



## Criticisms

It is not appropriate or ethical to compare or express illness and death in monetary terms

Environmental protection should follow strong sustainability rules

The precautionary principle is not adequately addressed

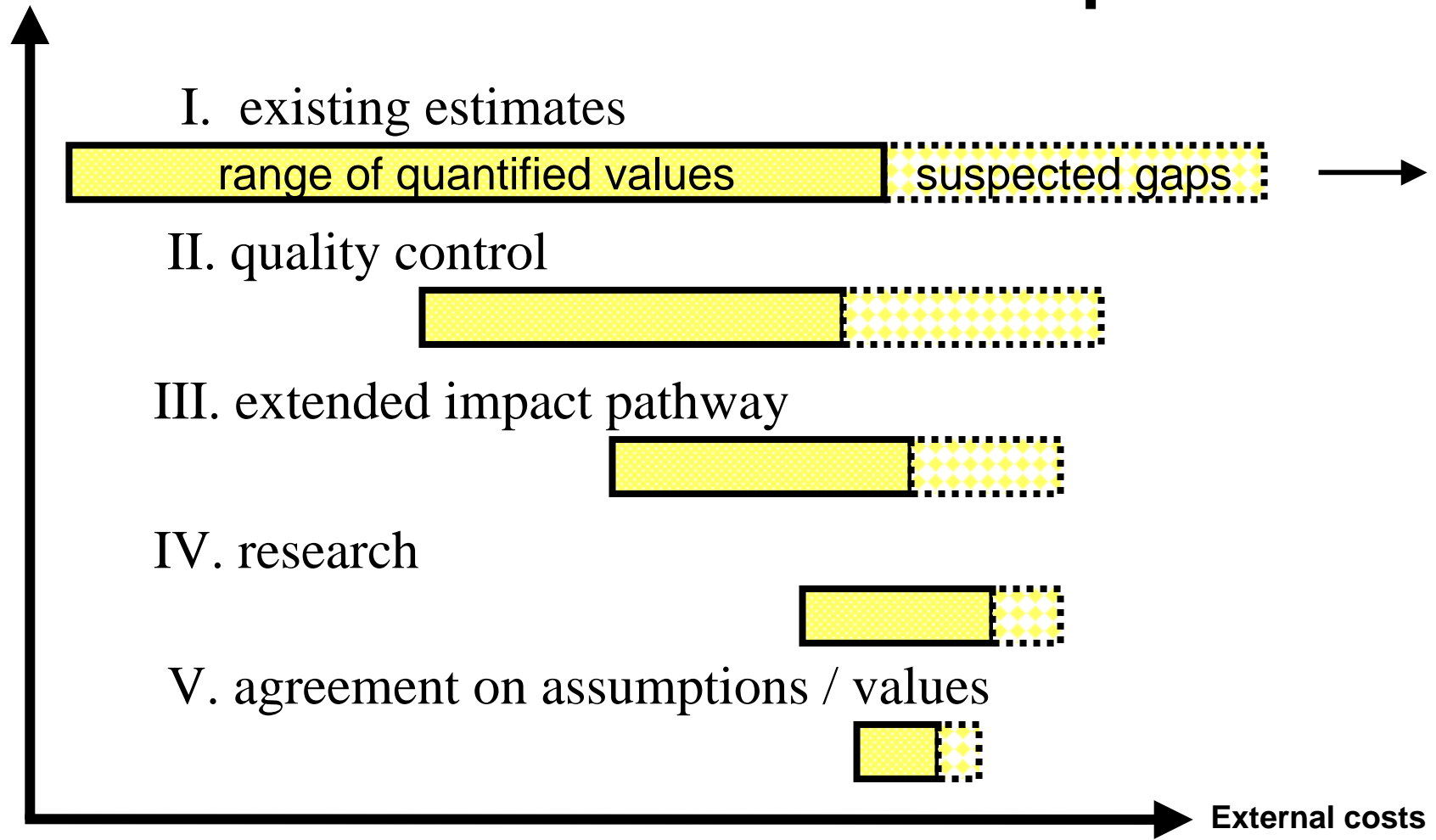
Uncertainties resp. the range of results are so large, that the results are not useful

Gaps remain and are neglected

Values keep changing all the time



# The ExternE Strategy for Dealing with Uncertainties and Gaps





## Revision of External Cost Estimates

- **Status ExternE National Implementation 95**



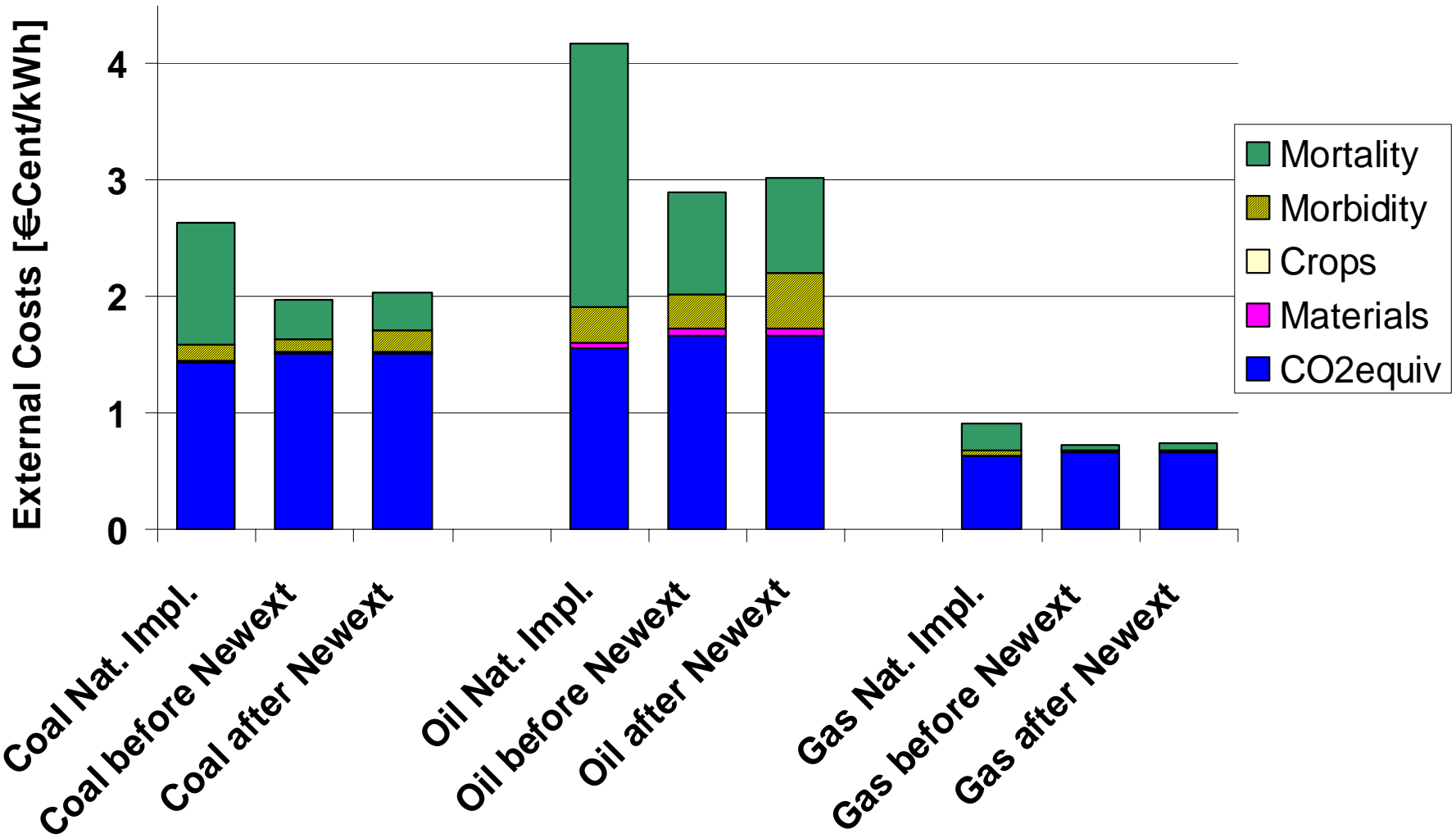
- **Status ExternE Core/Transport 2000**



- **Status NEWEXT/ExternE-Pol 2004/5**



# External Costs





## Uncertainties of estimations of external costs

### 1) Quality control:

Are all quantifiable impact categories included?

Are state of the art methods, exposure-response-functions, monetary values used?



## Uncertainties of estimations of external costs

2) Uncertainties are caused by

Uncertainties of models and methods used,  
uncertainties of input data, uncertainties about impacts

*These reflect uncertainty of current knowledge. Further research can reduce these uncertainties.*

*If uncertainties are too high, marginal avoidance costs could be used.*



## Uncertainties of estimations of external costs

3) bandwidth of results caused by

different assumptions and hypotheses (interest rate, choice of hypothesis with regard to exposure-response – relationship, monetary valuation)

*sensitivity analysis*

*determination of hypotheses to be used by decision maker*