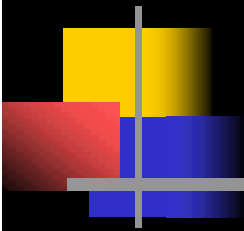


CHARTING THE INDUSTRIAL REVOLUTION AND ITS INTER- RELATIONS WITH THE ENVIRONMENT AND COMMUNITIES IN TRINIDAD & TOBAGO



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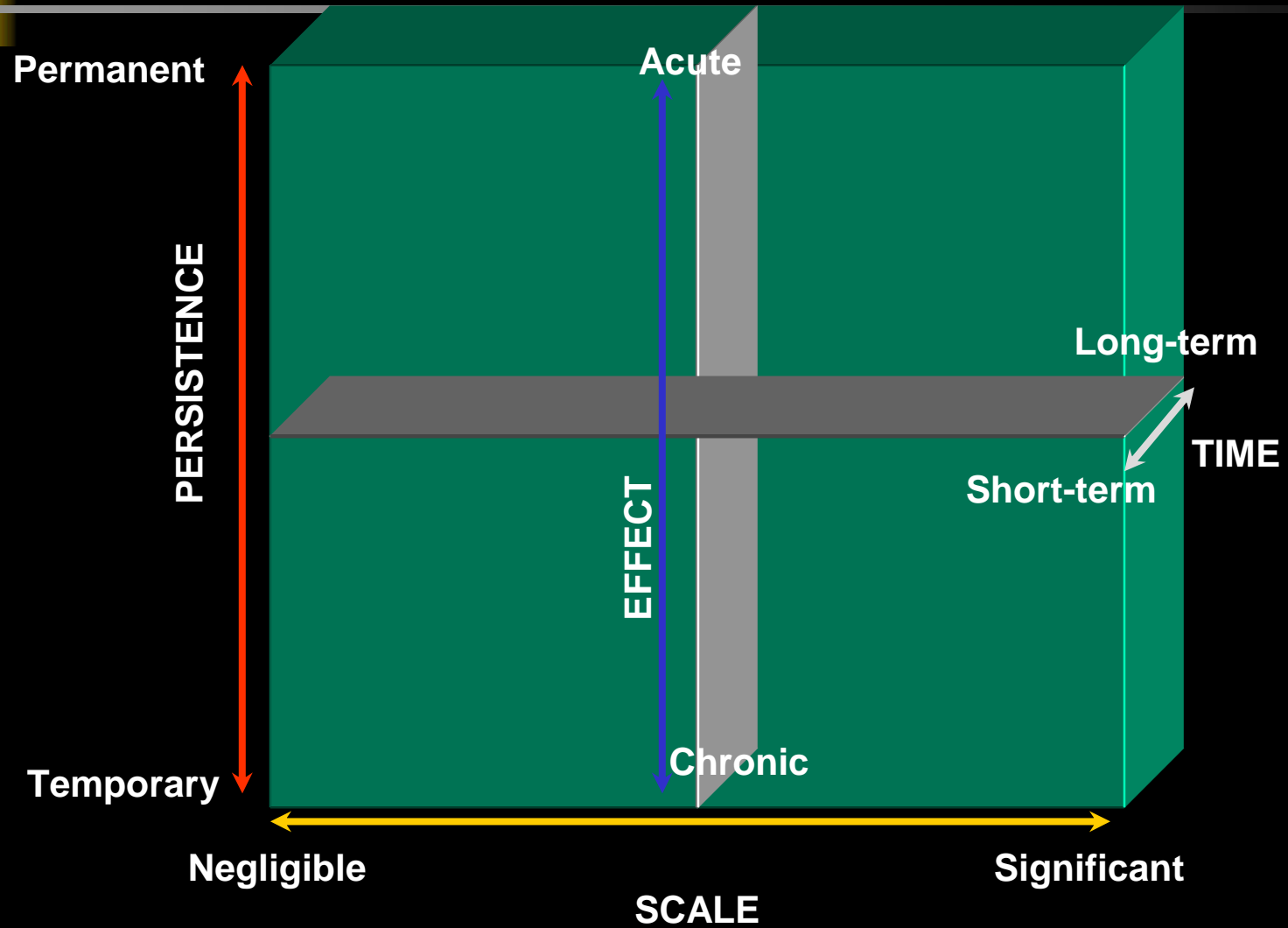
14 & 15 November 2005



PRESENTATION OUTLINE

- The concept of impact
- Industrial zones in Trinidad & Tobago
- General impacts of industrial development
- Strategies for managing for environmental and social impacts of industrial development
- Designing for harmony between industrial development and the environment

THE CONCEPT OF IMPACT





THE CONCEPT OF INDUSTRIAL ZONE

Industrial Zone: The clustering of industries into defined areas of industrial activity.

Industrial zones include:

- Industrial towns, e.g. Point Fortin
- Industrial estates / parks, e.g. Point Lisas
Industrial Estate
- Industrial districts, e.g. Southeast Coast

INDUSTRIAL ZONES IN TRINIDAD & TOBAGO

LEGEND:

Industrial District

Manufacturing Industrial Estate

Petrochemicals/Heavy Industrial Estate

Industrial Town

Proposed Industrial Site

1: Point Lisas

2: LABIDCO

3: Point Fortin

4: Pointe-a-Pierre

5: Sea Lots

6: Macoya

7: O'Meara

8: Southeast Coast

9: NCMA

10: Southwest Coast



GENERAL IMPACTS OF INDUSTRIAL DEVELOPMENT

IMPACTS

Loss / displacement of existing (traditional) land use activities

Relocation of people / communities

Changes to existing ways of living and livelihood activities (jobs)

Health effects on people (accidents, chronic health issues from exposure)

Changes to culture, community dynamics (immigration of new people, crime)

Change to aesthetics

Damage to / loss of habitat

Damage to / loss of flora and fauna

Changes to traffic conditions (heavy equipment, more vehicles)

Change in air quality (dust, noise), water quality (effluent load), soil quality

Change to infrastructure (e.g. communication, social services)

Changes to resource consumption (energy, water, people, space, waste sinks)

Contribution to economic development

BENEFITS OF ZONED INDUSTRIAL DEVELOPMENT

BENEFITS

Industrial activity is defined within a managed space

Footprint of industrial development can be controlled through M & E

Demand for ecosystem sink services is limited to defined spaces

Companies are encouraged to share resources

Business synergy; economic benefits

Easier to monitor aspects and impacts of industrial activity on people and the natural environment

Driver for the development of infrastructure

Enables for monitoring of effectiveness of policy, legislation, standards

Employment

Knowledge & skills exchange and development

AN EXAMPLE OF ZONED INDUSTRIAL DEVELOPMENT IN POINT LISAS

Wetland

Housing

Industrial
Activities

Wetland



AN EXAMPLE OF UNZONED INDUSTRIAL DEVELOPMENT AT CLAXTON BAY

Communities

Industrial Activity

Communities





EARLY INDUSTRIAL DEVELOPMENT – POINT FORTIN

LIKELY IMPACTS:

- Loss of primary forest
- Oil pollution (soil, water, flora)
- Atmospheric pollution from oil fires
- Changes to aesthetics
- Employment
- Population increase
- Local area development
- Development of social infrastructure

IMPACTS OF INDUSTRIAL DEVELOPMENT IN POINT FORTIN

Natural environment:

- Coastal erosion
- Dust, soot, toxic gases

People:

- Employment
- Health effects
- Relocation of residents
- Fear for personal safety
- Loss of coastal properties
- Emergency response



**Lack of social and economic resilience
to changes in the energy sector**

CLIFTON HILL BEACH EROSION



IMPACTS OF INDUSTRIAL DEVELOPMENT IN POINT LISAS

Natural environment:

- Change of land use
- Loss of mangrove, nearshore habitat
- Additional stress to ecosystem sinks

People:

- Employment
 - Increase in population
 - Development of infrastructure
 - Revival of the Couva District
- **Converting gas (a former waste) into a product input**
 - **Positive contribution to the advancement of environmental management in Trinidad & Tobago**





ENVIRONMENTAL MANAGEMENT AT THE NATIONAL LEVEL

- Formation of the EMA in 1995
- Ascension of the EM Act in 2001
- Ascension of the CEC Rules and CEC List of Designated Activities Order in 2001
- Institutionalized EIA Process including public participation in the decision-making process
- **Activity-based system – no specific designation for industrial estate development**

IMPACTS OF INDUSTRIAL DEVELOPMENT IN LA BREA / VESSIGNY

Natural environment:

- Habitat destruction
- Death / displacement of wildlife
- Siltation of Vessigny River

People:

- Employment
- Health effects
- Relocation of residents
- Fear for personal safety
- Flooding
- Opportunity cost for alternative development
- Change to aesthetics





STRATEGIES FOR MANAGING THE IMPACTS OF INDUSTRIAL DEVELOPMENT

- Strategic Environmental Assessment
- Incorporate Social Impact Assessment into EIA
- Enable wider awareness and acceptance of the Certificate of Environmental Clearance (CEC) Process
- National Environmental GIS



MANAGEMENT STRATEGIES AT THE INDUSTRIAL ESTATE LEVEL

- Develop a system for monitoring & analyzing waste outputs from industrial processes
- Define a system of accountability
- Demand Side Management (DSM) for resource consumption
- Explore and implement the eco-industrial estate model



THANK YOU

COMMENTS / QUESTIONS