Centre for Ecology & Hydrology

NATURAL ENVIRONMENT RESEARCH COUNCIL

Will Brownlie : wilown@ceh.ac.uk

OUR PHOSPHORUS FUTURE

and the Scientists' Call

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OPF

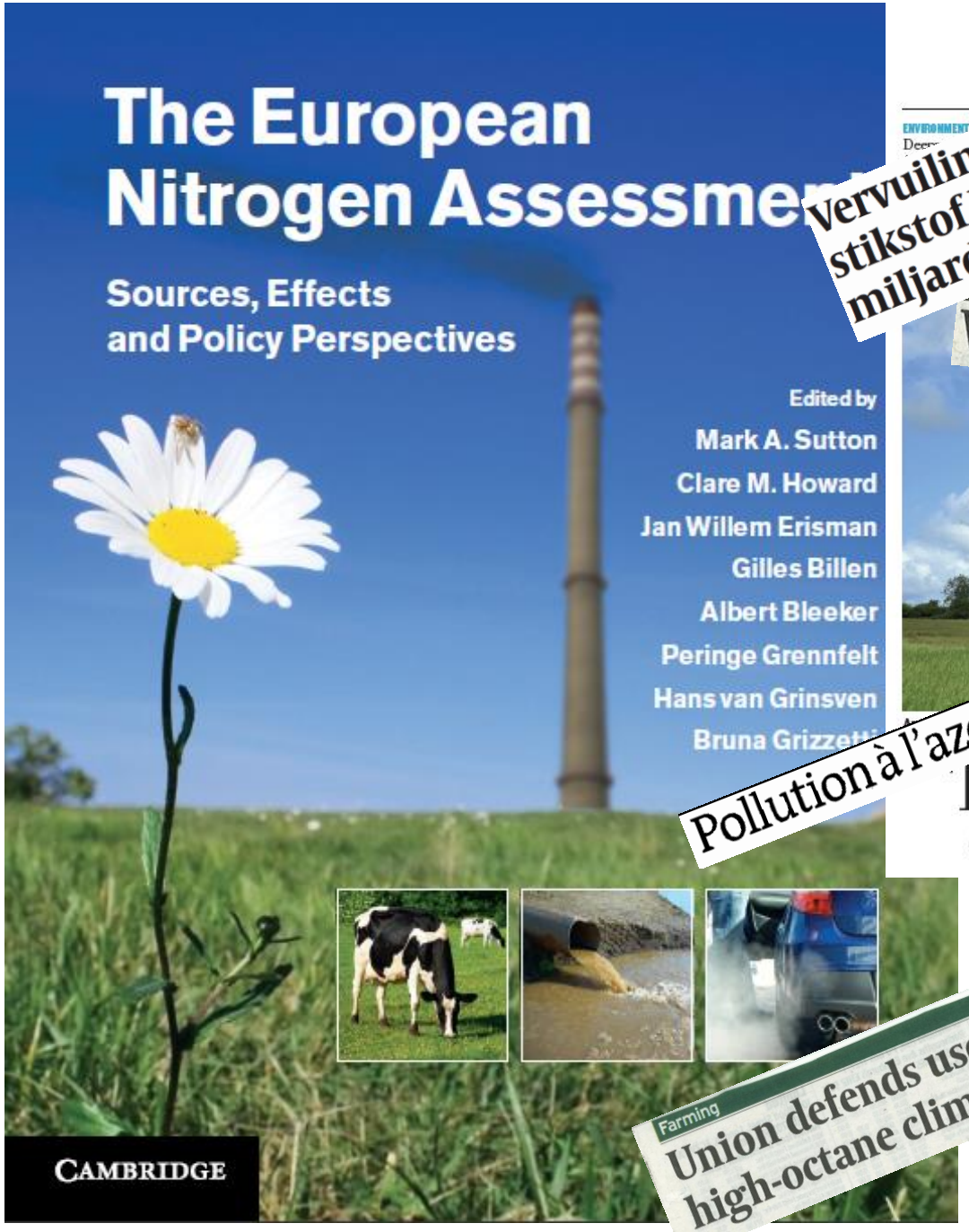
Two year project 14 months in (concludes in March 2019).

PROJECT AIMS

- ***Raise awareness*** *of* ***global phosphorus sustainability****.*
- *Bring together scientific evidence to* ***support policy development****, and*
- ***Contribute to consensus development****.*

Funding

Executing partners



www.nine-esf.org/ENA

UN says fertiliser crisis is damaging the planet

Scientists urge rich world to halve its meat consumption

The shape of nitrogen to come

An analysis reveals the huge impact of human activity on the nitrogen cycle in China. With global use of Earth's resources rising per head, the findings call for a re-evaluation of the consumption patterns of developed societies.

Nature doi:10.1038/nature11954

More environment-friendly nutrient use could save $170bn a year

18 Feb 2013: *Independent* , *Guardian*, *Herald Tribune*, *Times of India* and **300 articles worldwide**

Our Nutrient World

The challenge to produce more food and energy with less pollution

Global Overvie Nutrient Management

Prepared by the Global Partnership on Nutrient Management in collaboration with the International Nitrogen Initiative

CORE PROJECT OUTPUT - a synthesis report (briefing notes + media), which will outline why we should, and how we can move towards a more phosphorus secure future.

AUDIENCE: Policy makers, environment agencies, the public and the media

CORE PROJECT OUTPUT - a synthesis report to outline why we should, and how we can move towards a more phosphorus secure future.

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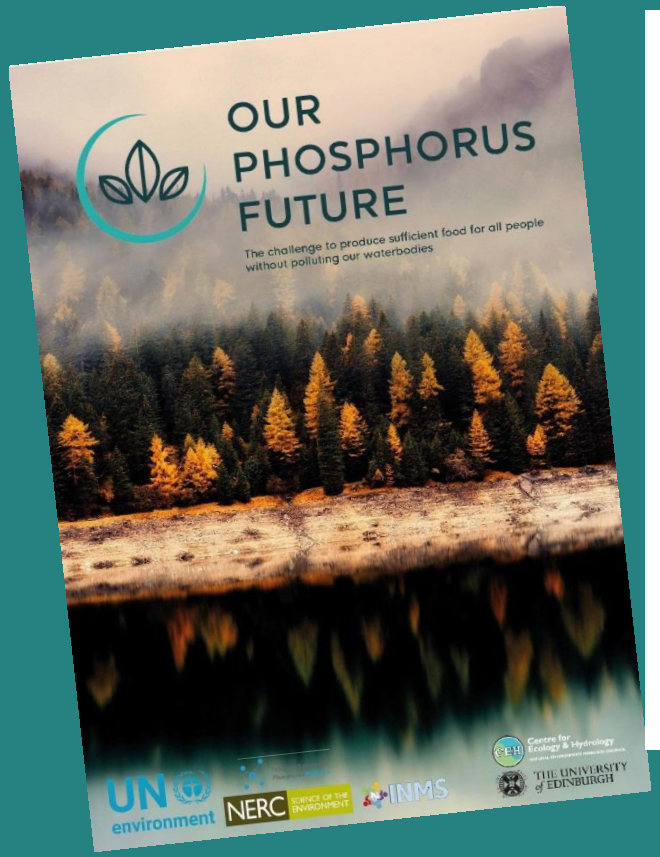
WHAT IT WILL LOOK LIKE:

- Concise, highly visual, easily accessible/readable.
- (50-100 pages)
- briefing notes for each theme

- Printed Interactive PDF versions
- Web-based versions
- Explainer videos



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THE ROLE OF PHOSPHORUS IN ACHIEVING FOOD SECURITY


Hassan Mohammed (back right) used to be a cook, but now he works as an armed guard protecting agency workers and community leaders. Hassan took Marcus to visit a temporary feeding centre in Baraka, Somalia, set up to help families cope with the effects of famine. They were serving a mixture of maize, cowpea (a kind of bean), sugar, sesame oil and powdered milk, but unfortunately there was not enough for everybody. Photograph taken by Marcus Perkins (www.marcusperkins.co.uk)

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OPPORTUNITIES FOR TECHNICAL RECOVERY OF PHOSPHORUS FROM WASTES

8

Phosphorus (P) loops can be largely closed saving millions of tonnes of P-rock borne fertiliser supplies from slowly degrading natural resources. Current waste, sludge and manure handling practices frequently lead to losses due to putting excessive P loads on already P rich soils, landfilling P rich waste and transferring P to construction materials. P losses to water bodies eventually threaten aquatic life and human food security. Achieving the SDGs requires decoupling the use of natural resources - land, fossil fertilisers and water – from food supply for all. P recycling is a key enabler of the Circular Economy. Numerous farm-based and centralised processes enable P recovery and recycling from sewage sludge, slaughterhouse residues and farmyard manure with a low footprint. They facilitate producing clean and efficient fertilisers in replacement of rock based products, reducing pollutant flows to soils and crops. Separating, recycling and re-distributing P from manure eliminates excessive nutrient loads to soils in intensive livestock farming regions. Innovative processes can contribute to soil fertility, food security and human health. Implementation of more or less sophisticated processes creates quality jobs in urban and rural areas, enhances technical progress and innovation and boosts SME development, (re-)industrialisation and economic growth.

Microscopy of algea Volvox aureus Chlorophyceae. Photograph taken by Steffen Claus

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PRIFYSGOL
BANGOR
UNIVERSITY
1884

Acknowledged support and review

Small print: content will authors/editors opinions

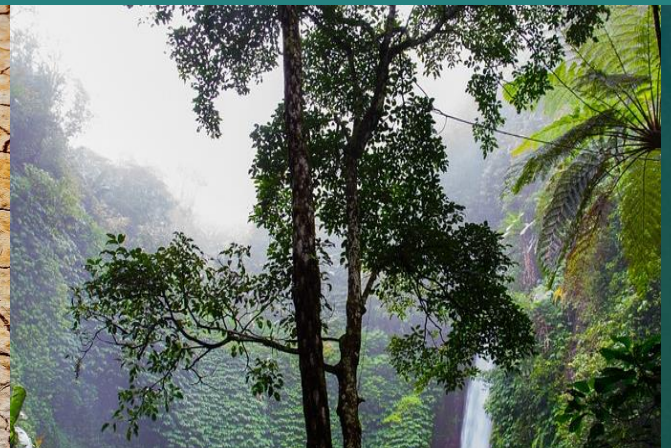
Photographers

Film makers

Web and App designers

- Novel dissemination strategy (still developing) – including a two day event in December – Royal Society, London

- In support of the ‘Scientific Call’


The Scientists Call

The global call for a science initiative on phosphorus, 2018

www.opfglobal.com

The global call for a science initiative on phosphorus, 2018.

The **undersigned scientists** and researchers **call on policy makers** worldwide **to support** progression towards more **sustainable phosphorus management**, in coherence with the global action on carbon, nitrogen, food and water.

We, the undersigned, identify:

1) **Phosphorus is a non-substitutable, non-renewable natural resource, essential for food security**. It is also important (in much lower quantities) in industrial applications.

2) Only a small part of the phosphorus input to agricultural systems reaches the food we eat, especially in meat production.

3) **Phosphorus losses** throughout the agriculture – food – sewage and waste systems **lead to major environmental damage,** through eutrophication. This is one of the greatest causes of **freshwater quality failure**, as well as an ecological menace for enclosed seas and estuaries, and contributes to **marine dead zones**. Climate change is likely to exacerbate eutrophication problems, if phosphorus losses are not reduced.

4) Currently, much of the phosphorus in sewage, food and crop waste or animal manure is **not effectively recycled**. Recycling rates are further threatened by urbanization, intensive livestock production and societal and food industry rejection of nutrient recycling from organic wastes.

5) **Many farmers** in parts of the world **cannot access** or cannot afford the phosphorus **fertilizers** they need **to produce sufficient food**.

6) Phosphorus today, like nitrogen, is **significantly exceeding planetary boundaries**. http://www.stockholmresilience.org/research/planetary-boundaries/

Despite a widening awareness, the global phosphorus is insufficient, and carbon or nitrogen.

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a) Improved sanitation, ess environment.

b) Healthier diets for some individuals.

c) New employment opportunities through the nutrient circular economy.

d) More sustainable management of other nutrients i.e. nitrogen and potassium.

e) Return of organic carbon to soils, contributing to soil fertility, climate resilience and carbon dioxide mitigation.

f) Reduced geopolitical dependency on the limited regions with phosphate rock reserves.

g) Reduced mobilization of contaminants contained in phosphate rock reserves.

11) We, the undersigned, support the need for a global initiative to:

a) develop **further scientific evidence** to support phosphorus stewardship,

b) **develop collaboration,** coordinate and utilize available networks,

c) engage with UN-Environment and global governance,

d) **identify and elaborate**, with stakeholders and industry, **opportunities and solutions**.

We need your help…. Aiming for 300 hundred signatures

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Call on policy makers to support sustainable phosphorus management

- Background in 250 words
- Suggest solutions
- the multiple benefits of action

11) We support the need for a global initiative to:

- develop **further scientific evidence** to support phosphorus stewardship,
- **develop collaboration,** coordinate and utilize available networks,
- engage with UN-Environment and global governance,
- **identify and elaborate**, with stakeholders and industry, **opportunities and solutions**.

Will help to leverage phosphorus sustainability onto the GPA IGR-4 agenda

GPA – (Global Programme for the protection of marine the environment from land based activities)
The only global intergovernmental mechanism directly addressing the connectivity between terrestrial, freshwater, coastal and marine ecosystems. UNEP Hosts the coordination unit.
1995 – 108 countries signed up
They meet every 4 years at "Intergovernmental Reviews" (IGR)

Inclusion of 'phosphorus sustainability' within the IGR-4 agenda will encourage policy makers to respond.

Presented to the media at the OPF Royal Society meeting (Dec. London, UK)

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The global call for a science initiative on phosphorus, 2018

Home » News & Media » News

Submitted by **Dr. Will J Brownlie** on Tue, 05/06/2018 - 15:44

Welcome to the sign up page for 'The global call for a science initiative on phosphorus, 2018'

This is a global call to policy makers worldwide to support progression towards more sustainable phosphorus management. Please **download the 'call' by clicking here**.

To add your name to the list of individuals that support this global initiative, simply provide your details below and click 'Submit'.

Full name *

E-mail *

Scientific discipline

Institute

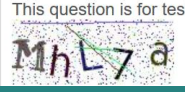
Country

Where your institute is based

(Please note: it is the named individual ONLY that supports the call and not their affiliated institution or employer.)

CAPTCHA

This question is for testing whether or not you are a human visitor and to prevent automated spam submissions.



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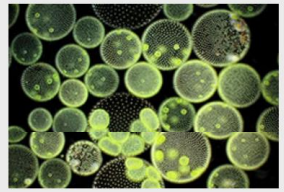
Our Phosphorus Future



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