

# THREE-SPAN MOTORWAY VIADUCT (PORTUGAL)

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## Three-span motorway viaduct (Portugal)



### Aims

- To estimate the **structural performance** of the bridge over the service life
- To assess the **environmental, economic and social performances** of the structural system from the construction stage to demolition stage
- To make **sensitivity studies** regarding different parameters
- Define strategies to combine **different criteria** in life cycle analysis
- To establish **guidelines** for the optimization of bridge design over its life cycle



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### Status of the Case Study

1st stage of the study - Initialization	Start	Review	Good	Remarks
Aim(s) of the study			X	
Definition of functional unit			X	
Definition of the time period			X	
Criteria		X		
Indicators		X		
2nd stage - Definition of the boundaries				
Life cycle stages			X	
Processes included in each stage			X	
Cut-off rules		X		
Allocation procedures		X		
3rd stage - Project analysis				
Collection of data from the project(s)	X			
Subdivision of the project into structural components		X		
Definition of the service life of the different components				
Definition of maintenance/rehabilitation scenarios	X			
Definition of end-of-life scenarios	X			
Traffic analysis and extrapolation		X		
4th stage - Collection of data				
Environmental data		X		
Economic data		X		
Social data	X			
Other type of information				
Pre-check of the completeness of data				
Standards and other manuals	X			
5th stage - Performing life cycle analysis				
Environmental analysis		X		
Cost analysis		X		
Social analysis				
6th stage - Interpretation of results				
7th stage - Validation of the results				

### Expectations for collaborative work between WGs

→ Need of structural behaviour over time

→ Need of several kind of data

→ Need of procedures to combine different criteria

