

The background is a dark teal color with a network of glowing nodes and lines. The nodes are small, bright green and yellow circles, and the lines are thin, dark teal lines connecting them. The overall effect is a complex, interconnected network.

Rhwydwaith WISE

WISE Network

Arloesi Cynaliadwy mewn Busnes
Sustainable Innovations for Business

Cyflwyniad

Introduction

Mae Rhwydwaith WISE yn darparu cyfle unigryw i fusnesau weithio mewn partneriaeth gyda Phrifysgolion Aberystwyth, Bangor ac Abertawe. Rydym yn ceisio mewnblannu cynaliadwyedd yng nghalon busnesau drwy'r cyfleusterau a'r arbenigedd sydd ar gael oddi fewn i ddiwydiant a sefydliadau academaidd Cymreig.

Gall cyd-weithio gyda Rhwydwaith WISE gynorthwyo eich busnes i ffynnu yn y dyfodol a thyfu mewn amgylchedd sy'n gynyddol effeithiol o ran adnoddau. Yn ogystal, gall y busnesau hynny sy'n gweithredu yn y sector Amgylcheddol fod mewn sefyllfa dda i gymryd mantais o'r cyfleoedd sy'n cael eu cynnig drwy'r twf presennol yn y diwydiannau Gwyrdd.

Bydd Rhwydwaith WISE yn creu diwylliant o bobl busnes hyderus sy'n defnyddio ymchwil, arbenigedd, technoleg'r gallu i arloesi fel elfen allweddol o'u datblygiad yn y dyfodol.

Mae eich busnes yn unigryw a dyma paham y byddem yn gweithio gyda chi drwy drafod mewn manylder ac ymchwil dichonoldeb i adnabod atebion wedi eu teilwra i'ch anghenion.

Drwy Rhwydwaith WISE, bydd amrediad eang o arbenigedd a chyfleusterau ar draws tair Prifysgol at eich gwasanaeth. Mae hyn yn cynnwys tai gwyrdd, labordai, stiwdio ffilm a theledu, echdynnydd CO₂ uwch gritigol, labordai cemeg, llinellau allwthiad, man gynhyrchu graddfa beilot, TG, a delweddu i enwi rhai.

Cydweithwch gyda Rhwydwaith WISE i sicrhau y gall eich busnes fanteisio'n llawn ar dwf yr Economi Werdd trwy ddatblygu cynnyrch, prosesau a gwasanaethau cynaliadwy.

WISE Network provides a unique opportunity for business to work in partnership with Aberystwyth, Bangor, and Swansea Universities. Through the facilities and expertise available within both Welsh industry and the academic institutions, we seek to embed sustainability at the heart of all businesses.

Collaboration with WISE Network will help to future proof your business, enabling it to thrive and grow in an increasingly resource-efficient environment. In addition, those businesses operating in the Environmental sector will be equipped to take full advantage of the opportunities presented by the current growth in Green industries.

WISE Network will create a culture of confident businesses that use research, expertise, technology and innovation capacity as an essential component in their future development.

Your business is unique and this is why we will work with you through in-depth discussion and feasibility research to identify the tailored solutions that meet your needs.

Through WISE Network, an extensive range of expertise and facilities across the three Universities will be at your disposal. This includes greenhouses, labs, film and TV studio, super critical CO₂ extractor, chemistry labs, extrusion lines, pilot scale manufacture, IT, and visualisation to name but a few.

Partner with WISE Network to ensure that your business can take full advantage of the growth in the Green Economy by developing sustainable products, processes and services.

Busnesau Cynaliadwy

Sustainable Businesses

"Roedd gweithio gyda'r Tim Datblygu Busnes Cynaliadwy yn brofiad cadarnhaol ac yn chwya o awyry iach. Cefais syndod fod ganddynt ddiddordeb go iawn ym moeseg y busnes. Roedd eu hagwedd yn wych ac fe wnaethon nhw dynnu syniadau arloesol at ei gilydd i helpu symud fy musnes yn ei flaen." Gareth Bull, Perchennog, Reefshotz

Rhaid i bob cwmni sy'n derbyn cyllid Ewropeaidd ymgysylltu â'r ddwy thema drawsbynciol o reolaeth amgylcheddol a chydaddoldeb ac amrywiaeth. Bydd pob busnes sy'n gweithio gyda Rhwydwaith WISE yn ymrwmo i gwblhau o leiaf un weithred gadarnhaol ar y pynciau hyn. Bydd llawer ohonynt yn symud ymlaen gyda chymorth ein hymarferwyr profiadol, i ddatblygu arferion busnes cynaliadwy eraill i gynyddu eu mantais gystadleuol ymhellach.

Ymhen cwta ddeg i bymtheg munud gyda'n Prawflechyd ar-lein gall eich busnes gyrchu bolisiâu newydd ac adborth personol ar faterion sy'n bwysig i chi. Fel bonws, ar ôl i chi gwblhau'r gweithredoedd y bu ichi ymrwmo i'w cyflawni byddwch yn derbyn ein Nod Sarter i ddangos eich ymrwymiad i arferion busnes cynaliadwy.

"Working with the Sustainable Business Development Team has been a refreshing and positive experience and they were really interested in the ethics of my business. They had such a great attitude and were able to tease out innovative product ideas to help take the business forward". Gareth Bull, Proprietor, Reefshotz.

All companies receiving European funding must engage with the cross-cutting themes of environmental management and equality and diversity. All WISE Network businesses undertake to complete at least one positive action on both these topics. Many move on with the help of our experienced practitioners to develop other sustainable business practices to further increase their competitive edge.

Just ten to fifteen minutes help from our online HealthCheck enables businesses to access policies and personalised feedback on issues that matter to you. As a bonus, once the actions are completed you receive a Charter Mark, demonstrating your business commitment to sustainable practice.



Halen Môn – Anglesey Sea Salt Ltd

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Gwerthuso sefydlogrwydd cynnyrch Dŵr wedi ei Fygu

Mae Halen Môn - Anglesey Sea Salt Ltd yn fusnes teuluol o Ogledd Cymru sy'n fyd-enwog a hynod boblogaidd. Maent wedi ychwanegu dŵr wedi ei fygw i'w rhestr o gynnyrch, sy'n tyfu'n gyson i gynnwys cynnyrch halen môr a chynnyrch sy'n cynnwys halen môr. Datblygwyd prosiect Rhwydwaith WISE gan wyddonwyr ymchwil a staff proffesiynol o Athrofa Gwyddorau Biolegol, Amgylcheddol a Gwledig ym Mhrifysgol Aberystwyth.

Cafodd y dŵr ei werthuso dros gyfnod o 6 wythnos ar ddau dymheredd storio gwahanol, 4°C (rhewiddiad) a 20°C (tymheredd ystafell). Daethpwyd i'r casgliad bod y dŵr yn sefydlog dros y cyfnod a'i fod yn gynnyrch diogel, heb facteria niweidiol hyd yn oed ar ôl 6 wythnos o fod yn agored i'r amgylchedd. Ni chanfuwyd unrhyw wahaniaethau o bwys rhwng y ddau dymheredd.

Mae Dŵr wedi ei Fygu bellach ar werth ledled y DU gan stocwyr megis Harvey Nichols ac ar gael mewn amrywiaeth o brydau parod 'Gastro Pubs' M&S.

Evaluating Halen Môn Smoked Water product stability

Halen Môn – Anglesey Sea Salt Ltd is a world renowned and much loved North Wales family owned business. Their oak-smoked water has recently been added to their ever expanding line-up of sea-salts and sea-salt based products. This WISE Network project was developed by research scientists and professional staff from the Institute of Biological, Environmental and Rural Sciences Institute at Aberystwyth University.

The product was tested to evaluate stability over a 6 week period at two different storage temperatures, 4°C (refrigeration) and 20°C (room temperature). The final results concluded that it is stable over the time and a safe product, with no colonization of bacteria after 6 weeks of exposure to the environment. No major differences were observed between both temperatures of exposure.

Smoked Water is now on sale throughout the UK with stockists such as Harvey Nichols and available in the M&S 'Gastro Pub' range of ready meals.



Silage Solutions

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Datblygu 'llaeth' amgen newydd wedi ei wneud o rawn

Amcan y prosiect oedd datblygu'r broses dechnolegol ac ynysu'r meithrinfeydd biolegol delfrydol ar gyfer cynhyrchu 'llaeth' amgen, wedi ei wneud o rawnfydd lleol fel dewis yn lle llaeth gwartheg a llaeth soia a'u cynhyrchion.

"Cyflwynwyd Silage Solutions, cwmni o ganolbarth Cymru," i'r gwyddonwyr ymchwil yn yr Athrofa Gwyddorau Biolegol, Amgylcheddol a Gwledig ym Mhrifysgol Aberystwyth drwy Rwydwaith WISE. Mae'r cyfnod datblygu cynnyrch newydd wedi parhau am 18 mis. Mae'r cynnyrch wedi ei brofi i ddangos fod gan y cynnyrch oes silff o 14 diwrnod ac yn ddiogel o ran y microbiolog.

Bydd y camau nesaf yn gofyn am ddilysu'r broses gynhyrchu er mwyn sicrhau fod ansawdd cynnyrch yn gyson ac yn ateb gofynion y defnyddwyr. Darparwyd adroddiad annibynnol yn ogystal, oedd yn rhoi tystiolaeth o gyfleoedd da i farchnata'r cynnyrch hwn.

Developing a new alternative non-dairy 'milk' based on cereal grains

The aim of the project was to develop the technological process and to isolate the ideal biological cultures to produce an alternative non-dairy 'milk', based on locally-sourced cereals, as a real alternative to dairy and soya milk and their products.

Silage Solutions, a company based in mid-Wales, was linked to research scientists within the Institute of Biological, Environmental and Rural Sciences Institute at Aberystwyth University through WISE Network. The new product development phase has lasted 18 months. The product has been tested for microbiological safety showing that the product has a shelf life of 14 days.

The next stages require validating the production process to ensure conformity and product quality to meet consumer demands. An independent report was produced providing evidence that there is a good market opportunity for this product.



Cyfeillion Ellis Wynne

Friends of Ellis Wynne

Plasty Y Lasynys Fawr

Mae'r lleoliad yn bwysig i ddiwylliant Cymreig. Yma ganed Ellis Wynne, y clericwr a'r llenor Cymraeg sy'n enwog am ei waith, Gweledigaethau'r Bardd Cwsg a gyhoeddwyd ym 1703.

Cyfeillion Ellis Wynne sydd yn gyfrifol am y Plasty. Eu nod yw galluogi'r gymuned leol i ddefnyddio'r plasty ar gyfer digwyddiadau diwylliannol. Maent yn annog ymwelwyr ac wrthi'n datblygu cynlluniau ar gyfer canolfan ddehongli newydd.

Fel sail i gynllun rheoli cynaliadwy cynhaliwyd asesiad bioamrywiaeth o'r safle gan dîm Peirianeg Ecolegol Rhwydwaith WISE. Mae'r adroddiad terfynol yn drysorfa o ffeithiau am gynefinoedd o gwmpas y Plasty, y planhigion lleol a rhywogaethau anifeiliaid, cynllun rheoli a'r pwysigrwydd i gynnal bioamrywiaeth. Bydd y wybodaeth ar gael ar fyrddau dehongli ar gyfer ymwelwyr.

Bydd Y Lasynys Fawr yn rhan o rwydwaith o fusnesau sy'n annog atyniadau i weithio gyda'i gilydd i wella profiadau ymwelwyr ac i berswadio ymwelwyr aros am gyfnodau hirach.

Y Lasynys Fawr Mansion House

This is an important Welsh cultural site. The birthplace of Ellis Wynne, a Welsh clergyman and author of an influential piece of literature, *Visions of the Sleeping Bard* published in 1703.

Friends of Ellis Wynne are responsible for the Mansion House. Their aim is to enable the local community to use the house for cultural events. They intend to increase visitor numbers and are developing plans for a new interpretation centre.

To develop a sustainable management system WISE Network's Ecological Engineering team conducted a biodiversity assessment of the grounds. The final report contains information on the surrounding habitats, the local plant and animal species, management plan, and the importance for sustaining biodiversity. This information will be available on public interpretation boards.

Y Lasynys Fawr can be part of a network of businesses that encourages attractions to work together enhancing the visitor experience and encouraging longer stays.



Menter y Felin Uchaf

Menter y Felin Uchaf

Menter Gymdeithasol

Menter gymdeithasol ym Mhen Llŷn yw Menter y Felin Uchaf sy'n cynnig cyrsiau hyfforddiant a gweithdai a'i gwreiddiau yn y tir ar sgiliau traddodiadol ac yn cynnig rhaglen flynyddol o ddigwyddiadau diwylliannol. Bydd Canolfan Celf a Gwyddoniaeth Byw newydd yn cynnwys canolfan ymwelwyr newydd yn agor yno'n fuan.

Mae Tim Rhwydwaith WISE wedi bod yn cyd-weithio ar brosiectau sy'n cyfrannu at ddatblygiad y mudiad a'r gymuned ehangach ym Mhen Llŷn:

- Arolwg gwaelodlin bioamrywiaeth (planhigion ac anifeiliaid) a chynllun rheoli cynefin ar gyfer y safle
- Ymarfer mapio gan ddefnyddio Systemau Gwybodaeth Fydeang (GIS) sy'n edrych ar y gwasanaethau, ac atyniadau a'r llety sydd i ymwelwyr ym Mhen Llŷn
- Datblygiad 'ap' newydd ar gyfer teclynnau symudol wedi selio ar fap yn dangos atyniadau a gwasanaethau lleol
- Ymchwil ar y cyfleoedd i ddatblygu diwydiant twristiaeth Llŷn mewn modd cynaliadwy, fydd yn dod â buddion economaidd a chymdeithasol i'r gymuned yn ogystal â gwarchod yr amgylchedd.

Land-based Social Enterprise

Menter y Felin Uchaf is a land-based social enterprise on the Llŷn Peninsula offering training courses and workshops specialising in traditional skills and a year-round programme of cultural events. A new Centre for Living Arts & Science is opening soon which will host a new visitor centre.

The WISE Network Team and Menter y Felin Uchaf have been collaborating on projects that contribute to the development of the organisation and the wider community on the Llŷn:

- A biodiversity baseline survey (plants and animals) and a habitat management plan for the site
- A mapping exercise using GIS looking at the present provision of services, attractions and accommodation on the Llŷn for visitors
- Development of a new map-based mobile 'app' showing all the local attractions and services
- In-depth research on opportunities to sustainably develop the tourist industry on the Llŷn, bringing economic and social benefits to the community whilst preserving the environment



Popty Cae Groes

Popty Cae Groes

Bwyd i bwrpas: bara gan grefftwyr wedi ei wneud o farlys noeth

Mae diddordeb y diwydiant bwyd mewn defnyddio barlys yn tyfu oherwydd gall leihau'r risg o ddatblygu clefyd siwgr math II a chlefyd y galon. Barlys noeth (heb blisgyn) yw'r barlys grawn cyflawn gorau oherwydd y gellir ei falu fel wenith a'i ddefnyddio mewn nifer helaeth o gynnyrch.

Mae ymchwilwyr ym Mhrifysgol Bangor wedi bridio mathau newydd o farlys a'u profi gydag arbenigwyr maeth yng Ngholeg Imperial Llundain. Mae gan y barlys noeth werth mynegai glycemig (GI) is na cheirch ac maent yn ddelfrydol i'w defnyddio i ddatblygu cynnyrch bwyd grawn cyflawn newydd.

Rôl Rhwydwaith WISE yw gweithio gyda busnesau bach a chanolig er mwyn gwella'r gadwyn cyflenwi ac er mwyn datblygu cynnyrch arbrofol. Popty Cae Groes yw un o'r busnesau bach a chanolig - fe'u dyfarnwyd yn eilydd yng Ngwobrau Bwyd a Diod Gwir Flas Cymru yn 2008/2009 gyda'u Bara Barlys Noeth.

"Mae gweithio gyda Rhwydwaith WISE yn rhoi'r cyfle i ni dreialu a datblygu cynnyrch ymhellach," meddai Marian Williams, Popty Cae Groes.



Functional foods: artisan Naked Barley bread

The food industry is gaining interest in using barley because it can lower the risk of type II diabetes and heart disease. Naked (hull-less) barley is the best whole grain barley because it can be milled like wheat and used in a wide range of products.

Bangor University researchers have bred new varieties of barley and tested them with nutrition experts at Imperial College London. They have lower glycaemic index (GI) values than oats and are ideal for use in developing novel whole grain food products.

WISE Network is working with SMEs to enhance the supply chain and develop test products. Popty Cae Groes is one of the SMEs – they achieved reserve winner at the Wales True Taste Food and Drink Awards 2008/2009 with their Artisan Naked Barley Bread.

"Working with WISE Network gives us the opportunity to trial and develop products further", said Marian Williams, of Popty Cae Groes.

AA International

AA International

Cyfuno GIS a synhwyro o bell gyda teclyn gwerthuso darluniadol i ymchwilio i ddiogelwch bwyd

Mae AA International Cyf. yn gwmni preifat sy'n ymroddedig i ddarparu cyngor amaethyddol a chynnal asesiadau gwledig effeithiol ac amserol i hyrwyddo a gwella'r ddealltwriaeth ynglŷn â diogelu cyflenwadau bwyd mewn cymunedau gwledig.

Sefydlwyd y cwmni yn 2005 gan y Cyfarwyddwr Dr Ian Robinson. Fe'i ffurfiwyd fel un o gwmnïau deillion Prifysgol Cymru. Mae gan y staff a'u partneriaid ystod eang o brofiad a sgiliau byd-eang sy'n arbennig o addas ar gyfer dylunio, rheoli a gwerthuso amrywiaeth o brosiectau a rhaglenni ym maes amaeth/diogelu cyflenwadau bwyd mewn gwledydd datblygol.

Ar y cyd â Rhwydwaith WISE, bu'r cwmni yn edrych ar y posibilrwydd o ddatblygu techneg i integreiddio'r dull a'r llawlyfr maes teclyn gwerthuso darluniadol (PET) gyda thechnoleg synhwyro o bell a Systemau Gwybodaeth Daearyddol (GIS). Eu nod yw gallu gwneud asesiadau mwy cywir ac derbyniol o gnydau, mesuriadau ac asesiadau o gynhyrch crydau mewn ardaloedd lle mae'r cyflenwad bwyd yn ansicr.

Combining remote sensing and GIS with pictorial evaluation tools to investigate food security

AA International Ltd is a private company dedicated to providing effective and timely agricultural advice and rural assessments for the better understanding and promotion of food security in rural communities.

The company was created in 2005 by Director Dr Ian Robinson. It was formed as a University of Wales spin-out company. The staff and associates have a broad range of global experience and skills that lend themselves to the design, management and appraisal of a diversity of agricultural/ food security projects and programmes in developing countries.

In collaboration with WISE Network they are scoping out the development of a technique to integrate the PET approach and field manual with remote sensing and GIS. They hope to improve the accuracy of crop assessments, scope of measurements and acceptability of crop productivity assessment in food insecure areas.



Environment Systems

Environment Systems

Canfod newidiadau mewn cynefinoedd yng Nghymru drwy ddefnyddio lloerennau

Mae Environment Systems yn ymgynghoriaeth flaengar ym maes gwybodaeth amgylcheddol a daearyddol. Mae'r cwmni'n gweithio ledled y DU, Ewrop a thu hwnt yn darparu systemau ar draws y sectorau amgylcheddol, amaethyddol a thir.

Mae'r cwmni yn arbenigo mewn cymhwyso technolegau arsylwi ar y ddaear, dylunio a darparu systemau monitro, ac maent yn arbenigwyr ym maes mapio a modelu gwasanaethau ecosystemau.

Mae'r prosiect rhwng Rhwydwaith WISE ac Environment Systems yn fenter ar y cyd i ddatblygu dull o ddiweddarau mapiau o gynefinoedd a gynhyrchir gan Environment Systems gan ddefnyddio amrywiaeth o synwryddion lloeren, ac yn y dyfodol addasu'r technegau at ddefnydd ESA Sentinel II a fydd yn dod ar-lein yn 2014.

Mewn datblygiad ar wahân, mae ymchwil ar y gweill i edrych ar ba mor eang fydd y defnydd o feddalwedd ffynhonnell agored ddatblygwyd gan Dr Pete Bunting. Disgwylir y bydd y feddalwedd yn datblygu'n brosiect ar y cyd ar Bartneriaeth Trosglwyddo Gwybodaeth yn gynnar yn 2014.

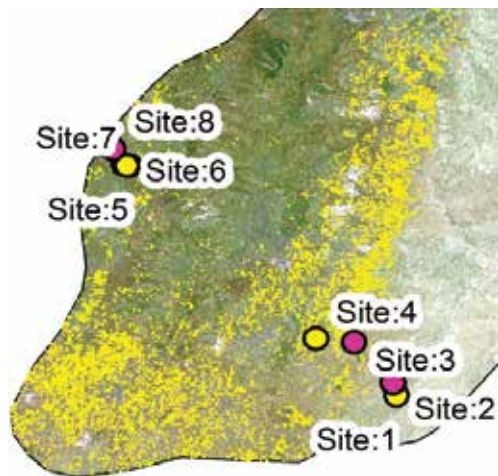
Satellite-based change detection of Welsh habitats

Environment Systems is a leading environmental and geographic intelligence consultancy. The company works across the UK, Europe and beyond delivering solutions across the environmental, agricultural and land sectors.

The company specialises in the application of earth observation technologies, designing and delivering monitoring systems, and are experts in the field of ecosystems services mapping and modeling.

The project between WISE Network and Environment Systems is a collaboration to develop a method to update habitat maps produced by Environment Systems using a range of satellite sensors and looking ahead to adapting the techniques to the use of the ESA Sentinel II coming online in 2014.

In a separate development, investigations are underway on the potential take-up of Dr Pete Bunting's open source software which is expected to develop into a collaboration on a KTP in early 2014.



Dr Zigs

Dr Zigs

Swigod syfrdanol

Swigod yw popeth i Dr Zigs. Drwy Rwydwaith WISE roedd yn bosib sicrhau fod cymysgiad swigod anghyffredin, yn un safonol a chynaliadwy er mwyn gwneud swigod amryliw ysbennnydd.

Fel nifer o fusnesau bach, dechreuodd Dr Zigs yn y gegin, ond fel mae'r galw wedi cynyddu, maent yn datblygu eu gweithgareddau masnachol. Roedd angen i'r broses gynhyrchu fod yn dynnach, felly rhoddwyd cyfle i fyfyrwr MSc drwy ATM ddadansoddi ac archwilio'r rysâit cyfrinachol. Mae Rhwydwaith WISE wedi asesu'r cynhwysion crai a'r cynnyrch, sefydlu cysylltiadau gyda chwmnïau cadwyn cyflenwi eraill ac ystyried seicoleg pobl sydd am brynu swigod.

Mae Dr Zigs wedi bod yn rownd derfynol ranbarthol Gwobr Menter Lloyds TSB ac ar restr fer The Pitch 2013 fel un o 10 busnes y DU i gadw golwg arnynt.

"Mae ein tyfiant syfrdanol yn adlewyrchu'r gwaith a wnaed ar y cyd gyda Rhwydwaith WISE ar reoli ansawdd, dylunio a chadwyni cyflenwi'r dyfodol." Paola Dybosky-Bryant

Extraordinary bubbles

Dr Zigs is all about bubbles. WISE Network assisted to ensure sustainability and quality in their extraordinary bubble mix which makes multi-coloured bubbles of truly spectacular proportions.

Like a lot of small businesses, Dr Zigs started in the kitchen, but as demand has increased they are expanding to develop their commercial operation. Production needed to be tighter so the company took on an ATM MSc student to undertake some analysis to scrutinise and tweak the secret bubble recipe. WISE Network assessed raw ingredients and products, established contacts with other supply chain companies, and considered consumer psychology.

Dr Zigs has been regional finalist in the LloydsTSB Enterprise award and shortlisted by The Pitch 2013 as one of 10 UK businesses "to watch".

"Our recent dramatic growth is a reflection on the collaboration with WISE Network on quality control, design and future supply chains." Paola Dybosky-Bryant



Acer Ecology a Buglife

Acer Ecology and Buglife

Gwella bioamrywiaeth tir llwyd

Ers 2010, mae Cynefinoedd Clytwaith Agored ar Dir a Ddatblygwyd o'r Blaen (tir llwyd) wedi'u cynnwys yng Nghynllun Gweithredu Bioamrywiaeth y DU. O ganlyniad, targedwyd tir diffaith weld beth yw ei botensial fel lloches bywyd gwyllt a 'man poeth' bioamrywiaeth.

Comisiynwyd yr astudiaeth o safleoedd tir llwyd yn ne Cymru, dan y Prosiect Cerrig Rhyd i Fywyd Gwyllt Gorllewin Morgannwg, gan Buglife. Defnyddiwyd grant ariannol a gafwyd gan WREN, mewn cydweithrediad ag Acer Ecology, i arolygu a chatalogio nifer o ddangosyddion a grwpiau ecolegol arwyddocaol. I wella gwybodaeth a dealltwriaeth ymhellach, cynigiodd Rhwydwaith WISE eu harbenigedd sylweddol mewn arolygon ecoleg tir llwyd i'r astudiaeth hon.

O ganlyniad i'r cydweithio hyn, mae Acer Ecology wedi ennill cytundebau pellach. Ar ben hynny, mae Buglife yn cynllunio i ddatblygu strategaethau rheoli a fydd yn cynyddu bioamrywiaeth ac yn gwella'r gwasanaethau ecosystem a'r gwydnwch a ddarperir gan diroedd llwyd wrth hefyd wella gwerth esthetaid ar gyfer llesiant pobl.

Enhancing brownfield biodiversity

Since 2010, Open Mosaic Habitats on Previously Developed Land ('brownfield') has been included in the UK Biodiversity Action Plan as priority habitats. Consequently, derelict land has been targeted to determine its potential as wildlife refuges and biodiversity hotspots.

The study of brownfield sites within South Wales, under the West Glamorgan Stepping Stones for Wildlife Project, was commissioned by Buglife. Grant funding obtained from WREN was utilised, in conjunction with Acer Ecology, to survey and catalogue a number of indicator and ecologically significant groups. To create a step change in understanding, WISE Network offered this study its significant expertise in ecological surveys of Brownfield sites.

As a result of this three-way collaboration, Acer Ecology has secured further contracts. Furthermore, Buglife is planning to develop management strategies to increase biodiversity and improve the ecosystem services and resilience provided by Brownfield sites whilst enhancing the aesthetic value for human well-being.



Cymdeithas Camlas Abertawe

Swansea Canal Society

Dadansoddi metel trwm a llygredd petroliwm mewn gwaddodion camlesi

Mae Cymdeithas Camlas Abertawe yn elusen sydd â nodau allweddol o adfer y gamlas i safonau mordwyadwy, diogelu'i bywyd gwyllt a gwella amgylchedd y gamlas.

Mae Rhwydwaith WISE yn cydweithio â Chymdeithas Camlas Abertawe i ddatblygu strategaeth garthu ar gyfer y gamlas. Mae'r strategaeth yn cynnwys meintoli faint o laid i'w symud, pennu'r faint o lygredd sydd yn y llaid a datblygu'r dull o waredu'r llaid a chyfrifo'r costau.

Ar hyn o bryd mae Tim Peirianeg Ecolegol Rhwydwaith WISE yn canfod swm, dyfnder a llygredd y llaid rhwng Clydach ac Ynysmeudwy. Cymerwyd creiddiau o leoliadau penodedig ar hyd y gamlas, er mwyn dadansoddi'r samplau llaid i weld faint o fetel trwm a llygrwyr organig megis cyfansoddion petroliwm sydd ynddo. Yn ogystal, rydym hefyd yn archwilio effaith planhigion sy'n lledu'n gyflym, megis Jac y Neidiwr (Himalayan Balsam), ar ddulliau cael gwared ar y llaid.

Yn ôl Martin Davies, "Mae hwn yn ddarn aruthrol o ymchwil a datblygu fydd ein galluogi ni a'r Ymddiriedolaeth i wneud penderfyniadau gwybodus am eu holl gynlluniau i'r dyfodol".

Analysing heavy metal and petroleum pollution in canal sediments

Swansea Canal Society is a charity whose key aims include restoring the canal to navigable standards, protecting its wildlife and improving the environment.

WISE Network is collaborating with the Society to develop a dredging strategy to ensure the Society meets its key aims. The strategy includes quantifying the amount of silt to be removed, determining contamination levels, developing methods of silt disposal and calculating costs.

The team is currently ascertaining the amount, depth and contamination of the silt from Clydach to Ynysmeudwy. Cores were taken from determined locations, enabling analysis of the silt samples for heavy metal content and organic pollutants such as petroleum compounds. In addition, we are investigating the impact of invasive species such as Himalayan Balsam on methods of silt disposal.

According to Martin Davies, "This is a marvellous piece of R&D that will bring about informed decisions by ourselves and the Trust on all future plans".



Viscose Closures

Viscose Closures

Lleihau effaith amgylcheddol deunyddiau sy'n cael eu defnyddio i wneud caeadau storio

Mae Viscose Closures yn cynhyrchu caeadau seliwlos i selio topiau poteli ar gyfer amrywiaeth eang o ddefnyddiau. Cyflenwir nhw mewn toddiant storio sy'n cynnwys glycol polyethylen, sy'n gweithredu fel plastigydd i'r caeadau cyn eu ffitio. Mae'r toddiant storio hwn yn cynnwys bywleiddiad i atal deunydd y caead rhag diraddio yn ystod ei gyfnod ar y silffoedd.

Gofynnodd Viscose Closures i Rwydwaith WISE eu cynorthwyo i leihau effaith amgylcheddol eu deunyddiau caeadau storio. O ganlyniad, mae Rhwydwaith WISE wedi datblygu profion i bennu effeithiolrwydd ffyrdd effaith is o atal diraddiad microbaidd. Gan ddefnyddio prawf resazurin sy'n defnyddio fflworoleuedd mewnbnw uchel, gallwn gymharu effaith ataliol twf microbaidd gwahanol gyfansoddiadau o glycol polyethylen, a thrwy hynny ddefnyddio llai o fywleiddiad.

Rydym hefyd wedi cymharu effaith amgylcheddol bywleiddiad wrth ddefnyddio cynhyrchion eraill. Ar ben hynny, rydym yn treialu gwahanol fformweiddiadau o doddiannau storio ac yn arbrofi i bennu pydradwyedd caeadau a ddefnyddiwyd, mewn pridd.



Reducing the environmental impact of closure storage materials

Viscose Closures produce cellulose closures to seal bottle tops for a wide variety of applications. These are supplied in a storage solution containing polyethylene glycol, which acts as a plasticiser for the closures prior to fitting. This storage solution contains biocide to prevent degradation of the closure material.

Viscose Closures approached WISE Network to assist in reducing the environmental impact of their closure storage materials. As a result, assays have been developed to determine the effectiveness of lower impact approaches to prevention of microbial degradation. Using a high throughput fluorescence based resazurin assay, we can compare the inhibitory effect on microbial growth of different concentrations of polyethylene glycol, and of decreasing amounts of biocide.

We have also compared the environmental impact of the biocide in use with other products. Furthermore, we are trialling different formulations of storage solutions, and undertaking experiments to determine the biodegradability of used closures in soil.

Canolfan Genedlaethol Cadw Gwenyn Cymru

The National Beekeeping Centre Wales

Diogelu diwydiant cadw gwenyn a phoblogaeth gwenyn yng Nghymru

Mae Canolfan Genedlaethol Cadw Gwenyn Cymru (CGCGC) yn Gwmni Diddordeb Cymunedol sy'n anelu at ddatblygu a diogelu diwydiant cadw gwenyn a chynnal phoblogaeth gwenyn iach a chyfrifol yn amgylcheddol yng Nghymru a thu hwnt. Maent yn gwneud hyn drwy addysg, hwyluso, cefnogi a dylanwadu.

Darparodd Rhwydwaith WISE gefnogaeth drwy gynnal ymchwil ansoddol gyda'u gweithwyr, gwirfoddolwyr a'r bwrdd rheoli er mwyn eu cynorthwyo i ddiffinio eu cynnig ac adnabod cynnyrch a gwasanaethau newydd i gyflwyno i'r farchnad.

Yn dilyn hyn, mae Rhwydwaith WISE a CGCGC wedi dechrau prosiect ymchwil a datblygu ar y cyd gyda myfyrwyr seicoleg defnyddwyr, er mwyn dadansoddi ymddygiad a phrofiad ymwelwyr yn eu canolfan. Edrychwyd wedyn ar dechnegau seicolegol y gellir defnyddio er mwyn gwella'r profiad ac uchafu ymrwymiad gyda gweithgareddau CGCGC.

Bydd canlyniadau'r ymchwil yn deillio o'r gwaith yn galluogi CGCGC uchafu'r gofod sydd ganddynt ar gyfer eu gweithgareddau i'r cyhoedd a gwella cyllid a chefnogi gwaith y cwmni ar yr un pryd.

Securing the beekeeping industry and bee population in Wales

The National Beekeeping Centre Wales (NBCW) is a Community Interest Company which aims to develop and secure a vigorous, healthy and environmentally responsible beekeeping industry and bee population in Wales and beyond. They do this via education, facilitation, support and influencing.

WISE Network initially provided qualitative research assistance amongst their staff, volunteers and management board to assist them in defining their offer and identify new products and services to take to market.

Following this, WISE Network and NBCW embarked on a collaborative R&D project in association with consumer psychology MSc students to analyse the behaviour and experience of visitors to their centre. They then looked at psychological techniques that could be employed to enhance the experience and maximise engagement with NBCW activities.

The research will enable NBCW to maximise the available space for their public engagement activities whilst also improving revenue to support the work of the company.



#Ecoamgueddfa

#Ecoamgueddfa

Eco-amgueddfa Pen Llŷn

Daeth saith safle treftadaeth ym Mhen Llŷn at Rwydwaith WISE am gymorth ar gyfer sefydlu eco-amgueddfa gyntaf Cymru (mae yna 331 eco-amgueddfeydd wedi sefydlu ar hyd Ewrop yn barod).

Roedd y cymorth yn llwyddiant gan arwain at ddenu cyllid o £64,000 gan y Bwrdd Technoleg Strategol i gyflogi Cydymaith Partneriaeth Trosglwyddo Gwybodaeth (PTG). Mae'r PTG yn weithredol erbyn hyn ac yn dangos buddion yn barod o ran gwellau mywybyddiaeth ryngwladol Pen Llŷn fel cyrchfan twristiaeth.

Yn ôl tystiolaeth o eco-amgueddfeydd eraill gallwn fras amcan y bydd y prosiect yn denu o leia' £2.5M o gyllid twristiaeth ychwanegol i'r economi leol yn sgil y prosiect #Ecoamgueddfa a hynny o ganlyniad i'r hwb gan Rwydwaith WISE.

Mae #Ecoamgueddfa wedi gweld llwyddiant arwyddocaol yn y misoedd cyntaf, gyda'r defnydd o gyfryngau cymdeithasol ar y cyd yn cyrraedd cynulleidfaoedd newydd, eang a llawer mwy ar gyfer y cynnig twristiaeth yn y rhan yma o Ogledd Cymru.

Pen Llŷn eco-museum

Seven heritage sites in Pen Llŷn approached WISE Network for assistance in establishing the first ever eco-museum in Wales (there are already 331 eco-museums established across Europe).

The assistance was delivered successfully and as a result a further £64,000 was attracted from the Technology Strategy Board to employ a Knowledge Transfer Partnership (KTP) Associate. This KTP is now running and is already showing benefits in improving the awareness and international reach of Pen Llŷn as a tourist destination.

Based on evidence from other eco-museums we can expect a conservative £2.5M additional tourism revenue into the local economy as a result of the #Ecoamgueddfa project catalysed by WISE Network.

#Ecoamgueddfa has already seen significant success in its first few months with the adoption of collaborative social media providing reach to new, diverse and much larger audiences for the tourism offer in this part of North Wales.



Sustainable Packaging Solutions

Sustainable Packaging Solutions

Datrys her pecynnu'n gynaliadwy mewn ffyrdd newydd

Mae grŵp Datblygu Cynnyrch Cynaliadwy (DCC) wedi bod yn gweithio gyda Sustainable Packaging Solutions (SPS) i ddatblygu defnydd pacio newydd ar gyfer pecynnu mewn tymheredd amgylchynol.

Yn ddiweddar mae cyfarwyddebau ar gyfer cadwyni cyflenwi wedi newid ar gyfer 'cynnyrch tymheredd amgylchynol' er mwyn sicrhau bod y cynnyrch yn cael ei gadw ar dymheredd amgylchynol drwy'r gadwyn gyflenwi. Mae hyn wedi achosi pryderon ar sut i ddiogelu cynnyrch drwy'r gadwyn cyflenwi gyfan.

Mae'r grŵp DPC a SPS wedi bod yn cydweithio ar brosiect ymchwil a datblygu gyda Rhwydwaith WISE er mwyn datblygu deunydd pecynnu newydd i gyd-weddu gyda'u hamrediad o gynnyrch presennol. Mae'r prosiect cyfredol yma wedi arwain at fodelu'r datblygiad potensial o gynnyrch màs thermol newydd fydd yn gweithredu oddi fewn amrediad tymheredd amgylchynol.

Novel ways to address the challenges of sustainable packaging

The sustainable products development (SPD) group have been working with Sustainable Packaging Solutions (SPS) to develop new and novel packaging for ambient temperature packaging.

Recently the supply chain directives have changed for 'ambient temperature products' to ensure that products are held at ambient temperatures through out the whole of the supply chain. This has caused product protection issues through out the whole of the supply chain.

The SPD group and SPS have worked together on an R&D project with WISE Network to develop a new packaging material to compliment their existing range of products. This ongoing project has led to the modelling and potential development of a new thermal mass product that will operate in the ambient temperature range.



Plastico

Plastico

Profi trawstiau plastig wedi'u hailgylchu

Mae tîm Rhwydwaith WISE ym Mhrifysgol Bangor wedi gweithio gyda Plastico i brofi eu trawstiau wedi'u gwneud o blastig wedi ei ailgylchu i sicrhau bod llwyth gweithiol y trawstiau yn ddigonol fel eu bod yn gallu cael eu defnyddio mewn adeiladu ac yn y tirwedd.

Yn ogystal â phrofi'r trawstiau, bu'r tîm yn edrych ar gyfrifiadau baich yn ôl y Safon Brydeinig berthnasol i alluogi'r cwmni i godi hyder eu cwsmeriaid yn y cynnyrch.

Mae'r gwaith yma wedi galluogi Plastico i archwilio marchnadoedd newydd ar gyfer cynnyrch plastig wedi'i ailgylchu, gan symud o ddodrefn gardd at strwythurau awyr agored sy'n gallu dal pwysau.

"Mae gweithio gyda Rhwydwaith WISE wedi ein galluogi i ddatblygu marchnadoedd newydd ac ehangu amrediad ein cynnyrch. Mae gweithio gyda thîm hyblyg oedd yn deall ein hanghenion wedi bod yn ardderchog", meddai John Northcott, Cyfarwyddwr.

Testing recycled plastic beams

The WISE Network team at Bangor University worked with Plastico to test their recycled plastic beams to ensure that the working loads of the beams were sufficient for them to be used in building and landscaping applications.

As well as testing the beams, the team undertook load calculations in accordance with the appropriate British Standards to help the company give confidence in their products to their clients.

This work has allowed Plastico to explore new markets for their recycled plastic products, moving from garden furniture to load bearing outdoor applications.

"Working with WISE Network has enabled us to develop new markets and expand our product range. Working with an adaptable team who understood our needs was superb," said Director John Northcott.



EandSP

EandSP

Asesu pa mor effeithiol yw rhannu rheolwyr effeithlonrwydd adnoddau

Mae EandSP yn fusnes bach a chanolig yn ne Cymru sy'n darparu gwasanaethau cynaliadwyedd i fusnesau. Daethant at Rwydwaith WISE am gymorth i ddatblygu prosiect ymchwil a datblygu gyda'r nod o asesu effeithlonrwydd trefnu rhannu rheolwyr effeithlonrwydd adnoddau yn y sector cynhyrchu busnesau bach a chanolig.

Roedd y cymorth a roddwyd yn llwyddiant gan ddarparu'r cwmni gyda phrotocol ymchwil cadarn a fframwaith er mwyn asesu llwyddiant eu gweithgaredd ymchwil a datblygu.

Canlyniad hyn oedd i'r cwmni fod yn llwyddiannus drwy ennill cyllid o £271,000 gan Defra er mwyn rhedeg cynllun peilot. Mae'r peilot ar y gweill rhwng nawr a 2016. Yn ystod y prosiect bydd EandSP yn gweithio gyda nifer o fusnesau bach a chanolig yng nghadwyn cyflenwi Rolls Royce yn ogystal a chlwstwr daearyddol o aelodau'r EEF (Sefydliad Cynhyrchwyr).

Assessing the efficacy of deploying shared resource efficiency managers

EandSP is an SME based in south Wales delivering sustainability services to businesses. They approached WISE Network for assistance in developing a research and development project aiming to assess the efficacy of deploying shared resource efficiency managers in the SME manufacturing sector.

The assistance was successfully delivered and has provided the company with a robust research protocol and a framework for evaluating the success of their R&D activity.

The company was subsequently successful in winning £271,000 of funding from Defra to pilot the concept. The pilot project is now running, due to complete in 2016. This project will see EandSP working with a number of SMEs who are part of the Rolls Royce plc supply chain or a geographical cluster of members of the EEF (the Manufacturers' Organisation).



Cysylltwch â ni ar:

Prifysgol Aberystwyth 01970 621943

Prifysgol Abertawe 01792 604510

Prifysgol Bangor 01248 383756

e-bostiwch ni ar info@wisenetwork.org

Contact us on:

Aberystwyth University 01970 621943

Swansea University 01792 604510

Bangor University 01248 383756

e-mail us at info@wisenetwork.org

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