

CIV5310: Infrastructure Project and Policy Evaluation

Background and Aims

This unit is an introduction to the principles and methods of triple-bottom-line evaluation of projects and policies in the area of infrastructure and civil engineering. Since triple-bottom-line evaluation accounts for the economic, environmental and social requirements of sustainable development, the subject explains theoretical background and methods used in such evaluations.

After completing this unit participants will:

- understand the principles of sustainability as a framework for the conduct of project and policy evaluation,
- appreciate the interdisciplinary nature and the theoretical background for the evaluation of economic, environmental and social impacts,
- understand the concepts of welfare economics and the methods used in economic assessment (e.g. cost-benefit analysis),
- appreciate the variety of environmental impacts and understand the methods used for their assessment,
- appreciate the variety of social impacts and understand the methods used for their assessment,
- understand the reasons for and the different forms of public involvement in the evaluation process, and
- understand the role of forecasting and the problem of dealing with risk in impact assessment.

Details of the structure of the unit are provided over the page

Enrolment Options

Enrol as a single unit or as part of either the Graduate Certificate in Infrastructure Engineering and Management or Master in Infrastructure Engineering and Management.

Off-Campus Study Mode

This unit is offered by Off-Campus (distance education) and there is no requirement for participants to attend lectures. Study guides, comprising a comprehensive set of course notes, are sent following enrolment. Further support is provided through a unit web site and via e-mail. The lecturer is available to answer questions and to provide assistance as necessary throughout the semester. Assistance can be arranged by email, facsimile, mail, telephone or through the discussion groups on the unit web site. Assessment comprises two assignments and an examination (worldwide exam venues are available).

Unit Co-ordinator



Rita Seethaler graduated with a Master of Economics and Political Science, University of Berne, Switzerland in 1994. She has worked for the Swiss Federal Office of Statistics, Berne and the Bureau of Transport Studies (Federal

Department for Environment, Transport, Energy and Communications), Berne. Her primary interests are the evaluation of external effects of transport, the development and application of sustainability indicators and the understanding of travel behaviour. She is presently a Director of The Urban Transport Institute, Victoria, Australia and an Associate of the ITS (Monash).

Enrolment or General Course Enquiries:

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Structure

The unit is structured around 13 topics which are generally associated with one week of study

| Topic | <i>After completing this topic, participants will:</i> |
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| 1. Sustainability-based Evaluation | <ul style="list-style-type: none"> • understand the ethical meaning, concepts and principles of sustainable development, especially in the transport sector • understand the instrument of strategic environmental impact assessment |
| 2. Sustainable Development Indicators | <ul style="list-style-type: none"> • understand the choice of appropriate indicators used for triple-bottom-line analysis • understand the underlying reporting framework for triple-bottom-line analysis |
| 3. Sustainable Evaluation Methods | <ul style="list-style-type: none"> • understand the evaluation methods used for triple-bottom-line analysis |
| 4. Economic Evaluation | <ul style="list-style-type: none"> • know the theoretical foundations of economic evaluation and the instrument of cost-benefit analysis |
| 5. External and Macro-Economic Effects | <ul style="list-style-type: none"> • know the concepts of externalities and macro-economic evaluation |
| 6. Environment Impact Assessment | <ul style="list-style-type: none"> • know the different stages of environmental impact assessment • understand a variety of methods used for the stage of “assessing” |
| 7. External Effects on the Transport Sector | <ul style="list-style-type: none"> • understand the concept of external effects in the transport sector • know the methods used for the assessment of transport accidents and congestion |
| 8. Evaluation of Emission Effects | <ul style="list-style-type: none"> • understand the nature of emission-related effects (effects of air pollution and greenhouse gases) and their assessment |
| 9. Transport Impacts on the Natural Environment | <ul style="list-style-type: none"> • understand the notions of “functions of the natural environment” and biodiversity • understand the impacts of transport on the natural environment and their assessment |
| 10. Noise Pollution and Green-Accounting | <ul style="list-style-type: none"> • understand the assessment of noise pollution • know the instruments of environmental standards and green accounting |
| 11. Assessment of Social Aspects | <ul style="list-style-type: none"> • understand the notion of social impacts of policy and projects • know the elements and stages of social impact assessment |
| 12. Public Involvement in Project Evaluation | <ul style="list-style-type: none"> • know the rationale and objectives of public involvement in policy evaluation • understand the elements and stages of public involvement |
| 13. Dealing with Prediction and Risk | <ul style="list-style-type: none"> • understand the problem of prediction and qualification of risk • understand the types of risk assessment |