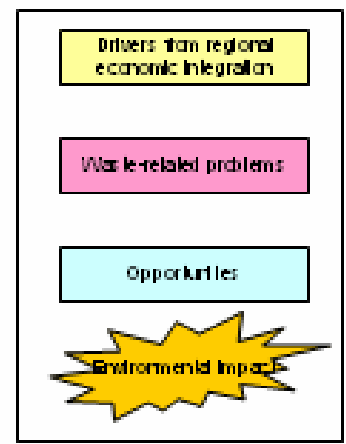


Examples of policies for shallow scenario

- Policy A. Formalizing Informal sector
- Policy B. Eco-town/eco-industrial park policy
- Policy C. EPR and IPP
- Policy D. Using MNCs for technology transfer
- Policy E. Capacity development of trade-related authority
- Policy F. International network of monitoring authority



POLICY RESPONSES LINKED TO EFFECTS



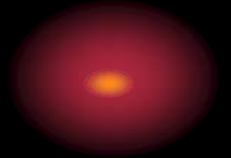
CCA IN TOURISM SECTOR



- Root causes – increased leisure time, cheap travel, unequal economies, adventure etc.
- Immediate causes – promotion of Cambodia as tourism destination, cheap accommodations, interesting heritage and natural sites etc.
- Immediate effects – increased tourist numbers, hotel construction, airport upgrades, tour guides etc.

TOURISM CCA (cont.)

- Ultimate effects – water pollution, coastal erosion, noise, air pollution, crime, prostitution, drugs etc.
- Impacts – health impacts, loss of biodiversity, HIV/AIDS, child exploitation etc.
- Responses – ecotourism, increased penalties, tourism police etc.



GROUP EXERCISE



- Group 1 – Main problem is identified as “dolphin tours threatened by dolphin extinction”
- Group 2 – Main problem is identified as “drug use at full moon parties on the beach”
- Group 3 – Main problem is identified as “tourism in Cambodia is growing too quickly”
- Construct a CCA that links ultimate causes and immediate causes to the problem, then identifies impacts of the problem (who and how), and possible responses.