A CASE STUDY OF A CROATIAN COMPANY'S INDEPENDENT TIMBER SOURCING

KARLO BELJAN

Faculty of Forestry and Wood Technology (University of Zagreb, Croatia)

INTRODUCTION

- The wood-processing industry is one of the important economic branches in Croatia,

- As many other processing businesses, it needs <u>input</u> resources,

- The dependence on the raw material is present and can be crucial in the circumstances of supply shortage and/or price incensement,

- The domestic wood-processing industry is mostly dependent on a raw material from state-owned forests.

PROBLEM MATTER

- The problem matter are the companies which are unable of making multi-year contracts,

- Those companies are being forced to buy timber on the domestic and international free market at higher price,

- To fulfil the independent approach company should own/lease a forest which can annually generate adequate quantities of timber,

- On the world scale, there are 48 companies that have already accomplished that goal, they own/lease about 31 million hectares and are listed on stock exchanges.

WHY THIS TOPIC IS IMPORTANT

- By 2050, global annual roundwood production is expected to increase by 1.1%/year (currently amounts 3.9 billion m^3),

- The global population increase and available land decrease due to climate change leads to land prices appreciating quicker than inflation,

- It is indicative that timber prices increase and supply shortages are likely to happen in the future.

AIM

- The aim of this paper is to investigate the modality by which selected wood-processing company in Croatia can ensure an independent timber source,

- Approach is based on the assumption that the company could purchase a forest property large enough to result in timber quantities sufficient for the company's processing capacities.
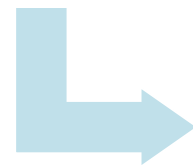
METHODS

Case-study Company
- Požgaj Ltd. timber consumption of 51,000 m³/year
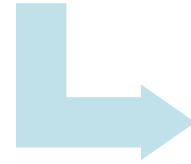
Forest resource
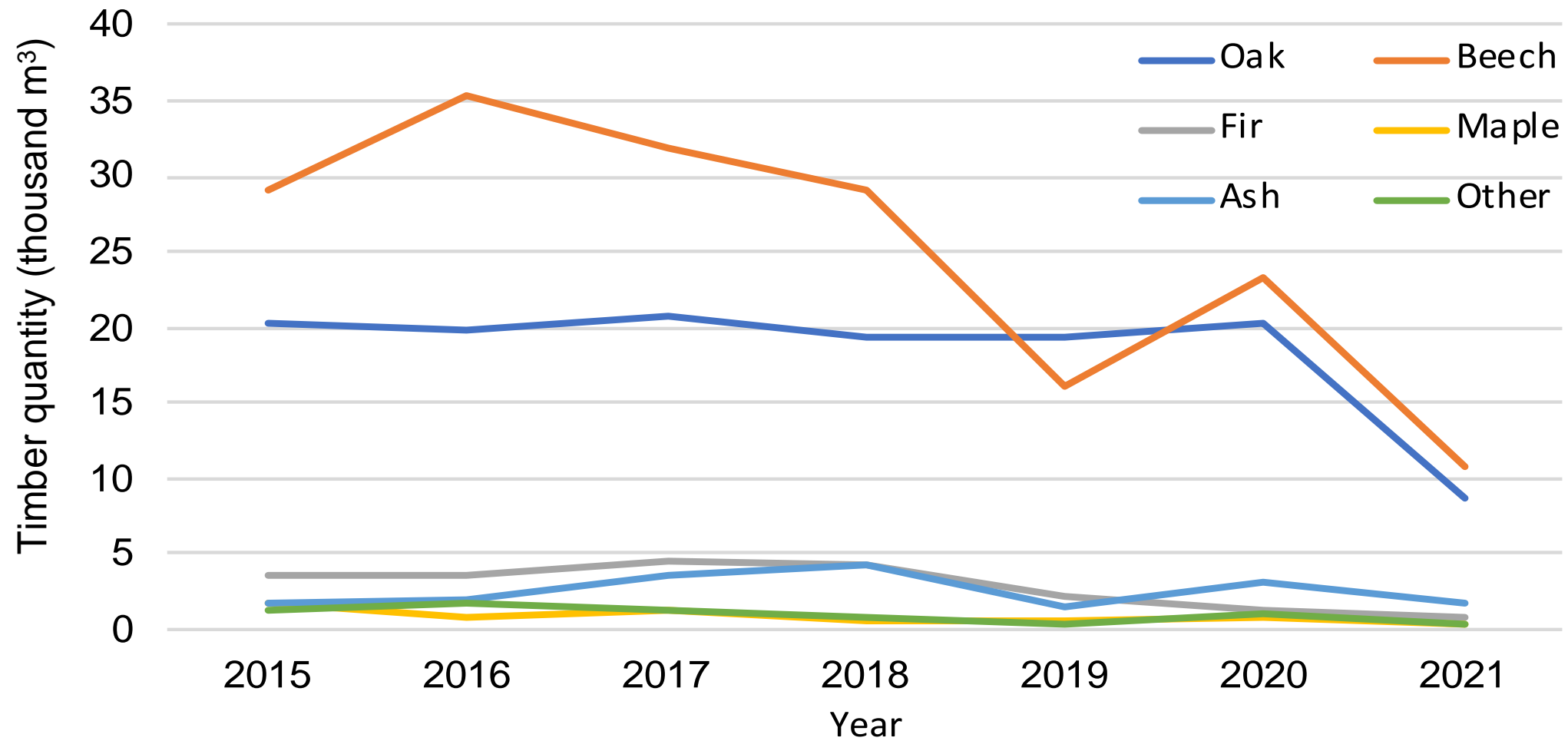- Private forests (available for purchase)

Forest dynamics simulation
- Extensive management

Comparison of timber quantities
- Supply vs. demand
- Per forest type
- Per wood assortments

Company's total timber consumption per tree species

Species	Volume of timber assortments in m³						
	Veneer 1st	Veneer 2st	Peeled veneer	Sawlogs 1st class	Sawlogs 2st class	Sawlogs 3st class	Total (m³)
Common Beech	2,690	-	4,140	6,970	6,800	5,610	26,310
Pedunculate Oak	1,530	1,970	-	2,940	2,500	3,080	11,980
Sessile Oak	670	1,290	-	2,200	1,660	1,770	7,790
Ash	220	-	-	390	370	610	1,910
Silver Fir	20	-	-	270	670	280	1,250
Fruit trees	30	-	50	60	60	90	290
OBS	230	-	350	410	390	640	2,010
Total (m³)	5,390	3,260	4,540	13,240	12,450	12,080	51,540

Referent annual quantity of timber consumed by the company

FOREST RESOURCES

- Privately-owned productive even-aged forests of
  - Common beech (6,650 ha),
  - Pedunculate oak forests (3,716 ha),
  - Beech-fir forests (7,377 ha),

- The starting data base contains:
  - Age-class distribution,
  - Volume stock,
  - Increment,
  - Tree species distribution,

- Data base is used for the calculation of the optimal forest area (property size) and its management simulation.

TWO MANAGEMENT SCENARIOS

- Simulating the forest management and its size were the most important criteria.

- In order to investigate the possible options, two scenarios were applied.

- **Scenario A:** primary goal is to maintain enough timber in its total quantity

- **Scenario B:** which investigates the option in which each timber assortment will be available in a sufficient quantity

Forest property and timber assortments		Scenario			
		A		B	
Property size	Pedunculate Oak forest	6,400 ha	Σ 18,600 ha	6,250 ha	Σ 22,550 ha
	Common Beech forest	10,700 ha		14,800 ha	
	Common Beech-Silver fir forest	1,500 ha		1,500 ha	
Timber assortments quantity differences	Common Beech		-7,090		-210
	Pedunculate Oak		50		-230
	Sessile Oak		700		3,840
	Ash		2,910		3,810
	Silver Fir		0		0
	Fruit trees		-30		70
	OBS**		3,420		3,300
Total difference (m³)			-40		10,570

Forest property size (upper part) and differences between company's needs and outcome of forest management (lower part)

RESULTS

- Since the forest growing stock is relatively low:

    322 m^3 ha^{-1} pedunculate oak forests,

    310 m^3 ha^{-1} common beech forests,

    252 m^3 ha^{-1} beech-fir forests

the forest property should be at least <u>18,000 hectares,</u>

- Based on the previous findings, the investment cost would be around 118 million euros,

- It is important to note that in Croatia there is <u>not enough</u> private forests of the investigated three forest types which could meet this company's requirements.

DISCUSSION

- The total sum of timber, which could be the outcome of this theoretical forest management, includes production of thin roundwood and firewood, which is not in the case-study company's focus but could insure a solid profit.

- By using just one part of the forest management outcome (timber just for wood-processing), the company would be at a disadvantage.

CONCLUSION

- Misbalance between the capacity of the wood-processing company and the production potential of forest resources.

- One of the possible options for overcoming supply shortage would be higher utilization level and development of an added-value-chain within the processing industry.

- Another possibility is to let the free market and the Smith's invisible hand solve the issue. That would definitely result in timber (raw material) price increment to the level at which an average wood-processing company would not be able to buy unrealistically huge quantities of timber

THANK YOU FOR YOUR ATTENTION

Karlo Beljan,   kbeljan@sumfak.hr