

Green Shoots in Estonia - The Centre for Ecological Engineering Tartu (CEET)



Report about a journey in Estonia from a Swiss (Western) perspective

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[CEET in short](#)

The sky above Tallinn was dull and grey when I approached its coast line from the Baltic Sea around noon of October 20, 2001. Strips of bright light were shimmering between the clouds above the skyline with its few prominent buildings. At that moment I didn't know that this first impression of Estonia was symbolic for my whole short journey in this so recently independent country.

The following few days I spent with people of the Centre for Ecological Engineering Tartu (CEET), standing for the dawning "new" Estonia. Similar to the strips of bright light, the skillful reports and remarks of CEET director Tõnu Mauring are signs of hope amidst the seemingly omnipresent overgrown grassland, the deteriorating farmhouses of the Estonian countryside. The first impression of a wildly romantic, open landscape soon turns out as a symbol for an agriculture literally lying fallow. "*Tragic but true*", the CEET people confirm, "*it seems to be cheaper for Estonians to import milk than producing it themselves*".

Figure 1:
The CEET building in Tartu.
On the photo: T.Mauring,
J.Heeb and M.Strandbeer
(from left to right)
Photo: R.Müller



Ecological Building and Wastewater Treatment

On my way to Tartu - the final destination of my journey - I encountered another "imported" product: natural colours. Their shine came from several palette samples, right out of a building under construction. Here - amidst a picturesque landscape on the seaside - a house is being built in the community of Viimsi that can be called an ecological showcase.

Ecological construction has been a focus topic for CEET for years, according to Mauring. And in a consequent way, as the house we visited can prove. CEET was active as consultant during the planning, together with the architect and the builder. The simple and beautiful building is constructed mainly with native timber. The plasterings are done with clay products which contain seed fibres of the Typha plant as additive. The walls are painted with natural colours by painter Jyri Kuusmann. Interesting detail: Jyri has spent some time in Switzerland as intern of Swiss painter Carlo Vangnier. The knowledge (on natural colours, the translator) gathered there he is using now as independent painter in his home country.

The wood heating and the Typha pond on the North side of the house are yet other elements of the ecological house. The pond is not only a decorative element. It also treats the domestic wastewater in a natural way. The importance of this seemingly plain detail becomes obvious when Tõnu Mauring says that 500 Estonian communities have no wastewater treatment at all. „*In Europe, 95% of the wastewater problems have been solved. In Estonia it is probably the other way round*“, says Mauring, underlining the importance of every, even small working wastewater treatment plant.

Figure 2: On one of his regular visits to rural Kõo, Tõnu Mauring inspects the first Estonian pilot Typha facility (size 1 hectare)
Photo: R.Müller



Knowledge transfer back and forth

Within CEET, about a third of time and energy are being spent in the area of wastewater treatment (the other two thirds on ecological building and ecological agriculture, respectively). Wastewater has been a focus topic since the very startup of the Centre. In the words of Johannes Heeb, Switzerland, who accompanied the founding of CEET: „*We recognized right away that Estonians had a problem in this area, and we had competences therein*“.

When Estonians were able to profit strongly from the knowledge provided by the Centre of Applied Ecology Schattweid (Switzerland) in the beginning, CEET has developed this knowledge to a point, where knowledge transfer runs the other way round: In November 2001 a Typha-facility was built in Geuensee, Switzerland, which serves both for stormwater retention and wastewater reuse: Stormwater from the combined sewer system of the community of Geuensee together with nutrient rich surface water from a stream is directed towards ponds where it is used for the production of Typha (Cattails).

Typha is very suitable for use in the building industry (as insulation material or as additive to clay plaster). During my visit in Estonia I've seen that proven several times. For example, the walls of the CEET building in Tartu are plastered with clay plaster. In CEET's meeting room, there is a shelf full of clay tiles and samples of natural colours. Tõnu Mauring, who has completed his PhD last fall, will be travelling to Switzerland at the end of next February for a workshop about Typha-plant operation and Typha manufacturing. Thus, the once invested Swiss Francs come back to its origin as know-how. In addition to that, a Geuensee type of Typha-facility is 10 times cheaper than a comparable counterpart in concrete.

Bringing (ecological) agriculture back on stage

Meritt Mikk, the main responsible for agriculture at CEET highlights other important features of Typha-facilities: „*In Switzerland they offer good opportunities for an extensive use of the land. In Estonia it is a chance to use the land at all.*“ For example, Meritt and her crew have worked out programs and guidelines for the Estonian Ministry of Agriculture. Estonian farmers who take part in these programs thus have a first chance to benefit from direct payments. This is a great incentive for them, since agriculture doesn't pay very well apart from that.

Walking through the wide ranges of weedgrown land in Estonia, I am thinking of the perfectly cleaned meadows of my home country. However, although there seem to be worlds between these two almost equally sized nations, making ones live as a Swiss

farmer isn't easy as well. If Typha could be established as raw material for the construction industry, it could become an interesting additional source of income even in Switzerland.

Low fines versus wastewater treatment

The Estonian Typha pilot facility in rural Kõo is currently still operated and managed by the CEET crew. The facility built for 300 people is being sampled all through its first winter. Hopes are high that good treatment results can be demonstrated, in order to convince the numerous sceptics in the country. Many of the about 850 sewage treatment plants in Estonia (mostly old Russian activated sludge facilities, many not working anymore) will have to be renovated in the years to come. However, many Estonian communities are already in debts to their limits and can't get new credits. So far, the fines communities had to pay for untreated wastewater discharge were so low that this option was by far more attractive – at least financially - than repairing or even operating the existing WWTP.

However, political signs are good for CEET and the environment: the fines for wastewater discharge will be raised drastically in 2002. A fine for illegal wastewater discharge higher than the operation costs of a WWTP should convince the population (even though it's not well off, economically) of the Typha system. The CEET crew is currently working out ideas how constructed wetlands could be promoted in the future.

For example, the company „serveco“ (founded by CEET members) wants to offer a whole wastewater service to communities: Construction and financing of WWTP, operation and maintenance against fee paid by the communities per cubic meter of wastewater. „By doing it this way, we have a guarantee that the facilities will be maintained in a good state – something that often wasn't the case with the old WWTP“, says Tõnu Mauring, looking back at the numerous „rusted down“ WWTP in Estonia. In the past, several WWTP were built with financial help from outside Estonia. However, it is sobering to see that some of them had to be shut down or could only be maintained badly because maintenance was too expensive by far.

„Here also, constructed wetlands are a viable alternative“, Mauring says. „Their maintenance is much cheaper than with their technical counterparts. Cost development is much less prone to surprises.“ „At the same time, Typha can be used for various purposes: e.g. for heating or as additive for clay bricks“, Mauring continues. „It is an ideal combination of wastewater treatment with ecological planning and construction, because the benefit can be obtained at multiple levels.“

Under the wide open sky of Estonia turning orange (on the evening when I traveled back to Tallinn on my last day) everybody seems to be convinced that all – communities, the state, the CEET team and the environment - should come out of this development as winners.

Knowledge transfer as basic capital

Today, more and more companies are starting to offer products in the area of ecological construction. Tõnu Mauring adds this as another positive development in his country. *„When a technology turns out as reasonable, automatically more people are starting to work with it“,* he says. The demand controls the supply, as everywhere. In this regard, CEET will have a great deal of work in the future concerning education and quality control. However, CEET wants to be cautious with the distribution of its knowledge. It is pleasing and may be even important for Estonia's future that not only Switzerland, but also Norway and Finland are already benefitting of Estonian know-how in this area. Estonia is trying very hard to become part of the EU and it wants to show that it has quite something to offer.

„For CEET it was probably a big chance that Estonia has been going through a period of rapid change“, says Johannes Heeb, looking back at the last ten years. *„In a period of change, and hoping that the whole nation might profit from it, a government is probably more willing to support young and growing institutions.“*

Ten years after independence I as a visitor from a Western country find it hard to imagine, that in the beginning of the 90s shops welcomed their customers with empty shelves. Today, shopping centers are just about everywhere, not lagging behind their Western European counterparts. Even the prices are almost on the same level, even though the average salary in Estonia is still much lower.

Nevertheless – the people responsible for CEET seem to have an optimistic attitude about the future. The economical and political situation has developed in a way that there's now not only a supply market, but also a demand market.

Looking at the immeasurable depth of the Estonian night sky at my departure, I wish that some of the many glittering stars may be stars of fortune for this growing young country.

in short: donations and credits. After the build-up phase – including ecological renovation of the CEET building in Tartu – the support money was used for concrete projects. Today, CEET is financed by paid mandates from Estonia and abroad. Thanks to a gratuitous renunciation of financial claims, the debts of CEET are now under 20'000 CHF (= about 14'000 US\$).

Areas of work: CEET's main goal is the development of sustainable technological concepts, e.g. the promotion of recycling systems and regenerative energies. CEET collaborators are focussing on: environmental consulting, - concepts, - research, - planning and - education, on wastewater treatment, ecological construction, landscape planning and development, and on ecological farming. CEET is e.g. administrating and coordinating the Estonian Society of Ecology and also publishes a journal. The Centre is also collaborating closely with Tartu University. Geography students are regularly participating in CEET projects.

People: Meritt Mikk (geographer) and Tõnu Muring (Agricultural engineer) are the main responsables for CEET. They build and rely on a team of collaborators: Airi Vetemaa; Marek Strandber (Chemist); Eva Linde (Administration); Argo Peepson (Landscape planner). In addition to that 10-20 people more work at CEET projects at times.

Spinoff company: Collaborators of CEET have founded „serveco“ in the year 2000, a company that offers services in wastewater treatment. „serveco“ has a German and a Swiss (seecon international) partner company.

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