



# WORKSHOP PART I

## *Adaptation to Climate Change and Health*

**Life Project *ACT - Adapting to Climate change in Time***

**No LIFE08 ENV/IT/000436**

**Rome, May the 12th-13rd 2011**

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# Indicators as a tool for adaptation strategies

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*Life Project ACT - Adapting to Climate change in Time*

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# Indicators as a tool for adaptation strategies



- Common knowledge about Indicators
- Environment & Health Indicators
- Indicators & Decision –making
- Using Indicators in Climate change adaptation strategies

# Common knowledge about Indicators



*“A parameter, or a value derived from parameters, which points to/ provides information about/ describes the state of a phenomenon/ environment/ area with a significance extending beyond that directly associated with a parameter value” (OECD)*

## Key characteristics of indicators:

- ❖ they quantify information so that its significance is more readily apparent, and
- ❖ they simplify information about complex phenomena so as to improve communication

# Common knowledge about Indicators



## THE EUROPEAN ENVIRONMENT AGENCY (EEA) TYPOLOGY OF ENVIRONMENTAL INDICATORS

### Type A

*Descriptive indicators* of what is happening to the environment or human health, for example emissions and concentrations of pollutants

### Type B

*Performance indicators* linked to a reference value or policy target, illustrating how far the indicator is from a desired level

### Type C

*Efficiency indicators* illustrating the efficiency of production and consumption processes, for example energy consumption per unit of output

### Type D

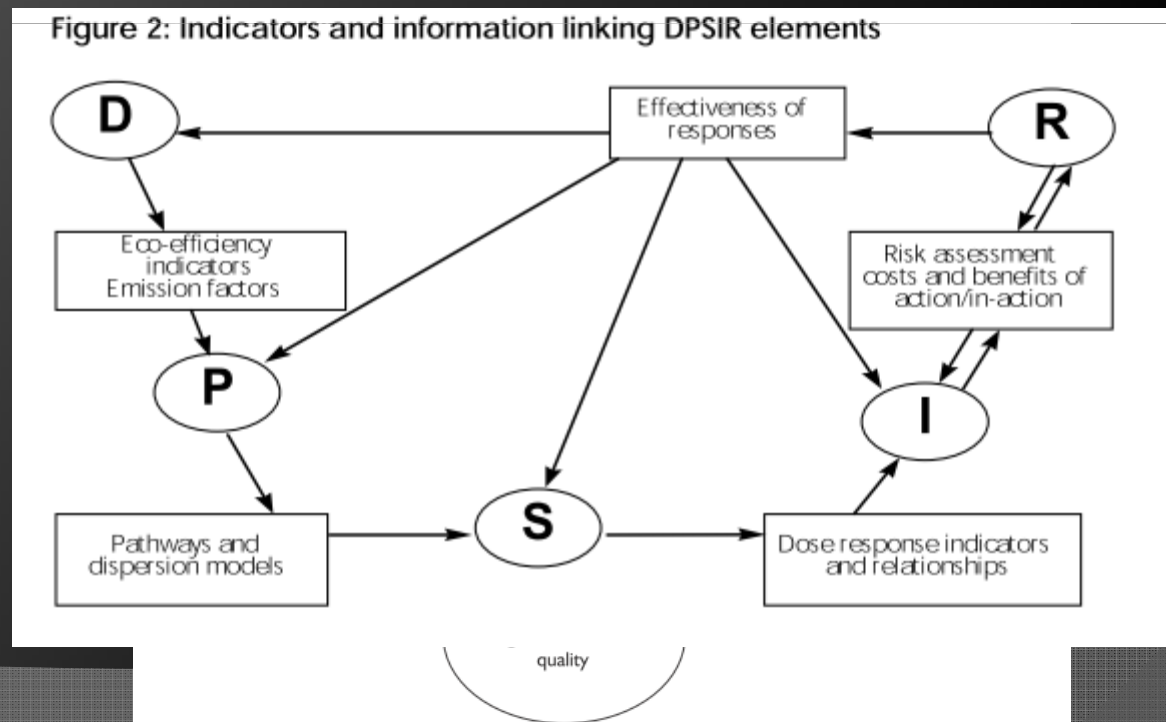
*Total welfare indicators* which aggregate together economics, social and environmental dimensions to illustrate whether, overall, welfare is increasing

Source: U.K. Department of Environment, Transport and Regions (25)

# Common knowledge about Indicators

Indicator frameworks provide the means to structure sets of indicators in a manner that facilitates their interpretation.

Frameworks can also aid the understanding of how different issues are interrelated.





# Environment & Health Indicators



Environmental health indicator has been defined as:

*“An expression of the link between environment and health, targeted at an issue of specific policy or management concern and presented in a form which facilitates interpretation for effective decision-making”*. Briggs et al.

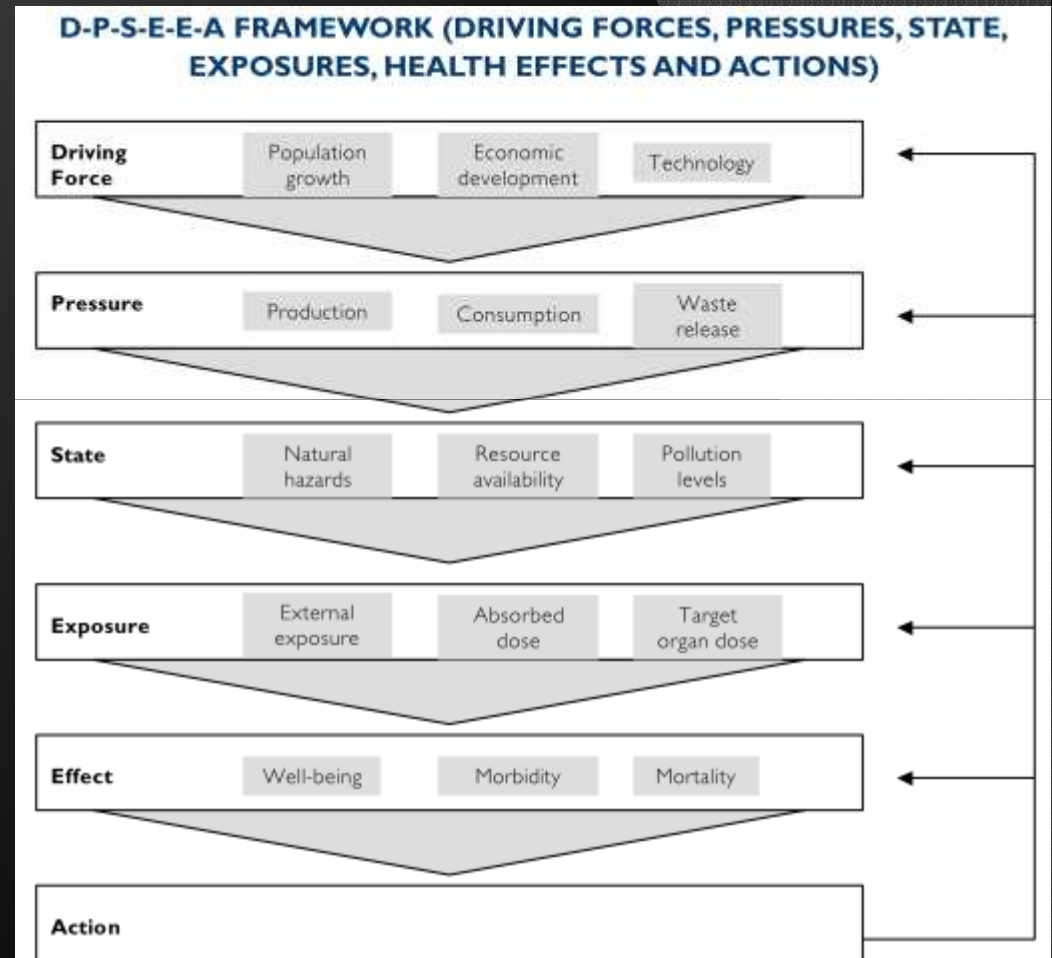
An environmental or a health- outcome indicator can be regarded as an indicator of a health-environment relationship if there is some connection between the health indicator and the environment or between the environmental indicator and health.

# Environment & Health Indicators



In the context of human health impacts, both **exposures** and the **resulting health effects** must be represented.

These aspects are taken into account in a further adaptation of the framework for health purposes, referred to as the D-P-S-S-E-A framework.



Source: WHO (7)



# Indicators & decision-making



Indicators can play an important role in **turning data into relevant information** for decision-makers and the public.

In relation to policy-making, indicators :

- can help to simplify a complex array of information
- provide a “synthesized” view of existing conditions and trends which can be used in decision-making
- play an important role in improving communication with the public and decision-makers, and
- may contribute to improved management and policy development and monitor the effects of policy responses.

# Indicators & decision –making



Decision-makers need information to:

- identify existing problems,
- set priorities,
- develop and evaluate policies and plans,
- guide research and development,
- set standards and guidelines,
- monitor progress and inform the public.

# Using Indicators in Climate change adaptation strategies



Monitoring Policy Effectiveness

Population Exposure Assessment

**E&H  
INDICATORS**

Improve information and communication to public/policy maker

Health Impact Assessment

# Using Indicators in Climate change adaptation strategies



## Suggested list of indicators related to Climate change adaptation policies

- thermal anomalies (thermal stress) indicators
- adverse weather events (floods, drought, windstorm, storm surges, etc) indicators

Useful to:

- monitor population exposure to identified environmental health risk,
- support impact assessment studies and
- identify vulnerable population groups for the correspondent risk

# Using Indicators in Climate change adaptation strategies



## Climate change adaptation strategy using indicators :

- EXPOSURE: Examples of exposure indicators to hazards
- IMPACTS : Examples of health, socio-economic impact indicators
- COPING CAPACITIES : Examples of Governance mains/preparedness
- VULNERABILITY : Examples of vulnerable groups - governance, socio-economic determinant
- ADAPTATION OPTIONS: Examples of Measures of non-health sectors to be undertaken with consultation with public health experts

# Using Indicators in Climate change adaptation strategies



Assessment of vulnerability through indicators :

1. Investigate data availability and reliability
2. Gathering of data required and computing of indicators (if necessary)
3. Analysis of trends and the distribution pattern in the urban context

ENVIRONMENTAL DATA



SOCIAL-ECONOMIC-HEALTH DATA

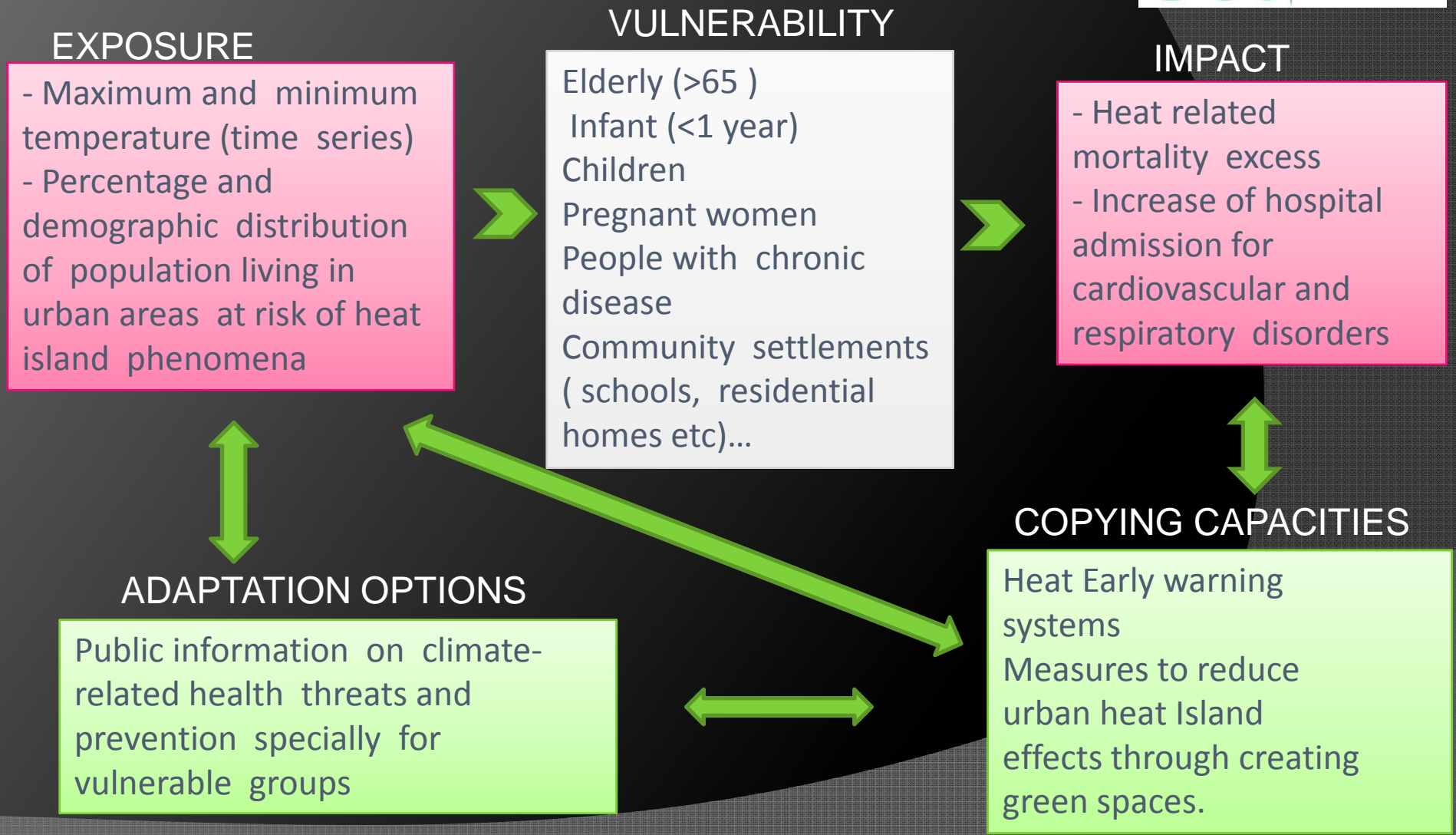
Overlapping and cross-checking of data/indicators



ASSESSMENT OF THE MOST LIKELY SCENARIOS AND CHOICE OF ACTIONS TO BE TAKEN ON THE BASIS OF THE POSSIBILITIES AND PRIORITIES.



# Using Indicators in Climate change adaptation strategies: THERMAL ANOMALIES



# Using Indicators in Climate change adaptation strategies: BIODIVERSITY CHANGES



## EXPOSURE

- Anomalies in pollen season
- Anomalies in distribution of allergenic plants (urban green—schools, leisure environments)

## VULNERABILITY

- Infant (< 1 year)
- Children
- Green public areas or community spaces with bad maintenance standard

## IMPACT

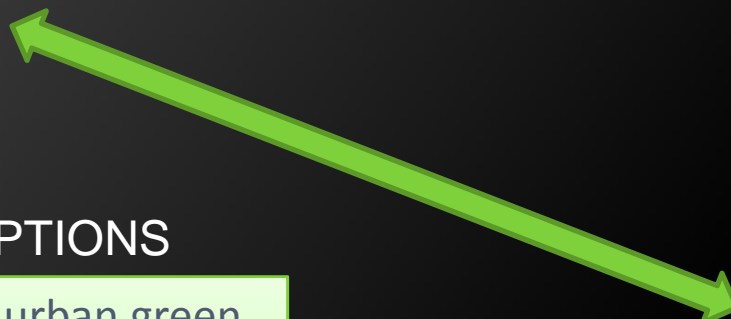
- Incidence of allergic population
- Increase in anti-allergic drugs use (out patients)
- Increase in hospital admissions for allergic crisis

## ADAPTATION OPTIONS

- Review of protocol of urban green management specially in public and schools environment
- Identify local plants with low allergenic activity in urban planning

## COPYING CAPACITIES

- Improve pollen monitoring with emerging species
- Build connection between environmental monitoring and health professionals (timing of medical treatment)



# Using Indicators in Climate change adaptation strategies: BIODIVERSITY CHANGES



## EXPOSURE

- Anomalies in vector distribution
- N° of environmental vector control campaign (N°/year)

## VULNERABILITY

- Coastal/urban population
- Low socioeconomic status
- Lack of information campaign on personal protection methods specially in communities

## IMPACT

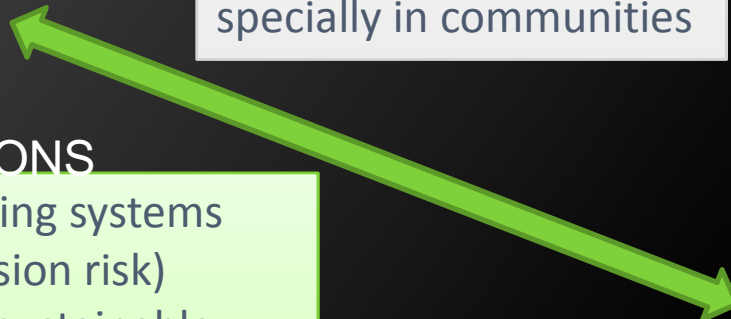
- Human cases of vector borne infectious diseases
- Increase in personal protection products sales

## ADAPTATION OPTIONS

- Early detection and warning systems (vectors density, transmission risk)
- Planning /Guidelines for sustainable mosquito control
- Information campaign for use of protection devices and management of green areas for public and vulnerable communities

## COPYING CAPACITIES

- Comprehensive guidelines for vector control
- Management, information and modeling capacities (trained personnel, technical tools, information sharing and disseminating tools)



# Using Indicators in Climate change adaptation strategies: ADVERSE WEATHER EVENTS



## EXPOSURE

Hazard maps weighted on population (floods/sludge, landslides, storm surges, sea level rise, droughts)

- N of flash floods/sludge, landslide, intense rainfall, windstorm, storm surges

## VULNERABILITY

- Elderly (> 65)
- Infant (< 1 year)
- Children
- People with disabilities
- Resilience of water supply and sanitation systems

## IMPACT

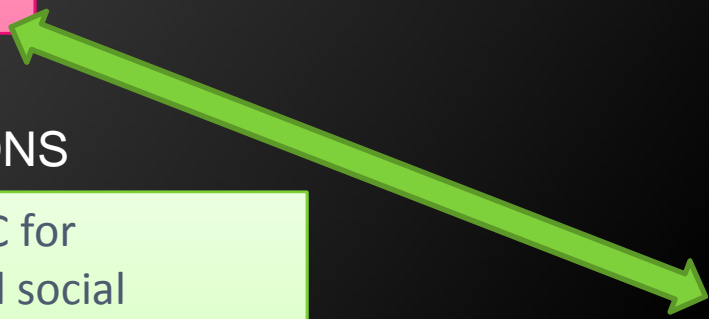
- People requiring medical assistance/ hospitalization (physical injuries and PTSD)
- N of deaths
- N request of damage restore of socio-economic activities (crops, tourism, schools, hospitals, etc) and residential damages

## ADAPTATION OPTIONS

- Reinforce resilience to CC for infrastructures of essential social services (such as hospital, school...)
- Intervention to reduce health hazards from infrastructures vulnerabilities
- Sustainable urban drainage systems implementation.

## COPYING CAPACITIES

Events monitoring system  
Structural and non-structural measures  
Early warning system  
Disaster preparedness planning  
Effective post-event emergency relief





act

Adapting to  
Climate change  
in Time

THANK YOU!