



**Landcare Research**  
**Manaaki Whenua**



Department of Conservation  
*Te Papa Atawhai*



# **Ecosystem Services**

## **~ Global & NZ Perspectives ~**

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& Cerasela Stancu (LCR)***

***24<sup>th</sup> September 2012***





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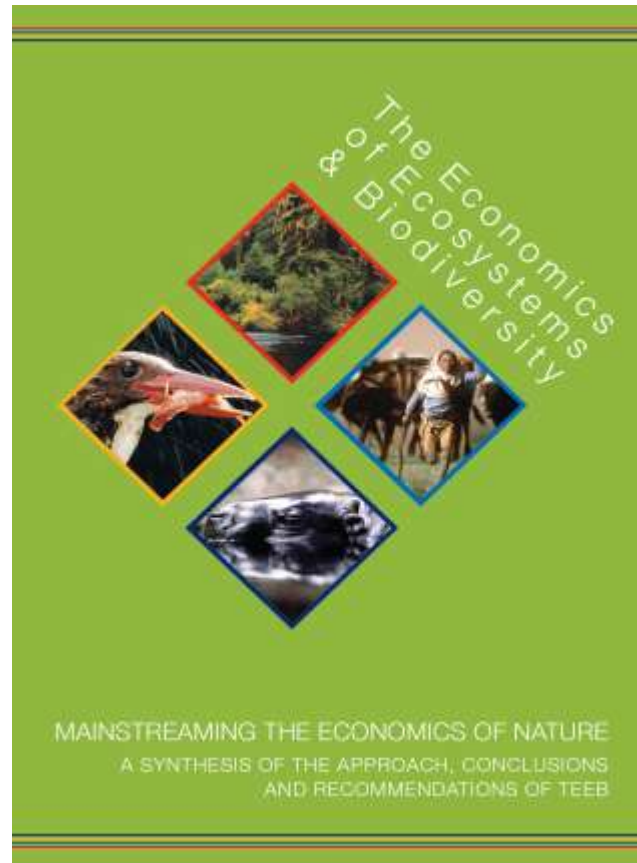
# **FIRST....**

## **Making Nature Count** **a global snapshot**

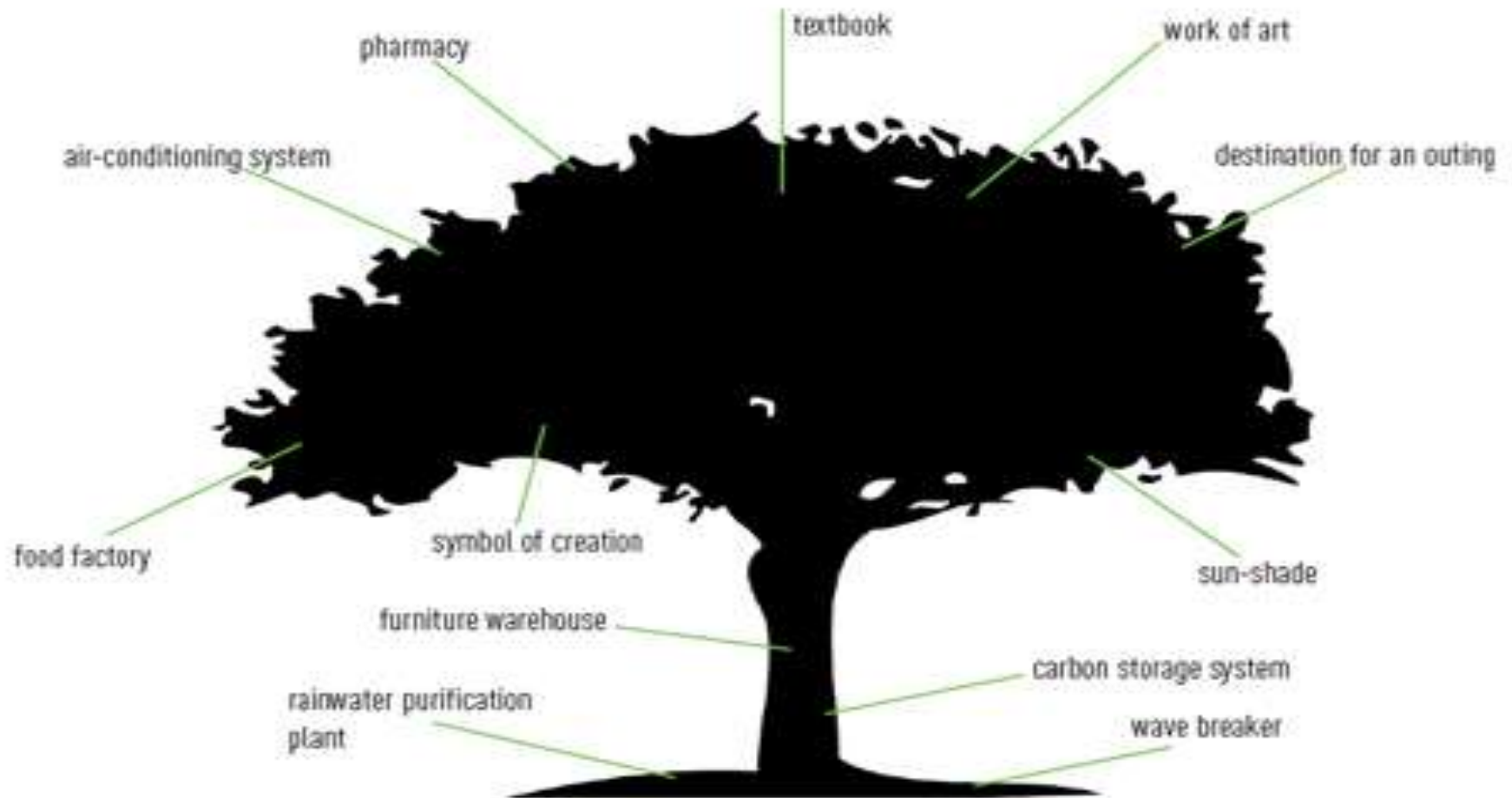


# The Economics of Ecosystems and Biodiversity

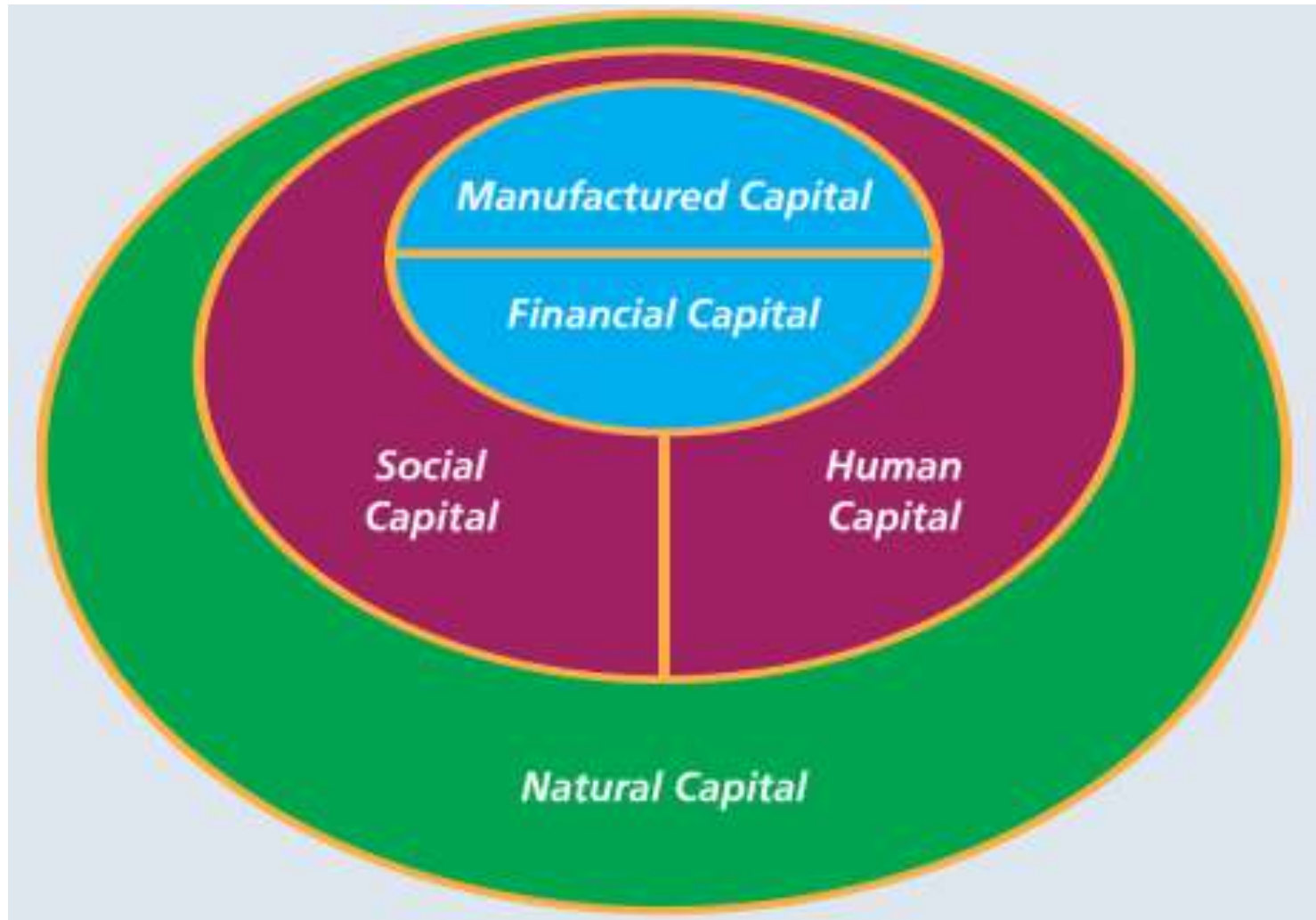
[www.teebweb.org](http://www.teebweb.org)



# Nature provides...



# Extending our view of Capital





# The Economics of Ecosystems and Biodiversity

image courtesy of Yann-Arthus Bertrand, GoodPlanet



**By 2030 global water supplies will only meet 60% of demand**





# **Ecological restoration helps dairying in India**

**70ha Forest regeneration**

**Grass prod. Increased 6x**

**Milk production rose from 150  
lt/per day to 4000 lt/per day in four  
years**

**73% drop in poverty**



# Where is NZ in this timeline and are we future-proofed???

**2020**

- EU member states start reporting Nat Cap in National Accounts

**2015**

- India publishes first Nat Cap accounts
- World Bank delivers WAVES Nat Cap accounting project

**2014**

- EU member states submit 1<sup>st</sup> assessments and economic valuation of ecosystems

**2012**

- Brazilian Business Coalition call for ecosystem inclusion in business practice
- 39 banks, 50+ countries, big biz sign Natural Capital Declaration at Rio
- 10 African countries sign accord to report on state of natural capital

**2011**

- Chinese government works with TEEB
- Nordic Countries agree to undertake Nordic TEEB
- UK National Ecosystem Assessment published and Natural Capital committee established

**2010**

Final TEEB report published

**“National governments must move beyond a narrow understanding of wealth....ignoring the state of assets like forests or coastal areas – vital natural capital.**

**In the UK we’re reforming our national accounts so that, by 2020, they also reflect our natural wealth.”**

May 2012 - Nick Clegg, Deputy Prime Minister, UK

# **Ecological Sustainability underpins Prosperity**



**“We believe that the current economic model is no longer viable and must give way to a new business paradigm,...**  
**... one that works with nature rather than against it”**

**Jochen Zeitz, CEO, Puma Ltd**

# Making Nature count – global context, local relevance



An aerial photograph of a vast agricultural landscape, likely in New Zealand. The land is divided into a grid of rectangular fields, some of which are lush green, while others are brown or tan, suggesting different stages of crop growth or land use. A network of roads and fences is visible across the fields. In the background, a coastline with a body of water is visible under a clear sky. The text "So, what headway is NZ making....." is overlaid in the center of the image in a large, white, sans-serif font.

**So, what headway is NZ  
making.....**

# Classifying Ecosystem Services

<b>PROVISIONING</b> <i>Products obtained from ecosystems</i>	<b>REGULATING</b> <i>Benefits from regulation of ecosystem processes</i>	<b>CULTURAL</b> <i>Non-material benefits obtained from ecosystems</i>
Biochemical, natural medicines & pharmaceuticals Food & Fibre Freshwater Fuel Genetic Resources Ornamental Resources	Air Quality Maintenance Biological Control Climate Regulation Erosion Control Disease Regulation Pollination Storm Protection Water Purification Water Regulation	Aesthetic Values Cultural Heritage Values Cultural Diversity Educational Values Inspiration Knowledge Systems Recreation & Ecotourism Sense of Place Spiritual & Religious Values Social Relations
<b>SUPPORTING</b> <i>Services necessary for the production of all other ecosystem services</i>		
Nutrient & water cycling Primary production Production of atmospheric oxygen	Provisioning of habitat Soil formation & retention	

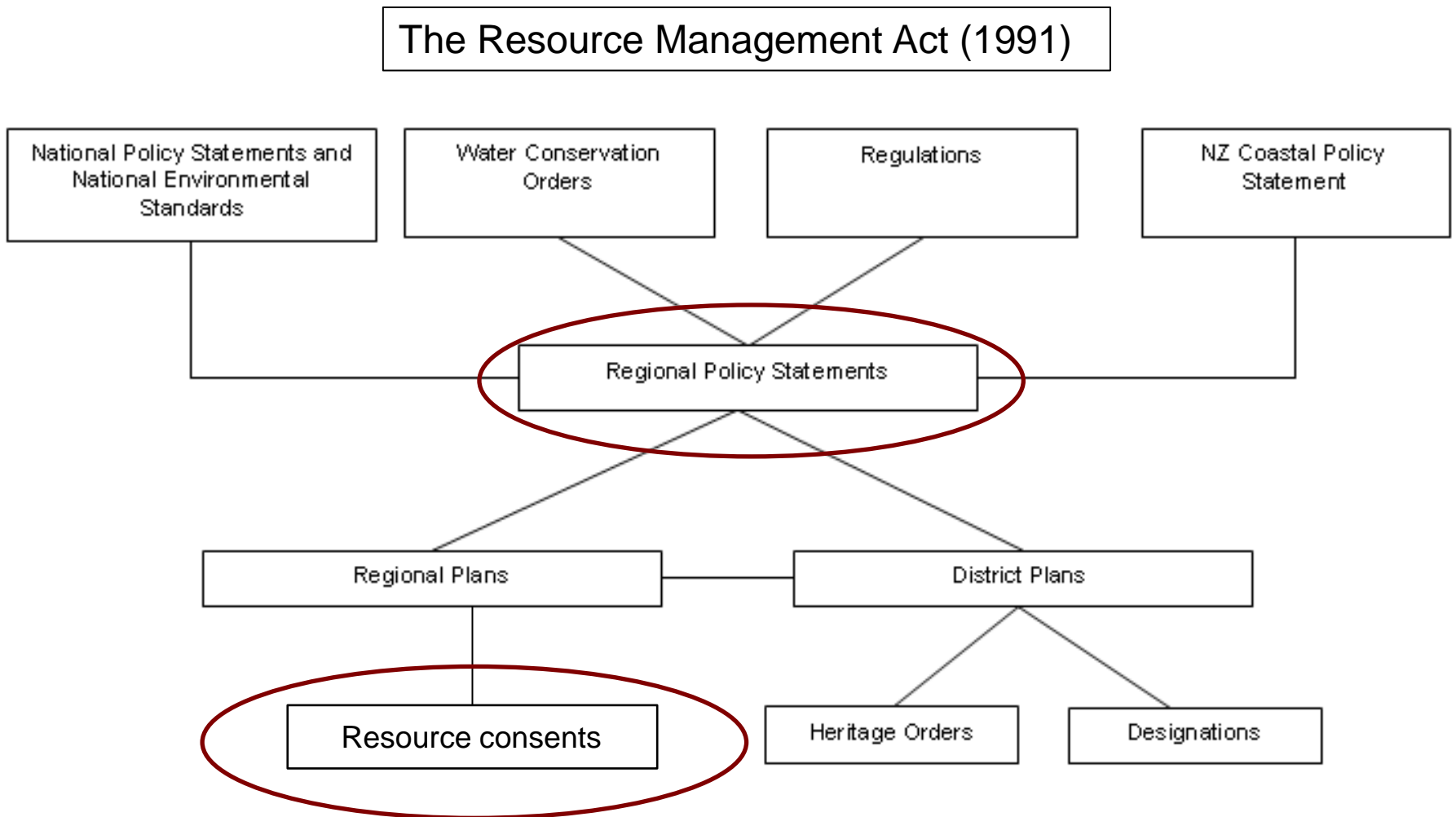
# Environmental governance in NZ

- Two key Acts:
  - The Local Government Act (2002)
  - The Resource Management Act (1991)
- Related Acts:
  - Conservation Act, Wildlife Act, Crown Minerals Act, Foreshore and Seabed Act, Climate Change Response Bill
- Ecosystem services can fit under RMA
  - *Safeguarding the life-supporting capacity of air, water, soil & ecosystems*





# New Zealand's RMA Framework



# Regional Council Policy

- Draft Northland Regional Policy Statement
  - What we want to achieve for biodiversity & ecosystems

*To recognize the true worth & public benefits arising from biodiversity values & **ecosystem services** to Northland's social & economic well-being.*



# Regional Council Policy

- Auckland Plan Directive 7.1:

*Acknowledge & account for **ecosystem services** when making decisions for Auckland*

- Our natural heritage contributes to our sense of place, & benefits us in our daily lives. These benefits are termed ecosystem services. **Ecosystem services** provided by indigenous species underpin many recreational and eco-tourism opportunities. The challenge in managing **ecosystem services** is that we cannot manage well what we do not measure.
- .....we must manage the increased pressure on **ecosystem services** to ensure our natural heritage is protected for future generations.



# Regional Council Policy

- Draft Waikato Regional Policy Statement

- Issue 1.1:

*Declining quality & quantity of natural & physical resources impacts their life-supporting capacity, reduces intrinsic values & **ecosystem services** & in general reduces our ability to provide for our well-being.*

- Objective 3.7:

*The range of **ecosystem services** associated with natural resources are recognized & maintained or enhanced to enable on-going contribution to regional well-being.*

Environment Waikato Policy Review (2010)

Proposed Waikato Regional  
Policy Statement  
(November 2010)

www.wrc.govt.nz  
0800 775 100



# Prioritising Regional Ecosystem Services for Planning

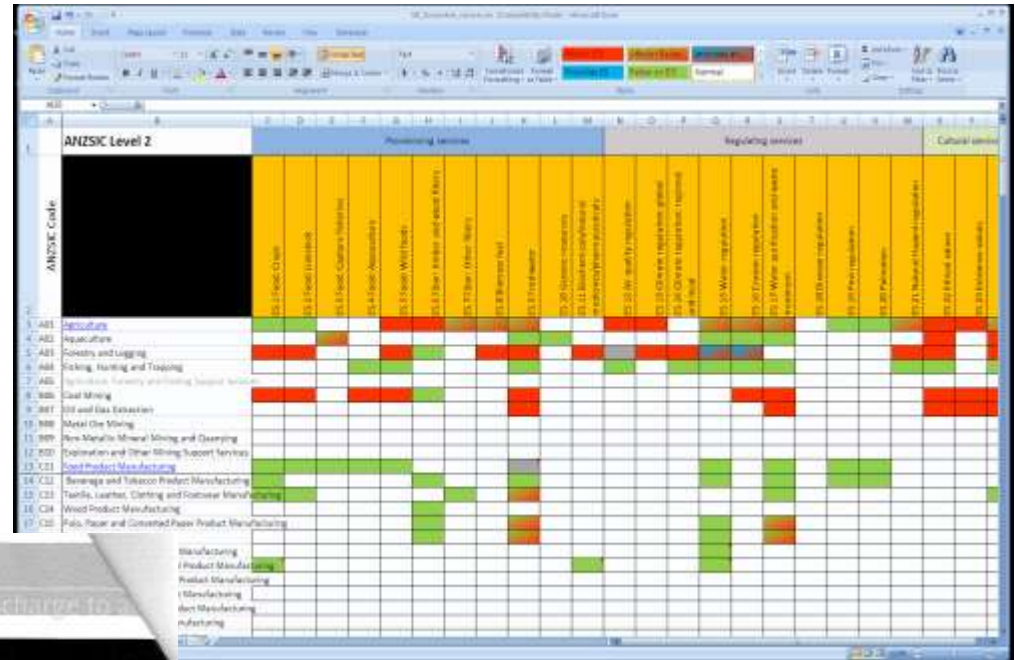
Select an ecosystem services framework then identify:

- Policies & organisational priorities that take precedence
- Ecosystem services with greatest effect on region's key issues listed in RPS
- Availability of knowledge & data on key services
- Condition of ecosystem services
- Relationship of ecosystem services to region's GDP
- Substitutability of key ecosystem services
- Reversibility of key ecosystem services
- Who depends on the key ecosystem services



# Ecosystem Services & Resource Consents

Education about what ecosystem services may be affected by different types of activities



Form B - Discharge to

Results and interpretation

30 Describe the actual and potential effects of your activity on humans, animals or plants, aircraft safety, the global atmosphere, areas of historic or cultural value, public amenity areas and places of public assembly.

Best place for discussion of effects on ecosystem services.

Assessment of environmental effects:  
Identify what ecosystem services to include in consent applications

# Council Challenges & Feedback

- Policy statements:
  - Increasingly seeing ecosystem services coming into regional policy statements & other planning documents
  - Still early days as draft policy statements may or may not have been notified
- Plans:
  - Practical operationalisation of ecosystem service concept with plans
  - Need to make tradeoffs



# Council Challenges & Feedback

- Consents:
  - Too many consents – whole of farm/development approach
  - Responsibility lies with consent officer
  - Increases science/technical capacity needs
  - Need quantitative measures of ecosystem services
  - Should be driven by plans initially





# Decision-making Tools

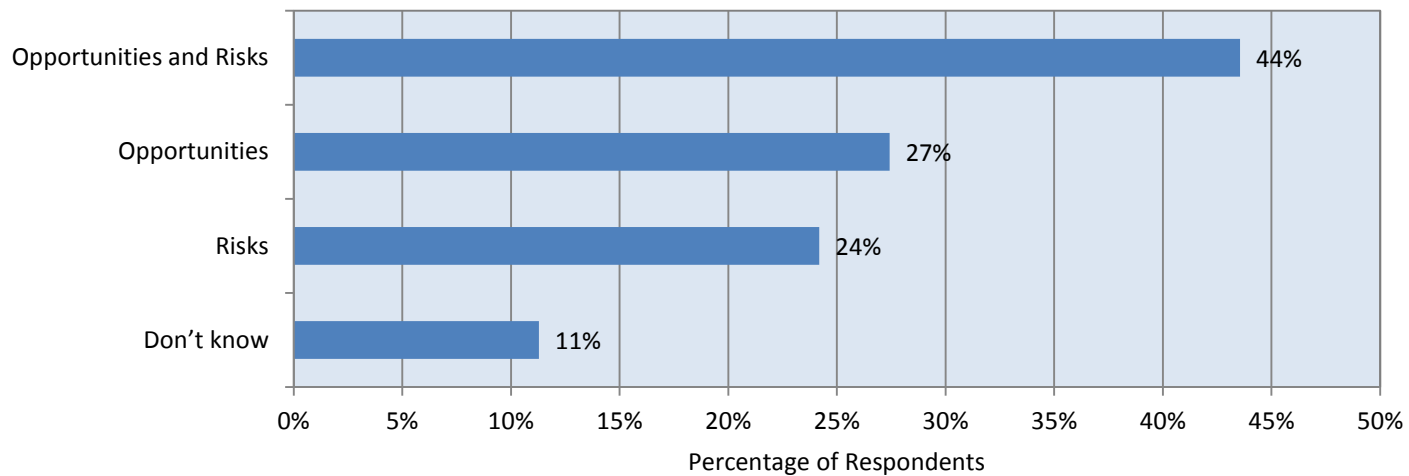
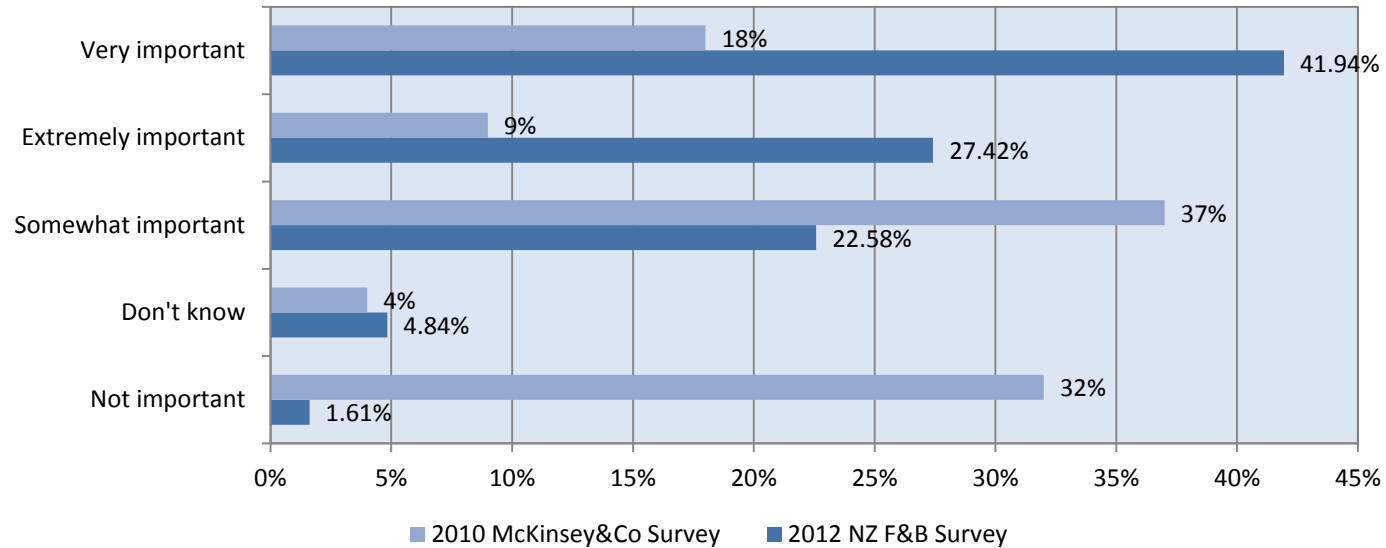
- Some emerging policy/government tools:
  - New Zealand:
    - NZFARM
    - LUMASS
    - WISE
    - NZ Ecosystem Services Landscape Model
  - Global:
    - INVEST
    - Ecosystem Services for Policy Makers Guide



# **Ecosystem services considerations in business decision**



# Upcoming issues: biodiversity and ecosystem services



# The case for business action on ecosystems services



Businesses impact on ecosystems and ecosystem services



Ecosystem change creates business **risks** and **opportunities**



Businesses rely and depend on ecosystems and ecosystem services

# Business support tools

## THE CORPORATE ECOSYSTEM SERVICES REVIEW



Guidelines for Identifying Business Risks  
and Opportunities Arising from Ecosystem Change

Version 1.0



DEDICATED TO MAKING A DIFFERENCE



Guide to Corporate Ecosystem Valuation

A framework for  
improving corporate  
decision-making



WRI REPORT



CHRIS MARTIN

CORINNE VAN DER LAAN

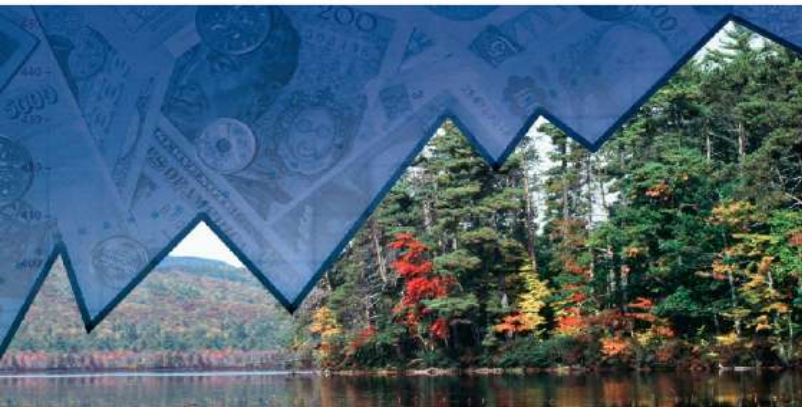
SUZANNE BOWEN

NATURE IN PERFORMANCE

Initial Recommendations for Integrating  
Ecosystem Services into Business Performance Systems

# Corporate Ecosystem Services Review (ESR)

## THE CORPORATE ECOSYSTEM SERVICES REVIEW



Guidelines for Identifying Business Risks  
and Opportunities Arising from Ecosystem Change

Version 1.0



- A step by step methodology for identifying risks and opportunities from ES
- Developed in 2008 by WRI with WBCSD and Meridian Institute (Theo Stephens ex-DOC contributed) Used by over 300 companies world wide, including in Australia
- Equal focus on dependencies and impact
- **First application in NZ: Zespri**

# ESR application at Zespri Int.

- First pilot-testing of ESR in NZ
  - Identify priority ecosystem services that Zespri depends and/or has an impact on.
  - Gain knowledge about the condition and trends of these priority ES and/or identify the gaps in knowledge
  - Investigate response strategies, including methods for prioritising ES interventions
- The project was also aimed to inform research actions to progress the businesses and ecosystem services agenda in New Zealand while contributing to the international research in this field.

# Corporate Ecosystem Services Review



## Business decisions the ESR supports

- markets strategy development
- identification of new markets, products & services
- environmental reporting
- identification of new revenue streams
- engagement strategies
- planning processes for corporate infrastructure projects



# Zespri ESR: the process

- Two workshops involving company managers, growers representative, ARGOS – addressing Step 1 to 4
- Demonstration of ESR by WRI (tool developer)
- ESR scope (Step 1):
  - Kiwifruit growers in Tauranga catchment
  - 68 growers, average 2.67 ha/orchard



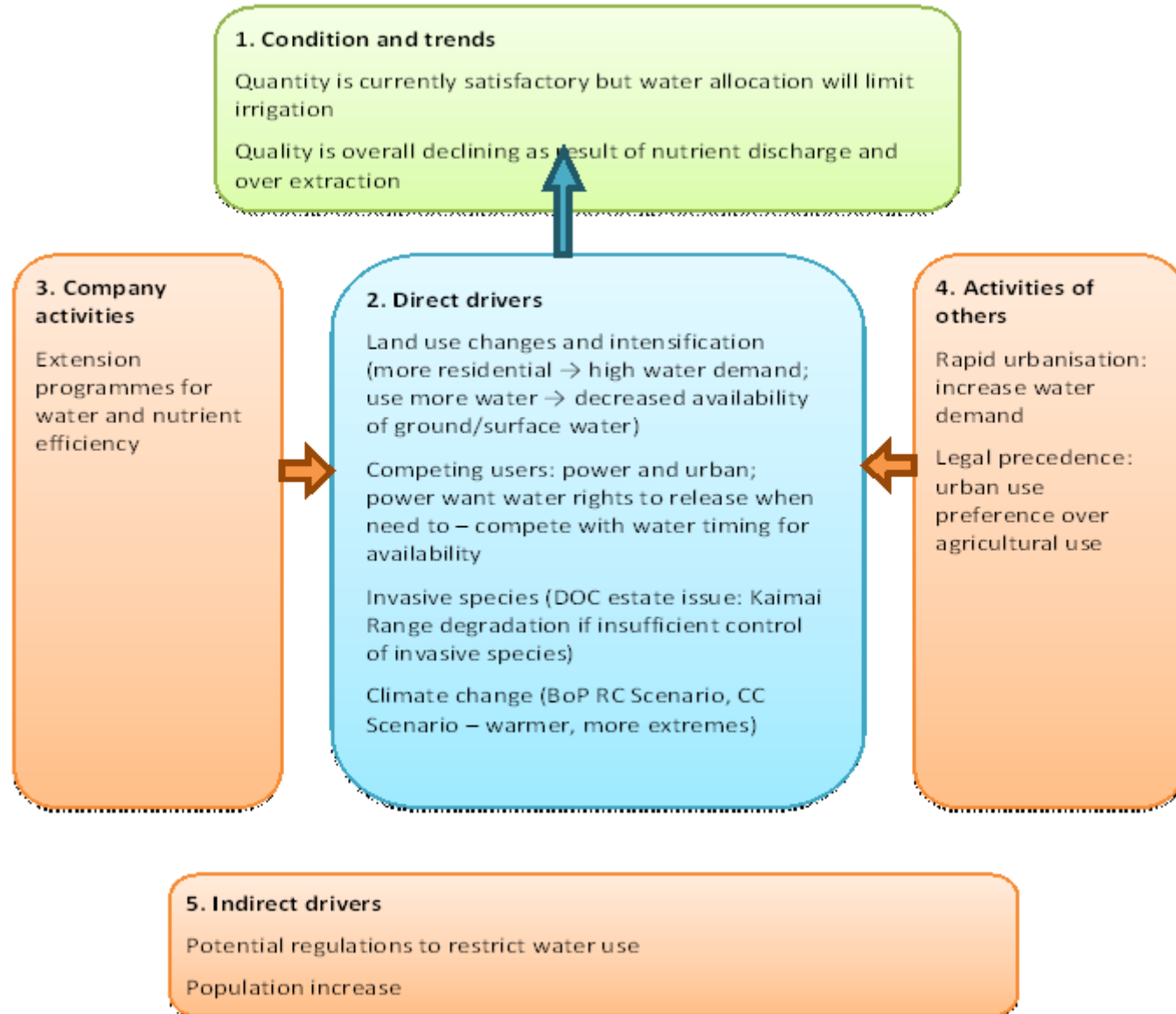


# Priority ES for Zespri growers (Step 2)

Ecosystem services	Dependence	Impact
<i>Provisioning</i>		
Freshwater	●	● +/-
<i>Regulating</i>		
Regulation of water timing and flows	●	● +
Erosion control	●	● +
Maintenance of soil quality	●	○ +
Pest mitigation	●	● +/-
Pollination	○	● +/-
Natural hazard mitigation	●	○ +

# Trends and conditions (Step 3)

## Freshwater



# Freshwater Analysis (Step 4)

Risks	Opportunities/Actions
<p>Decreased access to water as result of water scarcity allocation limits</p> <p>Increased regulatory pressure and licence to operate re. quality and quantity of freshwater (Tauranga Harbour issues)</p> <p>Market demand/preference for higher water-use varieties or early-bud varieties (which require frost protection ↔ increased water use)</p>	<p>Develop/strengthen grower extension programmes to increase water use efficiency</p> <p>Develop new varieties which need less water and are drought tolerant</p> <p>Work with and support BoPRC to establish water rights which are transferable and tied to good (water) management practices</p> <p>Expand environmental performance monitoring and reporting at Zespri (build on footprinting work)</p> <p>Establish auditable environmental reporting systems for growers</p>

# Responding to ES (Step 5)

## **Internal changes:**

Changes in operations, product/market strategies, and other internal activities

## **Sector or stakeholder**

**engagement:** partnering with industry peers, collaborating with other sectors, or structuring transactions with stakeholders.

## **Policy-maker engagement:**

when the ES valued by the business (i.e Zespri) are controlled by governments or stretch across numerous private owners, making engagement inefficient or nearly impossible. Also, public policies are often a key indirect driver of the degradation of ecosystem services

# Insights into ESR application

- Simple yet methodical & systematic
- Removes bias and emotions from the analysis and for prioritising action
- Effective tool for stakeholder engagement and collaboration, and fact-based framework for dialogue and decision making
- Lack of data on ES trends can be a major challenge as it weakens the case for business action
- Because of the kiwifruit context, influencing the policy context and engaging with stakeholders is of primary importance.

# Learnings

- Science and expert input at step 2 and 3 or risk of conducting D and I assessment that is inaccurate (risk of interpretation to suit interests!)
- Diverse stakeholder involvement needed, including NGO and policy to provide a balanced view on ES **dependencies** and impacts, conditions and trends
- ES requires holistic approach as ES are linked and growers/farmers can simultaneously have positive and negative impacts
- Possibility of applying only step 1 to 3 – and then look at integrating ES into existing business tools (EM, EIA, reporting)
- Water-related ES are likely priorities for entire primary sector – water policy to take a more explicit ES approach?!



# Key messages

- Businesses are increasingly interested in ecosystem services as they start understanding the links between ecosystem change and their bottom line (dependencies in particular)
- As ecosystem services is becoming a leading theme in corporate sustainability, ES reporting and performance benchmarking will become common practice.
- Effective policies that take a holistic view of ecosystem services will enable early business action and strengthen business profitability and well being.



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# **Ecosystem Services**

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