

### Meso studies help to answer questions such as

- What are the economic benefits for an urban community or a sector to act in favour of the environment?
- What is the part of an urban community in the national degradation of the environment?
- What would happen if the price of water or fuel increased?
- What economic incentives should be put in place?

### Abstract

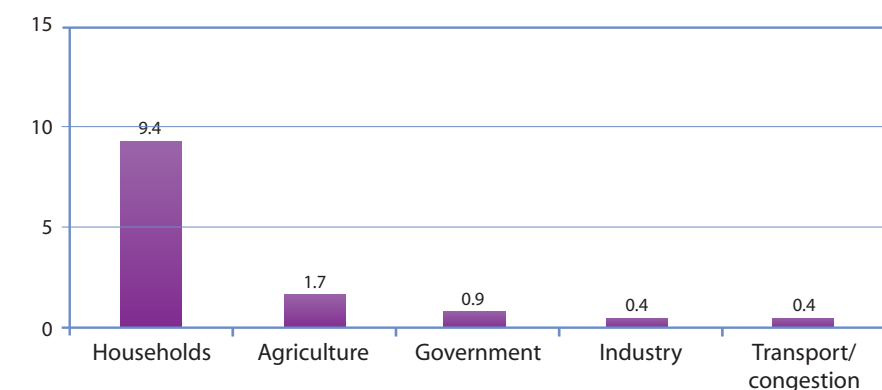
The territory of the Greater Irbid is a wide area in which many different actors interact. The ecological footprint of half a million inhabitants is inevitably important. Production of food, goods and services is necessary to make this system work. Thus, an environment-economic assessment of the activities of the Greater Irbid is a great help for the mayor and its team to take the most profitable decisions for the well-being of the citizens and the environment.

According to the meso profile of the Greater Irbid, the costs of damages to the natural and social environment of the community are much higher than the costs of inefficiencies in the use of resources (respectively 9.1% and 3.1% of the city's value added (VA) in 2002). It is obviously the population that pays the highest price of the environmental degradation, but it is also the main emitter of pollution. Over-pumping and over consumption of water, air pollution and noise due to traffic, congestion, generation of waste are produced by the way of living of the population. In the light of these results, the Greater Irbid should try to aim at improving and protecting households as they are the main actors concerned when causes and consequences are linked. Indeed, they account for 75% of the total damages and inefficiencies of the Greater Irbid. Thus, they should also be actors of the environmental improvement.

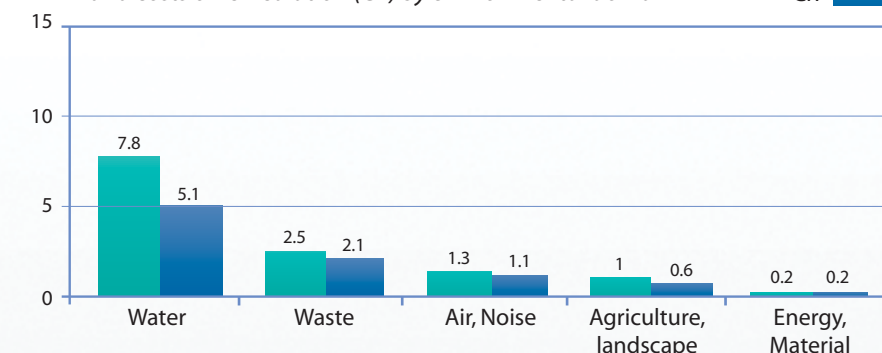
### Main Results

The most problematic area is the use and consumption of water (7.2% of the VA). It is reflected both in the costs of damages (6.8%) and inefficiencies (0.4%). Agriculture and households are the biggest consumers of water (respectively 70% and 26%). The main damages are attributed to over-pumping, decline in the quality of the resource and the discharge into the environment. In fact, excluding agricultural water consumption, much more than 50% of all the consumed water is directly discharged into the environment with no treatment whatsoever. This impacts on the natural ecosystems

% VA *Costs of damages and inefficiencies by main actors*



% VA *Costs of damages and inefficiencies (CDI) and costs of remediation (CR) by environmental domain*



and ultimately on the quality of drinking water, inducing a decrease in the quality of life. In that regard, preservation of the water resource is deemed necessary and a priority, especially that the costs to remediate the water issue (through treatment of wastewater, completing and improving the water network and savings) are estimated at 5.1% of the city's VA.

An urban community is always humming and buzzing with life. Mobility is a major stake of a city. However, it provokes air pollution, indoor and outdoor. Again, the air issue is linked to public health (0.7% of the VA) and quality of life (0.3%). The air quality is highly impaired by transport,

especially the congestion due to private cars (0.3%). Moreover, this causes noise, which is often considered as a major drawback of a city.

### Positioning

By comparing the Greater Irbid to the national context, the contribution of the city to the national value added in 2002 (GDP) is 6.6% whilst its contribution to environmental damages accounts for more than double (excluding inefficiencies and global environment).

# Environment-economic indicators

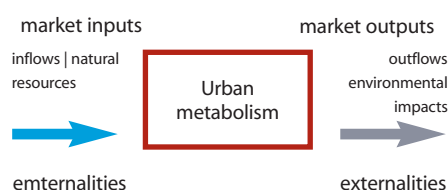
## Urban community, Irbid, Jordan

### What is meso

A meso study is the economic assessment of the environmental degradation at the level of an economic sector or an urban community. It focuses on connecting micro (unit) and macro (country) evaluations on a middle (sector) - meso - level. The objective of meso studies is to seize and measure the importance of material flows and transformations of the industrial or urban metabolism and translate them into economic monetary terms, into environmental degradation costs (costs of damages and inefficiencies) and remediation costs. Then, these costs are related to the value added (VA) of the studied body.

### An innovative methodology

The assessment of environmental degradation requires a lot of data collection (of the activities of the city) and different stages of analysis. The urban community is seen as a '**living body**', that is to say, through its activities, the urban community ingests, transforms resources, produces goods, and generates discharges, thus putting pressure on ecosystems (urban metabolism). This prospect sets the limits of the system studied.



The data collection of an urban community requires to grasp the broad prospect of the economic activities of the community in terms of production flows, resource flows and environmental flows. The data are collected at the borders of its territory: the inputs needed to run a city (water, energy, primary products, etc.) and the outputs discharged (solid, liquid and gas). For example, for water consumption, it is important to know the quantities consumed in the Greater Irbid over a one year period (per consumer category) as well as the price (unitary and total). The environmental diagnosis also compiles typical financial and economic data (turnovers, yearly productions, value added, etc.) The results are then allocated to seven **environmental domains** (water, air, noise, soil and landscape, wastes, energy/materials, global environment) and three main **economic categories** (health/quality of life, natural capital, inefficiencies in the use of resources).

#### COSTS OF DAMAGES (CD)

*Costs of environmental damages are a loss of well-being, from an economic point of view, for a community or a country. It could be the consequence of health impairment, loss of revenue, or loss of environmental services.*

#### COSTS OF INEFFICIENCIES (CI)

*Costs of inefficiencies are the economic consequences of mismanaged use of natural resources, e.g. loss of water through leakage or wastage of energy.*

#### COSTS OF REMEDIATION (CR)

*Costs of remediation are expenses incurred to protect the environment, either by preventing or repairing its degradation (e.g. new sewage treatment unit, awareness session, etc.).*

### Reference study

Pillet, G., Zein, K., Mayor, K., Stephani, E., Benyahia, N., Qaddoura, A., Hamad, H., Hayek, M. (2004). *Meso-economic assessment of environmental costs and benefits in the Greater Irbid, Jordan. Results and methodology guide.*

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