

Hidden Messages in the Sociomateria

Design for Cooperation and Sustainability in Two Ecovillages in Sweden

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This article discusses how the design of the site, the architecture and the technology support these goals. In this analysis the concept of “sociomateria” has proved useful. It means physical objects, such as buildings and technical equipment, that carries social meanings and expectations. The sociomateria can be interpreted and analysed. The article shows that so called “ecological” design, intended to save energy and natural resources, sometimes contradicts design for social goals, such as social contact and cooperation between neighbours. In both cases the delicate balance between the private and common spheres in the areas is affected. The technology used in two such villages was evidently designed mainly to function from a biological point of view without taking either the mana-

An “ecovillage” is a housing area built and planned to be healthier, less wasteful and less destructive for the environment than other areas.

Important goals for ecovillages are also social contact and cooperation among the inhabitants.

gement or the social aspects into consideration.

The article is based on a study of two ecovillages in southern Sweden.

Sociomateria

The built environment is not just a neutral phenomenon but carries social meanings and prescriptions for use. Physical objects, that in one way

or another have become affected by human activities, and thus tells about human expectations and intentions, have been called “sociomateria” (Østerberg, 1985; 1990). Most objects, i. e. buildings, outdoor arrangements and machinery, that surround the inhabitants in the ecovillages are in this sense possible to interpret. This interpretation can provide an understanding of qualities other than those that are immediately visible, such as shape, colour, and weight. The objects give information about social and cultural facts, “traces from the past and indications for the future” (Werne, 1987).

Political scientist Svante Beckman (1992) uses the same perspective to show why making people change their lifestyle towards more concern for the environment is so difficult.

When new houses from the start are equipped for a wasteful, energy-consuming and destructive lifestyle, how could people carry out anything else, he asks. Such examples as the TV-plug for ten TV-channels, the garage, and the bathtub with its hot water tap illustrate his statement.

Most ecovillages have big parking areas close to the entrance. They tell visitors that even if the collective transport system is good, it does not in reality replace the private car for those who work in town and live in the countryside. The rural impression of the buildings and streets indicates a simple lifestyle in close contact with nature, but the sometimes highly complicated equipment used for heating and ventilation contradicts it. A paradoxical example is that of the ecovillage Myrstacken, where the compost toilet system and the wooden fireplace – strong symbols for the ecological lifestyle – are both based on electricity, which means that they do not function during power cuts.

A certain type of behaviour may be supported, not only by the equipment and installations in the environment, but also by the mere organisation of space and buildings. The social pattern of a society expresses itself directly in architecture, Hillier and Hanson state (Hillier & Hanson, 1984). By giving shape and form to our material world, architecture structures the system of space in which people live and move. The location of buildings and yards, the placing of entrances, gardens and squares, and the street pattern itself give the physical setting for movements and encounters, i. e. for important aspects of social life.

Tom Johansen describes the common tools found in a home in a similar way. A spoon or a fork, seemingly just practical equipment to simplify eating, embodies social rules and etiquettes. “The tool is a materialized expression of the expected use” (Andersen et al, 1985).

Architecture, machinery and tools tell about how to manage and use them, when, how, and by whom. What then is the message from the sociomaterialia in the two ecovillages? And how do the inhabitants respond?

Cooperation

Two types of goals are found behind the ecovillages. One type is what is generally and vaguely called “ecological goals” and another is “social goals”. The first aims towards a sustainable environment. This involves sound materials, energy-saving constructions and recycling.

The social goals include the promotion of sustainable behaviour and support of social contact and interaction among inhabitants. A basic idea in this is cooperation. The environment should be taken care of, common decisions must be made and common duties must be carried out. The inhabitants must adopt common norms and behaviour. In both areas studied, the inhabitants have common responsibility for certain arrangements, such as gardening the outdoor areas and taking care of the cultivation and the compost. They are also responsible for cleaning and administrating the common house, which contains a meeting room, hobby rooms and other utilities.

For the common management of the village, the size of the group is im-

portant. The group should not be too big. People must have a chance to know each other and to discuss common issues, but it must be big enough to manage the common work. In cohousing projects 20–50 households are recommended (Berg et al, 1982). Cooperation is supported by informal social networks, i.e. simple, unpretentious daily contacts that take place and develop in well functioning residential areas. These contacts form the basis for neighbourly social interaction and cooperation. Informal networks among the inhabitants in a village might in fact give the most important basis for a sustainable lifestyle (Hornborg, 1994; Scott Geller in Sjöden, 1992). If these networks are absent, there is little chance of common ecological measures succeeding.

Thus, the question of whether or not the design of the common outdoor areas support the development of informal networks becomes crucial. What possibilities are given for the inhabitants to meet? How are the entrances and the gardens arranged? How are the pathways organized? Does the street network unite people or separate them? And where are the common facilities, i.e. the community centre, the compost and the plantation?

The existence and character of informal networks are intimately tied with the question of private and common realms. In an ecovillage the balance between private and common responsibility, as well as between the private and common areas, is fragile. The private sphere must not be threatened. Earlier studies of areas based on cooperation and collective living indicate that the common life func-

tions better if the possibility of privacy is not limited (Hayden, 1979; McCamant & Durrett, 1989; Palm Lindén, 1992). In the ecovillages, most activities belonging to the private sphere are based on individual activities inside the home. However, part of these activities take place in the common, outdoor sphere, such as emptying the compost toilet and handling the firewood. This might affect the social relations among the inhabitants.

Private and common realms and responsibilities are expressed in the layout of outdoor arrangements as well as in the design of the technology. What does the sociomateria say about the balance between private and common?

Two ecovillages: Solbyn and Myrstacken

Solbyn, built in 1987, was one of the first so-called ecovillages in Sweden. Myrstacken was finished in 1992. Both are situated 10–20 km from the towns in which most of their inhabitants are working. The houses were produced by the same cooperative building association and designed by the same architect. Solbyn was initiated by the inhabitants themselves, while Myrstacken was initiated by politicians and the building association.

Solbyn has 50 houses and Myrstacken has 37. The size in itself provides a good basis for the inhabitants own management of the area, which is done through common decisions and practical work in permanent working groups and in temporary teams, and also on common working-weekends every spring and autumn.

The two areas differ in the use of energy-saving technology and arrange-

Solbyn

municipal water supply
water toilets and compost toilets*
municipal sewerage
glass verandas in all houses
possibilities to install open fireplace
no solar panels
heat collectors
no central vacuum cleaner
earth storage
outdoor compost bins
plantations

Myrstacken

local well
only compost toilets
root zone purification
glass verandas possible to add
firewood stoves in all houses
solar panels in all houses
heat collectors
central vacuum cleaners in all houses
earth storage
indoor compost bins
plantations and pasture

*The smaller houses have just compost toilets, the bigger ones have both compost toilet and WC.

ments for recycling. In this aspect Myrstacken is more advanced than Solbyn. Solbyn has a conventional sewage disposal and water supply system. Each house has a compost toilet and some houses also have a water-closet. Myrstacken has no conventional sewage at all, but has its own well and biological cleaning of waste water by rootzone purification. The houses of Myrstacken have no water closets but only compost toilets. Myrstacken also has a more advanced heating system than Solbyn, combining wood heating, solar energy and electric heating in a water-based system. Solbyn has just electric heating, but many families have added open fireplaces.

The inhabitants

The types of households that moved in differ considerably. Solbyn was a result of the inhabitants' own visions about a healthy life in harmony with nature. The people who moved in were older than in ordinary new built areas. Many were middle-aged people or pension-

ers, often in single-person households. People with academic qualifications dominated among the residents.

Myrstacken was initiated from above. Efforts were made to engage the coming inhabitants in the planning procedure, but few of those who moved in had taken part in the planning. (This procedure is described in Mårtensson, 1992). Myrstacken's population was more similar to that of an ordinary, newly built housing area. Many young couples with or without children moved in, but few old people. More people were employed in nursing, service or trade, or other ordinary middle-class works. Fewer than in Solbyn had academic degrees. The inhabitants of Myrstacken often moved from the nearest town, while the inhabitants in Solbyn moved from all over the country.

It is evident, however, that in both cases environmental concerns were the predominant motive for choosing to move there.

<u>Professions at the time for moving in</u>		
	<i>Myrstacken</i>	<i>Solbyn*</i>
Academic professions	15	24
Health, nursing, social work	13	14
Administration, offices	2	3
Commercial work	5	2
Service	9	2
Manufacturing	2	–
Unidentified, unemployed, students	8	7
Total	54	52
<u>The inhabitants' ages at time of moving in</u>		
	<i>Myrstacken</i>	<i>Solbyn*</i>
0-6 years	19	19
7-15	3	4
16-19	3	2
20-29	17	7
30-39	26	25
40-49	6	11
50-64	3	18
65-w	2	8
In total	79	94
<u>Households at time of moving in</u>		
	<i>Myrstacken</i>	<i>Solbyn*</i>
1 grown-up (g-u)	3	27
1 g-u + children	1	8
2 g-u	11	6
2 g-u + children	14	9
In total	29	50
1 grown-up (g-u)	3	27
1 g-u + children	1	8
2 g-u	11	6
2 g-u + children	14	9
In total	29	50

* From Persson & Karsten.

The site plans

In both villages the buildings stand on slopes that face south. The houses in Solbyn are terraced houses or blocks of flats, while Myrstacken has detached houses or houses connected two by two. At the entrance of the areas there are, in both cases, parking lots with

open areas and carports, and further away you find plantations and a separate community centre. The site plans are shown in figure 1 and 2.

In Solbyn, the site plan follows the ecological principles of passive solar-energy collection. The houses open up towards the south, and have closed

facades with entrances and some very small windows to the north. The houses are placed in parallel rows on the slope, connected by tiny crossing lanes. In Myrstacken this principle has not been followed. Here all houses line up along a central village-street, with their entrances towards each other and green areas on the other side.

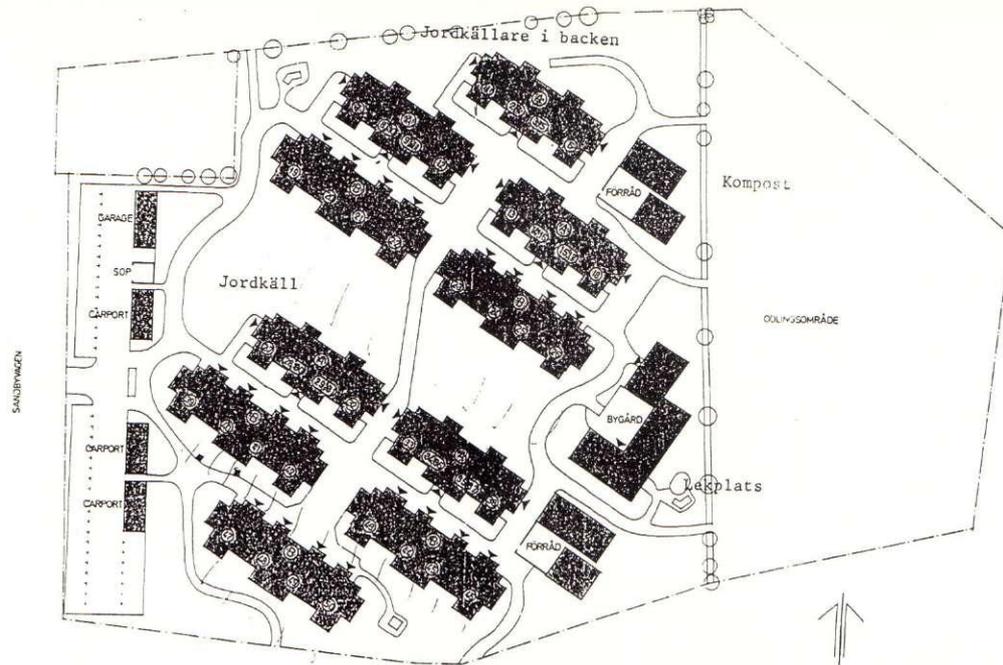
Arranging the dwellings and the street patterns in these different ways provides different conditions for the inhabitants' daily life and different opportunities for spontaneous interaction. The central street in Myrstacken forms a natural meeting place, an area where cars are restricted and children play, people pass in and out, bikes and piles of firewood are placed. It is a vivid place full of activity, a combination of playground, communication street and back-yard.

In Solbyn, too, the lanes are free from cars, and used for playing and for keeping wood and personal belongings. Nevertheless, the simple fact that there are many equal crossing lanes, not just one, reduces the opportunities for spontaneous meeting by giving people alternative routes. With a natural axis, a "main street", the chance of meeting will be higher.

The site plan of Myrstacken thus expresses the social goals of the ecovillages while Solbyn to a higher degree expresses the ecological goals.

The parking areas in the two villages show that the inhabitants are part of an outside world, where private cars still dominate.

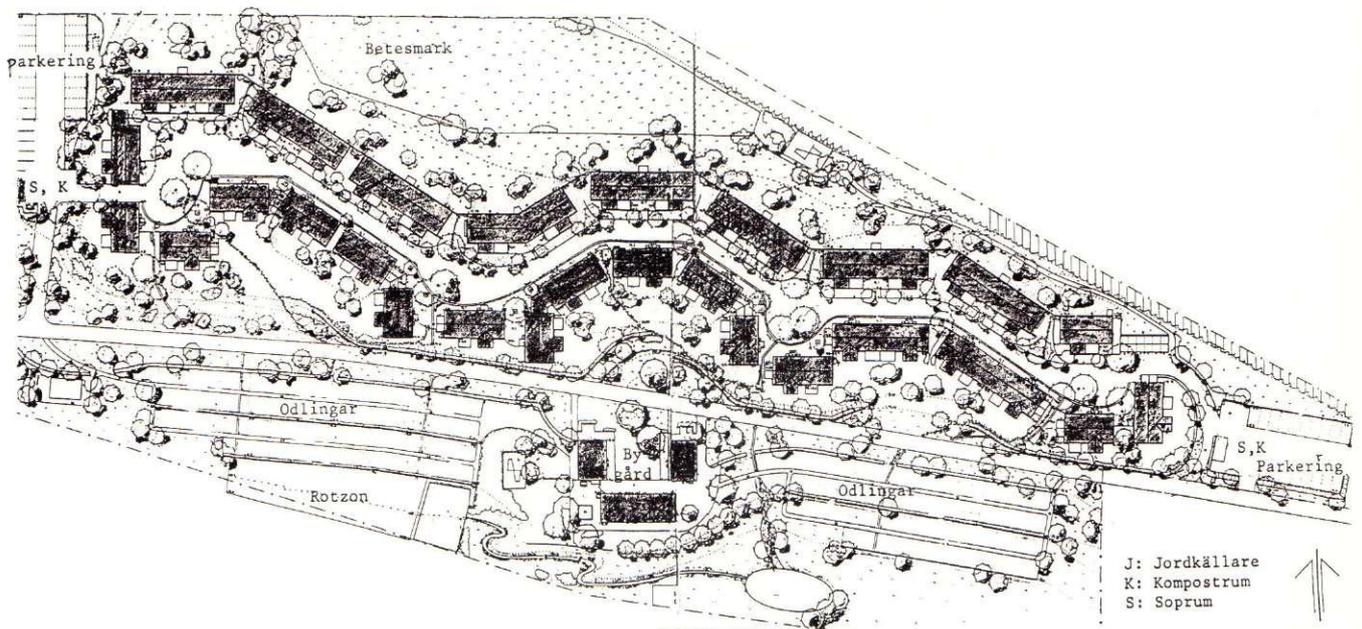
The arrangements of the parking areas in the two villages also provide different conditions for the inhabitants. Solbyn has a single parking area at the



SOLBYN

Planritning: Landskapsarkitekterna i Lund AB

Figure 1 and 2.



MYRSTACKEN

Planritning: Landskapsarkitekterna i Lund AB

main entrance to the village. Everybody has to pass here when coming or leaving the area, whether by foot, bike, bus (which has its stop just opposite the entrance) or by car. Ironically, as the initiators were strongly against motoring, the parking place provides the ecovillage with what is lacking in the street pattern; a natural meeting place.

Myrstacken has two parking lots, one at each end of the main village. Like two magnets they separate rather than unite the inhabitants. Some inhabitants refer to this situation by telling us that, because of the two parking lots, they do not know those who live "in the other part" of the village so well.

The common village house was intended to be a symbol for the ideas of common responsibility and cooperation in the village, and a natural meeting place. For this aim, a location where many inhabitants pass and are tempted to come inside and see what is going on, would be natural. This should also help to inform everybody about important decisions and to advertise events of common interest.

This natural location was just partly considered in the two villages. It seems as if the common houses are directed to "internal use", i. e. for persons who spend their days in the area and not to those who come and go. In Solbyn, the village house lies on the northeast side of the site, far from the main entrance, in a location where nobody passes when they come from work, and where few can see it. However it is easily passed when moving around inside the area, for instance to the plantation and the compost.

In Myrstacken a similar situation is found. The common building is placed close to the plantations, not at the "main street" but at the old village street where nobody lives. The inhabitants do not regularly pass the building when entering or leaving the area, but when they are on their way to the plantations. The location of the two village houses thus encourages the inhabitants to stay and work in the ecovillage rather than to leave.

The same type of discussion could also be attended to the location of other common facilities, such as the compost places, the earth storages, the plantations. A central position encourages people to use them. The location may also provide positive secondary effects, both by providing opportunities for a mutual social control and exchange of knowledge, and by providing conditions for people to see each other in their everyday chores.

Private and common areas

In a private dwelling unit, the entrance is the border to the outer world. Its placement is important for neighbours' contact with each other, and for the possibility for keeping one's privacy. The windows and verandas also constitute peep holes into the private realm. In the Western planning tradition, terraced houses usually have a public side with the main entrance turned towards the street and surrounded by a semi private entrance area. The private part is on the other side of the house, turned towards the back. This arrangement gives what Goffman (1982) calls "front region" and "back region" situations, or what has also been

described as "on stage" and "back stage" (Giddens, 1984). The two spheres are separated and the inhabitants get opportunities for both privacy and social contact.

It has already been pointed out that ecological planning, as in Solbyn, follows other principles. The houses line up in parallel rows, turned towards the sun, with the southern side open and the northern side closed. In Solbyn this means that the private and the public side meet in the same narrow lane. The entrances on the northern side of the lane face the glass verandas of the southern side, thus giving neighbours and passers-by a view into the private realm of the home. This is experienced as an act of trespassing by some inhabitants on the ground floor. "I do not use my veranda much, I feel exposed", some people said. The unrestricted sight is not always positive for the passers-by either. Long discussions have been going on in common meetings about "people who do not keep their verandas tidy" and how disturbing this can be when visitors pass in the path ways. The arrangement could in principle be interpreted as a step towards more community, according to the social goals of the ecovillages, but in reality it gets too intimate and might sometimes even threaten the private realm.

In Myrstacken, the site was arranged in the traditional front region – back regions – way. However, from the social goals of the ecovillage, the back sides have large greens for common use and common maintenance, but just small open private outdoor places. To achieve more privacy, a discussion is going on among the neighbours about the right to surround a private lot by hedges and



Lane where private and public spaces meet.



The village lane is used for private and common life.

fences. Some want this, others don't. Lines of newly planted bushes in some areas are used to mark the borders of the private realm. "We want a garden of our own so that we know that it is taken care of properly", "we do not want the neighbours' dog running around" are some remarks heard. Other persons are, however, saying that they like being able to use the big lanes for children's play and for common use, and to keep the maintenance together.

Thus, the two villages were designed from different design principles, one out of ecological goals and the other out of social goals. They both seem to threaten the private sphere of the inhabitants. A good balance between private and common spheres is not yet found in the two ecovillages.

Private matters brought into the public

In Solbyn and Myrstacken, such private matters as emptying the compost toilet, managing the heating system, and taking care of the firewood, are partly carried out outside the house, in the lanes. The products from the toilets are transported through the lanes to the plantations. With this, the treatment of private waste products, an affair that in modern society definitely belongs to the private realm (and in the end to anonymous public destruction) is carried out in public.

To bring forward private sanitary matters into the common sphere could be a social gesture; "we are all alike". Managing the compost toilet is a task which could be socially ranked both high and low. When the biological procedure works it means that earth is created from your own waste products



Common green north of the village. Somebody has started to mark a private plot.

– almost a miracle – but, when the compost process has failed, it instead becomes latrine work, the job that by tradition is ranked lowest in society. Anyhow, making the whole business more public, could be a way to upgrade the principle of recycling, and give it a higher status.

In Myrstacken the maintenance of the indoor heating system also takes part partly in the common sphere. The heat is produced by three different sources – sun panels on the roof, a wood fire in the kitchen and electric heating. The heat is stored in a water tank and regulated by a control panel which in many houses is placed in a room outside the private dwelling, with the entrance only from the street. Thus, correcting the temperature inside the house has to be done outside, in the common sphere. A negative side-effect is that the tank, the hottest object in the building, radiates its heat into

an outdoor area instead of heating the indoor space.

The managing of the firewood – cutting, sawing, sorting and arranging it in decent piles – is also done in public. Especially in Myrstacken this is an important and dominating part of the view of the street. The wood is piled along the facades or in the carports.

The fact that all managing of firewood takes place in the common street conveys unclear messages about the type of space that this is intended to be. Is it a proper entrance street for walking, or a back yard where litter and saw dust are normal traces of work?

For the inhabitants in Myrstacken this ambiguity causes conflict. Some people suffer from the untidiness of the street. Others use the space and enjoy it. The problem has been discussed in resident meetings. The inhabitants tried to regulate the situation in the street by a rule saying "wood must



SOLBYN, entrance to the basement magazine to a compost toilet.

not be managed and stored in the streets but only in the parking areas". This rule was, however, not respected.

The design of the compost toilets

Compost toilets have become an important facility in an ecovillage and are often looked upon as the very symbol of a so called ecological lifestyle. Solbyn has two toilet systems: both compost toilets and traditional water closets connected to the municipal sewage system. The two systems convey the message that a sustainable lifestyle is something that is voluntary, people are free to choose the ecological way or the other.

In Myrstacken, no such choice of behaviour is possible. The village is not connected to the municipal water and sewage system. All houses are equipped with compost toilets and the sewage water is purified biologically in a root zone purification area.

What does the design of the compost toilet tell us? In Myrstacken three different types were installed. All of them should be managed from a basement space, accessible only from outside. From here the inhabitants control the electric coil and the compost process, and change and empty compost boxes. The entrance to the basement with the toilet tank lies close to the facades. It is covered by a heavy hatch made of steel. In some examples this hatch is hidden under a big concrete flowerpot. Whether this was made for aesthetic reasons or to keep the private entrance to the underground in secret, is unclear. The result is that it adds weight to the already heavy hatch.

The procedure that starts when a person has to go underground was vividly described by the inhabitants, often with a mixture of laughter and fury. They explained the trouble to open the heavy hatch, to arrange the steel ladder to get down into the un-

derground, to turn the tank so that a box ready to empty appears. They then described how they dig out the compost down at the bottom of the tank, fill their plastic bags, and, with bags on their back, climb up the ladder and then down again, repeatedly, to fill the wheelbarrow which they finally push down to the plantations.

The message of the compost toilets in Solbyn and Myrstacken is clear, in all its details, from the steel hatch to the design underground: *"Keep away from the compost magazine unless you are strong and lithe. An ecological lifestyle is not for weaklings!"*

Today almost half of the twenty families that have a compost toilet in Solbyn have changed to an ordinary water closet. In Myrstacken all households were offered to exchange their compost toilet to a traditional water toilet in 1995. Everybody except three accepted. The message from the sociomateria has been heard.

Conclusions

The ecovillages have two important goals: those that have vaguely been called "ecological", and those that are equally vaguely called "social". Ecological goals aim to save energy and natural resources and to create a healthy environment, while social goals of the ecovillages intend to support social contact, which is the basis for cooperation, without reducing peoples' privacy. For these goals, the design and organisation of the environment is important. The orientation according to the sun is important for the ecological goals, while organisation of the space between the houses and the location of common facilities are important for social life in the area.

It has been shown that so called “ecological” design sometimes contradicts social goals, and that by this the delicate balance between the private and common spheres in the areas may be affected. In Solbyn, the orientation of the houses according to the sun gives rise to a certain conflict between the private side and the entrance side in the narrow lanes. In Myrstacken, common areas occupy much space, partly at the costs of private outdoor areas. Both solutions have caused conflicts in the balance between the private and common realms of the inhabitants, and the private realms have been threatened.

It has also been pointed out that the new technology used in those two villages was seemingly designed without considering its management.

It is notable that activities traditionally belonging to the private sphere are sometimes carried out in public. This sometimes causes conflicts. Anyhow, the location of matters traditionally belonging to the private sphere in common areas might also contribute to the neighbour’s strong feeling of social contact and community. “I feel at home long before I enter my house”, was the way one old lady expressed this feeling. Overall characteristics in

the ecovillage, such as common ideal, clearly expressed, a reasonable group size and common responsibility also contribute to this. Thus, the two ecovillages are appreciated as good dwelling alternatives, in spite of drawbacks as an sometimes undeveloped technology and in spite of conflicts around the private realm.

This finally confirms that the development of a strong informal social network is a most important factor in a sustainable lifestyle and that this could be supported by an awareness of the hidden messages in the sociomateria.



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