Handling of issues related to rape-seed and bio-diesel fuel by the Government

Estonian National Audit Office

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Audit focus

The NAOE audited the activities of government bodies aimed at

- increasing the share of bio-fuels in the consumption of vehicle fuels,
- cultivating rape plants needed for the production of bio-diesel fuel
- and promoting the local production of bio-fuels.

Objectives for the use of bio-fuels

- The indicative objectives for increasing the share of bio-fuels in European Union (EU):
  - 2 % in vehicle fuels by 2005
  - 5.75 % in vehicle fuels by 2010

- The EU objectives were set in local documents:
  - The Long-Term National Development Plan for Fuel and Energy Industry adopted in December 2004
  - and the Environmental Strategy adopted in October 2005

Measures and constraints

Measures

- Bio-fuels have an exemption from excise duty fee
- the EU standards for 5 % and 100 % bio-diesel fuel have been transposed

Constraints

- Many business operators believe that fuels with bio-additives may damage vehicle engines and fuel systems
- Consumers doubt whether fuel suppliers are able to ensure that the quality of bio-fuels conforms to the standards

Increasing the share of bio-fuels

- There is no considerable demand on Estonian market for bio-fuels for use in transport
- The goal to increase the share of bio-fuels in vehicle fuels to 2 % by 2005 was not achieved. The Ministry of Economic Affairs and Communications has failed to take effective measures to promote the use of bio-fuels in transport.
- The goal was not reached mainly because none of the ministries acquired responsibility for it.

Growing rape-seed

- Rape-seed (Canola) crops cover about 1/10 of all cultivated land
- Rape-seed yield is the lowest among the EU countries.
- No high-persistence varieties of winter rape-seed plants, which provide a high yield.
- Until now, rape-seeds have been used to produce mainly cooking oil and oilcakes suitable for animal feed. Also, crude oil has been exported.

The area and yield of rape plants in 2004

	Estonia	Latvia	Lithuania	Finland	Sweden	Germany
Winter rape plants area (ha)	–	15 100	24 200	–	37 500	1 267 200
yield (t/ha)	–	2,79	2,71	–	3,43	4,13
Summer rape plants area (ha)	50 400	39 200	76 400	2 100	36 700	16 200
yield (t/ha)	1,36	1,58	1,82	1,52	2,24	2,45
Total area (ha)	**50 400**	**54 300**	**100 600**	**2 100**	**74 200**	**1 283 400**
Total yield (t/ha)	**1,4**	**2,0**	**2,0**	**1,5**	**2,8**	**4,1**

Energy efficiency of bio-diesel

- The Ministry of Environment claimed that for producing 1 litre of bio-diesel from rape seeds, only 0,2 litre fossil fuels is used.
- Study to assess the reduction of fossil fuels use demonstrated that for producing 10 litre of bio-diesel 8,4-9,7 litres of fossil fuel was used.
- Production of bio-diesel from rapeseed grown in Estonia is energy efficient only when rapeseed yield is increased.

Energy efficiency of producing bio-fuel from rape plants grown in Estonia (converted to diesel fuel litres)

	rape-seed yield (1,2 t/ha)	**rape-seed yield (1,5 t/ha)**
Amount of diesel used for sowing, fertilizing, fighting with pests and harvesting (l/ha)	100	100
Amount of diesel used for drying and sorting the seeds (l/ha)	19,9	28,5
Amount of electricity used for drying and sorting the seeds (l/ha)	1,9	2,2
Amount of diesel used for producing fertilizers and pesticides (l/ha)	152,5	152,5
Amount of electricity used for producing fertilizers and pesticides (l/ha)	12,0	12,0
Amount of diesel used for transport (seeds, fertilizers, pesticides) (l/ha)	4,5	4,5
Amount of diesel for producing biodisel from seeds, (l/ha)	84,2	97,2
Total energy used for production of biodiesel (l/ha)	**375**	**396,9**
Produced biodiesel (l/ha)	**432**	**540**
Coefficient of energy efficiency	**1,15**	**1,36**

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- In 2004, a number of mistakes (excess stock, purchases over market price) were made in the management of the company, leading to a loss of EUR 2,68 million for the financial year 2004/2005.
- The Supervisory Board did not react quickly enough to the Management Board's plan to expand operations substantially and lost control over the latter’s activities. The company failed to become main bio-diesel producer in Estonia.
- The ministry sold the company as a result of the audit outcomes. The Supervisory Board and the Management Board did not have an agreement as to the vision and business plan of the company.

Lessons learned

- Challenge of combining 3 different focuses into one report
  - the final structure of the report was developed in the course of several discussions.
- Poor data and practically non-existing surveys
  - an external expert was invited to study the economic aspects of producing bio-diesel from rape-seed that has been grown in Estonia.
  - potential user organisations and vehicle importers were invited to discuss the aspects and possible hindrances of using bio-diesel in Estonia.
- The importance of communication
  - The outcomes of the audit, especially the issue of responsibility were discussed in all three ministries concerned. However, they all acknowledged the problems with achieving the goal, none of them admitted being responsible for reaching the target and two of them did not see the necessity for any governmental incentives for promoting the use of bio-fuels. The discussions became more productive as they progressed.

Thank You!