Environment and Resource Economics

For the year 2015

Eliciting public preferences for cultural landscapes and forests – A Contingent Valuation Survey.

Extensive tree planting for carbon sequestration purposes will affect landscape aesthetics, recreation possibilities and biodiversity levels. The economic value of these ecosystem services must be identified and included for a complete analysis of climate forests as compared with cultural and more natural landscapes. The KLIMALAND project at Statistics Norway (SSB) will explore and document the public's preferences for changes in ecosystem services from Norwegian cultural landscapes caused by the planting of evergreen, climate forests and from alternative land use management. This project will use and combine economic valuation methods (stated preferences) and forest related social indicators for landscapes. The goal of the project is to gauge people's preferences for the changes in ecosystem services associated with planting of climate forests.

For this project, a Master student may take part in designing a contingent valuation survey for cultural landscapes and forests. The survey will include economic valuation questions (willingness to pay) related to the cultural values of landscapes using contingent valuation and choice experiments .The survey will further include questions that will enable construction of social indicators for forests and for cultural landscapes (for a review see e.g., Kajala et al., 2007). Hence, the survey combine well-tested stated preference methods in economic research (Bateman and Willis, 1999; Louviere, Hensher and Swait, 2000), which are well suited to assessing trade-offs, with the landscape and forest management literature that has long investigated features and indicators characterizing forest and cultural landscapes that people prefer for different uses (e.g. Gundersen and Frivold 2008).

The Master thesis may describe standard survey development methodology Internet surveys (Dillman, Smyth and Christian, 2009) as well as challenges in designing a valid contingent valuation survey. As the survey will be conducted in Norwegian, the master student should be fluent in Norwegian. The student will take part in all parts of designing the contingent valuation survey from focus groups to testing out the survey and analysing pilot web data, which will be collected in collaboration with TNS Gallup.

Contact person: Ståle Navrud, HH-NMBU stale.navrud@nmbu.no, and at SSB: Kristine Grimsrud kristine.grimsrud@ssb.no

Benefit-Cost analyses (BCA) of measures that reduce environmental impacts of highway- and tunnel wash water runoff

Nordic Road Water (NORWAT) is a four-year research and development programme under the Norwegian Public Roads Administration (NPRA, Statens vegvesen) (2012-2015).

The purpose of the agency programme is that the NPRA shall plan, build and operate the road network without causing unacceptable harm to the aquatic environment. NORWAT will focus on what chemical and biological effects polluted runoff water has on the aquatic environment, and what measures are most appropriate to reduce the risk of environmental harm. For more information about the programme and previous published master thesis, visit our website http://www.vegvesen.no/Fag/Fokusomrader/Forskning+og+utvikling/NORWAT.

Highway and tunnel wash water runoff may contain high levels of pollutants that may cause deterioration of the aquatic environment (e.g. effects on the ecosystems, reduced drinking water quality, less useful for irrigation, recreation etc.). To reduce the impacts from these polluted runoffs, sedimentation ponds are often built. This measure removes pollutants from the water by sedimentation processes, i.e. particle bound contaminants are settled out from the water phase and retained in the pond. This is just one type of measure and there are several other which may be appropriate as well. In contrast to other topics such as air pollution and noise, traffic related aquatic pollution is only marginally considered in decision-makings in the sense that the benefits and cost of reducing the impacts are not sufficiently accounted for in benefit-cost analyses (BCA).

These impacts are costs to the society that essentially should be accounted for in any BCA of road investments. Unfortunately, there is currently no framework for including these factors in the BCA's for road projects; although they are accounted for in the wider impact assessment as non-monetary impacts. Including these in the BCA, may improve the decision making with regards to which roads to invest in and which abatement measures that that should be implemented to reduce the impact of highway and tunnel wash water runoff in the most efficient way.

The reasons for the lack of an appropriate BCA or cost effective tool for assessing the societal impacts of road run-off and tunnel wash is that the monetary values that the society derives from abatements measures have not been quantified and hence, a BCA that includes has not been possible.

To help resolve these inherent problems, we are soliciting two master theses with the following objectives; which are closely related:

1. Deriving the monetary unit values (costs) of highway and tunnel wash water runoff to the society
2. A benefit-cost analysis of abatement measures using a case example

The relationship between the two topics above is that the second topic will depend on the values derived from the first topic. It is therefore necessary that the chosen candidates are willing to work together.

Contact : Ståle Navrud, HH-NMBU stale.navrud@nmbu.no
James Odeck (NPRA/NTNU, james.odeck@vegvesen.no

Non-market survey methodology: Eliciting public preferences for cultural landscapes and forest.

Extensive tree planting for carbon sequestration purposes will affect landscape aesthetics, recreation possibilities and biodiversity levels. The social values of these ecosystem services must be identified and included for a complete analysis of climate forests as compared with cultural and more natural landscapes. This project will explore and document the public's preferences for changes in ecosystem services from Norwegian cultural landscapes caused by the planting of evergreen, climate forests and from alternative land use management. This project will use and combine economic valuation methods (stated preferences) and forest related social indicators for landscapes. The goal of the project is to gauge people's preferences for the changes in ecosystem services associated with planting of climate forests. For this project, an MA student may take part in designing a contingent valuation survey for cultural landscapes and forests. The survey will include economic valuation questions (willingness to pay) related to the cultural values of landscapes using contingent valuation and choice experiments (see e.g., Boatman et al., 2010). The survey will further include questions that will enable construction of social indicators for forests and for cultural landscapes (for a review see e.g., Kajala et al., 2007). Hence, the survey combine well-tested stated preference methods in economic research (Bateman and Willis, 1999; Louviere, Hensher and Swait, 2000), which are well suited to assessing trade-offs, with the landscape and forest management literature that has long investigated features and indicators characterizing forest and cultural landscapes that people prefer for different uses (e.g. Gundersen and Frivold 2008).

The MA thesis may describe standard survey development methodology Internet surveys (Dillman, Smyth and Christian, 2009) as well as challenges in designing a valid contingent valuation survey. The student will take part in all parts of designing the contingent valuation survey from focus groups to testing out the survey and analysing pilot web data, which will be collected in collaboration with TNS Gallup.

Contact person: Kristine Grimsrud (kristine.grimsrud@ssb.no, ph 91545593)

Two master's theses on Benefit-Cost analyses/Cost effectiveness of measures that reduce environmental impacts of highway- and tunnel wash water runoff.

Nordic Road Water (NORWAT) is a four-year research and development programme under the Norwegian Public Roads Administration (NPRA, Statens vegvesen) (2012-2015).

The purpose of the agency programme is that the NPRA shall plan, build and operate the road network without causing unacceptable harm to the aquatic environment. NORWAT will focus on what chemical and biological effects polluted runoff water has on the aquatic environment, and what measures are most appropriate to reduce the risk of environmental harm. For more information about the programme and previous published master thesis, visit our website http://www.vegvesen.no/Fag/Fokusomrader/Forskning+og+utvikling/NORWAT.

The subject

Highway and tunnel wash water runoff may contain high levels of pollutants that may cause deterioration of the aquatic environment (e.g. effects on the ecosystems, reduced drinking water quality, less useful for irrigation, recreation etc.). To reduce the impacts from these polluted runoffs, sedimentation ponds are often built. This measure removes pollutants from the water by sedimentation processes, i.e. particle bound contaminants are settled out from the water phase and retained in the pond. This is just one type of measure and there are several other which may be appropriate as well. In contrast to other topics such as air pollution and noise, traffic related aquatic pollution is only marginally considered in decision-makings in the sense that the benefits and cost of reducing the impacts are not sufficiently accounted for in benefit-cost analyses (BCA).

These impacts are costs to the society that essentially should be accounted for in any BCA of road investments. Unfortunately, there is currently no framework for including these factors in the BCA's for road projects; although they are accounted for in the wider impact assessment as non-monetary impacts. Including these in the BCA, may improve the decision making with regards to which roads to invest in and which abatement measures that that should be implemented to reduce the impact of highway and tunnel wash water runoff in the most efficient way.
The reasons for the lack of an appropriate BCA or cost effective tool for assessing the societal impacts of road run-off and tunnel wash is that the monetary values that the society derives from abatements measures have not been quantified and hence, a BCA that includes has not been possible.
To help resolve these inherent problems, we are soliciting two master theses with the following objectives; which are closely related:

3. Deriving the monetary unit values(costs) of highway and tunnel wash water runoff to the society
4. A benefit-cost analysis of abatement measures using a case example

The relationship between the two topics above is that the second topic will depend on the values derived from the first topic. It is therefore necessary that the chosen candidates are willing to work together.

Contact information: James Odeck (NPRA/NTNU, james.odeck@vegvesen.no/james.odeck@ntnu.no)

Sondre Meland (NPRA/IPM, sondre.meland@vegvesen.no / sondre.meland@nmbu.no)