

Use of Marketing Tools in the Slovakian Forest Biomass Trade

Daniel Halaj, Yvonne Brodrechtova

Abstracts

The fast growing renewable energy market offers opportunities for the traditional forest sector both in Europe in general and Slovakia in particular. The reasoning behind this is twofold. First, in last decade the renewable energy business has gained significant attention. Among other reasons, this is due to the goal of a reduction of greenhouse gas emissions. Second, changes in downstream markets due to financial crises have put pressure on forest enterprises to redefine their sales portfolios. As marketing can help to realize new opportunities for forestry, the aim of this research study is to shed more light on how forestry enterprises in Slovakia use marketing tools in the trade of forest biomass, the main renewable energy source available to Slovakia. Due to its explorative nature, a case study research design with qualitative methodology has been applied. The capacity for use of marketing tools by (state and private) forest enterprises was explored through in-depth personal interviews analyzed with the help of content analysis. By presenting four detailed cases, the results show that in the forest biomass trade, the forest enterprises all used a marketing mix of »The 5Ps« (product, price, place, promotion, and people) and consequently applied a set of tools different from those observed in other industry sectors.

Keywords: marketing tools, renewable energy, forest biomass, Slovakia, qualitative inquiry

1. Introduction

The current national and international energy argument is mainly preoccupied with the renewable energy business. Especially, forest biomass¹ is identified in many research studies as a most promising source for generating energy (e.g. Stupak et al. 2007, Stidham and Simon-Brown 2011, Schwarzbauer et al. 2013). Although the use of biomass has a long history, only in the last decade has it experienced revival as a more carbon neutral and local source of energy. In

comparison to a demand for forest products driven by economic developments, the demand for forest biomass used for generating energy is mainly driven by policies (Schwarzbauer et al. 2013). Accordingly, biomass utilization for energy purposes is proposed in many EU documents (e.g. Biomass Action Plan 2005, Renewable Heating, Action Plan for Europe 2007, The Forest Sector in the Green Economy 2009, Directive 2009/28/EC on the promotion of the use of energy from renewable sources, Report from the Commission to the council and the European Parliament on sustainability requirements for the use of solid and gaseous biomass sources in electricity, heating and cooling 2010). By now, many national programs have been implemented (Stupak et al. 2007, Schwarzbauer et al. 2013) including several in Slovakia (Trenčiansky et al. 2007, Halaj and Ilavský 2009, Lieskovský et al. 2009). In Slovakia these encouraging conditions (e.g. Concept for use of renewable sources of energy 2003, Program for rural development 2007 – 2013, Action plan on biomass use for years 2008 – 2013, National action plan

¹ Woody biomass from forests and/or tree plantations (FAO 2004). The forest biomass, which is part of harvested raw wood, is set for use in the energy sector because it is of no further use in the wood processing industry. Forest biomass could include dimensionally untreated (i.e. firewood, handling waste, individual waste after mechanical processing) or treated biomass (i.e. chips from pruning, from energy plantations, from stumps or roots, pellets, briquettes). Different sources of biomass exist: biomass coming from thin or large branch-wood, from juvenile thinning or thinning, or from the opening up of roads (Trenčiansky et al. 2007).

for energy from renewable resources 2010) supported newcomers in the renewable energy business, such as: 18 producers of briquettes, 14 producers of wood pellets and the construction of many heat and energy production plants (Lagaňa and Réh 2008). At present, there are 35 heating and power plants with installed outputs greater than 0.2 MWth (Jankovský 2012) and these capacities are expected to grow in coming years (Haluza 2011). Excluding byproducts of the wood processing industry and other sources, forest biomass represented 54% of 0.5 million tons of all biomass sources for heat production in 2011 (The Ministry of Agriculture and Rural Development of the SR 2012). Moreover, the amount of forest biomass (from forest land) used for energy purposes almost tripled between 1990 and 2010 (Oravec et al. 2012).

Furthermore, scenarios for EU members show that energy production from renewable energy will double from 103 Mtoe (Million Tonnes of Oil Equivalent) in the year 2005 to 217 Mtoe in the year 2020 (final brutto energy demand) and it is expected that the main renewable energy source will be biomass (The European Commission 2011). This scenario is especially applicable to Slovakia where, in the coming 5 to 10 years, biomass will offer the highest technical potential among renewable energy resources. Regarding the energy potential of biomass volume, forest biomass (from forest land) submits a 9.7% share and it has one of the highest energy potentials, amounting to 26.8 PJ (The Ministry of Agriculture and Rural Development of the SR 2008). However, higher utilization of forest biomass for fuel has been limited by, among other things, current legislation on the production of wood on fallow agricultural land and the creation of energy forests (Oravec et al. 2012, The Ministry of Agriculture and Rural Development of the SR 2012). The production of fuel forest biomass on non-forest land had reached only 0.1 tons by 2011 (The Ministry of Agriculture and Rural Development of the SR 2012). Domestic consumption in 2011 was 1.3 million tons of forest biomass originating from forest land, yet the potential for the use of forest biomass from forest land was set to 2.5 million tons in the same year (The Ministry of Agriculture and Rural Development of the SR 2012) and is expected to reach 2.85 million tons by 2025 (Oravec et al. 2012).

Although the use of forest biomass is based mainly on energy reasoning, the emergent renewable energy business has offered opportunities (e.g. new source of revenues, creation of new jobs in rural areas, solving forest management problems) for the traditional forestry sector throughout the EU in general and Slovakia in particular. The forestry sector in Slovakia

has been undergoing a long-term developmental crisis as a result of institutional changes that have taken place in the last 20 years (Greppl et al. 2009, Novotný 2011). Moreover, this unconstructive situation is influenced by the increasing intensity of natural disasters (Lieskovský et al. 2009, Suchomel and Gejdoš 2009; 2011). Also, with the economic crisis in downstream markets, the forest enterprises have been forced to look for new opportunities to redefine their sales portfolios. The new prospect to reinvigorate their profits has been mainly seen in the forest biomass. Nonetheless, the new market segment requires a new application of marketing tools. As a consequence, questions arose as to how forest enterprises tailor marketing tools to the needs and wants of customers in a new target segment?

2. Aim of the study

Marketing can help to ensure new opportunities for the forestry sector (Ok 2005). For instance, »some services deemed as non-marketable forest goods and services in forestry will turn out to be marketable« (Ok 2005: 499). However, the use of marketing for forest products within forest products enterprises is very low, although the potentials were identified as high (Šulek 2004, Smith et al. 2009, 2010). On the other hand, most general marketing concepts observed in the literature were prompted some time ago; however, more research on basic issues such as understanding target customers wants and needs is still needed (Wagner and Hansen 2004). This also applies to the forestry sector as expectations toward forestry and forests vary over time (Ok 2005). Furthermore, »...if forestry is investigated historically, it is seen that the forestry product mix (FPM) is changing with time« (Ok 2001: 7). Since the current demand of society consists of a new product – forest biomass, exploring the use of marketing mix in forestry enterprises is needed. Yet, there are only a few studies on how marketing tools are defined, especially for renewable energy sources (e.g. Menegaki 2012). Most of the literature focus is either on the marketing of forest products in general (e.g. Rich 1970, Sinclair 1992, Ok 2005, Elyakime and Cabanettes 2009, Becker 2012) or on the marketing strategies of forest products enterprises in particular (e.g. Schadendorf 1994, Borowski 1996, Piest 1999, Brodrechtova 2009, Hansen and Juslin 2011). So far, the biomass business has been mainly explored from a technological point of view (Stupak et al. 2007, Pätäri et al. 2011). Since over the decade the demand for a new product – forest biomass, is increasing, surveying the marketing mix of forestry enterprises toward the needs and wants of

the target segment is desired. To fill the research gap, an exploratory case study on the use of marketing tools targeting forest biomass was proposed. Coming from a marketing perspective, the concept of marketing mix was tested on four decisively selected forest enterprises in Slovakia.

3. Theoretical concept

Unique problems in forestry such as not easily sold forest outputs, societal pressure for more nonmonetary goods, long production periods and uncertainty (Klemperer 2003), among other things, form a special challenge for strategic planning in forest enterprises. Strategic planning used to be too focused on competitors, while often neglecting the customers (Webster 1988). However, today marketing integrates the different functions of a company, thus connecting the firm to its customers and its investors (Hansen and Juslin 2011). Accordingly, the objective of marketing is to identify the wants and needs of customers, and/or to satisfy those needs with a special focus on profit instead of sales volume (Webster 1994, Slater and Narver 1998, Tadajewski 2010). This idea also applies to environmentally sound goods (Ottman et al. 2010, Menegaki 2012) like forest biomass (Stupak et al. 2007).

At the core of marketing is marketing mix (Kotler 1984). »A marketing mix is a developing process that aims to develop an internally coherent action plan with mutual support of its constituent elements. A marketing mix for renewable energies is simultaneously regarded as a de-marketing mix for fossil fuels« (Menegaki 2012: 34). The origin of marketing mix can be traced to the description of a marketing executive as a »mixer of ingredients« someone who is permanently engaged in creating a mix of various elements generating profit for the firm (Culliton 1948). Based on this idea, the term »marketing mix« was introduced via teaching and in the publications of Borden (1964). He defines marketing mix as a set of 12 elements, which cover the principal areas of marketing activities: product planning, pricing, branding, channels of distribution, personal selling, advertising, promotions, packaging, display, servicing, physical handling, fact handling and analysis. Reducing these 12 elements to four, the four element framework (product, price, promotion, and place) of marketing mix was introduced (McCarthy 1960). Marketing mix is perceived as a conceptual framework rather than a scientific theory (Goi 2009). Due to its practical framework, it found wide acceptance among field marketers (Constantinides 2006). On the other hand, many marketing models are also based on »The 4Ps« (Hansen and Juslin 2011).

However, some weaknesses of »The 4Ps« such as the ignorance of human factors, the lack of strategic dimensions, an offensive posture and a lack of interactivity were identified (Constantinides 2006). As a consequence, various types of marketing mixes evolved. For instance, in the case of marketing mix for service, an additional 3 Ps (participants, physical evidence and process) were added to the original concept of »The 4Ps« (Booms and Bitner 1981). This framework of »The 7Ps« was further applied to the marketing mix of consumer goods (Rafiq and Ahmed 1995).

Since forest biomass could be considered a consumer good, the »The 7Ps« framework formed the basis for the theoretical concept of this study. In general, the product tool is defined by the combination of goods and services the company offers to the target market (Kotler and Armstrong 2010). The amount that the consumer must exchange to obtain the offering is defined under the price tool (Solomon 2008). Under the place tool are understood to be all activities necessary for making the product or service available to target consumers (Kotler and Armstrong 2010). Steps taken to inform consumers about products and to encourage them to buy these products are known as the promotion tool (Solomon 2008). The marketing tool »people« is defined as »all human actors who play a part in service delivery and thus influence the buyer's perceptions; namely, the firm's personnel, the customer, and other customers in the service environment« (Zeithaml et al. 2008). Overall, the process tool consists of actual procedures, mechanisms, and the flow of actions necessary for the delivery of service. Furthermore, physical evidence describes the surroundings where the service is delivered and interaction takes place. Also, physical evidence is anything that assists with performance or communication of the service (Zeithaml et al. 2008). Finally, the specific features of one marketing tool can often be considered to be a part of other tools.

4. Methodology

4.1 Case study approach

Given the limited attention paid to marketing tools in the research context of the forest biomass trade, the testing of marketing perspective has had little contextual basis. For that reason, a case study with linear analytic structure (Yin 2003) and with a qualitative research approach was used. The main argument behind a qualitative research approach was found in the possibility to explore and to capture the complexity of a new research area – marketing tools targeting forest biomass. Furthermore, deductive logic was applied as

Table 1 General profile of interviewed forest enterprises in 2011

Indicators/Forest enterprises	Forest Enterprise Biomass Levice	Forest Enterprise Kriváň	Urban Forests Kremnica Ltd.	University Forest Enterprise Zvolen
Ownership type	State	State	Private	State
Forest land in use, ha	58 440	48 222	9 701.5	9 964
Timber felling, m ³ /year	163 300	185 400	60 000	42 500
Biomass production, t/year	5 075	8 700	1 000	145

Source: Annual reports of interviewed forest enterprises

we moved from general marketing tools to relatively more specific instances of forest enterprises.

The databank of the forest enterprises was drawn on existing databanks of the National Forest Center in Zvolen, the Ministry of Agriculture and Rural Development of the Slovak Republic, the Technical University of Zvolen and the Statistical Office of the Slovak Republic. The target population consisted of 26 state forest enterprises (independent enterprises of the state forest enterprise LESY SR, š.p.), four military forest enterprises, one university forest enterprise, and 1 238 private forest enterprises with ≥ 50 ha. Subsequently, the forest enterprises for inquiry were identified through targeted selection based on a prepared strategy (Halaj 2012). In other words, selection was not random, but was adjusted to the focus of the exploratory research study (Lamnek 1993a; 1993b). The prepared selection strategy included forest enterprises with various ownership structures and sizes in order to capture typical actors in Slovakian forestry. The four purposely chosen forest enterprises were addressed via telephone and email with the explanation of the research target. All enterprises agreed to participate in the study (Table 1).

4.2 Methods applied

Particularly in depth semi structured interviews (Krott and Suda 2001) were conducted with managers of selected forest enterprises and recorded in digital form or by taking notes. The one to two hour long interviews took place either at the actual forest enterprise or at the Technical University of Zvolen and between May and July of 2011. Transcribed conversations were analyzed with the help of content analysis, specifically the technique of text structuring by content was applied (Mayring 2003). In other words, the text was split by content and assigned to categories deductively derived from the theoretical framework. This art of coding is called deductive application of categories (Mayring 2003). Table 2 demonstrates an example of

the coding system for the category »Product«. Subsequently, a review of relevant categories was done by the summarization technique (Mayring 2003). These steps were repeated twice to prevent incorrect text allocation to the categories. Coding conducted by two independent researchers guaranteed validation of text allocation. This was all done with the help of MAXq-DA software for qualitative analysis. Overall, the general focus of content analysis with a qualitative approach was on identifying various meanings of the text (Kollárik and Sollárová 2004).

Table 2 Example of coding system for category »Product«

Category	Subcategory	Value
Product	Product assortment	Untreated forest biomass
		Treated forest biomass
	Product characteristics	Moisture of forest chips
		Proportions of forest chips
		Share of thin and large branch-wood in forest chips

5. Results of the study

5.1 Forest enterprises and their marketing mix

The marketing mix for forest biomass consisted of »The 6Ps« (Table 3); however, only »The 5Ps« were common for all four forest enterprises. In the following, the marketing mix for each of the interviewed enterprises is summarized.

The entrepreneurial activities of Forest Enterprise Biomass Levice (one of the 26 forestry enterprises of the state owned enterprise Lesy SR š.p.) were focused on the biomass business. Specifically, Forest Enterprise Biomass Levice provided at its seven regional centers, specific services »product«. It bought and processed

biomass (i.e. firewood, residues after felling: thin or large branch wood, handling waste, calamity wood) from the other forest enterprises of Lesy SR š.p. (the biomass volume was appointed by Lesy SR š.p.) and also from private forest owners. The desired outputs were forest chips for which the processing »price« depended mainly upon the truck hauling distance, and upon the cost of the skidding of biomass from forest stand to roadside and decking it in piles. The »place« of processing was usually a forest roadside. Forest chips were further stored at the roadside, in meadows or pastures, or in rented former storage facilities of agricultural cooperatives. Transport of forest chips to customers was organized via outsourcing. Consumer sales promotion and personal selling »promotion« were used. In processing forest biomass, the enterprise created employment opportunities in rural areas. It also tested chipping machines and subsequently gave advice to its machine producers »people«. Within »process« activities, Forest Enterprise Biomass Levice monitored financing possibilities from EU funds, the payment discipline of its customers and the quality of the chipping process.

Forest Enterprise Kriváň (one of the 26 forestry enterprises of Lesy SR š.p.) focused mostly on the production and sale of sawn logs. Business with forest biomass was only 6.5% of total sales. This enterprise produced and sold biomass »product« such as: firewood, residues after felling (thin or large branch wood), and handling waste. However, based on directives from Lesy SR š.p., certain volumes of biomass were sold to Forest Enterprise Biomass Levice for an asked price. Generally, the »price« depended on the cost of concentration of biomass to designated areas, the truck hauling distance and the tree species. Additionally, the firm offered locals a promotion sale price of one cent for residues the locals themselves collect after felling. The timber felling was outsourced to private companies, which also hauled biomass to the roadside, meadows, pastures or former storage facilities of agricultural cooperatives »place«. It used only consumer sales promotion and personal selling »promotion«. Due to the outsourcing of the felling, employment opportunities in rural areas were created »people«. Forest enterprise Kriváň monitored »process« financing possibilities by EU funds, evaluated the payment discipline of its customers and ensured the quality of the chipping process by investing in new chipping machines.

The forestry enterprise Urban Forests Kremnica Ltd. focused mostly on the production and sale of sawn logs. The forest biomass business was only a by-product. This private enterprise produced and sold

biomass »product« such as firewood, one meter wood logs and handling waste. »Price« was generally based on costs; however, a promotion sale price of one cent was used for collecting residues after felling. Forest biomass was hauled to the roadside »place« by forest biomass customers. Firewood was sold and delivered directly to the locals »place«. Only consumer sales promotion and personal selling »promotion« were done. Hauling of one meter logs created employment opportunities in rural areas and on the other hand, customer service offered a social program in the form of delivering these one meter logs directly to local customers »people«. The task of the »process« tool was in the overview of EU structural funds for possible investments in new chipping machines. An additional task included the identification of customer needs via SWOT analysis.

The main purpose of University Forest Enterprise Zvolen was scientific (e.g. silviculture, felling, or hunting practices among others). However, the production and sale of sawn logs and byproducts such as biomass were done on a commercial basis. The focus was on the production and selling of biomass »product« such as firewood, residues after felling (thin or large branch wood), one meter wood logs and handling waste. It offered a promotion sale price for the residues after felling. Forest biomass was hauled to the roadside, meadows, or pastures »place«. The forest enterprise used consumer sales promotion and personal selling »promotion«. Commercial utilization of biomass created employment opportunities »people«.

5.2 Marketing tools and their features used in the Slovakian forest biomass trade

Despite diverse company characteristics, the marketing tools showed some similarities. In the following, »The 6Ps« (Table 3) are summarized and described based on respondents' rate (percentage of respondents who used specific tool and specific feature in forest biomass trade).

The marketing tool »product« was defined via »product assortment« and »product characteristics«. In the case of »product assortment« the forest enterprises produced forest biomass (100%) and forest chips (75%). In other words, some enterprises subsequently processed the biomass into forest chips. Particularly, the technology for processing coniferous (thickness ≤ 45 cm and length ≥ 2 m) and broadleaved biomass (thickness ≤ 35 cm and length ≥ 2 m) was used. On the other hand, »product characteristics« defined only forest chips parameters and moisture.

The »price« was described by respondents via different pricing methods such as: »cost based pricing«

Table 3 Used marketing tools and their features identified by interviewed forestry enterprises

Product	Price	Place	Promotion	People	Process*
Product assortment	Cost based pricing	Suppliers	Sales promotion	Employees	Monitoring
Product characteristics	Competition oriented pricing	Distribution channels	Personal selling	Customer service	Quality assurance
	Differentiated pricing	Consumers		Consulting	
		Location			
		Transportation			
		Storage			

* This feature was identified only in three of four interviewed enterprises

(100%), »competition oriented pricing« (25%) and »differentiated pricing« (25%). »Competition oriented pricing« was used only in the case of heat stations with lower forest chip consumption and many suppliers. Due to the various locations of biomass sale, respondents also used the »differentiated pricing« method. Generally, the main costs for forest enterprises were costs associated with biomass skidding and hauling from forest, and biomass decking at the roadside. All respondents stated that the only profitable trade was with forest chips originating from biomass after deforestation of meadows or pastures.

The marketing tool »place« was described via features such as »suppliers« (25%), »distribution channels« (100%), »consumers« (100%), »location« (100%), »transport« (100%) and »storage« (100%). Only one forest enterprise used »suppliers«, local saw mills, to buy cuttings. This represented just 1% of biomass offered by this forest enterprise. Forest biomass and forest chips were »directly« distributed »distribution channels«. In the case of biomass they were sold to private »consumers« collecting residues after felling in the forest »location«. On the other hand, forest chips were sold to the heat stations and power plants »consumers« from the roadside »location«. The physical distribution of forest chips was organized by forest enterprises, but it was outsourced to the truck companies chosen via public tenders. Optimal truck hauling distance was specified to be in the range of 30 – 40 km. Skidding of biomass »transport« to the roadside »location« was done by tractors (100%) with some companies also using horses for this task (50%). Generally, forest biomass and forest chips were stored at former facilities of agricultural cooperatives, roadsides, meadows or pastures »storage«).

»Promotion« was interpreted only via »customer sales promotion« (100%) and »personal selling« (100%). In the former case, »promotion sale price« of one cent for the collection of residues after felling was

offered to the locals. All interviewed companies stated that the sale of biomass (residues after felling) to the locals was based on »verbal agreement«. In the latter case, »personal selling« was perceived as the most important feature in the biomass trade. Specifically, written one year contracts were preferred in the case of forest chips. The minimum volume of contracted forest chips was set at 100 tons. Overall, »personal selling« (including »internal selling« to existing customers, »sales calls« to potential purchasers and »email correspondence« among others) was done by the business managers of the particular forest enterprises.

The use of the marketing tool »people« was explained via features such as: »employees« (100%), »customer service« (25%) and »consulting« (25%). Due to forest biomass processing new »positions«, such as jobs for handling one meter wood or for chipping forest biomass, were created. »Customer service« was recognized through its positive effects of social programs supporting local consumption of energy wood. This program consisted of delivering one meter wood (firewood) to the local consumers and its unloading at their courtyards. »Consulting« activity was done via feedback to the manufactures of forest chipping machines, which brought technological improvement of chipping machines.

The marketing tool »process« consisted of »monitoring« (75%) and »quality assurance« (75%). Particularly, »monitoring« of EU structural funds to support investment activities, »monitoring« current trends in felling and chipping technologies, »monitoring« of customers' payment discipline and »monitoring« of stock turnover of forest chips were carried out. Via purchasing new forest chipping machines (due to ending of their depreciation period), the forest enterprises tried to »assure quality« of chipping production. Forest enterprises used either their own financial resources from a so called intra plant bank, which was established within the Lesy SR š.p. or EU structural funds.

6. Discussion and conclusion

Developing new sources of income through innovation and entrepreneurship offers the possibility for economic renewal in the forestry sector (Rametsteiner et al. 2006). Marketing in general and its tools in particular can help to ensure new opportunities for forestry and save forestry from certain social and political dilemmas (Ok 2005). »It must never be overlooked that marketing is the income generating activity of the firm« (Smith et al. 2010: 1). Since the rapidly growing renewable energy market brought a new opportunity to forestry (Halaj 2012, Stidham and Simon-Brown 2011, Schwarzbauer et al. 2013), a new target segment – forest biomass, required the appointment of unique marketing tools. The results of the exploratory research study showed that in the business of forest biomass, forest enterprises in Slovakia used a marketing mix of »The 6Ps«: »product«, »price«, »place«, »promotion«, »people« and »process«. Additionally, it was found that »The 5Ps« (excluding »process«) were universal for all interviewed companies despite their major differences in ownership structure or strategic planning. Consequently, based on the results, three major conclusions could be drawn.

First, the testing of the proposed marketing mix »The 7Ps« showed that for a special segment such as the forest biomass market, the marketing tool »physical evidence« is not applicable. Similar results were also observed in theoretical analysis of marketing mix for forest biomass (Halaj and Ilavský 2009). The explanation behind this finding lies in the characteristics of forest biomass, which is a commodity product on one hand but a very specific product on the other (Šulek 2004, Greppel et al. 2007). Thus, the results added to the findings of other authors (e.g. Hesková 2001, Reimann 2010) that specific industry sectors require a specific combination of marketing tools tailored to their customer needs and wants. Consequently, the identification of the marketing mix »The 6Ps« for the forest biomass segment could be seen as a major contribution to the existing models of marketing mixes of other industry sectors.

Second, the results of in depth interviews revealed general use of »The 5Ps« such as »product«, »price«, »place«, »promotion« and »people« for all forest enterprises. The reasoning behind the commonality of »The 5Ps« is mainly explained by the product characteristics, and natural conditions in which the enterprises operated. Forest biomass was defined as a seasonal commodity »product«, for which production and costs were mainly challenged by hauling and concentrating at designated areas »place«, and lengthy

and quality storing »place« (Halaj 2012, Ruiz et al. 2013, Shabani et al. 2013). Moreover, distinguished natural conditions (e.g. high diversity of terrain; inaccessibility of forest in some months) made the whole logistics of forest biomass complex »place« and often unprofitable »price«. »Promotion« was identified as the most effective marketing tool, particularly its feature »personal selling« (Smith et al. 2009). This form of selling industrial goods was observed in other industry sectors as it plays an essential role before the consumer makes the purchase, during the purchase and after the purchase. This showed that the forest biomass sector was more customer than product oriented, the current trend also observed in other forest products industries (Brodrechtova 2009, Tadajewski 2010, Juslin and Hansen 2011). The main argument behind the tool »people« was the creation of jobs in rural areas, which in turn lead to rural community revitalization (Halaj 2012, Stidham and Simon-Brown 2011). Generally, the common use of »The 5Ps« revealed that with the new target segment of forest biomass, there was an associated high degree of uncertainty due to high logistics costs, market instability, natural conditions and policy changes (Shabani et al. 2013). Although the application of marketing tools offered an opportunity for the economic restoration of forest enterprises through the renewable energy trade, it remained unknown how effective the forest biomass trade will be for forest enterprises in the long term.

Finally, it was found that a case study approach allowed for testing marketing tools of only four forest enterprises; the fact that the proposed marketing mix concept can be readily measured and tested serves to overcome this limitation. Further research on marketing tools targeting forest biomass trade could supplement the results of this exploratory study. This could be done either by considering a representative sample of forest enterprises in Slovakia or internationally. Additionally, as time progresses, the marketing tools used in the biomass trade might change. Therefore, periodic research would further extend current findings as the use of forest biomass will potentially intensify in Slovakia as well as globally.

Acknowledgements

This research received support from VEGA 1/1099/12 »The Economic Effectiveness of Timber Trade: A Transaction Cost Perspective« and it was presented briefly as oral presentation at the IUFRO conference: FORTECHNENVI held in 2013 in Brno, Czech Republic. The authors would also like to thank Charles Kennedy for proof-reading.

7. References

- Becker, M., 2012: Absatzmarketing. In: Management von Forstbetrieben, Band III: Leistungssystem, Zusammenfassung und Ausblick (Oesten, G., Roeder, A., Eds.). Institut für Forstökonomie der Albert-Ludwigs Universität Freiburg, p. 19–58.
- Booms, B.H., Bitner, M.J., 1981: Marketing strategies and organization structures for service firms. In: Marketing of Services. American Marketing Association (Donnelly, J.H., George, W.R., Eds.). Chicago, IL, p. 47–51.
- Borden, N.H., 1964: The concept of the Marketing Mix. *Journal of Advertising Research, Classics, Volume II* (September 1984): 7–12.
- Borowski, S., 1996: Marketing-Strategien von Forstbetrieben. *Schriften aus dem Institut für Forstökonomie der Universität Freiburg. Band 7*, 166 p.
- Brodrechtova, Y., 2009: Export marketing strategy and its shaping factors in the context of transition: Theoretical perspectives and empirical testing in the forest products industries of Slovakia. *Freiburger Schriften zur Forst und Umweltpolitik. Verlag Dr. Kessel, Remagen-Oberwinter. Band 21*, 159 p.
- Constantinides, E., 2006: The Marketing Mix Revisited: Towards the 21st Century Marketing. *Journal of Marketing Management* 22(3–4): 407–438.
- Culliton, J.W., 1948: The Management of Marketing Costs. Division of Research, Graduate School of Business Administration, Boston, MA: Harvard University, 166 p.
- Elyakime, B., Cabanettes, A., 2009: How to improve the marketing of timber in France? *Journal for Forest Economics and Policy* 11(3): 169–173.
- FAO 2004: Unified Bioenergy Terminology UBET. Food and Agriculture Organization of United Nations December 2004, 58 p.
- Goi, CH. L., 2009: A review of marketing mix: 4Ps or more? *International Journal of Marketing Studies* 1(1): 2–15.
- Greppel, E., Šulek, R., Drličková, E., Paluš, H., 2007: Kvalita dreva a obchod s drevom (Wood Quality and Wood Trade). *Národné lesnícke centrum, Zvolen*, 181 p.
- Greppel, E., Paluš, H., Chudovský, D., Šulek, R., 2009: Zhodnotenie drevnej hmoty a marketingové riadenie (Evaluation of wood mass and marketing management). *Národné lesnícke centrum, Zvolen*, 146 p.
- Halaj, D., 2012: Marketing tools supporting the utilization of wood as a renewable energy source by chosen forest enterprises. In the proceedings of the international scientific conference: Management of Organization in Real and Virtual Environment: Opportunities and Challenges IV. Poprad, 2012, 120 p.
- Halaj, D., Ilavský, J., 2009: Policies and their implementation tools enhancing the energy wood market: a comparative case study of Finland and Slovakia. *Finnish Forest Research Institute. Working Papers of the Finnish Forest Research Institute*, 87 p.
- Haluza, I., 2011: Ošial' okolo obnoviteľných zdrojov sa skončil: Slnčné i veterné elektrárne štát už brzdi a zásoby biomasy nie sú neobmedzené (The folly around renewable resources is over: sun and wind power plants are held back by the state and biomass resources are limited). *Trend holding s. r. o.*, 18: 54–55.
- Hansen, E., Juslin, H., 2011: *Strategic Marketing in the Global Forest Industries. 2nd Edition*, Corvallis, Oregon, 327 p.
- Hesková, M., 2001: Marketingová komunikace součást marketingového mixu (Marketing communication as a part of marketing mix). 1. vydanie Praha. *Vysoká škola ekonomická, Praha*, 106 p.
- Jankovský, J., 2012: Využitie biomasy v rámci centrálnej výroby energie (The biomass utilization within the central energy production). PhD dissertation, *Technická Univerzita vo Zvolene*, 148 p.
- Klemperer, W.D., 2003: *Forest Resource Economics and Finance*. McGraw-Hill Science/Engineering/Math, 551 p.
- Kollárik, T., Sollárová, E., 2004: *Metódy sociálno psychologickéj praxe (Methods of socio psychological practice)*. Bratislava. Pegas, 264 p.
- Kotler, P., 1984: *Marketing Management: Analysis, Planning and Control. 5th Edition*. New Jersey: Prentice-Hall., 792 p.
- Kotler, P., Armstrong, G., 2010: *Marketing: An Introduction. 10th Edition*. New Jersey: Prentice Hall, 648 p.
- Krott, M., Suda, M., 2001: Befragung als Methode der Sozialforschung in der Forstwissenschaft. *J.D. Sauerlaender's Verlag, Frankfurt am Main*, 160 p.
- Lagaňa, R., Réh, R., 2008: Wood material flows currently present in the Slovak Republic. In the proceedings: Cost Action E44 Final Conference in Milan on A European wood processing strategy: Future resources matching products and innovations. *Ghent University*, p. 87–92.
- Lamnek, S., 1993a: *Qualitative Sozialforschung, Band 1: Methodologie. 2. ueberarb. Auflage*, Beltz, Psychologie Verlags Union, Weinheim, 308 p.
- Lamnek, S., 1993b: *Qualitative Sozialforschung, Band 2: Methoden und Techniken. 2. ueberarb. Auflage*, Beltz, Psychologie Verlags Union, Weinheim, 438 p.
- Lieskovský, M., Suchomel, J., Gejdoš, M., 2009: Energetický potenciál vybraných druhov disponibilnej biomasy lesa (The energy potential of selected types of forest biomass). *Technická Univerzita vo Zvolene. Vydavateľstvo TU Zvolen*, 73 p.
- Mayring, P., 2003: *Qualitative Inhaltsanalyse*. Beltz Verlag, Weinheim und Basel, 144 p.
- McCarthy, E.J., 1960: *Basic Marketing, a Managerial Approach*. Richard D. Irwin, Inc. Homewood, Ill. 770 p.
- Menegaki, A., 2012: A social marketing mix for renewable energy in Europe based on consumer stated preference surveys. *Renewable Energy* 39(1): 30–39.
- Novotný, J., 2011: Kam kráčaš slovenské lesníctvo? ... alebo, ako zabezpečiť funkčnosť lesníctva na Slovensku v dlhodobom horizonte? (Slovak forestry, where are you heading? ...

- or, how to secure the functionality of forestry in Slovakia in the long-term?). *Les & Letokruhy*. Bratislava: Lesmedium 67 (9–10): 6–10.
- Ok, K., 2001: Evolution of traditional product mix in forestry marketing. 55th Forest Product Society Annual Meeting Maryland, USA.
- Ok, K., 2005: Idea marketing in forestry: some implications from the Turkish forestry experience. *Journal for Forest Policy and Economics* 7(4): 493–500.
- Oravec, M., Bartko, M., Slamka, M., 2012: Postupy intenzifikácie produkcie drevnej biomasy na energetické využitie (Steps towards intensification of forest biomass production for energy use). *Národné lesnícke centrum, Zvolen*, 65 p.
- Ottman, J.A., Stafford, E.R., Hartman, C.L., 2010: Avoiding green marketing myopia: Ways to improve consumer appeal for environmentally preferable products. *Environment: Science and Policy for Sustainable Development* 48(5): 22–36.
- Pätäri, S., Puumalainen, K., Jantunen, A., Sandström, J., 2011: The interface of the energy and forest sectors – Potential players in the bioenergy business. *International Journal of Production Economics* 131(1): 322–332.
- Piest, E., 1999: Grundlagen für ein Marketingkonzept – Buchenstammholz: fuer die Niedersaechsische Landesforstverwaltung. PhD dissertation. Georg August Universitaet Goettingen, 173 p.
- Rafiq, M., Ahmed, P.K., 1995: Using the 7Ps as a generic marketing mix: an exploratory survey of UK and European marketing academics. *Marketing Intelligence and Planning* 13(9): 4–15.
- Rametsteiner, E., Hansen, E., Niskanen, A., 2006: Introduction to the special issue on innovation and entrepreneurship in the forest sector. *Forest Policy and Economics* 8 (7): 669–673.
- Reimann, M., Schilke, O., Thomas, J.S., 2010: Toward an understanding of industry commoditization: Its nature and role in evolving marketing competition. *International Journal of Research in Marketing* 27: 188–197.
- Rich, S.U., 1970: *Marketing of Forest Products: Text and Cases*. McGraw-Hill, Inc. New York, 712 p.
- Ruiz, J.A., Juárez, M.C., Morales, M.P., Munoz, P., Mendivil, M.A., 2013: Biomass logistics: Financial & environmental costs. Case study: 2 MW electrical power plants. *Biomass and Bioenergy* 56: 260–267.
- Sinclair, S. A., 1992: *Forest Products Marketing*. McGraw-Hill, Inc., 403 p.
- Schadendorf, C., 1994: *Strategisches Marketing im Forstbetrieb: ein Konzept für Nadelstammholz in der Landesforstverwaltung Schleswig-Holstein*. PhD dissertation. Universitaet für Bodenkultur Wien, 204 p.
- Schwarzbauer, P., Weinfurter, S., Stern, T., Koch, S., 2013: Economic crisis: Impacts on the forest-based sector and wood-based energy use in Austria. *Forest Policy and Economics* 27: 13–22.
- Shabani, N., Akhtari, S., Sowlati, T., 2013: Value chain optimization of forest biomass for bioenergy production: A review. *Renewable and Sustainable Energy Reviews* 23: 299–311.
- Slater, S.F., Narver, J.C., 1998: Customer-led and market-oriented: Let's not confuse the two. *Strategic Management Journal* 19(10): 1001–1006.
- Smith, B., Hansen, E., Olah, D., 2009: Personal selling for forests products industry. Virginia Cooperative Extension. Produced by Communications and Marketing, College of Agriculture and Life Sciences, Virginia Polytechnic Institute and State University. 12 p. Available: http://pubs.ext.vt.edu/420/420-146/420-146_pdf.pdf [Accessed 15 Juni 2013].
- Smith, B., Hansen, E., Olah, D., 2010: Marketing for wood products companies. Virginia Cooperative Extension. Produced by Communications and Marketing, College of Agriculture and Life Sciences, Virginia Polytechnic Institute and State University. 7 p. Available: http://pubs.ext.vt.edu/420/420-145/420-145_pdf.pdf [Accessed 15 Juni 2013].
- Solomon, M.R., 2008: *Marketing: Real People, Real Decisions*. Prentice Hall. 6th Edition, 640 p.
- Stidham, M., Simon-Brown, V., 2011: Stakeholder perspectives on converting forest biomass to energy in Oregon, USA. *Biomass and Bioenergy* 35(1): 203–213.
- Stupak, I., Asikainen, A., Jonsell, M., Karlton, E., Lunnan, A., Mizaraite, D., et al., 2007: Sustainable utilization of forest biomass for energy-possibilities and problems: policy, legislation, certification, and recommendations and guidelines in the Nordic, Baltic, and other European countries. *Biomass & Bioenergy* 31(10): 666–84.
- Suchomel, J., Gejdoš, M., 2009: Analýza vývoja cien vybraných sortimentov surového dreva a výrobkov z dreva (Analysis of price developments of selected solid wood assortments and products from wood). In the proceedings of the international scientific conference: *Financovanie 2009 Lesy-Drevo*, Zvolen, 14 p.
- Suchomel, J., Gejdoš, M., 2011: Vplyv náhodných ťažieb na lesníctvo Slovenska. Progresívne postupy spracovania náhodných ťažieb (The influence of accidental felling on Slovak forestry. Progressive practices for the processing of accidental felling). In the proceedings of the international scientific conference: *Financovanie 2011 Lesy – Drevo*, Zvolen, p. 7–22.
- Šulek, R., 2004: *Marketingové riadenie lesných podnikov (Marketing management of forest enterprises)*. Vedecké štúdie 5/2004/A. Technická Univerzita vo Zvolene, 59 p.
- Tadajewski, M., 2010: Eventualizing the marketing concept. *Journal of Marketing Management* 25 (1–2): 191–217.
- The European Commission, 30. January 2011: Communication from the Commission to the European Parliament and the Council. *Renewable Energy: Progressing towards the 2020 target*. Brussels, 31.01.2011. COM (2011) 31 final, 16 p. Available: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0031:FIN:EN:PDF> [Accessed 20 Juni 2013].
- The Ministry of Agriculture and Rural Development of the SR, 11 November 2008: *Akčný plán využívania biomasy na roky 2008–2013 (The action plan on biomass use for years 2008–2013)*. Available: <http://www.mpsr.sk/sk/index.php?sta>

rt&language=sk&navID=2&navID2=2&sID=26&id=1214 [Accessed 20 Juni 2013].

The Ministry of Agriculture and Rural Development of the SR, November 2012: Správa o lesnom hospodárstve v Slovenskej Republike za rok 2011: Zelená správa (Report on forest management of Slovak Republic for 2011: Green Report). Bratislava, 67 p.

Trenčiansky, M., Lieskovský, M., Oravec, M., 2007: Energetické zhodnotenie biomasy (Energy extraction from biomass). Národné lesnícke centrum, Zvolen 2007, 147 p.

Yin, R.K., 2003: Case Study Research. Design and Methods. SAGE Publications, California. 3rd Edition, 181 p.

Wagner, E.R., Hansen, E.N., 2004: A method for identifying and assessing key customer group needs. *Industrial Marketing Management* 33: 643–655.

Webster, Jr.F.E., 1988: The rediscovery of the marketing concept. *Business Horizons* 31(3): 29–39.

Webster, Jr.F.E., 1994: Executing the new marketing concept. *Marketing Management*, 3(1): 9–16.

Zeithaml, V.A., Bitner, M.J., Gremler, D., 2008: *Services Marketing*. McGraw-Hill/Irwin; 5th Edition, 736 p.

Interviewed forestry enterprises

Forest Enterprise Biomass Levice (OZ Odštepny závod Biomasa Levice). Available: <http://www.lesy.sk/files/sprava2012/vs-lesy-2012-web-sj.pdf> [Accessed 10 January 2013].

Forest Enterprise Kriváň (OZ Odštepny závod Kriváň). Available: <http://www.lesy.sk/showdoc.do?docid=223&id=18> [Accessed 10 January 2013].

Urban Forests Kremnica, Ltd. (Mestské Lesy Kremnica, s.r.o.). Available: <http://www.mslkca.sk/index.html> [Accessed 10 January 2013].

University Forest Enterprise in Zvolen (Vysokškolský lesnícky podnik Technickej Univerzity vo Zvolene). Available: http://www.tuzvo.sk/sk/organizacna_struktura/dalsie_organizacne_sucasti/vysokskolsky-lesnicko-podnik/o-nas/nova-web-stranka.html [Accessed 10 January 2013].

Authors' address:

Daniel Halaj, PhD.

e-mail: halaj@tuzvo.sk

Yvonne Brodrechtova, PhD.*

E-mail: brodrechtova@tuzvo.sk

Technical University in Zvolen

Faculty of Forestry

Department of Economics and Management of Forestry

T. G. Masaryka 24

96053 Zvolen

SLOVAKIA

* Corresponding author

Received: September 18, 2013

Accepted: December 09, 2013