

Picture 26: Control system

Biogas plant – Romerike Biogassanlegg

The next stop during the study tour was the visit to biogas plant **Romerike Biogassanlegg** in Vormsud where Mrs. Cecilia Solvang Bjørnethun explained in detail the process of processing of biological waste from households, from which bio-gas is produced and supplied as fuel into city buses in Oslo.



Picture 27: Biogas station



Picture 28: Entrance hall of biogas station



Picture 29: Entrance hall of biogas station



Picture 30: Practical visit in biogas station



Picture 31: Input raw material biological waste



Picture 32: Waste separator



Picture 33: Bioreactor



Picture 34: Liquefied gas reservoir

Hydro power plant - Nordre Mangen Gaard including visit to farm

In the afternoon small hydropower plant **Nordre Mangen Gaard** in Aurskog-Holand was demonstrated to us, which serves for production of electricity. The produced electricity is used for heating the farm, located in the vicinity of the plant. For ensuring the thermal energy on the farm there are used heat pumps. The demonstration of the power plant was followed by the tour of the farm, which is dedicated to breeding horses.



Picture 35: Hydro power plant



Picture 36: Hydro power plant



Picture 37: Heat pump



Picture 38: Horse breeding farm



Picture 39: Horse breeding farm



Picture 40: Horse breeding farm

Thursday, 1.10.2015

Meeting and visit to forest utilisation company with focus on management and use the best available technology - Mathiesen Eidsvold Værk

Meetings conducted on Thursday were divided into two groups. The first group visited the company **Mathiesen Eidsvold Værk**, which is managing forests and agricultural land. The company manager Øystein Løvli, welcomed us.



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Projekt je financovaný z grantu Nórskeho kráľovstva prostredníctvom Nórskeho finančného mechanizmu.
 Spolufinancované zo štátneho rozpočtu Slovenskej republiky.

Picture 41: Presentation - Øystein Løvli

Picture 42: 41: Presentation - Øystein Løvli

Presentation of the company was focused on impacts affecting forest management, which consisting of logging planning, logging, plantation, forest cleaning and thinning the forest, the use of mechanization in forest work (logging machine, forwarder and trailer), survey forest, tree laser data.



Picture 43: 41: Presentation - Øystein Løvli



Picture 44: 41: Presentation - Øystein Løvli

Manager in details described the way of their management, information system, written documentation, the degree of mechanization. As the terrain, which is operated, is hilly, it allows them to use mechanisms and technology everywhere. Statistics on the number of trees are made through laser focus, which allows on area of 1 x 1 m focus 4 points. This allows them to obtain data on the number of trees, the width of the tree, tree height and thus obtain data on the volume of wood. In this way, they can determine exactly which crops are dedicated for logging and which are not. This service is being purchased.

The manager presentation showed a clear positive relationship with the forest, company management is set to think about the future, they pay attention to planting of new trees. The logging is carried out according to market conditions and according to demand. The state does not control the logging but can control if the planting of new trees is being done. In the frame work of its activities and the way management they do not forget to communicate with the public – the public is informed about the forest work and work site by information boards. In case of damage of hiking paths during logging, they are put into the original condition.



Picture 45: Growth of the tree - the tree age

The presentation was followed by demonstration of logging in forest – logging machine in operation, marking trees, working with information system, forwarder in operation.



Picture 46: Logging machine in operation



Picture 47: Logging machine in operation

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Picture 48: Logging machine in operation



Picture 49: Sorting and storing of wood



Picture 50: Sorting and storing of wood



Picture 51: Forwarder

Visit to timber / chipping logistic unit - Moelven Eidsvold Værk - Moelven Eidsvold Værk

From the city of Hurdal we moved to the city Moelv to the company **Moelven Eidsvold Værk** that owns sawmill equipment. Saw mill in Moelven is divided into two divisions - Timber & Wood. Main products are sawn timber and components.

The demonstration of individual centres of sawmill was guided by Mr. Nils Anton Hahre. During the demonstration of individual centres it was explained to us the way the organization works, the method of sorting, storage, packaging and shipping of wood products.



Picture 52: Entrance hall of sawmill



Picture 53: Processing of logs



Picture 54: Equipment of saw mill



Picture 55: Process control



Picture 56: Stock of products



Picture 57: Practical visit of saw mill