QSIA SUBMISSION TO THE PRODUCTIVITY COMMISSION

SEPTEMBER 2002

QUESTION 1 *a) What is the nature and extent of research and monitoring activities relating to land and water uses, water quality and GBR health?*

b) What are the main areas of scientific agreement and disagreement on these relationships?

a) Extensive research has been undertaken by a range of research agencies over the past two decades, including work by AIMS, JCU, UQ, CRCs for Reef, Catchment Hydrology, Freshwater Ecology and Coastal Zone, GBRMPA, CSIRO, ANU, DNRM, DPI, EPA and many others. Some of these papers are listed below..

- Moss, 1992
- Furnas et al, 1995; in prep
- Furnas and Mitchell, 2000; 2001
- Neil and Yu, 1996
- Hunter et al, 1996; 1997
- Mitchell et al, 1996; 1997; 2001
- Prosser et al, 2001
- Bramley and Roth, in prep
- Brodie, 1999, 2002 (in press)
- Day, 2000 (unpublished)
- McCulloch et al, (in press)
- Fabricius and De'ath, 2001, 2001
- Haynes, 2000, 2001

QSIA staff have documented their understanding of research findings in Diagram 1 and 2. Some additional diagrams have been included to display particularly critical points.

b) Not-withstanding inherent difficulties in assessing land marine links across vast distances with significant and complex natural variation; there is a clear scientific consensus of reef scientists on the pollution risks posed to the reef.

This consensus is documented in Williams, et al, 2001. This paper is available at http://www.reef.crc.org.au/aboutreef/coastal/waterquality_consensus.html and concludes …

In conclusion, on the basis that:

i. available evidence indicates that post-European land use has significantly increased runoff and sediment associated nutrient and contaminant delivery to near-shore regions of the GBRHWA,

ii. runoff has had clear detrimental impacts on freshwater aquatic systems,

iii. there is significant risk that this impact is currently or may in future damage areas of high exposure along the wet tropical and central Queensland coasts of the GBRWHA,

there is a continued urgency to work towards a reduction in the runoff of sediments, nutrients, herbicides and other pollutants into the Great Barrier Reef World Heritage Area.

Canegrowers dissent to the prevailing reef science consensus centres exclusively on the work of some geologists (not marine biologists) from James Cook University. They work in the geology department and their names are Bob Carter and Piers Larcombe.

The overwhelming majority of scientists dispute Canegrower's conclusions because the work they base their conclusion on..

1. Ignores the high risks posed by fertiliser and chemical discharge on reef ecosystems

- Nitrates and chemicals are unnatural in the reef system and therefore pose significant risks

- Nitrogen enrichment grows algae to compete with coral in what should be nutrient poor areas. Enrichment may be enhancing Crown of Thorn outbreaks, (Okaji, 1993)

2. Measures soil impacts on inappropriate geological and biological scales in both time and space, which …

- Hides seasonal variation by concluding dominant SE winds return soil to the coast, not the reef. However SE winds do not dominate when sediment-laden flood plumes occur.

- Hides biological diversity by concluding coral cover (not diversity) is maintained in turbid reefs. In fact far fewer coral species can withstand relatively turbid, fresh water (which explains why few reefs grow in river mouths). While the relatively few species that are less sensitive to turbidity and fresh water may prosper, many other corals die. This is not an acceptable outcome for reef biodiversity or health.

- Ignores long-term transition effects by concluding seagrass will return after high erosion periods when farmlands stabilise. During times of accelerated erosion, the resulting turbidity reduces the cover and extent of seagrass – a vital habitat for targeted fish species.

  What happens in the meantime? Given Land and Water Audits and other recent measurements of continually high erosion, when will farmland erosion stabilise? The audit's estimate of loss from cane lands employing every known soil conservation technique is still 7 times natural. The number of farms employing all of these techniques is expected to be less than 5 or even 1%.

  High erosion periods have been in place for some time and there is no light at the end of the tunnel. Throughout this time reduced photosynthesis and other impacts has

reduced the extent and health of seagrass beds, endangering icon fauna such as dugongs and turtles and limiting the productivity of the fishing sectors.

- Trivialises local impacts by concluding 'most reefs' are not impacted. Can we afford to wait for "Most Reefs' to be impacted before acting? 'Most Reefs' is a lot of reefs when you consider there are 3,000 of them. How many are willing to lose? CRC Reef states 200 are at 'high risk' and 400 are 'at risk'. It is fair to expect the Australian and international community would be very concerned at levels far below these.

- Compares apples and oranges by lumping in 'old' and 'new' nutrients. Argues extra nutrients are small subset of 'old' sediments re-suspended by SE wave action. Yet 'old' sediment is de-nitrified overtime and pushed onshore. New sediment on the other hand is nutrient rich and in peak events is exported far offshore to increase pressure on corals and seagrass.

- Compares apples and oranges by using geological based comparisons to assess biological risks. A small amount of soil may be insignificant geologically but a significant biological pressure to soil sensitive corals and seagrass.

QUESTION 2 *Are there any particularly useful examples that shed light on the nature and extent of the relationship between land and water users and the GBR, including areas where multiple factors are seen to be contributing to deteriorating water quality?*

See diagram 1 and 2.

QUESTION 3 *To what extent might Australia's economic, social and cultural values and international obligations be affected by deterioration in the health of the GBR?*

The economic, social and cultural values and international obligations have been and would be significantly affected by deterioration in health of the GBR.

Economic Effects

Economic impacts include reduced economic production associated with existing and future commercial and recreational fishing, tourism and future biotechnology industries. Reduction in economic production will reduce employment generation and this would in turn have significant flow-on effects.

It is critical to note that these impacts have already occurred and will continue to occur. Without doubt the fishing sectors would be considerably larger in terms of production and employment if farm run-off was sustainable.

As 75% of catch is estuarine dependent (Quinn, 1992), cumulative reductions in estuarine health must have reduced fisheries productivity. Whilst for many years coastal communities have perceived reductions in fisheries productivity, especially the fishers themselves, few have realised this is more likely due to poor catchment use rather than over-fishing. Considerable cost has been imposed on the fishing industry by having to reduce fishing effort to resolve perceived fishing productivity issues which are most likely caused in large part by another set of industries.

Another relatively unrecognised impact of continued reef pollution will be the impact on the economic structure of Queensland regional towns. Currently governments at all levels are seeking to create more employment opportunities and diversify the economic base of regional towns away from an excessive dependence on traditional industries which have been suffering decline in their terms of trade.

These traditional agricultural industries are operating in quite mature markets, competing with many low-cost countries and attempting to enter heavily protected overseas markets. Consequently the prices received for agricultural commodities have been declining for many years while costs have been stagnant or rising. In turn many regional towns that depend on traditional industries, except where they have been able to diversify into other industries, such as mining or tourism.

There is a critical need for these regional towns to diversify into markets where they possess a competitive advantage. In many cases tourism is one of the few alternatives that have been identified successfully without significant government subsidy.

Fishing also has retained an important employment role (Fenton, 2001). Yet the 600 reefs identified by CRC Reef at risk from pollution, the estuaries and the significant non-reef near shore values in the World Heritage area support significant fishing industry production. As stated, 75% of fishing catch relates to estuarine-dependent species. This catch relies upon healthy ecosystems. Recreational fishing is also heavily dependent on the health of areas at significant risk from land-based pollution.

Yet pollution and other impacts (land clearing) from traditional industries threaten the amenity values needed to support these new and growing industries. Considerable caution needs to be exercised by communities and government to ensure mature industries are not allowed to prevent regional towns from new futures.

Poor land-use also has negative long-term impacts on the economics of traditional industries themselves. Soil, water, pesticide, fertiliser and other farm inputs are far more useful and valuable on-farm than in rivers, estuaries or the ocean. It is understandable that traditional farming practices developed in an era when past poor management did not impose short-term effects on business costs.

Yet concerning trends in other parts of Australia and Queensland indicate lag periods are beginning to expire and salinity and other more direct impacts on farm profitability are starting to occur. Once impacts such as salinity, sodicity, acidity and soil degradation are expressed they become very expensive to rehabilitate – more often than not beyond the capacity of government or the private sector to pay. Prevention of such impacts is perhaps the only way for farmers to avoid insolvency.

It is clear that in many ways tackling run-off issues will in the long-term improve farm economics. Many of the initiatives required to reduce run-off also reduce farm costs. CRC Sugar reports indicate a third of fertiliser applied is in excess of plant requirements. DNRM reports indicate significant water savings are available in many cases. Water savings reduce tailings run-off and reduce the need for more dams. These are two examples. The QSIA is willing to provide more if needed.

Yet implementing long-term solutions often requires short-term investments, investments that a farmer may be reluctant to make in the first instance due to transaction costs and risks.

It has been shown through the Queensland Government's Rural Water Use Efficiency program that small conditional subsidies has successfully removed sufficient transaction costs and risks to encourage adoption of better long-term practices.

Our attached paper "Incentives For Sustainability" explores how other, lower cost incentives maybe provided to overcome short-term transaction costs and risks.

Social and Cultural Effects

Without change, long-term economic impacts would in turn have significant social and cultural impacts. New industries bring new ideas into often isolated communities. New ideas and new information provides a better basis for decision making and taking advantage of new and emerging growth opportunities. New industries spread income throughout a society in new ways and encourage the development of new skills.

Continued reliance on mature or declining industries risks a regional town's ability to grow in ever-changing world. Towns reliant on one or two industries rise and fall with them and have little ability to absorb shocks in those industries. This lack of resilience does not provide a secure foundation for young workers entering the job market and many leave for larger, more diversified labour markets. Aging regional towns lack the vibrancy of years gone by and fail to attract new settlers or social diversity.

Traditional industries have limited ability to address the social problems they have created in towns that are overly dependent on them. Further deterioration of traditional industries terms of trade will risk further rural decline, already evident in many towns that have not diversified.

The solution to these problems is one of diversification away from traditional industries. This has been recognised by the Smart State strategy championed by the premier. Greater use of technology and greater sustainability are key aspects of this strategy. New industries will require

Australia has significant international obligations that would not be met if it does not act on the threats posed by land-based pollution.

QUESTION 4 *a) Should the Commission undertake a more detailed investigation of a few regions or catchments as part of its study to highlight important regional and local issues?*
b) If so, which areas are suggested and for what reasons?

The commission should undertake more detailed investigation of the Burdekin, Wet Tropics and Burnett regions.

- Burdekin : The Burdekin River is the biggest polluter of the GBR WHA. It has significant pollution issues, especially during peak-flow events.

  Significant land clearing occurs here and vested interests are proposing significant intensification of agriculture associated with the Elliot Main Channel and dams at Urannah, Hells Gate and elsewhere. This is despite existing evidence of salinity outbreaks (DNRM, 2002) and extensive erosion (Land & Water Audit, 2001)

  According to industry sources, the development of the Burdekin Falls Dam significantly reduced downstream fish catch.

- Wet Tropics: Intense rainfall, extensive catchment modification in lowland areas and close proximity to the GBR lagoon explain the already documented risks posed by pollution sourced from wet tropics catchments (GBRMPA, 2001)

- Burnett: 31 major dams already exist in the Burnett catchment and 5 more are proposed. Modification of flows has had significant impacts on the size of the Burnett fishery. In excess of 70 fishing operations were in existence in the local area before extensive catchment modification. Very few now remain.

QUESTION 5 *a) Are the proposed indicators of economic importance appropriate, taking note of the need for consistent comparisons across industries?*
b) If not, please suggest alternatives?

No one measure should be reviewed in isolation.

Revenue

Revenue can be an appropriate measure as long as it is measured in real terms and it compares industries on a like for like basis over time. For example fish processing must included if sugar milling is and vice versa.

Adjustments must also be made to recognise that t the fishing industry would be significantly larger if catchment use was more sustainable. In this sense revenue only measures what the remaining catchment health can produce, not what it would have been before European agriculture. Given the significant modification of estuaries, up to 80% loss of wetlands and significant pollution, it is arguable that the seafood industry would have been significantly larger.

Value-Added

Value-added can be an appropriate measure as long as all forms of inputs, including subsidies are estimated. Identification of the net surplus of taxes paid versus subsidies paid would also be a useful measure to assess the contribution of reef catchment industries.

It is important that subsidies be calculated as they are a public cost of any industry revenue generated, they tend to be unevenly distributed between industries, there has never been an accurate accounting of them and there is strong expectation in our industry that such a calculation will be undertaken.

This expectation is based on the wording of the draft *Information Booklet* on the Reef Water Quality Protection Plan. The wording was as indicated below..

One project that has been identified is an economic and social study covering the main industries in the GBRWHA and adjacent catchments. The Commonwealth Government has commissioned this study to examine the long-term viability and sustainability of the industries of the region. The study will examine each industry in relation to its management of water quality, **subsidies**, (my emphasis) sustainability, contribution to the economy and long-term economic outlook. The costs and benefits of undertaking on-ground industry actions to address declining water quality in the GBRWHA will also be evaluated. Anyone interested in more information about the study and the procedures for making a submission, please read the Commission's issues paper, which can be downloaded from: <http://www.pc.gov.au/study/gbr/issuespaper/index.html>

The subsidies to the land-based agricultural industries are extensive. Subsidies are received by agricultural industries in several categories.

- Water subsidies

- State Land rental subsidies
- Resource Management, Science and Development subsidies
- Infrastructure subsidies
- Industry development and structural adjustment assistance
- Employment, training and telecommunications subsidies
- Many other programs

While it is true that the fishing industry receives subsidies, as well as other industries, it is strongly suspected that the sugar industry receives a significantly higher rate of subsidisation. We request that a correct assessment of value-added for the sugar industry will require an analysis of its level of subsidisation.

For example it is understood that the sugar industry uses nearly 50% of the water supplied by government owned SunWater. Rural schemes operated by SunWater are running at a loss of some millions of dollars. While prices have been rising, they do not yet cover costs of supply in many areas. Nor do they cover many other significant water-related costs.

An analysis of water and other subsidies to all reef catchment industries is the only fair way to compare industries on a like basis and to truly understand their net importance to the local, regional, state and national economy. Without an assessment and broad estimate of subsidies, the proposed study would be unnecessarily limited.

Water Subsidies

The cost of water has historically been heavily subsidised, leading to the water reform framework agreed by every state government and the commonwealth in 1994 meetings of CoAG. This situation arises because water prices do not cover many of the costs that would otherwise be paid in a commercial transaction. These costs include $15m uncovered operational and backlog expenses requiring CSO payments from government (SunWater Annual Report, 2000-1), resource management and development costs and capital costs. Resource management costs will be discussed in the next section.

In terms of capital costs, the government has expended significant amounts of capital over the years to support the land-based industries in terms of water and transport infrastructure.

In terms of water infrastructure, the state has infrastructure with an estimated efficient written down replacement cost of $2.7bn with 87% of these assets employed in rural water supply and 94% of its water allocation is in the GBR Catchment (SunWater Annual Report, 2000-01). It is also estimated that capital costs on GBR and other assets would exceed 10% per annum – an estimate confirmed by our understanding of the water prices calculated for the Gladstone Area Water Board. Based on a 10% Weighted Average Cost of Capital, and allocation of investment based on water allocation, this indicates a capital cost subsidy around $220mp.a.

Resource Management, Science and Development Costs

Resource management, science and development costs are significant and should be estimated. The state departments of Natural Resources and Mines, Primary Industries, State Development, Local Government and the Environment Protection Agency, the federal departments of Environment Australia AFFA and others and of course the efforts of the many local councils in the region spend considerable budgets each year to develop, research, assess and refine resource management arrangements for farming in Queensland.

Yet to estimate these costs will require significant efforts to allocate attributable expenditure from the broad based budgets of these agencies.

Rough Estimate of Net Contributions by Government to Agency Budgets in Queensland

Agency	$m p.a.	
DNRM	350	(predominantly rural nrm)
DPI	200	(predominantly rural nrm - excludes fishing)
EPA	175	
LGP	190	
DSD	200	
EA/AFFA and other Commonwealth	315	(assumes 18.7% of green budget based on population)
Local Councils	50?	
TOTAL	1,480?	

Source: Various annual reports, web pages and ministerial portfolio statements.

The next step would be to allocate costs within these budgets to natural resource management in the reef catchment and to relevant industries. This could be achieved through discussions with senior agency staff.

There is no suggestion that the agricultural industries pay any significnat amount immediately, as there is little comfort that expenditure is always efficient or without public good components. Yet fishing already pays 20% of its $30m resource management and development costs (DPI, 2002), whether they are efficient or otherwise. DPI is also indicating this percentage will be rising in the future.

On an equivalent basis it could be expected that resource management subsidies to agricultural industries could exceed $200m.

Other resource management costs exist however as the above numbers do not include costs incurred by downstream industries. Water is a public resource yet no charge is levied to represent the next best opportunity foregone. In this case the recent research of CRC Coastal Zone confirms what fishers have long observed. The catch of prawns and barramundi and many other lucrative species is dependent on the size of flows. Water extracted for irrigation and other uses in the GBR catchment is likely to exceed several million mega-litres on average. The value of this resource is substantial but unquantified and therefore not passed on to irrigation beneficiaries. It is hoped research will be undertaken in the near future to better understand these impacts.

Water infrastructure has been discussed is but is only one class of infrastructure. There are many others, including the $28m granted as a windfall to the industry last year by the legislative changes by the Queensland Government (Palaszczuk, 2002). Nor does it include the subsidised drainage infrastructure of the Sugar Industry Infrastructure Package. Nor does it include the recently announced $150m reform package or the $81m Sugar Industry Assistance Package of two years ago.

Subsidies should not include legitimate credits for items such as diesel fuel as credit is given for the off-road component.

Employment as an Economic Indicator

Employment is an important indicator but employment intensity and new net job creation ability are probably more important indicators in the sense that they measure the ability of various industries to solve regional unemployment problems. Traditional agriculture has a limited ability to grow jobs because competitiveness will demand job losses from retiring marginal land and becoming more capital intensive.

Whereas tourism and inshore fishing activities are possibly more intensive employers, where scale is not so important to business success.

Measuring employment on its own will only tell us what we already know – not what we need to know to solve regional growth challenges.

QUESTION 6 *Are some economic indicators more relevant to certain industries and not to others?*

Subsidies in the calculation of the value-added for the sugar industry, as discussed above.

Also it remains important to note that the fishing industry would be significantly larger if catchment use was more sustainable. In this sense revenue only measures what the remaining catchment health can produce, not what it would have pre-European agriculture.

QUESTION 7 *a) Are the proposed indicators of social importance appropriate, taking note of indigenous and non-indigenous values?*
b) If not please suggest alternatives?

The proposed indicators are inappropriate. They will only tell us what we already know – the status quo, rather than how useful the status quo delivers on social objectives relative to alternatives. It is arguable in some cases that the status quo has poor delivery on social objectives such as job creation, opportunities for young people, growing per capita incomes, low welfare dependence, diversified economic base, opportunities for skilled workers, growth, low crime and family issues, inclusiveness of indigenous members, etc.

The QSIA is very concerned about the implication used in the issues paper that indicates that an industry that accounts for a high proportion of the employment may have a greater social importance to e a region if the region is disadvantaged.

If it has a high proportion of employment in the region is disadvantaged it is arguable that the industry has been unsuccessful in providing the incomes, skills and employment and social outcomes needed by its society. Yet the study may actually CREDIT this industry for putting this poor society in this situation. This appears perverse and is not recommended.

Rather indicators should be used to assess social importance in terms of their ability to increase their share of employment, increase the depth and breadth of skills, reduce dependency on business welfare and individual welfare and many other indicators of social health.

We should be measuring the importance of industries to our future not our past. It appears proposed indicators in a numbers of areas are looking backwards instead of forwards.

QUESTION 8 *What data sources should be used for recreational fishing, taking note of the need for consistent comparisons across industries?*

While recreational expenditure data is often misused and misunderstood by recreational fishers, recreational fishing activity can be significant at the local level. A healthy recreational fishing industry will attract production away from other sectors of the economy, which while at a national level may not create new production; it certainly redistributes production into recreational fishing areas. This local significance cannot be ignored and there are real economic costs in local regions from threats of pollution to recreational fishing.

QUESTION 9 *Are there other useful data sources in addition to ABS, ABARE, OESR for the industries noted in the terms of reference?*

Economic reports, which analyse the relative competitive advantage of industries in terms of Michael Porter's Five Forces Model, would be very useful. Such an analysis would give a solid framework for understanding the possible futures of various industries. Those industries with less competition, more product differentiation, more secure (or sustainable) access to resources, proximity to markets, etc will be expected to out perform those industries supplying commodities in relatively imperfect markets.

QUESTION 10 *a) Are the proposed levels of disaggregation appropriate?*
b) If not, please suggest alternatives.

Unfortunately, the proposed geographical disaggregation is inappropriate. Because of the northerly flow of rivers into the marine environment, marine production and tourist amenity is supported or otherwise by the catchment activity in southerly catchments. The AIMS flood modelling work quite clearly shows how the Burdekin flood plume can extend 400km northward. Therefore it is suggested that the value of tourism and the fishing sectors in the next northern district be included in the analysis of land-based activities. Whilst imperfect perhaps the northern and far northern areas should be combined.

QUESTION 11 *What growth projections are available for the main industries, particularly in 2010 and 2020?*

The CSIRO have undertaken predictions of the seafood industry.

Please refer to attached slides “The World in 2020 : Australia’s Part in it”

The underlying strength of seafood industry predictions is the growing recognition of seafood as a health food. This is supported by a number of recent studies. Combined with growing affluence in high seafood consumption countries, the seafood industry’s future is very bright indeed.

However the sugar industry is expected to struggle for the same reasons. Alternatives exist and many are perceived to be a healthier alternative to sugar. Sugar intensity has probably peaked in developed nations and risk will be on the downside.

QUESTION 12 *What assumptions are used to generate these projections?*

Please refer to attached slides “The World in 2020 : Australia’s Part in it”

QUESTION 13 *Are projections available at national, state, regional and local levels?*

Please refer to attached slides “The World in 2020 : Australia’s Part in it”

QUESTION 14 *What variables are projected for each industry and are they suitable indicators of economic importance?*

Please refer to attached slides “The World in 2020 : Australia’s Part in it”

QUESTION 15 *a) What are the principle activities of the main industries that have potential to change water quality in the GBR lagoon?*
b) How do these industries currently manage these?

Fishing has an immaterial impact on water quality. This is supported by studies on water quality, including work by Haynes (2001). Diuron is used on anti-fouling yet no residues are detected in heavy fishing areas such as Princess Charlotte Bay (commercial) and the Whitsunday's (recreational). While significant levels of Diuron have been found adjacent to agricultural catchments (Tully and Johnstone).

This is also the case for urban activities and coastal development. While these activities do have local scale impacts that should not be ignored, studies by the CRC Sugar indicate that there proportional impact is small. Secondly their impact is point source in nature and therefore more easily allows greater control and therefore regulation of performance. It is understood the EPA requires all Sewage Treatment Plants (STPs) to be tertiary treated by 2010. While we support this measure and the Local Government Capital Works Subsidy Scheme (LGBCWSS) that provides significant state subsidies to assist local councils in achieving this work, we understand the LGBCWSS will be undergoing review in 2006 and we would prefer STPs to be upgraded before then.

However we are far more concerned about the pollution performance of agriculture. CRC Sugar studies document (see attachments) agriculture's significant potential to alter water quality. Diffuse run-off is the cause of more than 80% of sediments delivered to the WHA (CRC Sugar). The majority of this is from grazing but cropping is significant in a number of catchments.

Despite some effort, industries are a long way from controlling their run-off, as is demonstrated by the studies to date. This is largely because there is very poor adoption of best management practice. Surveys by the industry bodies themselves indicate very low adoption of the practices needed to stem run-off. This is supported by the continually high run off.

The methods attempted by industry have been ad-hoc and insufficient in scale, relying excessively on voluntary mechanisms and without sufficient grower incentive. Reforms have been requested but the intent of these requests has been ignored or forgotten.

New ways must be developed to overcome these problems and must involve a combination of incentives and regulation if incentives fail.

QUESTION 16 *a) To what extent are management approaches like precision fertiliser application or revegetation being used to limit reductions in water quality?*
b) What are the key incentives behind their use/non-use?
c) Are there significant regional variations in the adoption of such practices?

See attached paper “Incentives for Sustainability”

QUESTION 17 *a) What industry codes of practice and other voluntary measures have been developed that would influence water quality in the GBR lagoon?*
b) Are these effective in terms of their adoption rates and their contribution to improved water quality outcomes?

See attached paper “Incentives for Sustainability”

QUESTION 18 *a) Are there policy options which should be given priority for analysis by the commission?*
b) If so, why are the nominated policy options of particular interest?

Please review attached paper “Incentives for Sustainability”

QUESTION 19 *To what extent will the assessment of policy options need to take account of the variations between and within catchments?*

To a great extent. What is best practice depends on the industry and region. What incentives will work depend on industry, region and tenure.

See attached paper “Incentives for Sustainability”

QUESTION 20 *What information is available on the costs and benefits of policy options?*

Please review attached paper “Incentives for Sustainability”. Can be implemented within existing programs and budgets.

QUESTION 21 *a) Could institutional arrangements for managing water quality in the GBR be improved?*
b) If so, how?

Two secretariats need to be established

1. Economic Incentives Reform Project, reporting to the Treasurer and linked to CoAG arrangements

2. Reef Regional Planning and Works Integration Team, reporting to the Premier and Prime Minister.

Incentives for Sustainability

Making sustainability more profitable...

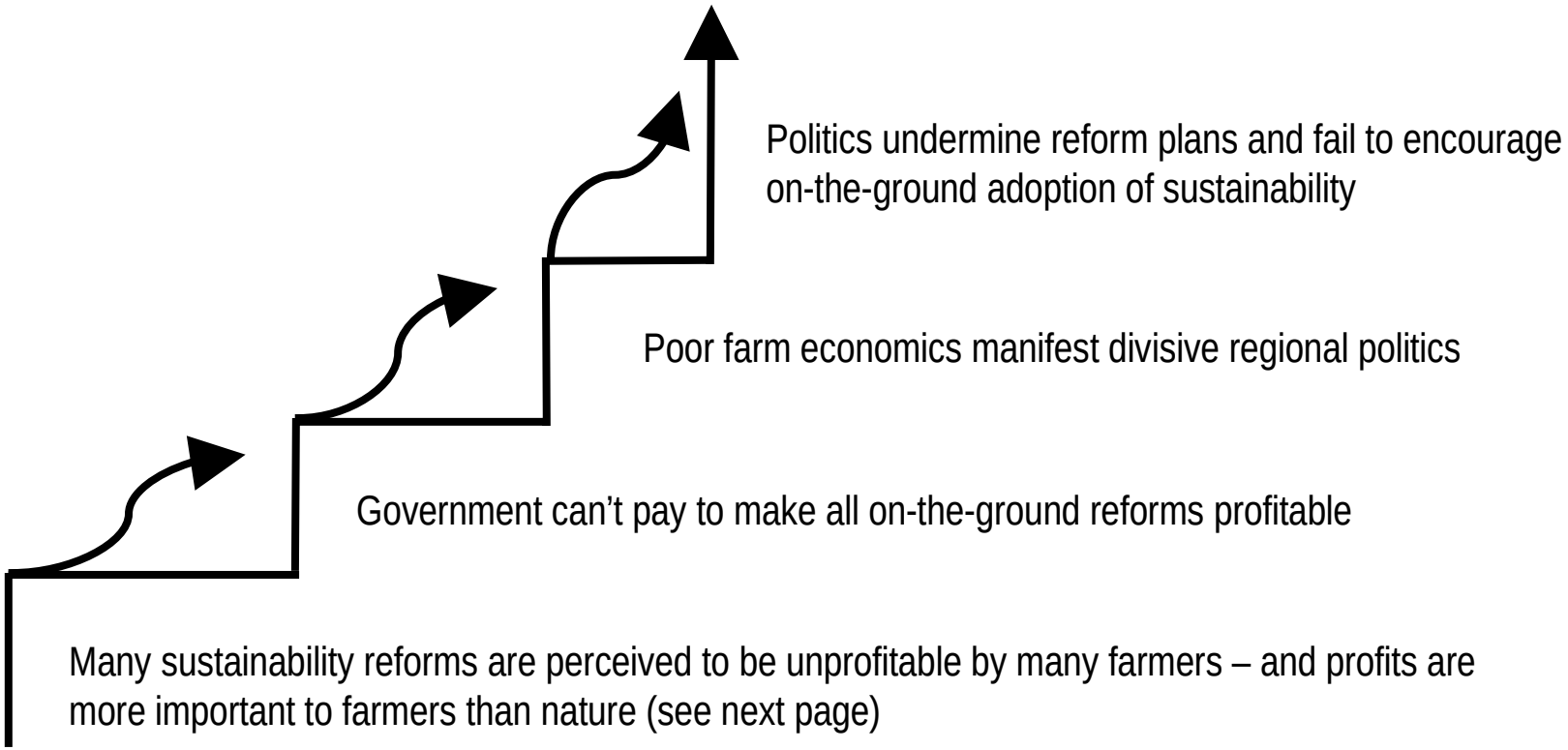
Catching Fish for Everyone!
QSIA
QUEENSLAND SEAFOOD INDUSTRY ASSOCIATION INC

Summary

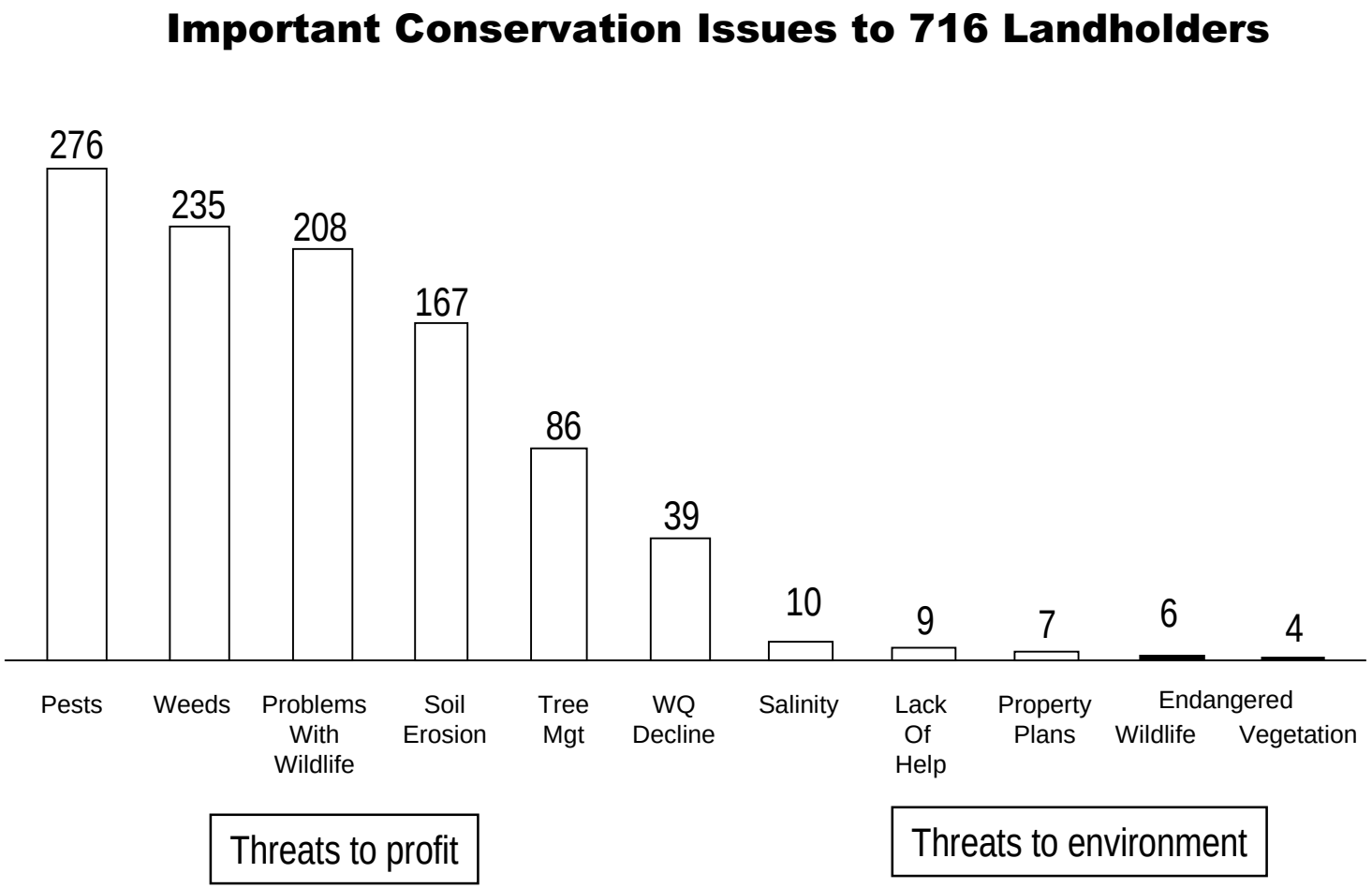
Improving the profitability of sustainability will achieve significant environmental outcomes at low financial and political cost to government

Would any of us be here
if sustainability was profitable?

Barriers to adoption of sustainable practice

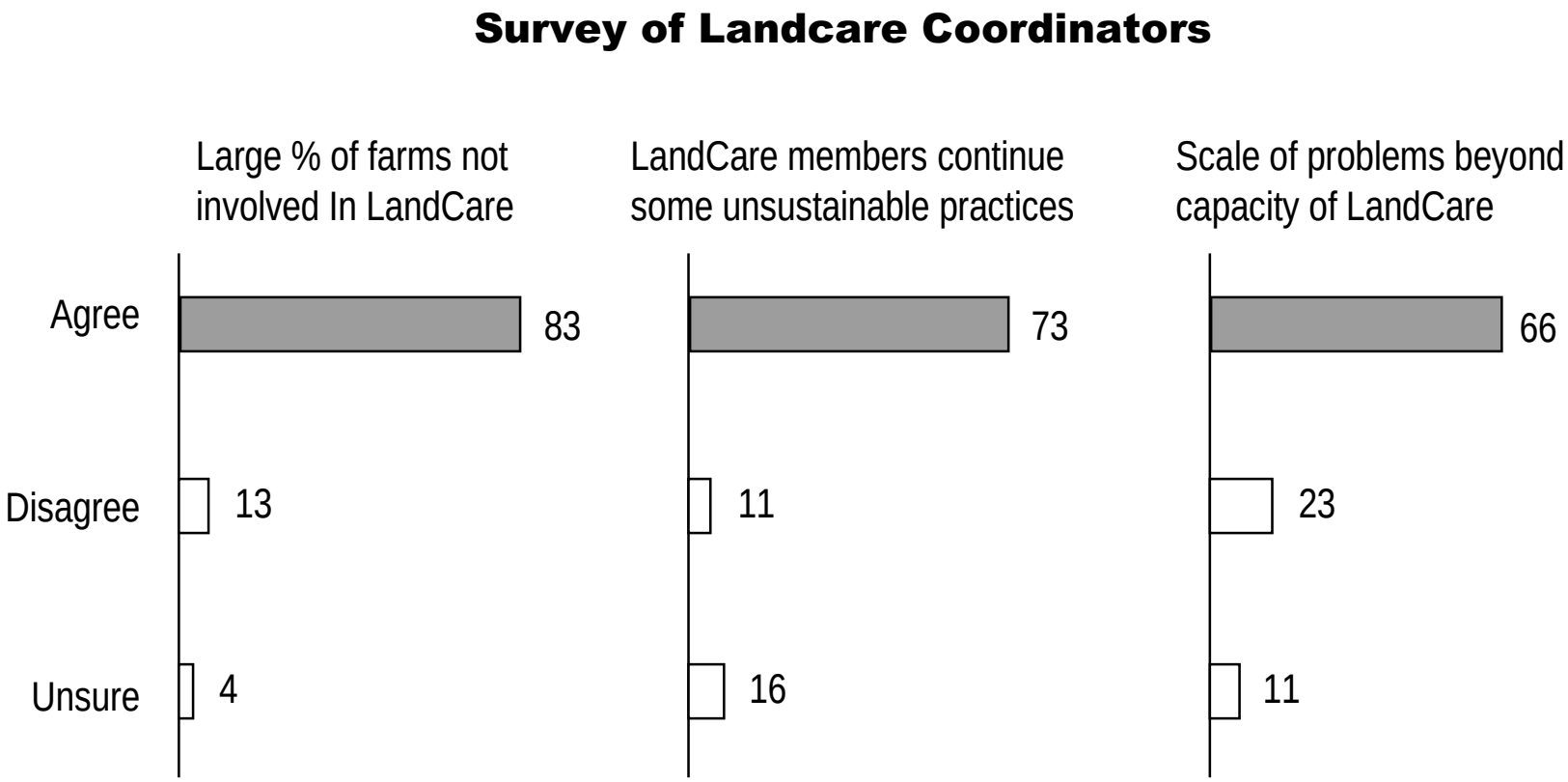


Farm concerns relate more to profit not nature



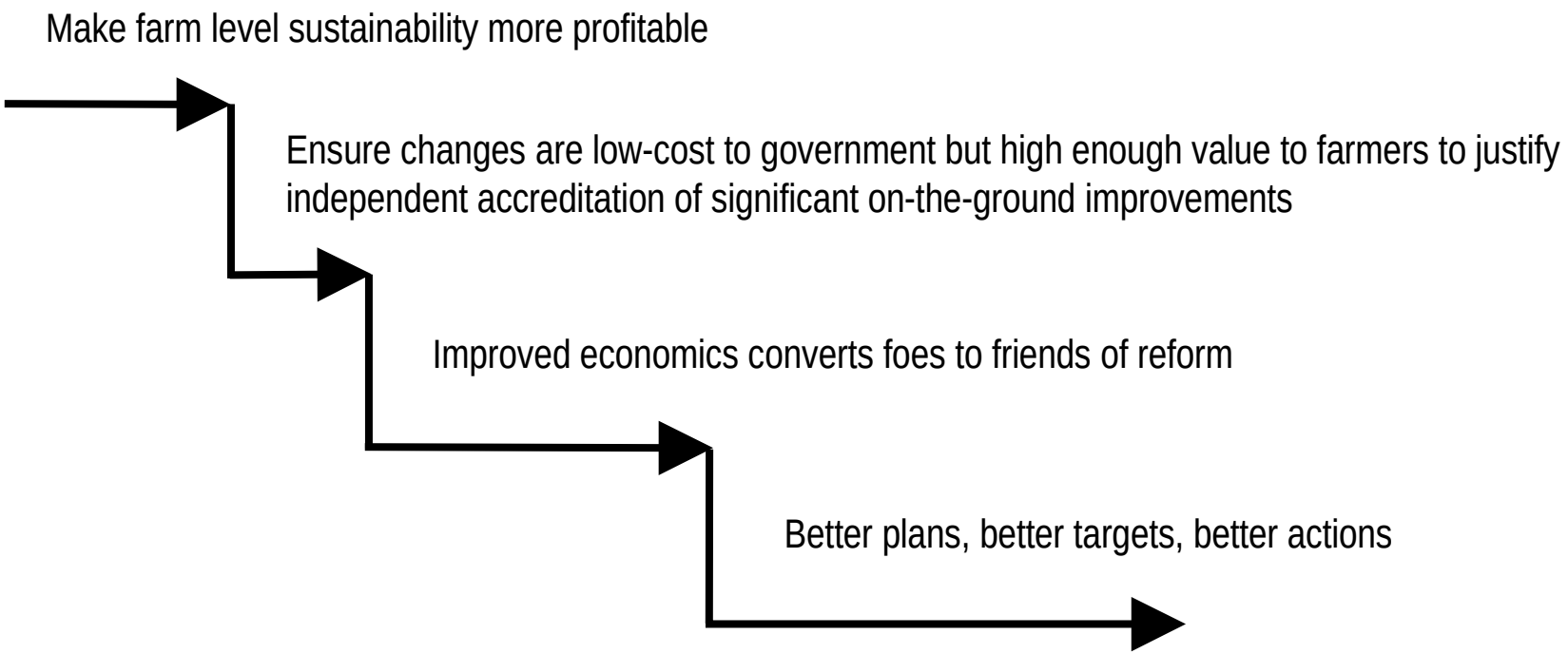
Source: DPI Survey, as part of QPWS project *Listening to Landholders, 2000*

Past sustainability efforts have failed to engage the majority of farmers



Source: Byron and Curtis *Exploring working conditions and job related burnout in Queensland Landcare coordinators and facilitators,* 2002

The Way Forward



Harness economic-interest to upscale adoption of sustainable practice

Making Sustainability Pay without New Money

- **Define** *Best Management Practice* (BMP) and adoption targets in regional plans

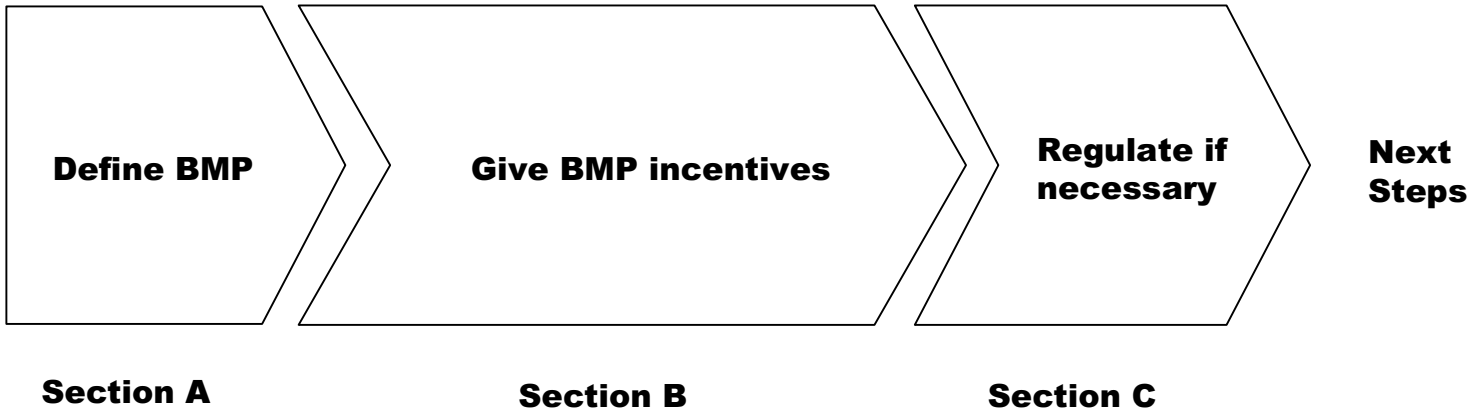
- **Give** BMP farms significant incentive at low-cost to government from ..

  - improved security of resource access
  - discounted future resource cost increases
  - streamlined development assessments
  - prioritised access to existing and future government services, loans, grants and assistance
  - re-funded and broadened water efficiency program
  - researched and extended profitable and sustainable practices

- **Phase-out** support of poor practice and **prepare to regulate** if, despite time and incentives, slow adopters choose not to improve

Harness economic-interest to upscale adoption of sustainable practice

Outline : Making Sustainability Pay without New Money



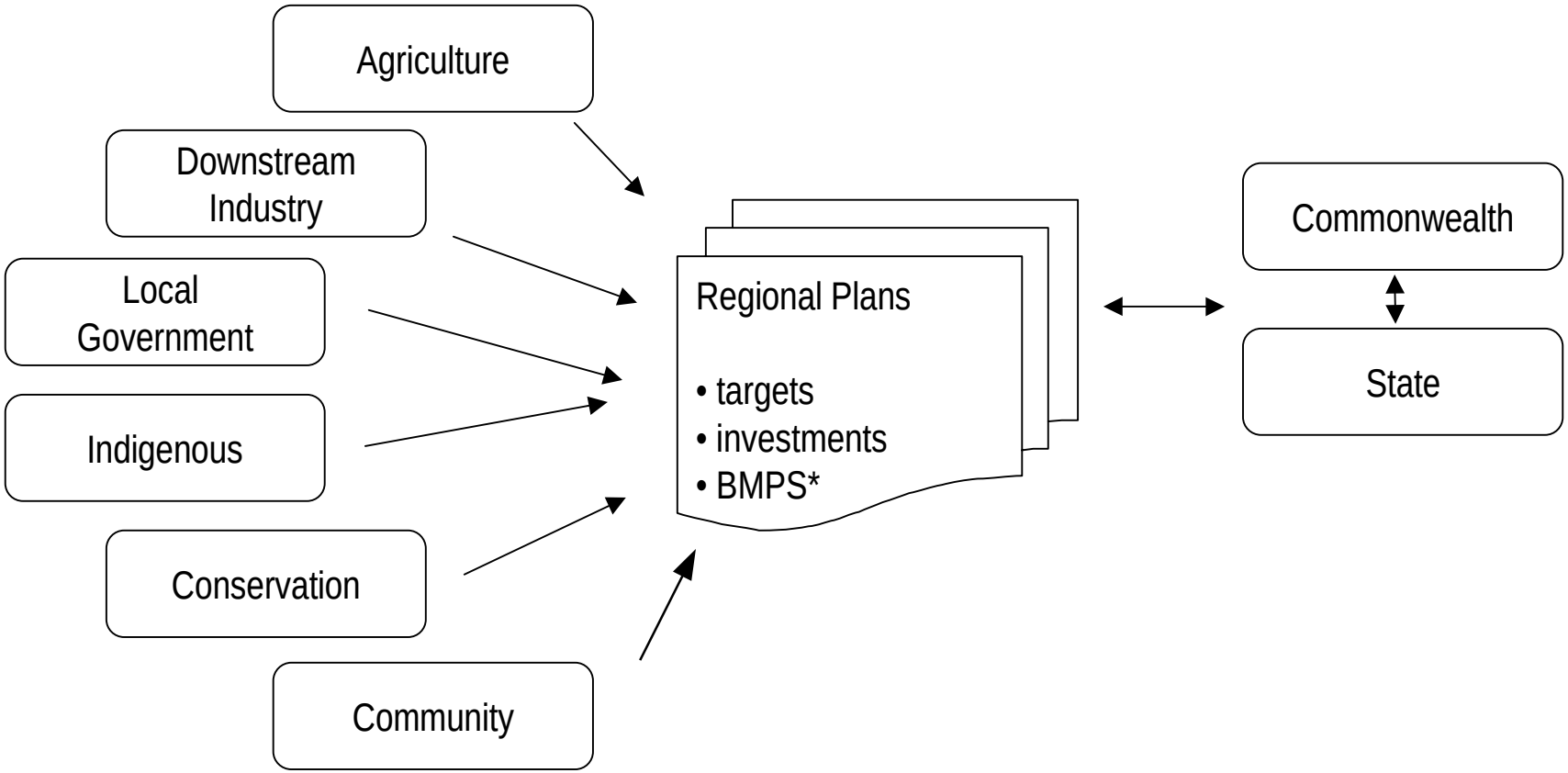
Index : Making Sustainability Pay without New Money

Step 1 : Define BMP

BMP definition will include some key elements

- **Regional negotiation :** BMPs should be agreed within regional plans (A2)
- **Guiding principles and industry ownership :** Industry and other state level stakeholders should provide guiding principles for BMPs (A3)
- **Scale targets :** Adoption targets to be set to deliver sustainability on a regional scale
  - past sustainability efforts have failed to engage the majority of farmers (A4)
  - current BMP adoption is ad-hoc and often meaningless at the regional scale (A5)
  - adoption targets should reflect level of sustainability risks in each catchment (A6)

BMP definition should be agreed by government and stakeholders within regional plans



A2

* It is QSIA's understanding that BMPs will be developed at a regional scale within "Standards" required by the NAP Bi-lateral

BMP definition should include some guiding principles and industry ownership

Basic BMP Elements

- Voluntary entry … but binding within a contract or covenant once benefits received
- Guided by Industry Codes and *Guidelines for Land and Water Management Plans (Appendix 1)*
- Practices, adoption rates and timeframes must be
  - clearly defined and based on best available science and risk (A4)
  - expected to support and not undermine achievement of regional targets
  - documented in a language similar to the COMPASS Workbook
- Third-party accreditation in medium and high risk areas
- Does not mean Duty-of-Care – BMP requires greater performance, especially on state lands

Current BMP adoption is ad-hoc and often meaningless at the regional scale

BMP targets must be based on risk

Suggested BMP Adoption Targets (%)

GBRMPA Risk Class	Years									
	1	2	3	4	5	6	7	8	9	10
Very High			50	80	100					
Medium High				50	80			100		
Medium					50			80		100
Low										50

Industries and regions to regularly report on performance against targets

Alternatively Risk = $\frac{\text{Threatened Values X Sensitivity}}{\text{Past Environmental Performance}}$

Index : Making Sustainability Pay without New Money

Step 2 : Give BMP Incentives

Give BMP farms significant incentive – sufficient to drive adoption automatically

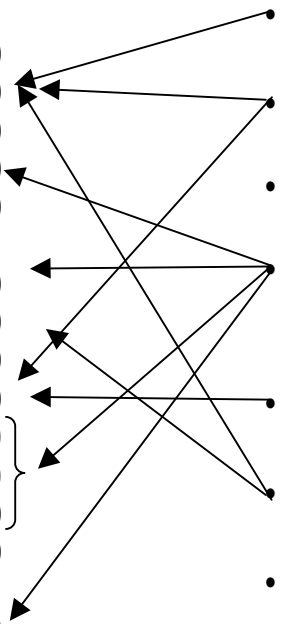
- Past BMP attempts, with insufficient incentive, have failed to upscale adoption
- Command : control regulatory approaches have and will fail because of a lack of political will
- BMP approaches that rely exclusively on grants like NHT and NAP, greenhouse/tree clearing or other special funding fail because no affordable amount is enough, they have a limited life and exhausting administrative processes
- Incentive approaches which are sufficient to drive adoption automatically are politically more positive and are more likely to grow to a significant scale

Give BMP farms significant incentive – sufficient to drive adoption automatically

Farm Profit & Loss Analysis

INDICATIVE ONLY

	Non-BMP 200Ha	BMP 160Ha
Yield (t/ha)	80	100
Production(t)	16,000	16,000
Price ($/t)	10.00	11.00
Grants	0	10,000
Crop Revenue	160,000	176,000
Labour	55,000	40,000
Fertiliser	32,000	15,000
Pesticide	6,000	1,500
Water	4,000	1,500
Interest	15,000	15,000
Depn, Fuel & Maint	40,000	35,000
Administration	14,000	20,000
Lease,rates, etc	6,000	2,000
Tax	0	14,000
Profit	(12,000)	42,000



Valuable Farm Benefits

- Improving security of resource access (B4)
- Discounting future resource cost increases (B5)
- Streamlining development assessments (B9)
- Prioritising access to services, loans, grants, compensation and future programs (B10&11)
- Re-fund and broaden water efficiency program (B12)
- Researching profitable and sustainable practices (B13)
- A Burdekin Case Study (B14)

BMP Difference = $54,000 p.a.

Sufficient to automatically drive BMP adoption

..and at low-cost to government ...

Farm Profit & Loss Analysis

INDICATIVE ONLY

	Non-BMP 100Ha	BMP 80Ha
Yield (t/ha)	80	100
Production(t)	16,000	16,000
Price ($/t)	10.00	11.00
Grants	0	10,000
Crop Revenue	160,000	176,000
Labour	55,000	40,000
Fertiliser	32,000	15,000
Pesticide	6,000	1,500
Water	4,000	1,500
Interest	15,000	15,000
Depn, Fuel & Maint	40,000	35,000
Administration	14,000	20,000
Lease,rates, etc	6,000	2,000
Tax	0	14,000
Profit	(12,000)	42,000

BMP Difference = $54,000 p.a.

Valuable Environmental and Economic Benefits with no new government money

- Retired marginal wetland from production
- Use of better land / practices led to fewer inputs (water/chemicals) and better yields
- Rehabilitated, planted, fenced wetland and riverbanks
- Rehab areas support agro-forestry, carbon revenues
- Organic paddocks earned premium prices
- Word of mouth best extension method – farmer told his brother, cousin, best friend – many of whom will now seek greater profitability and sustainability

Captured with existing reform economics and programs

Improve resource security for BMP farms

- Land : more flexible and longer lease

  - more lease diversification and amalgamation options,
  - an extra 10 years on lease term, but not perpetual (native title issues)
  - greater rights to forestry, carbon and other products
  - performance, not prescription based lease operational/renewal conditions

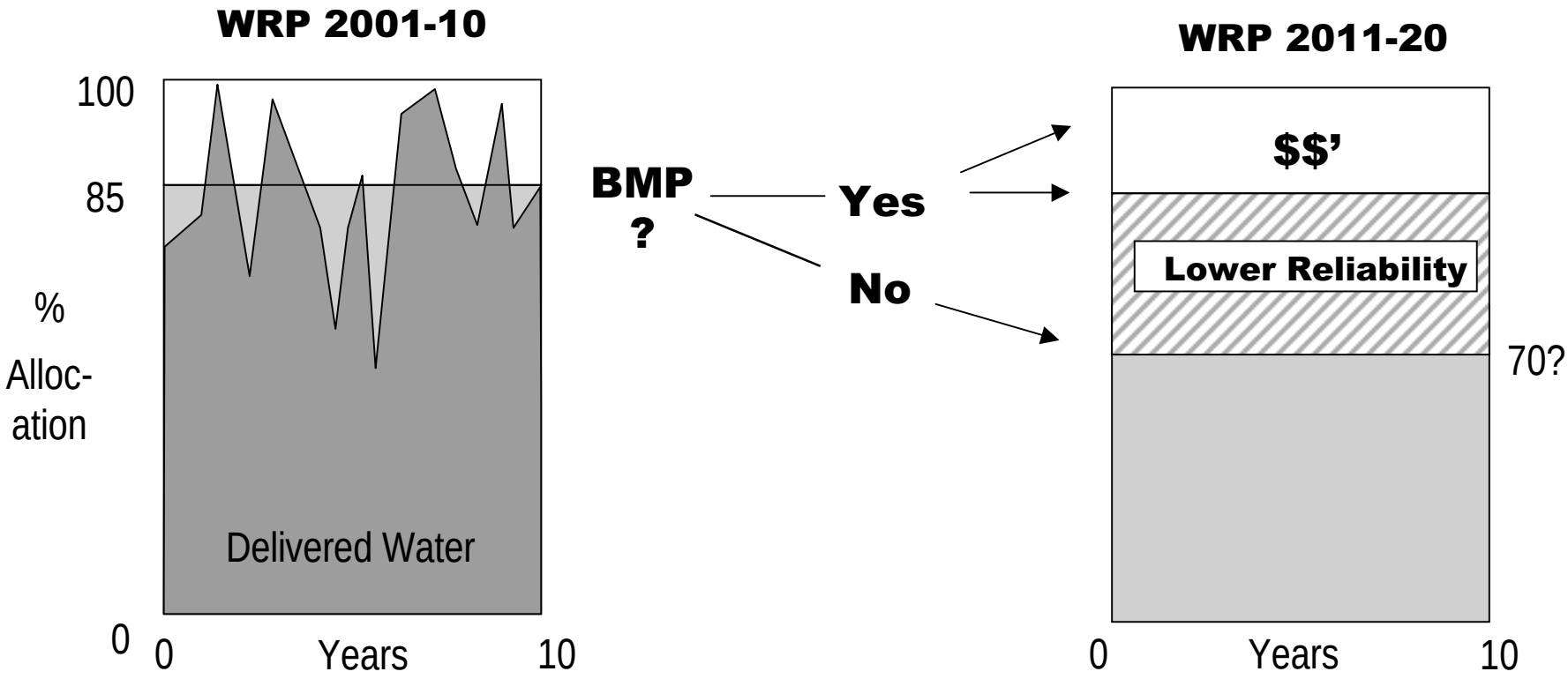
- Water : more flexible, more secure water allocation

  - already a precondition for trading
  - claw-back protection, better access to new water (B4)

Grant BMP farms more secure water use

Conversion of Allocation at End of WRP

ILLUSTRATIVE EXAMPLE



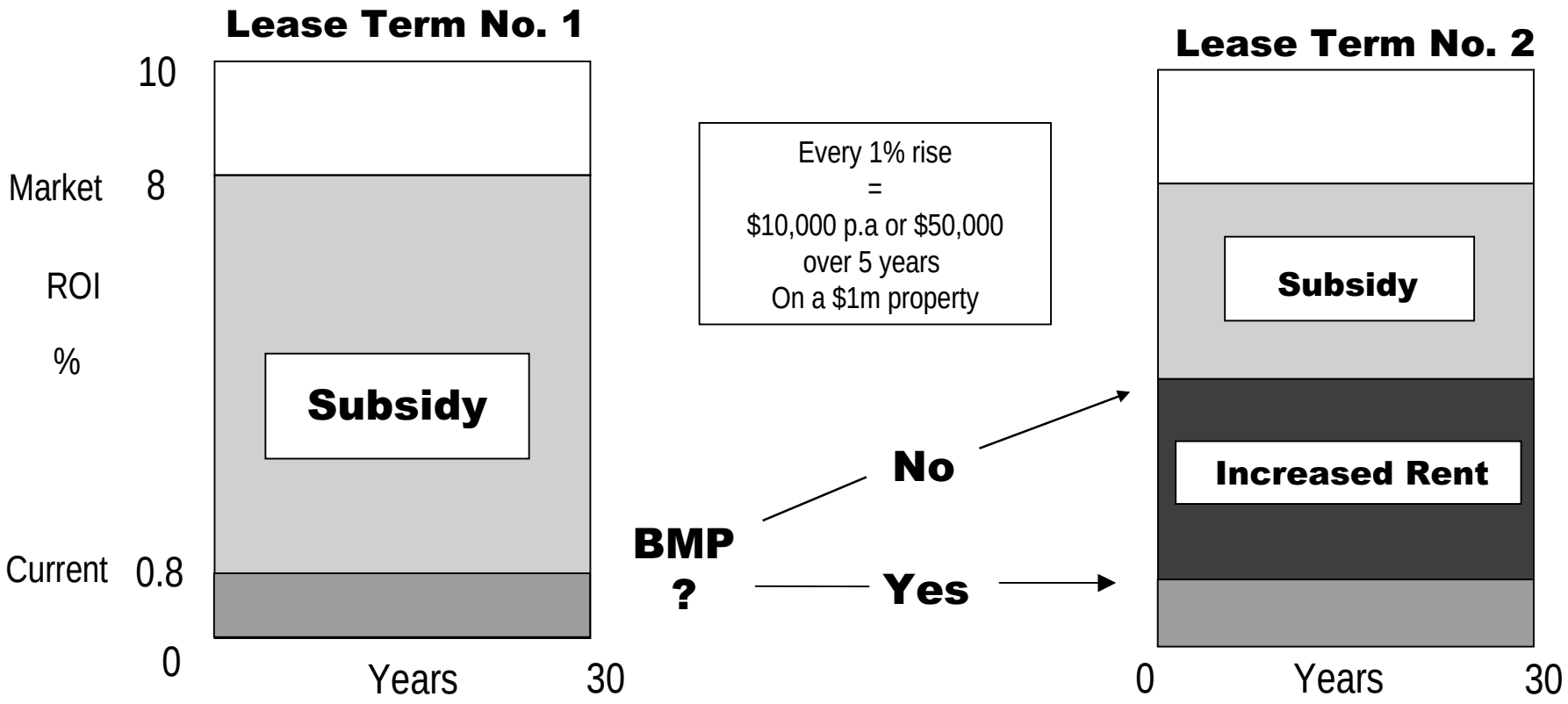
Discount future resource cost increases for BMP farms

- Facilitate cheaper use of land and water resources
  - leases : discounts from future rent increases (B6)
  - freehold : continued and increased rebates for rates and land tax
  - water : discounts from future CoAG driven upper bound rises (B7)
- While resource costs are relatively cheap, farms face upside risk
  - leasehold land discussion paper
  - COAG water reform agenda
  - financial squeeze on councils / resource agencies with increasing responsibilities
- As prices rise, discounts become more valuable - giving the greatest level of certainty available for restricting increases in government supplied farm input costs

Discount future rent increases

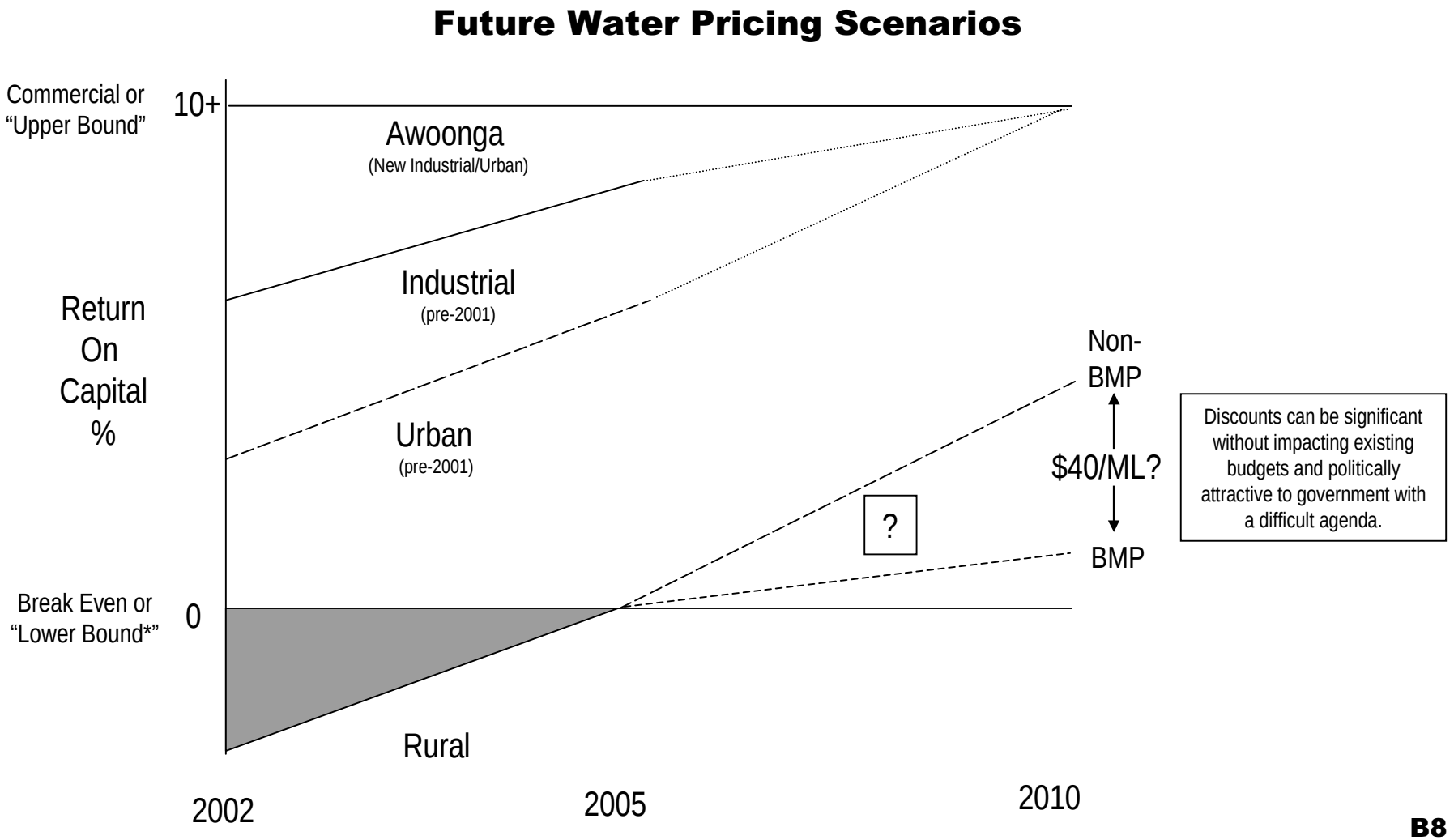
ILLUSTRATIVE EXAMPLE

Lease Rent Renewal



Source: DNRM and discussion with regional real estate agent

Discount future COAG water price rises



* Items not yet included are resource management and externalities (fisheries, etc)

Streamline development assessments

BMP : The “Farmer’s Passport” to Approvals

- While the level of regulation of traditional farm practices is low, impending and often overlapping regulation for new development is concerning farmers

  - *Integrated Planning Act* : ‘Material change of use’ may require ‘code’ or ‘impact’ assessment
  - *Vegetation Act* : requires a Property Vegetation Management Plan for clearing approval
  - *Water Act* : requires Land and Water Management Plan for trading approval
  - *Land Act* : lease renewal may require a Property Management Plan
  - There are also a range of other impending NRM and work place health and food safety requirements

- Regional BMP definition can fulfill intent of (& streamline compliance with) all requirements

- Farmers will then have the “Farmer’s Passport” to once-only, ‘one-stop-shop’ approvals for IPA, water, vegetation, lease renewal, water trading, assistance, etc

Prioritise BMP access to existing and future loans, grants, services and assistance

BMP : The "Farmer's Passport" to Assistance

- Prioritise access to the existing suite of government rural programs

  - Industry Development : Export / domestic market development grants, R7D, AAA
  - Employment : facilitation, assistance, training, distance education
  - NRM : NHT/NAP and other grants, compo, resource CSOs
  - Emergency Assistance : flood, drought, exceptional circumstance
  - Structural Adjustment : SIIP, SIAP, QRAA PIPES and other loans
  - Tax breaks : accelerated depreciation for farm works

- Priority access doesn't alter overall funding but ensures a greater proportion of benefit goes to those who are trying the hardest – it also helps prevent government from rewarding the worst performers

-

Prioritise BMP access to future loans, grants, services and assistance

BMP : The “Farmer’s Passport” to Future Assistance

- Prioritise access to mooted or future programs

  - Greenhouse/Tree-clearing packages from any future agreement between State and Commonwealth
  - Sugar Adjustment Packages
  - Eco-labelling

- USA taxation initiatives

Refund and broaden the water efficiency program

- The Rural Water Use Efficiency Initiative (RWUEI) has been one of the most successful NRM reforms in Australia (B13)

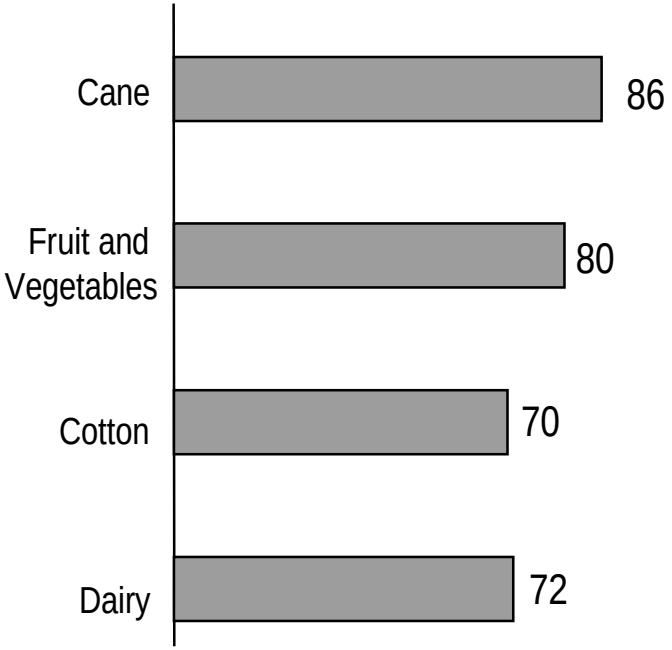
- Yet funding runs-out June 2003, risking momentum and committed staff

- Opportunity to refund and seek broader NRM issues with a successful model

  - industry support critical to successful roll-out of any changes to scope
  - industry supports program extension to drainage issues and rain-fed farms to address run-off issues and inequity of irrigation focus (which excluded un-irrigated farms)

RWUEI was very successful at raising farmer awareness of need to improve practice

Industry RWUEI Participation and Awareness Rate (%)



Source: DNRM Analysis and surveys

RWUEI Achievements

- \$41m over 4 yrs for BMP trials, demos and "shed" extension
- Initial target was BMP within existing technology (efficient or not)
- By half-way industry requested faster reform and new technology
- 20% of Tableland farms converted to new technology in 1yr
- Cane farmers invested \$4 to every \$1 of incentive
- "Most farmers shake when you mention "the government", however I can honestly say this is one of the best programs I have been involved in." Fruit and Veg Farmer, 2002
- Over 50% of Fruit & Veg growers made changes to their system
- Cotton Irrigator achieved 147% increase over benchmark
- Dairy demo sites showed average 30% increase in efficiency

Research and extend profitable and sustainable BMPS

- Better coordinate research agency $$ to fast-track on-farm BMP ‘breakthroughs’ like…

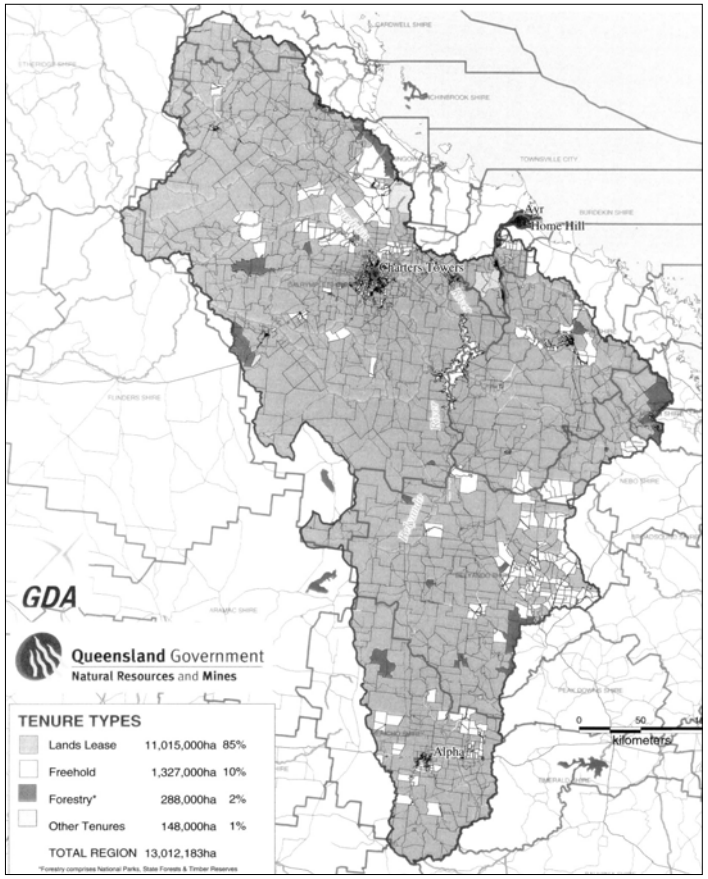
  - low N / fertiliser / poison / water sensitive crop varieties
  - new low N / P fertilisers / Diuron replacement
  - identification of worst risks and least cost fix in each catchment
  - low cost techniques to improve water / N / P / soil measurement

- Refocus agency resources on better targeted community education and on-farm extension via the new RWUEI, BSES and QDPI

- Better coordinate monitoring of key catchment & end-of-valley risks

This package of incentives would cover wide areas in the reef's biggest polluting catchment

Burdekin Tenure Map



BMP and Incentive Potential

- Over 85% of the catchment is state land
- As the landowner, Government can play a big role in improving land and water management
- BMP can be a requirement of all lease renewals and even stipulated as Duty-of-Care for on-going leases
- A wide range of lease security and discount conditions can be applied to encourage early BMP adoption
- Fencing, disciplined grass cover management based on L-T weather forecasts and riverbank rehab would be BMPs

Index : Making Sustainability Pay without New Money

Step 3 : Phase-out Poor Practice

Phase-out support of poor practice…….

- Phase-out current perverse government support of poor performance (C2)
- Re-allocate savings to improved compliance (C3)

… but prepare to regulate if, despite time and incentives, slow adopters choose not to improve

- Prepare regulation …… (C4)
- ……..but only if heavily supported targets aren't met (C6)

Phase-out perverse support of poor practice

- Continue phasing-in higher performance for non-BMP **farms** ..

  - requiring duty of care, risk-based monitoring and compliance
  - restricting term / trade / diversification / development / clearing / grant options
  - pricing water, leases, rates, services (AQIS, et al) on commercial basis
  - phasing out perverse elements of RIT, LGBCWSS, NDRA, SIIP, SIAP, etc and redirect savings to enhanced compliance

- Fund **industry** development assistance based on BMP adoption

- Link state **council** funds to better adoption of IPA / code assessment

- Link NCC payments to delivery of supportive **state** NRM framework

Re-allocate savings to improved compliance

- Savings will accrue from discontinuing perverse subsidies ..

  - third party accredit rather than publicly funded inspection
  - increased lease, rates and land tax revenue from non-BMP landholders
  - increased water revenue from non-BMP irrigators
  - increased service revenue from non-BMP farms
  - reduced capital works from discontinuing RIT, LGBCWSS, NDRA, SIIP, SIAP, etc
  - lifting penalties to breaches of duty-of-care, monitoring, load licences

- Redirect savings to enhanced compliance and constraint mapping

  - currently little licensing of drainage works / levee banks as required by the *Water Act*
  - currently compliance to *Vegetation Management Act* constrained by poor data/mapping

Prepare regulation but only if targets aren't met

- New regulation is not expected to be needed as time and significant incentives will be offered for BMP adoption
- Only if we fail to achieve adoption (and therefore) regional sustainability targets will regulation be needed
- This threat of regulation by itself is an incentive to change
- If needed BMP regulation can be via extension of existing legislation with refinement based on overseas approaches (C5)

Regulate BMP based on existing mechanisms and refine in light of approaches taken overseas

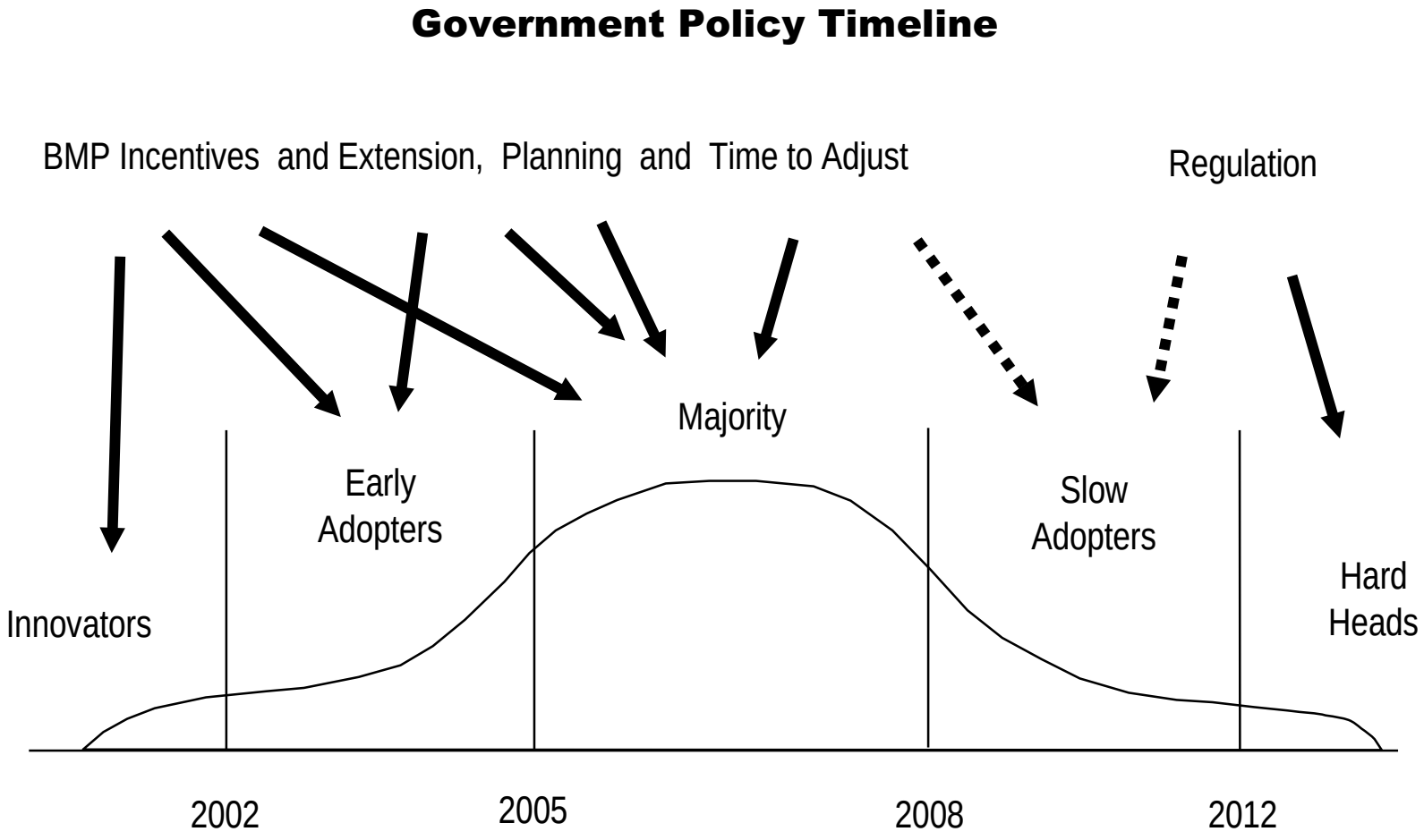
- Regulate BMP based on existing mechanisms

  - EA export accreditation of low-adoption industries
  - scheme and material change of use provisions the *Integrated Planning Act*
  - environmental harm provisions of the *Environmental Protection Act* and the *Environmental Protection Policy (Water)*
  - declarations and controls under the *Water, Vegetation, Land and Coastal Acts*
  - assignment conditions under the *Sugar Act*
  - various mechanisms under other Acts, including *Fisheries, EPBC, RIT, etc*

- Refine regulation based on US / EU fertiliser management areas

  - Nebraska
  - Baltic States
  - Great Lakes

Regulate only after giving time and significant support and incentives



Conclusion : Profitable sustainability

- **Define** *Best Management Practice* (BMP) and adoption targets in regional plans

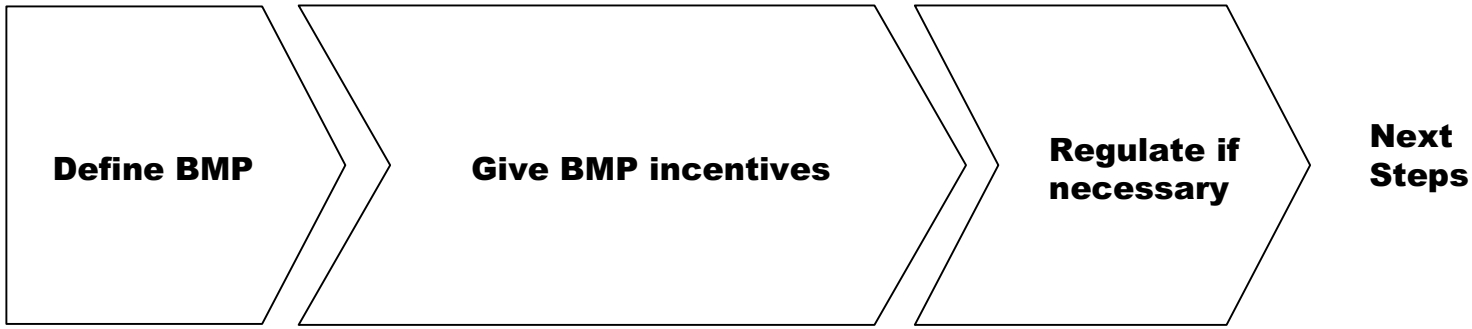
- **Give** BMP farms significant incentive at low-cost to government from ..

  - improved security of resource access
  - discounted future resource cost increases
  - streamlined development assessments
  - prioritised access to services, loans, grants, compensation and future programs
  - re-funded and broadened water efficiency program
  - researched and extended profitable and sustainable practices

- **Phase-out** support of poor practice and prepare to regulate if, despite time and incentives, slow adopters choose not to improve

Harness economic-interest to upscale adoption of sustainable practices

Conclusion : Making Sustainability without New Money



Next Step : Confirm interest, trial and refine this proposal

Next Steps

- **2002 : Confirm** interest in discussions with industry, community and government representatives
- **2003 : Trial** proposal within the NAP SIP Project ####
- **2004 : Refine** and roll-out to the GBR Catchment as major trial

We can do it

The Triple Bottom Line

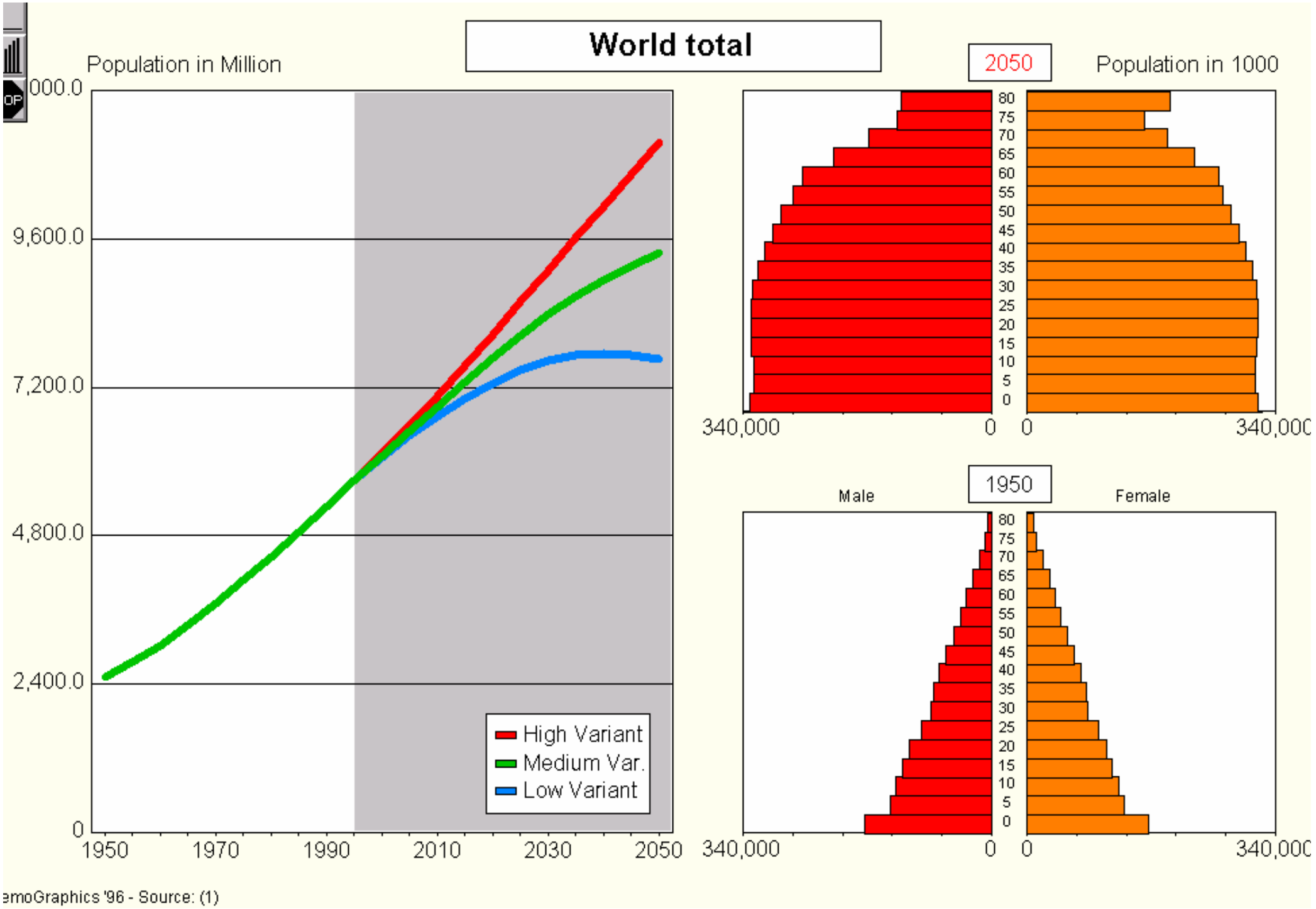
- Environmental Sustainability and Protection
- Economic Production and Productivity
- Social Progress

The World in 2020:

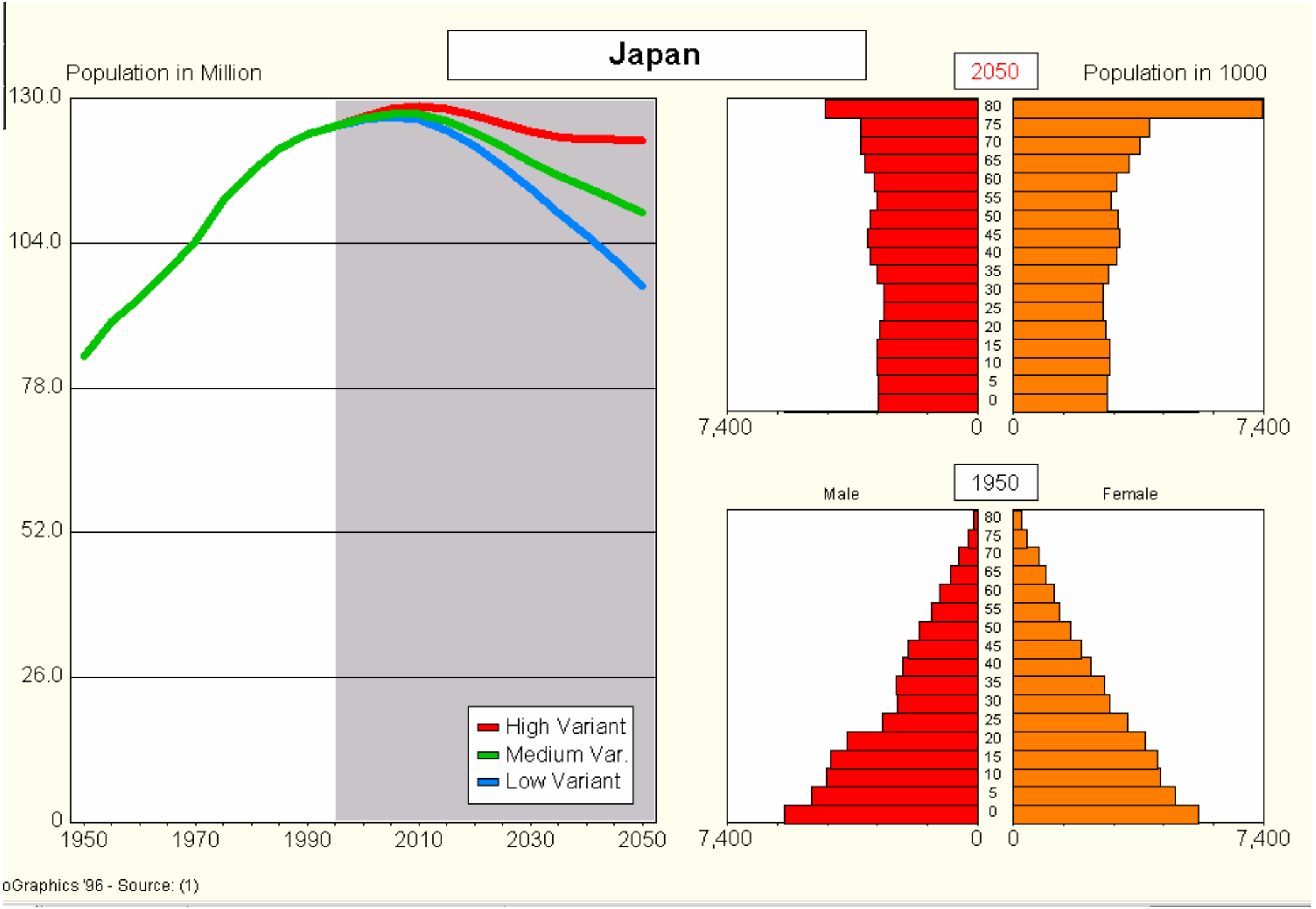
Australia's Part in It

Barney Foran and Don Lowe

CSIRO Resource Futures, Canberra



emoGraphics '96 - Source: (1)



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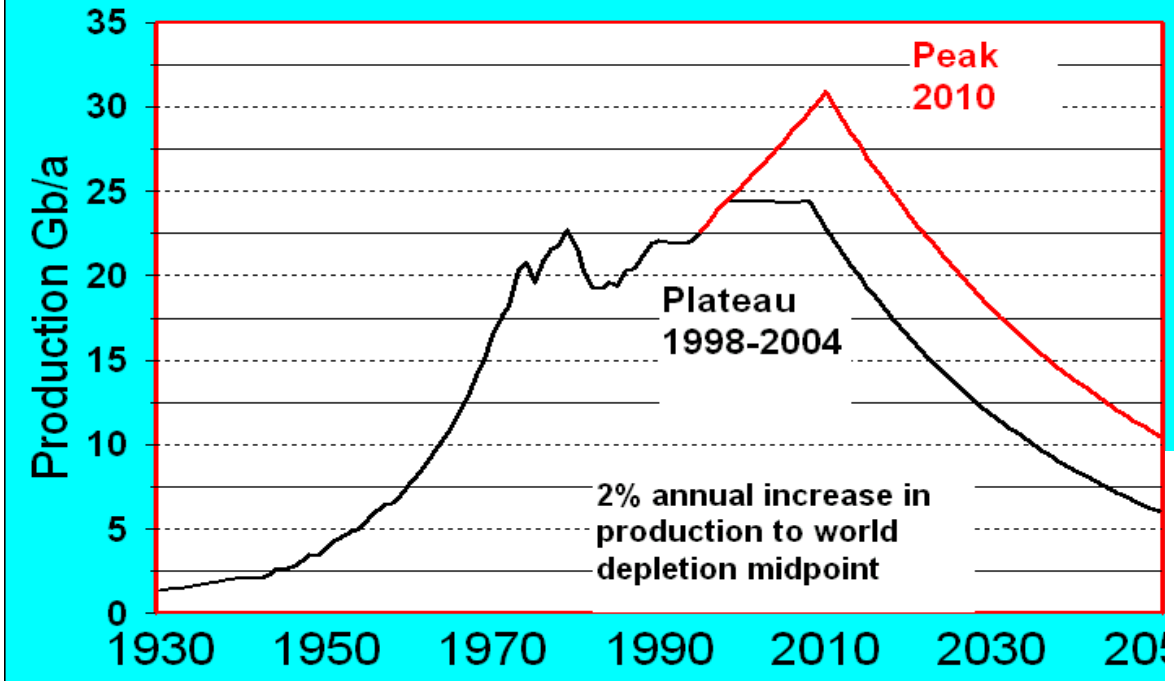
Petroleum Futures

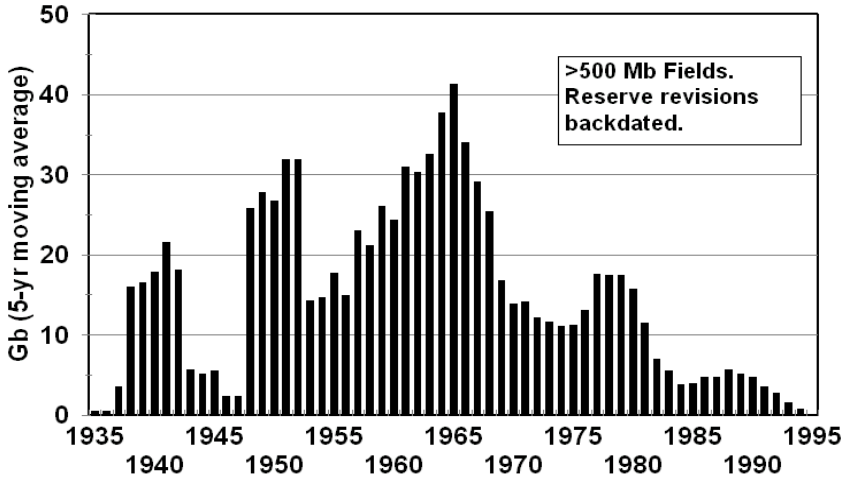
ALTERNATIVE ULTIMATE ESTIMATES

1800 and 2300 Gb Cases

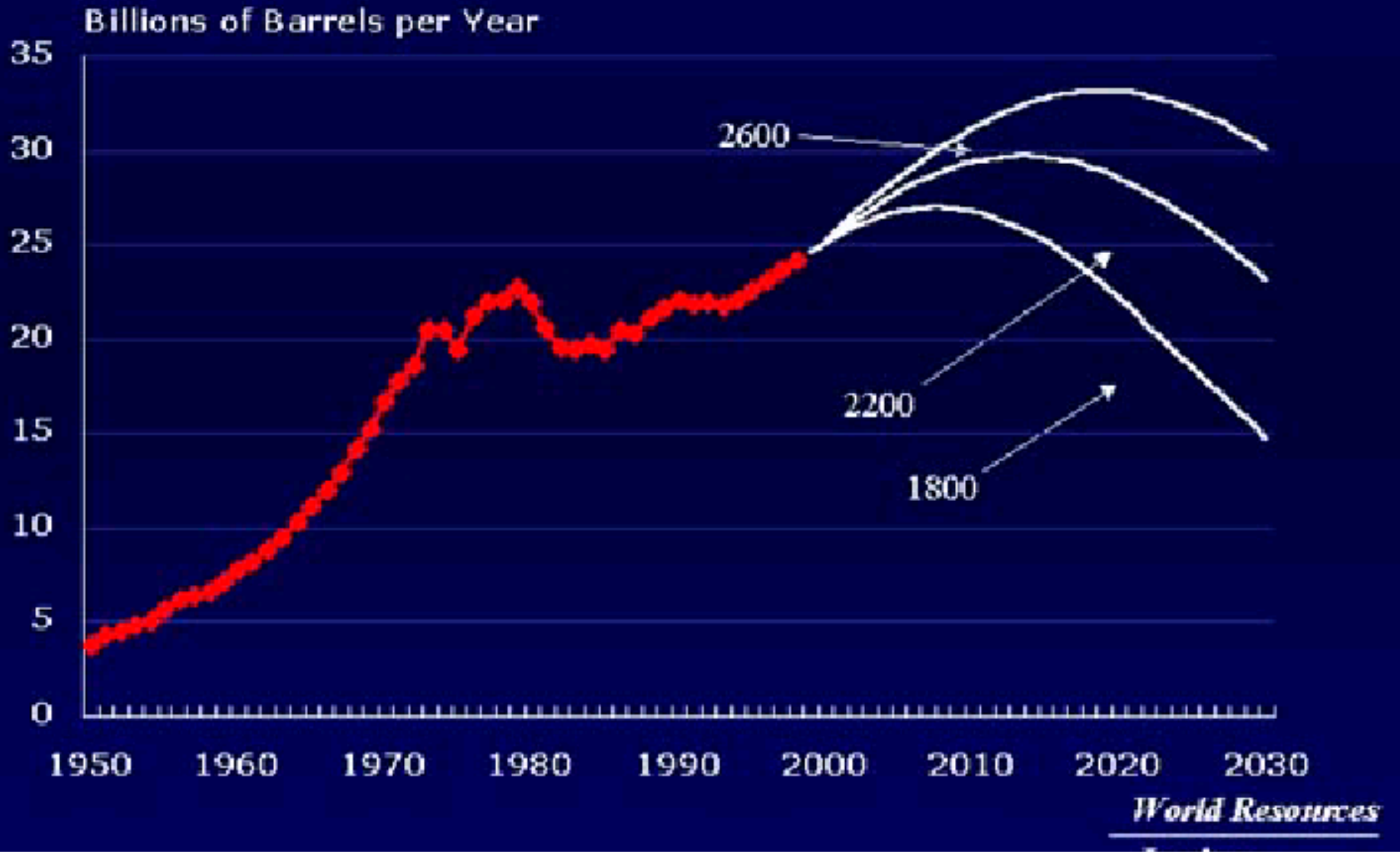


GIANT FIELDS

Initial reserves by discovery year



Global Oil Production for Resources of 1800, 2200, and 2600 Billion Barrels



World Governance

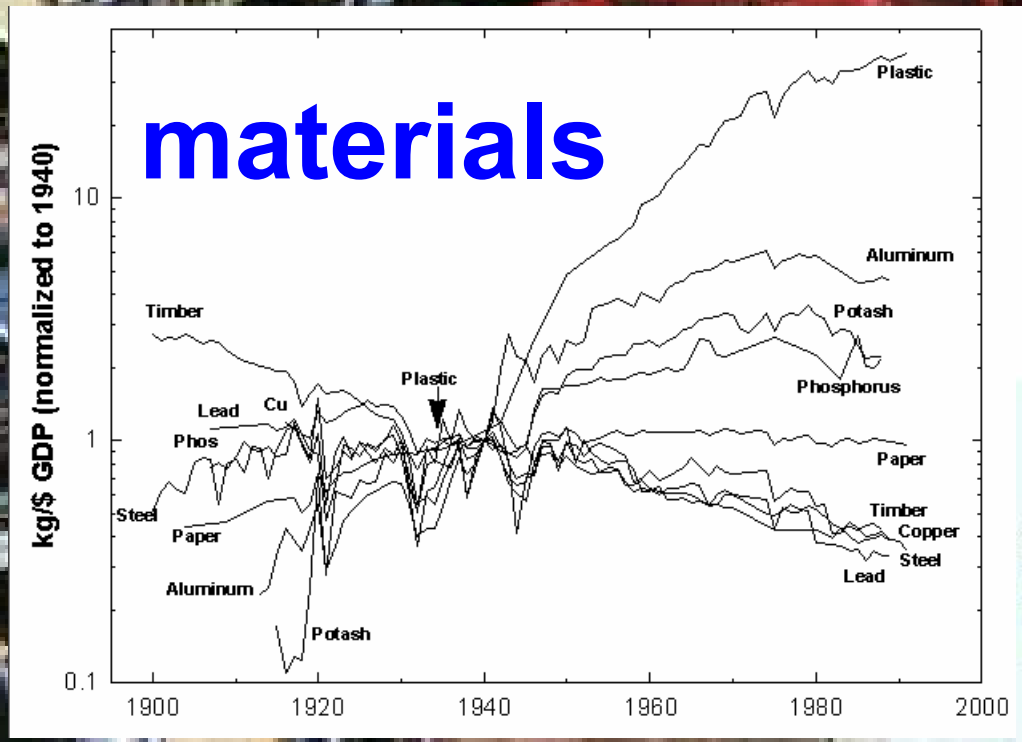
Inclusive Globalisation

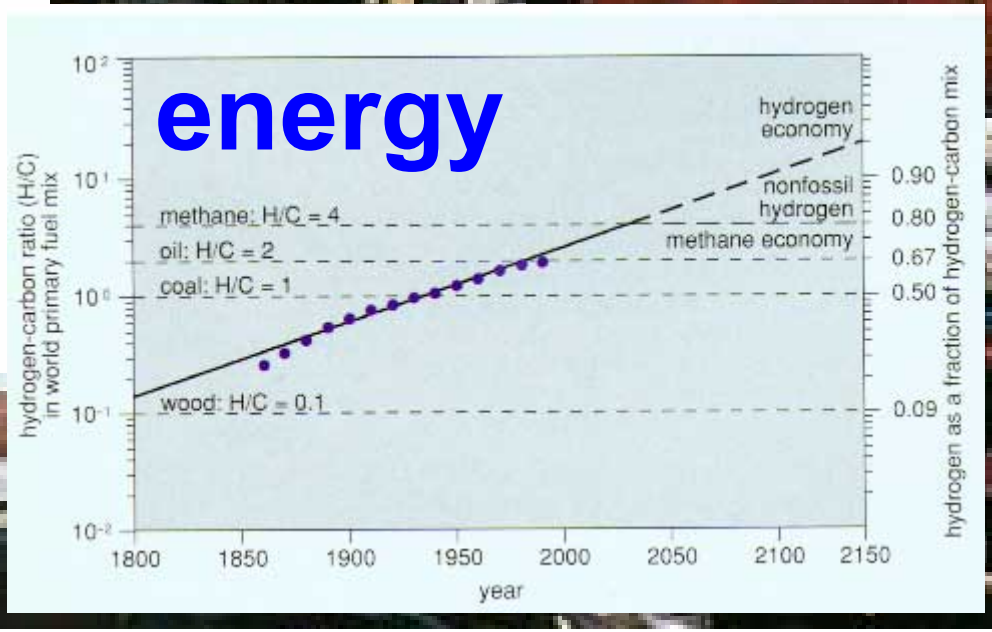
Pernicious Globalisation

Regional Competition

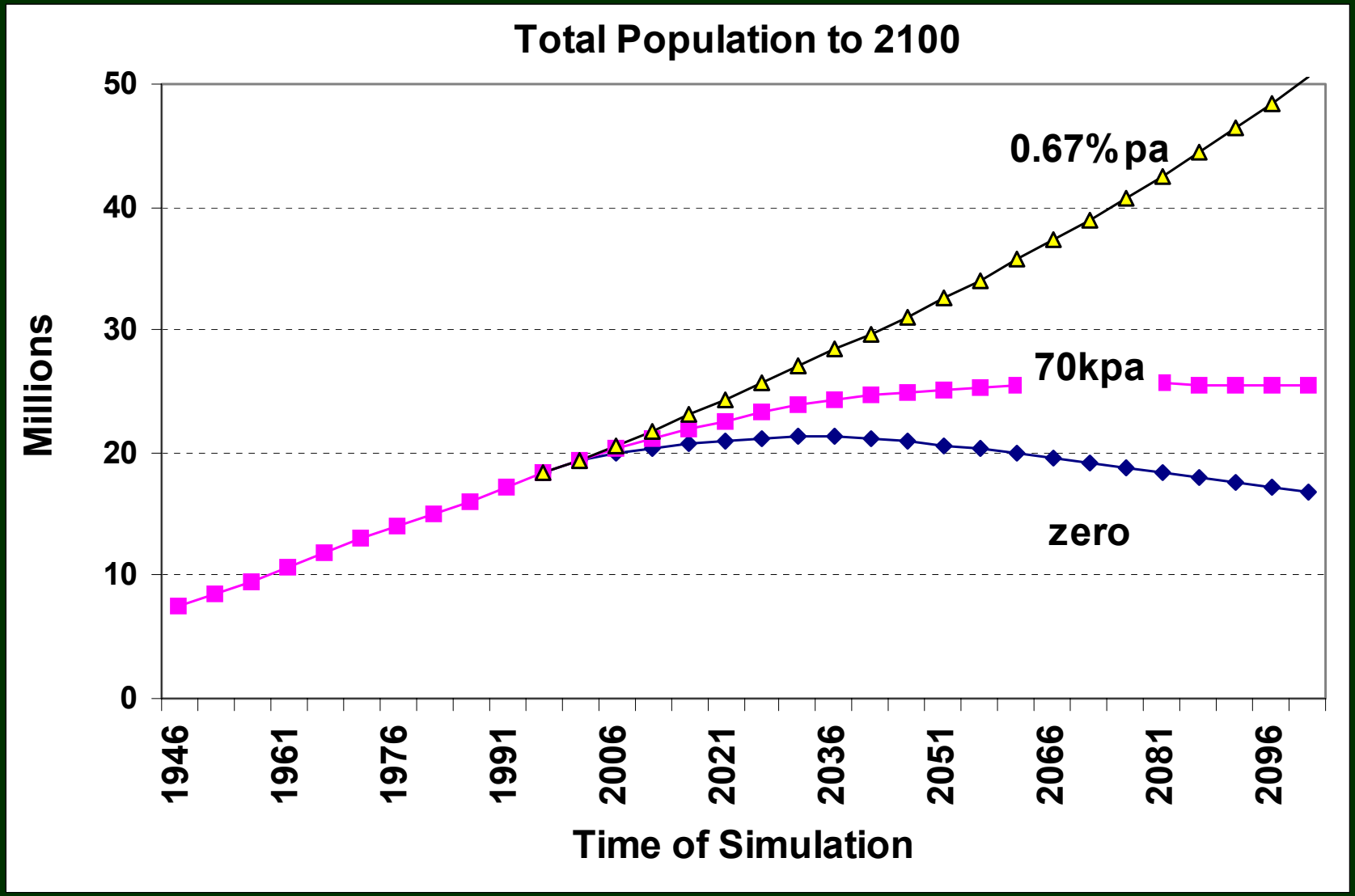
Post-Polar World

Confluence of BIO-, NANO-, INFO- Technologies and New Materials

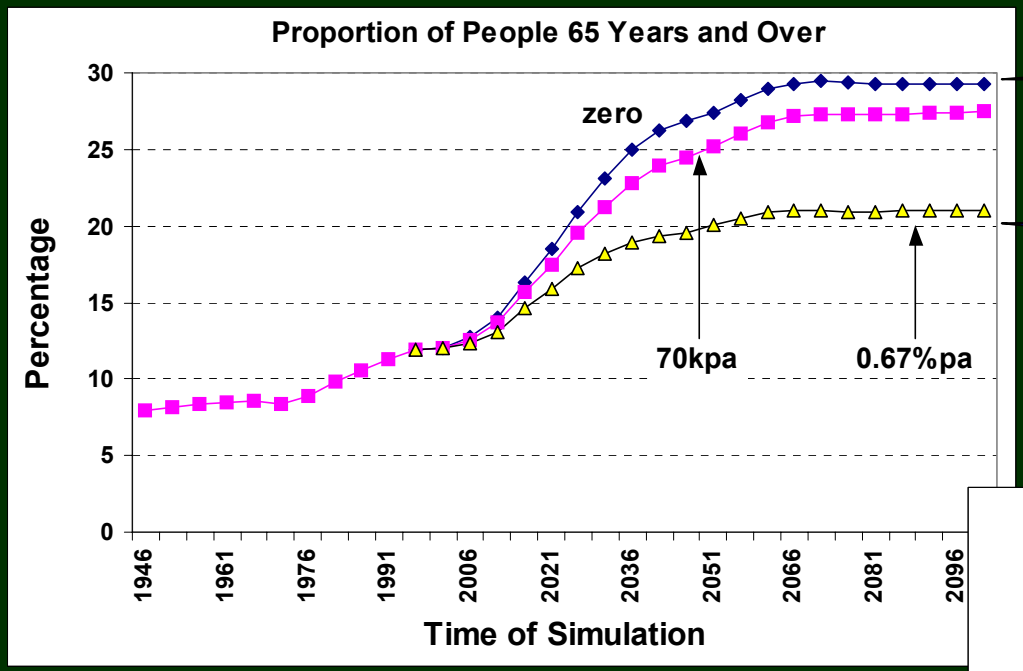




3 Population Options to 2100

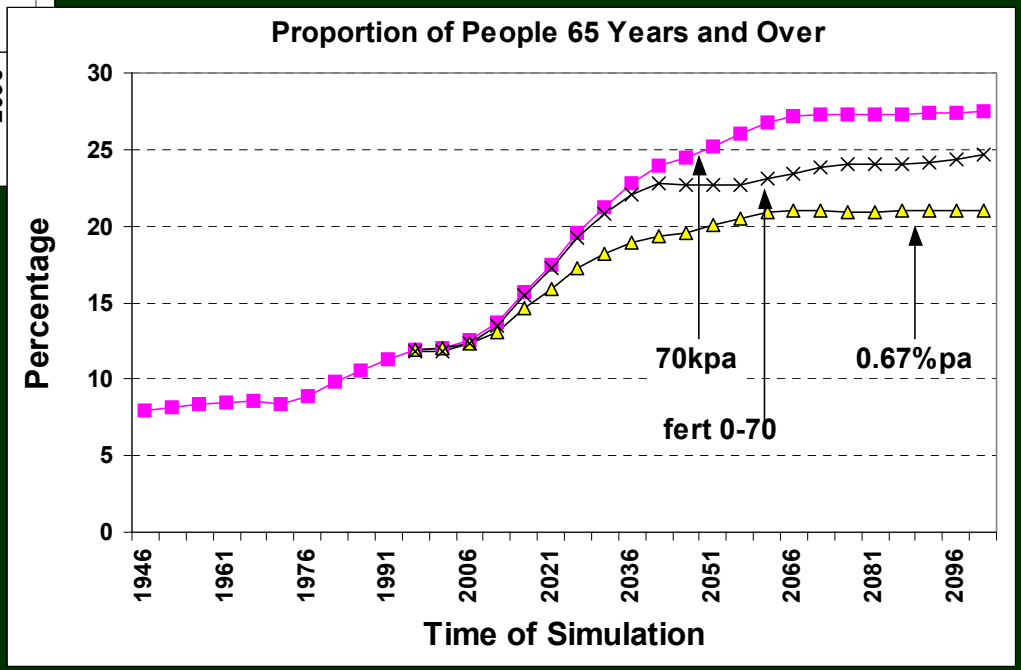


The Ageing Dilemma

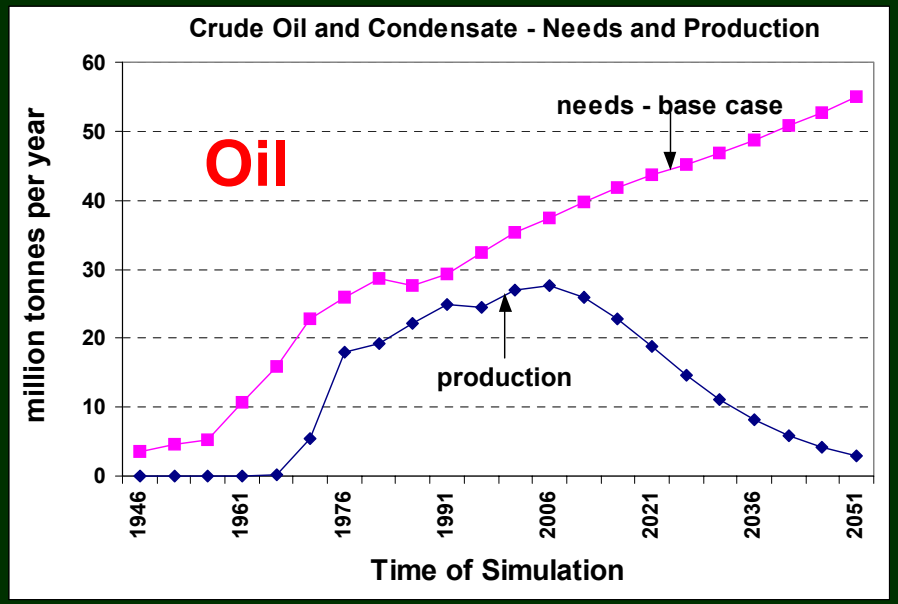


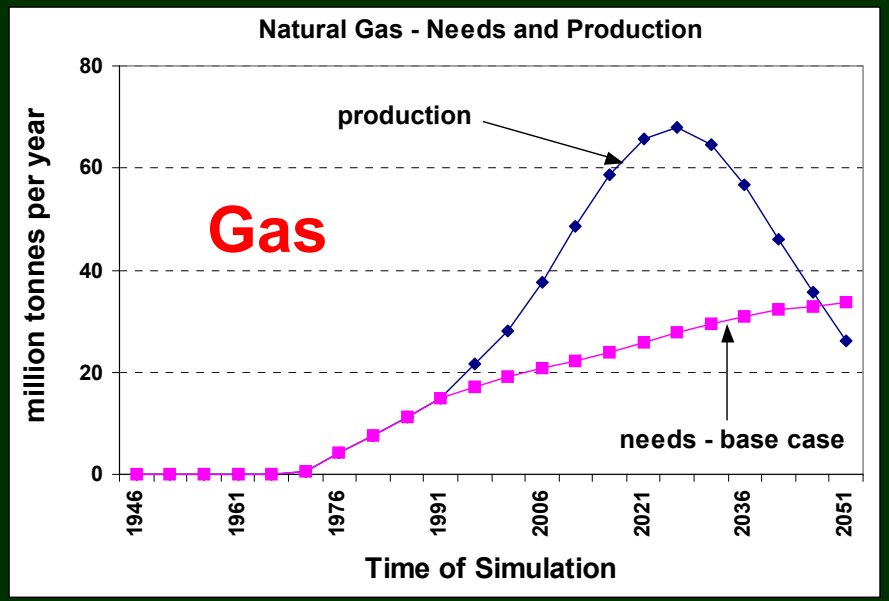
One in four or three

One in five

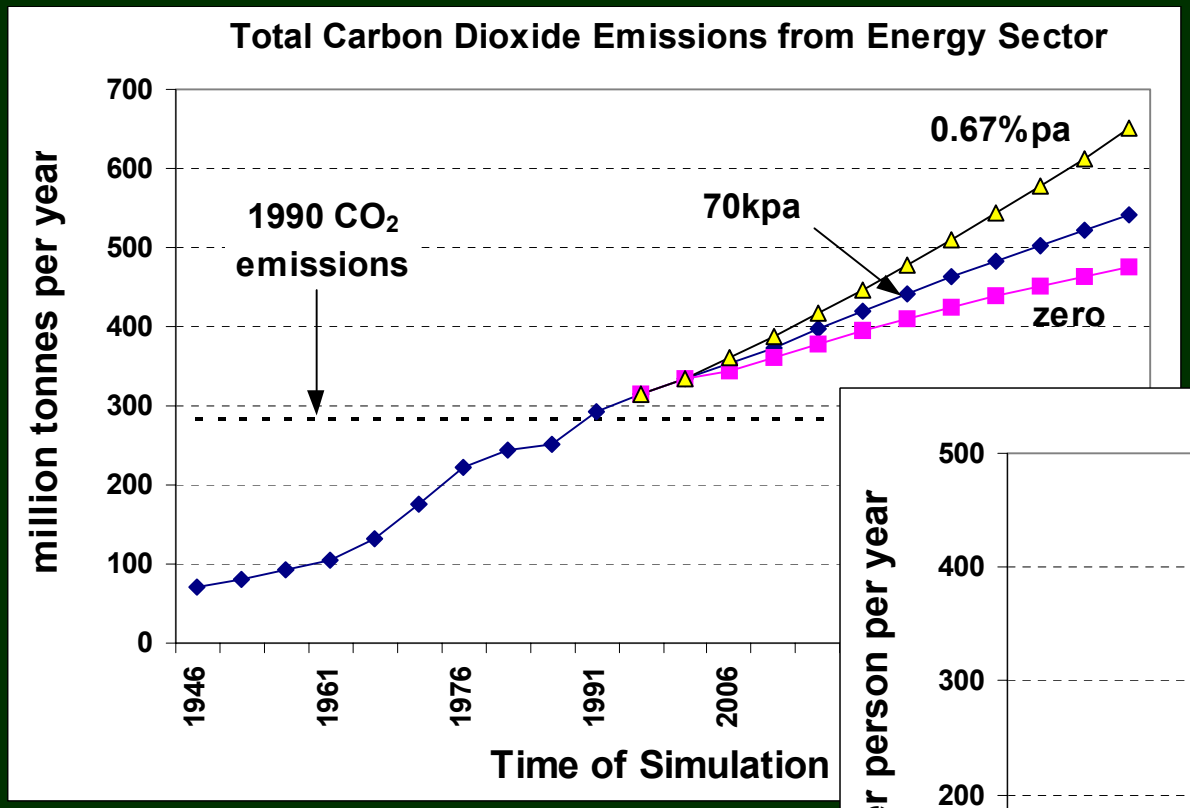


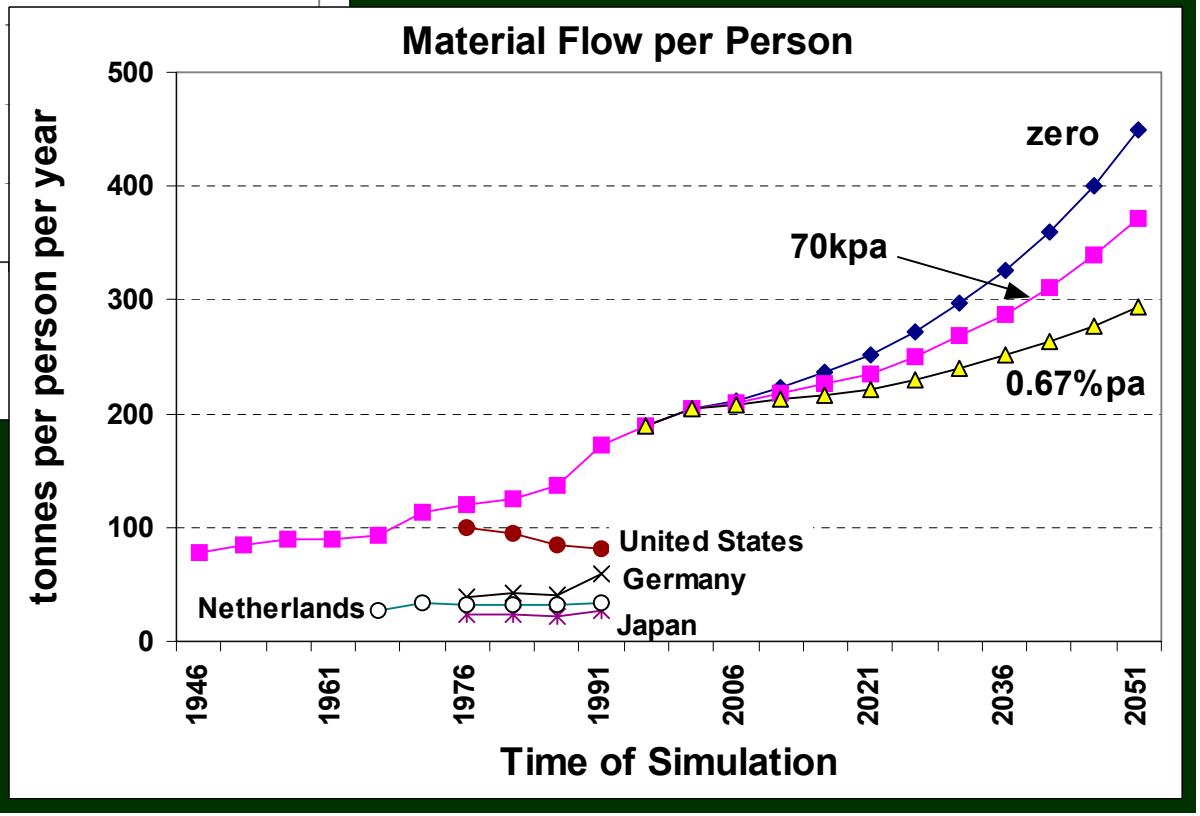
Possible Oil and Gas Futures



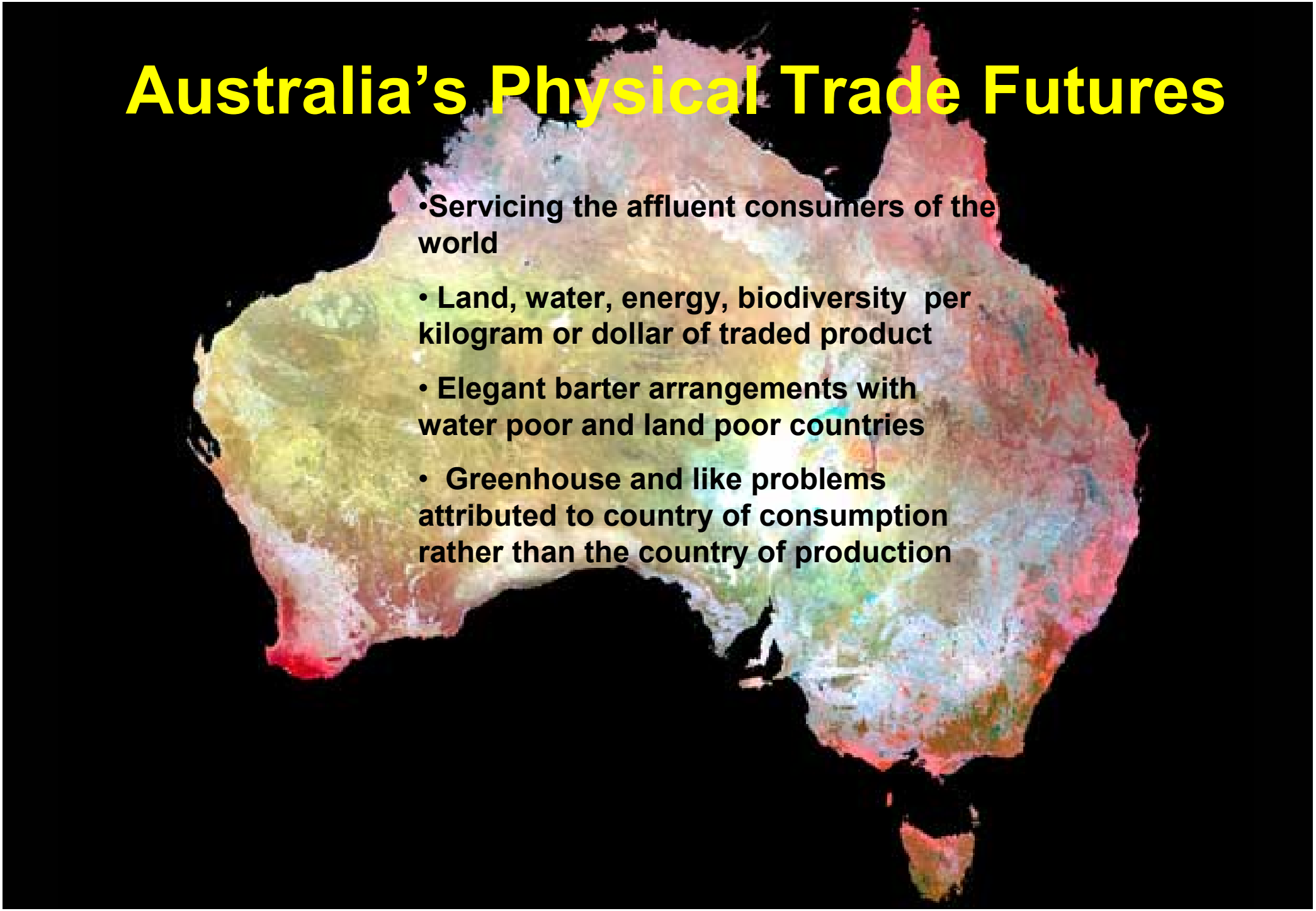


A hot, heavy, wet, economy ?



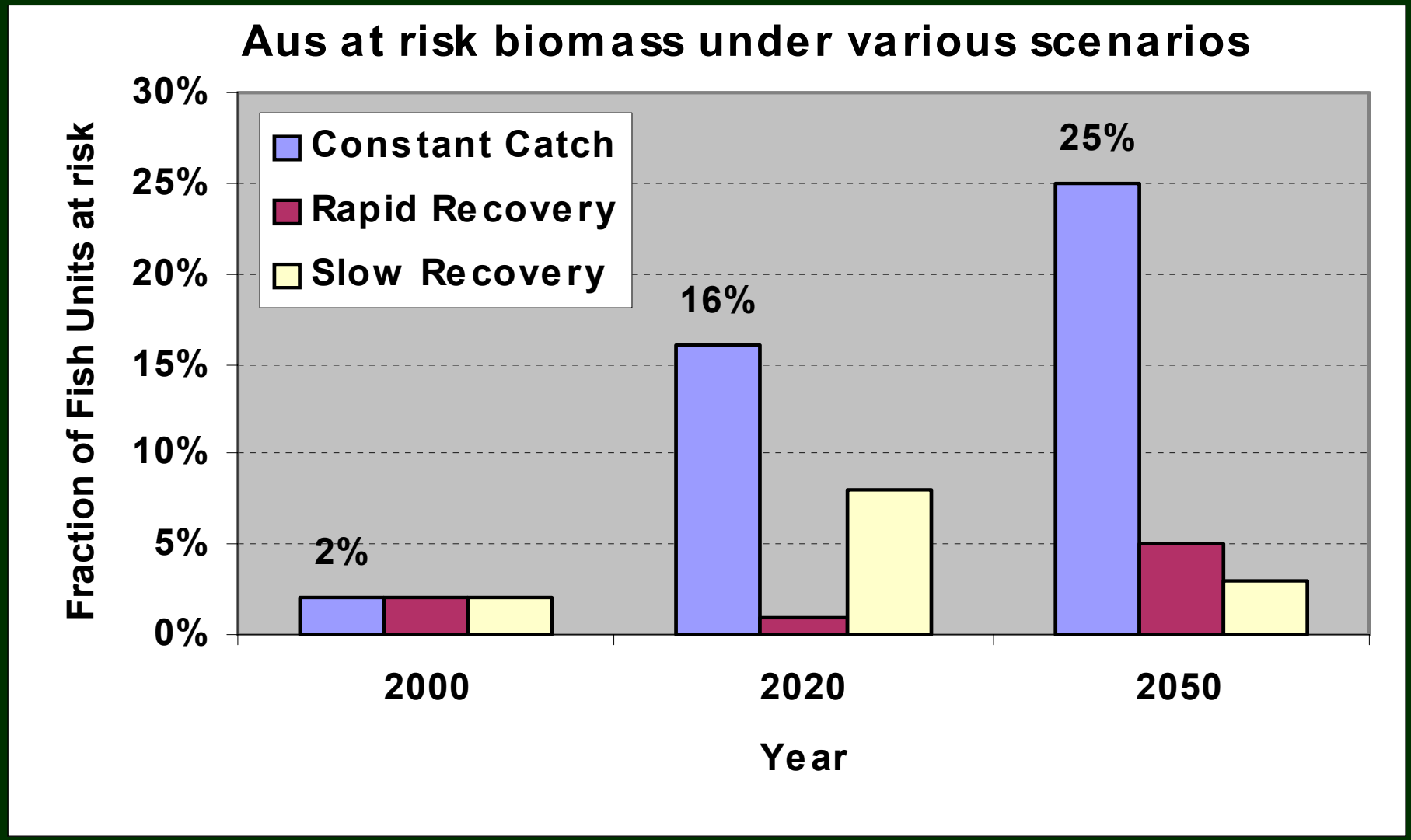


Australia's Physical Trade Futures

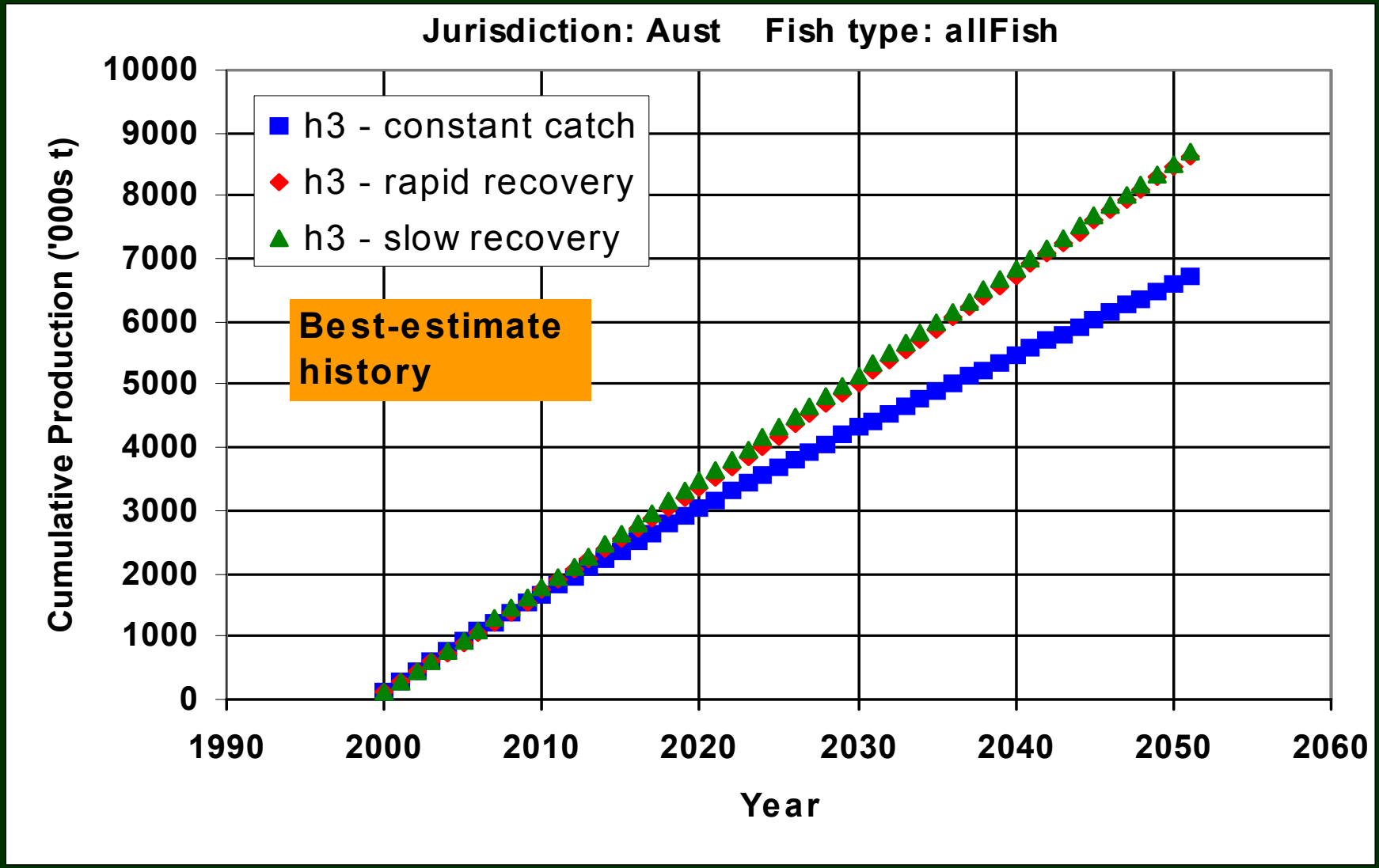


- Servicing the affluent consumers of the world
- Land, water, energy, biodiversity per kilogram or dollar of traded product
- Elegant barter arrangements with water poor and land poor countries
- Greenhouse and like problems attributed to country of consumption rather than the country of production

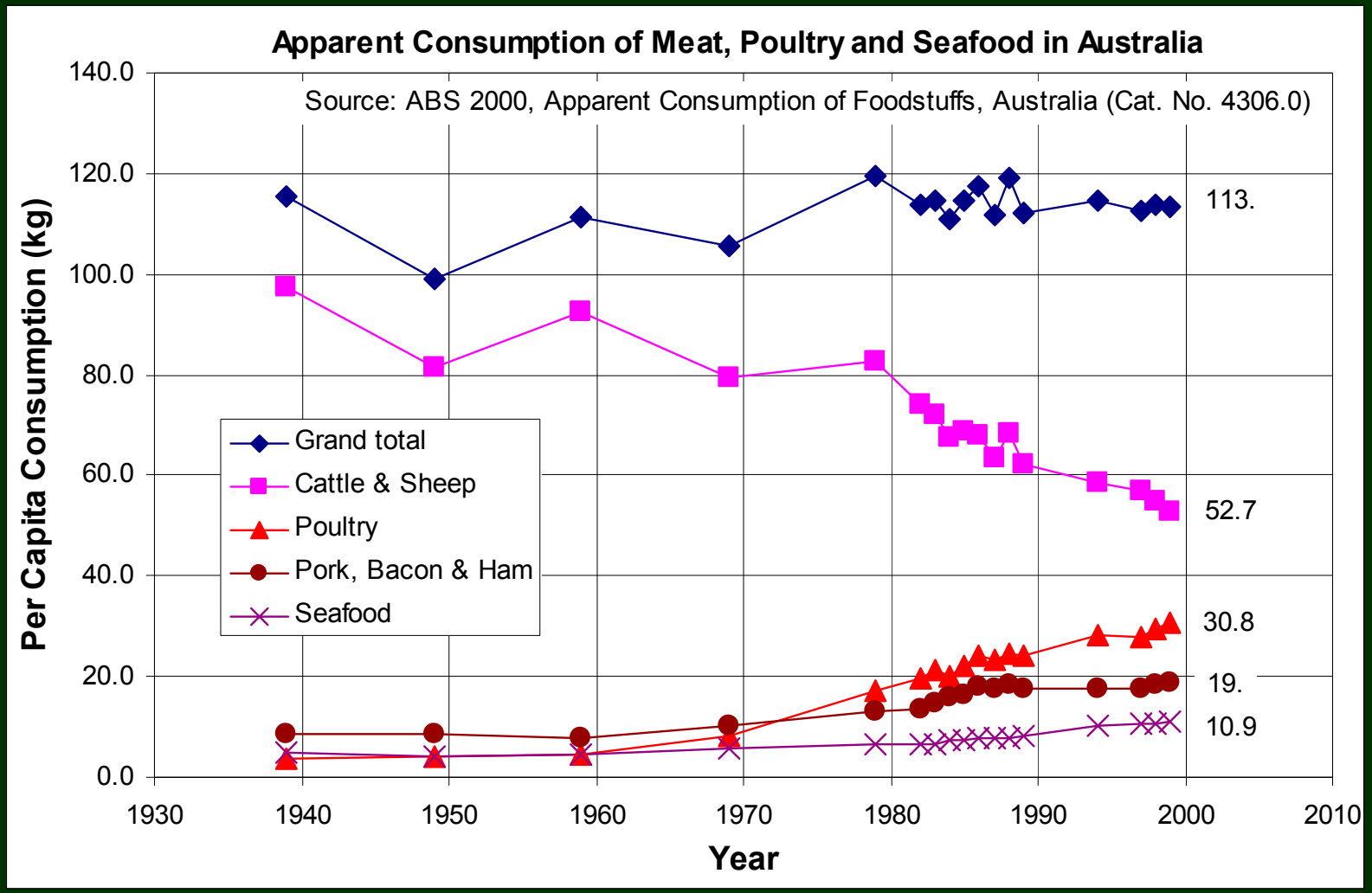
Business as Usual and Fish At Risk



Reaping the Rewards of Better Management: It Takes a While !



Australia's Protein Fix: 1940-2000

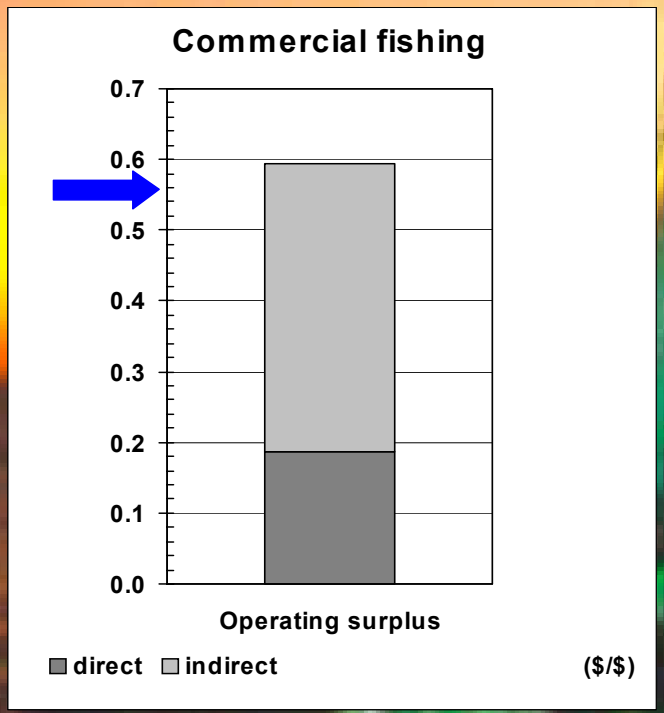


The Near Future to 2020

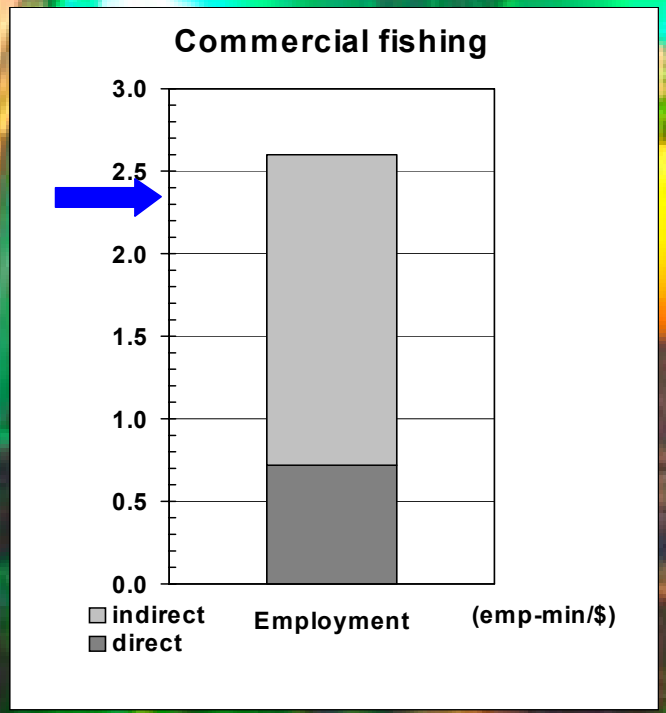
Year	per capita	Local	+Tourism
2000	13.9 kg	267 kt	272 kt
2010	15.6 kg	334 kt	350 kt
2020	17.3 kg	409 kt	454 kt

The Triple Bottom Line (1)

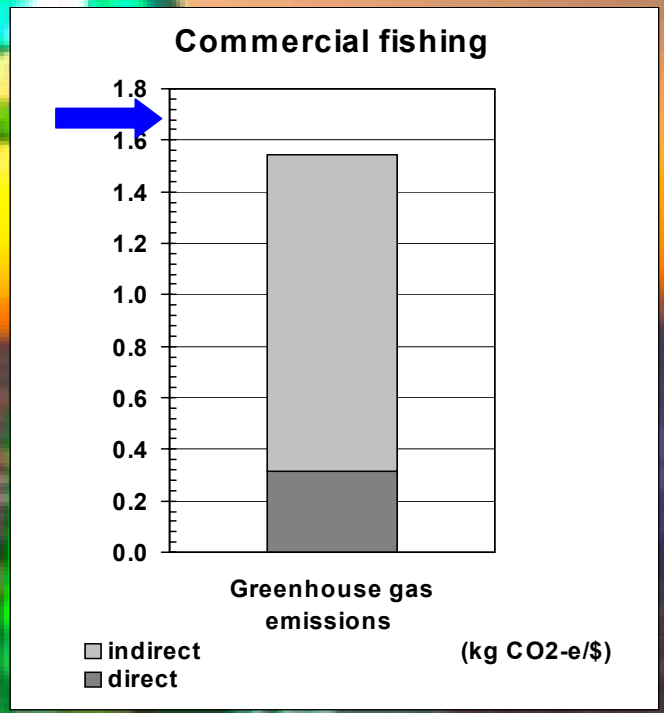
Profit (surplus)



People (employment)

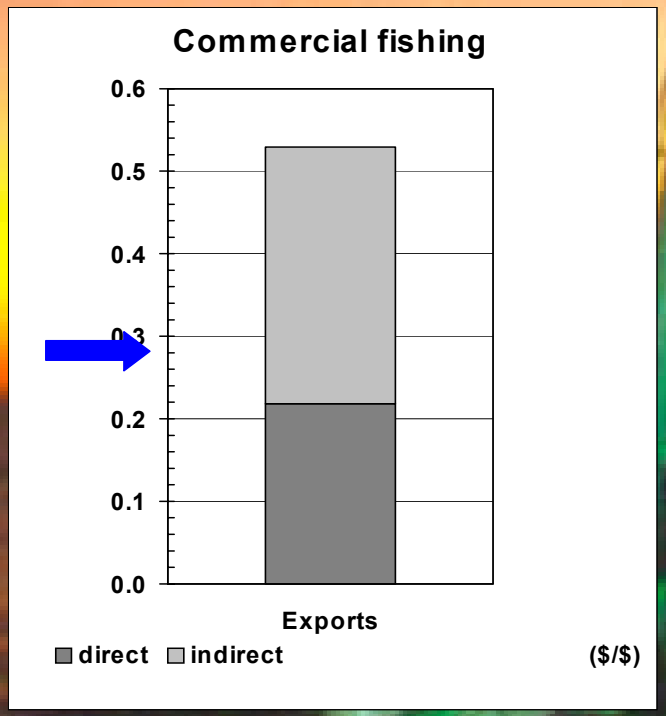


Planet (greenhouse)

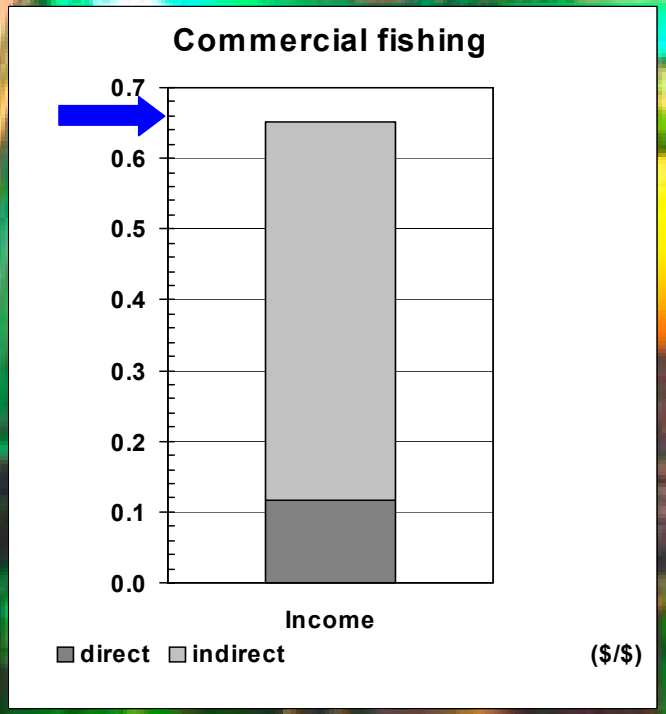


The Triple Bottom Line (2)

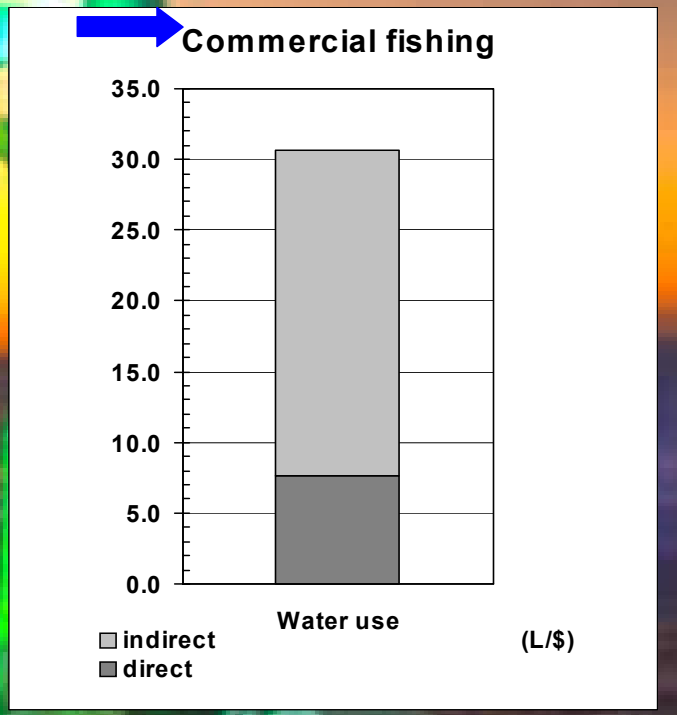
Profit (exports)



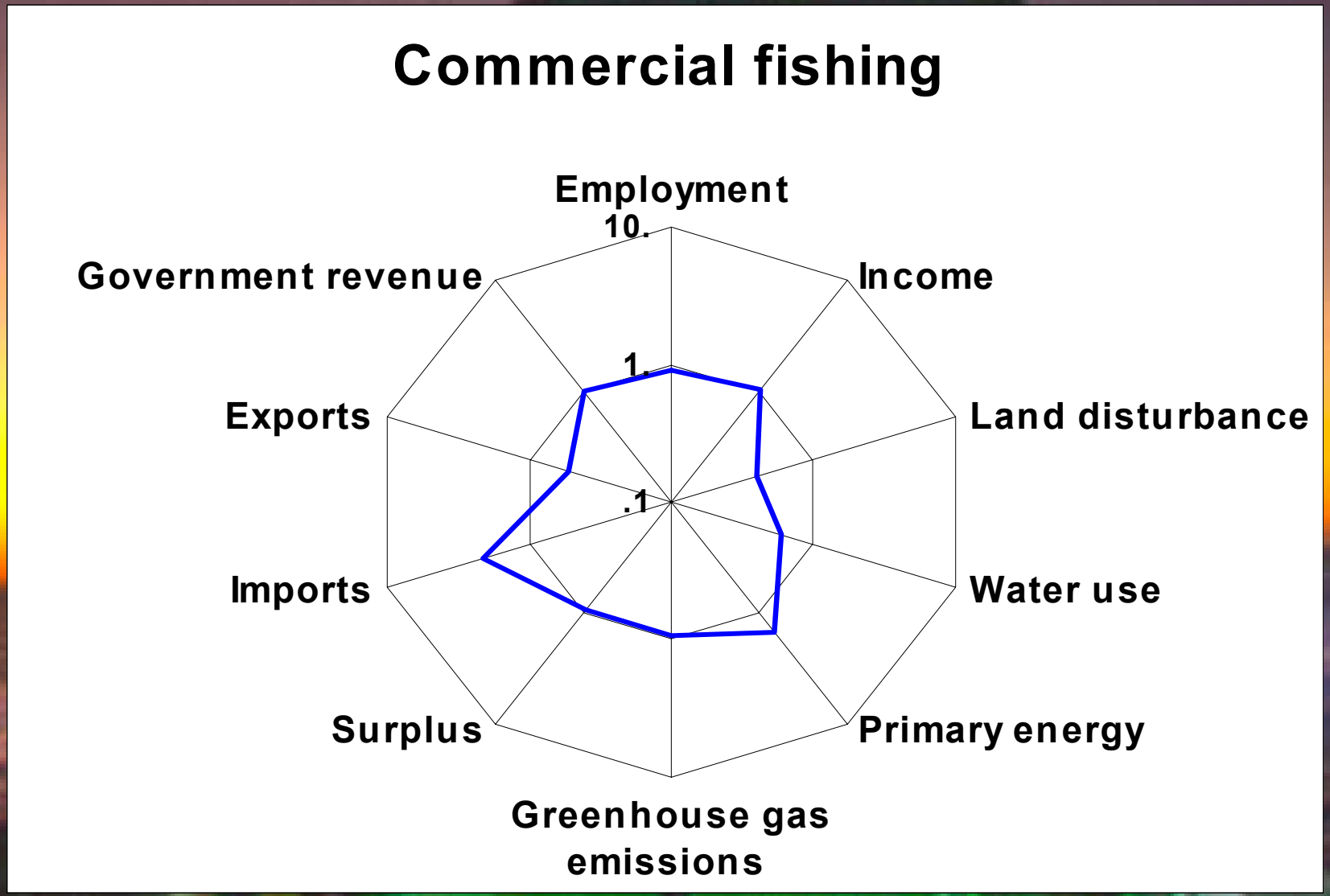
People (wages)



Planet (water)



TBL: Worth Looking At



- Population growth and economic growth
- Rich versus poor
- Regional and world governance and trade
- The (possible) big oil rollover
- Australia with 3 million more urban chattering classes
- Domestic oil tight but CNG okay
- TBL accounts and environmental scrutiny
- Consumer activism and fragility