

HYDREF 2016

Opsiynau ar gyfer Fframwaith Monitro Adnoddau Naturiol Integredig Newydd ar gyfer Cymru

Adroddiad Prosiect – Cyfnod I

Crynodeb Gweithredol

Rhif Contract Llywodraeth Cymru C147/2010/2011

Gwaith Ychwanegol Cytûn yn Ofynnol Dyddiedig 8 Mawrth 2016

Prosiect NERC CEH: NEC05945

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Opsiynau ar gyfer Fframwaith Monitro Adnoddau Naturiol Integredig Newydd ar gyfer Cymru

Adroddiad Prosiect Cyfnod 1 – Crynodeb Gweithredol

Welsh Government Contract No. C147/2010/2011
Agreed Additional Work Requirement Dated 8th March 2016
NERC CEH Project Number: NEC05945

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Opsiynau ar gyfer Fframwaith Monitro Adnoddau Naturiol Integredig Newydd ar gyfer Cymru

CRYNODEB GWEITHREDOL AC ARGYMHELLION

Mae adnoddau naturiol iach yn ategu sectorau economaidd arwyddocaol yng Nghymru yn cynnwys amaethyddiaeth, pysgodfeydd, twristiaeth a choedwigaeth. Maent hefyd yn gwneud cyfraniad sylweddol ar draws polisiau'r Cabinet yn cynnwys yr agenda iechyd a lles. Er mwyn datblygu polisiau sy'n meithrin cadernid cymdeithasol, economaidd ac amgylcheddol ac i werthuso gweithredu polisi, mae angen fframwaith monitro adnoddau naturiol cadarn. Mae gweithgareddau monitro presennol yn amrywio o ran ansawdd, nid ydynt yn cyd-fynd yn ddigonol â'r dirwedd ddeddfwriaethol a pholisi newydd ac o'u hystyried yn gyffredinol, nid ydynt, o bosibl, mor gost effeithiol ag y gallent fod.

Cafodd y prosiect hwn y dasg o nodi opsiynau a datblygu argymhellion ar gyfer fframwaith monitro adnoddau naturiol integredig ar gyfer Cymru gan adlewyrchu uchelgais ac egwyddorion cyfunol Deddf yr Amgylchedd a Deddf Llesiant Cenedlaethau'r Dyfodol. Mae'r gymuned fonitro, Llywodraeth Cymru a Grŵp Tystiolaeth Graidd Cyfoeth Naturiol Cymru, tîm y prosiect, rhanddeiliaid a phartneriaid, wedi cytuno ar set o argymhellion sydd yn ategu'r weledigaeth ganlynol:

Bydd Fframwaith monitro Adnoddau Naturiol Cenedlaethol yn cael ei ddatblygu i wasanaethu anghenion sylfaen eang o gwsmeriaid ar draws portffolios y Cabinet, a chyflawni potensial economaidd llawn ein hadnoddau naturiol. Caiff hyn ei gyflwyno dros 5 mlynedd o dan arweiniad Bwrdd Cydlynu fydd yn cynrychioli defnyddwyr a darparwyr tystiolaeth. Bydd yn gwella ac yn targedu adnoddau monitro, dadansoddi a dehongli yng Nghymru ac yn caniatáu adborth cyflym i bolisi a rheolaeth. Bydd y fframwaith hwn yn ffynhonnell data a thystiolaeth allweddol yn ategu Polisi Adnoddau Naturiol, yn cynnwys Adrodd ar Adnoddau Naturiol ac ystod ehangach o ofynion deddfwriaethol yn cynnwys ymrwymadau rhyngwladol. Bydd yn croesawu gwellad yn, ac integreiddio dulliau a thechnolegau monitor, ac yn ailgydbwyso adnoddau i alluogi data i 'gael ei gasglu unwaith a'i aildefnyddio'n aml' trwy rannu data'n fwy effeithiol. Bydd cydran modelu a phrofi sefyllfa yn ategu dehongli data ac yn darparu gallu rhagfynegol. Bydd lefelau ymgysylltu ar draws Llywodraeth Cymru, y sectorau cyhoeddus a phreifat yn cynyddu, gan helpu i hybu safle blaenllaw Cymru o ran gwaith cydweithredol ac arloesol.

Er mwyn cyflawni'r weledigaeth hon, mae'r argymhellion canlynol wedi cael eu datblygu ar y cyd trwy gyfres o weithdai rhanddeiliaid a chyfarfodydd dwyochrog, a chânt eu cefnogi gan Bapurau Briffio technegol:

1. Gan **weithio'n gydwethredol**, dylai cymuned fonitro Cymru ddatblygu Fframwaith Monitro Adnoddau Naturiol Integredig (NRMF). Dylai'r fframwaith newydd allu cael ei addasu, dylai ymateb i flaenoriaethau polisi a pheryglon sy'n dod i'r amlwg tra'n cynnal rhaglen systematig o fonitro stoc a chyflwr adnoddau naturiol. Bydd hyn yn gwneud defnydd mwy effeithiol o bobl a chyllid ac yn rhoi buddion cynyddol.

2. Dylai NRMF **wasanaethu anghenion sylfaen cwsmeriaid ehangach** ar gyfer tystiolaeth adnoddau naturiol ar draws y Cabinet, NRW a phartneriaid i gydnabod y buddion cymdeithasol ac economaidd sy'n deillio o adnoddau naturiol iach a chydnerth.
3. Dylai **Bwrdd Cydlynu** gael ei sefydlu sydd yn gynrychioliadol o ddefnyddwyr a darparwyr tystiolaeth. Dylai'r Bwrdd hwn gael y dasg o gynghori ar **wneud y gorau o a thargedu** adnoddau arolwg, monitro, dadansoddi a dehongli yng Nghymru. Bydd hyn yn cyflwyno dull addasadol o fonitro, cynyddu effeithlonrwydd, gwella gwaith partneriaeth a helpu i lywio penderfyniadau rheoli i'r dyfodol er mwyn gwella cadernid ein hadnoddau naturiol a'n hecosystemau a chynyddu'r buddion.
4. Dylai'r gymuned fanteisio ar yr NRMF yn ddomestig ac yn rhyngwladol i feithrin gallu, cynyddu cydariannu a buddsoddi yng Nghymru, a defnyddio a datblygu atebion a chynnyrch newydd gyda diwydiant gan fanteisio ar **botensial economaidd llawn** yr NRMF ar gyfer datblygu'r economi.
5. Dylai'r NRMF **groesawu, gwella ac integreiddio dulliau a thechnolegau monitro** ac wrth wneud hynny, cyflenwi a chael budd o arloesi, cyfleoedd newydd a gwneud defnydd mwy effeithiol o adnoddau. Dylai hyn gynnwys asesiad cadarn a systematig o dechnolegau a dulliau newydd cyn y posibilrwydd o'u mabwysiadu. Bydd y dull hwn yn gwella defnydd strategol o adnoddau gan sicrhau rhaglen wella barhaus.
6. Dylai'r NRMF ddilyn yr egwyddor o **gasglu unwaith – ailddefnyddio'n aml**. Dylai fod yn **ffynhonnell allweddol o ddata a thystiolaeth** yn ategu Deddfau'r Amgylchedd a Llesiant Cenedlaethau'r Dyfodol, Adroddiad Cyflwr Adnoddau Naturiol, Polisi Adnoddau Naturiol Cenedlaethol, ac ystod o ofynion deddfwriaethol yn cynnwys ymrwymadau rhyngwladol.
7. I leihau dyblygu a chynyddu effeithlonrwydd, dylai NRMF fabwysiadu dull clir o **rannu data** yn effeithlon ac yn effeithiol i alluogi troi data yn gynnyrch tystiolaeth cadarn. Mae angen **ailgydbwysu adnoddau** i ffwrdd o gasglu data i gydlynu, dadansoddi a dehongli data. Dylai'r dull hwn fanteisio ar dechnolegau newydd sydd yn galluogi rhwydweithio data, gwybodaeth ac offer dadansoddi i gynyddu gwerth a'r defnydd o ddata.
8. Dylai'r NRMF gynnwys cydran **modelu a phrofi sefyllfa** i ategu dehongli data, datblygu gallu rhagfynegol a galluogi **adborth cyflym i bolisi a rheolaeth**. Bydd hyn yn cefnogi datblygiad parhaus polisiau mwy cadarn sydd yn cynyddu i'r eithaf y buddion cymdeithasol ac economaidd sydd yn deillio o'n hadnoddau naturiol a'n hecosystemau yn yr hirdymor.
9. I wireddu buddion sylweddol y fframwaith integredig hwn, **mae angen dull tri chyfnod dros 5 mlynedd** i droi'r uchelgais yn rhaglen ymarferol a chyd-fynd â gweithgareddau a mentrau parhaus:
 - a. Cyfnod I – cyfnod archwilio cychwynnol oedd yn canolbwyntio'n bennaf ar systemau daearol (cwblhawyd);
 - b. Cyfnod II – yn cynnwys rhaglen gyflenwi a gwella yn rhoi'r cyfleoedd ymarfer a nodwyd yng Nghyfnod I ar waith a datblygu fframwaith cynhwysfawr ar draws monitro pob adnodd

naturiol ac ecosystem yn rychwantu systemau aer, tir a dŵr croyw a morol a'u rhyngwyneb;

- c. Cyfnod III – gweithredu fframwaith monitro integredig sy'n cael ei adnewyddu mewn cylch parhaus.

10. Dylai'r NRMF gynyddu **ymgysylltu** ar draws Llywodraeth Cymru, y sectorau cyhoeddus, preifat a gwirfoddol; gan gyfleu pwysigrwydd hanfodol adnoddau naturiol Cymru i'w heconomi a llesiant cenedlaethau'r dyfodol.

I grynhoi, bydd yr argymhellion hyn:

- yn cyfrannu at ddatblygu'r economi;
- yn gwneud defnydd gwell o adnoddau ar draws y gymuned fonitro;
- yn llywio polisi Llywodraeth Cymru yn well ar draws portffolios y Cabinet;
- yn galluogi rheolaeth fwy addasol, ymatebol ac wedi ei thargedu o adnoddau naturiol ac ecosystemau;
- yn ffynhonnell dystiolaeth allweddol ar gyfer Polisi Adnoddau Naturiol Cenedlaethol yn cynnwys yr Adroddiad Cyflwr Adnoddau Naturiol ac ystod ehangach o ofynion deddfwriaethol yn cynnwys ymrwymadau rhyngwladol;
- yn cyflenwi data, tystiolaeth a gwybodaeth yn fwy cywir, amserol ac effeithlon;
- yn integreiddio arbenigedd, data a thechnolegau;
- yn gwneud Cymru yn flaenllaw mewn gwaith cydweithredol ac arloesol.

Yn wag yn fwriadol

OCTOBER 2016

Options for a New Integrated Natural Resource Monitoring Framework for Wales

Project Report - Phase I

Executive Summary

Welsh Government Contract No. C147/2010/2011

Agreed Additional Work Requirement Dated 8th March 2016

NERC CEH Project: NEC05945

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Options for a New Integrated Natural Resources Monitoring Framework for Wales

Phase 1 Project Report - Executive Summary

Welsh Government Contract No. C147/2010/2011
Agreed Additional Work Requirement Dated 8th March 2016
NERC CEH Project Number: NEC05945

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Options for a New Integrated Natural Resources Monitoring Framework for Wales

EXECUTIVE SUMMARY AND RECOMMENDATIONS

Healthy natural resources underpin significant economic sectors in Wales including agriculture, fisheries, tourism and forestry, they also make a significant contribution across Cabinet policies including the health and well-being agenda. In order to develop policies that build social, economic and environmental resilience and to evaluate policy implementation, a robust natural resources monitoring framework is required. Current monitoring activities are of varying quality, not sufficiently aligned to the new legislative and policy landscape, disjointed and when considered as a whole, potentially not as cost-effective as they could be.

This project was tasked with identifying options and developing recommendations for an integrated natural resources monitoring framework for Wales reflecting the ambitions and integrating principles of the Environment Act and Well Being of Future Generations Act. The monitoring community, the Welsh Government and Natural Resources Wales Core Evidence Group, the project team, stakeholders and partners, have agreed on a set of recommendations which underpin the following vision:

A National Natural Resources Monitoring Framework will be developed to service the needs of a wide customer base across Cabinet portfolios, and to deliver the full economic potential of our natural resources. This will be phased in over 5 years guided by a Coordination Board representative of evidence users and providers. It will optimise and target monitoring, analytical and interpretation resources in Wales and enable rapid feedback to policy and management. This framework will be a key source of data and evidence underpinning National Natural Resource Policy including State of Natural Resource Reporting and a wider range of legislative requirements including international commitments. It will embrace, improve and integrate monitoring methods and technologies and rebalance resources to enable data to be 'collected once—reused often' through more effective sharing of data. A modelling and scenario testing component will underpin data interpretation and provide a predictive capacity. Levels of engagement across Welsh Government, public and private sectors will be increased, helping to promote Wales' position at the forefront of collaborative and innovative working.

To deliver this vision the following recommendations have been co-developed through a series of stakeholder workshops and bilateral meetings, and supported by technical Briefing Papers:

11. Working **collaboratively** the Welsh monitoring community should develop an Integrated Natural Resources Monitoring Framework (NRMF). The new framework should be adaptive, responsive to policy priorities and emerging risks whilst maintaining a systematic programme of monitoring the stock and condition of natural resources. This will make more effective use of people and funding and deliver increased benefits.

12. NRMF should **service the needs of a wide customer base** for natural resources evidence across Cabinet, NRW and partners in recognition of the social and economic benefits arising from healthy and resilient natural resources.
13. A **Coordination Board** should be established that is representative of evidence users and providers. This Board should be tasked with advising on the **optimisation and targeting** of the collective survey, monitoring, analytical and interpretation resources in Wales. This will deliver an adaptive approach to monitoring, increase efficiencies, improve partnership working and help guide future management decisions to improve the resilience of our natural resources and ecosystems and increase benefits.
14. The community should take advantage of the NRMF domestically and internationally to build capacity, increase co-funding and investment into Wales, and use and develop novel solutions and products with industry exploiting the **full economic potential** of the NRMF for developing the economy.
15. The NRMF should **embrace, improve and integrate monitoring methods and technologies** and in so doing deliver and benefit from innovation, new opportunities and make more effective use of resources. This should include a robust and systematic assessment of new technologies and methods prior to their potential adoption. This approach will improve strategic deployment of resources ensuring an ongoing improvement programme.
16. The NRMF should follow the principle of **collect once – reuse often**. It should be **a key source of data and evidence** underpinning the Environment and the Well Being of Future Generations Acts, the State of Natural Resources Report, the National Natural Resource Policy, and a range of legislative requirements including international commitments.
17. To reduce duplication and increase efficiencies, NRMF should adopt a clear approach to efficient and effective **sharing of data** to enable the conversion of data into robust evidence products. A **rebalancing of resources** away from data collection to data coordination, analysis and interpretation is needed. This approach should exploit new technologies which allow for networking of data, information and analytical tools to increase the value and utility of data.
18. The NRMF should include a **modelling and scenario testing** component to underpin data interpretation, develop a predictive capacity and enable **rapid feedback to policy and management**. This will support the ongoing development of more robust policies which optimise the social and economic benefits derived from our natural resources and ecosystems in the long term.
19. To realise the significant benefits of this integrated framework **a three phased approach over 5 years** is required to convert the ambition into a practical programme and align with ongoing activities and initiatives:
 - a. Phase I – an initial exploration period which was primarily focussed on terrestrial systems (completed);
 - b. Phase II - including a delivery and improvement programme putting into practice opportunities identified in Phase I and developing a comprehensive framework

across all natural resource and ecosystem monitoring spanning air, land and freshwater and marine systems and their interface;

- c. Phase III - implementing an integrated monitoring framework which is refreshed on an ongoing cycle.

20. The NRMF should increase **engagement** across Welsh Government, public, private and voluntary sectors; communicating the fundamental importance of Wales' natural resources to its economy and the well-being of future generations.

In summary, these recommendations will:

- contribute to the development of the economy;
- make better use of resources across the monitoring community;
- better inform wider Welsh Government policy across Cabinet portfolios;
- enable more adaptive, responsive and targeted management of natural resources and ecosystems;
- be a key evidence source for National Natural Resource Policy including the State of Natural Resources Report and a wider range of legislative requirements including international commitments;
- provide more accurate, timely and efficient delivery of data, evidence and information;
- deliver integration of expertise, data and technologies;
- put Wales at the forefront of collaborative and innovative working.

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