

ScotPEN Wellcome Engagement Award

SWEA Final Report

This form, including relevant appendices, must be submitted electronically as a single PDF file, **no later than 22nd December 2023**.

Please send to: scotpen-wellcome-engagement-award@glasgow.ac.uk

Please note, this information will be shared with external evaluation consultants who have been commissioned by SWEA and Wellcome, and will be used for the purposes of evaluating this grants scheme. The data gathered is extremely valuable in understanding the value, outcomes and impacts of this scheme as a whole; what improvements need to be made; and will help to inform how Wellcome PE Enrichment grants are supported and awarded in the future.



1. Project Information

Project lead: Name and position	Professor P Smith/ Professor D Feliciano/ Dr J Wardle
Project title	Food systems in a changing climate: From global to local
Start date	1 st August 2021
End date	31 st October 2023
Total funding awarded	£33625.60

Project summary

Please refer to the summary originally provided in your application and modify it if appropriate. (Summary for external publication; maximum 250 words).

Food systems are simultaneously a contributing cause of climate change and depletion of natural resources. Additionally, climate change can affect food production in regions where the negative impacts are more acute. The UK food supply is exposed to risks from weather-related shocks to international food production and trade. These shocks can increase food prices which can disproportionately affect lower income households and remote regions. This project engages school pupils using a mix of online and/or in-person iterative sessions, individual research by pupils, stakeholder engagement, group work and engagement with the wider community, to support pupils and their communities to assess the climate risks of food supply facing three different locations in Scotland, including both rural and urban areas. Pupils will also research and design, together with the community, adaptation strategies that could mitigate potential risks of food insecurity where they live, while ensuring sustainable and healthy food systems, i.e. those that promote all dimensions of individuals' health and wellbeing, have low environmental pressure and impact, are accessible, affordable, safe and equitable, and are culturally acceptable. Project results will be published in media outputs of pupils' choice. The activities will contribute to the focus of our research programme (SHEFS), which is bridging the gap between science and practice to understand and solve current social and environmental problems. The activities will contribute to the Sustainable Development Goals 2 – No hunger, 11- Sustainable cities and communities, 12 – Sustainable production and consumption, 13- Climate Action, 14 – Life below water and 15 – Life on Land.

2. Inputs

What resources were used in the development and delivery of the project?

For example: funding including any additional/partnership funding; in-kind support; key staff involved; partners – internal or external; training/support received.

Three different schools were engaged with over the duration of the project, using social capital from the main researcher (Diana Feliciano) and a member of university staff specialising in engagement and outreach (Barbara Gorgoni) to establish relationships with relevant teachers and leaders. Diana then used these connections to deliver teaching sessions to the children and encourage engagement with local food producers. As part of the initial sessions it was arranged for a professional ecologist to give a talk on the impacts of meat consumption. Barbara was also instrumental in assisting the schools and the university researchers with financial transactions and queries relating to project costs and reimbursement.

A specialist consultant, Iain Brown, with a strong background in government advisory roles along with decades of experience on climate change work was commissioned to produce the two key documents.

Funding was used to employ three final year university students to assist with pupil engagement during their activities, record and photograph in-school and online events and disseminated their outputs. The students helped to create two videos which they disseminated on YouTube, transcribed recordings and updated social media pages in the form of a dedicated blog. These activities gave the young adults real-life working experience and enabled them to widen their skillsets and gain valuable experience for their CVs at a crucial time in their career stage. They were also given the opportunity to be creative and develop other skills relating to the project's outreach which they wanted to work on.

Funding was also transferred to the schools for activities described below.

3. Outputs

- (i) **Audiences and partners.** What individuals/ public groups were involved? (e.g. young people; adults; families; schools; community groups; local residents; patient groups etc.). Please also include any demographic data collected (e.g. age; gender etc.).

The main recipients of the activities around climate change relating to food systems were the schoolchildren from Kemnay and Bucksburn Academies (S1 and S2 pupils) and Bracoden Primary School (P7 pupils). Some of these activities were focused around classroom sessions delivered by the main researcher. However, many activities involved interactions between the school children and teachers with organisations, farms and other businesses within the local community. It was reported from Kemnay Academy that this project was recognised as a success by the school as well as the local agricultural community. The bodies involved with the school activities include local farm shops, a community garden and café venture, a countryside classroom on wheels and local farms.

The dedicated blog and two videos uploaded to YouTube are free to access and are aimed at a wide general audience to improve knowledge of the impacts of food systems on climate change. They are suitable for a wide range of ages and existing awareness levels on the topic.

The documents produced by Iain Brown are targeted at an audience of educational professionals. The first document is a handbook designed as an interdisciplinary teaching resource to facilitate integration of the topic of food systems relationship with climate change across different subject areas taught within schools. This is an important resource as we found that climate change related issues are often confined to Geography, whereas in reality, it cuts across most, if not all subjects.

The second document is a briefing report which summarises findings from our follow up engagement activities with the schools. It compares what the children actually know, with what would be beneficial for them to know, given that climate change will be one of the major challenges for their generation. This document could therefore assist school leaders, teachers, and potentially policy makers in making meaningful changes to the curriculum. These could be minor or major changes to address the knowledge gaps, depending on the authority and level of the body involved.

- (ii) **Activities.** Please indicate the types and numbers of activities or events delivered and/ or resources produced (e.g. festival; exhibition; workshop; walking tour; video; publication; online resource).

In-person visits and online interactive sessions have been used by the researcher to engage with the children and staff. Online sessions were used due to ongoing COVID restrictions at the time. The classroom sessions were followed by children pursuing related activities with teachers and external bodies. The teachers added impact to the project by making links to the school's wider environmental goals and work towards recognition in the Eco-Schools program. Activities associated with the project include a(n):

- online introductory session to challenges of sustainable food production
- presentation to classes on meat consumption
- presentation on local and imported food
- presentation on food systems of a changing climate in a local context
- visit to a community garden
- visit to a local supermarket to examine food origins and packaging
- trip to an allotment
- production of a top-trump card game on sustainable food
- trip to a local farm
- food tasting at a farm shop
- poster production on how food choices affect carbon and water footprints
- production of an "Eat to save the planet" recipe book
- practical session on growing potatoes, beans and peas
- introductory talk on the Sustainable Development Goals
- interdisciplinary project "grow, test, cook and taste"
- "One Planet" picnic
- "cook and share" celebration event
- food based knowledge-exchange activity with a German school
- establishment of a polytunnel for food growing and educational activities
- quizzes

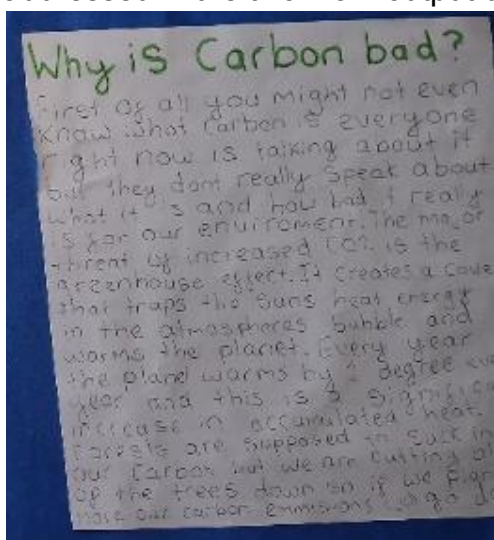
4. Evaluation

What evaluation method(s) did you use to gather evidence and indicators of outcomes and impacts?

The children's responses and engagement with the activities at the time were initial indicators, with materials made by pupils as follow ups adding further insight.

Some activities were conducted with the research team present, with the pupils and researcher/assistants all able to ask questions. This allowed the researcher to gauge the level of understanding of the information delivery sessions, and provided an opportunity clear up misunderstandings and deepen knowledge through examples. These interactive sessions were audio recorded and photographed, with transcripts allowing further analysis of knowledge levels.

Observation of the materials produced by the children gave an overview of comprehension levels and their level of engagement and interest. It was seen that the pupils were enthusiastic about the topic, had some background knowledge and learned new information from the sessions. However, it was also observed that in some cases, comprehension was somewhat muddled. For example, there was a notion that carbon was "bad", rather than being channelled from beneficial places (e.g. soil) into the places where it was having a detrimental effect (i.e. the atmosphere). These knowledge gaps were then addressed in the two main output documents.



5. Outcomes/Impact

What happened as a result of the project? How many people did you reach/engage? Please refer to the intended outcomes provided in your Application. Please highlight whether these outcomes occurred, and any other outcomes, as may be appropriate.

- (i) **Public.** Number reached/engaged; key outcomes.

The children participated in real-life experiential learning through interesting activities involving sight, touch, taste and smell that will likely be remembered long beyond typical classroom experiences. Activities included integration of theoretical learning activities around local food systems with hands-on experience with animals through the Classroom on Wheels and practical activities such as classroom cooking and planning Burn's night suppers. The activities built on communication skills through group work and involved knowledge exchange with a school in Germany. One of the teachers stated that they had previously wanted to engage their classes in such activities but had been unable to organise them due to lack of funds and were therefore very appreciative of the support. It was reported that after visiting local farm shops for the first time, some of the pupils were able to get their parents to take them back, therefore potentially changing family food shopping habits.

S1 pupils at Bucksburn Academy engaged in multiple activities, as did P7 pupils at Bracoden Primary. At Kemnay Academy, different groups incorporating a mix of eighty S1 and S2 pupils have benefitted from the activities each year since 2021, with the set up scheduled to recur again in the 2023-2024 school year. This school has generated its own outreach through its own dedicated showcase webpages and has been particularly successful in implementing interdisciplinary learning around climate change and food systems.

[KA IDL Showcase - S2 3a \(google.com\)](#)

[KA IDL Showcase - S2 5b \(google.com\)](#)

The following statement was provided by our partner teacher, Sandra Buchan at Kemnay Academy:

"Other courses which have benefitted from the opportunities offered by the funding and the increased expertise of the teachers involved include Nat 5/Higher Environmental Science, Higher Chemistry, Higher Health and Food Technology, Survival Cookery, Practical cookery. In the next year we will also be offering the Foundation Apprenticeship in Food and Drink Technologies. This includes a unit on Food Sustainability. It is hoped that pupils who have experienced the IDL course will be inspired to take up this opportunity and to possibly enter this industry."

Through the delivery of information sessions and follow up activities, the project has established the knowledge gaps the children had. For example, while they had a reasonable understanding that recycling food packaging was good for sustainability, they did not appear to see the linkages between greenhouse gas emissions. This information is included in the Briefing Note which was produced and will be disseminated within educational communities.

An article by NE Scotland's largest newspaper the Press & Journal, reported on the project's Countryside Classroom on Wheels activity. The newspaper has a readership of approximately 40,000.

<https://www.pressandjournal.co.uk/fp/news/aberdeen-aberdeenshire/3982764/bucksburn-academy-pupils-taking-part-in-food-sourcing-project-to-tackle-climate-change/>

The project blog has been updated with the handbook and briefing note outputs and the two videos are still active on YouTube, where they continue to be viewed.

Blog: [Home | Food Systems in a Changing Climate \(t04ph21.wixsite.com\)](https://t04ph21.wixsite.com/home)

[Food systems and Climate Change: Global challenges with local solutions - YouTube](#)

[Impact of climate change on food production - YouTube](#)

(ii) **Research/Researchers.** Number reached/engaged; key outcomes.

The main researcher enhanced existing skills in public engagement, outreach and use of social media, as did the three student assistants involved in the project. The project also involved network building through the relationships formed with the outreach and engagement team which will be useful for years to come.

Although other experiences built up over a number of years had a higher contribution to this outcome, it is likely that the success of this project was an influential factor in the recent promotion of the main researcher to professor status.

(iii) **Other outcomes:** e.g. for partners, institution or unexpected.

A specialised sturdy polytunnel built in the Shetland Islands to withstand exposed conditions has been purchased and erected at Bracoden Primary School. The polytunnel will be used for regular food growing activities for the children for several years to come.

6. **Legacy**

Did this project generate long-lasting resources or partnerships and/or lead to additional PE or research projects being developed?

The findings of this project built into the two key documents will not only be used by school educators, but have also been built into a module of the MSc in Climate Change and Sustainable Development offered by the Business School at Teesside University where the main researcher now has a professorship. This ScotPEN/Wellcome project will be referenced appropriately, and a collaborative relationship remains open between the researchers.

Relationships have been established with appreciative school teachers in the region, and could be drawn upon for future projects.

7. **Additional Information**

Please include any relevant information and/or links here relating to your project, which could be used to raise awareness of your project work to others.

For example: links to an online resource, a film, internal/ external communications, news coverage or social media posts about the project; quotes from project partners or public participants/ audiences.

Please send/share relevant high-quality images/ photographs of the project 'in action' and/or project team.

Links are inserted above where relevant in the text. The two documents produced by Iain Brown are included in the blog. Please see 'in action' pictures below.



New sturdy polytunnel in an exposed sea-side location (Bracoden Primary School)

S2 IDL
What is on the North East plate and where does it come from??

CHOCOLATE

Transporting

Cocoa beans are transported via bagged cargo in special containers. Cocoa beans are sometimes transported mid-fermenting.

Harvesting

Harvesting involves removing ripe pods from the tree and opening them to extract the wet beans. The pods are harvested manually by making a clean cut through the stalk with a well-sharpened blade.

Ingredients

Sugar, Skimmed milk powder, Cocoa butter, Cocoa mass, Milk fat, Cocoa lecithin, Vanilla, Permeate (from milk), Emulsifier (Soya lecithin), Vanilla extract.

Processing

Firstly the cocoa beans are fermented, and dried. They will refine to a roasting milk by winnowing and roasting. Then they will be heated and will be melted into chocolate. A good quality manufacturer blend chocolate liquor with sugar and milk to add flavour.

Growing

It takes about 5 years (from seed) for a cacao tree to grow mature and start producing cacao pods. The beans grow in a football-shaped pod on the tree and from large branches. The average cacao tree produces 30-60 cacao pods a year.

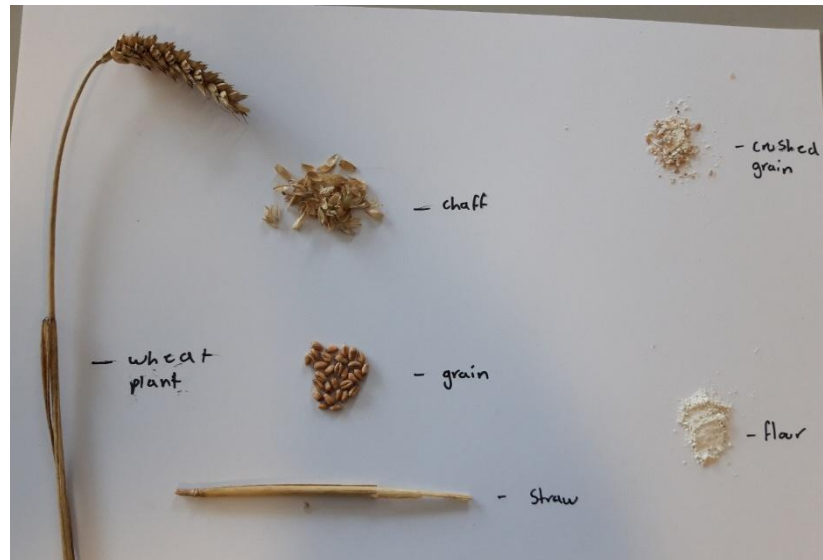
Production

The chocolate production process of fermentation, drying, roasting, grinding, cocoa beans, mixing of all materials (cocoa mass, sugar, cocoa butter, emulsifier, vanilla and milk component is needed), conching and tempering.

200 g

Ubbi, Aydin, Emma, Jessica

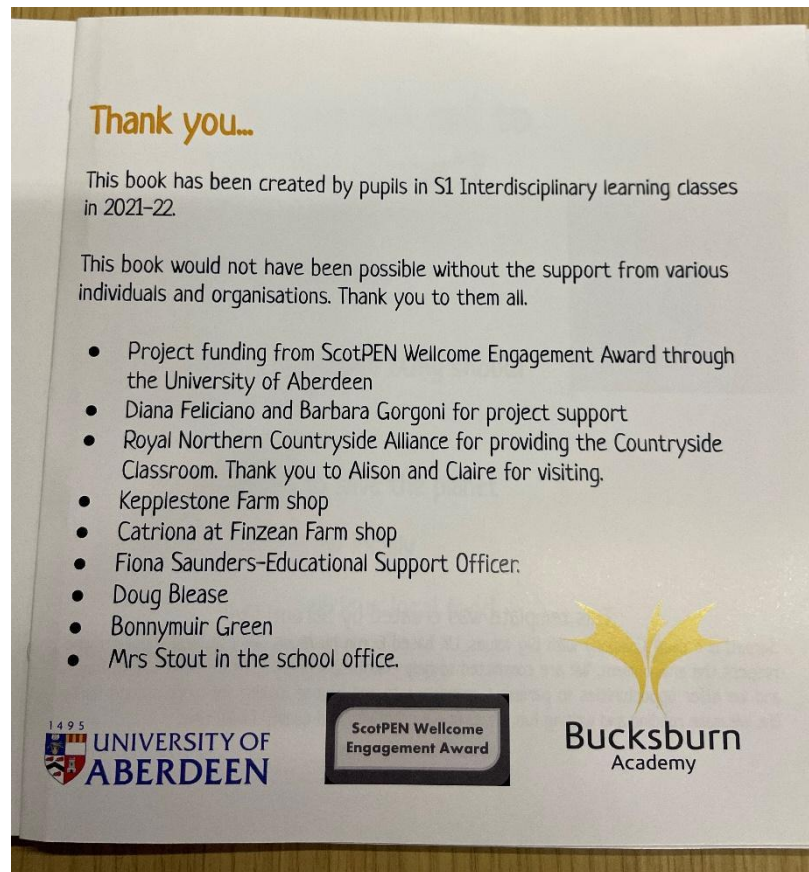
Exploration of chocolate production



Examination of a wheat plant



Cook and taste sessions using Scottish ingredients



Extract from recipe book “How can we eat to save the planet?”

8. Please complete the project finance table below.

Expenditure	Awarded (GBP)	Spent (GBP)	Balance (GBP)
Lead Applicant Costs			
Staff	7,035.60	1,291.52	5,744.08
Travel and subsistence	1,890.00	367.04	1,522.96
Consumables			
Other	24,700.00	24,500.00	200
Total	33,625.60	26,158.56	7,467.04
Partner Costs			
Staff			
Travel and subsistence			
Consumables			
Other			
Total			
Grand Total	33,625.60	-26,158.56	-7,467.04