Valuing Estonian shores for outdoor recreation using landscape preferences and contingent valuation methods

Mart Reimann, Tallinn University, Estonia, mart@tlu.ee;
Üllas Ehrlich, Tallinn University of Technology, Estonia; **Hannes Tõnisson**, Tallinn University, Estonia

More than 40% of the world population (2.38 billion) live within 100 km of a coastal area and by 2025 this number may rise to 3.1 billion (Martinez et al 2007). This causes several conflicts of interest and value. Thus, public opinion of human impacts and recreational preferences of the coastline are quite widely discussed and studied (Fyhri et al 2009, Hunt & Haider 2004, Wolsink 2010, Zoppi 2007).

Estonia has a 3800 km long coastline out which 2% (76 km) is artificial and 98% is in a natural condition. Estonian shores are classified into 5 main types (Orviku & Granö 1992): till shore (1330 km, 35% of Estonian coastline), silty shore (1178 km, 31%), sandy shore (608 km 16%), gravel shore (418km, 11%), and cliffed shore (190km, 5%). Shore types are well known not only by scientists but also by the public. During the Soviet occupation all coastline was closed for the public and this is also the main reason of its high naturalness. After regaining independence, pressures from human activities on Estonian seashores have increased. During last decades Estonia has been facing similar problems as many other regions in the world. The government measures are implemented to preserve the shores in their maximum possible natural condition and make them available for recreation and tourism. However, often heated discussions emerge due to development and supporters of development claim that it brings more inhabitants and more money to the region. Supporters of protection claim that it will raise living standard of locals and make the region more attractive for tourists. Thus, there are needs for analyzing the coastline values from different perspectives.

Sample and methods

The purpose of the current study was to investigate the public preferences of the shores for recreation and willingness of Estonian population to pay for preserving the Estonian seashore in its natural condition. A representative sample (1700 respondents) of the Estonian working-age population was interviewed. The questionnaire contained information on Estonian shores (market scenario), including colored prints with descriptions of all seashore types represented in the questionnaire. All the respondents were asked to read through the questionnaire, the market scenario and the seashore descriptions. After that, they were asked to answer the preference question: "Rank the shore types in accordance with the shore type you prefer to visit for recreation". Best preferred type was scored as 5 and least preferred as 1. The preference question was followed the by willingness to pay questions: 1) "Do you agree that Estonian shores should be preserved in their maximum natural condition?" and 2) "In case you agree that Estonian shores should be preserved in their maximum natural condition, then how much are you willing to pay for this annually?" Answers were asked to be provided for every seashore type separately. It was underlined in the questionnaire that although the answer did not presume actual payment, the respondents were asked to answer as truthfully as possible and considering their financial possibilities.

Results

The question "Do you agree that Estonia shores should be preserved in their maximum natural condition?" was answered "yes" by 89% of all respondents. From 44% (till shore) to 27% (sandy shore) of all respondents willingness to pay was 0, thus the preferences scale represented the opinion of a much larger group than the contingent valuation study. Both methods proved that sandy shores are the most valued shore type. There is a demand, although quite uneven, for all main seashore types in Estonia. The highest average willingness-to-pay of the respondents is for sandy shores, 20.1 euros, which makes total demand ca 15 million euros annually. The lowest willingness-to-pay (7.2 €/y) and hence also total demand is for preserving gravel shores in their natural condition (5.4 million €). The total demand per 1 km of coastline is highest for cliff shores with 44000 Euros while sandy shores come second with 25000 Euros. The demand per 1 km of silty shore and till shore is significantly smaller – 6 and 5 thousand Euros respectively (Table 1).

The most controversial shore type in Estonia is the cliff shores. A large share of respondents pointed out its visual attractiveness while on the other hand many people were concerned about safety upon visitation. Important socio-economic indicators for willingness to pay proved to be age and income. By integrating the demand curve we received the result that annual total demand of the Estonian population for seashores in their natural condition is 42.5 million Euros.

Discussion and Conclusions

Our preference study demonstrated priorities of all respondents while willingness to pay brought out many more details, but at the same time excluded more than a quarter of the respondents whose willingness to pay was 0. Thus, the combination of the two methods worked out well. The study demonstrated that seashores in their natural condition are regarded as very valuable environmental goods. The total demand for preserving Estonian seashores in their natural condition of 42.5 million Euros is notable and an important argument for better planning of the sustainable use of seashores and their resources. The findings also allow us to draw the conclusion that outdoor recreation and nature tourism are the most preferred usages of shores, which to some extent guarantees a sustainable preservation of na-

Table 1. Total demand for shores by type and shore type preferences

Shore types	Coastline, km	Individual's average WTP, €/y	Total demand per 1 km, thousand €	Total demand, million €	Preferences mean 1=lowest 5=highest
Silty shore	1178	9.4	5.95	7.01	2,65
Till shore	1330	9.3	5.22	6.94	2,71
Cliffed shore	190	11.2	43.95	8.35	2,56
Gravel shore	418	7.2	12.85	5.37	2,53
Sandy shore	608	20.1	24.65	14.99	4,56

tural conditions, and at the same time enable public access. Economic, nature protection and organizational aspects of Estonian coastal recreation are required to be investigated further.

Fyhri, A., Jacobsen, J. K. S., Tommervik, H. (2009). Tourists landscape perceptions and preferences in a Scandinavian coastal region. Landscape and urban planning, no. 91, pp. 202–211.

Hunt, L. M., Haider, W. (2004) Aesthetic impacts of disturbances on selected boreal forested shorelines. Forest Science, vol.50, no.5, pp. 729–738.

Martinez, M. L,. Intralawan, A., Vazquez, G., Perez-Maqueo, O., Sutton, P., Landgrave, R. (2007). The coasts of our world: Ecological, economic and social importance. Ecological Economics, no. 63 , pp. 254–272.

Orviku, K., Granö, O. (1992). Contemporary coasts (in Russian, English summary). in: A. Raukas and H. Hyvarinen, Eds., Geology of the Gulf of Finland, Tallinn, pp. 219–238.

Wolsink, M. (2010). Near-shore wind power – Protected seascapes, environmentalists' attitudes, and the technocratic planning perspective. Land Use Policy, no. 27, pp. 195–203.

Zoppi, C. (2007). A multicriteria-contingent valuation analysis concerning a coastal area of Sardinia, Italy. Land Use Policy, no. 24, pp. 322–337.