

One Planet Prosperity, Innovation, & Ecological Public Health

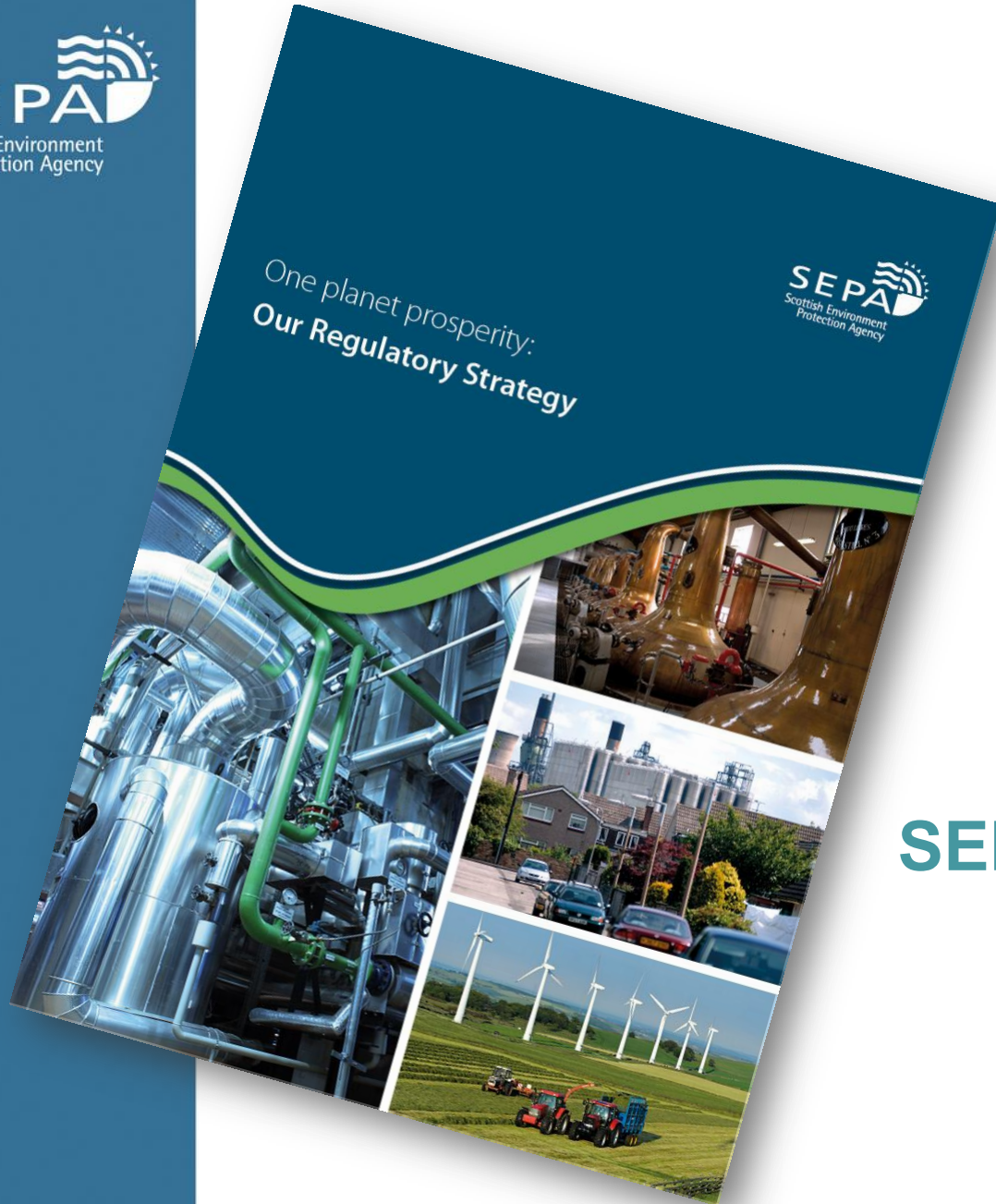
Cath Preston & John Redshaw
Scottish Environment Protection Agency

*The workshop aims to explore what actions should be taken to address threats from
pharma and priority chemicals in our environment*

21st century environmental challenges



**Today's problems are more complex and
inter-related**



One Planet
Prosperity:
**SEPA's Regulatory
Strategy**



Supporting
INNOVATION



Helping
COMMUNITIES see
the environment as
an opportunity



Engaging
through
BOARDROOMS
and sectors

ORGANISATIONAL
CHARACTERISTICS



INFORMATION
for decision
making

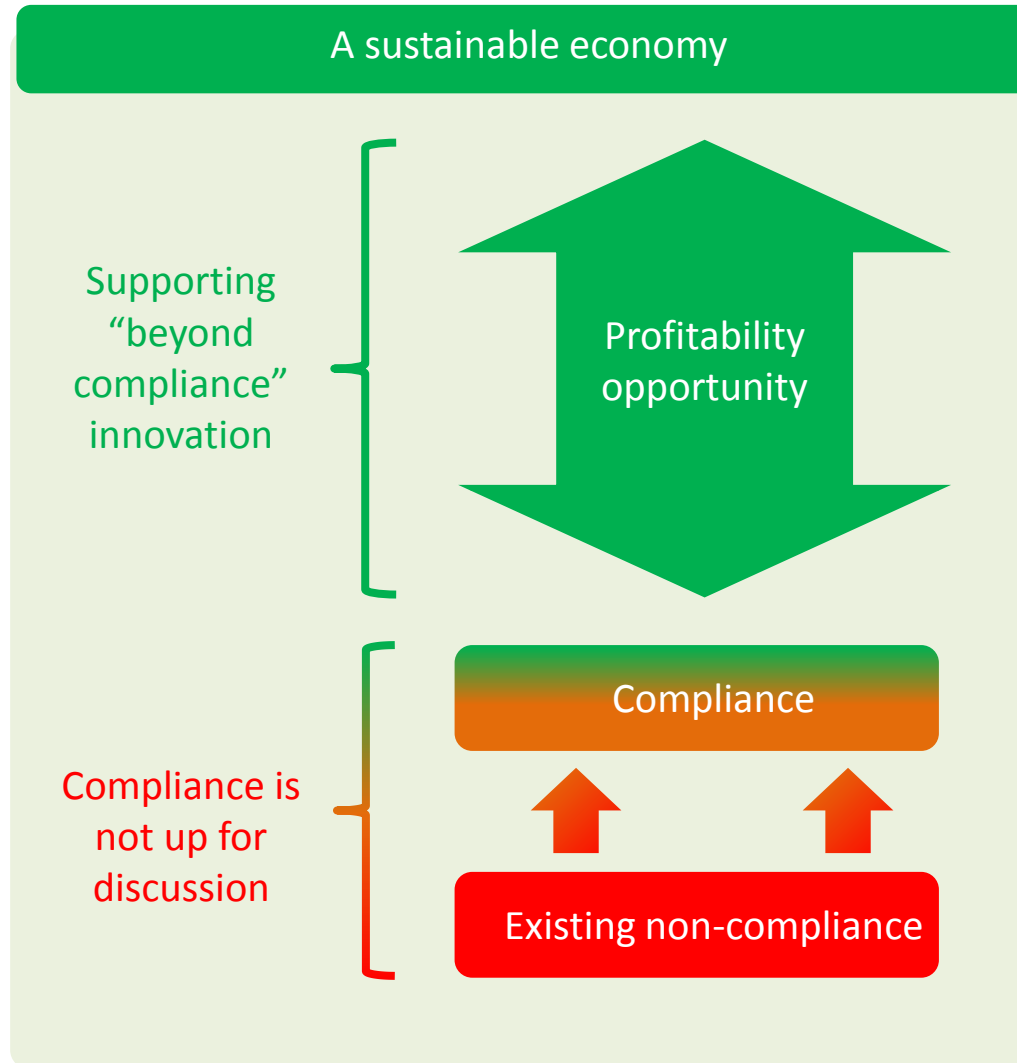


Delivering
outcomes
through
PARTNERSHIPS

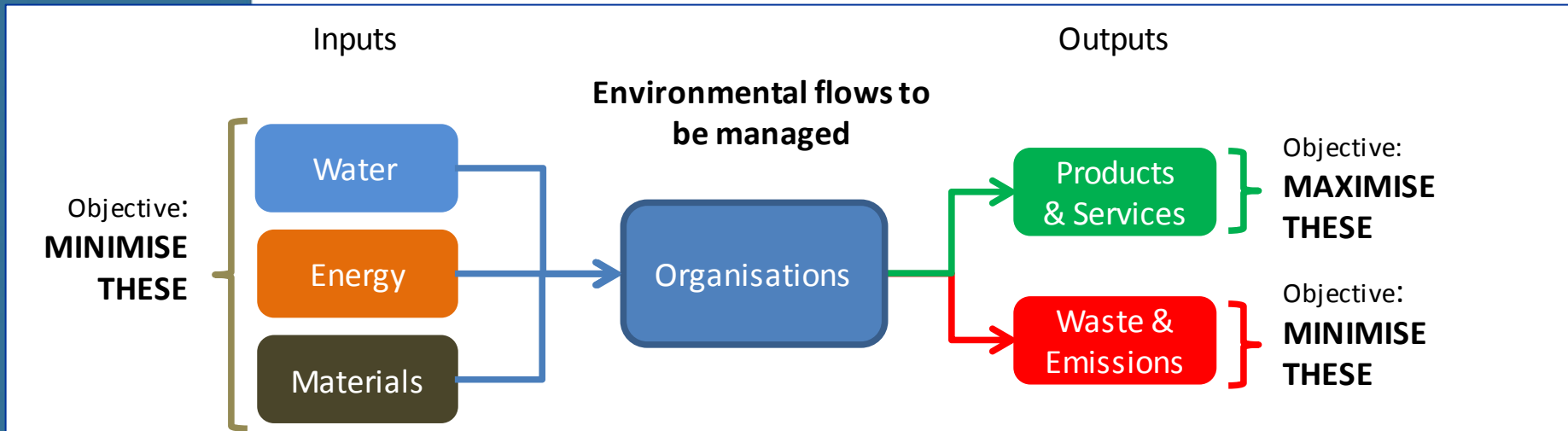


Organisation
people
CLAMOUR to
work for

Regulating for prosperity within planetary constraints



Objectives



Influences



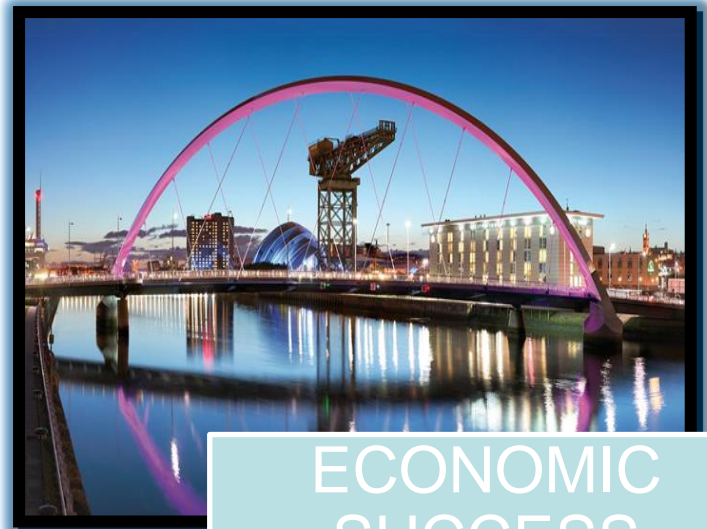


ENVIRONMENTAL
SUCCESS

Benefits



SOCIAL
SUCCESS



ECONOMIC
SUCCESS

Ecological Public Health (EPH)

- Many factors affect the relationship between our environment & health. EPH integrates these into a framework for delivering public health.
 - *Conceptual models are used for issue-framing, evidence, engagement & communication.*
 - *Must build public health on ecological principles.*

GOOD PLACES, BETTER HEALTH

A NEW APPROACH TO ENVIRONMENT
AND HEALTH IN SCOTLAND

IMPLEMENTATION PLAN

Case studies

- Hazardous chemicals in the water environment.
- Land spreading of organic materials.
- Antimicrobial resistance.

Chemicals Investigation Programme

- 45 priority substances (WFD-PSD).
- Scotland to achieve EQS-compliance by 2027.
- Evolving “Watch List” (e.g. antibiotics, steroids).
- Inform investment in waste water treatment.

Tracking hazardous substances in the environment

CEH
SEPA



SEPA
MSS
SW



JHI
SEPA

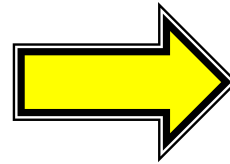


SEPA
BGS

Groundwater

NERC Chemicals in the
Environment Programme

SEPA
MSS
WILDCOMS
partners



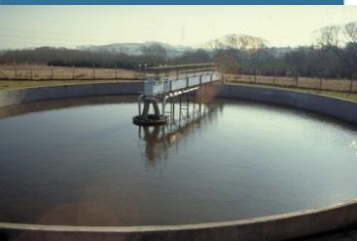
FSS
SASA
DWQR



Land spreading of organic materials

(ZWS; SEPA regulates; risk-assessed 80 organic chemicals)

Chemical	Group	Env risk	Health risk	Source(s)	Reason for risk
Tetracycline	Veterinary	1	1	Manure/ slurry	High spread rate, high PEC, low PNEC
Ivermectin	Veterinary	7	4	Manure/ slurry	High spread rate, high PEC, low PNEC
Triclosan	Biocide	12	-	Bio-solids, other wastes	Low PNEC, persistent
HHCB	Fragrance	13	-	Bio-solids	Low PNEC, persistent
Benzo[a] pyrene	PAH	17	-	All organic materials	Low PNEC, persistent
Dioxins	POP	15	-	All organic materials	Low PNEC, persistent
PBDEs	POP	-	3	All organic materials	Low HCV



Antimicrobial resistance in Scotland

- HPS is delivering the UK AMR strategy in Scotland (“One Health” approach).
- A group (SEAG) has been created to promote understanding, awareness, surveillance, research, & interventions on environmental AMR.

England's chief medical officer warns of 'antibiotic apocalypse'

Efficiency of antibiotics falling as deaths in EU and US hit around 50,000 annually from infections drugs can no longer treat

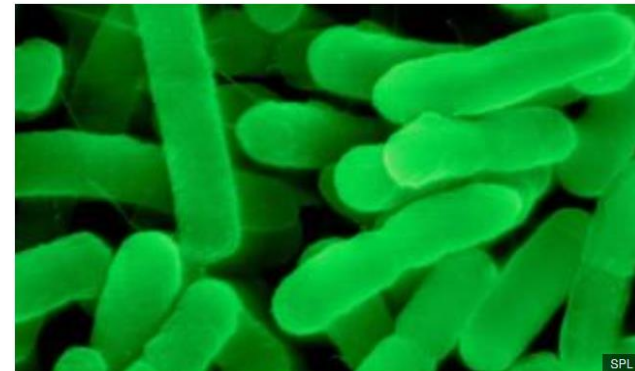


Bug resistant to all antibiotics kills woman

By James Gallagher
Health and science reporter, BBC News website

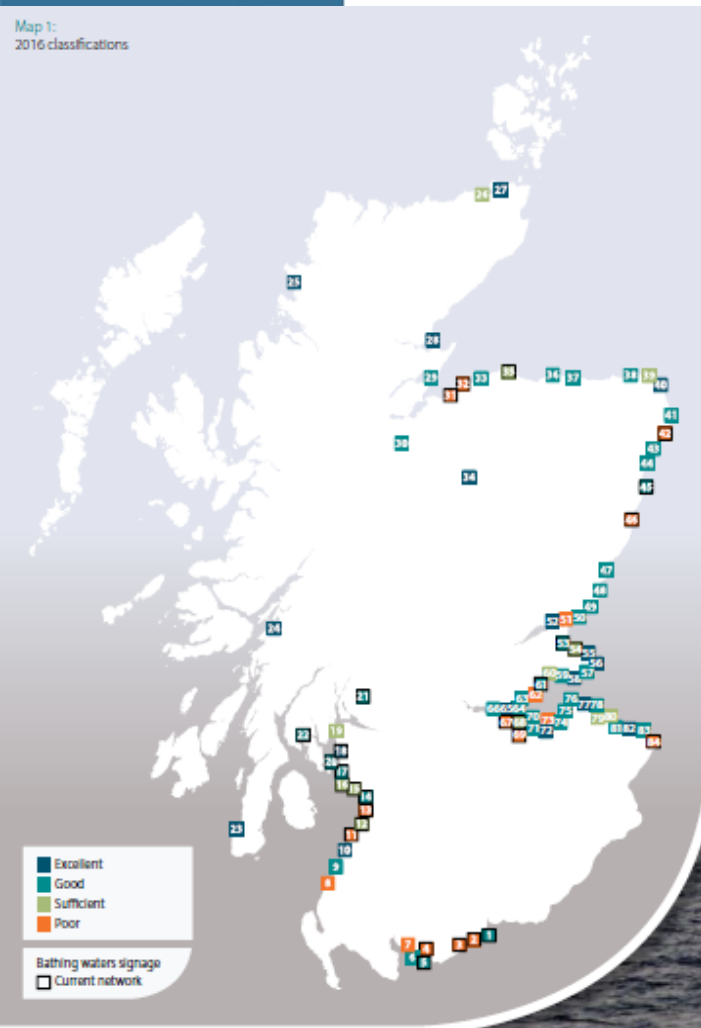
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A superbug that could not be treated with 26 different antibiotics has killed a woman in the US, officials report.

Screening for AMR in Scotland



Screening of waters found 23% of *E.coli* with resistance to cefotaxime, an antibiotic used to treat serious infections in hospitals.
[Donald Morrison, Napier University.](#)

Funds sought to investigate distribution & prevalence of AMR in water environment & links with human activity (WWT; agric).

Precursor to a surveillance programme?

Use & disposal of chems/pharma

- Need risk-based action. Presence \neq risk.
- Much monitoring & more planned (antibiotics, pharma, & micro-plastics).
- More education & advice (e.g. better diagnosis & prescription of antibiotics (O'Neill)).
- Re substitution: consider patient impact, cost-benefit & footprint (e.g. carbon, water, waste).

Concluding remarks

- SEPA will continue to work in partnership with others to protect and improve Scotland's environment in ways, where possible, also deliver social and economic success.
- SEPA is keen to support the NHS Highland Sustainable Health Care programme and to explore how it might contribute to it.
- The case studies provide examples of work that SEPA is doing that may be of help.