

Application of the Analytic Hierarchy Process in Education and Research in Latvia University of Agriculture

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The decision making is the final phase in the studies of any problem, and it is the most important part of this process. The technology used to prepare and adopt a decision has much to do with whether or not all of the information that has been collected during the process is actually used.

The Analytic Hierarchy Process, or AHP, is widely used in the United States, Japan, and in many other countries. In order to deal with certain problems and to take relevant decisions the AHP has also been used in Latvia and especially in Latvia University of Agriculture (LLU). During the past ten years, the AHP has been used in many decision activities in agriculture, economics, education, and regional development. The first time the method was used in LLU for evaluating the productivity and territorial placement of companies which were engaged in primary processing of grain. In the first (or top) level, the overall goal was "Location of a grain primary processing plant". The second level comprised eight criteria which contributed to the goal: total specific expenses, the project, territorial location, financial regulations, and development of the location place, skilled labour power, environmental protection, and grain primary processing system in the district. The third (or bottom) level included three candidate places which had to be evaluated in terms of the criteria in the second level. The experts estimated the significance of the criteria and compared the alternative locations of the grain primary processing plants in relation to each of the criterion.

Further on the AHP method was used in the decision making related to the development strategy of sugar production industry in Latvia, in assessing technical and technological aspects for choosing the appropriate agricultural machinery, and in the analyses of the models for integration of meat production, where six criteria were offered: development of meat production branch; mutual economic profitability of meat producers and processors; cut-down of expenses for the primary and secondary spheres; assurance of independent and constant quality; priority of sale prices; and increase of competitiveness for all participants of the integration. The alternatives included five integration model options of meat production, which had to be assessed in relation to criteria.

The AHP method in Latvia has been used in various fields, including education: "Development of Higher Education System in Latvia" and "Analysis of Structural Models of General Upper Secondary Schools" (Eglītis J., Rivža B., Rivža P., 2003), where the AHP algorithm was applied in the analysis of the structural models of general upper secondary school. The objective in this research was the accessibility of a qualitative general upper secondary education.

Another field of application of the AHP method is the analysis of various options for the administrative and regional structure and the development of vocational education in the regions of Latvia.

There are recent studies in the field of banking where the AHP method is applied in the research of the role of crediting in the development of Latgale region, the AHP method was used to ascertain, which kind of support (status of specially supported region, accessibility of loans, or accessibility of the EU structural funding) assures support for small and medium scale enterprises most effectively. Besides there is a research made in the sector of macroeconomics, where the AHP method is used for the evaluation of the economic stabilisation programme in the context of economic recession and a necessity to develop and implement a plan for an economic stabilisation and recovery. Here the AHP method was combined with the PEST method in aspect of setting up the criteria for the experts' evaluation. Three possible scenarios of economic stabilisation programme in Latvia where developed in the scope of the study. The research showed the highest ranking in the expert assessment for the third scenario *"Reduced costs considering priorities and the implementation of a progressive personal income tax rate"*, which in this case was considered to be the best option.

The application of the AHP method in the study process. Students of Latvia University of Agriculture study the AHP method as a part of several study courses: "Quantitative methods in economics" and "Operation research". Doctoral students of the Faculty of Economics study the possible applications of the AHP method in the field of economics within the study course "Quantitative methods in the research of economics". It results in many successful applications of the AHP method in the doctoral theses and further researches.

Concluding remarks. The Analytic Hierarchy method can be used in the last stage of an evaluation of almost any problem, applying it at the point where a decision has to be taken or where one of many alternative options must be selected. LLU has an experience of applying the AHP method in the analysis of grain, sugar, and meat production, rural tourism, education systems, regional development, and macroeconomics.

Key words: AHP, agriculture, education.