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Y&E

ecological houses

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Editorial

I can imagine a huge and loud discussion about the ecological house definition. Ecological house, it is a broad space where different people focus on different aspects. For someone, energy saving is the crucial point, for somebody else materials used are the most important. Furthermore, aspect of space arrangement could be considered. And of course someone works on fusion of all that aspects. That is why we can find old traditional materials such as wood, clay and straw in an eco-building next to modern energy passive systems full of electronics.

The magazine wants to help you to orientate a bit in the labyrinth of approaches and technical solutions. It speaks about diverse sides of eco-housing and shows various examples. Moreover, you can read about social aspects of eco-housing. The question who, why, how and for whom repaired or built those houses stays essential. Ecological construction is a part of the sustainability movement so all „pillars" of sustainability – ecology, economy, society - should be considered.

Do not think that you will find all possibilities and examples in the magazine. Ecological building is one of the sphere that grows faster than we could imagine. In Czech Republic for example, the capacity of eco-architects is lower than the demands for constructions. Luckily, the new atelier of eco-houses was established at Technical University in Prague this year. But not only experts can build an eco-house. Thousands of people come every year to eco-building workshops all around Europe to learn techniques and then build by themselves.

Me as well, I had the ecological building experience last year. And it made me sure that ecological construction is a part of the necessary knowledge that helps us to live in peace and overcome upcoming „crise" period. Just because it makes us more autonomous and considerable. I hope that next pages will serve you as an inspiration for next research and projects. Maybe it will help you to build your own environmentally friendly house if necessary.
Have a pleasant reading.

Michal Ruman

Solar houses

According to experts, the costs of energy in form of fossil fuels will even continue to increase in the next decades. The deposit of oil and gas will get even smaller, worldwide.

To put the whole matter in a nutshell: it is necessary to change our attitudes towards the use of oil, gas and energy in our houses.

The best thing to save energy without needing to reduce one's living standard is to plan the house before building it and to decide for a solar house. For good reasons: the sun delivers approximately 80 times as much energy as the human race needs - without producing emissions and for free.

The concept behind the "solar house" is quite simple: a big-dimensioned installation on the southern side of the roof, that converts sunlight into warmness, and a solar-storage with a volume big enough to save the won solar-warmth for several weeks, are the base.

The cover, massive brick-walls made of perlite-filled Poroton-T8-bricks with perfect damping-property guarantee a comfortable living climate without any further insulation of the outer walls, but mainly for saving the heat inside the house.

In winter, it is possible to heat additionally with a wood-bur-ning fireplace insert but usually not more than 2-4 piled-metre of wood each year is necessary.

An example for a "solar-house": the yearly energy that is needed for the „Original Sonnenhaus Regensburg" (Pro Massivhaus) is 14,8 kWh/m² and therefore much less then needed for example for passive-houses.

Another advantage is that, different from passive-houses, no instruction to air the house automatically is necessary. This fact also reduces costs a lot (energy, buying, maintaining of the mentioned instruction).

Sebastian Niessen
Source: Pro Massivhaus

Basic information

What is the passive house?

The term passive house (Passivhaus in German) refers to the rigorous, voluntary, Passivhaus standard for energy use in buildings. It results in ultra-low energy buildings that require little energy for space heating or cooling.
The standard is not confined only to houses. Several office buildings, schools, kindergartens and a supermarket have also been constructed to the standard.
The first Passivhaus buildings were built in Darmstadt, Germany, in 1990, and occupied the following year. In September 1996 the Passivhaus-Institut was founded in Darmstadt to promote and control the standard. Since then, more than 6,000 Passivhaus buildings have been constructed in Europe, most of them in Germany and Austria, with others in various countries world-wide.

http://en.wikipedia.org/wiki/Passive_house

Environmental-friendly materials for building houses

Perfect material for whatever connected with building or restoring a house are domestic wood, certified bricks and clay products. Unfortunately, conventional materials often content contaminants like radon, which discharges radioactivity.

So in case you suspect for example badly gasketed cellars to have a high amount of radon or another harmful substance, let it be measured by a construction biologist.

For hard basement covering, bamboo or linoleum are possibilities.

Furthermore, good products are often labelled and these are the international labels that you can search for:

The EU Eco-Label, assigned in EU member states and all other European states. With the "Euro-Flower" products and services, which have less environmental effects compared to other products, are labelled. The criteria are developed by the European Labelling Board (EUEB). Publisher of the EU Eco-Label is the European Commission. Also some relevant products for building components can be awarded with the "Flower", including hard basement coverings, colours and varnishes for the indoor area and centrifuges.
(www.eco-label.com)

Nature Plus is an international organisation dedicated to sustainable building and living, with approimately 100 members in many European countries. Their main aim is sustainable development in the sector of building. Products they label are compatible with healthy living, with the environment, produced without wasting resources and good in use. The criteria have been developed in cooperation with independent experts, the economy and organisations dealing with consumer protection and environment. The products contain for example insulation materials or mortar.
(www.natureplus.org)

Solar Keymark is a label for solarthermic products ascertaining good quality for solar collectors and systems.
(www.solarkeymark.org)

Further national labels:
In Germany: Blauer Engel (www.blauer-engel.de)
In Sweden: Svanen (www.svanen.nu)
In Austria: Umweltzeichen (www.umweltzeichen.at), IBO-Pruefzeichen

Sebastian Niessen

Sustainable Hemp Building

Hemp (Cannabis Sativa L.) is a fibre and oil cultural plant that has been used for thousands of years for thousands of purposes. Next to ropes, canvas, paper, food, colours or medicine, hemp is as well a source for building materials. Presently, there are hundreds of articles, dozens of webpages and few books regarding hemp as a building material. There are also thousands of realisations in Europe and beyond it. Let's make short excursion to the hemp building universe.

History:

It is not easy to find the date when hemp was used as building material for the first time. The oldest prove that men have used hemp as a source of fibre comes from China and is more then 10 000 years old. Since that time, people have used hemp worldwide till the half of 20th Century when it was squeezed by cotton, wood, petroleum and synthetic pharmaceuticals and decreased in western countries.

From several funds we can prove that hemp stalks has been used for building hovels - their roofs (as type of thatch roof) and walls. Then hemp fibers have served for clay plaster mixtures. But the greatest success in building has had hemp shives (hurds) – the woody inner core of hemp stalk. Similarly to another chopped straws, it was mixed with soil rich in clay.

Later, shives and lime mixtures were used mostly for frame houses broadly built in Great Britain, France and Germany in Renaissance. After some time of „cement apostasy", locals found that it is the only material that should be used for restoration of those houses. Together with increasing demand for environmentally sound materials, it was a drive pulse for hemp building branch grow. Nowadays, there are more than ten enterprises just in France using hemp building materials. And the (transformed) traditional know-how travels around the globe, so we can find hemp houses and companies in Ireland, Germany, Canada or US. There are thousands of people around the World daily learning how to use hemp for insulating or building houses. Maybe, you want to know why…

Materials used:

For building, hemp stalk raw-materials are used. Hemp stalk can be more then 4 m high and 3 cm thick. It contains high level of cellulose fibres – up to 1/3 of extra solid bust fibres and 2/3 of woody shives with high absorption capacity.

Hemp fibre (tow) has been used for insulation. For its water resistance, it was broadly used as stuffing in sailboats construction and in plumbing. But thanks to its hollow section, it insulates heat and noise well too, so it can easily substitute mineral fibres or polystyrene for heat insulation.

Hemp shives have the biggest potential in ecological building constructions. They have similar structure to wood chips but are more absorbent and lighter. In Europe, shives are broadly used as animal (horse) bedding, garden substrate, in Czech Republic for heating too. It can be mixed with different types of materials in different proportions and used for construction, insulation, floor or plaster. It is mostly lime that is mixed with shives and water, gypsum and sand can be added. Thanks to content of silicium in shives, the mixture petrificates (get stoned), so retrieved material is very hard, but it keeps its insulating qualities.

Technical value:

Different schools of hemp building have risen in France and abroad. Some of them improve the texture of shives adding more silicium; some use it as the nature gives it to us. In Ireland the material is called „Hempcrete". I will use the name in broader sense regardless the technical details and geographical differences.

Hempcrete has several benefits comparing to other materials. It looks similar to cement but is significantly lighter, insect, water and fire resistant. Next to its insulating qualities, it breathes. This is essential for restoration of old frame houses. Once you use cement instead of hempcrete, the timber frame will grow rotten. But hempcrete has a lot to say to modern housing too. Michka reports: „The mix can be poured as a floor, or between sheets of plywood (which will be removed a few hours later) for walls. Here one material replaces several layers of conventional building materials: bricks or cement, vapor barrier, insulation, and plaster board. All that is needed, inside as well as outside, is a whitewash finish (with or without pigments added). Alternatively, for interior use, the look of the material can be preserved with a simple waxing or varnishing, which brings out the cork-like structure of the material." Thanks to that, building with hemp is not only healthy, but cheap as well. The price for the house can be the same as for conventional house of the same large!

Environmental benefits:

Hemp is an annual plant, which in 4 month gives us 4 times more material than wood does. So, we can let our forests grow and use hemp shives happily. For growing, it doesn't need any chemical treatment – neither herbicides neither pesticides are commonly used for hemp cultivation, organic manure or green fertilisers are welcome. Moreover, it keeps soil structure in good condition for next crops - weed, pests and heavy metals free.

In building, the worst impact has exploitation of minerals. In hemp houses we use lime instead of cement. And we use only 25 – 30 % of this valuable material, thanks to high volume of hurds. In cold climates, we can use additionally hemp fibre insulation instead of mineral or polystyrene one, to build our low-energy house. Building with hemp, we save our earth, our forests and our health too.

Czech experience with hemp building:

Although in Czech Republic we are slightly backward in hemp industry platoon, several groups and individuals are searching for new concepts and models for a long time. The first one who came in public with the idea of hemp building, is Petr Žáček from Podviní u Litoměřic in Northern Bohemia. The great inventor and experimenter, radical environmentalist, designed in 2000 a house made of hemp stalks quite similar to those of our ancestors. He decided to use dried raw hemp stalks bound to sheaf and benefit from its concave structure and high resistance. He combined the technique with nonconformal design: searching the best air circulation for passive house standard, his building looks more like Mongolian yurt than a Czech traditional house. Out of spite local bureaus, he has continued working for 8 years, mostly using his hands, building and breaking and building again, looking always for the best solution.

Next to this warrior, several groups have formed in different parts of Czech Republic looking for more „conformity" hempcrete technology. Hemp insulation and plasters were used already in several houses. French mixtures are available on the market. Presently, Konopa isgoing to be part of a bigger group composed of guys from Bohemicanna company who graduated in hempcrete use in workshop in Ireland, from university experts on clay houses, people from research institutes and other businessers.

Michal Ruman
Konopa o. s.

Quoted article by Michka is available online here: http://www.hempfood.com/IHA/iha01209.html
For more general information about hemp building look at:
www.hempbuilding.com – check the 1st International hemp building conference in June, Kenmare, Ireland; you can order Building with hemp book by Steve Allin
http://www.tree.org/agart.htm
http://www.hemp-guide.com/hemp-building-materials.html
About 1st Czech hemp house, you can read here: http://www.praguepost.com/articles/2006/01/25/house-of-hemp-breeds-controversy.php
Short movie about hemp building in France is available at You Tube:
http://fr.youtube.com/watch?v=8AzbtWzwK8A
General articles about French Isochanvre are here:
http://www.rainforestinfo.org.au/good_wood/hemp.htm
http://www.qub.ac.uk/arc/research/gbd/hempResearch.htm
Fiber hemp insulation is described here:
http://www.ecologicalbuildingsystems.com/products/thermohemp/
Different realisations you can visit here:
http://www.life.ca/nl/108/hemphouse.html http://www.iol.ie/~oldbuilders/oldbuilders/hemphouse/hemphouse.html
http://www.canada.com/victoriatimescolonist/news/story.html?id=752502e4-79d7-43ca-9c77-f5c87b7e4477&k=14884
http://www.telegraph.co.uk/earth/main.jhtml?xml=/earth/2007/07/03/eahemp103.xml
http://www.suffolkhousing.org/pages/hempage.html
http://www.cat.org.uk/news/news_release.tmpl?command=search&db=news.db&eqSKUdatarq=37260&home=0
http://stopthedrugwar.org/in_the_trenches/2008/mar/17/announcing_a_hemp_building_proje
http://www.lowimpact.org/course_outline_building_with_hemp.htm http://soundingcircle.com/newslog2.php/__show_article/_a000195-001089.htm
http://www.articlegarden.com/Article/Hemp-And-Building-Sustainable-Homes/78615

Tired of garbage? Build your house with it!

It is well-known that automobiles pollute our air and negatively impact our environment also in other ways. Besides pollution from the use of fossil fuels in cars, other waste is generated that may end up in landfills, such as old tires, which pose particular environment threats.

The reason disposing of used tires is so challenging is because tires are manufactured to be durable for safety reasons and so that they can withstand extreme environments. In 2003, approximately 290 million scrap tires were generated just in the United States according to the Environmental Protection Agency (EPA). Luckily a market has grown for the use of these scrap items. Nowadays, the majority of these tires are repurposed by being converted into ground rubber and recycled into products, used for fuel, or even being retread. Nearly 30 years ago, a visionary thought of another way to use these old tires – as building materials for new houses!

Michael Reynolds, an American from the state of New Mexico, designs and builds self-sufficient sustainable houses, which he calls "Earthships".

The major structural building component of the Earthship are recycled automobile tires filled with compacted earth to form a rammed earth brick encased in steel belted rubber. This brick and the resulting bearing walls form is virtually indestructible.

Other materials that are recycled to create these houses include aluminum cans and glass or plastic bottles. These 'little bricks' are used to build interior, non-structural walls.

The beverage containers create a cement-matrix that is very strong and very easy to build.

Another plus is that bottles can create beautiful colored walls, especially when the light shines through.

Besides the materials used to create Earthships, the houses continue to be environmentally friendly once they are built by producing their own electricity with a prepackaged photovoltaic/wind power system.

The energy generated is stored in batteries and supplied to electrical outlets. There is no need for a heating or air conditioning bill as Earthships maintain comfortable temperatures in any climate through engineering that allows the sun above to heat it and the ground below to cool it.

In addition, the buildings catch water from the sky (rain, snow). Nothing goes to waste in Earthships, including sewage. Indoor and outdoor treatment cells allow sewage to be used for watering plants and agriculture purposes.

To date, these Earth-friendly dwellings have been built in every U.S. state and several other countries, including Canada, Mexico, Bolivia, Japan, South Africa, France, Honduras and Belgium, with France claiming the first "official" residential Earthship in Europe in the small town of Ger in Normandy.

A 2008 documentary movie about some of Michael Reynold's worldwide projects refers to him as the "Garbage Warrior." What is this warrior (and his followers) fighting for? They are fighting to create homes that are self-sustaining natural machines that can be one with the earth – just one crazy but legitimate idea in the race against global warming.

Christin Puschauver

Basic information

What is the Earthship?

An Earthship refers to a passive solar home made of natural and recycled materials. Designed and marketed by Earthship Biotecture of Taos, NM, the homes are primarily constructed to work autonomous and are generally made of earth-filled tires, utilising thermal mass construction to naturally regulate indoor temperature. They also usually have their own special natural ventilation system. Earthships are a type of off-grid home, which minimizes their reliance on public utilities and fossil fuels. Earthships are built to utilize the available local resources, especially energy from the sun. Internal, non-load-bearing walls are often made of a "honey comb" of recycled cans joined by concrete and are referred to as tin can walls. The roof of an Earthship is heavily insulated - often with earth or adobe - for added energy efficiency.

http://en.wikipedia.org/wiki/Earthship

Environmental Friendly Buildings

"All design is goal-directed play. Only our question change. We no longer ask: 'How does it look?' or 'How does it work?' We are more interested now in the answer to: 'How does it relate?"

Victor Papanek
"The Green Imperative, Ecology and Ethics in Design and Architecture"

Some time ago, during the flight, I found myself amazed with an Earth top view. From my small window, thousands of steps far from the ground, I could get a clear picture of our 'human nature': spreading around in the beautiful mountain landscape, there were lots of house concentrations, what we call villages or cities, all connected by long and thin roads. In that moment, I felt my human dimension – such a small being who lives on a huge and powerful planet: Earth!

From that high point, I imagined I could easily separate that environmental view layer by layer: sun-sky-mountain, landscape-road-house-human. But is this disconnection between different natural elements possible to do, when we talk about our contemporary human environment? Can we continue looking only at the parts, instead of taking into account all the picture frame? Can we still keep on having an environmental approach that relies on such an 'impressionist' vision?

Environmental Friendly Building:

These days, there is no doubt that a man is not the center of the Earth system but only a single part of it. It is not difficult to understand that we are just a small part of the extraordinary natural environment. It is with this deep believe - that man should play his best role in order to inter-connect with its complex surrounding environment - that many architects, engineers and active environmentalists are developing, planning and constructing, all over the world, more and more 'Environmental Friendly Buildings'. So what does the word 'friendly' really mean when we relate it to an environmental view?

Basically, when we say that a building is environmental friendly, it means it was thought and built taking into account the natural conditions of a specific-place, getting indoor advantages from it. In a way, these conditions, which are always different from site to site, are connected with the local climate, the available materials and the traditional and technical site applications. They will influence and lead to the final building project, making it sustainable and related on its environmental context. In this sense, we could call it 'environmental friendly' because it becomes part of the local environment, connected without destroying it.

Normally, if these basic principles were followed, the building, and especially its inhabitants, would daily benefit from a nice ambiance given by the natural sunlight exposure and natural air ventilation as from a good sound isolation. When these requirements are accomplished by a simple and logical environmental help, we can consider it a Passive Building.

The Passive Building concept could easily be understood while looking at a traditional construction, where one can find a natural climate system directly related with the architecture. Besides the importance of using appropriate materials for a good isolation from the

exterior climat, in a traditional house we can easily adjust indoor temperature by a manual control of light exposure or just opening/closing a window or door. So simple as that. Instead of it, the new 'Intelligent Buildings' use a lot of artificial and complex informatics systems to control indoor temperatures, increasing the consume of electric energy, need periodic expensive maintenance, and at the end of its life cycle transforms into an informatics garbage. The question is what happens when the power goes down?

So the question would be asked: are non traditional buildings the real intelligent ones? Is not a building intelligent by relating within its natural and ecological environmental surrounding?

Building in a sustainable way: eco-technic applications

Brutlan Relatory said in the World Commission for the Developing and Environment in 1987 that "Sustainable development is the development which satisfy our present necessities without compromising or deny the possibility of future generations to satisfy their own necessities".

Today we frequently hear about new ecological and sustainable buildings, that come up with the development of innovative materials for the construction industry. In his book "Guide to the barefoot architect", architect Johan Van Legen tells us that there are few exact questions about sustainable eco-technic applications that an Ecological Building should answer.

Here goes some of them:

1. Will the 'new' building technique satisfy the basic requests of people, like shelter, food, health and education?
2. Will the building construction include local people and materials?
3. In the application of this technique do local people have self initiative and are they coordinated by a local person?
4. Is the technic simple and open to the creative participation of people?
5. Do the 'new' technic take into acount the traditional values of the community?
6. Does not the technic lead to the local material extintion or an envorinomental contamination?
7. Does the application of this technique improve building aspects and their environment context?

If we answer to these questions, we will easily reach the conclusion that to built an Ecological House we need more than a technical know-how.

We should seriously consider several different aspects, more than just its shaping design. Social and economic needs must be central component parts in all the process.

So, first of all, before we start thinking or planning a building, we should ask ourselves if it is really necessary to do it. Why we will built it? Whom is it for? Will it serve a community demands?

Once one gets these answers and confirm that there are explicit real social needs for this procedure, we step in to phase two: ok, shelter is required! Then we ask, how can it be made in a sustainable way? And what does it means a 'sustainable building'?

To some building specialists, like the Portuguese architect Souto de Moura, it does not make much sense to talk about 'sustainable architecture' since 'good quality' architecture (that responds to site specifics conditions, as sunlight exposure or natural control of indoors warming and cooling levels) would be characteristic that clearly would define a sustainable building architecture. To Souto de Moura, understanding the surrounding habitat provides the building by defining its needs, which could be the key of its architecture.

It is important to establish the relation between the building and its surrounding habitat on a natural way, this is to say, create a balance between the building and its environment. This could be made by simple actions that take advantages from weather conditions:

1. collecting the rain-water from the building roof on a reservatory; one can use this water supply to gardening or to 'drop out' our toilet organic dejections.
2. collecting sunlight energy with a photovoltaic collector, which will transform it on electric power to warm-up toilet and kitchen water.
3. using (fast-cleaning) dirty-waters from toilets for gardening.

Durability: working on time

While building an 'Environmental Friendly Building', as important as using (recyclable) local materials and increasing to the minimum a building impact, is the previewing the possibility of using it and re-using it with the time.

This question of its durability, is probably the principle issue if we really want to built in an ecological way. How long will the building live? How will be its maintenance? If we have this questions in mind, it is our responsible to use a type of building construction with materials that could, on one way, resist throughout a long time, on other way that would be possible to conserve and restore

(to re-use it or recycle it with the minimum effort). It is fundamental to think and plan our buildings, villages or cities. To think and plan for a long term, it is not just a small change but our human duty. Only this view, wider than my small airplane window, could connect us to our natural environment on a pacific way of living. Our future sustainable development starts in our daily activities.

Ricardo Pires

Basic information

Sustainable architecture, is a general term that describes environmentally-conscious design techniques in the field of architecture. Sustainable architecture is framed by the larger discussion of sustainability and the pressing economic and political issues of our world. In the broad context, sustainable architecture seeks to minimize the negative environmental impact of buildings by enhancing efficiency and moderation in the use of materials, energy, and development space.

http://en.wikipedia.org/wiki/Sustainable_architecture

Passive solar buildings aim to maintain interior thermal comfort throughout the sun's daily and annual cycles whilst reducing the requirement for active heating and cooling systems. Passive solar building design is one part of green building design, and does not include active systems such as mechanical ventilation or photovoltaics, nor does it include life cycle analysis.

http://en.wikipedia.org/wiki/Passive_solar_design

Xrobb l-Ghagin
A Sustainable development centre in the making

The Delimara peninsula on the south-eastern coast of Malta is the site for the launching of an unique project for the Maltese islands. It is set to be the home of the Xrobb l-Ghagin Nature Park and Sustainable Development Centre.

The purposes of the project are education, demonstration and research in sustainable environmental solutions, including renewable energy, water use and local biodiversity with the overall objective for increasing the use of renewable energy, wastewater management and safeguarding biodiversity. Nature Trust Malta is the manager of this project, as well as the Faculty of Engineering at the University of Malta as partners on the concept of sustainable development. The project is being financed by a grant from the Norwegian and EEA Funding Mechanisms.

The project of creating a Sustainable Development Centre will incorporate many concepts that are innovative for Malta and should serve to promote and inspire other similar projects of this kind in the country.

There are two main buildings at Xrobb l-Ghagin which were previously used by Deutsche Welle as a relay station to transmit information. These buildings will be restored and converted into a Sustainable Development Centre. The main building which occupies 1600 square meters will incorporate the visitors' centre, the renewable energy research centre, conference centre halls and the Turtle and Wildlife Rehabilitation Centres. The two storey building having a floor space of 200 square meters will be used to house a dormitory for thirty persons.

The Sustainable Development Centre will obtain its energy requirements mainly from renewable resources through the installation of two wind turbines and a photovoltaic system.

The abundance of sunshine throughout the whole year where the islands have approximately 5 to 6 hours of sunshine during winter and this number increasing to around 12 hours during summer makes the use of photovoltaic panels very suitable. There will be also the installation of solar water heaters to generate the required hot water for the shower facilities.

The photovoltaic system is sometimes confused with solar water heaters. A solar water heater works by absorbing the incoming solar radiation and converting it into heat. It consists of an absorber that absorbs a sun light and converts it into heat. The absorber is usually a flat plate with a small pipe for water running threw it. When the sun is shining, the absorber will heat up and transfer the heat to the water in the pipe. The water will then start to move up towards the small tank which is situated on top of the solar water heater. The people using such solar water heaters need only to turn on the tap to have hot water.

Due to the typical hot summers, the building is being restored with the concept to improve the natural ventilation within the building and to provide the required insulation to reduce the amount of heat loss during the winter and to keep the building as cool as possible during the hot summer months. These features have been given the due importance to reduce the energy requirements for the whole building.

Furthermore, in order to minimise the need for artificial lighting and thus saving electricity, there is the possibility of having solar pipes placed within the roof. A solar pipe is a tube that collects sun light and by means of reflection the light is spread to the rooms inside the building. In addition to the use of solar and wind energy, the centre will be equipped with a waste water treatment system. Such system will be used for the purification of wastewater generated by all buildings and the treated water will be re-used for both flushing purposes within the dormitory and also for irrigation purposes.

Malta is highly dependant on its power stations, both for the generation of electricity and for the production of water from its reverse osmosis which consume around 25% of the total power generated by the power stations. The by-products of the power generation are emission of carbon dioxide (CO_2), nitrogen oxides (NO_x) and sulphur-oxides (SO_x). Carbon dioxide is the principal greenhouse gas causing climate change. Climate change has several adverse effects, one being the rising of sea level which would have serious impacts on small islands like Malta. Nitrogen oxides form ground-level ozone which is detrimental to both health and nature while SO_x gives rise to acid rain. Acid rain accelerates the decay of buildings e.g. statues and cultural heritage sites.

By converting the old Deutsche Welle buildings into a Sustainable Development Centre, Nature Trust (Malta) will show practical examples how to reduce energy usage and use secondary water for both irrigation and flushing purposes. Nature Trust Malta will lead the way for others to take the plunge and implement suitable sustainable technologies in their own houses. They will incur initial higher costs but will eventually reduce water and electricity bills and contribute to the reduction of the usual adverse effects on the environment in the long run.

Orland Bonavia
(Project Co-ordinator)
Nermana Bulic
(EVS)

Wales Institite for Sustainable Education

The Centre for Alternative Technology (CAT) in Wales, UK, is constructing a new education centre named WISE (Wales Institute for Sustainable Education).

It will contain new seminar rooms, accommodation and a large lecture theatre. The aim is to enlarge the facilities available at the centre for running educational courses, including accepting more students onto an MSc in Advanced Environmental and Energy Studies and an MSc in Renewable Energy and the Built Environment. The centre will also be a venue for events and conferences. Funding for the project was received from a range of organisations and individuals including Objective 2 funding from the European Union, provided through the Welsh Assembly Government.

WISE is a novel approach to edu-cation, as the building is made from environmentally friendly technologies, and students will learn from the very building in which they are sitting. Building methods and materials promote low energy construction and low energy consumption once in use. The building includes installation of a new solar photovoltaic roof and new solar hot water panels. A separate project alongside the new building is upgrading CAT's energy systems has seen the installation of a new combined heat and power plant which will run on wood chip and will provide the extra capacity required by the centre's expansion.

CAT is researching the amount of energy used and carbon emissions produced to build this building, and plans to publish the results. The building is being constructed by a regular construction company, who is keen to learn about the new technologies – the idea is to show that eco-technologies and low impact building techniques are applicable to mainstream construction, either large or small scale.

Technologies used try to minimize both embodied energy created by production of the materials, and to produce a building that will be ultra-efficient in energy use once it is built. Techniques and methods include timber frame, hempcrete walls (a mix of hemp fibres and lime-based binder, sprayed into place), and rammed earth walls. Materials used were sourced as locally as possible and where possible limecrete was used instead of concrete, as concrete uses large amounts of energy in production.

The building will be completed by 2009. More information on the construction, photos, and project details can be found at: http://wise.cat.org.uk/wise/

Oleksii Marianenko
(EVS Volunteer at CAT)

Educational and Information Center for Sustainable Development Modern, Environmentaly Sound and Economically Efficient

The Center will be built in the village of Zdravkovets in the central part of Stara Planina Mountain. It will function as a hotel and restaurant, conference, training and educational centre, will be able to accommodate 68 guests and will offer environmentally sound innovations as well.

The project is developed by the Bulgarian NGO TIME Foundation using finances from the Europe Programme 2003 of the Delegation of the European Commission to Bulgaria as well as having the support of the United Nations Development Programme (UNDP). The implementation of the project requires wide support. Therefore, a Public Private Partnership (PPP) was established at the end of 2006 between TIME Foundation, Gabrovo Municipality and two private companies – Swedish Plena-Bulgaria and the US-based Lucid Design Group. This is the first PPP of its kind in the field of tourism and eco innovations in Bulgaria. Its uniqueness lies in the wide range of technologies used in its construction, giving it simultaneously modern, environmentally sound and economically efficient aspects. There are number of "eco innovations" in the building and the yard space design, including usage of natural construction materials, renewable energy sources and utilization of rainwater. Some of them are already available in Bulgaria: hot water solar collectors, geothermal pumps, wind turbine, residential wastewater treatment facility, etc. New and relatively unknown for the Bulgarian user are sun-pipes and the rainwater collection for irrigation and sanitary purposes.

The Center can be viewed at http://www.netharvest.org/eco-house/model/index_en.htm where people may also take a virtual tour around it and learn more about the project as well as the ecological innovations used in its construction.

Lili Deyanova

? Basic information

What is the greywater?

Greywater, also known as **sullage**, is non-industrial wastewater generated from domestic processes such as dish washing, laundry and bathing. Greywater comprises 50-80% of residential wastewater. Greywater comprises wastewater generated from all of the house's sanitation equipment exept for the toilets (water from toilets being blackwater). Greywater is distinct from blackwater in the amount and composition of its chemical and biological contaminants (from feces or toxic chemicals). Greywater gets its name from its cloudy appearance and from its status as being neither fresh, nor heavily polluted (blackwater). In recent years concerns over dwindling reserves of groundwater and overloaded or costly sewage treatment plants has generated much interest in the reuse or recycling of greywater, both domestically and for use in commercial irrigation. However, concerns over potential health and environmental risks means that many jurisdictions demand such intensive treatment systems for legal reuse of greywater that the commercial cost is higher than for fresh water. Despite these obstacles, greywater is often reused for irrigation, illegally or not. At present, the recycling of greywater is poorly understood compared with elimination.

http://en.wikipedia.org/wiki/Greywater

Positive example - Ludesch village centre

Ludesch, an Austrian municipality with 3300 inhabitants is situated in the federal state of Vorarlberg. The Ludesch people started to use environmental friendly measures from the 1990s on. This culminated in the construction of a new village centre.

Heating and cooling:

Waste heat from the kitchen is used for heating.

Solar thermal heating system: latent storage and use of thermal solar energy by panel on the roof.

Usage of the constant temperature of the groundwater for heating and cooling.

Energy usage/carbon emissions:

The Ludesch village centre was built to the passive house standard. It has an optimal energy profile and the lowest possible CO_2 emissions. During the construction phase, an effort was made to use materials that were produced with low energy use.

Sustainability:

The new building was constru-cted in accordance with the "Ecological Building Guide" of the Vorarlberger Umweltverband (environmental association). As a consequence, sustainability principles were applied to all aspects of the building.

White fir was used as the main material timber because it is extremely weatherproof, very compact and statically resilient. Another advantage of white fir is its local availability, which means that long transport distances and the associated CO_2 emissions are avoided.

Several types of environmental friendly insulation materials were used, including sheep's wool and hemp instead of mineral wool and cellulose instead of rockwool. PVC-free materials were used in underground works and resin-free concrete was also used.

This ambitious project also included sustainable energy production. Solar photovoltaic (PV) cells, which produce 16,000 kWh of electricity per year, were installed on the 350m² roof of the new Ludesch village centre.

Ventilation:

In the village centre there are five ventilation machines that provide temperature control for the whole building. They maintain a constant temperature in every room despite the different uses of the rooms. This was achieved by dividing the complex into four energy zones.

Ventilation of building interiors often leads to low air humidity, which can cause headaches, airway problems and a lack of concentration. Therefore, a self-acting air moistener is installed in the ventilation complex to supply all rooms with optimal humidity.

Finances:

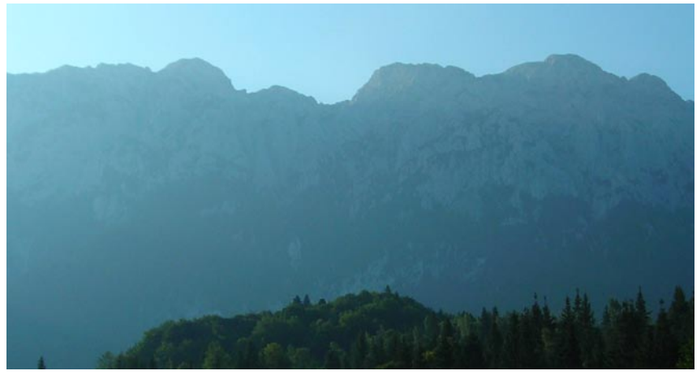
One target for the construction of the village centre was not to use more money for the ecological construction than what would be appropriate for a normal building. And indeed only 1.9 percent of the final costs are additional costs for the conversion of the "Ecological Guide".

Furthermore, the operating costs of the building were minimised by the special building design and the solar panel generates 11,000 Euro of revenue per year from the feed-in tariff.

Further information:

At the beginning of the project there were difficulties with the scepticism of the village citizens and craftsmen. Therefore all craftsmen where invited to an information event to check new methods and change their sceptical attitudes towards ri-gorous ecological construction.

The evening was very successful and as a result, the craftsmen were able to understand and meet the standards set in the "Ecological Guide".



If a similar project is being undertaken, it is recommended that such an information event is held for all participants because although the ecological problems associated with construction are well-known, how to undertake ecologically sound construction is not widely understood.

The citizens of Ludesch are no longer sceptical of the ecological construction of the village centre because of the unproblematic building process and the excellent facilities provided by the centre.

Contacts for more information:

Gebhart Bertsch,
g.bertsch@oekoberatung.at
www.energyglobe.at
www.hausderzukunft.at/results.html/id3569?active
Study tours are organised by the municipality of Ludesch.
Please contact Ms. Stefanie Kessler,
Tel.: +43 (0)5550 2221 208

See more positive examples at:

http://www.display-campaign.org/rubrique191.html

Basic information

What is the passive solar?

Passive solar technologies are means of using sunlight for useful energy without use of active mechanical systems (as contrasted to active solar). Such technologies convert sunlight into usable heat (water, air, thermal mass), cause air-movement for ventilating, or store heat for future use, with little use of other energy sources. A common example is a solarium on the equator-side of a building. Passive cooling is the use of the same design principles to reduce summer cooling requirements.

Technologies that use a significant amount of conventional energy to power pumps or fans are active solar technologies. Some passive systems use a small amount of conventional energy to control dampers, shutters, night insulation, and other devices that enhance solar energy collection, storage, use, and reduce undesirable heat transfer. Passive solar technologies include direct and indirect solar gain for space heating, solar water heating systems based on the thermosiphon, use of thermal mass and phase-change materials for slowing indoor air temperature swings, solar cookers, the solar chimney for enhancing natural ventilation, and earth sheltering.

http://en.wikipedia.org/wiki/Passive_solar

Finninsh Households switching on the green electricity

More and more households in Finland are changing to use the green electricity (also known as the green energy) instead of "traditional" ways of electricity production, such as the fossil fuels or the nuclear power, which are greatly burdening our environment.

Many Finnish electric companies are offering the choice for their clients to buy green electricity and a great number of private households and companies have taken the offer.

HOAS - the Foundation for the Student Housing in Helsinki Region is offering for its residents an opportunity to buy green electricity, giving in this way a possibility to the youth of living there a more sustainable lifestyle. Furthermore during recent years some environmental campaigns have grasped the subject and promoted the use of green electricity in the eyes of the public.

From where to what for?

Green energy is electricity produced by renewable energy resources like the sun, water, wind, biomass and the warmth of the air and earth. It is energy that is generated from sources that produce low amounts of pollution and that have relatively less environmental impacts. From the existing alternatives the renewable energy resources based energy production is the least injurious to the environment and behove the sustainable development. Its impacts to the environment are usually born only in the building and installation stage (except when burning biomass there are some emissions to the air but not green house gas emissions). In practise all electricity, no matter how it is produced, is the same for all the households because it is mixed in the electrical network. Nevertheless, buying green electricity the consumer has a chance to imprint of how big part of the electricity is produced from renewable energy resources.

The price of the fun

The comparisons conducted in Finland about the price of the green electricity compared to the price of the so called "normal electricity" show that green electricity is not much more expensive in the end. The price of course varies between different energy companies. Furthermore, the buyer of green electricity gets electricity as reliably as any other consumer belonging to the same network. The real conditions to increase the production of renewable energy create those people who are ready to pay a price that covers the building and installation expenses of these more sustainable energy production ways.

Any Big Brothers?

What then guarantees that by purchasing green electricity our money is really going to the production of more environmental-friendly energy? The concept of green energy is not standard

and some companies can for example advertise their electricity as "emissionless" meaning that it is produced for example from nuclear power, which can even mislead some people. In Finland the Finnish Association for Nature Conservation is giving an environmental label called as the "Norppasähkö" for the electricity produced from renewable resources with certain criteria and supervises its use with annual inspections. The Norppa label is the only independent Finnish green energy label. It guarantees that the electricity is really produced by renewable resources.

WWF and several green electricity labelling organisations have created the Eugene Green Energy Standard, under which national green electricity certification schemes can be accredited to ensure that the purchase of green energy leads to the provision of additional new green energy resources. There are several others green electricity products in the markets without control of any outside direction. By buying these products the consumer takes a risk.

For a private person switching on the green electricity is a huge environmental act that can reduce up to fourth of personal climate emissions. Still it is important to keep in mind that there is yet no way to produce energy that would be totally harmless to the environment so the best way to make your home more ecological is to start from

your own behaviour by saving energy.

Kristiina Baltzar

Sources from the Internet:
www.wikipedia.org
www.vaihdavirtaa.net
www.norppaenergia.fi
www.hoas.fi

Basic information

What is the green energy?

Green energy is a term used to describe sour-ces of energy that are considered to be environmentally friendly and non-polluting. These sources of energy may provide a remedy to the systemic effects of global warming and certain forms of pollution.
Green energy is commonly thought of in the context of electricity, heating and cogeneration. Consumers, businesses and organizations may purchase green energy in order to support further development, help reduce the environmental impacts of conventional electricity generation and increase their nation's energy independence.
Renewable energy certificates (Green certificates or green tags) have been one way for consumers and businesses to support green energy. Over 35 million homes in Europe and 1 million in the United States are purchasing such certificates.
Additionally, some governments have drafted specific definitions for green energy or similar terms which may be eligible for subsidies and support for related technologies.

http://en.wikipedia.org/wiki/Green_energy

Ecoengeneering-S houses in Bulgaria

Originally, Svetoslav Valchev started researching the possibilities of building an eco-house and finally designed the Ecoengineering-S Houses, because few years ago his wife started to wake up every morning with a horrible headache.

She went through a lot of medical examinations and eventually they discovered that in the wall of the panel building, 20 cm away from Mrs. Valcheva's head there was a radioactive stone. So, with a team of architects, Svetoslav Valchev created and developed the Ecoengineering-S Houses. They have pyramidal structure and their orientation is harmonized with that of the Sun and the planets. Additionally, the distribution of rooms meets the requirements for a good energy balance and ecologically clean materials are used in the construction as well. The Ecoengineering-S Houses have no equivalent in Bulgaria or in Europe. The eco-houses have been patented by Valchev in Bulgaria's Patent Department and have a license from The Worldwide Intellectual Property Organisation (WIPO) based in Geneva. So far, seven eco-houses have been built in various parts of Bulgaria. The engineer Svetoslav Valchev's strong desire to popularize the notion for better, healthier and closer-to-nature lifestyle eventually led to the idea of the construction of a small eco village Azareia, consisting of six eco-houses situated in Stara Planina Mountain, close to the town of Troyan.

Lili Deyanova

To save water

Do you know how many liters of water can a tap loose? About 5 or 10 liters every minute. For us, to make a simple gesture like to turn the tap on is something very usual, but this is a privilege that many people hasn't got. Today more than 1.500 millions of persons hasn't got drinking water and 2.400 millions (2/3 of the population of the Earth) cannot access to the cleaning of the water. This cause millions of deaths every year.

We must ever remember that our hydrographic resourses are becoming lower every year and the population of the Earth grows. The water is not an unlimited recourse, like many people can think. In many places of the world there are serious problems of desertification. That is why we should remember that today can be a raining day but we do not know if tomorrow will be the same. The question is simple: how we can help? And the answer is simple too: to save water.

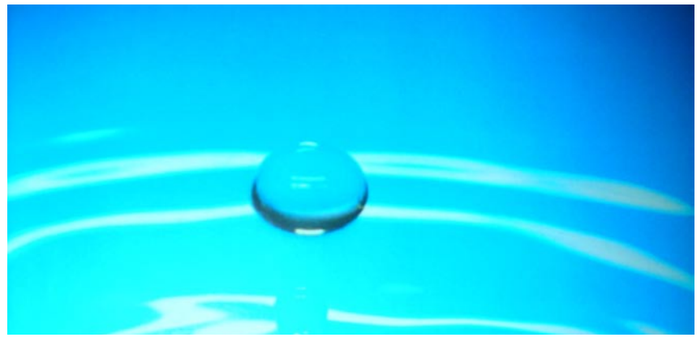
This list is presenting things that you can do to save and protect the quality of water.

In general:
- Consume less and save water; the most of the products need water to be produced so buy only the necessary ones.
- Put saving mechanism into the taps.
- Repair even the small loose of water in your tap. This loose can be 30 liters in one day.

In the bathroom:
- Take a shower instead of taking a bath; you can save 150 liters of water per day.
- Take shorter showers. Replace your shower head with an ultra-low-flow version.
- Install toilet cistern of six liters instead of eight liters, or put two bottles full of water into the cistern.
- Do not brush your teeth or shave with the tap on; you can save more than 10 liters.
- Never use the toilet to dispose cleansing tissues, cigarette butts or other trash. This wastesa great deal of water and also places an unnecessary load on the sewage treatment plant or septic tank.

In the kitchen:
- Washing the dishes with the tap on can bring a waste of 100 liters of water so first soap the dishes and later rinse them.
- Don not use the dishwasher if is not fully loaded.
- Do not use running water to unfreeze meat or other frozen food.

In the laundry:
- Do not use many blanch which break the bacterium ba-lance; use ecologic detergent without phosphate.
- Do not use the washing machine if is not fully loaded.



- Wash with cold water instead of warm water because this way you can as well save energy.

For outdoor use:
- Don not use the hose to wash your car, you waste 500 liters if you use this method; wash it with a bucket and a sponge - you will use only 50 liters.
- Water the plants in the morning or in the afternoon; if you do it in the hours of full sun a thirty percent of the water will evaporate.
- Choose indigenous flowers which are adapted to the environment of the region because you will expend less water and will not need to use a lot of chemical products.
- Do not use the hose to clean the walks and drive walks; use a broom.
- Use a moisture meter to check when house plants need water; more plants die from over-watering than from being dry.

Using this tips you can not only save water but also save money. Hopefully for some of you this list can be the motivation to protect the environment.

Alberto Mogio Perez

? Basic information

What is the composting toilet?

A composting toilet is any system that converts human waste into an organic compost and usable soil, through the natural breakdown of organic matter into its essential minerals. Micro and macro organisms do this over time, working through various stages of oxidation and sometimes localized pockets of anaerobic breakdown.
Many in the developed world find the idea of a composting toilet to be unappealing, perhaps due to the health and hygiene issues. Educating people about the safe use of composting toilets may be an important factor in their gaining acceptance in the developed world.

http://en.wikipedia.org/wiki/Composting_toilet

What is the sewage treatment?

Sewage treatment, or domestic wastewater treatment, is the process of removing contaminants from wastewater, both runoff (effluents) and domestic. It includes physical, chemical and biological processes to remove physical, chemical and biological contaminants. Its objective is to produce a waste stream (or treated effluent) and a solid waste or sludge suitable for discharge or reuse back into the environment. This material is often inadvertently contaminated with many toxic organic and inorganic compounds.

http://en.wikipedia.org/wiki/Sewage_treatment

Winter time energy saving tips

You can take some steps to reduce the amount of gas you are using. Here are some suggestions.

Five Action Steps to Cut Natural Gas Use:

Turn down your thermostat to 20 degrees. For every degree you lower your heat in the 16-degree to 21-degree range, you will save up to 5 percent on heating costs. Wear warm clothing like a sweater and set your thermostat to 20 degrees or lower during the day and evening, health permitting. Set the thermostat back to 13 degrees or off at night or when leaving home for an extended time saving 5-20 percent of your heating costs (heat pumps should only be set back two degrees to prevent unneeded use of backup strip heating).

Replace or clean furnace filters once a month. Dirty filters restrict airflow and increase energy use. Now is also the time for a furnace "tune-up". Keeping your furnace clean, lubricated and properly adjusted will reduce energy use. Savings up to 5 percent of heating costs.

Reduce hot water temperature. Set your water heater to the "normal" setting or 9,4º, unless the owner's manual for your dishwasher requires a higher setting. Savings are 7-11 percent of water heating costs. Insulate the first five feet of pipe coming out of the top of your water heater or the whole length until the pipe goes into the wall if that is less than five feet. Pipe insulation is available from your hardware store.

Seal up the leaks. Caulk leaks around windows and doors. Look for places where you have pipes, vents or electrical conduits that go through the wall, ceiling or floor. Check the bathroom, underneath the kitchen sink, pipes inside a closet, etc. If you find a gap at the point where the pipe or vents goes through the wall, seal it up. Caulk works best on small gaps. Your hardware store should have products to close the larger gaps.

Consider replacing your old gas appliances with an save energy system water heater or furnace. If your gas water heater is over 12 years old, consider replacing it with a newer, more efficient model. The best indicator of a water heater's efficiency is the Energy Factor (EF). The higher the EF, the more efficient the water heater. If your furnace is over 15 years old, consider replacing it with an newer ENERGY STAR rated model that is about 15 percent more efficient than standard models.

A Reminder to Keep Safe This Winter:

Do not resort to using a BBQ or camp stove for heat. Such equipment is designed to be used only outdoors and present significant safety hazards when used in any enclosed or partially enclosed setting. Besides the obvious fire hazard, they can produce high levels of carbon monoxide (CO). Remember that you cannot smell or see CO. If you start to feel sick, dizzy, or weak get to fresh air RIGHT AWAY. DO NOT DELAY. CO can rapidly lead to full incapacitation and death. If you experience serious symptoms, get medical attention immediately.

Fast & free

Cutting back unnecessary energy use is an easy way to keep your hard earned money in your pocket. Here are some suggestions you can do at home, at absolutely no cost to you.

Let the sunshine in. Open drapes and let the sun heat your home for free (get them closed again at sundown so they help insulate).

Rearrange your rooms. Move your furniture around so you are sitting near interior walls - exterior walls and older windows are likely to be drafty - do not sit in the draft. Keep it shut. Traditional fireplaces are an energy loser - it is best not to use them because they pull heated air out of the house and up the chimney with a piece of rigid insulation from the hardware store that fits snugly into the space (dampers don't shut fully without some leaking).

Eliminate wasted energy. Turn off lights in unoccupied rooms. Unplug that spare refrigerator in the garage if you don't truly need it - this seemingly convenient way to keep extra drinks cold adds 10-25 percent to your electric bill. Turn off kitchen and bath-ventilating fans after they've done their job - these fans can blow out a house-full of heated air if inadvertently left on. Keep your fireplace damper closed unless a fire is burning to prevent up to 8 percent of your furnace-heated air from going up the chimney.

Shorten showers. Simply reducing that lingering time by a few minutes can save hundreds of gallons of hot water per month for a family of four. Showers account for 2/3 of your water heating costs. Cutting your showers in half will reduce your water heating costs by 33 percent.

Use appliances efficiently. Do only full loads when using your dishwasher and clothes washer. Use the cold water setting on your clothes washer when you can. Using cold water reduces your washer's energy use by 75 percent. Be sure to clean your clothes dryer's lint trap after each use. Use the moisture-sensing automatic drying setting on your dryer if you have one.

Put your computer and monitor to sleep. Most computers come with the power management features turned off. On computers using Windows, open your power management software and set it so your computer goes to sleep if you're away from your machine for 5 to 15 minutes. Those who use Macintosh computers look for the setting in your Control Panels called "Energy Saver" and set it accordingly. When you're done using your computer, turn it off (see next tip). Do not leave it in sleep mode overnight as it is still drawing a small amount of power.

Plug "leaking energy" in electronics. Many new TVs, VCRs, chargers, computer peripherals and other electronics use electricity even when they are switched "off." Although these "standby losses" are only a few watts each, they add up to over 50 watts in a typical home that is consumed all the time. If possible, unplug electronic devices and chargers that have a block-shaped transformer on the plug when they are not in use. For computer scanners, printers and other devices that are plugged into a power strip, simply switch off the power strip after shutting down your computer. The best way to minimize these losses of electricity is to purchase energy saves products.

Inexpensive energy solutions:

Every home is different. With a quick trip to your local hardware store, you have even more choices at hand.

Choose save energy Products. Replace incandescent light bulbs with compact fluorescent

Basic information

What is the energy conservation?

Energy conservation is the practice of decreasing the quantity of energy used. It may be achieved through efficient energy use, in which case energy use is decreased while achieving a similar outcome, or by reduced consumption of energy services. Energy conservation may result in increase of financial capital, environmental value, national security, personal security, and human comfort. Individuals and organizations that are direct consumers of energy may want to conserve energy in order to reduce energy costs and promote economic security. Energy conservation is an important element of energy policy. Energy conservation reduces the energy consumption and energy demand. This reduces the rise in energy costs, and can reduce the need for new power plants, and energy imports. By reducing emissions, energy conservation is an important part of lessening climate change. Energy conservation facilitates the replacement of non-renewable resources with renewable energy. Energy conservation is often the most economical solution to energy shortages, and is a more environmentally benign alternative to increased energy production.

http://en.wikipedia.org/wiki/Energy_saving

lights use 75 percent less energy than incandescent lights.

Plug your home's leaks. Install weather-stripping or caulk leaky doors and windows and install gaskets behind outlet covers. Savings up to 10 percent on energy costs.

Install low flow showerheads. If you do not already have them, low flow showerheads and faucets can drastically cut your hot water expenses. Savings of 10-16 percent of water heating costs.

Wrap the hot water tank with jacket insulation. This is especially valuable for older water heaters with little internal insulation. Be sure to leave the air intake vent uncovered when insulating a gas water heater. Savings up to 10 percent on water heating costs.

Good energy-saving investments:

Do you need any new appliances, or are you planning to do some remodeling? Consider these energy efficiency suggestions before you purchase.

Install a programmable thermostat. If you have a heat pump, select a model designed for heat pumps. Setback thermostats can save up to 15 percent on energy costs.

Increase ceiling insulation. If your ceiling is uninsulated or scantily insulated, consider increasing your insulation to up to R-38 to reduce heating costs by 5-25 percent.

Seal ducts. Leaking ductwork accounts for more than 25 per- cent of heating costs in an average California home. Consider hiring a contractor to test the tightness of your ducts and repair leaks and restrictions in your duct. Many utilities have programs to assist you.

High efficiency windows. If you are planning to replace your windows, choosing windows can reduce your heating and cooling costs by up to 15 percent.

Source: EEB

Basic information

What is the efficient energy use?

Efficient energy use, sometimes simply called energy efficiency, is using less energy to provide the same level of energy service. An example would be insulating a home to use less heating and cooling energy to achieve the same temperature. Another example would be installing fluorescent lights and/or skylights instead of incandescent lights to attain the same level of illumination. Efficient energy use is achieved primarily by means of a more efficient technology or process rather than by changes in individual behaviour.

Energy efficient buildings, industrial processes and transportation could reduce the world's energy needs in 2050 by one third, and be crucial in controlling global emissions of greenhouse gases, according to the International Energy Agency.
Energy efficiency and renewable energy are said to be the "twin pillars" of sustainable energy policy.

http://en.wikipedia.org/wiki/Efficient_energy_use

Conclusion

Eco-house is not just a building, it is as well our behaviour, the way how it was constructed and how it 'breaths' with surrounding nature.

Crucially, it is connected with an energy consumption – already during materials' production and later when the house is used.

You can see some more examples of house-energy connection in Sunny Campaign Postcard Book published at the end of September. And what is sure, housing offers a large space to decrease greenhouse-gas emissions. Probably it will be the theme for Poznan 2008 and Copenhagen 2009 Climate negotiations.

This topic is connected with pollution, deforestation, water and health problems. The house could be the way of our collaboration with nature, projection of our individual culture. And it could be the way of education – the kingdom where we can live sustainably and show it to others. Like the youth hostel that YEE is planning to build.

The magazine shows some ways to make our houses and ourselves self-sufficient and independent from imported and harmful resources. Briefly it is based on use of local recycled and natural, renewable materials, good (supra)insulation, renewable energy mix (solar panels together with biomass, water pump and PVs, small wa-ter or wind turbine), water and waste recuperation and, last but not least, habits that minimise our consumption (like growing our food).

I have an impression that in this frame we can live well, in comfort and shelter. Without environment destruction.

Michal Ruman

ECO-CENTRE IN MOBODARNE, SWEDEN

– built from recycled materials

The Eco-centre in Mobodarne is run by a non-profi t organisation, Växhuset. Växhuset is also the name of the place that comprises a conference centre, a permaculture garden and guest house. The use of reused material is important in this building: the insulation, for example, is made from recycled and ground newspaper; the surface treatment is done with linseed oil, soft soap and silt colour. Wood, sun and earth heat the building. Part of the electricity is supplied by 12-volt PV panels.

For more information check: http://www.vaxhuset.se/

Ecological houses presented in the Postcard Book

SUNNY HOUSE, CZECH REPUBLIC

– self-sufficient thanks to solar panels and biomass

Sheltered Home (Domov sociálních služeb) in Slatiňany has been offering its services since 1926 where currently over 300 disabled people reside. In 1994 the governing body decided to cover the largest possible amount of used energy by renewable resourses. After two years, there was a pilot project realized by using solar energy with long-term accumulation that was supported by the state. The heating system of one of the buildings – called Sunny House (Sluneční dům) – is provided by a boiler/melting pot for biomass and roof-top solar collectors which heat up the water during summer and autumn, or the energy is accumulated in the above-ground storage tank (in total 1 103 m3 of water). To cover the needs of warm water and warmth for heating, the house is practically self-sufficient. The building was awarded many prizes for the use of renewable resources and was one of the first large buildings in Central Europe that started to use alternative energy on such a scale.

Domov sociálních služeb Slatiňany, Czech Republic
http://www.dss.cz/

YEE member organisations list for 2008

Federation of Youth Clubs Armenia FYCA	Shirak Street 6-30, 378414 Yeghvard	Armenia	www.youthclubs.am
Sissian development center	27 Sissakan, 379 8010 Sissian	Armenia	
Stepanavan Youth center	Charents st. 137, 377320 Stepanavan	Armenia	www.stepanavanyouthcenter.org/
Active Young citizenship initiative	Baghramyan, 4 line, house 30, 0033 Yerevan	Armenia	
Association for Sustainable Human Development	33 Khanjyan st., apt.18, 0010 Yerevan	Armenia	http://users.freenet.am/~ashd
ÖNJ - Österreichische Naturschutzjugend	Pater-Stefan-Str. 7, 5061 Elsbethen	Austria	www.oenj.at
JNM - Jeugdbond voor Natuur- en Milieustudie	Kortrijksepoortstraat 192, 9000 Gent	Belgium	www.jnm.nl
Natuur 2000	Bervoetsstraat 33, B-2000 Antwerpen	Belgium	www.natuur2000.be
Jeunes et Nature	BP 91 B-1300 Wawre	Belgium	www.jeunesetnature.be
Ecosouthwest	P.O. Box 29 2700 Blagoevgrad	Bulgaria	http://ecosw.dir.bg
YEO Rhodope	Tourist Information Centre, 4710 Shiroka Luka	Bulgaria	www.rhodope.net
Eco Club Yetti	University of Mining and Geology, 1100 Sofia	Bulgaria	
Hnuti Brontosaurius	Hvězdová 10, 602 00 Brno	Czech Republic	
Konopa	Chvaleč 236, 542 11 Chvaleč	Czech Republic	www.konopa.cz
Ekolyceum	Stara Silnice 76, 74707 Opava	Czech Republic	www.ekolyceum.wz.cz
Natur og Ungdom	Klostermrllevej 48A, DK-8660 Skanderborg	Denmark	www.natur-og-ungdom.dk
Luonto Litto	Annankatu 26 A, 5.KRS. 00100 Helsinki	Finland	www.luontoliitto.fi
GYEM - Georgia Youth EcoMovement	4.Khetagurov Str. App 7, 0102 Tbilisi	Georgia	http://saemtbilisi.mail333.com/en/
Alliance For Society Advancement (ASA)	3mk, 5 kv, bl-24a, Apt-2., 380097 Tbilisi	Georgia	
Studio Re	Aleksidze street, Institute of Geophysics, 0193 Tbilisi	Georgia	www.studiore.org.ge
Bundjugend	Am Kollnischen Park 1a, 10179 Berlin	Germany	www.bundjugend.de
DJN - Deutscher Jugendbund fur Naturbeobachtung	Geiststraße 2, 37073 Göttingen	Germany	www.naturbeobachtung.de
Naturschutzjugend NAJU	NAJU-Headquarter Herbert-Rabius-Str. 26 D-53225 Bonn	Germany	www.naju.de
Naturschutzjugend im LBV	Postfach 1380, 91157 Hilpoltstein	Germany	www.naju-bayern.de
FTK: Club of Young Naturalists	Ludovika ter 6, H-1083 Budapest	Hungary	http://www.ftk.tar.hu/
ECO-Unesco	26 Clare St., Dublin 2	Ireland	www.ecounesco.ie
Green Future	House of creativity Vilties 16, LT- 31121, Visaginas	Lithuania	
VNPS Vilnius Nat. Prot. Society	Pylimo 15/2, Vilnius 2001	Lithuania	
DEM	ul. Vasil Gjorgov 39, b 6, 91000 Skopje	Macedonia	http://www.dem.org.mk/
Nature Trust Malta NTM	P.O. Box 9, VLT 1000	Malta	info@naturetrustmalta.org
Organizacja Mkdodziezowa Ligi Ochrony Przyrody	ul. Tamka 37/2, 00-355 Warsaw	Poland	http://www.lop.org.pl/
Oddzial Akademicki Polskiego Towarzystwa Turystyczno-Krajoznawczego w Krakowie (OA PTTK)	Radziwillowska 21/4, 31026, Krakow	Poland	http://oakrakow.pttk.pl
GAIA	Travessa da Nazaré, 21, 2º 1100-368 Lisboa	Portugal	www.gaia.org.pt
Ecological Mountain Foundation	7th M.Eminescu street RO, 5600 Pietra Neamt	Romania	
Eco Terra	Str. Cetatatea de Balta 116, Bl.8, Ap. 17, 060954 Bucharest	Romania	
LUGA Environmental Organisation	Volodarskogo, 5/1-83, Leningradskaya Oblast Luga 118230	Russia	
EYC Environmental Youth Club	Leninskie gori 119991 Moscow	Russia	
Civil initiative	Uritskogo str., 25 188350 Gatchina (Leningradskaya oblast)	Russia	
Young Researchers of Serbia	Bulevar Umetnosti 27, 11070 Novi Beograd	Serbia	www.mis.org.yu
Zveze Za Technico Kulturo Slovenije	Lepi pot 6 SI-1000, Ljubljana	Slovenia	http://www.zotks.si/portal/
Asociación Ambiental y Cultural Oro Verde	C/Grande, nº 2, 24273, Las Omañas, Leon	Spain	http://groups.msn.com/oroverdeleon
Fältbiologerna	Brunnsgatan 62, SE 802 52 Gävle	Sweden	www.faltbiologerna.se
For the Earth!	14 Naberjnaya Street, 734003 Dushanbe	Tajikistan	www.seu.ru/members/fe
Arkadas	Ilhan Akgün C. 12/C, TR 33960 Silifke	Turkey	
GSM	Bayindir Sokak 45/9, 06650 Kizilay / Ankara	Turkey	www.gsm-youth.org
METU Nature club	Middle East Technical University, 06531 Ankara	Turkey	http://metu.edu.tr
Look at East	2 Pound Place, SY23 1LX Aberystwyth	U.K.	www.lookeast.org.uk
Youth Environmental League of Prydnyprovya (MELP)	kim. 175, bud. 6, vul. Moskovska 49000 Dnipropetrovsk	Ukraine	www.melp.dp.ua

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