



KEELE UNIVERSITY

STUDENT SUSTAINABLE HOUSE INITIATIVE REPORT 2013/14

SECTION 1: DATA COLLECTION
SECTION 2: GARDEN AND
OTHER

DATA AND ANALYSIS

ENERGY, WASTE AND MEALS

INTRODUCTION

The Student Sustainable House Initiative (usually referred to as the Bungalow or Student Sustainable Bungalow, SSB) has had some significant problems in its data collection this year. Energy data in the second semester has been pitiful, much has been lost due to problems with the hardware. Some steps have been taken to rectify this for future residents. Alongside the data for energy and waste there is also two months' data which was obtained by recording exactly who came to the Bungalow for our evening meals between October and November. In the second semester and in the final weeks of the first, this was discontinued due to the additional stress and work it was putting on the three finalists who lived in the house.

WASTE

Having compiled and studied the data measuring the amount of the waste produced in the house this year, some results must be explained, or at least pontificated on. One problem worth considering is the advantages and disadvantages of a 'when the bin is full' data collection method versus a weekly collection method. For creating useful data that is easy to draw conclusions from and is less likely to create outliers the latter method would be preferred, but this would inevitably cause half full bins to be thrown away and potentially lead to waste being left around the house until the end of the week. As such the method used was one of weighing and taking out the waste as and when individual bins became full.

The result of this is that the most useful scale to measure the consumption rate is per month, and some of the months have significantly different results than others. The second important factor to keep in mind, which will become more evident in the third section of the data report, is the sheer number of people who visited and used the space of the Bungalow. It is not an exaggeration to say that there has probably not been a dozen days in the past year where fewer than three non-residents stayed for a meal, to help in the garden or just to relax. The energy data for this year is approximately equivalent to that of last year but the recycling rate is inferior.

Data Collection:

A small booklet was hung by the door next to some hanging scales to record the waste data. These scales attracted many questions and having the book there provided the excuse for curious visitors to leaf through and ask questions on recycling rates across the university, which was fruitful. The data was recorded with information pertaining to the date, the type, and the weight in kg. This data was digitized later. Upon studying the data and producing the report, an online document was created which will help future residents record their data and which produces graphs automatically. The rationale for this change is that it will make it clear to the residents *every* time they input data how well they are doing, which will allow them to consider and correct their own actions as they deem necessary. The drawback of using the online document is that it loses the utility of the booklet as a talking point, but this seems a small issue. Regardless, it is up to the incoming residents to decide, with thanks for the help from Ulrich Pohanka (a non-resident highly involved in the SSB), the new tables and graphs are ready for them to use. Finally it should be noted that evidently the data is recorded by weight, which is more punishing for glass waste than the others.

Data Analysis:

The Figure 1 below shows total waste per month, divided by type. Worth noting is the outliers in terms of glass waste, which spiked in November, February and to a lesser extent in April. The Bungalow has created something of a tradition in its Halloween events, which have continued, and accounts to a large degree for the November spike, in terms of both glass and plastic, as there was clearly a large cleanup that took place on the second of November according to the data collection booklet.

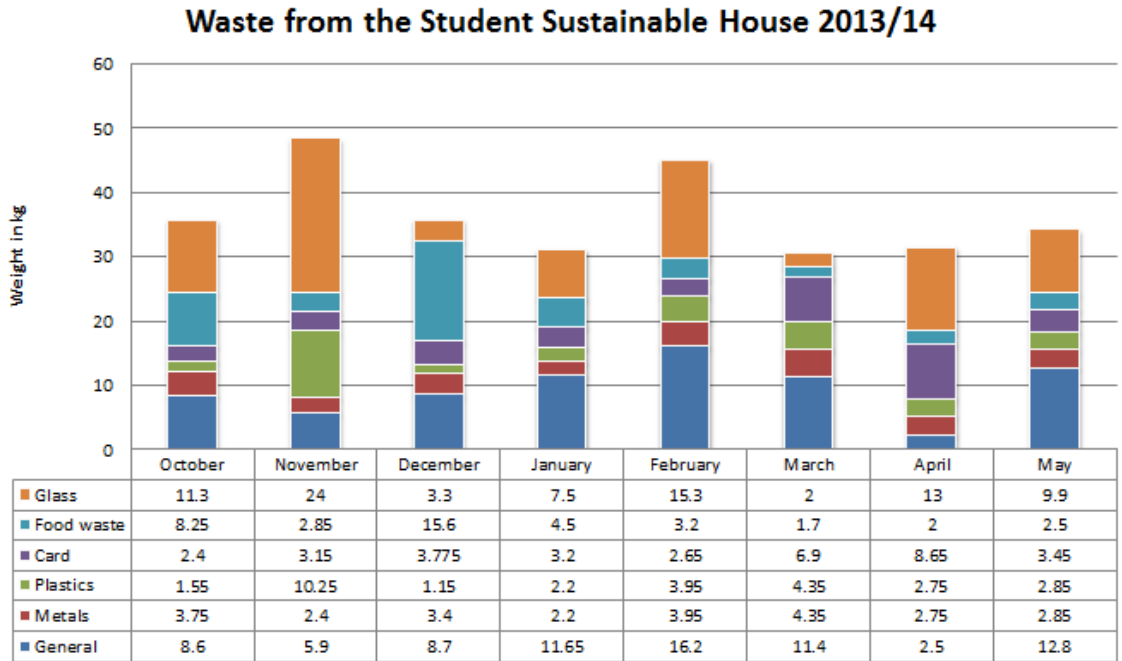
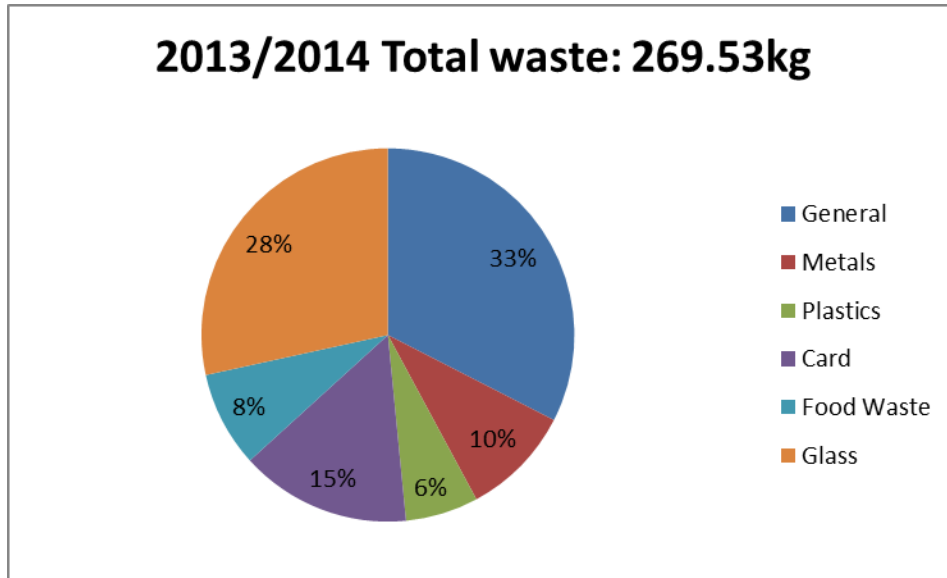


Figure 1: Waste produced in the Sustainable Student Bungalow by Month and Type in the year 2013/14.

Another outlier worth mentioning is that of December’s food waste. After some discussion it has been concluded that this was likely caused by obtaining too much bread from the local baker who trades on campus in the two weeks leading up to the end of the first semester, when significantly fewer students were still on campus and free enough to visit. To further explain the situation, the baker visits us each week on a Tuesday afternoon after he has closed his stall outside the Student’s Union. He sells to the residents the excess bread that he was unable to sell that day, as well as extra that he prepared just for the residents and the SSB community. This allows the Bungalow to purchase around £50 of high quality bread every week for £15 or less. This deal has been crucial to being able to afford to feed so many people on a daily and weekly basis throughout the year. There is no reason why this will stop in the year ahead, as one of the future residents, has a very good relationship with the baker, and it is a mutually beneficial one. There is a less formal arrangement with two of the vegetable traders at the Newcastle Market who sell bulk orders to the Bungalow on a weekly basis. This ensures that most of the food consumed by the Bungalow residents and the community is locally sourced.

Figure 2 shows the totals for the entire year, with a disappointing 33 percent general waste. In the second semester, after February’s particularly bad results, efforts have been made to try to avoid

purchasing *anything* that comes in packaging that is non-recyclable, but a stricter regime of enforcement would have to be applied to have had more of an effect. Another factor worth mentioning is that the Bungalow has managed to hoard a surprisingly large amount of semi-useful things over the past three years, and there were a few days in both February and April when a concerted effort to purge the house of useless tat was made, which has had an effect on the consumption. As a result, lessons were learned about the practicalities of trying to reduce consumption, and the single greatest factor is the self discipline and hardwork at maintaining the



space put in by the residents and local community members.

Figure 2: Total waste produced at the Student Sustainable Bungalow in the academic year 2013/14.

ENERGY

As mentioned above, the energy data collection this year has been poor at best. This is due to a combination of hardware problems and the residents inadequacies, including times where the problems appear to have been fixed, only to find out a week or so later that the data was still not recording or it was recording intermittently, as happened in February. A new energy monitor has been acquired which is yet to be installed, so hopefully these mistakes will be avoided in future.

The data we have suggests that we hovered between 16-20 kWh as was the case in October and January as shown in Figures 3 and 4.

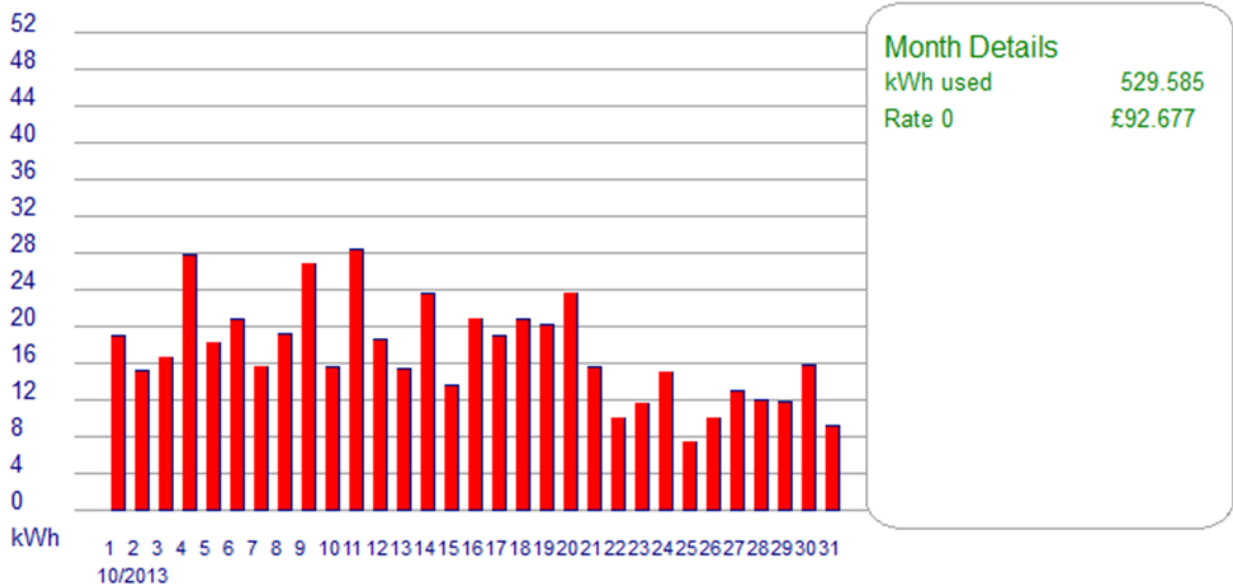


Figure 3: October energy consumption in the Bungalow

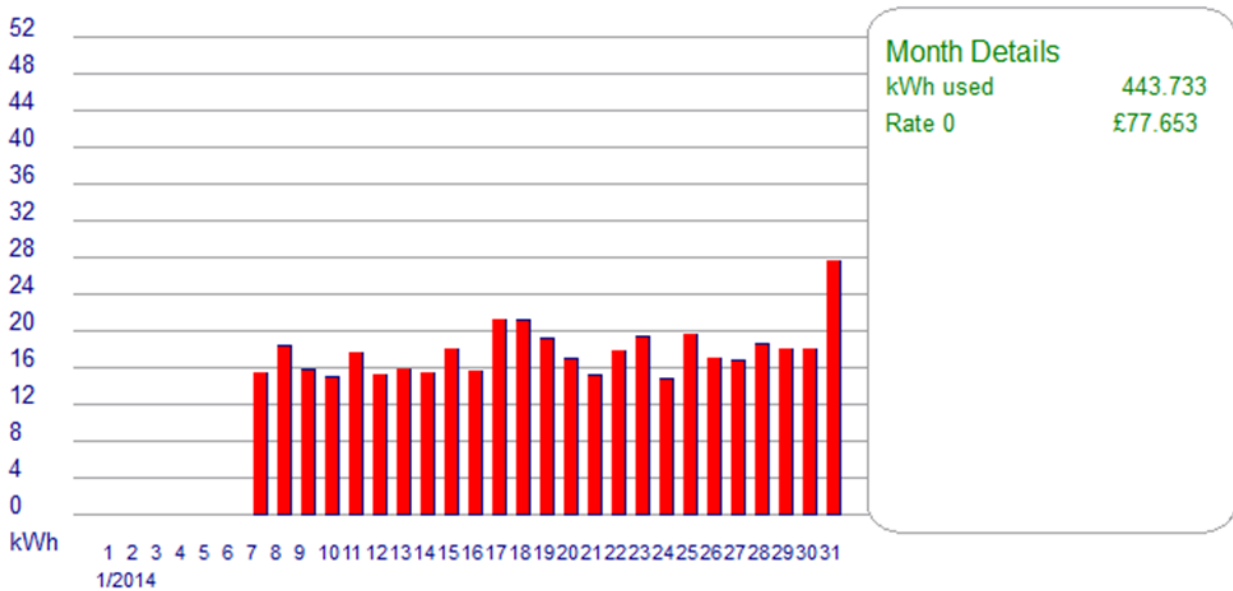


Figure 4: January energy consumption in the Bungalow

As data from the other months has been far less consistent than that of January and October, there is little that can usefully be said with a high degree of confidence. However, there is a trend between September, October and into November that there was a decline in our energy use in between first arriving and settling in to the house, as the residents became more aware of their energy consumption.

Having studied the Reducing Energy Consumption through Community Knowledge Networks (RECCKN) project's successes, the Bungalow arguably has similar effects in horizontal information transfer through encouraging engagement with and discussion of energy consumption and reduction. Future residents should also learn from RECCKN's success in using energy monitors more visibly in order to spark discussion on the subject.

Finally, while the data collection has been poor, there still has been a real commitment to keeping energy use down as well as teaching those who came in and out the house to take part in lowering their own energy as well as helping actively participating in reducing the consumption of the Bungalow.

COMMUNAL MEALS

Almost all the meals served at the Bungalow this year have been entirely plant based. This should have cut the carbon footprint significantly, as well as reducing the carbon footprint of those who ate with came to the dinners, as the majority of them were omnivores who came away with a far better understanding of the possibilities of a diet that is weighted more heavily towards plant based nutrition than meat based nutrition. The only exceptions have been where local products have been acquired, for instance a local farmer has been supplying us with a basket of his eggs on occasions.

As well as the reduction in ecological footprint of a plant based diet, cooking en masse also has the advantage of reducing the atomized nature of student cooking in halls of residence. Each night that 8 people ate only 4 hob tops might have been used, instead of 12+. While this is probably a rather small contribution, it bears noting.

It is also true that the Bungalow garden has been able to provide its residents with vegetables to subsidise their consumption, but unsurprisingly when dealing with these kinds of quantities that (even after we stopped recording the statistics and driving for more people, attendance dropped only slightly) it was not a huge dent into the food consumed during the Autumn and early Spring.

Here would be appropriate to mention one of the improvements that has been recognised most frequently, which would be the addition of a chest freezer to store produce grown at the Bungalow during the summer for the residents of the following semester. A visit to Staffordshire University's Extreme Gardening society demonstrated how useful a chest freezer can be for student gardeners (theirs is powered by solar panel!). Residents are planning on putting in a Key Fund bid for this among other improvements in the near future.

Data Collection and Analysis

Communal Meal data was collected through use of a chart that was on the wall during the 9 weeks that data was collected. Data records exactly who came on any given day and how often they came. In the nine weeks 508 meals were served, with a peak of 82 in one week (See figure 4). The record was 25 in a single night, when we the international students who were part of the E&S for the year were invited, and took part in a pumpkin carving. Other particularly successful nights were societies were invited for small social events, such as the Philosophy society and the Nerdfighters society.



As expected, vegan pancakes went down a treat.

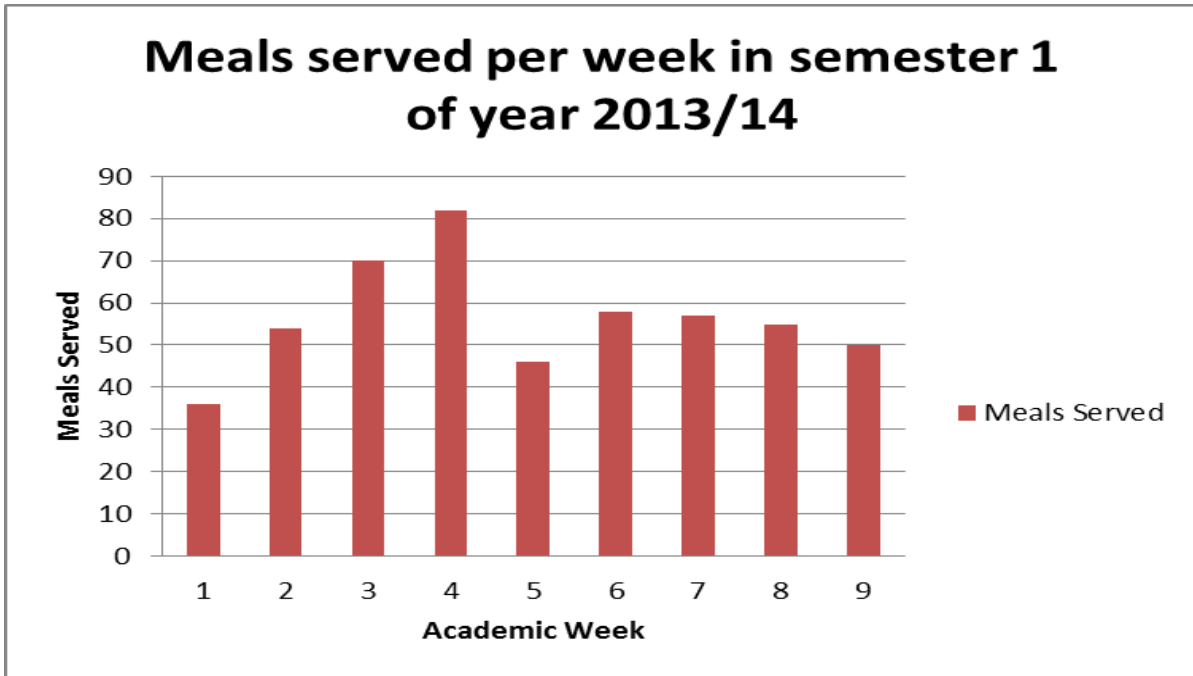


Figure 5: Meals Served per week in semester 1 at the Student Sustainable Bungalow for the months of October and November.

The communal meals that were held (and continue to be held) have been the single most successful means of promoting the Bungalow that have been achieved this year. It was particularly effective because it encouraged people to bring friends and ask questions about how food is related to sustainability, and how individuals can make an effort to improve their own ecological footprint. It was also successful because it gave people excuses to come over again and again, as well as to get involved, as it was common for individuals or groups to cook for everyone else (often bringing their own ingredients, or donating to the project) after they had attended a few times. It stands as one of the proudest successes that time and time again people have mentioned and followed through with switching to a more plant based diet after attending the meals, and the Bungalow community has led to at least a half dozen people switching to a more plant based diet.

GARDEN AND OTHER

CROP ROTATION AND PLANTING

The residents have built upon the crop rotation that was outlined in the Bungalow Handbook that was created by last year's residents, changing it slightly in order to account for some misplaced vegetables that were planted in the spring of 2013. A detailed plan of how to proceed with planting for the next year has been developed. Mike Lunn-Parsons has been closely involved with everything that has been done in the garden including the creation of the next year plan; so it is hoped that there will be no problems in ensuring a smooth transition between now and next year given that he will be one of the residents.

One advantage that future students will have is that from the next year onwards second year students will be allowed to reside in the Bungalow. This avoids the 'reinventing the wheel' problem that has arisen when former residents who were finalists have left, taking their experience and expertise with them.

A large amount of seeds have been from Tamar organics this year, as well as creating an account with them, which next year's residents are free to use if they so wish. In planting onions, two different growing methods were experimented with, comparing the effectiveness of onion sets and onion plantlets (the sets have been more effective at present, but the proof will be in the cooking).



Figure 6: Onion plantlets looking a little sad at the moment, but the sets (visible in the top right) are going well.

POLYTUNNEL

The Polytunnel has predictably been a great asset to the project this year, and it is currently filled with a combination of tomato plants that are doing well, a section of herbs, as well as some salads, courgettes and other squashes which are being prepared for planting out.

The polytunnel door has been replaced in a joint effort by Alex Melson (a resident) and Francis Parry Roberts (a non-resident), by trimming an old piece of fencing, reinforcing it with boarders, adding hinges and then putting it up. Due to imperfect installation, it is possible that the hinges will have to be replaced in a few years, but time will tell.

COMPOSTING

Two new compost bays were built in the back garden, as well as fixing up the old ones, and have started on improving the quality of the compost we produce, by mixing in paper with the food waste in layers.

Extra compost and manure was obtained from locals who wanted to support us, including the local farmer John Summerfield who also donates eggs to us on occasion. This relationship has been especially useful, because the Bungalow now have an effectively unlimited amount of good manure from a local producer which may be used both for by the Bungalow and Student Eats.

Wasted coffee beans were also collected from one of the campus Coffee outlets this semester to be used for composting, which came out of a message received on the Facebook page which suggested that this be done.



Figure 7: Above, making the sieve, Left, bonus picture of Alex and Mike using it.

Unrotted material has been filtered out of the compost using an upcycled sieve made of an old cot, chicken wire and a staple gun. This improves the quality of the compost produced.

FACEBOOK

Since the creation of the Facebook page it has garnered over 150 likes, with a few of our posts 'reaching' over 500 people, and often breaking 100. The page was used to manage the large numbers of people attending dinner nights, posting announcements to let 'followers' know which nights had been declared out of bounds for visitors.

Some effort was made to broaden the kinds of posts on the page to more comedic/interesting sustainability articles and videos with limited success, and with further testing maybe it will be found that this is useful to increase awareness of the page.

The page will hopefully continue to act as a place for people to post photos and ask questions of the residents, which has happened intermittently. It will also act as a long term narrative sustaining page, which hopefully will be able to let past residents know what is going on in the project long after they leave the university.

FINAL THOUGHTS

Living as a resident in the Bungalow has allowed its residents and visitors to grow as people, gain new skills and experience. Those involved with the project have developed gardening skills, learned how better to deal with conflict; about organizing groups of disparate individuals; about the creation and maintenance of rules to allow for a more comfortable environment for all residents.

One thing that can definitely be agreed on however is that the Bungalow is not suitable for final year students. It was only thanks to the inexorable effort put in by community members such as Mike Lunn-Parsons, George Blake, Francis Parry Roberts, Helen Richardson, Ulrich Pohanka and others that so much was achieved despite the heavy workload of the finalist residents.

The Student Sustainable House Initiative is a wonderful project and opportunity that has the potential help create better ecological citizens among the student community, not just for those living in the house.