SWIM and Horizon 2020 Support Mechanism

Working for a Sustainable Mediterranean, Caring for our Future

Estimating the Cost of Environmental Degradation in Lebanon

(EFH-LB-3)

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Value of Waste Water Treatment

Applications in Lebanon

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Costs of untreated waste water discharges

1. Damages to freshwater ecosystems (CV, loss of fishery)
2. Damages to coastal ecosystems (CV, loss of fishery)
3. Impacts of beaches and recreational use (CV)
4. Damages to groundwater
5. Damages to health (via exposure to water, dose response functions)
6. For Lebanon estimates have been made of 1(Partly), 2,3, 5(Partly).
7. In the material I gave I did not include some data on item 1.

Example of costs from untreated wastewater on freshwater ecosystems

LEBANON

COST ASSESSMENT
OF WATER RESOURCES DEGRADATION
OF THE LITANI BASIN

Damages to freshwater ecosystems: Benefit Transfer

- For the Upper Litany Basin consultants used a benefit transfer approach to value the damages done by not meeting.
- They refer to damages done by discharge of domestic sewage, industrial effluents, mining as well as runoff due to nitrates and pesticides used in agriculture.
- They note: “it is very difficult to assess the degradation of water quality by impact. Thus, using a contingent valuation surveys to derive the revealed preference (willingness to pay) of users to gauge the restoration of desired resource. This method is based on a transfer of benefits.”

Benefit Transfer

- **In the EU studies have been done to estimate the WTP to improve water quality that meets different standards and different improvements.**
- **They took a study from the UK (Baker et al., 2007) which had estimated WTP as a function of water quality in English Rivers. The function included households income, education etc.**
- **They then used that function for Lebanon. They say: "In order to transfer the benefit functions from Baker et al. (2007), the following variables have been adjusted from the original model:**
  - Current fresh water quality levels in Lebanon (below standards);
  - Average income levels per household in Lebanon (World Bank);
  - Education levels in Lebanon (World Bank);
  - Population number, Household Gender composition and Household occupancy in Lebanon (World Bank);
  - Other socio-economic data: GDP in local currency and PPP conversion factors in Lebanon (World Bank).

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WTP for different improvements in water quality

Table A3.2 WTP per Household Based on Payment Card and Dichotomous Choice Benefit Transfer, 2012

WTP	HH number	Scenario 1 33% Successive Improvement after 9 years, 15 years and 20 years (CL: 95%; CI ±2.5%)			Scenario 2 50% Improvement after 9 years, 30% after 15 years and 20% after 20 years (CL: 95%; CI ±2.5%)			Scenario 3 100% Improvement after 9 years (CL: 95%; CI ±2.5%)		
	#	US$/year			US$/year			US$/year		
	2008	2012			2012			2012		
		Low	**Mid**	High	Low	**Mid**	High	Low	**Mid**	High
Total	4.23	50	115	181	54	124	193	62	143	224

lote: $PPP GDP per capita was used to adjust income differential between the UK and Lebanon, and the income elasticity is onservatively considered at 1.

Comments

- Transfer is acceptable as a process but we have to be careful.
- Are there cultural factors involved?
- UK ⟶ Lebanon. Are water bodies used for similar functions?
- And use of CV is problematic when people may not know effects of water water (e.g. on health).

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THANK YOU

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