

# **ECO-VILLAGES - A SUSTAINABLE LIFESTYLE**

**EUROPEAN COMPARISONS FOR APPLICATION  
IN BYRON SHIRE AND NEW SOUTH WALES**

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**With the assistance of the  
Albert Mainerd Scholarship Award  
through the NSW Local Government  
and Shires Associations**

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## **Executive Summary**

The Local Government and Shires Associations of NSW awarded the Albert Mainerd Scholarship to David Kanaley, Director Environmental Planning Services, Byron Shire Council, on 22 October 1999. The purpose of the Award was to enable David to undertake a study tour of eco-villages in a number of European countries.

An eco-village is a sustainable community in either a rural or an urban area. It may be an intentional community, a co-housing project or a rural landsharing (multiple occupancy) community.

It is hoped that the application of the findings of the study tour by local councils and intending eco-village residents will result in the development of an alternative housing option in NSW. This housing option provides for the better application of sustainable design principles together with a clearer understanding of the relationship between humans and nature. The European experience also suggests eco-villages provide for the creation of more sustainable communities through better social interaction and the enabling of employment opportunities.

There are 10 key findings with implications for Local Government. The key findings relate to the following matters:

1. Eco-villages recognise community
2. Eco-villages apply new technologies
3. The size of eco-villages varies
4. Eco-villages provide for employment on site
5. Eco-villages need to be planned
6. Eco-villages need to be car free
7. Eco-villages need a social contract or social management plan
8. Eco-villages provide affordable housing on site
9. Eco-villages demonstrate an understanding of nature
10. Local Government is essential to successful eco-villages.

The report provides details on the unique features observed from each of the eco-villages visited in Europe. The following are the eco-villages visited:

1. Torri Superiore, Ventimiglia, Italy
2. Darmanhur, Baldissero (near Turin), Italy
3. Lebensgarten, Steyerburg, near Bremen, Germany
4. Hjortshøj, near Aarhus, Denmark
5. Eco99, Aarhus, Denmark
6. Hooipolder, near s-Hertogenbosch, the Netherlands
7. EVA Lanxmeer, Culemborg, the Netherlands
8. Hockerton Housing Project, near Nottingham, England
9. Findhorn, near Forres, Scotland
10. Tweed Valley Eco-village, Scottish Borders Council, South of Edinburgh, Scotland.

A number of common elements were observed in all eco-villages. They are:

1. Vision
2. Recognition of community
3. Understanding of nature
4. Application of technology to minimise adverse environmental impact
5. Use of passive solar design in housing
6. Some food or other production
7. Internal decision making system
8. Internal disputes resolution system.

There was however a number of variable elements between the eco-villages visited. They are:

1. Private ownership of houses versus community ownership of houses
2. Inclusion of 'social' (government) housing and/or rental housing
3. Spiritual dimension
4. Population size
5. Level of government support
6. Level of participation in conception, planning, design and construction.

The key findings from the study tour are summarised as:

1. Eco-villages form because of the social needs of people. There is an understanding that people need to live in a sustainable relationship with nature.
2. The size of an eco-village should primarily be based on what is comfortable for people. This could range from say 10 to 2,000 people.
3. Intending residents, or at least a core group, should exist at the beginning of the planning process for an eco-village.
4. Eco-villages need a plan of management, which is agreed by Local Government. This should include:
  - i) a concept plan,
  - ii) an energy plan,
  - iii) a design plan or guidelines for houses,
  - iv) a landscape plan,
  - v) a pedestrian movement plan,
  - vi) a water cycle management plan, and
  - vii) a social contract or social management plan.
5. Local Government needs to provide guidelines, performance standards and/or identified sites for eco-villages in a strategic plan, local environmental plan or development control plan as appropriate.
6. Eco-villages are more successful and sustainable if they provide for employment on site.

The study tour into European eco-villages clearly indicated that such villages provide a more sustainable lifestyle than traditional rural residential or urban subdivision. Eco-villages exist in almost all European countries. They are particularly popular in Denmark and the Netherlands where the level of Local Government support is also the highest.

All the eco-villages visited welcome inspection by individuals, student groups and government officials. They see themselves as providing best practice demonstration models in the application of green technologies, passive solar energy design, the building of communities and the provision of employment opportunities on site.

Eco-villages are commended to Local Governments as a form of housing, environmental management and community development, which should be supported in the Australian context.

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## **ECO-VILLAGES – A SUSTAINABLE LIFESTYLE**

### **EUROPEAN COMPARISONS FOR APPLICATION IN BYRON SHIRE AND NEW SOUTH WALES**

#### **BACKGROUND AND PURPOSE**

The Local Government and Shires Associations of New South Wales awarded the Albert Mainerd Scholarship to David Kanaley on 22 October 1999. David Kanaley is the Director of Environmental Planning Services at Byron Shire Council.

The purpose of the Award was to enable David to undertake a Study Tour of eco-villages in a number of European countries to research the planning, design and building controls/guidelines which have been put in place for the development of eco-villages. It was also to see how these controls/guidelines could be applied in Byron Shire and other Councils in New South Wales

The Award followed the completion of the Byron Rural Settlement Strategy in October 1998. This Strategy received commendation by the Department of Urban Affairs and Planning. The Department stated:

*'The Strategy ... with its emphasis on ecologically sustainable principles, is a forward looking document.'*

The Byron Rural Settlement Strategy provides that all future rural settlement will be through the application of the Community Land Development Act, 1989. To effect this, a special zone will be created as well as other amendments to the Byron Local Environmental Plan 1988. The Strategy therefore represents a major departure from the traditional form of rural residential estate.

Many other Government agencies such as the Department of Land and Water Conservation, the Roads and Traffic Authority, NSW Mineral Resources and the Environment Protection Authority commended the Byron Rural Settlement Strategy with its emphasis on sustainability.

The concept of sustainability is detailed in Figure 1. It is through the integration of economic, social and ecological considerations in legislation, planning, decision-making, project design, operational and landuse activities that a sustainable future will be achieved. It is in this context and with Council's commitment to a pathway to sustainability through its 'Greenprint for a Sustainable Future', that this study tour was undertaken.

The Strategy has also been recognised by winning the Royal Australian Planning Institute's NSW Division Award for 'Excellence in Plan Making by Local Government'. The Strategy also won the NSW Local Government and Shires Associations' 'Excellence in the Environment, Local Sustainability Award' for 1998/99 for Division B.

#### **METHODOLOGY**

The methodology for the Study Tour was:

1. Establish contact, prior to leaving Australia, with the Global Village Network in Torri Superiore, near Ventimiglia, Italy. The Global Eco-village Network promotes the development of sustainable communities in rural and urban areas throughout Europe and in other continents. From this contact determine which are the most advanced of the

many eco-village projects in Europe and from where the best knowledge could be gained.

2. Hold a meeting in Byron Shire with interested individuals who either may wish to live in an eco-village or may wish to convert from an existing Rural Landsharing Community to an eco-village based on private ownership of houses through the Community Land Development Act, 1989. The purpose of this meeting would be to determine some of the issues and questions for which answers would be sought in Europe when visiting eco-villages.
3. Visit the eco-village projects in Europe. Determine the identifying character of each eco-village, common features, variable features and the design controls or guidelines that make for a successful eco-village. Also assess what is the role of Local Government (or its equivalent) in enabling or promoting eco-villages in the countries visited using the specific eco-villages as case studies.
4. Prepare an educational video for use by Local Governments based on the eco-villages visited in Europe. The purpose of the video is to explain the concept of eco-villages and the opportunities they present to Local Government.

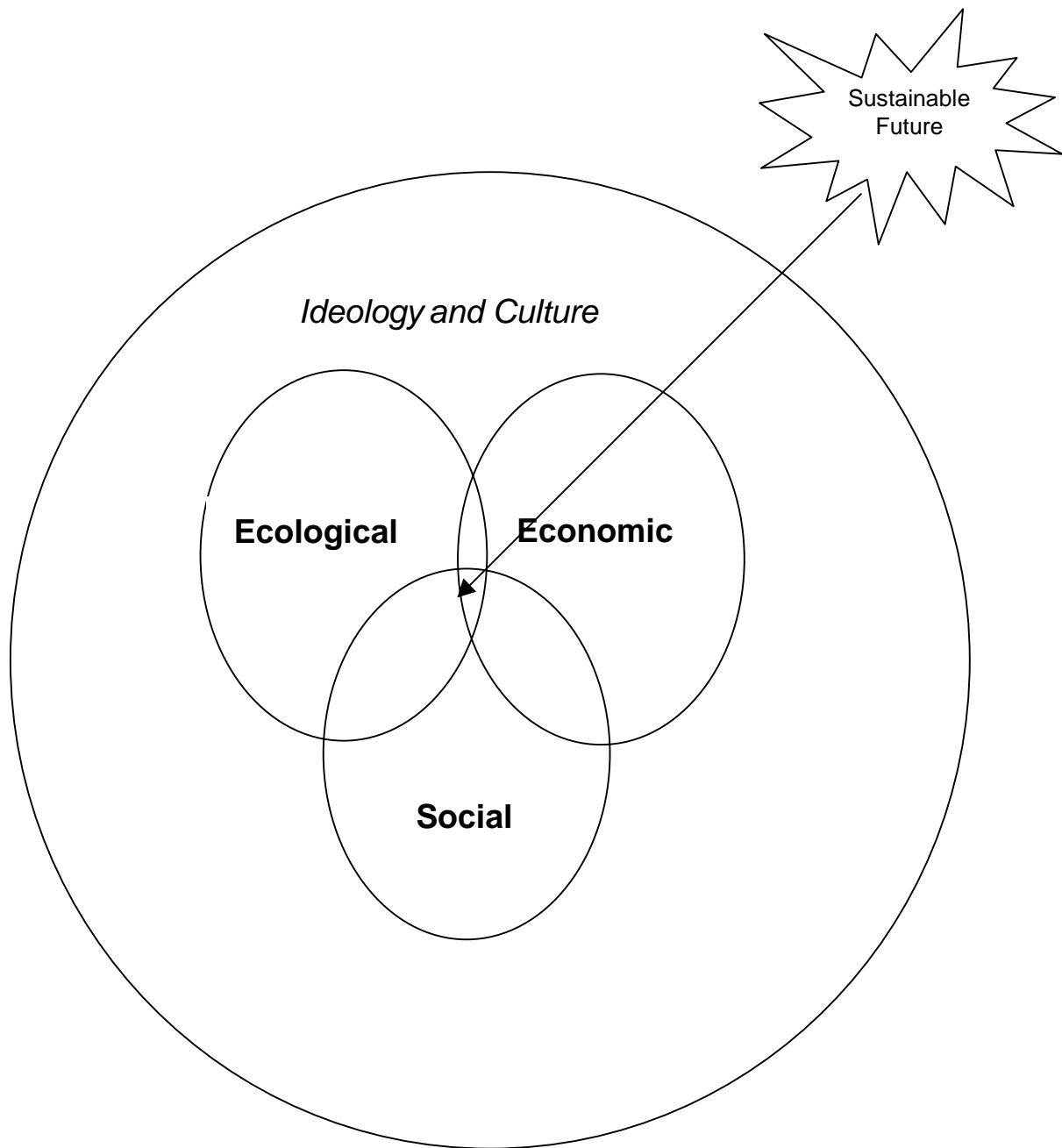
### **WHAT IS AN ECO-VILLAGE?**

An eco-village is a sustainable community, which cares for its people and the earth in either a rural or an urban area, which may be an intentional community, a co-housing project or a rural landsharing (multiple occupancy) community. (Note: these terms are defined on page 22.) It is a way of life. But not all intentional communities, co-housing projects or rural landsharing (multiple occupancy) communities could be called eco-villages. Some such communities have little or no ecological bases.

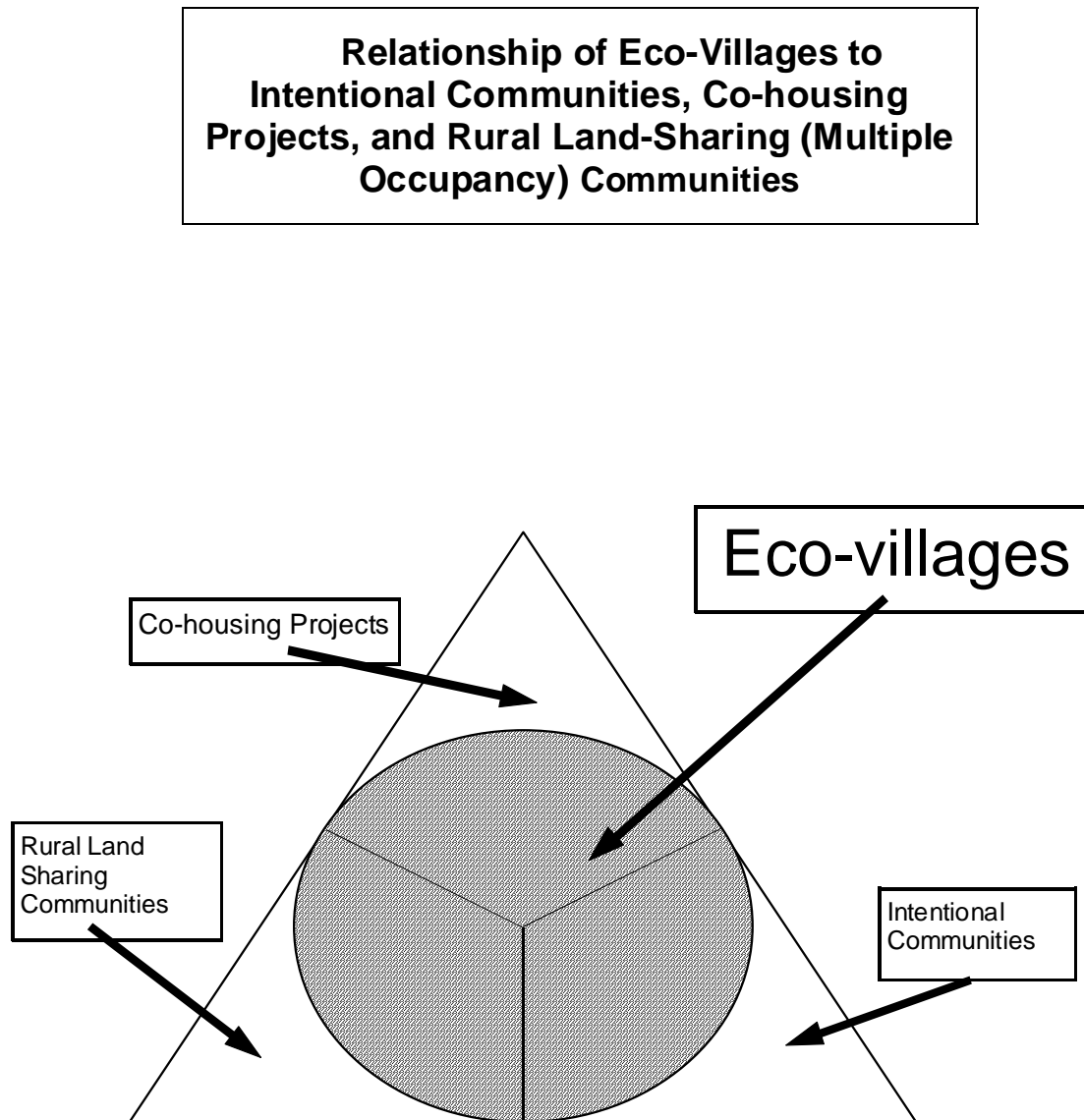
Figure 2 conceptualises the relationship between eco-villages and other related forms of developments.



**FIGURE 1 – The Concept of Sustainability - as used in Byron Shire’s Greenprint for a Sustainable Future**



**FIGURE 2 – Relationship of Eco-Villages to Intentional Communities, Co-housing Projects, and Rural Landsharing (Multiple Occupancy) Communities**



## **FINDINGS FROM THE PROJECT OF RELEVANCE TO BYRON SHIRE AND TO OTHER COUNCILS OF NSW**

The following are the key findings of the study tour of eco-villages in Europe and from discussions with European Local Government officials, politicians, social researchers and eco-village community members.

### **Key Finding Number 1: Eco-villages Recognise Community**

The key reason for forming eco-villages arises out of social needs of people rather than specific ecological considerations. In each eco-village there is a documented and conscious effort at developing community and a sense of belonging. How this sense of community is developed varies. In all eco-villages there is a documented reason for being. That is, there is a vision and / or objectives for each eco-village.

In some eco-villages the whole community meets for every meal. In others they meet for an evening meal three times per week on agreed days. In some eco-villages there is an agreement to carry out communal work on agricultural fields or other community projects for a set amount of time per week. In other community's residents are employed in community business enterprises. In one eco-village the day commenced with an option to join in community dancing. Members of eco-villages also celebrate together.

The expected level of active participation in the management of the affairs of each eco-village also varies. While there are variations in 'how' to go about developing a sense of community, a sense of each person belonging, all eco-villages work hard to recognise and nurture their 'community'.

The level of community ownership of buildings, land and equipment also varies. It ranges from full ownership of all houses, other buildings and key items of equipment as well as community gardens and agricultural lands to full private ownership of houses with other lands and buildings owned in common by the eco-village community.

### **Implication for Local Government**

Local Government must ensure that there is a core group of people established 'up-front' who intend to establish an eco-village. That is, successful eco-villages are not developer led. Instead, the houses, land packages and management plans are all created with involvement from at least a core group of intending residents. This means that Local Government may need to initiate a public meeting to establish a core group, which will then proceed with landowners and professional people to develop an eco-village proposal. The core group is essential in developing, from the very beginning, the concept of a community and the sense of belonging.

Local Governments should endeavour to work with people to achieve their ambitions. Local Governments can open the eyes of potential eco-village inhabitants to opportunities provided by eco-villages for the creation of stronger communities. Smaller eco-villages and eco-hamlets in particular also need to work at establishing strong links with the broader community if they are to be sustainable.

## **Key Finding Number 2: Eco-villages Apply New Technologies**

Each eco-village can be widely different from any other. But they all must be based on the application of innovative technologies such as passive solar energy design and the use of natural insulation materials in the construction of houses.

What varies between eco-villages is the level of application of other new technologies such as active solar power systems, solar water heaters and methane or biomass gas converters, and the level of reuse of treated sewage and grey water.

The level of application of sustainable technologies and techniques in associated agricultural or food production and in business enterprises, also varies. Organic agriculture, including the use of permaculture© techniques (after Bill Mollison's permaculture© design principles) was fairly common.

### **Implication for Local Government**

Local Government needs to be able to provide advice on new technologies - or at least be open to their application. In enabling eco-villages, Local Government could also give consideration to sustainability targets that it would like to see achieved. For example, Local Government might set targets for the level of electrical power to be generated within an eco-village. It might set a level of 20% self-sufficiency in energy for an individual house. It might set a target of 100% reuse of treated sewage and grey water.

## **Key Finding Number 3: The size of eco-villages varies**

There is no agreement as to the most desirable size of an eco-village.

From the examples visited in Europe the smallest was the Hockerton Housing Project, near Nottingham in England with only 5 houses, nine adults and a number of children. By contrast the 4 eco-villages which comprise the Damanhur Federation, near Turin, Italy have a combined total of 400 full time residents. Within the Damanhur Federation, the citizens interact on a daily basis with a more manageable unit of people living in 20 houses.

Discussions in Damanhur indicated that this unit for social interaction and decision making for some matters was now considered to be too large. A more reasonable number of houses was probably around the 6 to 13 as enabled by Byron Local Environmental Plan, 1988 and the Byron Rural Settlement Strategy, 1998. Perhaps such a cluster could be regarded as an eco-hamlet with a grouping of such clusters as an eco-village.

### **Implication for Local Government**

Local Government needs to be responsive to a range of eco-village sizes. No one size is perfect. Five or six houses does however appear to be a minimum size for an eco-village (really an eco-hamlet) if development of community and social interaction is to occur.

Sociologists and anthropologists all give advice on what was or is the most desirable size for human interaction and creating communities that will work. All of this advice needs to be tailored to what a group of people is comfortable with. This will reflect a range of variables such as cultural background, socialisation and communication skills. It will also need to be responsive to site characteristics.

#### **Key Finding Number 4: Eco-villages provide for employment on site**

Successful eco-villages have over time all developed business enterprises. They have created their own employment opportunities.

##### **Implication for Local Government**

Local Government should encourage onsite work and employment opportunities. For example, Local Government can ensure that each eco-village has Internet and Intranet access facilities to each house. Depending on the vision of an eco-village, each house could have sufficient space for the establishment of an office. Eco-villages could provide in their development applications, or at least identify in their concept plans, workspaces for arts and crafts and nonpolluting, locally based green industries. Intranet facilities should also be available between eco-hamlets that form the eco-village. Local Government should enable a range of land uses in eco-villages. Local Government should not see eco-villages merely as residential areas.

#### **Key Finding Number 5: Eco-villages need to be planned**

Each eco-village proposal needs:

- A concept plan for the layout of the eco-village showing, for example, the proposed houses and other shared community buildings and facilities, pedestrian movement system, car parking areas, community food production and / or agricultural areas, community gardens, environmental repair and enhancement areas and work space areas.
- A total water cycle management and reuse plan,
- A composting, reuse and recycling plan.
- An energy plan for the production of solar, wind and/or biomass generated electricity. Targets should be set for the level of energy self sufficiency sought by each eco-village. This may need to be staged with the development of an eco-village, with increasing levels of self-sufficiency being achieved over time.
- A design plan or guidelines for the houses and other buildings, allowing for some individualisation of the buildings within the overall scheme. The design plans or guidelines must ensure passive solar energy efficient houses and other buildings and provide for the use of insulation and, where possible, locally sourced building materials, lead free paints and the like.
- A landscape plan utilising native plants, and, if desired, fruit and nut trees and herbs.

### **Implication for Local Government**

Local Government needs to be clear about what it expects with an eco-village development application or where necessary a combined rezoning/development application. The above considerations should be what are required.

### **Key Finding Number 6: Eco-villages need to be car free**

All the eco-villages visited were either car free or realised the need to be car free. So while provision can be made for vehicle access in times of emergency or for deliveries, vehicles should be parked away from the houses in specially provided areas.

Where ready car access to all parts of an eco-village has been provided for, including each house (for example, Findhorn in Scotland), this decision has been regretted and difficult to reverse.

Eco-villages should represent a move away from the traditional car dominated village or housing area.

### **Implication for Local Government**

Local Government needs to advise intending developers of eco-villages of the desirability of keeping them car free and people friendly. This is also an important aspect in developing a sense of place and of belonging to a safe and friendly community. Any special requirements for emergency access or for garbage collection purposes need to be clarified.

It also means that the siting of eco-villages should have regard to the availability of public transport or to the ability to create employment on site.

### **Key Finding Number 7: Eco-villages need a social contract or social management plan**

The Social Contract or Management Plan would detail the obligations of residents of an eco-village and the systems or processes available to provide for the efficient functioning of the eco-village. The Social Contract or Management Plan should detail:

- the vision and objectives of the eco-village;
- the ultimate size (number of houses and estimated population) of the eco-village;
- how to join the eco-village, perhaps including a trial period;
- how to leave an eco-village, perhaps giving first option to buy to the remaining residents or a limited (usually by time) right of refusal to an intending buyer of a house by the remaining residents;
- the internal decision making system;

- the disputes resolution system;
  - the payment of internal rates or levies;
  - any requirements for community work on food producing activities or other community projects;
  - community meeting system, possibly including any requirements for communal dining;
- and
- a range of other matters which concern the internal functioning of the eco-village and the development of 'community' within the eco-village.

#### **Implication for Local Government**

Local Government needs to ensure that the Social Contract or Management Plan is adequate and at least covers the above points. Local Environmental Plans may indicate the preferred location of, and number of houses permitted with consent in, each eco-village.

#### **Key Finding Number 8: Eco-villages provide affordable housing on site**

In Denmark and the Netherlands, all the eco-villages visited provided for affordable housing mixed with private (and in some eco-villages including very expensive) housing. This provided for a good social mix.

#### **Implication for Local Government**

Local Government needs to actively engage the New South Wales Department of Housing in eco-village projects. The Department of Housing, together with Local Government (with the latter no doubt acting as catalyst), needs to recognise the social and economic opportunities provided by eco-villages.

The Department of Housing needs to ensure that affordable housing projects in eco-villages are allocated to people with an understanding of the special nature of their houses and the ecological ambitions of the broader eco-village community. Note: in Europe, such housing is not allocated on a first come first serve basis. People on the top of the list must pass a 'test' to indicate their understanding of nature, the special features of their houses and the purpose for which the eco-village is being created.

#### **Key Finding Number 9: Eco-villages demonstrate an understanding of nature**

Successful eco-villages all demonstrate an understanding of nature and of the place of humans in nature. How they do this varies. This should be reflected in all aspects of an eco-village's design, in the sourcing, use, and disposal of materials used in construction (ie, full life cycle). It can even include such matters as the use of lead-free paints. In the Byron Shire context, for example, a requirement will be significant amounts of environmental repair and enhancement. The Byron Rural Settlement Strategy provides for 900 native trees to be

planted for each house approved. It also provides guidelines and performance standards for the treatment of wastewater and sewage effluent.

### **Implication for Local Government**

Local Government should require appropriate environmental repair and enhancement in its conditions of consent in all eco-village approvals.

### **Key Finding Number 10: Local Government is essential to successful eco-villages**

Eco-villages need Local Government support and guidance if they are to succeed.

### **Implication for Local Government**

Local Governments need to seek specific opportunities for eco-village development. This could include identifying suitable areas through the preparation of rural or town settlement strategies. It could also include identifying old industrial buildings or institution buildings (eg old hospitals, schools, banks, warehouses, government buildings, convents and monasteries) with a view to enabling their conversion to eco-villages.

In some circumstances, Local Governments may even be able to provide land at a below market rate to enable an eco-village to be developed. It could also encourage joint partnerships with Government housing providers for eco-village developments with affordable or social housing components.

## **UNIQUE FEATURES FROM EACH OF THE ECO-VILLAGES VISITED IN EUROPE**

### **Torri Superiore, Ventimiglia, Italy**

Not far from the French border, this eco-village is based on a 13th century, medieval village for farmers. It comprises one building with many levels, 160 rooms and roof terraces all connected by a labyrinth of corridors. In the 13th century over 100 farmers lived together here communally. They had moved away from the coast into the steep valley to avoid being pillaged by pirates. The village was abandoned in 1900.

A group of 18 people now seek to live together in small private houses made from restoring and retrofitting rooms within the building. Ultimately, 20 small houses will exist in the one building.

A high degree of communality exists as all meals are shared events, as is work in the communal terrace gardens which are also being restored from their former neglect.

The process of establishing this eco-village began in 1989. It involved tracing and contacting people from all over the world as the rooms in the building had legal title and had been passed on through the generations.

In Italy there is no legal entity which enables a group of unrelated people to come together to form a community. The legal structure is therefore an amalgam of a 'cultural association' and a 'cooperative'. The first enables the coming together of people for a cultural purpose.



The latter allows business opportunities to be progressed as may be developed by the community of Torri Superiore.

### Key Findings

Torri Superiore is a good example of recreating traditional village life in the modern context. It is also a good example of the restoration and retrofitting of an old, abandoned and derelict building for living purposes.

Torri Superiore is an example of co-housing in an eco-village style with a high focus on community. The people who live in Torri Superiore are like minded, idealistic, of a similar age (around 40 years old) and apparently similar levels of economic wealth.

The members of the eco-village have still to develop a good mediation and disputes resolution process. They lack enough capital to advance at any speed. But this may be to their advantage as they are more communal than any other community visited and the social aspects of any process takes a good deal of time.

### Key People Met

Hugo Arellano – European Office of the GEN Eco-village Network  
Marco Basteris – Foundation member of Torri Superiore  
Massimo Candela – Member of Torri Superiore  
Nina Freund – Member of Torri Superiore

## **Darmanhur, Vidracco, near Turin, Italy**

Damanhur was founded in 1979 by a group of people inspired by the teachings of Oberto Airaudi. Oberto's teachings connected spiritual philosophy and ethics with practical actions as part of daily life. A rich cultural life, humour and an understanding that everything changes, are basic tenets for Damanhurians. Damanhur now has 400 residents living on 250 hectares with other members living nearby. Damanhur is not correctly an eco-village. Rather it is a Federation of 4 eco-villages with affiliated branches in most European countries.

Damanhur has a strong spiritual foundation with a clearly defined philosophy and cultural and personal development program. Because of its strong spiritual basis and focus on work and actions, Damanhur is very successful as a Federation of Eco-villages, particularly in the development of business enterprises. Everyone in Damanhur is employed and most on site.

The Pinnacle of Damanhurian spiritual and artistic creativity is the elaborate and stunning underground Temple of Mankind. The Temple is an extensive labyrinth of 7 chambers on 5 levels totalling 14,000 cubic meters of space. The Chambers represents aspects of human beings and the journey through life. All the digging and artwork has been done by hand by all of Damanhur's residents. The decoration includes sculptures of epic proportions, Tiffany glass and stained glass on a grand scale, painted walls, crystals, ceramics and mosaics. It also includes the use of calligraphy, and painted images borrowing from a number of ancient traditions and belief systems.

The pinnacle of Damanhurian economic creativity and enterprise is the Damanhurian currency – the Credit. This is used in all internal Damanhurian business. Damanhurian businesses have been developed over time and now include: a cheese factory, a bread factory, a cashmere weaving and clothes making factory, ceramics, a printery, daily newspaper and art and music workshops. In all some 40 or more economic activities occur in Damanhur. Damanhur also produces organic food and is seeking to move to self-sufficiency

in food. Damanhur also conducts interesting experiments in alchemy and health. It has well equipped laboratories for these purposes.

The pinnacle of Damanhurian social creativity and its efforts to develop 'community' is its governing and disputes resolution structure. Damanhur has a Federal Council, local Councils representing collections of houses and a College of Justice. Further recognition of Damanhur's social creativity is the fact that its skills in administration, organisation and action are recognised by the broader community. Nine councillors, out of 12 on the local Council now represent Damanhurians. The Mayor is also a Damanhurian.

### Key Findings

Damanhur is the best example found of a collection of eco-villages – a Federation – with a strong spiritual philosophy and work ethic. It is fully communal. Houses may be privately owned for a short period because of particular circumstances (eg new land is bought with a house by a member), but then it must be transferred to the Federation.

Damanhur is an example of a collection of eco-villages bound by a common spiritual philosophy, work ethic and government system. Damanhur would be possible, at least as far as the communal ownership of housing and land is concerned, through the NSW State Environmental Planning Policy No. 15 on Rural Landsharing Communities.

### People Met

Lepre Viola (which translates as hare violet). - A full Damanhurian  
Orata – Damanhurian English translator  
Coboldo Melo – Press officer, orator and Damanhurian  
Bisonte Quercia, Damanhurian Mayor of Vidracco

## **Lebensgarten, Steyerburg, near Bremen, Germany**

Lebensgarten was founded in 1985 and is a successful community offering a number of lessons for Local Governments in New South Wales. It is located near Steyerberg, which is a small town not too distant from both Bremen and Hamburg in northern Germany. It involved the purchase of an old ammunition factory together with its accommodation and facilities. The process has involved the conversion of these facilities to provide for housing and other community uses. The community has 150 residents of which 50 are children.

The conversion of buildings to provide for private housing has involved the use of glass-house structures built on the side of buildings to capture sunlight and radiate heat into the main part of the houses. It has also involved the addition of insulation materials.

The maintenance of community at Lebensgarten relies on a morning dancing ritual and on communal dinners, together with work on community projects such as the permaculture© garden. A number of community buildings used for dining, courses and other business purposes also assist in creating the necessary sense of community.

The community specialises and has developed business enterprises in mediation, conflict resolution and healing. The Lebensgarten site also contains a business in supplying energy efficient systems and building materials free of poisons. For example, natural insulation materials, lead-free paint and water saving devices.

### Key Findings

Lebensgarten is a good example of an eco-village community, which has established successful mediation and decision-making processes.

With respect to decision-making processes, Lebensgarten has developed the 'qualified consensus technique'. This involves holding community meetings to discuss a proposal. If someone opposes the proposal, he or she must state their reasons for objecting to it. It is then necessary for the proponents of the proposal to discuss and show how they can address the issues raised. This process may take several meetings. At the end of the process, the person or people objecting to the proposal are asked have they now changed their position. If yes, then you have full consensus to a modified and better proposal. If no, then the person or people are asked can they live with the decision to proceed given the effort made to address their concerns. If the answer is yes, then you have qualified consensus.

For the community at Lebensgarten this has resulted in creative decision-making. It has also meant proposals are never deadlocked for years, as can occur when 100% consensus is sought. It also means that the person or people objecting to a proposal know that their concerns have been heard and every effort has been made to address them through modifying the proposal.

Lebensgarten eco-village has successfully marketed its skills in mediation and dispute resolution to the cities of Bremen and Hamburg and also to a number of leading German companies.

#### Key People Met

Declan Kennedy

#### **Hjortshøj, near Aarhus, Denmark**

Hjortshøj is located 15 kilometres north of Aarhus on the Jutland Peninsula in Denmark. It began in 1991 but really only started to exist as an eco-village in 1996. The project involves some 80 people housed in three hamlets. Two of the hamlets comprise private housing. The third hamlet comprises social or government housing.

The Aarhus City Council on the clear understanding that the ecological and social aspects of the proposal were met provided the land (100ha) for the Hjortshøj eco-village at a 'peppercorn' rental. The Council was also instrumental in developing social or government housing as part of the eco-village. Persons were selected from the government social housing list after demonstrating an understanding of the ecological principles of their government housing and the project as a whole. This project is a good example of joint private and government initiative to achieve agreed ecological and social ends and to provide a sound demonstration project.

The project is still under construction. Upon completion, the eco-village of Hjortshøj is expected to house around 500 people.

The glue, which holds Hjortshøj together and creates a sense of community, is the evening meal 3 nights a week and everyone providing assistance to each other to build the private houses. The 3 nights a week dinner also ensures the integration of the social or government housing people with the private households.

The eco-village is also aiming for a high level of organic food production. This too involves co-operative community effort.

### Key Findings

Hjortshøj is an excellent example of both Local Government support for an eco-village project and the provision of private and government housing in an eco-village project. The project has a large organic farming component. It has also created a building company for environmentally friendly construction.

The project at Hjortshøj is also a good example of low cost, mostly owner built passive solar housing. Double-glazing and the use of insulation materials are features in all houses as is found in most other eco-villages. Urine is separated from solid waste and is used directly on gardens. Solar hot water is also provided. There is however no solar or wind generation which were features of many other eco-villages, because of the cost.

### Key People Met

Hans Jakob Jakobson  
John (from the USA)  
Ulla Jensen  
Peter Myatt

### **Eco 99, Arhus, Denmark**

Eco 99 is the social or government housing component of an eco-village being developed in Arhus with significant involvement of the Arhus City Council. Eco 99 resulted from a council initiated national design competition. This involved an invitation to Danish architects to come up with cost effective but leading edge examples of passive solar efficient government houses. The result is known as Eco 99.

People had to pass an ecological examination, which demonstrated their understanding of the ecological values of their houses before being allocated houses in the completed Eco 99 project. Interviews with residents indicated a high level of appreciation of their houses and of the opportunity that living in the eco-village provided.

Some of the community building aspects of the eco-village in which Eco 99 is a component part, such as the renovation of the old farm house for community purposes and the planting of the central community garden square, remain to be completed. It is possible the delay in completing these community facilities is weakening the sense of community in this eco-village project. On the other hand, the development of the community assets would serve to strengthen the sense of community once this work is undertaken.

### Key Findings

Eco 99 is an excellent example of Local Government initiated social housing of a high standard.

### Key People Met

Thorkild Green Jensen, Architect, Arhus City Council  
Two Residents of Eco 99

### **Hooipolder, near s-Hertogenbosch, the Netherlands**

Hooipolder is located in the town of s-Hertogenbosch not far from Utrecht in the Netherlands. It was established as an eco-village containing around 12 houses in the early 1980's on land provided cheaply by the Local Government when the Dutch economy was performing poorly.

The private houses were all built by their owners, who were unemployed or under-employed at the time.

The houses feature rammed earth walls and earth-sheltered roofs. The results are houses with good insulation qualities.

Since then, the Dutch economy has greatly improved and all the owners are now fully employed and earning good incomes. The owners have also moved into the family stage of their life cycles. Taken together these factors mean that the residents of Hooipolder are now inwardly focused on to their family units. The original reasons for their coming together has now passed and they have not actively put effort into continuing as an eco-village. Nevertheless the local community or neighbourhood is still very friendly and residents say it is a good place to live.

### Key Findings

The Hooipolder experience shows the need for eco-villages to reinvent themselves once short-term targets or reasons for being are met. It also demonstrates the need to first build and then having enough energy to maintain a socially active 'community'. This is part of the social dynamics of eco-village life. Hooipolder represents the decline of an eco-village. But the resulting community has benefited greatly from the sense of community created during the construction of the eco-village. Hooipolder is a friendly and a safe place to live.

### Key People Met

Peter van Lammers  
Jan van Holstein  
Jan Hanarts

### **EVA Lanxmeer, Culemborg, the Netherlands**

The EVA Lanxmeer eco-village project is in Culemborg not far from Utrecht in the Netherlands. It was the vision of Marleen Kaptein who in the early 1990's saw the need for education through demonstration. At completion it will involve some 200 houses on 3 hectares of urban land, with an additional 21 hectares for agricultural purposes.

At the time of visiting, this project was under construction with a mix of private and government housing nearing completion. The quality of the private houses is high. They are expensive, costing around \$300,000 each. EVA Lanxmeer is close to the town centre and the railway station. It was originally reserved for a groundwater catchment area, which explains why it was not developed in the past. It represents a prime piece of real estate and its groundwater quality functions are still uppermost in the minds of the eco-village developers/community and the Local Government.

The 50 or so houses under construction or recently completed are designed for living and work. There are no fences. Gardens are small and integrated into a whole. The houses are of a very advanced passive solar energy design with attention paid to every detail to ensure maximum heating, cooling and lighting.

The project has two water input systems. One is from rainwater. The other is from town water. There are three water output systems. One is black water, which is being treated in the Local Government's sewerage treatment plant until the final stage of the project is completed when it will be treated on site and processed through a biomass converter. The second is urine separated from all solid waste for direct use on agricultural food crops. The third (grey water) is recycled for use on non-agricultural gardens.

The houses also have active solar energy production through an array of 16 solar panels on the roofs of each house linked to a 220-volt inverter. Excess power is sold back to the national grid system. Upon completion each house will be 20% energy efficient in terms of electricity needs from this active solar energy source. When fully operational the biomass converter will supplement the active solar energy electricity supply. The eco-village aims to be fully self-sufficient in meeting its energy needs.

The vision for such a high level of energy self sufficiency was the most ambitious of its kind in Europe of the eco-villages visited.

The project also aims for most residents to be employed on site.

All residents go through a 'social incubation' process. This has involved regular meetings to discuss project design, vision, targets for energy production, water reuse, food production and the like. This is a very good example of a bottom up development where the intending residents state and agree to their needs rather than being driven by a developer's view of their needs.

### Key Findings

EVA Lanxmeer eco-village is in the process of being born. It was the best example visited in Europe of a project integrating the need for work places, manufacturing, food production, community areas, and private and government houses. It has a full energy plan and a full water cycle management plan involving reuse. Both of these were unequalled elsewhere. The attention to detail was impressive.

The involvement of Local Government is crucial the development of EVA Lanxmeer. The bottom up approach of involving the intending residents in all aspects of the project's conception, planning, design and construction is showing positive results. While it may have taken more time than a developer led project, EVA Lanxmeer is paying clear dividends in providing aesthetically pleasing houses for living and creating a community that will work socially and ecologically with employment on site.

### Key People Met

Otto Munters  
Jan van Wigger

## **Hockerton Housing Project, near Nottingham, England**

The Hockerton Housing Project is the United Kingdom's first earth sheltered housing project. The project commenced in 1996. The site comprises 10ha. Five terrace style houses have been constructed and are now occupied by 9 adults and 10 children. The Hockerton Housing Project is the smallest of the eco-villages visited in Europe.

A key feature of the project is that 50% of the construction work was carried out on a communal basis. Members supplied unskilled labour under the direction of those with skills. Nick Martin, a foundation member was a qualified builder.

The houses are earth-sheltered and highly insulated to reduce heat loss and have a south-facing conservatory for the generation of passive solar heat in winter. The lack of a central heating system because of the passive solar energy design and the considerable thermal mass was unique among all the projects visited in Europe.

The artificial lake and sewage treatment polishing pond (after initial treatment in a septic tank) has increased the biodiversity of the site. The planting of 4000 trees has also augmented the site's biodiversity.

Rainwater is collected and filtered for use on site. Grey water is also collected and used after treatment onsite.

The local community did not welcome the project, at first. It has been treated with suspicion and created a lot of media interest. This interest has not always been favourable. But over time the project has moved to being seen by most in the broader community as being innovative.

The latest Local Government concerns centre on a proposed wind generator. It has refused the application on 3 or 4 occasions, citing the dangers of ice shards to humans and the revolving blades to birds. An Appeal is likely. These problems were not raised in mainland European eco-village projects where wind power was provided. Indeed in Denmark and Germany wind power generation was a feature of the landscape.

### Key Findings

The smallest of all the eco-village projects. Remarkable because the houses remain a comfortable 21C degrees throughout the year without central heating as a result of passive solar energy design and thermal mass. The Hockerton Housing Project is also unique because the project is self sufficient in the provision of water for garden and domestic use.

This project stands in contrast to the eco-villages in Denmark and the Netherlands, with its lack of Local Government support.

The small size of this eco-village means it is essential for it to work well and in harmony with the broader community if it is to be successful in the long-term. The Hockerton Housing Project is really an eco-hamlet rather than an eco-village in this respect.

### Key People Met

Nick White  
Trudy White

## **Findhorn, near Forres, Scotland**

It was originally founded in 1962 on the northern Scottish coast near the quaint village of Findhorn by Eileen Caddy, Peter Caddy and Dorothy Maclean as an intentional community along the lines of a Rural Landsharing (Multiple Occupancy) Community in New South Wales planning terms. Findhorn is one of the oldest eco-villages in Europe. It now has 100 or more permanent residents. Findhorn feels more organic than the other eco-villages visited. It accepts greater diversity in people and ideas. There is acceptance of change but the process is painfully slow, involving consensus decision making. The organisational structure is complex, changing and confusing even for residents.

The Findhorn community was originally a commune established as an 'education foundation' so that it could comply with Scottish law. The business components were established as separate co-operatives, again to comply with Scottish law. The original community was based in an old caravan park with 120 caravans and mobile homes. Key businesses in Findhorn centre on the holding of workshops and conferences and on a publishing house and store. Annual turnover exceeds \$4 million.

The eco-village project is an enterprise of the Findhorn Foundation, being run through Eco Villages Ltd. It was conceived in the 1980's. Its physical development is only happening now with the first few houses of the proposed 33 houses and 10 units being completed and occupied with a limited number more under construction. The project will be linked to the Findhorn 'Living Machine', the processing plant for Findhorn's sewage. It is likely the Scottish equivalent of the Environment Protection Authority will soon license the plant, with treated waste being suitable for reuse purposes rather than land disposal.

### Key Findings

Findhorn is an old, successful and still evolving intentional eco-village community. The new eco-village project is being developed in response to changing housing needs, aspirations and life cycles of Findhorn Foundation members or like-minded people.

The lesson from Findhorn is that eco-villages can stall if they do not continually evolve and, if necessary, even reinvent themselves. Findhorn is doing just this. It also shows the importance of having a clearly defined decision making and disputes resolution system. If you don't agree or cannot cope with the time delays and negotiation required with consensus decision making, then you should not join the Findhorn Foundation. The people living in Findhorn demonstrate a high level of personal commitment to achieving the aspirations of their community.

### Key People Met

Eileen Caddy, Foundation founding member in 1962  
Camilla Sutherland, Eco-village Ltd  
John Talbot Eco-village Project Director  
Alex Walker, Findhorn Foundation, former Chair of Management  
Geoffrey Colwill, Findhorn Foundation, and former Byron Co-housing Member  
Pauline Walker, Manager, Findhorn Living Machine

### **Tweed Valley Eco-Village, Scottish Borders Council, South of Edinburgh**

The Tweed Valley Eco-Village group has been meeting for 12 months to establish an innovative sustainable community in the Innerleithen area of the Tweed Valley south of Edinburgh. The first 12 months involved developing a strong social bond between the intending residents and in working out ideas for determining an appropriate site and the nature of their proposed eco-village.

On 6 May 2000, they held their first public meeting at the village of Innerleithen in the Tweed Valley to discuss their proposal and hopefully attract the support of the local community, the Scottish Borders Council and other agencies to work with them to achieve their goals. The meeting attracted a large attendance from the local community but no one from the Scottish Borders Council.

Project goals are to establish an eco-village of 15 to 30 affordable houses. The houses will be designed and built by the intending residents, which in itself will create employment and training opportunities for both them and for local people.

The project intends to utilise best practice green ideas and new technologies to provide a model sustainable, rural eco-village in the Scottish Borders. The Tweed Valley Eco-village group intends to create employment and a community resource through the provision of an interpretation centre, cafe and workshops.



### Key Findings

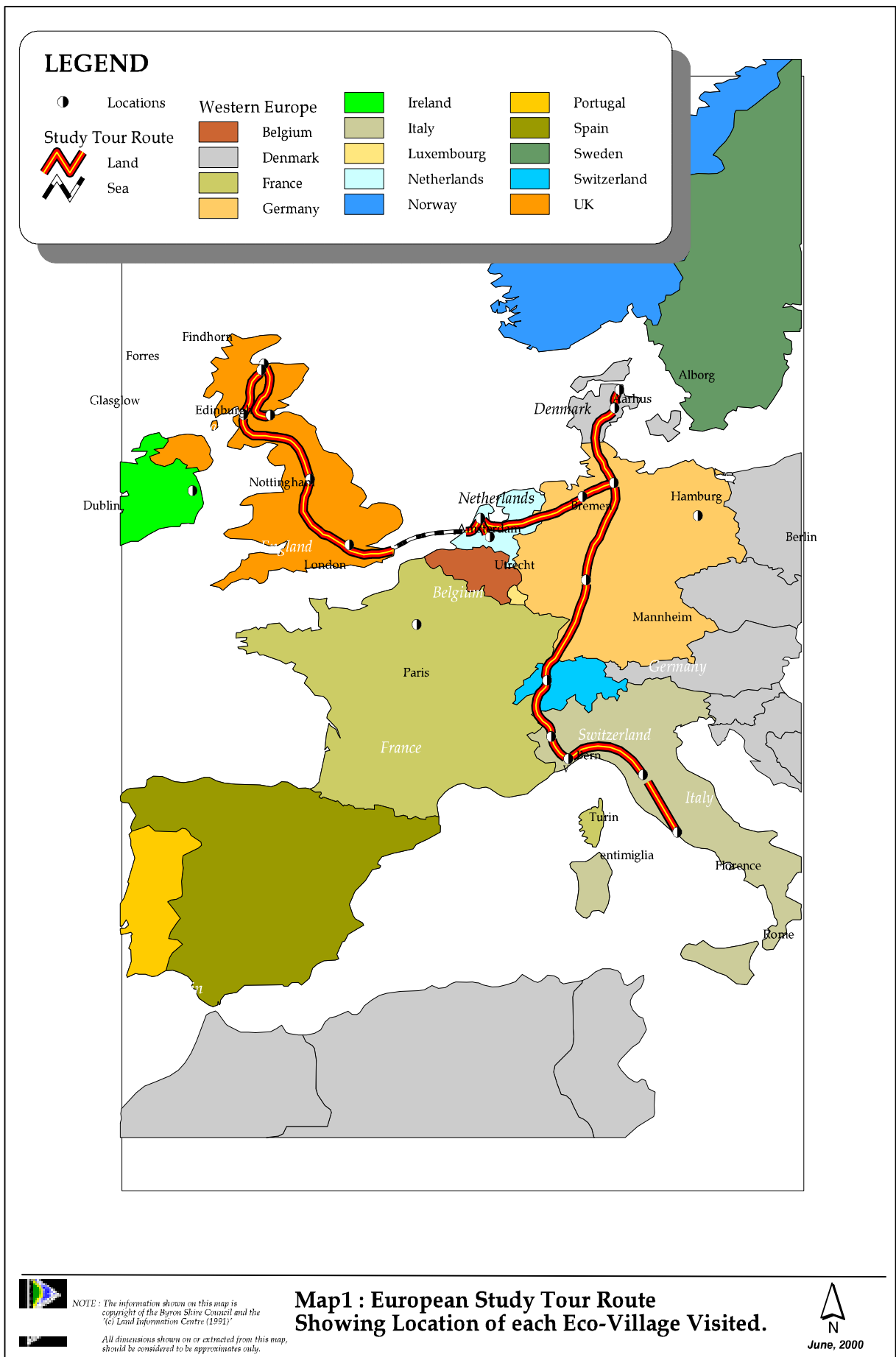
It is important to involve the local community in the development of an eco-village project. This is especially the case in areas where no other eco-villages exist. By holding the public meeting, the Tweed Valley Eco-village group gained valuable community support. The lack of attendance from the Scottish Borders Council also shows the need to individually approach councillors to attend such meetings.

Another key finding was the importance of detailed preparation before going public or involving Local Government.

### Key People Met

Greig Robertson, Tweed Valley Eco-village Group and Sustainable Communities Network, Scotland.

**MAP 1 - European Study Tour Route showing location of each Eco-Village visited**



## **COMMON ELEMENTS OF ECO-VILLAGES**

The common elements of eco-villages visited are:

1. Vision;
2. Recognition of community;
3. Understanding of nature;
4. Application of technology to minimise adverse environmental impact;
5. Passive solar energy designed houses;
6. Some food or other production;
7. Internal decision making system;
8. Internal disputes resolution system.

## **VARIABLE ELEMENTS OF ECO-VILLAGES**

The variable elements of eco-villages are:

1. Private ownership of dwelling houses versus community ownership of dwelling houses;
2. Inclusion of 'social' (government) housing and/or rental housing;
3. Spiritual dimension;
4. Population size;
5. Level of government support;
6. Level of participation in conception, planning, design and construction.

## **ECO-VILLAGES IN EUROPE: SUMMARY OF KEY FINDINGS**

The key findings from the study tour of eco-villages in Europe are:

1. Eco-villages form because of the social needs of people. The ecological aspects of eco-villages reflects the understanding that people need to live in a sustainable relationship with nature;
2. The size of an eco-village should be based on what is comfortable for humans in terms of social interaction. An eco-village may be as large as 1,000 or 2,000 people but, if so, it will need clusters of housing for local decision making, social interaction and community purposes. Around 10 to 15 houses in a cluster (an eco-hamlet) is considered generally optimal;
3. Intending residents should be found by a proponent of an eco-village proposal up front as far as is possible and involved in eco-village design, vision and the setting of objectives, decision making method, dispute resolution system and the like;

4. Eco-villages need a plan of management agreed by Local Government. The plan of management should have:
  - i) A concept plan;
  - ii) An energy plan, including targets for energy self-sufficiency;
  - iii) A design plan or guidelines for the houses (including passive solar, insulation, solar access);
  - iv) A landscape plan including environmental repair and enhancement, use of native vegetation, fruit, nut trees and herbs;
  - v) A pedestrian movement plan (note: eco-villages should be car free);
  - vi) A water cycle management plan;
  - vii) A social contract or social management plan (this should include comments on the behaviour or expectations of residents, community meetings, community dinners, disputes resolution/mediation system and a decision making system).
5. Local Government needs to provide guidelines, performance standards and/or possibly identify sites for eco-villages in a strategic plan, local environmental plan or development control plan as appropriate;
6. Eco-villages are more successful and sustainable if they provide for employment on site.
7. There are considerable opportunities for developing eco-villages in NSW in both urban and rural areas. These opportunities are not confined to the coast. The potential to generate employment should not be overlooked, nor should the potential to re-use old buildings such as warehouses, manufacturing plants and institutional buildings or even abandoned towns.
8. There is a clear potential to involve the NSW Department of Housing in providing affordable housing in association with eco-village projects. This would be particularly useful in high growth, high cost coastal tourist areas where the tourism workforce is poorly paid.

## **DEFINITIONS**

### **Sustainability: Ecologically Sustainable Development**

Ecologically Sustainable Development (ESD) is defined as *“using, conserving and enhancing the community’s resources so that ecological processes, on which life depends, are maintained and the total quality of life, now and in the future, can be increased.”* (National Strategy for ESD, December, 1992.)

### **Eco-Villages**

An eco-village is a sustainable community that cares for its people and the earth, either in a rural or urban area which may be an intentional community, a co-housing project or a rural landsharing community. It is a way of life. An eco-village has a decision making body. It has no definite size but could range from 10 to 3,000 people. It has many of the aspects of an intentional community, a co-housing project or a rural landsharing community but with a holistic, ecological focus in its aims or vision.

But not all intentional communities, co-housing projects or rural landsharing communities are eco-villages. Some such communities have little or nothing to do with ecology. (Adapted from the Directory of Eco-villages in Europe, Global Eco-village Network (GEN) – Europe, Steyerberg, Germany 1998.)

### **Co-Housing Projects**

Co-housing is a style of co-operative living combining the autonomy of private with many of the resource advantages of community living. Some co-housing projects would be considered as eco-villages where they have passive solar energy designed houses and/or other aspects of ecological conservation. But not all co-housing projects are eco-villages. (Adapted from the Directory of Eco-villages in Europe, Global Eco-village Network (GEN) – Europe, Steyerberg, Germany 1998.)

### **Intentional Communities**

Intentional Communities are groups of adults who choose to call themselves a community being created for some intention or purpose. Many intentional communities have an ecological and social base and would be eco-villages, but not all intentional communities necessarily are eco-villages. (Adapted from the Directory of Eco-villages in Europe, Global Eco-village Network (GEN) – Europe, Steyerberg, Germany 1998.)

### **Rural Landsharing (Multiple Occupancy) Communities**

Rural Landsharing (Multiple Occupancy) Communities are a form of rural settlement that enables a group of people to collectively own a single allotment of land and use it as their principal place of residence. Common ownership of land is established through a tenant in common, trust membership, co-operative shareholding, company shareholding or partnership. (Byron Rural Settlement Strategy 1998, Byron Shire Council.)

## REFERENCES

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*Designing Ecological Settlements: Ecological Planning and Building, Experiences in New Housing and in the Renewal of Existing Housing Quarters in European Countries*, The European Academy of the Urban Environment, Berlin 1997.

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*Eco-Village Millenium: News from the Global Eco-village Network*, Volume 1, Naerum, Denmark, January 2000.

*National Strategy for ESD*, Commonwealth Government, AGPS, December 1992.

*The Earth is our Habitat: Proposal for a Support Programme for Eco-Habitats as Living Examples of Agenda 21 Planning*, Gaia Trust and The Global Eco-Village Network, June 1996.

**ATTACHMENT 1 - David Kanaley Itinerary and Timetable for the Albert Mainerd Scholarship – Eco-Villages European Study Tour**

<u>DATE</u>	<u>TOWN/LOCALITY</u>	<u>PLACE and/or PERSON(S) VISITED</u>
3 April 2000	Depart Brisbane 11:05 QF 517 Arrive Sydney 12:35 Depart Sydney 15:15 QF 301 Arrive Bangkok 21:45	Confirmed Accommodation at Indra Regent. Check in 22:00
4 April 2000	Check Out of Indra Regent at 15:00	
5 April 2000	Depart Bangkok 00:45 QF15	
5 April 2000	Arrive 7:05 Leonardo Da Vinci, Rome	
6 April 2000	In Rome	
7 April 2000	Car to Ventimiglia near San Remo	Meet Hugo Arellano Global Eco-Village Network, Lucilla Borio Via Torri Superiore 5,18039 Ventimiglia Italy Ph:39 0184 215 504 e-mail: <a href="mailto:info@gen-europe.org">info@gen-europe.org</a> Visit Torri Superiori and meet Massimo Candela
8 April 2000	In Ventimiglia	
9 April 2000 (SUNDAY)	In Ventimiglia	FREE TIME
10 April 2000	Car to Damanhur	Meet Lepre Viola and Coboldo Melo from the Federazione de Damanhur, 1- 10080 Baldissero C.se(TO) Ph: 00 39 0124.51. 0335.6566635 e-mail: <a href="mailto:divisit@damanhur.it">divisit@damanhur.it</a>
11 April 2000	In Damanhur	
12 April 2000	In Damanhur	
13 April 2000	Car to Geneva	
14 April 2000	Car to Steyerberg, near Bremen, Germany	
15 April 2000	In Steyerberg	Meet Declan Kennedy. Visit Lebensgarten Eco-village;
	In Steyerberg	Visit Lebensgarten Eco-village;
16 April 2000 (SUNDAY)	Car to Aarhus, Denmark	FREE TIME
17 April 2000	In Aarhus, Denmark	Meet Torkil Geen Jensen Chief Planner/Architect Aarhus City Council (Kommune) Ph (45) 89 40 26 22 e-mail: <a href="mailto:sdh@inf&gt;aarhus&gt;dk">sdh@inf&gt;aarhus&gt;dk</a>  Visit Eco 99 – a social housing component of an eco-village in Aarhus  Also meet Soren Dall-Hansen

		Chief Surveyor/Land Inspector/GIS Arhus City Council e-mail: <a href="mailto:sdh@inft.aarhus.dk">sdh@inft.aarhus.dk</a>
18 April 2000		Visit Hjortshoj Ecovillage 15kms north of Arhus. Meet Hans Jakob Jakobson and Ulla Jensen
19 April 2000	Car to Aalborg	Meeting with Stig Enemark Department of Development and Planning Aalborg University Fibigerstraede 11,DK 9220 Aalborg. Denmark Ph: 45-96 35 80 80 e-mail: <a href="mailto:enemark@i4.auc.dk">enemark@i4.auc.dk</a>
20 April 2000	In Aalborg	
21 April 2000	Car back to Aarhus Overnight at Aarhus	
22 April 2000	Car to Amsterdam	
23 April 2000 (SUNDAY)	In Amsterdam	FREE TIME
24 April 2000	In Amsterdam	FREE TIME
25 April 2000	In Amsterdam	FREE TIME
26 April 2000	Drive to Culemborg	Meeting with Otto Munters, EVA Lanxmeer Project in Culemborg located between Utrecht and s- Hertogenbosch, 75 kms south of Amsterdam
27 April 2000	Drive to s-Hertogenbosh	Shown Hooipolder eco-village in s- Hertogenbosh. Meet Jan Hanarts
28 April 2000	Car to Oostend, Ferry to Dover. Overnight nearby	
29 April 2000	Car to Sommerset	FREE TIME
30 April 2000 (SUNDAY)	Car to Southwell Nottinghamshire	Visit Hockerton Housing Project
1 May 2000	Car to Forres and then to Findhorn on Moray Firth	
2 May 2000	At Findhorn	Visit Findhorn eco-village. Meet Eileen Caddy, Carmella Sutherland and John Talbot
3 May 2000	At Findhorn	At Findhorn
4 May 2000	At Findhorn	At Findhorn
5 May 2000	Drive to Edinburgh	
6 May 2000	In Innerleithen, Near Edinburgh	Meet with Tweed Valley Eco-village Group – Public Meeting (Greig Robertson)
7 May 2000 (SUNDAY)	Abbey St Bathans , Near Edinburgh	Lecture
8 May 2000	In Edinburgh	Lecture
9 May 2000	In Edinburgh	
10 May 2000	In Edinburgh	Meet with Royal Town Planning Institute of Scotland
11 May 2000	Drive to Dumfries and Gallway Council	Meet with Council planners; Meet with Royal Town Planning Institute of Scotland, Dumfries and Gallway Branch
12 May 2000	END OF STUDY TOUR	END OF STUDY TOUR