

# **Integrated Waste Management Center**

- Objectives
- Antecedents
- Proposals
- Conclusions

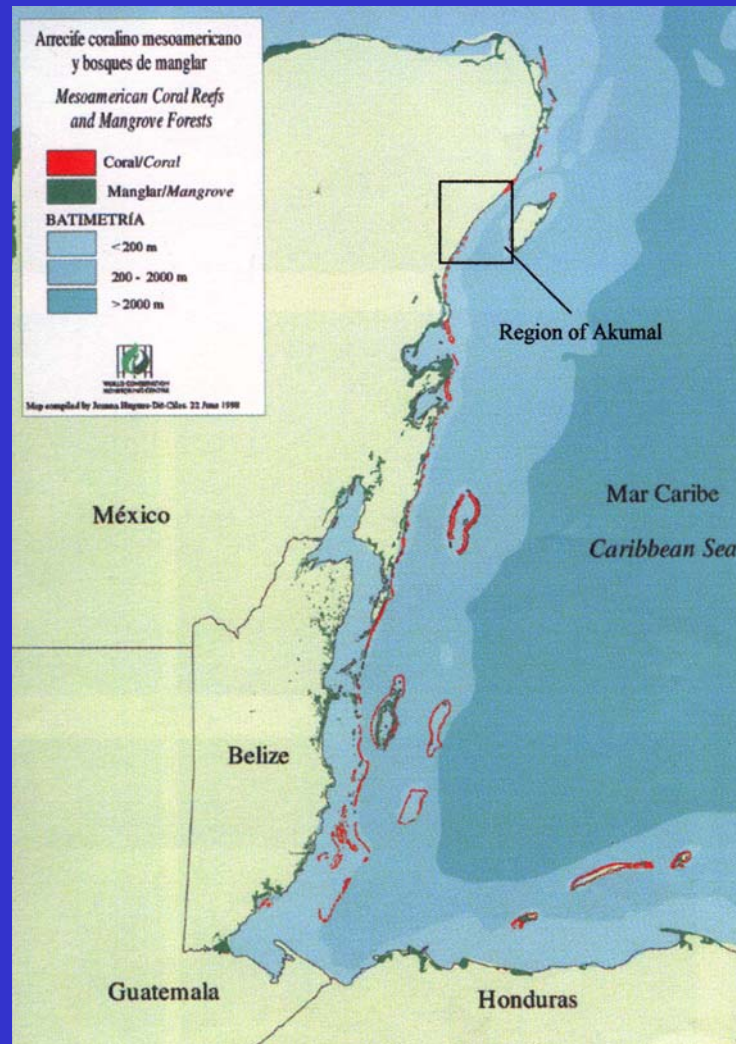
# **OBJECTIVES**

**Integrated and environmentally adequate  
liquid and solid waste management  
for the protection of the coastal ecosystem  
and the health of the community**

# REGIONAL ENVIRONMENT

Sistema Arrecifal Mesoamericano (SAM)

Corredor Biológico Mesoamericano (CBM)



# REGIONAL ECOSYSTEM

**Sistema Arrecifal Mesoamericano (SAM)**

**Corredor Biológico Mesoamericano (CBM)**





# REGIONAL ECOSYSTEM



# FRAGILE



**healthy and diverse**

**healthy and diverse**





**healthy  
and diverse**





**a changing  
system**



# REGULATIONS



# PLAN DE ORDINAMIENTO ECOLOGICO TERRITORIAL

## POET

# EDUCATION AND CULTURE

## BAD HABITS



# EDUCATION AND CULTURE

BAD  
HABITS





# EDUCATION AND CULTURE

## BAD HABITS



# EDUCATION AND CULTURE

## BAD HABITS



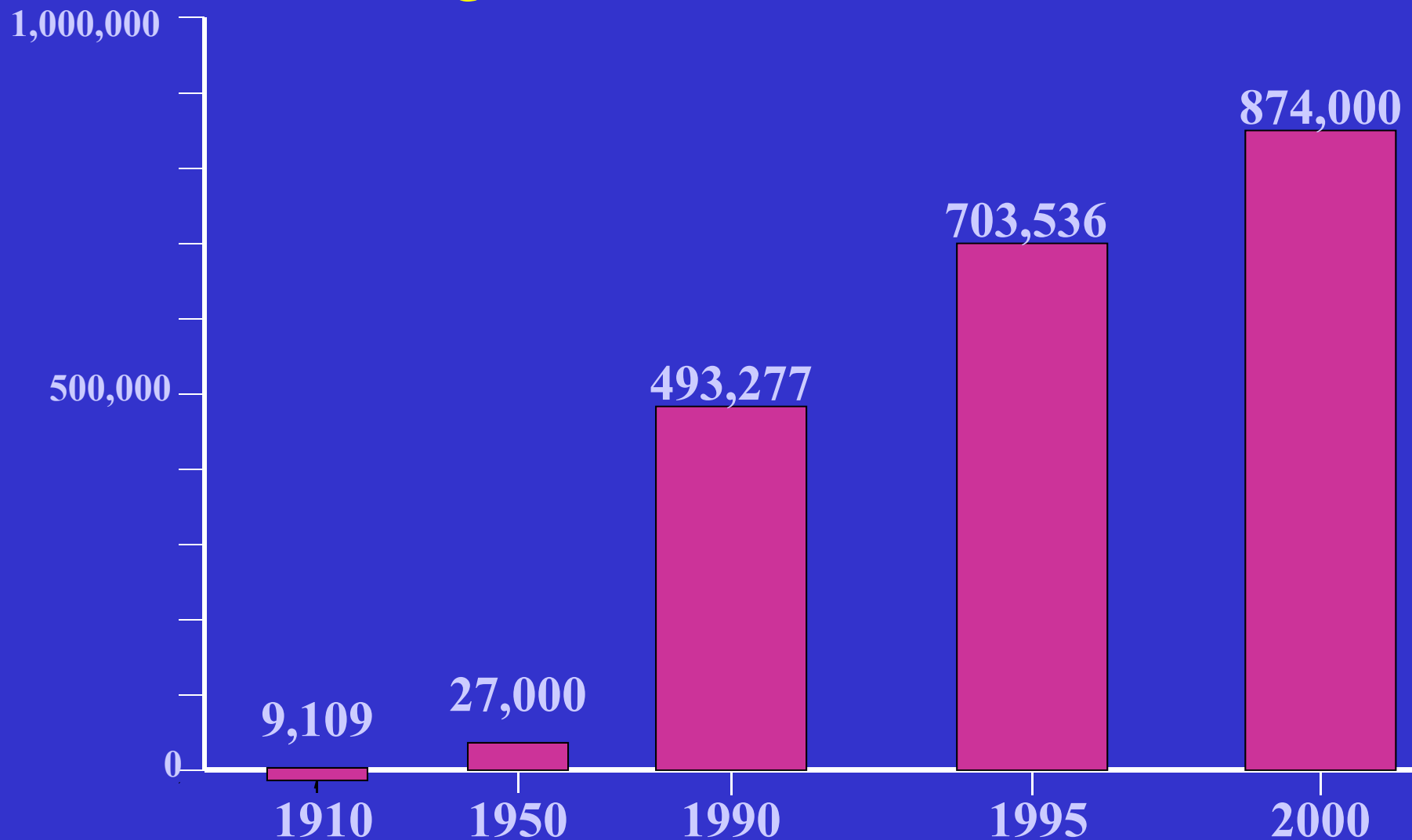
# EDUCATION AND CULTURE





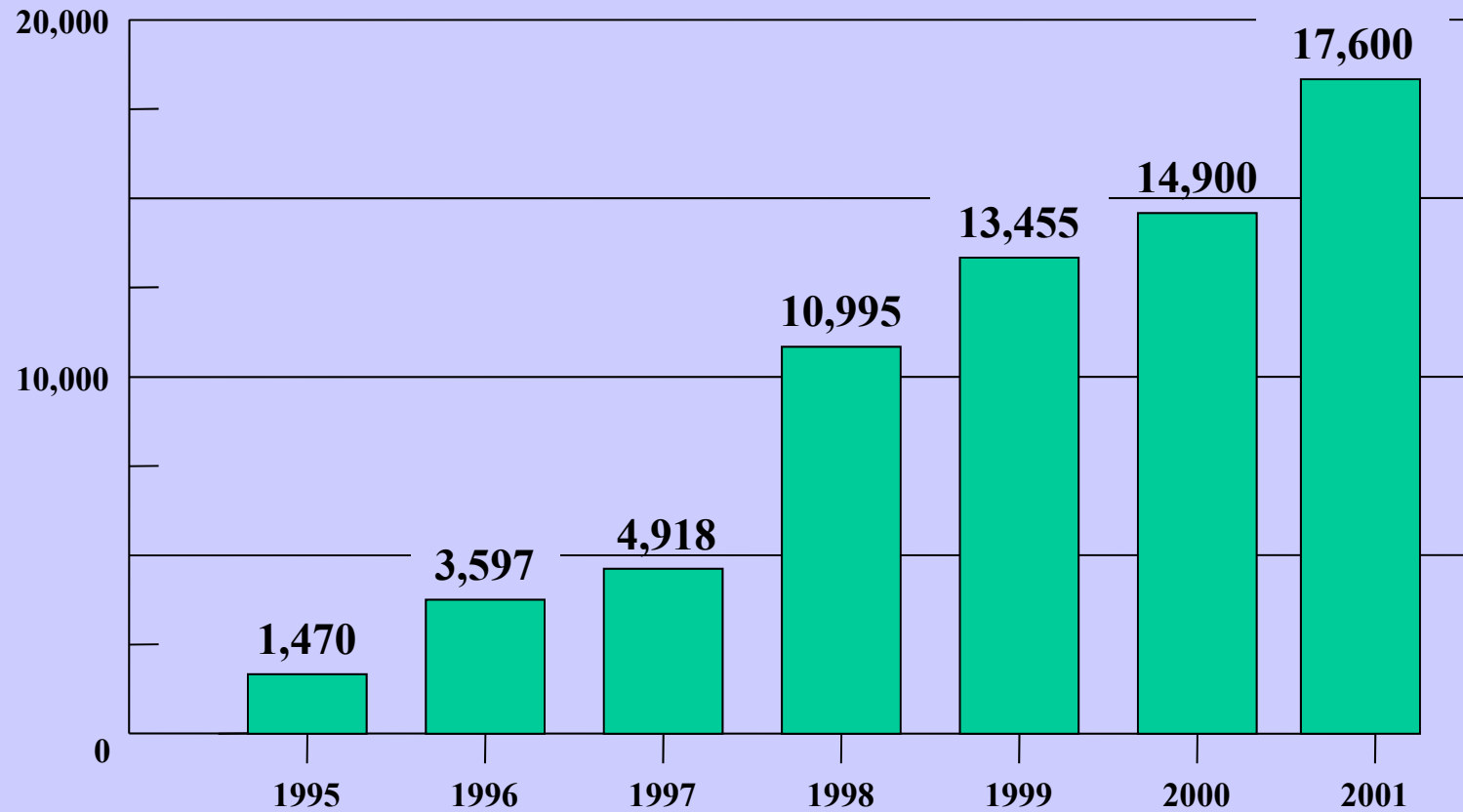
# DEMOGRAPHIC GROWTH

## Quintana Roo



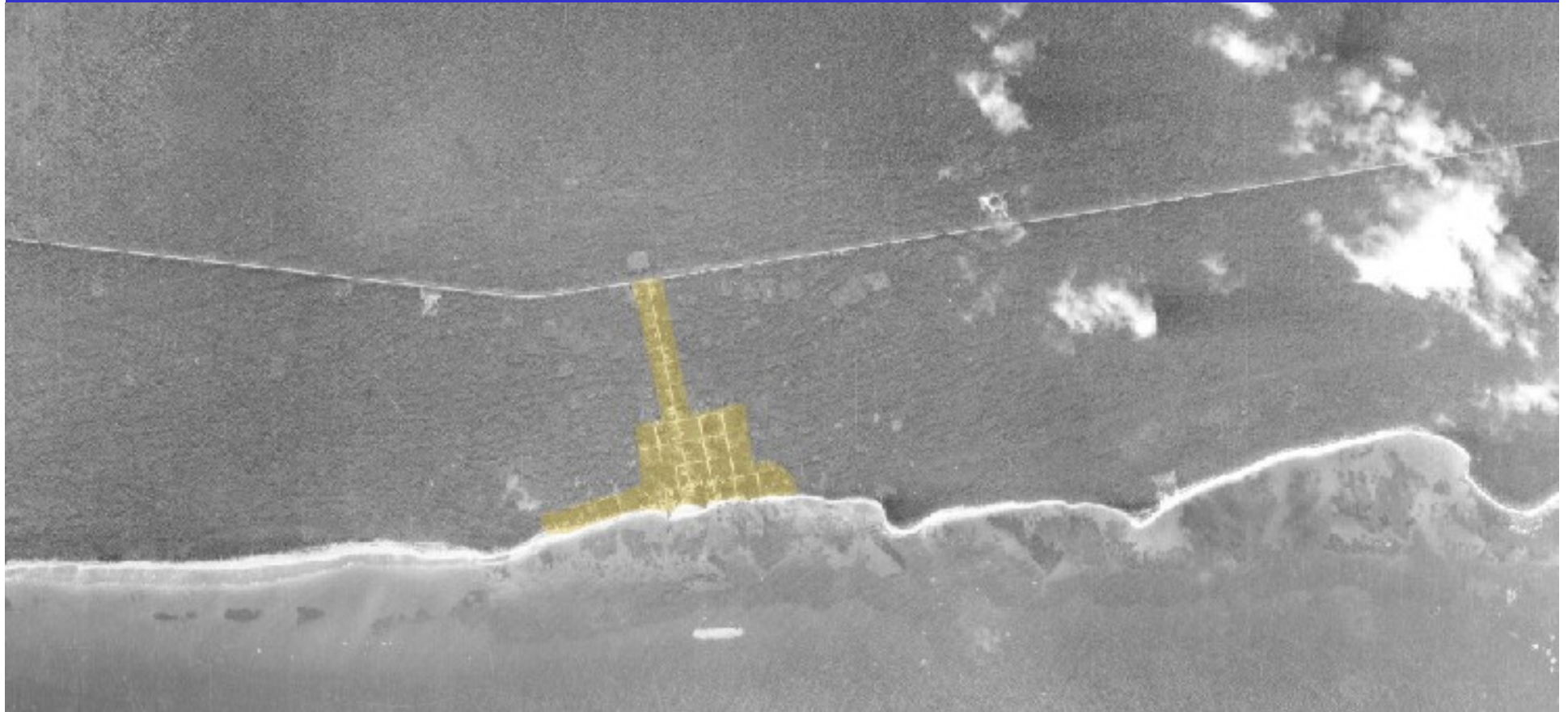
CENSUS BY INEGI

# HOTEL GROWTH - Solidaridad



Novedades, June 2001

# DEMOGRAPHIC GROWTH -

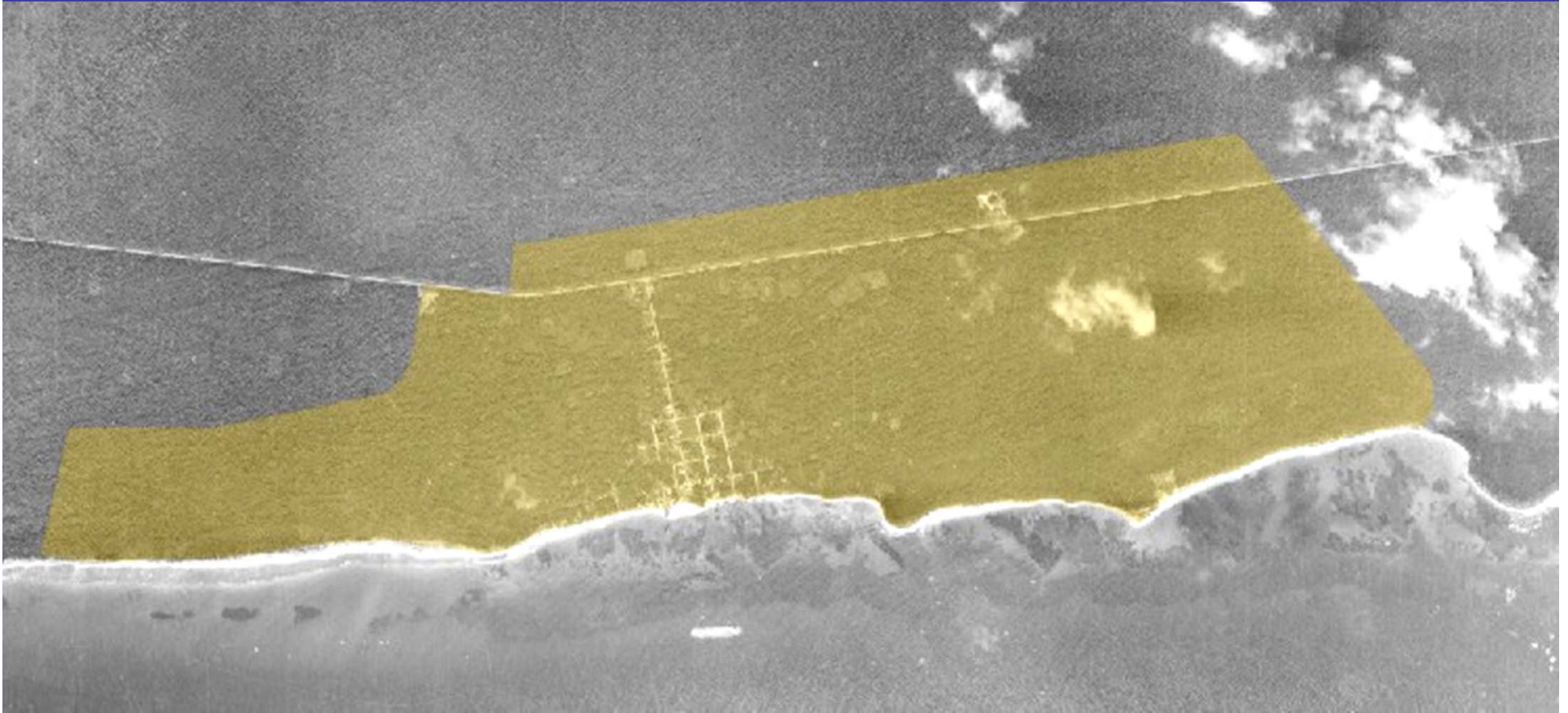


**Playa del Carmen**

**1988**



# DEMOGRAPHIC GROWTH - Solidaridad



**Playa del Carmen**

**1999**

# SEWAGE DISPOSAL





# INAPPROPRIATE TECHNOLOGIES



# INAPPROPRIATE DISPOSAL OF GARBAGE





**CONSEQUENCES  
HUMAN HEALTH**

**CHOLERA**



**GHIARDIA  
DIARRHEA**

**CONSEQUENCES  
HUMAN HEALTH**

**CHOLERA**



**GHIARDIA  
DIARRHEA**



# CONSEQUENCES ENVIRONMENTAL HEALTH

**Contamination**

**Erosion**

**Deterioration  
of SAM  
and the CBM**

**Threat  
to the biodiversity  
of the region**





# Possible Scenarios

## SCENARIO I

Ever-increasing threats to human health

**Loss of unique and fragile environment**

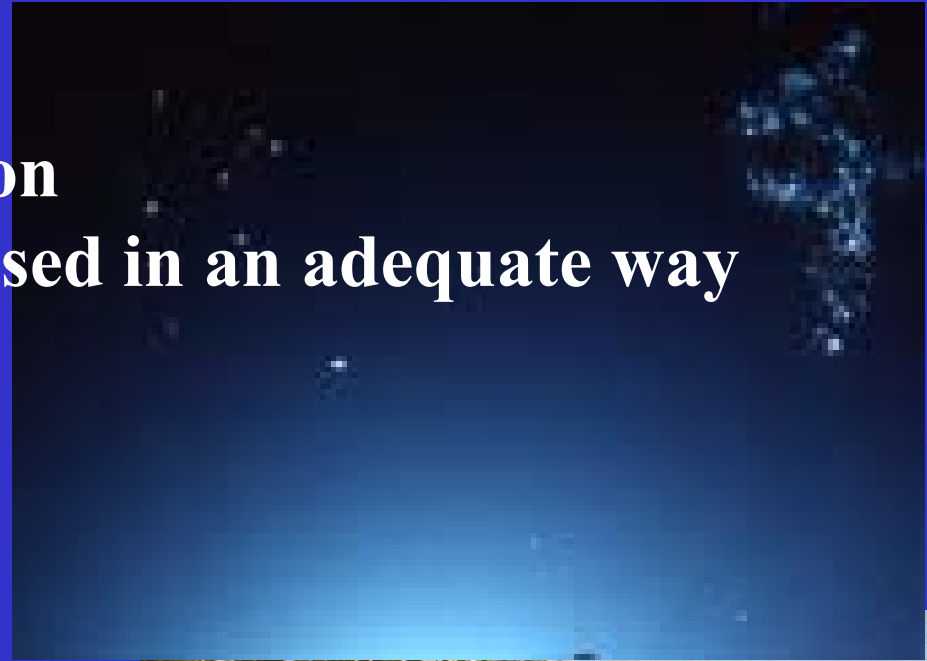
**Loss of economic base**

# Possible Scenarios

## SCENARIO II

The problem of contamination of the groundwater is addressed in an adequate way

- Growth is regulated
- The water quality is restored
- The biodiversity of the coral reef system is protected
- The economy of the region is protected



**the proposal**

**integrated waste management  
center**

**CeMIR**

**Pilot Project**

*caribbean paradise forever...*



# Garbage

## Integrated Strategy

**BAD  
HABITS**

**NO UNDERSTANDING  
OF THE TECHNICAL  
ASPECTS**

**HIGH  
COST**

**LACK OF AN  
ECOLOGICAL  
CULTURE**

**MINIMIZE  
SEPARATE  
RECYCLE**

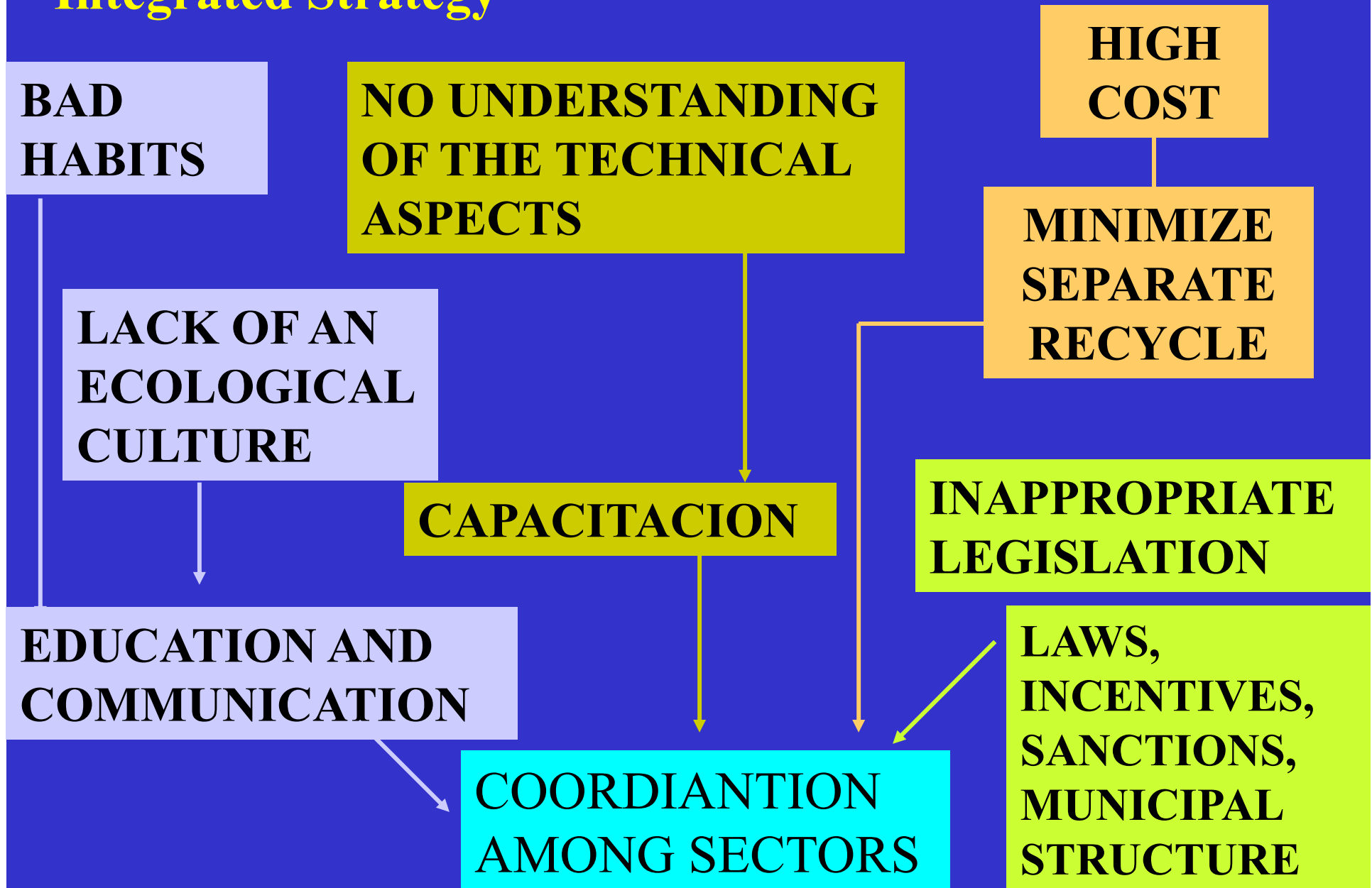
**CAPACITACION**

**INAPPROPRIATE  
LEGISLATION**

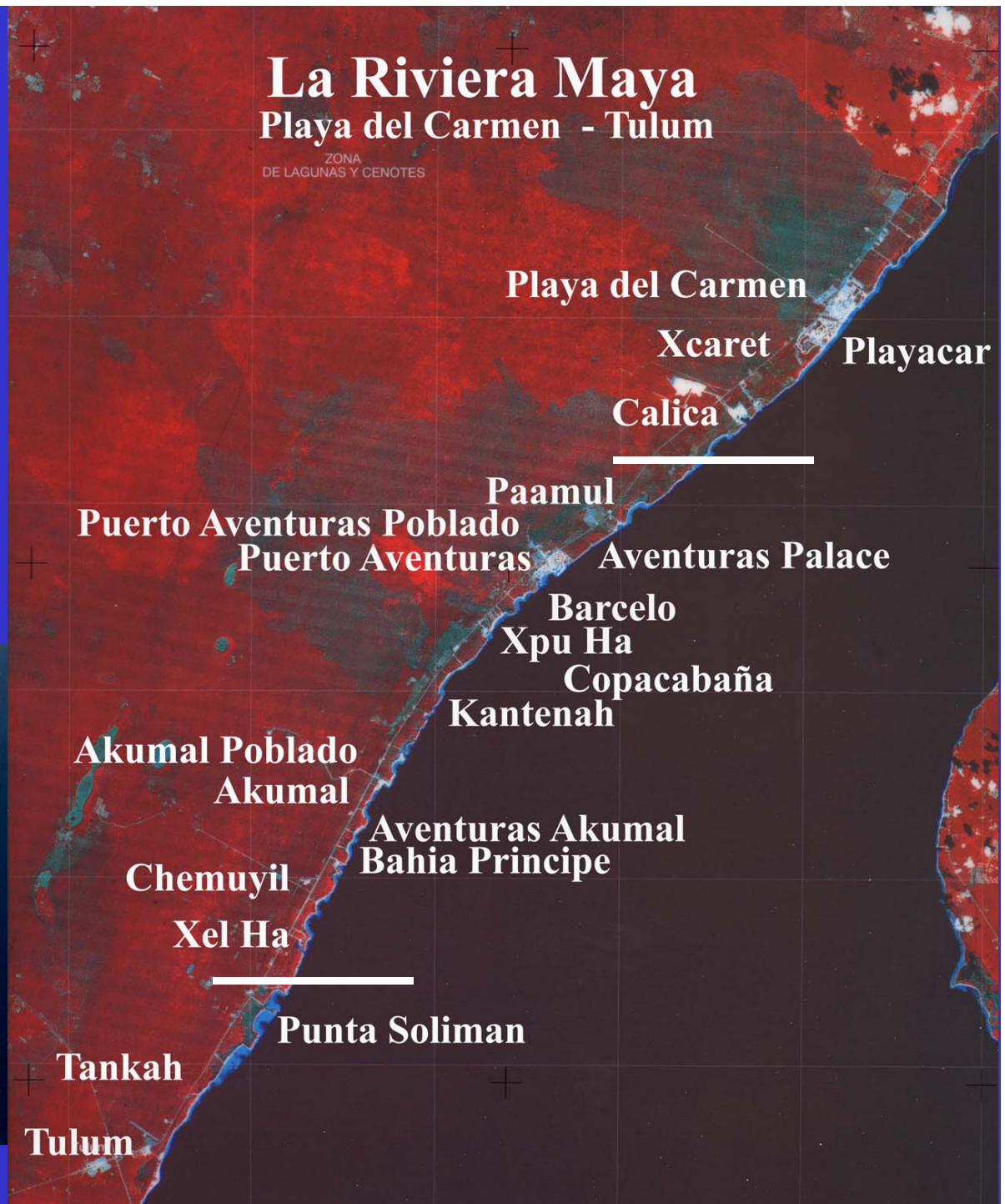
**EDUCATION AND  
COMMUNICATION**

**LAWS,  
INCENTIVES,  
SANCTIONS,  
MUNICIPAL  
STRUCTURE**

**COORDIANATION  
AMONG SECTORS**



# UNIVERSE OF THE PROJECT



# ELEMENTS

## PHASE I

Recycling Center

Composting

Created Wetland

Composting Toilets

Information Center

## PHASE II

Treatment of  
sewage sludge

Small businesses  
Microempresas

recycling  
recycled paper art  
tours



# Recycling and Composting Center



# Created Wetlands

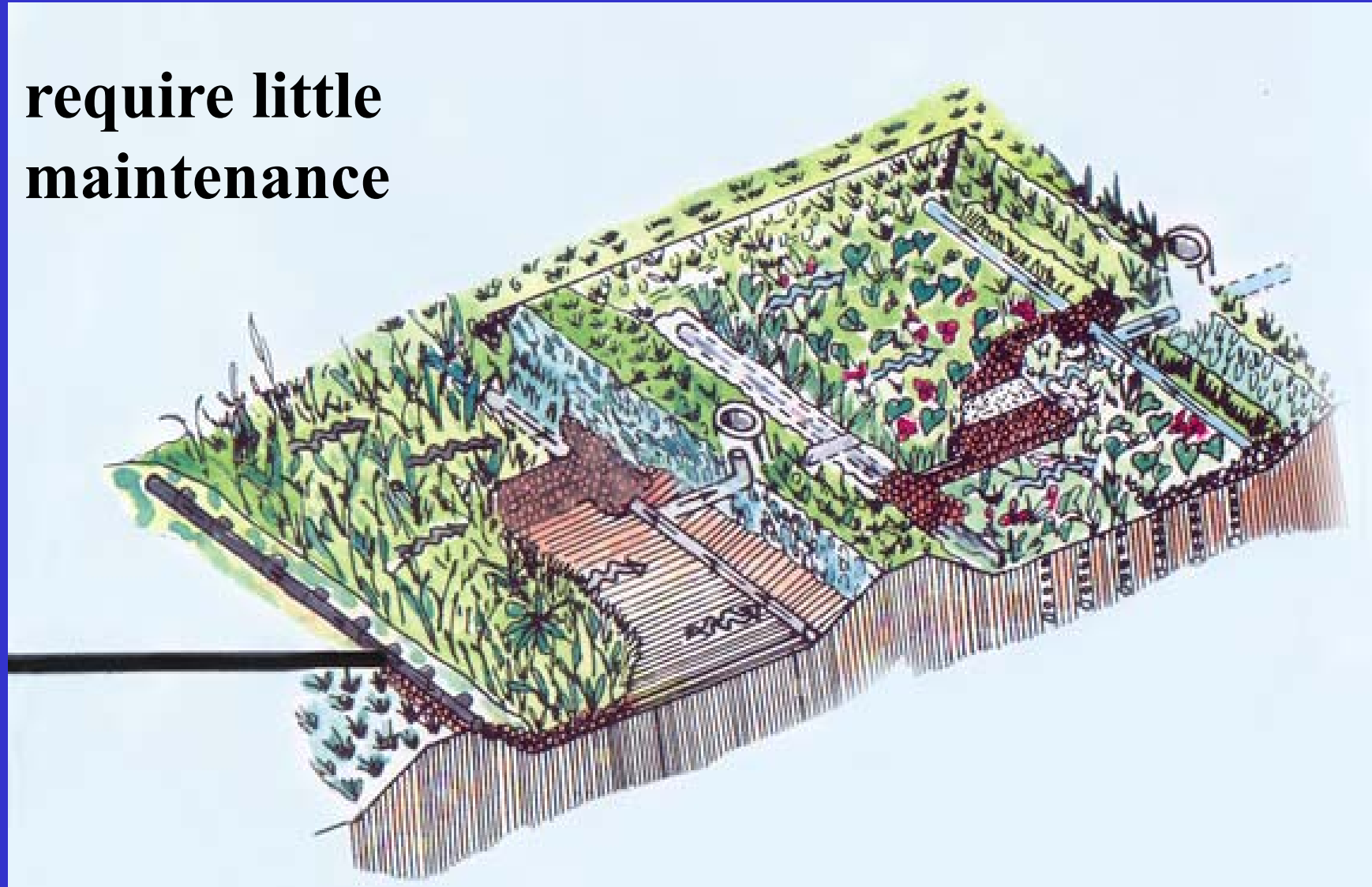
meet water quality standards





# Created Wetlands

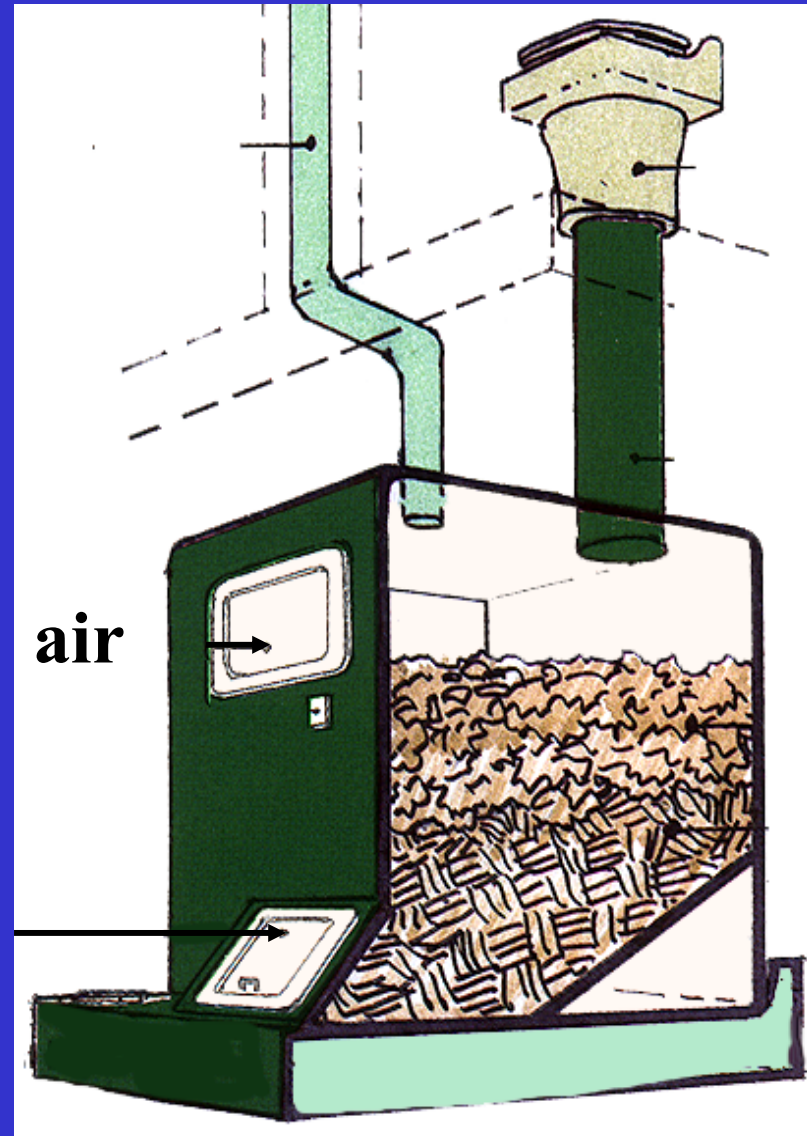
**require little  
maintenance**



# Composting Toilet

- uses no water
- produces compost
- does not contaminate

remove  
compost

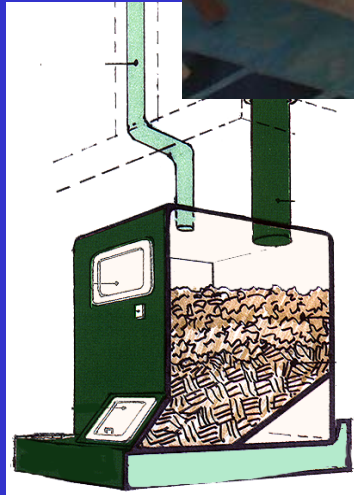


Resouce Institute Design



# Composting Toilet

**an economical and environmentally  
adequate system combination**



potable water

gray water



# Information Center

**INFORMATION**

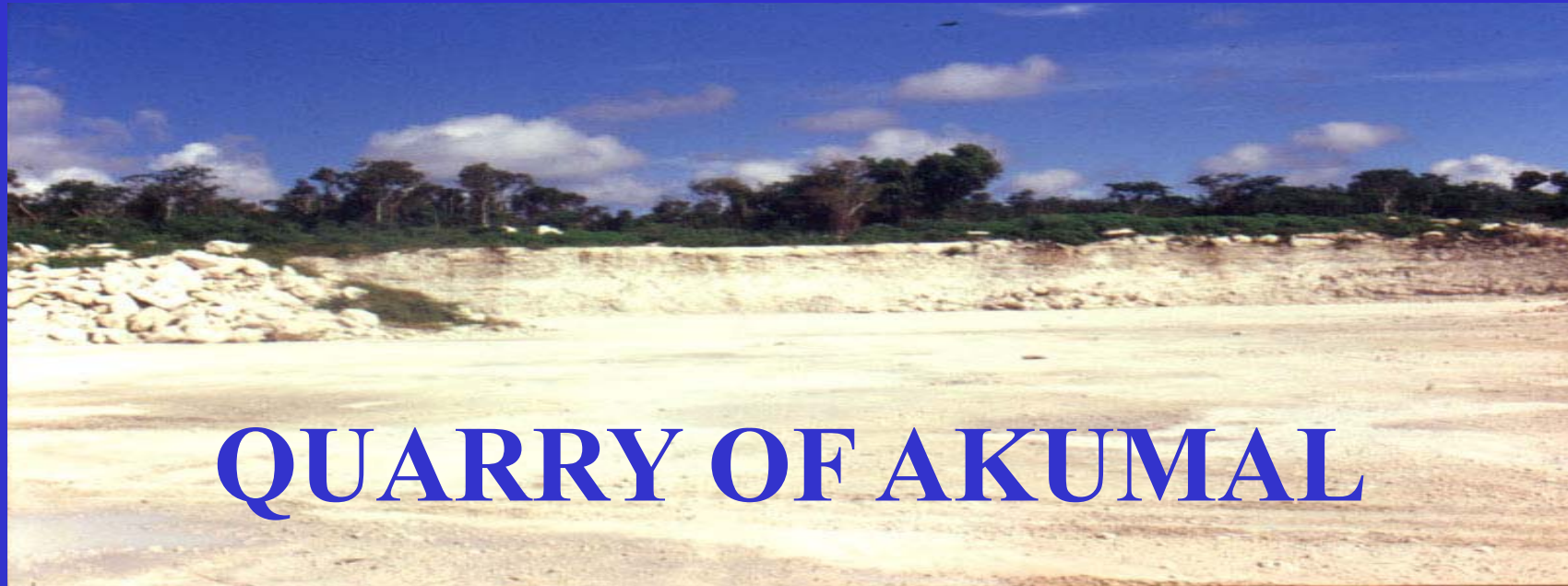
**PROMOTION**

**CAPACITATION**

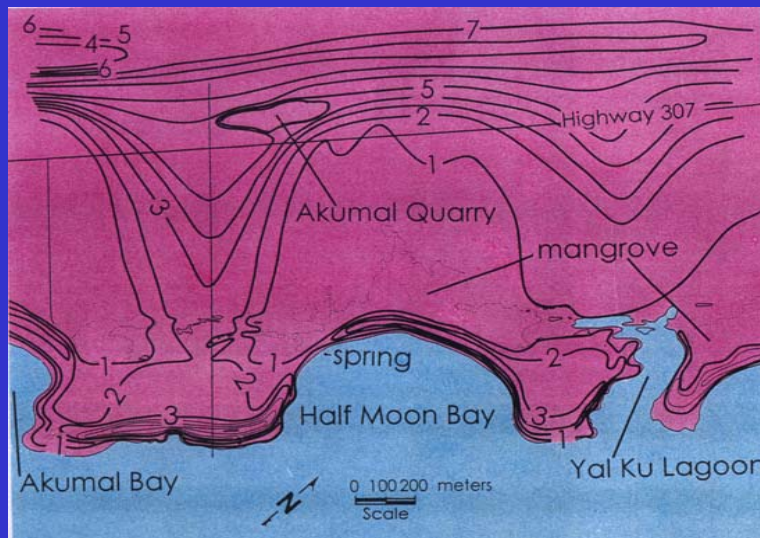
**ENVIRONMENTAL  
EDUCATION**

**CREATION  
OF A COMMUNITY SPACE**

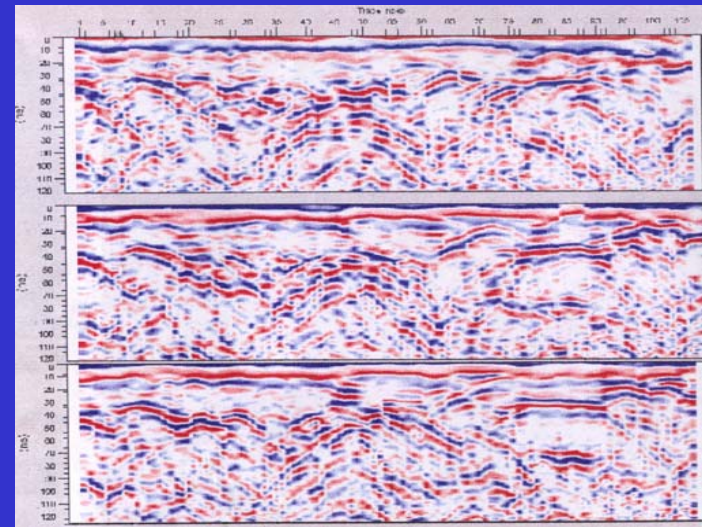




# QUARRY OF AKUMAL



**TOPOGRAPHY**



**RADAR**



# MODEL OF THE PROJECT



Information Center

Created Wetland

Recycling and  
Composting Center

# Technical Information

<b>Volume</b>	<b>40 ton/día</b>
<b>Orgánico 45% (14 ton/día)</b>	<b>compost</b>
<b>Recyclables 40%</b>	<b>Reuse, recycle</b>
<b>Waste 15%</b>	<b>transfer to landfill</b>
<b>Area</b>	<b>8,000 m2</b>
<b>Performance</b>	
<b>Treatment</b>	<b>85%</b>
<b>Production of compost</b>	<b>300 ton/mes</b>

# **Work to be Done**

## **INVESTIGATION AND TRANSFER OF TECHNOLOGY**

- **HELP FROM AND LINKS TO  
OTHER PROJECTS**
- **HELP FOR INVESTIGATION,  
CONSERVATION AND  
ENVIRONMENTAL EDUCATION**



# **Work to be Done**

- FINANCIAL ASPECTS**
- PROMOTION Y COMMUNICATION**
- LEGAL ASPECTS**
- EDUCATIONAL ASPECTS**
- INTERSECTORIAL ACTION**

# **BENEFITS OF THE PROJECT**



**BETTERMENT OF THE WATER  
QUALITY**

**CONSERVATION OF THE  
ENVIRONMENT**

**CONTRIBUTE TO ECONOMIC  
SUSTAINABILITY**

**CONSERVATION OF THE TOURISM**

# CONCLUSIONS

**ACCELERATING GROWTH** —→  
**GREAT RISK TO BASICS OF LIFE**

**CONTAMINATION** —→  
deterioration of human health

destruction of the environment —→

loss of tourism

**CEMIR:**  
**an integrated and viable solution**





**Financed By  
The Summit Foundation**