

UNIVERSITY OF WEST-HUNGARY

Thesis of Ph.D. project

**Feasibility and implementation of quality- and wood origin
certification in Hungarian forestry industry**

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1. Background and goals of my research

By the end of the XX century the economic, social, ecological development generated a situation on Earth, that in 1992 the United Nations Conference on Environment and Development -UNCED- took place in Rio a schedule „Tasks of XXI. Century” was brought to life named AGENDA 21 to stop destroying forests. This International Agreement prescribed for the countries joined AGENDA 21 to elaborate actions referred to insurance of forest reservation and sustainable forest management (SFM). Hungary has also signed the agreement. The principles formulated in Rio were followed during the whole elaborating of national forestry strategy and action.

As result of the international regulation on sustainable development, the idea is still growing, that the industry should exclusively put to use wood products with origin from SFM. It results directly a claim to verify this criterion (certification of SFM), which generates several questions: what kind of organization is authorized to edit certification referred to SFM, who is entitled to give accreditation for these certification organizations. How high amount does the whole cost of this system take? Who will defray expenses? In this way different *forest certification systems* were brought to life.

The institutional qualification and certification of forestry industry represents an impressive topic in the field of forest policy nowadays, which may have a substantial effect on forestry owners directly, but the all users and distributors of wood products and eventually on consumer as well. This effect can include market advantages or disadvantages, operating costs of the system and a partial loss on sovereignty of national forestry owners, wood-processing industry and timber trade in a case of adoption the methods of a global certifying supranational institution.

In my dissertation I have a close look at these themes giving some kinds of information about running professional debates on certification both international wide and national wide. I have been presenting particularly the relevant forest certifications systems along with their criticism. As part of the EU-Phare project through efficiency audit of certification systems introducing by Hungarian Privatisation and State Holding Forestry Companies I demonstrate positive effects of the certification systems and on the other side their handicaps too.

The main goal of the dissertation to highlight the opinion of Hungarian forestry executives in connection with the *ISO systems* and *forest certification*. In this theme detailed scientific literature does not exist yet. Further goals to give ideas for possibility of the improvement of ISO systems in the Hungarian forestry sector, in order that forestry companies handled by Hungarian Privatisation and State Holding Company can keep their competitiveness in the wood market of the European Union after the accession to the EU as well. In my theses summarising the scientific results I try to foreshow the expected trends of forest

certification in the future, to bring forward a proposal concerning the increase on sale of the certified wood products, how can possess the forest owners higher social appreciation, positive reputation among the environmental protection organizations.

2. Method of the research and subject of topic

The research is focusing on the project of EU-PHARE HU 9604-01.04. I was involved in this project as a personal advisor so I had a chance during practical implementation to put examinations on suitability of ISO 9002 and 14001 systems in the forestry industry sector respectively to cooperate with experts elaborating the basis of national forest certification system adapted for PEFC system.

Therefore the interval of the analysis concentrates on the period of 1999-2000 with regard to the Phare project. Certainly I followed with attention the opinions of the forestry executives after the accomplishment of the Phare project (2000 August) so besides the experiences of the system introduction I give information about the experiences in praxis after acquiring the ISO certification as well. So as to get to know having changed the sights of the forestry executives on the ISO certification and the certification of wood origin I have updated this year the data of my questionnaire survey made in 2000, with help of representative cluster. I had the opportunity to investigate the background of international forest certification in Göttingen at the Georg-August University in 1998-99 as a scholarship was donated for my research. This opportunity meant a substantial advantage because of the heated debates and conflicts between the interested parties (forest owners, environmental protection organisation and woodprocessing industry) in Germany.

The whole period of the research:1998-2005.

Method of the research: After studying domestic and international process of certification discussed around in forestry industry in the 90's I formulated the professional hypothesis of my research. Based on these hypotheses I developed a professional questionnaire for the Hungarian forestry experts. With help of questionnaire survey containing 45 questions and personal interviews I gathered useful information about the reactions of the forestry executives referred to forestry certifications systems, what kind of expectations and queries appeared in connection with these systems. Based on the answers with help of methods of mathematical statistics I came to some conclusions summarized in my dissertation thesis. In the course of the analysis I applied some methods of mathematical statistics to justify my supposed professional hypothesis as follows: t-probe, z-probe, standard deviation graph, Pareto-graph, regression analysis.

Subject of topic: Hereby I would like to emphasize, that in the course of my research only the state forestry executives were involved in the survey

connected with the ISO – and certification systems of woodorigin, therefore the results summarized in my thesis does not publish the view of the private forest owners.

3. The new scientific results of my Ph.D. project – thesis

1) As the results of my research show due to processes of companies fulfilled the requirements of ISO 9002 standards the regulations completely cover all processes of production of goods and services at forestry companies. The working process of the forestry companies has got more transparency. Due to rethinking of job descriptions, fields of tasks and responsibility became clearer at each level of management (top-, and middle level management, work foremen). The number of contentious cases at the workplace has been reduced moreover the reduction of corporate overheads could come into realisation because of eliminating the superfluous operations due to determination the individual responsibility for each employee. Number of litigious contracts and customer complaints is also decreased significantly after introduction of ISO. With help of ISO system the forestry company executives get some useful information about performance of their companies. This information can be applied as an efficient contribution in the field of controlling as well. The statistical methods (point of 4.20 of ISO 9002 standard) have special importance in elimination of procedure's error. The point of 4.14 of ISO 9002 standard gives steps of correction to terminate these errors. Preventive measures need taking against return of previous errors. In this way comes to life the continuous development, the philosophy of ISO resulting the more and more effective function of quality system which largely contributes to efficiency and performance of forestry companies. In my research I have determined, that the introduction of ISO 9002, ISO 14001 systems and elaboration's the fundamental principles of national PEFC system meant as a decision of Hungarian forestry sector policy because neither the domestic nor the European wood markets did not determined concrete requirement on these certifications for forestry companies.

2) I have proved with help of t-probe analysis on two-elements, that the introduction of ISO systems (ISO 9002:1994 and ISO 14001:1996) burdened financial resources to an acceptable extent, human resources however to a great extent. The expenses of introduction and certification of ISO systems amounted to approximately 7,7 Million HUF and it means 150 HUF/hectare specific cost. With help of regression analysis I determined, that forestry companies should sell their woodproducts by 1,65% higher sales price to cover additional costs of ISO certification. According to data of my survey the forestry companies were not able to realize higher sales price in the commercial bargains after introduction of ISO systems. There was not to be demonstrated clearly whether the ISO certification takes direct effect on the acquisition of new business partner. According to results of my survey (f-probe analysis on two elements, variance analysis of individual values) I proved introduction of ISO 9002 had

positive effects on the whole corporate structure and the labour quality of employees. Based on this fact it has been worth introducing the ISO system at forestry companies, even if it did not bring direct market advantage. The financial assistance of Phare-project awarded to State Privatization and Holding Rt. gave a great help for realisation of investment.

3) According to my survey I determined that the operating expenditures of ISO systems (annual internal-, and external audits, quality trainings, calibration costs of measuring instruments) do not represent an unbearable high (cost) item in the cost-structure of forestry companies. However the work with ISO-systems gives significant administration burden for the organization so after the introduction in the phase of workprocess generates a great deal of work for human resources. I highlighted, that work with ISO-system has had positive effects: Due to the regular audits there is a more effective control on workflow of forestry companies, respectively they have positive contribution to realization of a better information flow among the particular economic units. Through the measure points built in processes top-management get quantitative data about the performance of their companies. From the results of t-probe analysis on one element I came to a conclusion that the forestry company executives consider the audits as a real implement to increase the competitiveness of their companies.

4) I determined after having acquired the PEFC certification most executives of the Hungarian forestry companies expected a positive reputation from aspect of environment protecting organisations. They also hoped that introduction of PEFC system will make more positive the reputation of society on forestry and will increase the competitiveness of woodproducts against of substitutes (plastic, aluminium). In this respect ISO 9002 and ISO 14001 certification were not considered as an important issue. According to results of Pareto analysis I determined that customers consider the price of woodproduct far and away the most important criterion nowadays. Deliver on time takes the second place and surprisingly the quality of woodproduct is to be found only at third place on the preference scale of customers. The eco-friendly feature of woodproduct plays only an unconsidered little part among the purchasing respects or matters nothings at all. Therefore ISO 14001 and certification of woodorigin (PEFC, FSC) has major importance only in case when environment-conscious customers turn up in the market focusing exclusively on eco-friendly feature of wood origin. As the results of my research describe at present most of customers do not prefer the certified timber to wood product without certification. According to the actual results of my research I determine if the customers should make decision between two wood products in the same quality and price position, they may choose the certified one. The results of my survey I highlighted the fact, that the forestry companies themselves have not dealt with environmental issues so far at developing their corporate and employment policy. The environmental issues played only an unconsidered little part among the PR tasks or not at all.

5) In the course of my research I have come to a conclusion that certification systems of wood origin are better preferred to ISO certification in the markets of the EU. At the present time on the wood markets in Netherlands, Italy, Sweden slack demand turns up for products with certified wood origin. In these countries however the certification of wood origin by FSC is given more preference under the pressure of environmental protecting organizations to certification of wood origin by PEFC. As the results of my survey demonstrate the forestry companies handled by Hungarian Privatization and State Holding Company sell approximately 70% of their products on local and regional level. Within Hungary longer distance (more than 200 km) they sell 10% of their wood products. At present 20% of their product sales put into export trade first of all to member states of EU. According to my actual results of my research the certification of PEFC and FSC has an importance mainly in the EU markets. At the national wood-processing factories certified timber is put into production only in special case when it is required by their foreign clients. Based on these facts I have determined considering the percentage distribution of sale at forestry companies the acquisition of certification of wood origin has an importance of 20%.

6) With help of regression analysis I defined depending on specific costs in comparison with original selling price how much time higher product price should be realised on the market in order to cover the additional costs of certification. The regression equation referred to coherency between specific cost of certification (HUF/Hectare) and surplus price on certified wood products is in form of

$$Y = 0,178277 + 0,009797X.$$

There are three forestry companies handled by Hungarian Privatization and State Holding Company being certified by FSC through pressure of principally foreign clients from the EU. In case of these forestry companies should set by 1,16% higher selling price based on regression equation to meet the additional costs of certification. The results of my survey confirm that customers are reluctant to bear the extra costs of certified timber. In this way the return on having FSC certification is limited to keep the present markets in the aspect of forestry companies.

It is a further difficulty that the actual marking system of timber is not suitable for drawing a difference between certified timber and wood product without certification in wood-processing and distribution chain. In Hungary 41% of forest is in private ownership. The forestry smallholders are surely not in financing position to meet the additional cost of certification. In this way it is an unavoidable factor, that certified timber and uncertified one are mixed in the wood processing. This problem can be solved only with help of individual marking system, however this method would add further expenses to costs of certification.

4. My scientific proposals in connection with certification, further directions of my research

1) As the results of my survey demonstrate working with ISO systems gives great burden for administration at the forestry companies. According to an accepted procedure of industry an overall corporate management system is applied covering this way all fields of companies (finance, sourcing, production, quality assurance, stock control, invoicing) to make simpler the document processing. One of these most popular integrated management software is SAP R/3. In forest industry a further subject for examination should be the applicability of this system developed for closed industrial processes to be able to rationalise the administration cost of ISO systems in the future.

2) Considering the fact that the knowledge of society is rather poor in most cases and so it can be hardly seen the differences between overexploitation of rain forests broadcasting by mediums and the national sustainable forestry. The citizens of Hungary can see only the exploitation of further forests. That is why forest companies should emphasize with help of marketing and advertising technique that timber means the only one renewable raw material and energy resource. The Forest companies ought to concentrate in their PR activity on announcing the fact, that national forests and the timber are treated properly following the criteria of sustainable forest management. The sustainable management of forestry companies is confirmed officially by international certification (PEFC/FSC). In this way positive influence could be realised on the aspect of society and environmental protecting organisations referred to the reputation of Hungarian forestry. Keeping in view the actual market conditions the timber can obtain a more favourable market position exclusively through a well considered marketing strategy against the substitutes (plastic, aluminium). The coordination of state means as an essential factor in the realisation. Based on the above-mentioned facts concepts of marketing strategy should be elaborated for each forest company.

3) According the actual results of my survey it would be advisable for forest companies to develop FSC or PEFC systems based on ISO 9001:2000 foundations which would include all elements of forest- and wood origin certification systems taking into consideration the specialities of forest industry in systematic frames determined by ISO. In this way the synergy effects of ISO systems and certification systems of wood origin could come into realisation. The elaboration of combined system of “ISO- and Certification of Woodorigin” would mean a considerable professional target.

4) The other open issue of actual forestpolicy that FSC and PEFC should accept mutually the certifications of each other. It could give the opportunity to avoid the requirements of dual certification which would mean a large facility in respect of costs and debates about certification systems. The analysis on harmonization of PEFC and FSC systems would represent a further direction of my research.

5) According to results of my survey I have mentioned that the forestry smallholders are not in financing position to cover the additional cost of certification. To be able to avoid the mixture of certified timber and wood product without certification an individual marking system should be launched at forest companies in Hungary however this method would add further expenses to costs of certification. To solve this problem some government grant system should built up for forestry smallholders making possible the certification of small forest properties. The another alternative to eliminate this problem would mean the "regional- certification" by PEFC because of taking lower costs than expenses of certification by FSC. An individual research project would be launched about the certification possibilities of private small forest properties in Hungary.

5. Publications

Publications in Hungarian

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