



**Annual Monitoring Report
For
Tir y Gafel Ecovillage**

1st January 2011 – 31st December 2011



Tir Y Gafel Millpond, Winter 2011

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1. Framework for this report

This is the second annual monitoring report for the Tir y Gafel eco-village. The format is derived in part from the planning condition 3 (August 2009) and in part from the layout proposed in the settlement's Management Plan.

From the Lammas planning conditions:

- 3) No later than 1st April each year, commencing in the second year after development commences, the occupiers of the site shall submit to the local planning authority a written report giving details of the activities carried out during the previous twelve months, setting out performance against the management objectives included within the Management Plan, and the number of vehicle trips generated by the development. In the event that the report identifies that any objective has not been met, or that the number of vehicle trips exceeds the targets set in the Traffic Management Plan, a supplementary report setting out corrective or mitigating measures shall be submitted to the local planning authority no later than 1st July of that year. Those measures shall be implemented in accordance with the supplementary report.

From the Tir y Gafel Management Plan:

10. Monitoring Arrangements

The society will produce an Annual Monitoring report. A copy of this report will be sent to Pembrokeshire County Council. The report will give a general description of the projects activities over the preceding 12 months. It will then chart the project's progress against a well-defined set of performance indicators. It will conclude with a resolution for future targets and propose changes to management practices.

10.1. Performance Indicators

1. Annual

- Ecological Footprint Assessment (SEI)
- 75% Productivity target
- Traffic volume and density
- Management objectives evaluation
- Welsh language integration

2. Long term (4 year)

These performance indicators will be evaluated every 4 years due to the long term nature of their improvement program

- Soil health
- Biodiversity
- Number of new trees planted (accumulative)
- length of new hedgerow planted (accumulative)
- Number of new ponds installed (accumulative)

3. Variable

- Grey Water systems

2. Summary of Key Findings

Household Need Calculation

- ⤴ **19.37%** of household needs were met from the site in 2011 (as compared to 9% in 2010). This is considered to be on track for the production of 75% of household needs from land-based activities by the end of 2014.

Traffic Monitoring

- ⤴ The number of traffic movements in 2011 was **11709**. This was well within the limit of 25,278 traffic movements set for year 2 in the Tir y Gafel traffic management plan.

Ecological Footprint

- ⤴ The Tir y Gafel site is considered to have an ecological footprint of **2.39 global hectares/capita** (as compared to 2.55 global hectares/capita in 2010). This is well below the Welsh average of 4.41gha/cap and Tir y Gafel is on course to have a much lower ecological footprint by the end of 2014.

Key Achievements in 2011

Plot holders settling into and developing their plots with a marked increase in productivity this year.

Significant progress on Yr Hwb.

Significant progress on the installation of the hydro-electric turbine

Infrastructural development on site e.g. laying of electricity & telephone cables, laying of water pipes.

3. Performance against Management Objectives

All building and infrastructure development will have a small ecological impact.

Any structure/building will need the approval of the Society as well as the local planning authority. The Society's planning procedure will be exclusively concerned with the low-impact nature of the development and as such will need a full set of plans/drawings/specifications for approval.

The Society will ensure that all development is in accordance with the aims and policies set out within this management plan.

The project as a whole will endeavour to aspire to a one planet ecological footprint, and therefore residents will need to be willing to have their dwellings and lifestyles analysed for research. The results of this will be fed back to inform household practice.

The Society considers that all buildings and structures built to date on site are low-impact. All construction within the project has had a small ecological footprint, with decisions being carefully weighed up to strike a balance between function, embodied energy, lifespan, carbon footprint and regulatory requirements (for example building regulations).

Whilst the first year of the development of Tir y Gafel was characterised by a number of barns being built and subsequently used as temporary accommodation the second year has seen less activity in this area. This is no doubt due, in part, to three families on the site being subject to enforcement action from Building Control at Pembrokeshire County Council. Inherent within this enforcement action is the desire of Tir y Gafel residents to build with as small an ecological footprint as possible balanced against the need for buildings to comply with Building Regulations. Whilst both sides worked towards a resolution in 2011 the situation was still unresolved at the end of the year. Indeed, working towards a solution took up a significant amount of time and energy for those residents involved.

Nonetheless work has continued on building barns and other ancillary structures such as sheds with the emphasis on using locally sourced materials and are therefore considered to be low-impact.

As for last year an ecological footprint assessment for each of the nine households was commissioned.

The total ecological footprint for the development for 2011 was calculated as 2.39gha/cap compared with 2.55gha/cap for 2010.

The amount of global resources available per person is currently considered to be 1.88gha/cap. Wales' ecological footprint in 2006 was estimated at 4.41gha/cap. The Welsh Nation could be considered as having a 2.35 planet footprint in 2006.

The Tir y Gafel project could be considered as having a 1.27 planet footprint in 2011 compared with a 1.36 planet footprint in 2010.

Lammas was assisted in calculating the ecological footprints of the residents by 4th World Ecological Design, who advise that that the data gathering can produce outputs with a sensitivity/accuracy of +/- 15%.

The natural wealth and biodiversity of the land will be enhanced.

During site and building works care will be taken not to cause any environmental damage. Any areas of notable environmental value (e.g. broadleaf woodland, hedgerows, and wetland) will be acknowledged and incorporated into the site plan in such a way as to conserve and preserve their natural value. Any existing wildlife corridors will be noted and conserved. Lammas will in effect be creating a network of small fields/forestry plots that will each be managed individually. In time, many individual ecosystems will establish themselves on the site leading to what Lammas expects to be an impressive increase in biodiversity.

The Tir y Gafel site continues in its huge transition from pasture to a mosaic of different ecosystems.

- ✧ *A substantial amount of tree planting continues to be undertaken across the site with over 7000 trees now planted.*
- ✧ *The millpond continues to be managed for biodiversity and wildlife through a policy of maintaining water levels, regulating algal blooms and cultivating an attitude of appreciation and conservation. It contains a healthy population of trout, as well as supporting a range of breeding waterfowl (including Canada Goose which, despite being considered a problem invasive species, are nonetheless accepted by virtue of their numbers being naturally limited by the small area of the millpond itself and by virtue of their benign effect on native flora and fauna). The millpond hosts a large population of breeding toads (toads are now listed as a UK Biodiversity Action Plan priority species). The millpond is also a valuable feeding ground for bats (a European protected species). Otters have also been sited using the millpond (another European protected species).*
- ✧ *Three new ponds were dug in 2011 bringing the number of new ponds on site to a total of 9.*
- ✧ *Approximately 990 metres of new hedgerow has been planted in 2011. This brings the total new-plant hedgerow on site to 1870m thus far.*
- ✧ *A breeding bird survey was undertaken by the RSPB Volunteer & Farmer Alliance scheme. This is helping us monitor the size and distribution of bird populations on site. We are hoping to observe increase in bird activity as a result of the creation of the mosaic of varied habitats on site.*
- ✧ *Tir y Gafel residents undertook a voluntary conservation effort to eradicate Japanese Knotweed from the woodland area, where it has taken a hold around the Ffynnon Deg spring. This is an ongoing initiative which will continue over the next few years.*
- ✧ *The woodland is being managed in line with the Woodland Management Plan, increasing the woodlands biodiversity and conservation value. In 2011 hazel trees were planted in the hazel coppice area in accordance with the Forestry Commission Felling*

Licence. Areas where felling has occurred are being replenished by the natural regeneration of broadleaved tree species, notably ash.

The settlement will become integrated into the local community and will be an asset to the local economy.

We recognise the importance of open negotiations and consultations with local people in order to foster the spirit of mutual understanding and respect. We hope that the low-impact nature of the development, coupled with the many local benefits, will lead to local people appreciating the advantages of the development.

Local benefits will include:

- A boost for local businesses - Owing to the project's low impact ethos, residents will naturally shop locally and make full use of local businesses, products and trades. Visitors to the settlement will also be encouraged to shop locally.
- Rights of way – The project will create a network of footpaths for public use through the site, opening up the land for walkers.
- Affordable housing – There will be a provision of affordable housing for people with low impact aspirations.
- Local economy - The settlement will add to the local economy by offering a range of skills, crafts and produce. The Society will encourage businesses developed within the settlement to consult locally in order to complement, rather than compete with, existing small businesses in neighbouring towns and villages.
- Public transport provision – The Lammas minibus will be available for local people to use.
- A part-time shop and café facility.

The Tir y Gafel residents are indeed, by virtue of human nature, weaving themselves into the local community. They play an active role in shopping locally and participate in local events. For example Tir y Gafel residents hosted a stall at the Tegryn Carnival and gave a good showing at the Glandwr produce show). In addition residents on-site organised carol singing in Glandwr village to help raise money for the Urdd Eisteddfod 2013 as well as organising a bonfire night party on the 5th November to which all were invited and many local people attended.

Lammas published a local newsletter (distributed to all dwelling within a 5 mile radius. This is included in Appendix 1).

The project will offer opportunity of affordable housing.

The properties will be available in perpetuity. That is to say that when a resident leaves the project, they will sell their lease on the open market. The lease will contain the various conditions and regulations which will ensure the low-impact aims of the project will be maintained. Lammas fully expects that (due in part to these restrictive conditions and also due to the continuing availability of land on which low-impact developments can take place) the prices for such leases will fall well below market rates.

All 9 plots were occupied for the entirety of 2011 (unlike 2010 when residents were still in the process of arriving). No leases were sold in 2011.

There will be an effective traffic reducing strategy in place.

The project has a well defined traffic management policy in place which takes into consideration all aspects of traffic generation. Essentially the project is an integrated residential and livelihood development which will by its nature allow residents to live a lifestyle less dependant on vehicle use. Most of the household needs will be met directly from the site. These include:

- Land-based employment

- Additional employment
- Social Networks (by the nature of community)
- Recreational provision (eg, playground for children, waking for adults)
- Services (Water, electricity, fuel)
- Livelihood support (skills and knowledge)

The regulatory mechanisms which will ensure that traffic will be minimised include:

- Residents will be required to share vehicles.
- A Society minibus will provide a link with local towns.
- The minibus will also be available for additional trips/ one-off opportunities.
- All deliveries to and from the site will be coordinated.
- Financial incentives will be used to encourage visitors to travel by public transport.
- All traffic will be monitored and reviewed on an annual basis.

During 2011 an average (mean) of 7 vehicles were operated from Tir y Gafel by residents (an 8th vehicle arrived in December).

Residents were charged £200 pa (£16.67pcm) for running vehicles from the site as a disincentive for vehicle use.

One car share scheme was operated on site.

For the volunteer weeks, a 'Green Dragon' minibuses to was hired to ferry volunteers around.

Vehicle journeys to and from the project were counted by using an automated traffic counter. The automated traffic counter operated from 10th April to 14th August. The data for the whole year were extrapolated from this. This traffic counter data is included in Appendix 2.

Average vehicle trips per week made to and from the site (noting that a return journey is 2 trips) was 225.

Average vehicle trips per day made to and from the site (noting that a return journey is 2 trips) was 32.

Total number of vehicle trips in 12 months (from January^{1st} 2011 til December 31st 2011) was considered to be 11709 (of which 300 were as a result of disability transport). The maximum vehicle count (as detailed in the Traffic Management Plan) is set at 25,278 per annum during the first three years (considered as the Building Phase) and 17,810 per annum thereafter. The current level of traffic generated by the Tir Y Gafel site is therefore under the allocated quota.

The settlement will welcome visitors and provide an educational experience

It is likely that the project will, due to its innovative nature, attract visitors. Most of these will be attracted to the exploration of principles of sustainability. It is important that examples of low-impact development are available for people to experience. Low-impact development offers one potential solution to the challenges of addressing climate change, limiting fossil fuel consumption, affordable housing and the farming crisis.

It is equally important to balance the project's contribution to a wider sustainability transition with the need to ensure that visitors' travel arrangements are also low-impact.

Thus the Society has a policy that welcomes visitors within a clearly defined framework, designed to minimise visitor vehicle use.

The settlement will remain open to visitors at all times, though reserves the right to implement measures designed to control visitor numbers (for example parking fees), and will endeavour to encourage the clustering of visitors on certain days when residents of the project will give guided tours of the project.

A range of information resources will be available for visitors.

Access to the settlement will be from the Llanfyrnach to Glandwr road. At the entrance to the site will be a gateway featuring a sign which will clearly display when the settlement is open and closed.

Adjacent to the car-parking area and Minibus stop will be a "Welcome Point" which will serve to inform visitors to the range of facilities available.

There will be a community hub building on the site. This will provide a meeting place for both community members and visitors. Indeed, it will be the starting point for guided walks and tours.

It will also house a part time café and a part-time shop (the trading post) from which visitors will be able to purchase produce from the locality.

Each Saturday, from 16th April 2011 to 3rd September 2011, advertised tours of the site were and given by residents to members of the public. There were 35 tours in total in 2011 and approximately 1000 people visited the site in this way.

In addition to the Saturday tours, a number of other facilitated tours were given to the following groups:

Ysgol Easmael

Ysgol y Preseli

Ysgol Casblaidd

Ecole Alsace

1st Crymych Guides

Hermon Young Farmers Club

Eco Home (Vicky Moller) Tours

Dyfed Smallholders Association

Bristol Permaculture Group (Shift Bristol)

University of Cardiff (two separate visits)

University of Sheffield

Lord Dafydd Ellis Thomas

A number of events/ conferences and courses were also held at Tir y Gafel:

Seven Lammas experience volunteer weeks (104 attendees)

Two week long courses on roundwood timber framing, cob and lime plastering at Plas Helyg.

Plan B Conference

Eco-Village Conference

In addition residents at Tir y Gafel hosted 150 volunteer placements

The project will provide a support infrastructure for land based sustainable livelihoods to develop

Each household will be required to provide at least 75% of its household needs from land based activity.

Each household will have access to the equivalent of approximately 8 acres on which to develop a land based livelihood. Residents will have exclusive use over some areas of this land, and will share other areas.

To create a sustainable land based lifestyle is enormously challenging. The farming community will affirm that in today's economic climate there is very little money to be made from the land. This coupled with the challenges of environmentally conscious living (for example, reducing one's travel needs) creates an adverse environment for low-impact smallholders. Only through establishing a sufficiently large group of low impact holdings can the potential of the project as a model for sustainable development be fully realised. Thus we are planning a settlement of 9 smallholdings.

With the momentum of the group helping to sustain the project in the long term, a local economy centered around land based productivity will flourish. A culture of low impact lifestyles will grow and provide support and inspiration both within the project and beyond.

The support services which Lammas will offer its residents include:

- The society will provide a health and safety certified kitchen for residents to process and thus add value to their food produce.
- There will be a part-time shop (trading post) and café from which residents can sell their produce.
- Residents will be able to advertise and sell produce through the Lammas website.
- If residents produce is of a sufficiently high standard, they will be able to use the Lammas logo as a marketing tool.
- Lammas will also offer each household timber from the community woodland so that the production of value-added craft can be explored.

Whilst still in a very early stage of development, there has been a notable increase in the proportion of household need produced from the land in 2011 compared with 2010, particular in relation to food production.

<i>PLOT</i>	<i>Household need</i>	<i>Needs met from site (including income)</i>	<i>Percentage of needs met</i>
<i>a</i>	4650.2	519.07	11.16
<i>b</i>	13171.51	630.96	4.79
<i>c</i>	9558.33	2620.16	27.41
<i>d</i>	12624.74	1606.14	12.72
<i>e</i>	13313.4	597.21	4.49
<i>f</i>	8844.78	3898	44
<i>g</i>	11188.04	2766.37	24.73
<i>h</i>	5064	911.75	18
<i>i</i>	9389.73	3453.5	36.78

Value placed on the total household needs for the settlement: £ 87,804.73

Value placed on the needs met directly from the site: £ 17,004.16

The settlement met 19.37% of its needs from land based activity during 2011.

The Tir y Gafel Management Plan does not give targets for the percentage of household needs met from the land in the first two years. However, it does give forecasts for years 3, 4 and 5. These are:

Year 3 41%

Year 4 68%

Year 5 100%

In year 1 the percentage of needs met from the site was 9% and it has now approximately doubled to 19.37%. If land-based production continues at this rate for the following three years, Tir y Gafel can be considered to be on target to meet the 75% criteria laid down in policy 52.

There was a notable increase in the amount of produce grown on the land in 2011 compared with 2010. The value of produce grown and consumed by residents was calculated as £8362. This was mostly vegetable and salad crops and eggs. In addition a number of business enterprises were beginning to find their feet and the value of income from land-based enterprises was valued at £4980. Enterprises included the production of seeds for a local seed company, selling of vegetables, salads and eggs to local greengrocers and organic veg. outlets, silage purchased by a local farmer, honey sold locally, edible native plants sold to restaurants, willow crafts and cuttings.

In addition the following values for household needs were calculated as being produced from the land in 2011.

Fuel for Heating: £1293

Fuel for Cooking: £12

Drinking and cooking water:£611

Bathing and washing water (including laundry): £494

Clothing: £0

Electricity £370

Telephone/internet: £0

Annual Dwelling maintenance:£882

Council Tax: £0

Service charge/ground rent £0

Transport costs £0

The project will conduct and publish research about the development

Lammas aims to promote low-impact development as a tool for realising Wales' sustainability goals. Lammas will facilitate a research team to conduct and evaluate the project's success. The research will primarily be concerned with:

1. The settlement's ecological footprint.
2. The settlement's impact on the land in terms of habitat, biodiversity and soil quality.
3. The impact of the settlement on the local economy and community.

Research will be published through a number of media to maximize accessibility and stimulate scrutiny lay, policy, planning and academic stakeholders. A monitoring report will be produced on an annual basis. In addition to this Lammas will conduct specific research projects so that the project can be used as a model for learning and the on-going development of best practice.

The Tir y Gafel site was the focus of a number of research projects in 2011 with researchers from the following universities and colleges undertaking studies on the site:

*University of Cardiff
University of Aberystwyth
University of Brighton
Writtle College, Essex
University of Freiburg
University of Glamorgan*

Lammas actively supports research on the project. Research reports can be found at the Lammas website (<http://www.lammas.org.uk/lowimpact/index.htm#campaign>).

Two 2011 dissertations are located there. These are:

Does Welsh Planning Policy effectively address Low Impact Development in the open countryside? by Louise Kulbicki, University College of London

Towards Sustainable Development in the Countryside by Joana Tolle, University of Swansea

In addition one Tir y Gafel resident, Jasmine Saville co-authored a report, and was involved in, an intergenerational project run by the Pembrokeshire Association of Voluntary Services involving 1st Crymych Guides and Glandwr WI:

Intergenerational practice for a sustainable future: a case study, Bettina Becker & Jasmine Saville, Working with Older People, 2011

This annual monitoring report will be published online.

The development will embrace and support the Welsh language.

Lammas recognises the importance of the Welsh language and culture in North Pembrokeshire and sees low impact development as supporting this local language and culture, united by a common connection with the land and local rural knowledge and traditions. Lammas has a Welsh Language policy to ensure its support of the Welsh Language. Whilst several proposed residents already speak or are learning Welsh, most intend to learn once they move onto the site and Lammas aims, over time to become fully bi-lingual.

Signage around the Tir y Gafel site is bilingual.

Of the 17 adult residents, 6 attend Welsh classes.

On open days all feedback forms are bilingual and leaflets are offered in English and Welsh

On the Lammas website, those pages considered to be 'key' are available in Welsh.

Appendix 1 – Local Newsletter, Spring 2011