South East Water

healthy water for life

Win-win scenarios for industry and research – fostering healthy relationships

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6 December 2012

Agenda

- Clarity on win-win situation
- Case studies of win-win scenarios
- My take on fostering healthy relationship between industry and research
- Key lessons for healthy partnerships

What is Win-Win Situation ?

Also called a win-win game or non-zero-sum game in game theory, is a situation by which cooperation, compromise, or group participation leads to all parties benefiting.

It's hard to create win-win situations when parties are selfish and egotistical, and especially if they don't care whether their personal gains result in someone else's losses.

Learn Something New Every Day: wiseGEEK

So who are these Parties ?

- Industry - Water Authorities, Smart Water Fund office & ANZBP

- Regulators – EPA, DH & DSE

- Service Providers – Consultants, Specialist biosolids spreading contractors, Biosolids composters, Biosolids Pellet manufacturers, Other technology providers

- Research Providers - Universities, CSIRO, DPI

- Students – Honour's and Post graduates

So what are some examples of win-win scenarios ?

4 case studies

Case Study 1 – National Biosolids Research Program (NBRP)

- 7 Research Agencies
- Several Water Authorities
- Several Regulators

- 18 field sites in 2003
- 5 in Victoria

Alan Gale

Terry Anderson

NBRP Position paper, Dec 2007

Conclusion

Land application of biosolids can continue to be conducted sustainably provided care is taken in the selection of sites to receive biosolids.

Recommendation

A national approach, such as the NBRP, is required to address the potentially deleterious aspects of nutrient management (N and P) in biosolids applied to land.

Water industry response to NBRP's recommendation ?

Smart Water Fund

Nutrient management when biosolids are applied to land

RMIT UNIVERSITY

Case Study 2
RMIT Students-South East Water

- Governing principle should be to aim for best outcome for the student and the industry.

- Any outcome for personnel is secondary.

Case Study 2
Outcomes for student

- Honour's Project - repeat application frequency for beneficial use of biosolids.

- Presented a paper at the AWA Biosolids & Source Management Conference.

- Co-authored a review paper at the same conference. This paper later published in AWA Water Journal (August 2012).

- Now a PhD student with APA scholarship.

Nihal Albuquerque

Case Study 2
Outcomes for industry

- Broke the one-in-5-year "Repeat application tradition".

- Lack of availability of suitable land near the treatment plants means repeat applications are more cost effective than seeking land further away.

Nihal Albuquerque

Case Study 2
RMIT Student- South East Water

- Honour's Project - Heavy metals (Cu, Ni, Pb and Zn) movement through the soil profile following the application of biosolids

- Two sites
    1. Surbiton Park – Western Water
    2. Bald Hill Farm – South East Water

Katrina Mattingley

Sampling Summary - Bald Hill Farm

Treated Area:

Quadrants = 3

Soil samples /Quadrant = 5

Soil depths = 6

Total samples in the treated area = 3*5*6 = 90

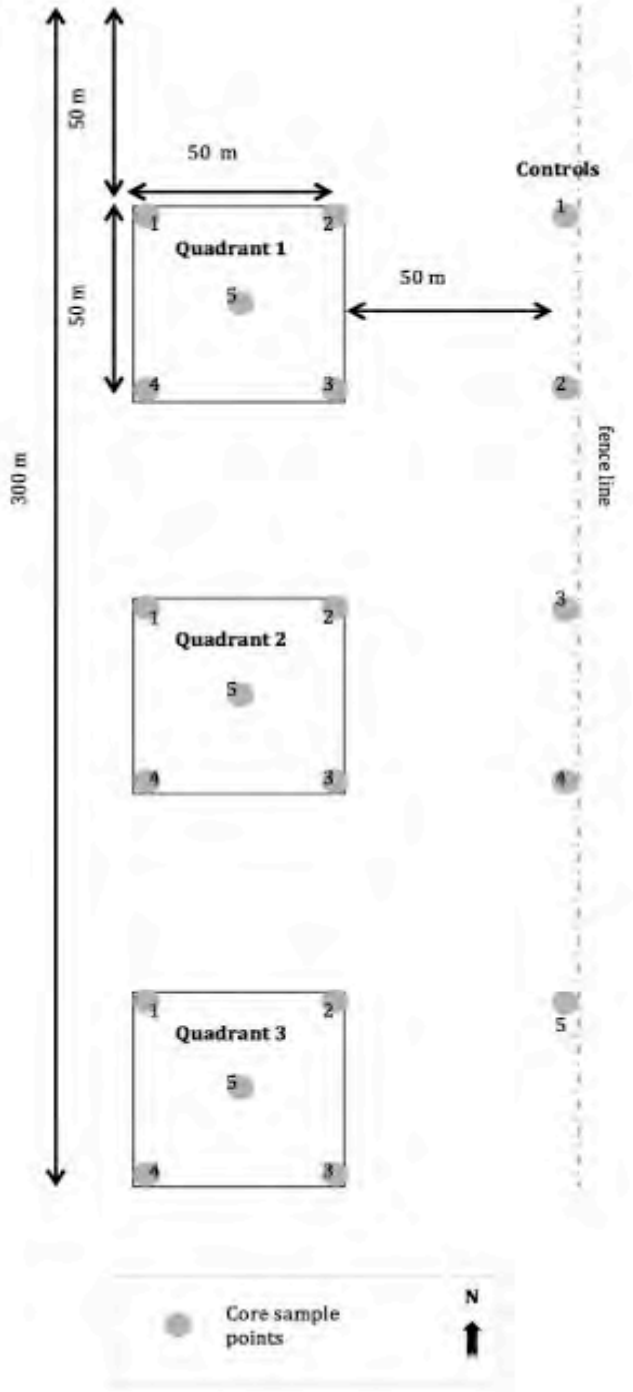
Control Area:

Soil samples = 5

Soil depths = 6

Total samples in the control area = 5*6 = 30

Total Soil Samples = 90+30 = 120



Case Study 2
Outcomes for industry

- No evidence of significant vertical leaching of Cu, Zn and Pb below 20 cm soil depth at both sites.

- Evidence of Ni leaching in Quadrant 1 at the South East Water site.

- Concentrations of metals are below soil contamination guidelines.

Katrina Mattingley

Case Study 2
RMIT- South East Water Student Projects

- Vocational Student – 3rd year Environmental Engineering student

- Volunteer Position

Ben Xiao

Case Study 3
Industry- Service providers Relationship

REPEAT APPLICATION OF BIOSOLIDS ON AGRICULTURAL LAND

A review of the current Australian guidelines

D Stevens, A Surapaneni, N Albuquerque, B Meehan, D Smith, P Uren, P Hansen

Volume 39 No 5
AUGUST 2012

Case Study 3
Industry- Service providers Relationship

BIOSOLIDS IN AUSTRALIAN HORTICULTURE – AN UNTAPPED RESOURCE?

A. Surapaneni and D. Smith: **South East Water**
K. Wilkinson: **DPI**
D. Stevens: **Atura Pty Ltd**
P. Darvodelsky: **Pollution Solutions & Designs Pty Ltd**

Acta Horticulturae

Case Study 4
Industry- Research provider Relationship

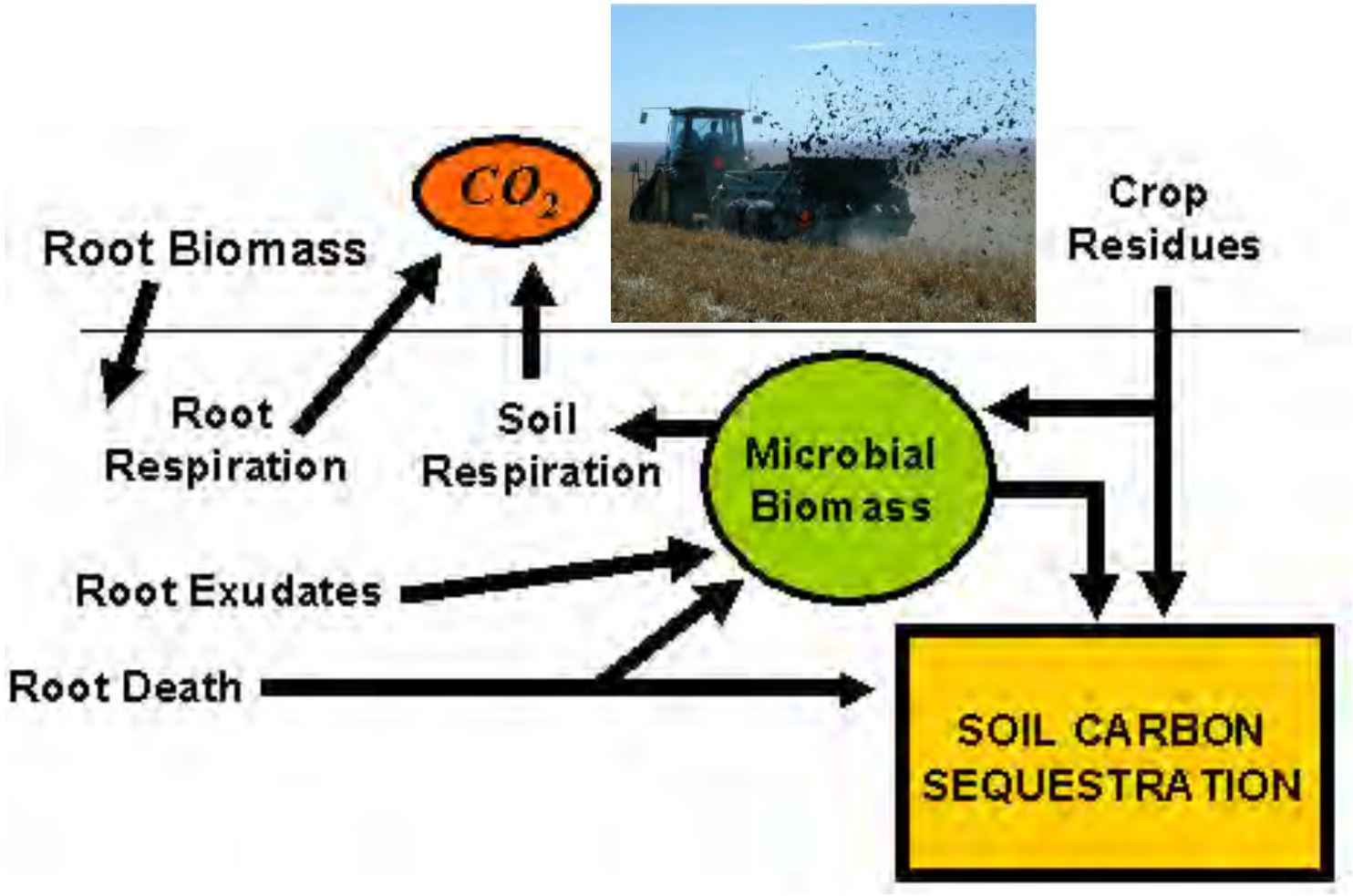
Case Study 4
Industry- Research provider Relationship

- ANZBP's Discussion paper on Biosolids, Carbon and Climate Change

- ARC Linkage Project on Carbon capture from wastewater irrigation and biosolids application to mitigate climate change and improve soil quality

- R&D Provider is UniSA

Case Study 4
Industry- Research provider Relationship



Case Study 4
Industry- Research provider Relationship

Industry money = $195K/years

If funded, the outcomes of this research will be highly beneficial for our understanding of additional benefits of biosolids.

So whose role is to foster healthy relationships between Industry and Research?

All Parties

- Industry - Water Authorities, Smart Water Fund office & ANZBP

- Regulators – EPA, DH & DSE

- Service Providers – Consultants, Specialist biosolids spreading contractors, Biosolids composters, Biosolids Pellet manufacturers, Other technology providers

- Research Providers - Universities, CSIRO, DPI

- Students

Role of Industry

Water Authorities, Smart Water Fund office & ANZBP

- Show some respect and empathy towards researchers
- Steer researchers in the right direction and engage them outside funding cycles too
- Reward A team and encourage B team to work with A team
- Encourage student placements and sponsor students
- Your R&D money brings more R&D money to Universities
- Evaluate projects: NBRP, Pathogen Die-off/Microbial Safety,Nutrient Management

Role of Regulators

EPA, DH & ESC

•Can bridge gap between Industry and Researchers

•Project idea - funded project - Scientific out puts – Regulatory frame work

•Lot of catching up and following up to do on recent R&D projects

1. NBRP project
2. Pathogen Die-off/Microbial Safety project
3. Nutrient Management project

Role of Research Providers

Universities, CSIRO and DPI

- Industry needs your services and products
- Be inclusive strategically
- Institutional arrangements to forge relationships with industry e.g. **Centre for Water Management and Reuse, UniSA**
- Novel methods of teaching into curriculum: **Teaching-Research Nexus (research-led teaching)**
- Minimise administrative hurdles
- Tides can be reversed

Role of Service Providers

Consultants, Specialist biosolids spreading contractors, Biosolids composters, Other technology providers

- Generate research ideas
- Engage in R&D projects: in-cash and in-kind contribution
- Sponsor and mentor students

Role of Students

Under graduates, Honour's and Post graduates

- Pick your team
- You need to have fire in the belly
- Make an effort to give a best shot
- What you put in is what you get

Key Lessons for Healthy Partnerships

- University leadership is vital
- Long-term strategic partnerships with built-in flexibility work best
- Start with a shared vision and develop a strategy
- Put the right people in charge – those who cross boundaries
- Kick-start the dialogue – encourage cross fertilization of ideas

www.sciencebusiness.net/innovationboard

Key Lessons for Healthy Partnerships

- Don't get hung up on IP
- Promote a multidisciplinary approach to research and learning
- Don't get hung up on measuring the results of a strategic alliance
- Redefine the role of R&D providers as a source of competence and problem solving for society

www.sciencebusiness.net/innovationboard

BONEO STP – solar dryer sludge

BONEO WRP solar dryer – healthy looking tomato plants ?

BONEO WRP solar dryer – healthy looking tomatoes ?

BONEO WRP solar dryer – Pathogen free tomatoes ?

Pathogens	Solar dryer tomatoes	Woolworths tomatoes
E. *coli* (org/g)	<0.3	<0.3
Salmonella (org/25g)	Not detected	Not detected

SOUTH EAST WATER