The Future Use of Public Lands:

An Assessment of the Gillespie and Midas Social and Economic Analysis for the Victorian Environmental Assessment Council's (VEAC) Recommendations for Public Land in Victoria's Central West.

A report prepared by Regulation Economics for the Prospectors and Miners Association of Victoria.

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December 2019

TABLE OF CONTENTS

SUMMARY OF CONCLUSIONS 2

The VEAC Recommendations **2**

The stated estimates of the value of its land re-assignment **3**

The estimates of dollar values foregone as a result of its recommendations 4

The assessment **5**

THE ISSUES UNDER CONSIDERATION 7

PUBLIC GOODS AND THEIR PROVISION BY GOVERNMENT 9

THE CENTRAL WEST INVESTIGATION 10

The social and economic analysis by Gillespie and Midas (Dumsday) 12

Addressing the benefits of the proposed reduced usages 14

The Gillespie/Midas study in a wider context 17

Evaluating the Costs of the Access Redesignation 20
Gold mining, prospecting and mineral exploration 20
Timber-getting 28
Grazing 30
Recreation 30

The Assessment 31

ATTACHMENT 1. MINING, MINERAL EXPLORATION, PROSPECTING AND LAND USE 32

ATTACHMENT 2. ATTEMPTING TO PLACE A VALUE ON UNPRICED GOODS 38

ABOUT THE AUTHOR 47

Victorian Environmental Assessment Council's (VEAC) recommendations for the Central West

In the Central West Investigation, by converting an additional 77,000 ha of State Forest into more stringent control classifications, VEAC seeks to remove more public land from many leisure and productive uses. It even seeks to prevent mineral exploration on such land.

In net present value terms, it claims that the people of Victoria would be willing to pay $270 million for this. That estimate is incorrect.

The people as a whole would gain nothing from the proposed reclassification and lose at least $2.8 billion in wealth. The proposal would also cost hundreds of jobs and deny Victorians the full use of the land they collectively own.

Rather than reducing the scope for leisure and commercial activities by creating more parks, it is recommended that the 22 per cent of land in the Central West presently comprising National and Regional Parks be reclassified as State Forest, perhaps with some zones having special protections. This will enhance the value people obtain from public land by an estimated $700 million without compromising their environmental values, while also reducing costs of management and fire risk.

Summary of Conclusions

The VEAC Recommendations

The Government has outsourced this parks and forest review process to VEAC, a body that is headed and staffed by people with very strong preferences for preserving and restoring the environment into what they consider it was prior to European settlement. If accepted, these Recommendations would prevent valued activities which involve any disturbance of the land itself. VEAC's recommendations would largely quarantine an additional 77,000 hectares from many current economic, social and recreational uses.

VEAC's taxpayer funding for the review of land use in the Central West enabled aboriginal people to participate in the process. Aboriginal groups, quite naturally, support the VEAC proposals because they see them as offering support for gaining Aboriginal title to the area. A transfer of title first requires expunging the State Forest land status and replacing it with a conservation title, after which Aboriginal groups can be granted a form of title that affords them far greater rights than native title[1]. Most submissions opposed the change of land status to Parks.

[1] As VEAC puts it, "Aboriginal Title is a grant in fee simple (i.e. freehold) and notwithstanding all the caveats, constitutes ownership, it is therefore not appropriate to represent Aboriginal land as a public land overlay." P. 13

The stated estimates of the value of land re-assignment

VEAC also commissioned a report from economic consultants. Using a spurious methodology to ascertain non-use values, the consultants' analysis concentrates on 58,500 hectares to be re-assigned from State Forest to National Park. That re-assignment reduces the ability of visitors to engage in certain recreational and commercial activities while, contrary to the stated intent, degrading the conservation values.

The activities to be fully or partially disallowed include forestry, mining, mineral exploration and prospecting, grazing, horse riding, dog walking, dog sledding, firewood collection, hunting and car rallies.

The worth in Net Present Value (NPV) terms of excluding these activities is stated as $270 million or $4,615 per hectare. People are said to be willing to pay $270 million to prevent others from enjoying their pastimes and to foreclose commercial activities, including prospecting and exploration that might uncover presently unknown wealth. That estimate is derived by applying values from other studies using a technique, "contingent valuation", itself of highly doubtful credibility, that asks people what they would be 'willing to pay' in order to have the land use prohibitions put in place. The stated willingness-to-pay values are then multiplied by the population to give an aggregate value. Using that approach to value, unpriced goods and services has been shown to be very different from what people would actually pay. Moreover, there is no counterpart question that asks existing users what they are willing to pay for their continued access to the areas.

As well as being impossible to verify the worth people say they attribute to an unpriced good, a fundamental shortcoming of the contingent valuation methodology is that it differs from the values expressed in markets, where goods and services trade for a price. Unlike with goods bought in markets, contingent valuation measures the entire value that people say they receive from the services they use – including "consumer surplus" benefits which are not included in prices paid for commercial goods.

Another means of estimating value that VEAC's consultants use, the travel cost methodology, is based on what is spent to get to the area. This suffers from other shortcomings in measuring the value of unpriced goods compared to the value of goods bought and sold at commercial prices, where the value is the price and excludes additional costs, like driving to supermarkets.

The $4,615 per hectare estimated value for a supposed increased conservation of native vegetation, if it has any validity, would have a much wider application than that of the VEAC Investigation Area. From the methodology used for this estimate, the same worth would apply to the whole of the 3,100,000 hectares of the State Forest in Victoria. The State would, in this logic, be $14,307 million dollars better off by sterilising all the State Forests from uses that the VEAC recommendations would disallow. The supposed non-use values of $4,615 per hectare is, in fact, greater than the market value of almost half of the State's agricultural land!

Accordingly, on the basis of the economic analysis commissioned by VEAC, Victorians would prefer to cease a great deal of the State's agricultural activity and substitute this for some fanciful benefits from its non-use. No thinking person would subscribe to such nonsense.

Contrary to the consultants' estimates, citizens' valuation of increased conservation of native vegetation from the conversion of 58,500 hectares of State Forest to National Park is actually likely to be close to zero. Indeed, as the fires in November 2019 remind us, National Parks left in a pristine state unmanaged by man will eventually burn ferociously. In doing so, they will destroy adjacent homes and farmland and even take a human and wildlife toll. National Parks, far from being a repository of nature unchanged by man will not even provide a vault for carbon storage, that most fashionable of forest services.

Such considerations add to the need to re-evaluate the merits in setting aside large swathes of land from human management of its natural state. Public lands in Victoria already cover some 35 per cent of the State, more than half of which is National Park. With such a large area already allocated to conservation, increases in their extent are valued less highly than would be the case if only a small area was excluded from commercial and targeted recreational activities. The very large extent of National Parks is likely to mean their conservation values have been exceeded and areas should be redesignated into land categories that would allow more productive uses involving commercial or wider recreational activities.

VEAC's consultants estimates of values lost as a result of its recommendations

The consultants estimate the NPV of benefits foregone from the usage exclusions in newly designated areas at $22.5 million. This is a considerable underestimate.

Leisure activities to be banned include horse riding, dog walking, hunting, and prospecting. Some proposed excluded commercial activities, like logging and grazing contribute to safety and amenity values, while also, like mining and exploration bringing income and employment.

Losses from foregone timber getting ($20 million according to the consultants) are actually likely to range between $51 and $99 million, depending on whether total value and not just value-added is counted. Already, in comparison with the Regional Forest Agreement (RFA) signed onto by Premier Bracks in 2000, the sustainable logging yield accepted by the parties has been greatly reduced, meaning the loss is $100-200 million.

Other losses (dog walking, horse riding, mining, prospecting, hunting, lower land values and conservation costs) are assessed by the consultants at $2.3 million. These also are likely to be gross underestimates.

Above all, the relatively recent discovery of the world class Fosterville gold mine (and the smaller Stawell discovery) has revealed considerable potential but the consultants maintain that there is no more significant additional value from mining.

The Assessment

There is no added value from converting the designated 77,000 hectares of State Forest to National Park and other more restricted use categories. Losses from this, in net present value terms, (at a 7 per cent discount rate) would likely include:

- $1,800 million in net present value terms from mineral extraction foregone, plus $23 million per annum from major exploration and mining activity – an NPV of $245 million
- $50 million and possibly $200 million annually from logging and firewood collection; that is an NPV equivalent of at least $530 million.
- A minimum of $22 million (based on 40 per cent reduced usage), and likely twice that once the congestion costs on other areas is included, in lost value to horse riders, dog walkers and sledders, prospectors, hunters and car rally enthusiasts; an NPV equivalent of $230 million.
- Increased fire risk.

On present value terms, the net loss to the community of reclassifying the 77,000 hectares using a 7 per cent discount rate would therefore be at least $2.8 billion. This would translate into over 1,000 productive jobs foregone. In addition, there would be increased fire risk and associated costs.

The area presently comprises State Forest (89,000 hectares) and other more restrictive use reservations (36,000 hectares). There would be considerable gains to the community as a whole if the Investigation led to a relaxation of the more restricted usages, perhaps by redesignating National Park to become State Forest. This would allow an expanded area, as

found in other jurisdictions, for multiple usages that include horse riding, dog walking, prospecting, mineral exploration and mining, four-wheel driving, hunting, camping, grazing and logging. It would bring NPV benefits of $700 million, which is proportional to the value that would be lost from quarantining existing State Forest from such uses. Moreover, it would save taxpayers' management costs by assisting with vegetation control and elimination of feral animals plus improved access for firefighting.

The Issues under consideration

VEAC was established to conduct investigations and make recommendations to the Minister relating to the protection and ecologically sustainable management of the environment and natural resources of public land. It is tasked to do so taking into account:

a. the principles of ecologically sustainable development;
b. the need to conserve and protect biological diversity;
c. the need to conserve and protect any areas which have ecological, natural, landscape or cultural interest or significance, recreational value or geological or geomorphological significance;
d. the need to provide for the creation and preservation of a comprehensive, adequate and representative system of parks and reserves within the State of Victoria;
e. the existence of any international treaty ratified by the Commonwealth of Australia which is relevant to the investigation;
f. any agreement at a national, interstate or local government level into which the Government of Victoria has entered, or under which the Government of Victoria has undertaken any obligation in conjunction with the Commonwealth, a State, Territory or municipal council, which relates to the subject matter of the investigation;
g. the potential environmental, social and economic consequences of implementing the proposed recommendations;
h. any existing or proposed use of the environment or natural resources.

The purpose of the investigation into public land, State Forest, in the vicinity of the Wombat, Wellsford, Mount Cole and Pyrenees Range forests is to:

a) identify and evaluate the condition, natural and biodiversity values and cultural, social and economic values and the current uses of public land in the specified area; and

b) make recommendations for the balanced use and appropriate management arrangements to conserve and enhance the natural and cultural values.

The VEAC study is to determine what, if any, measures are appropriate to "conserve and enhance the natural and cultural values of the public lands while trying to accommodate a diverse range of recreation and other activities". The final report (June 2019):

- advises that there has been considerable consultation, especially with the traditional owners,
- states that there is a critical role for forests in combating a "global decline in nature" exacerbated by climate change, and
- recommends converting 77,377 hectares of State Forest into national and Regional Parks which have considerably less scope for human commercial and recreational usage.

VEAC's expenditure for the Central West Investigation for the 2017-18 financial year, including salaries and on-costs, was $902,505. Of the funds allocated, some $54,000 was approved for a "Social and Economic Analysis of Final Recommendations for the Central West Investigation Area" by the Gillespie/Midas Social and Economic consultancy. The consultants' report was issued, after submissions had closed in June 2019.

VEAC's report says that, "a large number of submissions expressed concern about the ecological condition of the forests as a result of timber harvesting". Other information suggests that a considerable number of submissions objected to the draft recommendations. These were given little attention in VEAC'S final recommendations, which were endorsed by the consultants' report, that seek to reduce the State Forest area by 77,377 hectares, converting this into other forms of land tenure with more restrictive access as summarised below.

Public Land Category	**Current**	**Recommended**	**Change**
State Forest	**89,278**	**11,901**	**-77,377**
National park	22,967	73,113	50,146
Conservation Park	-	5,246	5,246
Regional Park	5,264	24,992	19,728
Nature Reserve	6,703	8,051	1,348
Bushland Reserve	1,047	2,808	1,761
Total	**35,981**	**114,210**	

(The balance of Public Land is mostly utilities, water production areas etc.)

Compared to existing usage, the changes would largely eliminate new mines and exploration, as well as small scale and recreational prospecting, hunting, grazing, car rallies and timber-getting and collection. They would considerably reduce use of the area for camping, horse riding and dog walking.

The report states (p. 11) that over the past 20 years the use of land in the area has shifted towards recreation and conservation. That shift was, in fact, brought about by a series of government decisions, (following VEAC recommendation) which have progressively reduced the scope for activities that were said to conflict with some environmental uses. Those decisions have been taken without any information, for example on tourist numbers, or by taking into proper account the area's mineral potential.

This report's analysis of mineral prospects has been greatly informed by material (see Attachment 1) compiled by David Bentley of the Prospectors and Miners Association of Victoria.

Public goods and their provision by government

The issues in this Investigation concern an application of policy in pursuit of benefits from what are known as public goods. Pure public goods incorporate non-excludability and non-rival consumption between individuals wishing to use them. The strict definition of public goods involves no reduction in the value of the goods, no matter how many in the community use them, together with great difficulties in denying their benefits to significant users. Market provision of such goods - at least in the quantities which people would want - is not possible.

Many natural goods, rather than being public goods, are likely to be better described as unowned goods, goods which in many cases have no value because they are superabundant. By contrast, tax financed or regulatory provided public goods are undersupplied (or not supplied) by nature and require sacrifices for their provision. The need for all public goods may ebb and flow but naturally available public goods may be irreplaceable or very difficult to replace. As a result, their value is likely to increase relative to that of other goods because they become more highly prized of themselves with increased income/population levels.

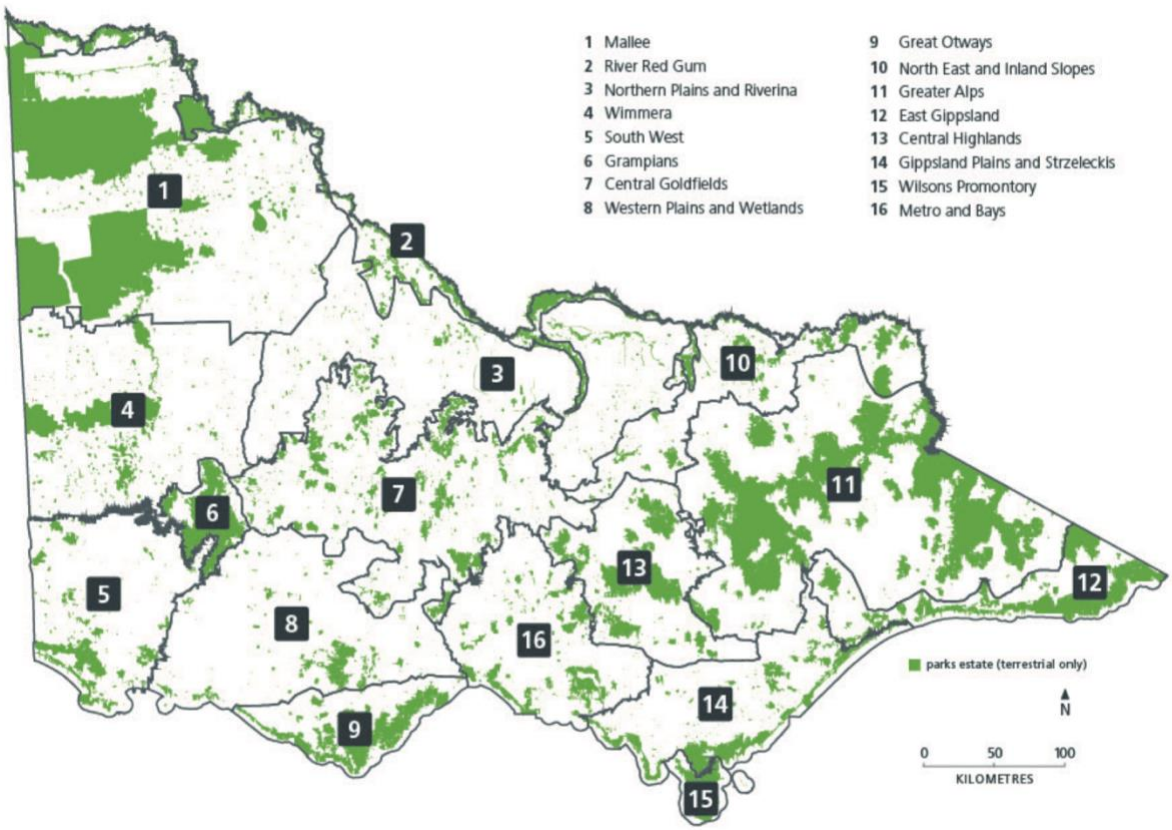
Because of the difficulties in arranging for the payment or public goods, they would be undersupplied unless some form of compulsion were to be applied in their provision. Democratically elected governments provide the most legitimate means of determining what public goods should be provided. As Hayek put it "..... wholly rational considerations will lead each individual, while wishing that all others will contribute, to refuse himself to do so. If on the other hand he knows that compulsion can be applied only if it is applied to all, including himself, it will be rational for him to agree to be compelled. This will, in many instances, be the only way in which collective goods can be provided which are desired by all or at least by a large majority".

Even though democracy offers some legitimacy for discovering people's preferences, a popularly elected government can never claim to have a mandate for the detail of its policies. Moreover, democracy unrestrained by laws or traditions can be transformed into populism under which the cloak of majority decisions is used to exploit and tyrannise the minority. Additionally, replacing individual decisions by those of the corporate state in this way, the disciplines essential to efficient market operations are lost.

VEAC's consultants attempt to determine whether alternative uses of land in the Investigation area is appropriate by seeking to estimate how much the people of Victoria would be willing to pay for greater restrictions on their uses. They do so by employing highly dubious techniques and applying them inappropriately. Attachment 2 addresses these in some detail.

The Central West Investigation

Overall, Victoria's National Parks and State Forest cover 4 million and 3.1 million hectares respectively – with National Parks about 56 per cent of public land (18 per cent of the state), similar to the Australian average though NSW and Queensland have less than 10 per cent of their areas as National Park. Victoria's National Park area has been increased over the past two decades as more lands have been reclassified into the more highly protected areas. It should be noted that the concept of National Park applied in Victoria involves far greater usage restrictions than is common in other jurisdictions.



Parks Victoria uses the slogan *Healthy Parks Healthy People* expressing its view that "the time we spend connecting with nature has a positive impact on our health and wellbeing[2]". National and State parks are estimated to have around 42 million visits per year. One way of looking at this is that the "average" Victorian makes 5-6 visits per year to these facilities.

It is, however, likely that the bulk of the visits are by multiple users and most Victorians would not make a single such visit in any one year. There are some overseas tourist visits but mainly

[2] A study (Buckley, R et al. *Economic value of protected areas via visitor mental health*. Nat Commun 10, 5005 (2019) doi:10.1038/s41467-019-12631-6), partly financed by Parks Victoria, used a series of assumptions to suggest parks brought mental health benefits to Australians worth $145 billion. If valid, these conclusions would apply to National Parks and State Forest, perhaps more so for the latter where recreational options are greater.

to the iconic areas along the coast; a total of 173,600 overnight stays were recorded in 2016/7.

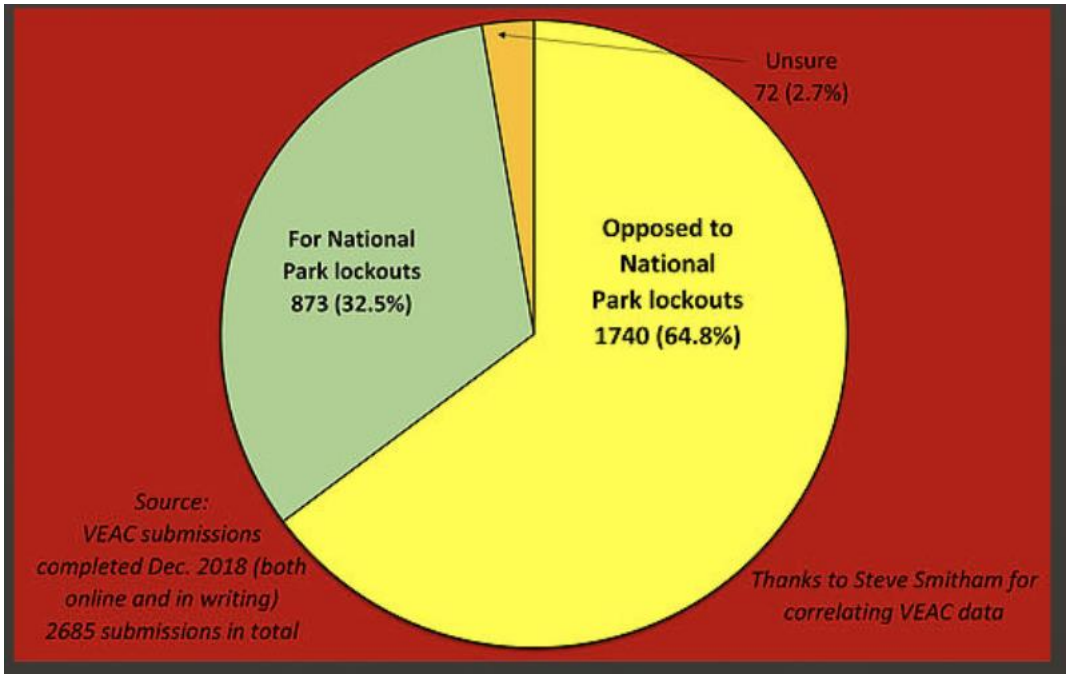
The shift from State Forest to National Park involves major changes that exclude mining and any form of mineral exploration activity, most camping, horse riding, dog sledding, grazing and timber-getting.

Grazing and timber-getting are already heavily restricted as a result of previous decisions post the establishment of regional sustainable yields under the recommendations of the 1986 Timber Industry Strategy. Since then we have seen a progressive closing of opportunities for the activities, which has continued even since the Regional Forest Agreement (RFA) signed by Premier Bracks and Prime Minister Howard in 2000 were supposed to have drawn a line on any further restrictions. In the case of timber-getting only 6 per cent of the State Forests are now open to harvesting. The annual available area having been reduced from 25,000 hectares 40 years ago to just 3,000 hectares today. The Victorian Government has announced a termination of logging from all native forests by 2030.

In the area under review, sustainable forestry, as specified by the RFA, could allow a tenfold increase in timber-getting. The Midlands FMA area included the Wombat Forest, the Mt Cole forests, and the Pyrenees forests prior to 2002, collectively had a sustainable yield of 41,100 m^3 of sawlog/annum. By February 2003, this had been reduced to 8,600 m^3 of sawlog/annum. Of this 7,000 m^3 was from the Wombat Forest, and the other 1,600 m^3 was from the Mt Cole and Pyrenees forests.

Mineral exploration is an activity which is non-invasive and takes place without adversely affecting any other uses of the land. Objections to it leverage off a general antipathy to mining on the part of some of those promoting themselves as conservationists. Much exploration is recreation by prospectors, bringing precisely the sort of “positive impact on health and well-being” that, as previously mentioned, Parks Victoria has welcomed.

Aboriginal groups have played a major role in the VEAC proposals. These groups have been extensively consulted and have generally endorsed the proposals. It is likely this would have much to do with the prospect of them gaining Aboriginal title to the area - something that is not possible if the land remains classified as State Forest. Environmental activists would see benefits of this in assisting what they consider to be protection of the environment from invasive and unwelcome activities. Of the substantive submissions on the proposal, as illustrated below, the vast majority were opposed to a change in land status.



The social and economic analysis by Gillespie and Midas

The study was published in June 2019 coincident with the VEAC final report. Its starting point is the unquestionable notion that people hold values for the conservation and protection of forests and the attributes they contain.

The consultants point out that these values can be substantial because they are public good values, i.e. the values to the community is the sum of the values held by all people in the community. (P. 4-5). But this is only so if the services being protected are not abundant and if the protection itself is a marked change from that currently prevailing. Protection of a thousand hectares of forest with special and valued characteristics would rate highly. But if the forest is not unusual and is similar to tens of thousands of other forested hectares nearby, the valuation is likely to be less.

In fact, the environmental values in the area are extensive and unremarkable. Accordingly, the value of these or any particular services of a particular target is likely to be low.

The consultants recognise that uncertainty is inevitably present in any estimated valuations they might make. For the Central West, they point out that there is no study of the potential environmental and cultural benefits of the proposal and nor is there any data on current usage. The say, “uncertainty is magnified by the fact that there is little reliable information on the current usage levels of the forests and hence assessment of the likely physical impacts

on current and future users is problematic". This is an overstatement – the Box Ironbark Investigation is one of several reviews containing considerable information on the area.

The consultants expand on their theme, arguing, "the VEAC recommendations are difficult to analyse from an economic perspective because:

- there has been no primary study to value the potential environmental and cultural benefits of the proposals; and
- there are very few data on current usage levels – particularly for recreational uses – of the public lands of the Central West."

In view of such caveats, it is odd that the consultancy concludes, "Studies have demonstrated that the community holds values for the conservation and protection of forests and the attributes they contain. These values can be substantial because they are public good values i.e. the values to the community is the sum of the values held by all people in the community. Consequently, the economic benefits of VEAC recommendations are likely to be quite high."

Moreover, the consultants' conclusion inadequately addresses other community values stemming from those recreational activities that are to be no longer permitted. Some leisure activities like gold prospecting and hunting are being progressively closed off by being incrementally forbidden by each new area review. People obliged to use less preferred areas to engage in their favoured activities face reduced satisfaction, so much so that in some cases they cease the activity. Moreover, the additional usage of the progressively reduced area within which the activity is permitted has negative effects on all users, not just those denied their most favoured locations. Those in the remaining areas see more congestion within an activity for which the majority value either solitude or conviviality with friends relatively undisturbed by strangers. These people too would find themselves adversely affected. This undermines the validity of VEAC's conclusion that an additional parcel of land denied to specific activities would have little effect.

The consultants' summary table (below) estimates the costs of activities no longer to be permitted at $22 million on a net present value basis. These costs are dominated by losses of timber getting both as a commercial activity and in the form of local firewood collection. The estimated benefits, stated to be $270 million from increased conservation of native vegetation, swamp these costs.

Table ES2- Cost Benefit Analysis Results for the Central West Investigation Area (Present Values @ 7% Discount Rate Over 30 Years)

Economic Costs	$	Economic Benefits	$
Reduction in commercial timber production	$14,552,297	Increased conservation of native vegetation	$269,526,040
Reduction in commercial firewood collection	Include in above	Contribution to fauna and flora species protection	NQ
Reduction in domestic firewood collection	$5,584,069	Increased protection of Aboriginal heritage and cultural values, tangible and intangible	NQ
Reduction in grazing	$99,551	Water quality and quantity regulation	NQ
Reduction in mining	NQ		
Reduction in dog walking	$335,044		
Reduction in dogsledding event	$158,836		
Reduction in horseriding	$27,300		
Reduction in prospecting	$1,363,630		
Reduction in hunting	$346,212		
Reduction in land values of adjoining properties	NA		
Cost of managing for conservation	NQ	Cost saving from no longer managing primarily for timber	NQ
Total	**$22,466,938**		**$269,526,040**
NET BENEFITS			**$247,059,102**

NA = Not Applicable

NQ = Not Quantified

The consultants say, “the benefit estimate is likely to be conservative as it does not include any benefit for species protection, Aboriginal heritage protection and water quality and quantity regulation”. As previously noted, VEAC went to considerable lengths in taking Aboriginals on field trips and establishing workshops.. Aboriginal Heritage is already fully protected under current legislation, species are also protected as is water quality.

Addressing the benefits of the proposed reduced usages

There are no existing studies that have examined the community’s willingness to pay (WTP) to conserve native vegetation by changing the public land use status in the Investigation Area. The techniques for trying to establish WTP are discussed in Attachment 2.

The consultants sought to estimate an indication of the potential magnitude of the values to the community by examining findings from studies in other areas. Four potential source studies that estimated WTP for valuing native vegetation conservation, were identified:

- Gillespie Economics (2009a) examined the WTP of NSW households for protection of Endangered Ecological Communities that provide habitat for threatened species on 140 hectares.

- Gillespie Economics (2009b) examined the WTP of NSW households for protection of native vegetation from clearing 100 hectares. The native vegetation was described as including threatened plant species and providing habitat from a range of non-threatened and threatened animal species.
- Mazur and Bennett (M&B 2009) examined the WTP of Sydney households for the increases in the area of native vegetation in good condition in 150,000 hectares in the Hawkesbury-Nepean catchment.
- Van Bueren and Bennett (VB&B 2001) examined the WTP of Australian households for six million hectares of repaired farmland and protected bushland.

These values are summarised below

	Gillespie 2009a.	Gillespie 2009b.	M&B 2009.	VB&B 2001
Size of area, hectares	140	100	150,000	6,000,000
Value per hectare ($)	1609	1603	4889	7604

The consultancy concluded that an accurate valuation in terms of willingness-to-pay for the 58,500 hectares to be excluded from some uses in the Central West Investigation Area would be the average of these four values, namely $4,615 per hectare. This puts a benefit of conservation at $270 million. But such an estimate is even more problematical than others that use the contingent valuation methodology because the estimated WTP, unlike the material on which it is based, involves a shift from one form of managed public land to another in converting Victorian State Forest to National Park. Moreover, there is an irony, perhaps lost on VEAC and its consultants, that though people are said to value the more restricted use of land involved in its conversion from State Forest, once converted from State Forest, usage of the areas falls.

One study undertaken for KEPCO by Gillespie Economics over some 10,000 hectares at Bylong was not mentioned or included in the value estimates. That study did not see a necessity to undertake a cost analysis for environmental purposes since the cost were not deemed (p. 29) to reach the level of materiality (5 per cent of the benefits) or $30-38 million over the life of the 23-year life of the mine (an average undiscounted $1.3-1.7 million per year). The estimated non-market costs of that project were $42 million at a 7 per cent discount rate, of which $38 million were in reduced greenhouse gas production! The net benefits of the project were put at $592-757M depending on whether or not employment benefits were included.

Comfortingly for the proponents, the consultants suggest the $4,615 per hectare valuation for the Central West is conservative as it excludes values other than native vegetation preservation. This itself is a heroic leap. Simply redesignating an area as a National Park is no guarantee of the conservation of native plant species, still less of native fauna that is likely

to be hunted or outcompeted by introduced species. National Parks are infested with blackberry and other introduced species which require considerable management to control. In this respect Parks Victoria have been able to treat only 1.1 of the 4.1 million hectares under their management to minimise the impact of pest plants, pest animals and overabundant animals and plants (Annual Report p. 24).

The fires in NSW and Queensland in November 2019 draw attention to the detrimental effects brought by National Parks that have been left in a pristine state unmanaged by man. The vegetation in such areas will eventually burn violently and uncontrollably. In doing so, they will destroy adjacent homes and farmland and even human lives. National Parks have been promoted by environmental activists as repositories for values that they believe mankind – especially the modern economy - is destroying. The truth is that uncontrolled nature, as recognised by Aborigines of the millennia, is dangerous and people will only attach value to it if they have been led to believe this is not the case.

Such considerations add to the need to re-evaluate the merits in setting aside large swathes of land from human management of its natural state.

These issues were also recognised in the 2008 Parliamentary Inquiry into the Impact of Public Land Management Practices on Bushfires in Victoria, which commented (p.140) upon the importance of good quality access tracks to parks and reserves for firefighting and recreational use. On page 173, "Removal of commercial use from forests" was identified as having a negative impact on bushfire suppression capacity. Trucks, dozers and other earth-moving machines are necessary for clearing tracks and fire-breaks in critical times. Indeed, there is a perverse effect of no longer permitting commercial activities like forest thinning which reduces the risk of out-of-control bushfires. These would also be exacerbated by road closures making access for firefighting vehicles more difficult. Such matters are highlighted by the wildfire disasters during November 2019 and many preceding major fires.

The proposal's negative effect on safety is unrecognised by the consultants who take the view that visits from horse riders, prospectors, car enthusiasts and dog sledders present dangers to the value of the area greater than those from introduced and uncontrolled species. Recreational hunters, who are also to be excluded, actually have a positive impact in suppressing the numbers of feral pests.

The consultancy attempts to construct a value of visits to the area by referring to data in New South Wales across a network of protected areas. Many of these would be akin to the Victoria State Forests as well as the National Parks (Kosciusko is mentioned). The average is stated to be $31 per visit. The consultants estimate from these vicarious studies that there may be

8915 visits per annum for the to-be-banned activities and that these would be reduced by some 40%, with the rest diverted to areas deemed equivalent, at a cost of the rejected visitors of $179,790 annually or $2,000,231 in present value terms.

There are other losses aside from the lower value placed on alternative locations of those directed away from the newly protected areas and the losses from increased congestion borne by existing uses of the areas remaining open to them. These include the knowledge that previously contemplated visits will not be possible and loss of the option to visit.

The Gillespie/Midas study in a wider context

The consultants are inconsistent in setting a very low conservation value simply for vegetation protection for the 10,000 hectares of unexceptional land at Byong in NSW to one of $270 million, $4,600 per hectare, for 60,000 hectares of similarly unexceptional land in Victoria.

The values per hectare in the studies referenced to establish the $270 million attributed to reduced use were based on studies where value increased with the size of the area being reserved. While that has some plausibility, as previously discussed, if an area is a small part of a larger area it will hardly be missed. However, if a large area is determined to have a larger value per hectare in terms of assessed willingness to pay to preserve it, pretty soon we run out of money (or perhaps other people's money).

Therefore, what does the estimated valuation mean? The land in consideration is not of exceptional conservation worth and there is no case made for limiting this $4,615 per hectare value estimation only to the 60,000 hectares under investigation. If the valuation were to be extended to all of Australia, the reservation of the nation's entire 770 million hectares of land from most forms of productive use would be said to be worth over $3,500 billion. Such a sum would easily eclipse national income (under $2,000 billion), and the $60 billion a year of primary production that would be all but eliminated. Indeed, the value of conservation would approach 40 per cent of the nation's $8,900 billion in total wealth.

If instead, the valuation was confined to the 3.1 million hectares of Victorian State Forests, the immediate target for VEAC's exclusions, the redesignation would be said to deliver a gross benefit to the Victorian community of $14,307 million. Thus, by embargoing some activities from commercial and recreational use, the community would, on the logic of VEAC and its consultants, be $2,216 per person better off.

The corollary is that we would be even better off if much of the 55 per cent of the state presently in farming use were also to be converted into National Park. Indeed, the

environmental values would be even greater since the private land is not subject to as many environmental provisions as the State Forest. Even if the values were no greater than the $4,615 per hectare estimated by the consultancy, such a land reclassification would have a claimed worth of another $60 billion in environmental benefits!

The implications of this valuation can be further illustrated by using it to calculate the consumer valuation effects of a reduction in the area of National Park. A corollary of willingness to pay for a new increment of National Park would be how much people would be prepared to sell their rights to such an increment.

Suppose households were to be shown the area of National Park and State Forests and were asked how much they would **accept** for redesignating 1.8 per cent, 60,000 of the four million hectares of National Park, as State Forest.

Many people would be indifferent to converting already defined areas in National Parks in the Central West back into State Forests or even private land, because adjacent to them are vast areas of National Park. Some people – dog walkers, prospectors, horse riders and others whose activities in the area are prevented – would actually prefer the change to be made. Others might take a similar view, if it was explained carefully and in the context of continued access, when told that a limited amount of logging would be allowed and charged for, lowering the taxes they must pay. They would be all the more inclined to such a view once they recognised the truth about the fire dangers of unmanaged land. Such a perspective would be reinforced by the knowledge that prospecting might lead to huge mineral deposits with accompanying royalties that would mean lower taxes, more funds for hospitals, roads, and other services.

It is likely that the majority of people would not accept that excluding activities has more social, economic or environmental value than allowing such activities to continue.

Those that would resist any blandishments offered, would be valuing the continued status of the areas almost infinitely. Such people might comprise no more than a few per cent of the population, though they would be well represented in elitist bodies like VEAC. (VEAC appointments are almost all long-standing conservation activists, particularly from the Victorian National Parks Association, who would find it difficult to examine these issues in the impartial manner expected of a body providing impartial advice to the government).

A check on the credibility on the estimated value of a changed classification is the price at which farmland exchanges ownership. On average Victorian agricultural land is worth about $6,000 dollars per hectare. The value in the Central Goldfields is $4,813, in the Pyrenees, $3,908 and in Ballarat $4,424. By any measure, the use value of land unencumbered by the caveats that are part of the State Forest would be worth more under private ownership than its value as commonly owned State Forest. It is inconceivable that with private land in the area, worth a little under $5,000 per hectare, the value of converting land from State Forest to (National Park and vice-versa) could approach this. At market prices, the 60,000 hectares earmarked as National Park is worth $300 million as farmland (as with other farmland, without any mineral rights). In view of the abundance of State Forest and National Park land in the area, would an informed public not prefer the lower taxes that sale of the land would entail?

The alternative strategy would allow greater multiple use of the state public land resource. The area presently comprises State Forest (89,000 hectares) and other more restrictive use reservations (36,000 hectares). There would likely be considerable gains to the community as a whole if the more restricted usages, especially National and Regional Parks (22 per cent of the area), became State Forest with the proposed allocation of land to Conservation Park being rejected. Such a change could be accompanied by some zones within these areas remaining subject to additional protections. This would allow multiple usages to include horse riding, dog walking, gold prospecting, four-wheel driving, hunting, camping, grazing and logging. Importantly, it would leave open the option of massive increases in wealth accompanied by a tiny environmental footprint that a valuable mineral discovery would entail. Moreover, it would save taxpayer's management costs by assisting with vegetation control, access for firefighting and elimination of feral animals.

The appropriate question to ask is, therefore, how much would people willingly pay or accept for such a conversion in the context of a great deal of land already falling within each of the restricted use categories. If this could be known, genuinely informed decisions could be made on the level of sterilisation from many human usages that people in a democracy would like to see in the land they collectively own:

- Would people wish to see a reduced area of productive land when there is already an ample amount reserved from most productive uses in parks and reserves, especially in view of the increasingly recognised fire dangers unmanaged National Parks present?
- Are people concerned and willing to sacrifice income for the conversion of such land to even more restricted uses that ban activities like prospecting and horse-riding?

- Would they like to see exploration for minerals banned so that they could never have hidden wealth uncovered and therefore never have the option of evaluating whether the extracted assets might surpass the values of not disturbing the generally very small area in which mining takes place (and in fact a working gold mine might even enhance the attraction of the area to tourists).

Perhaps out of mistrust of the judgment of people as a whole, those who are gatekeepers to the custody of National Parks, while paying lip-service to the masses' willingness-to-pay, never seek to determine how much people would be prepared to receive for converting an area of National Park to State Forest or for selling some of the State Forest to private users.

Subjected to such analysis, the valuations on which vast areas of Victoria's natural wealth are set to be reclassified for conservation are clearly absurd. Acceptance of the recommendations is likely to provide no value while markedly reducing the wealth of the State.

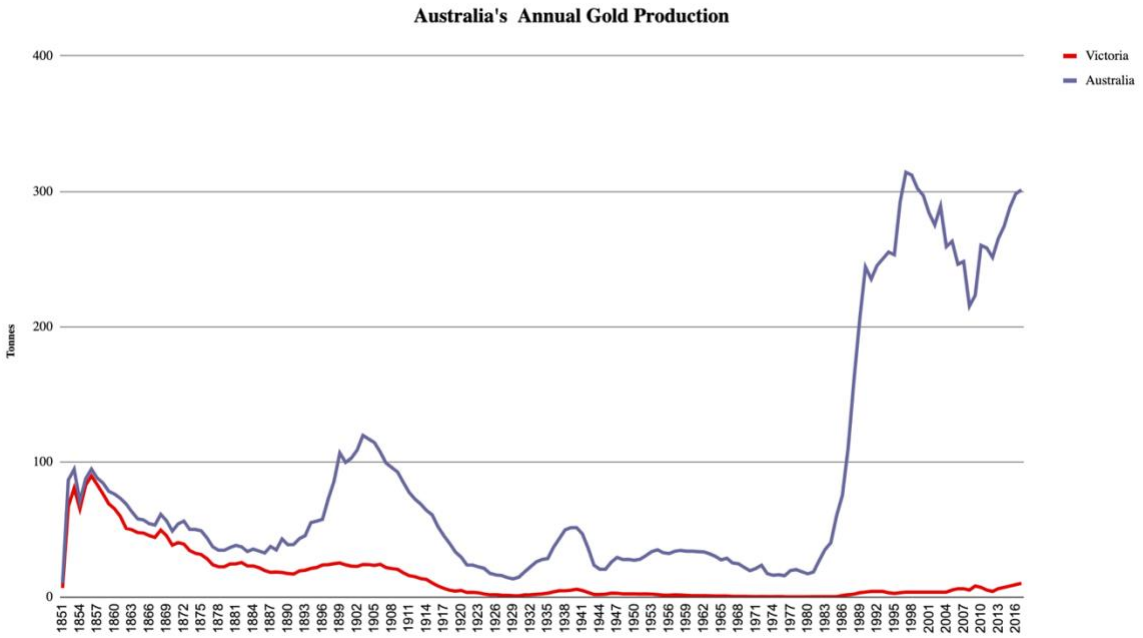
Evaluating the Costs of the Access Redesignation

The consultants put a $22 million cost from the denial of certain activities entailed in reclassifying 58,500 hectares of State Forest as National Park. They felt able to say that sensitivity analysis was unnecessary because, compared with the phantom $247 million benefit they estimated from greater environmental protection, the losses would need to be understated by 'factor of 16 to cast doubt on the outcome of the analysis'.

Some of the costs of activities denied are discussed below.

Gold mining, prospecting and mineral exploration

Discouragement of gold mining activity in Victoria has been a factor in the state not sharing in the resurgence of such activity experienced elsewhere in Australia. Having fallen to negligible levels 30 years ago current gold production in the state has shown some increase in recent years but remains at only three per cent of the national total.



VEAC's consultants clearly under-estimate the benefits that would be lost from preventing gold mining and prospecting. There are 14,500 holders of Victorian Miners Rights, with the Central West being particularly highly valued.

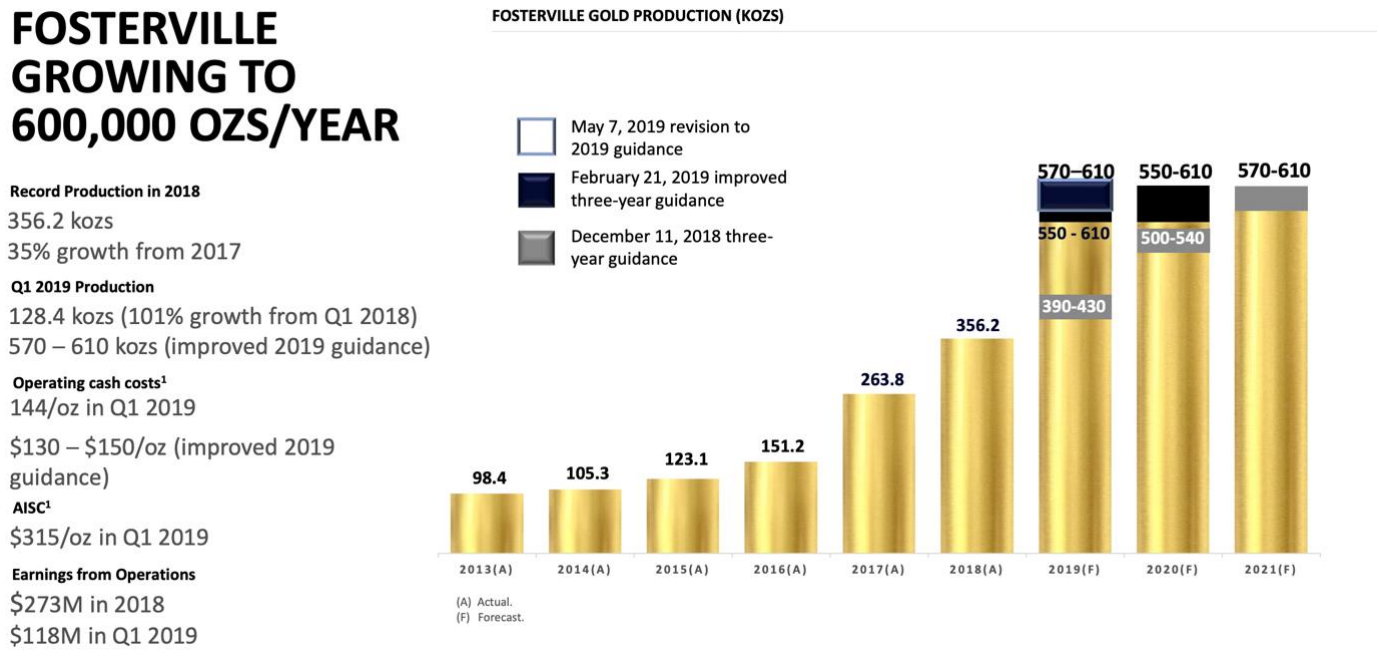
Sequential studies like the Box-Ironbark Investigation and Dja Dja Wurrung Parks Joint Management Plan have resulted in increasing areas being made off-limits to prospecting, agriculture and many leisure activities. VEAC has expressed support for converting all Public Land to Aboriginal title. The massive settlement of 11 per cent of the State into Aboriginal title in the 2018 Tuangurung settlement may, depending on the management plan, bring an additional lock-up of public lands.

According to the review "Using an expected value approach, the impact of VEAC recommendations on gold mining values is likely to be minimal." This is possible only under the premise that previous mining in the area has, uniquely, already exhausted all of its gold resource. Such a view is inconceivable and at odds with the Geological Survey of Victoria's estimate that only half the gold in Victoria has been found over the past 169 years.

In the tabulation of costs, VEAC's consultants assign no value to lost mining income. However, in the body of their analysis they make a fanciful series of probability assumptions, and arrive at a speculative present cost of forbidding mining at $4 million.

One major problem with that analysis is that it is predicated on mining being valued only on the royalty paid. That analysis is in conflict with the normal assessment of gross state income. Of itself, if the assessment were to set future value as it is conventionally estimated, it would be 36-fold the $4 million dollar figure (since royalties comprise only 2.75 per cent of costs). That gives a value of $144 million.

Moreover, the estimated loss is based on a low probability (0.039) of a discovery being made and developed. Such an assessment would have also been made nine years ago before production commenced at Kirkland's Fosterville mine (now running at $1.2 billion a year), which is close to the northern component of the Investigation area and close to Bendigo.



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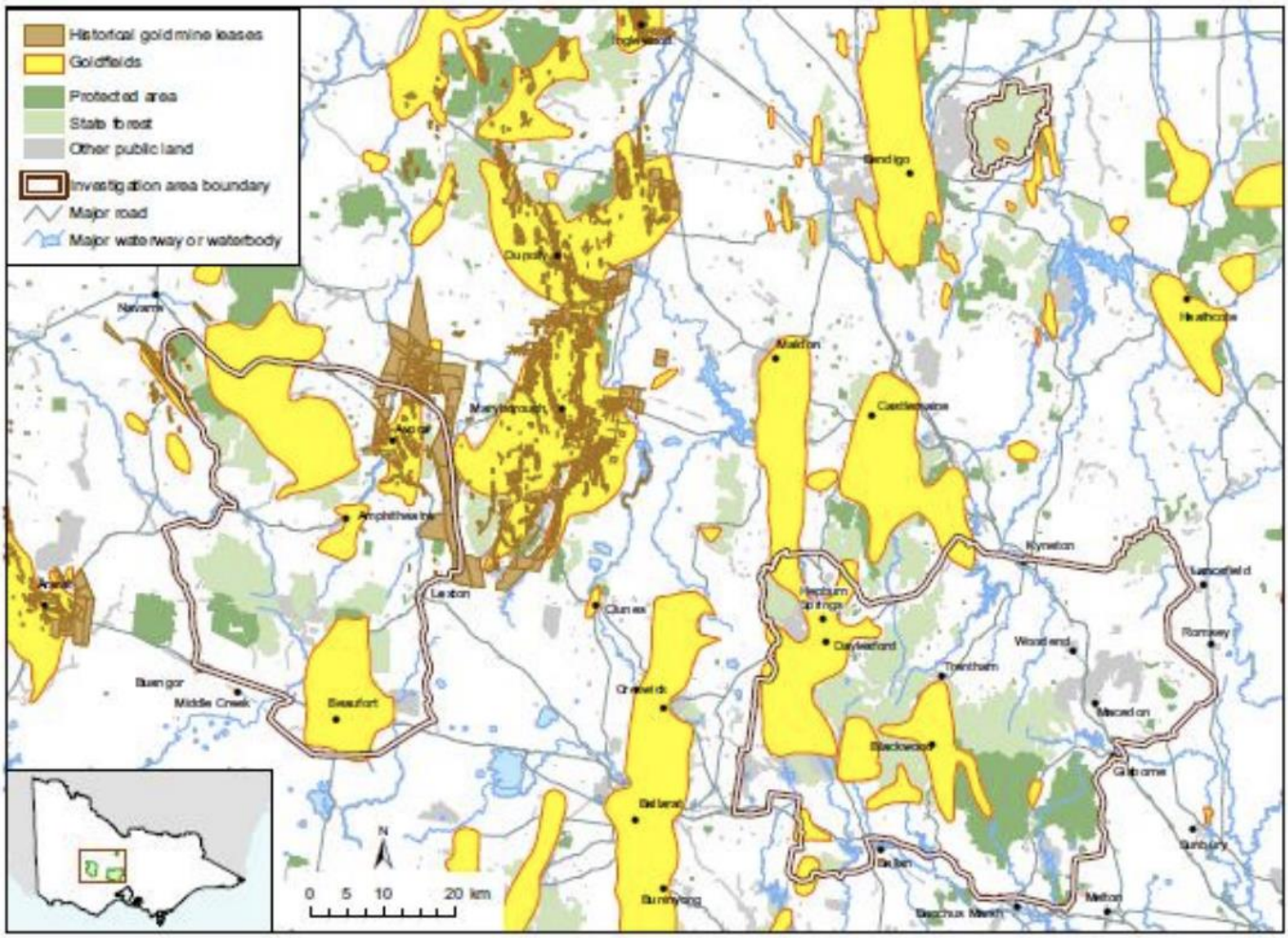
If restraints had been placed on exploration and mining in the area of the Fosterville mine, part of which actually extends into the proposed National Park in the Wellsford, that hidden value would not have been discovered, still less mined, foregoing the revenues this brings in terms of wages, contractors' work and supply of other inputs (including some $30 million from royalties plus other income from payroll tax to state government revenues). Direct jobs of local employees and contractors at the mine number 570 with 110 at another newly re-opened mine at Stawell.

The area is called the Goldfields because it has high prospectivity. The Wombat area alone has hosted over 40 major mines over the past 150 years, many doubtless of considerable additional value using modern exploration and extraction methods. Discouragement of

mining over many years and a low gold price meant that production over the course of more than a century had plummeted until recently. Even so, valuable finds continue to be made in the area by amateur prospectors using detectors – one nugget worth $160,000 was found in July of this year, inside an area to be excised from mining and prospecting activity.

The Fosterville mine has led to an upward revision of the previous low confidence in the area's mining prospectivity. VEAC itself recognises the enhanced possibilities in saying, "New geological modelling suggests that there could be increased gold potential at depth particularly in the Wellsford block." The grade of the mine's gold is 30 grams per tonne, 10 fold the 3 grams per tonne level that is usually regarded as economic. The grade of ore at the mine is actually among the highest in the world surpassing that of the second richest mine, Macassa South in Canada (also owned by Kirkland), which has a grade of 22.2 grams per tonne. The reported reserves at Fosterville are 2.7 million ounces, which would be valued at $6.2 billion. In royalties alone, at the 2.75 per cent royalty rate, that means over $170 million to state revenues). There is every likelihood that further reserves will be proven up.

With respect to the area's potential, VEAC's Map titled, "Historic gold mining areas in the investigation area", appears on page 22 of its Draft Proposals Paper and page 25 of the Gillespie Report.



Note: The historic gold mine leases layer (obtained from the Victorian Spatial Data Library) displays expired gold mining leases from the 1860s to 1958. The goldfields layer displays spatial information compiled by the Geological Survey of Victoria in 1993 and supplied to VEAC by the Department of Primary Industries in 2012.

Source: VEAC (2018), p. 22.

This map purports to show that there has been little or no goldmining activity in the Central West Investigation area from the 1860's to 1958 and therefore little likelihood of developing a productive mine. It supports the assertion that the expected "reduction in mining is not quantified but NEGLIGIBLE."

The map raises a few issues:

- Why are the leases shown only until 1958? That was 61 years ago. It would have been more informative if the map showed current Exploration and Mining titles which would illustrate present-day level of interest and investment in the area. VEAC's proposed parks might also have been superimposed over the remaining goldfields to illustrate how much (and how little) will be left.
- The map indicates there has never been any mining leases in the Bendigo, Castlemaine, Maldon, Clunes, Daylesford, Blackwood, Creswick, Beaufort, Heathcote and Ballarat goldfields. Some of these areas have historically been among the

world's richest gold fields and there is ample material on their historical developments[3].

- Many of the goldfields on this map are in Parks and are already exempt from prospecting and mining.
- Many of the goldfields on this map are on private land and generally off-limits to prospectors, diminishing the claim of a high number of "substitute" areas being available.
- These goldfields were specifically reserved as Public Land because of their high prospectivity.

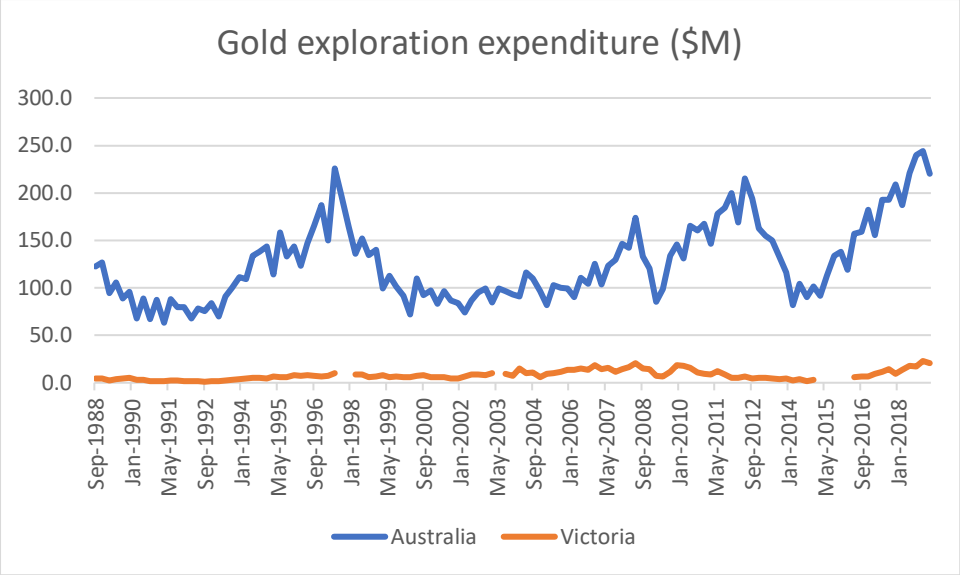
Incongruously, Gillespie maintains that the above map, "shows that the majority of the identified goldfields in the investigation area lie outside the State Forests". Actually, the map shows that mining would be excluded from over 90 per cent of one of Victoria's most prospective areas:

- 100% of the largest block of State Forest, the Wombat-Macedon State Forest (48,611 h/a) is to become Parks. Government records detail the large number of rich goldfields in the Wombat-Macedon State Forests.
- 100% of the Wellsford State Forest (7,340 h/a) is to be lost. This is where the gold mine at Fosterville has been developed and exploration shows valuable reserves going under the Wellsford State Forest.
- 80% of the Pyrenees State Forest with its history of goldfields is also to be lost to prospecting and mining.
- The map shows that the Mt Cole State Forest, almost the only area to remain permissible for prospecting and mining, is OUTSIDE the known goldfields though the report claims it to be of "High Substitution" for prospectors and miners.

The Regional Forest Agreement of 1999 estimated 560 tonnes of gold was mined up until 1988 in Central West Victoria and the GeoVic contains a record of mines and their production.

Exploration activity has responded to higher gold prices and in Victoria is now, at around $20 million per quarter, five times its level of 5 years ago.

[3] 40 mines are listed in just one part of the Wombat in *The Lerderderg Yesterday and Today: A Field Guide History*, Friends of the Lerderderg, 2001.



In the Central West Investigation area itself, required minimum expenditure from the 42 exploration licenses – over 20 per cent of licenses in all of Victoria - was $735,000 last year. The **actual** spending is much higher – at around $9 million, assuming they represent 20 per cent of the reported aggregate $44 million spent across the state. One licence holder, having gradually targeted the more promising areas for search, has budgeted a $2.25 million per year program for the next four years. This spending is in spite of the expenditure-dampening Damocletion Sword the Investigation presents. The spending boost reflects the enhanced interest in the area stemming from the Fosterville success as well as recent prospector finds.

In addition, required spending on mining licences within the area is a minimum $6,880,000 per year. It is likely to be at least twice this.

Private spending clearly reveals the area to be considerably more prospective than the consultants' estimated 3.9 per cent chance of a valuable mine. Indeed, the Minister, Tim Pallas has taken a far more optimistic position than VEAC's consultants. Pointing out that exploration activity was up 79 per cent in the year to March 2018, he said (Press Release 28 August 2018) his target was, "at least one significant discovery by June 2023". Even if this were conservatively interpreted as being tenfold the consultants' estimated likelihood of a major new discovery (i.e 36 per cent with a 9-year gestation time) this would mean foregoing NPV wealth of $1.6 billion. Should there be only one such discovery in the Minister's target period, and this was producing within another four years, the NPV of the mine would be $4.5 billion. (For reference, if the Fosterville mine, were to continue producing at its current rate for ten years, at a gold price of $2156 per oz, its NPV is $8.6 billion). In fact, there is also a great chance of a series of small discoveries in the area to be closed off.

Miners and prospectors would take little solace from the consultants' statement "areas of higher prospectivity have been retained in Regional Parks". Conversion of a find to a mine is uncertain in such areas in any event. Entrepreneurs and their financiers would, on the basis of past behaviour, not accept assurances that existing exploration licences and their conversion to mining licences would be protected.

One highly conservative estimate, based on the 20 per cent of the state's Exploration Licences that are in this area, is that the proposal would deny $900 million (20 per cent of $4.5 billion) in NPV terms from a major mine alone. But the effect would be much greater. It would also prevent the discovery of smaller mines (the target of most exploration expenditure) and it would deliver a message of discouragement to exploration across Victoria. Accordingly, a reasonable estimate of the loss in mining from the reclassification is twice the $900 million probability loss from just one major mine, or $1.8 billion.

Those involved with mining are concerned that the management of Regional Parks, even if mining were permitted, may be transferred to Aboriginal Title . The VEAC 2016 *Statewide Assessment of Public Land* mentioned 80,000 hectares given to Indigenous groups and this has since been expanded, particularly with the Tuangurung settlement in 2018, under which 11 per cent of Victoria's landmass was given to the 3,000 Tuangurung people, with caveats on its use, including preventing its sale.

Exclusion of prospecting has already taken place in 13,500 hectares around Bendigo because of the Dja Dja Wurrung Joint Management Plan. The potency of which has been reinforced by forms of Aboriginal Title and management. Minister for Resources Jaclyn Symes has announced some areas previously closed to mining/exploration are to be opened. However preference will be given to applicants that can demonstrate a commitment to engaging with Traditional Owners and boosting local jobs will be favoured in a major release of ground for gold exploration by the Victorian Government.

Moreover, there is no certainty that the high prospectivity zones have been identified. Many question whether VEAC or its consultants have the expertise to make judgements about prospectivity (and the recent discovery of a $160,000 nugget would support such doubts).

The consultants assign a net loss of value from prevention of prospecting at $1,364,000 in present value terms. This is lower than the gross loss because it is assumed that prospectors will move to other areas that they rate similarly to the areas lost to them. But such areas are little consolation: the Central West is seen as having high potential. This area accounts for

20 per cent of the Victoria's Exploration Licences and any further constraints on mining activity that might emanate from the Investigation will have a dampening effect on additional exploration activity elsewhere in the state. Conservatively, this puts the annual loss of activity at some $9 million for exploration and $14 million for mining itself.

Prospecting for gold is an activity, like fishing, hunting or even playing the pokies, that consumers consider gives them benefits partly because of the social/relaxational nature of the activity itself and partly because of the potential it provides for windfalls. With regard to the latter, actual value is difficult to estimate since prospectors are often reluctant to divulge a find for reasons that include wishing to preserve the benefits for themselves. Nonetheless, this and various health benefits from prospecting aside, in one day in July 2019, it may be that over four per cent of the consultants' 20 year assigned value of prospecting was earned in the area from the one $160,000 nugget find. The on-going activities of thousands of prospectors and fossickers using increasingly accurate equipment is a strong indication that such finds are not isolated incidents.

The loss, aside from not taking into consideration the lower utility that all prospectors will receive as a result of being excluded from the Investigation Area is clearly understated, and is many times the consultants' estimate.

Timber-getting

Already, there are heavy restraints on use of the State Forests for timber. Thus, the supply available for timber getters to use has seen a reduction to the identified

- sawlogs: a total volume of 2,000 cubic metres to six licensees
- fencing timbers: 2,200 cubic metres to 12 licensees
- woodchop logs: 2,200 lineal metres to two licensees
- commercial firewood: 8,000 cubic metres to 19 licensees
- commercial firewood residual from sawlog harvesting: 2,550 tonnes to one licensee;
- bark: 400 cubic metres to one licensee
- wheel hub logs: 400 lineal metres to one licensee.

Regulatory measures have meant that the 14 sawmills previously operating in Western Victoria have been reduced to just one – and that is under threat from the VEAC proposals. Sustainable harvesting is about twice the current level according to VicForests, indicating that an economic cost is already being incurred by present management policies. But this is a minimum level of potential expansion. The VicForests Area Statement in 2014 deemed that only six per cent of the publicly owned native forest was being made available for harvesting.

That amounts to about 186,000 hectares out of the total 3.1 million hectares in all Victorian public forests. For the Wombat/Mount Cole areas sustainable yield was estimated at 12,100 cubic metres but, according to the Departmental Review of Forest Management in Western Victoria, government policies and regulations permit harvesting of only 1,000 cubic metres.

VEAC's consultants identify a loss of 163 jobs from the reclassification of State Forests into National Parks and other conservation reserves in the Central West Investigation area. They say that some of these may remain if the wood can be sourced from other areas. Such soothing statements offer little credible assurance since they are made in the context of a progressively reduced availability of timber stemming from regulatory measures over several decades.

The consultants place the timber values lost to be only equivalent to lost payments to the government. This is a gross understatement, comparable to saying the $68 billion a year that the Western Australian iron ore industry contributes to that state's gross state product is worth only the $4.8 billion accruing as royalties. The consultants further discussed the issue under "regional impacts" but set that impact as being negligible, with the only cost attributed to ceasing timber production being the net present value of $14.6 million attributed to lost VicForest sales revenues. The value of the log processing and wood products manufacturing components of the timber industry, which operate outside the forest, dwarfs the value of log sales.

Some indication of the overall beneficial effect of the area's timber for State wealth can be gauged from the 2017 Deloitte Access Economics report, *The economic impact of VicForests on the Victorian community.* That report found,

> "In 2015-16, VicForests operations generated $112 million in revenue via the sale of native timber. This native timber is sold to customers across Victoria, including sawmills, paper mills and firewood retailers. These customers collectively are estimated to generate $657.9 million in revenue."

Thus, the value to Victoria was sixfold the sales value of the timber cut – some $770 million. Applied to the Central West at the $14.5 million value assigned to the activity by the VEAC consultants would place its valuation in terms of Gross State Product at $87 million using the 7 per cent discount rate.

In addition, there is the value lost from to be outlawed domestic firewood collection, the net present value of which is put at $5.6 million. This estimate is made on the basis of only half of the assessed market value of the wood. There is no case for halving the value of this firewood

collection and, indeed, to the degree that its collection has additional leisure values, its value might well be set at above that based on its market price. The consultants' estimate of value does not include the "consumer surplus" that is enjoyed partly because of the social nature of much wood gathering. A conservative value of the net present value (7 per cent discount rate) of firewood collection would be at least $12 million.

VEAC's consultants estimate 163 jobs would be saved by retaining the 60,000 hectares as State Forest. The restoration of the sustainable logging levels, as agreed by the Bracks/Howard year 2000 RFA, which envisaged a rate of usage tenfold that presently allowed, would therefore mean a total of at least 800 new jobs.

Grazing

The report assesses the NPV of forbidding grazing at about $100,000. This involves terminating 60 licenses in 183 hectares.

Grazing availability has been progressively reduced under the current regimen. As with timber getting, the consultants consider the value to be only that paid to the government (less costs of administration). This undervalues the activity perhaps tenfold.

Recreation

The consultants cite the consumer surplus value from recreation added at up to $686 per visit with the average being $31. They assumed this this range of consumer surplus per visit at

- Camping - $45/visit
- Dog walking - $10/visit
- Horse riding adjacent - $20/visit
- Horse riding non-adjacent - $40/visit
- Recreation hunting nonadjacent - $90/visit
- Prospecting - $330/visit
- Dog sledding - $200/visit
- Car Rallies - $200/visit.

They compile a table assessing the substitution likelihood and judge, based on intuition, that the loss is 80% for low substitution activities, (dog-sledding); 50% for medium substitution activities, (horse-riding); and 20% for high substitution activities, (dog walking, prospecting and hunting). Overall the NPV lost is assessed at $2.3 million.

That loss is understated in the context of the supposed value from greater environmental protections since it assumes that no "consumer surplus", the utility buyers obtain over-and-above their expenditures. Moreover, the numbers of visits to the area (8,915 per year) is considerably understated and might in fact be tenfold that level.

The Assessment

There is no added value from converting the designated 77,000 hectares of State Forest to National Park and other more restricted categories. But losses in net present value terms would likely include:

- $1.8 billion on a net present value basis from mineral extraction plus $23 million per annum from other exploration and mining activity (an NPV of $245 million); the area also makes a contribution towards creating Melbourne as a "global" mining city
- $50 million and possibly $200 million annually from logging and firewood collection; that is an NPV equivalent of at least $530 million
- A minimum of $22 million (based on 40 per cent reduced usage) and likely twice that once the congestion costs on other areas is included, in lost value to prospectors, horse riders, dog walkers and sledders, hunters and car rally enthusiasts. This is an NPV equivalent of $230 million.

On present value terms, the net loss to the community of reclassifying the 77,000 hectares using a 7 per cent discount rate would therefore be at least $2.8billion. This would translate into over 1,000 productive jobs foregone. In addition, there would be increased fire risk and associated costs.

The values of alternative policy actions are dominated by the value of mining; the finds on which this is based will not be known if mining, mineral exploration and prospecting is forbidden and are less likely under any regime that changes the present mineral exploration arrangements.

National Parks or other restricted use presently covers 22 per cent of the area, which would become 91 per cent under the VEAC proposal. Rather than restricting usages, the community would see enhanced benefits if multiple uses of the land were to be restored. This would retain options for wealth generation from discovery of major mineral values. In addition, it would provide an estimated $700 million gain – pro rata the benefits of those that would be lost if the VEAC proposal is accepted. Those gains are from allowing leisure activities to continue, including horse riding, dog walking, gold prospecting, fossicking, four-wheel driving, hunting, and camping, and enabling revenues to be earned and jobs and wealth enhancing activities to continue through grazing and logging.

That conversion of National Parks to State Forest would also save taxpayer's management costs by assisting with elimination of feral animals and vegetation control. National Parks will eventually burn wildly, at a cost of human lives and destroying adjacent homes and farmland.

ATTACHMENT 1. Mining, mineral exploration, prospecting and land use

Comments by David Bentley of the Prospectors and Miners Association of Victoria

Mining in Victoria

Before the year 2000 Melbourne was an international centre for the minerals industry.

It was home to many of the world's largest minerals and energy companies and many of Australia's minerals research institutes. This included a pool of experienced exploration geologists and experienced professional mining personnel who ran some of Australia's largest and most profitable companies.

The companies contributed many millions of dollars into the state budget through head offices, recruitment, sponsorship of industry initiatives and the attraction of supporting engineering, legal and finance industries and tertiary education facilities in minerals related areas.

Much of this activity was of great benefit to areas of regional Victoria which had few other opportunities for skilled, well paid employment. Even now the Bureau of Statistics shows that in May 2018 employees in the mining industry have the highest full-time earnings at $2592 whilst the lowest is the Accommodation and Food Services industry at $1136.

As pointed out in a submission by Robin Widdup from Lion Selection Group to a Victorian Competition and Efficiency Commission's Inquiry, "Ten years ago Melbourne was the world's leading mining finance centre and Australia was a global centre of mining and exploration. Melbourne's premier global position in mining finance has been lost to London for large companies and to Toronto for small and medium size companies. Access to finance for Victorian mining and exploration companies has been damaged by this change."

It is hard to understand why the Victorian Government today is so determined to shackle our wealth-creating mining industry.

Indeed, the Victorian Chamber of Mines in a submission to the ECC regarding the creation of new parks said *"Many companies regard the regulatory environment and the complex and time-consuming application processes as too restrictive. Investors consider that exploring in restricted and exempt areas is a waste of money. In evidence of this the Chamber notes that the major international companies such as CRA, WMC, MIM and BHP withdrew from working in Victoria due to land access difficulties. The Chamber has in the past received several letters*

from these mining companies explaining their reasons for withdrawing from Victoria and will make these available to the Council."

In the Victorian Governments Economic Development and Infrastructure Committee's (EDIC) "Inquiry Into Greenfields Exploration and Project Development in Victoria" report of 2012 the overwhelming opinion from National and International companies, large and small, was that "Victoria is Closed for business". Page 94. There is factual information on the wealth and employment generated in Victoria which has been ignored by this Central West Investigation. The 325 pages of this report highlight the enormous challenges faced by industry and at the heart of them are the very problems caused by the anti-mining culture being perpetuated in the VEAC and Gillespie reports. Highly recommended reading for any decision-makers before they consider accepting VEACs recommendations.

Victoria's known historical production is 80 million ounces over 150 years. At today's gold price that is well over $1.1 billion per year. Most of this wealth has come from the western side of Victoria, including the Central West Investigation area. Large amounts of alluvial gold have also been produced but not recorded.

In fact, the Fosterville mine alone is now producing $1.2 Billion per year and rising steadily. This Fosterville project was held up by a VNPA campaign to "save" an "endangered" bull ant known as Myrmecia 17. After an expensive and time-consuming search, the bull ant was found to be quite common. It is however cynically being used again in the latest VEAC Investigation as still being endangered and another reason to "protect" more land in parks.

The Fosterville mine on Mining Licence 1868 also had trouble with timely approvals for operation where pits already existed. It took almost 10 YEARS for the land swap to be finalised due to bureaucratic delays.

On pages 5 and 24 of the Gillespie report we note VEAC's "generous" concession to allow Exploration Licence holders to complete their work in potential new parks and convert their licences to mining licences. However, they well know that conversion to a mining licence under Section 40 of the National Parks Act is practically impossible as evidenced by the zero number of applications that have been successful.

But despite this Gillespie asserts that "Because existing licences are allowed to continue after park establishment, the VEAC recommendations will not impact any imminent proposals. Using an expected value approach, the impact of VEAC recommendations on gold mining values is likely to be minimal."

The Gillespie Report states that the amount of gold foregone by the imposition of new parks will be minimal based on their own formula of “probabilities”. 169 years of accurate government and industry records of past production and future potential are readily available but clearly could not be found by VEAC or Gillespie. Regional Forest Agreements provide comprehensive Mineral Assessments, Social Assessments and Economic Assessments of the areas under investigation free from the environmental activism, social engineering and obsession with Aboriginal issues that pervades the whole VEAC Central West Investigation.

We consider a more realistic assessment would be provided by simply asking the major exploration and mining companies who have committed to spending their time and money on scientific and practical research in the area. And also consider the many millions of dollars the State Government has spent on Initiatives and Projects to foster geological knowledge and promote investment in the Central West area. See chapter 8. p29 EDIC report for details.

There is a high likelihood of a new major goldfield being found and this could well be in areas proposed to become exempt land. The Fosterville find was unknown until only a few years ago and the prospective area of their lease goes under the proposed new Wellsford National Park.

It is the nature of exploration that ever -improving technology, changed market conditions and the need for new minerals mean that several cycles of exploration may be required to define an economic prospect. It is not true to assume that when an area has been explored once that it has no future potential.

Areas that are mined in one generation may become the target for mining by future generations as technology improves and new minerals are found. It is obvious that the mining sites of the last century are also the mining sites of the present day. The same may be expected in future centuries as those societies will need access to minerals and extractive materials to allow them to function effectively. It is short sighted and selfish of VEAC to permanently prohibit access to areas without even a basic mineral assessment being done to see what is being denied.

A practical, well managed, multiple-use management system for our forests is essential. Locking up land in National Parks is a failed system of the past that will not satisfy the social, economic or conservation needs of future societies.

Virtually all of the Central West Investigation Area has a history of successful gold production EXCEPT the Mt Cole block which is virtually barren. By strange co-incidence this is almost the only section of the whole Investigation area that VEAC recommends to remain as State Forest (11,901 hectares out of 161,215 h/a of public land) in which prospecting and mining will still

be allowed. VEAC's own map on p.38 Draft proposals paper and also used in the Gillespie report p.25 show the goldfields to be nowhere near the Mt Cole State Forest. Page 41 shows that prospecting is NOT a recognised use of the Mt Cole State Forest.

Gillespie's report table 3.4 page 27 claims that there is high substitution potential for the 60,000 h/a of goldfields to be excluded from prospecting access (and possibly much more depending on the management plans for the 19,728 hectares of Regional Parks and the expected number of visits per year impacted will be only 333. The consultants clearly have no grasp on the reality of prospecting numbers. The report fails to say where these substitute areas are or the value of the gold that will be left in the ground.

Gillespie page 8 and others. "areas of higher prospectivity have been retained in Regional Parks where prospecting remains PERMISSIBLE. Hence impacts on regional economic activity are not likely to be significant." VEAC well knows that when new parks are proclaimed, they are proposed to be granted as Aboriginal Title. When Hepburn Regional Park and 5 other parks were transferred to the Dja Dja Wurrung as Aboriginal Title the first thing they did was to exclude prospectors from another 13,500 hectares of goldfields.

The total value of gold found per year by prospectors is not known but at $2,200 an ounce it is an important supplement to the incomes of many people who live in the region. The Gillespie economic Assessment on page 10 shows that the Pyrenees has a higher proportion of low household incomes with a median of only $876 compared to Victoria's average of $1419. There is something wrong when some of the poorest people in the state are living in the best goldfields in the world and we are not allowed to even consider developing them.

The Gillespie Social and Economic Analysis on page 5 and p.7 states that the main extractive uses that will be impacted by the VEAC recommendations are timber harvesting, firewood-collection and grazing. On page 53 there is a short list of "Regional Impacts". Mining doesn't even get a mention as being affected in any way. However, there are concerns about dog sledding, wood-chopping and timber for Sovereign Hill which are apparently the most important issues for the regional economy.

Multiple uses of land

"PRINCIPLE 1 of The MONTREAL PROCESS addresses this issue of inter-generational equity. That is, that forests be managed to meet present needs without compromising the ability of future generations to meet their own needs. It provides the context in which principles 2 to 9 must be considered."

“PRINCIPLE 2. The basis of this principle is the promotion of forest-related economic activity which is consistent with the maintenance of the environment and satisfaction of the socio-economic requirements for income, employment, goods and services. Implicit in this principle is the optimum use of the forest economy’s capital stock (human, man-made and natural resource capital) through management to maximise the long-term welfare or benefit of society in terms of goods and services it requires. The forest economy covers timber and other forest products and uses, water supply, minerals, grazing, recreation and tourism. “

Also, under the Janis Criteria and the Comprehensive, Adequate and Representative Reserve System (CAR) there is flexibility to allow for Social and Economic considerations to be taken into account in the establishment of new reserves. Indeed, the Janis Criteria’s benchmarks are aspirational targets only and not mandatory. The CAR system’s provisions note that ,“15% (since increased to 17%) of pre-1750 distribution is seen as a desirable objective; however, some flexibility is both acceptable and desirable. For instance, where socio-economic impacts are not acceptable.”

Even if we accept that putting vegetation back to VEAC’S computer-modelled pre-1750 extent is even possible, their proposed additions to the CAR reserve system are unnecessarily above and beyond that required by the Janis Criteria. On page 53, Draft Proposals paper, VEAC states that “In total at least 37,400 hectares of protected area additions would be required to meet these benchmarks”. However, in the Final Recommendations VEAC has added more than 58,000 hectares to the protected area system. This is imposing unacceptable social and economic costs on local communities.

From page 1 of the Convention on Biological Biodiversity summary. “The protected areas can include not only strict protected areas but also protected areas that allow sustainable use consistent with the protection of species, habitats and ecosystem processes”. To meet VEAC’s targets, areas do not need to become National Parks…, Special Management Zones, Special Protection Zones, Informal Reserves and covenanted private land can all be considered when calculating protection of EVC’s. This would result in the required level of protection whilst still allowing necessary productive and recreational use of public land. Almost all Public Land, except that used for utilities and roads, still retains its vegetation cover, it is the re-vegetation of EVC’s on cleared private land that needs to be encouraged and funded if necessary.

Gillespie Page 11 “The magnitude of conservation values may be diminished by extracting timber”. Or they may not. The timber industry would argue that a working forest is kept in much better ecological condition by allowing the extraction of timber and forest products.

Page 13. The Total Economic Value. The Non-Use values listed can all just as easily be obtained from State Forests, not just obtained if the area is re-named as a park. Therefore, the Non-Use values cannot be realistically claimed to be greater than the Use values.

P.28. “For simplicity, it is assumed that the costs of managing the forests for conservation (i.e. as VEAC’s recommended protected areas) would be roughly equal to the cost of managing it for timber.” Given that the whole focus of this investigation revolves around removing the timber industry, it would be preferable to assemble facts on which to base an “Economic Analysis.” These are easily obtained from the timber industry and government sources.

P 31 and P33. Additional protection for Aboriginal sites is claimed as a benefit. However, all Aboriginal sites are already fully protected under current legislation, even in State Forests, so no added benefit should be claimed.

It is difficult to see how Gilllespie can value the unspecified and unproven “Benefits to Biodiversity” at $270 million, when the Management Plans for the proposed parks haven’t even been drafted.

They cannot know how the proposed parks will be managed or how much funding will be available, or even which activities will be allowed under the new Land Managers Discretion. The recent Dja Dja Wurrung Joint Management Plan, which will be extended to these Parks if the Recommendations are accepted, excluded a whole range of previously allowed activities. Pages 38, 39 etc., DDW Draft management plan.

There are numerous reports of Parks Victoria having funding cuts of between 29% and 37% since 2012 and a reduction in staffing levels. Consequently, there has been a consistent failure to meet minimum fuel reduction burns and minimum track maintenance targets. Staff morale is said to be low. Feral animals are running wild and weeds are taking over.

With the removal of the industries that can provide a healthy State economy, how are the new Parks going to be adequately funded to provide “Benefits to Biodiversity”?

THERE MUST BE A BETTER WAY.

ATTACHMENT 2: Attempting to place a value on unpriced goods

Public goods provision

In principle, efficiency is achieved when units of each homogeneous resource yield identically valued returns on all uses to which they are put. But, even if measurable, this equilibrium can only be momentary as new uses are discovered, new tastes emerge and new pieces of information are revealed. Once we step out of the framework of willing buyers contracting with willing sellers, we are entering territory for which no determination of efficiency is possible.

In addition to the difficulties of determining when it might be efficient for government to take a direct role, diminished incentives to provide services cheaply, which is inherent in government production counsel for its powers to be used sparingly if the economy is to make efficient use of its resources. Even where it might be demonstrated convincingly that a regulatory intervention could produce a positive welfare outcome, caution is appropriate. It is far from certain that the outcome will correspond to that predicted. The rewards facing the manager in the public sector differ from those of the private entrepreneur. The private entrepreneur also has no capacity to use compulsion instead of seeking out willing buyers and providers of input.

The diminished incentives to the promotion of efficiency through public provision compared with private sector provision stem from:

- the absence of a true market which means that the needs which governments seek to fulfil are inadequately known - no true price can be set where customers do not make choices based on sacrificing some of the myriad offerings confronting them,

- the public sector manager not being obliged to confront the need to make a profit after all claimants who have contributed to the production of the good or service have been paid; as a result, the stimulus to minimise costs, economise on information searches and seek out improved ways of meeting needs is severely compromised; nor can the unsuccessful public sector manager be replaced as readily as his private sector counterpart whose firm, were it to show a less than efficient use of resources, would earn an

inadequate return on its assets and face the prospect of takeover or bankruptcy

- decisions on trade-offs in the public sector being likely to follow the relative strengths of the interest groups concerned, strengths which may not - indeed are unlikely to - reflect the forces which have generated market efficiency, namely willingness to pay, willingness to supply and rivalry which motivates firms to supply (and purchase) as cost effectively as possible.

With all this in mind, it is useful to require a premium well in excess of that considered to be potentially available before government intervention to produce public goods or correct adverse externalities is agreed upon.

Establishing costs and benefits for the provision of public goods

Mishan, a pioneer in the discipline of public goods provision, argued, "Instead of asking whether the owners of the enterprise will be made better off by their firm's engaging in one activity rather than another, the economist asks whether society as a whole will be made better off by undertaking this project rather than not undertaking it, or by undertaking, instead, any of a number of other projects".

Where provision of a public good is contemplated, benefits are estimated by examining first how much more cheaply will the project allow existing demands to be provided; secondly, what new demands will be generated by the lower cost and how much are these valued over and above the expenditures foregone.

These benefits, discounted for time and with risk factors introduced, are compared with the costs of the project, again discounted for time and risk.

Because benefits are assessed from summing the total value consumers gain from a project, cost-benefit techniques will overstate the value of a project in comparison to value determined by market economics. This is because market provision is at a common price. Many – indeed almost all – buyers will obtain benefits in excess of that price. If, for example, the price of Mars bars was $20, rather than $5, some buyers would pay the high price, yet the consumer satisfaction over and above the $5 standard price is not measured. In the case of public goods, the attempt is to measure the full extent of the values estimated by consumers. Hence, the assessed value of the public goods will be relatively overstated.

Aggregate demand for public goods

It is not possible to determine, even in an aggregate sense, the degree to which people prefer to trade off more private goods for more public goods. It is only possible to say that some public goods are required, that their provision requires fees to be levied (or cost amplifying regulations to be imposed) and that people will therefore place a progressively diminishing value on them. In general, people may be prepared to sacrifice private goods for public goods, the more of the former they have and vice versa.

We can never be certain of the direct effects and can do little more than guess about the secondary effects that the imposition of a tax (or regulation) might have on the production of private goods. But a body of statistical knowledge is available on demand and supply elasticities, responses to taxation and interlinkages within the economy. This allows an attempt to measure whether a change in policy is desirable.

Cost-benefit analysis applied to natural resource development

Much of the literature on environmental issues attempts to determine the value attributable to non-development. Commonly that value is assigned three components:

(i) Use value. This incorporates the value which people actually place on the facility. Ways of estimating this have most frequently employed two means, hedonic values and travel costs. The hedonic approach attempts to measure changes in property value resulting from some other change. Applied to noise, comparisons can be made between house values in close proximity to freeways or airports with similar stocks of housing elsewhere. However such measurements are highly uncertain since development often brings benefits as well as costs and to attempt to factor all these into the decision will be computationally impossible. Nonetheless, applying hedonic techniques can be used as one means of guiding decisions on what might or might not be done by government in the interests of the community as a whole.

The travel cost methodology, using, for example, costs to reach a favoured recreation area, suffers from somewhat greater deficiencies. In a sense all that is being measured are some of the costs entailed in the total package of utilities sought. Using this approach, it would be equally applicable to incorporate the travel costs of reaching a holiday hotel or of driving to the supermarket within the total value of the sought-after goods and services. A value based on the costs which are incidental to the enjoyment of the free targeted goods and services places only a lower bound on their overall value.

More importantly, unless we undertake the same calculation for market goods and services, it can tell us nothing about what value we place upon the non-market goods and services relative to market goods and services.

(ii) Option Value. By deferring usage of something valued today, we may obtain greater value for it in the future. The tapping of an expected option value is the traditional function of the speculator who reserves goods from immediate usage in the expectation that society will value them more highly in the future. As Friedman demonstrated the speculator performs a useful function, akin to that of insurance, by reducing intertemporal differences in price.

Speculative demand for land which has attributes of unspoiltness is likely to increase the amount of land held back from development if that development is considered to be irreversible. Speculators do this with knowledge of the opportunities for income, that is for supplying peoples' needs, which are thereby foregone. It is doubtful whether governments can replicate this efficiently.

Option value may merely reflect the expected value of future rather than present uses. Obviously, the generation of more information will allow the option to be better understood and improve decision making but economies are necessary in allocating resources for this purpose. It is always plausible to argue for delay in following a particular course while its imperfectly understood ramifications are further explored. But to do so brings time costs in postponing its benefits. It might even generate immediate losses where the denial of a new use means the continuation of more harmful existing practices. Moreover, the generation of information about whether something should be preserved will often require some 'development' in order to obtain that information. And if it is to be preserved for use, rather than non-use, that use, say tourism, will itself constitute development.

Closely related and treated here as part of option value is bequest value. Leaving things unspoiled for future generations to enjoy may be an appropriate approach but, if so, it is one which is more properly subsumed within the notion of option value.

Option value is often used in another sense. It may be regarded as the price people with no intention of making use of a good will pay for the option of using it.

(iii) Existence Value. The fact that something exists even though of no foreseeable use is considered by many to be an attribute of value.

An important matter in examining unwelcome outcomes that are avoided by preventing development of a tangible area of land is consequent outcomes created in other areas. This might include additional congestion at the next best preferred location leading to its diminished value to all. It would doubtless involve increased costs (including transport and associated environmental costs) and diminished satisfaction from the diversion of demand to the less preferred location.

Contingent valuation of use and non-use

Contingent valuation seeks to elicit people's preferences by finding out what they are willing to pay. Commonly, questionnaires are devised, describing the goods under scrutiny and asking how much respondents would be prepared to pay. The techniques of market research are well known and used extensively both in business and politics. In politics however they rarely attempt to quantify how much voters are prepared to pay for a measure that is favoured.

Shortcomings of contingent valuation methodologies have long been apparent.

With regard to non-use values, Freeman surveyed a dozen studies. He cited a study by Samples, Dixon and Gowen (1986), the findings of which were that respondents would be prepared to pay $35-60 each for the preservation of the humpback whale; in another study, people were prepared to pay $4-6 for the preservation of the striped tiger minnow, which has no recreational value, and $10-75 for the bald eagle.

Some of the difficulties of attempting to assign values in this way are exemplified in a study by Tolley and Randall. Researchers inquiring in the Chicago area about the value of preserving air quality in the Grand Canyon expressed the question in two different ways:

(1) For the Grand Canyon alone, after respondents had been shown photographs

(2) As part of a three part sequence which sought values

for cleaner air in Chicago, in the Eastern United States and in the Grand Canyon.

In the first study, the value for clean air in the Grand Canyon was $90, whilst in the second it was $16.

The Resource Assessment Commission's (RAC) Inquiry into mining in the Kakadu Conservation Zone was the first major Australian review to conduct a contingent valuation exercise to measure the value the Australian community would place on avoiding such a mining operation. The broad outcome of the exercise valued a veto over mining activity at $647m (net present value using an 8 per cent discount rate) over the ten-year life span of a mine which would, by assumption impose a relatively minor impact on the environment. This figure, if valid, overwhelmingly swamps the benefits that would be generated by any mine and the logical progression of the analysis would be to conclude that mining should not be permitted anywhere in Australia.

Among the specific deficiencies of the approach applied in the Kakadu case, it is was unclear what area is being valued - the one hectare of the mine, the Conservation Zone itself or the whole of Kakadu National Park. It could be argued that the areas are not separable in the services they provide. But this is not consistent with changes to the boundaries of the Park which have been made over the years.

The Conservation Zone was some 50 square kilometres of land which is well represented throughout the top end of Australia and had been subjected to previous mining activity and infestation by buffaloes. The Government spent less than $5 million in resuming the 6726 square kilometres of the two properties (Gimbat and Goodparla) within which the Zone previously fell. For this and other reasons, the outcome of the Kakadu study, that the community would be prepared to spend $647 million per annum on preserving 50 square kilometres of relatively undistinguished land, is beyond the bounds of credibility. It placed an annual rental value on the land of $130,000 per square kilometre - possibly ten thousand fold its market rate.

An alternative interpretation, that people would willingly spend such a sum on avoiding the development of just the one hectare, which constitutes the mine, is even more bizarre - it would value the land at several times the most expensive real estate in the world. It would, for example, value the hectare at 100 times that of prime Melbourne CBD land. Often, in what is called an embedding effect, people assign the same value to the small area of outstanding value as to the wider area in which it is located.

More recent studies do little to dispel uncertainties about the determination of the valuations. This is illustrated by examining the outcome of one of the most comprehensive and well-funded studies undertaken in Australia, that into the East Gippsland Forests

In that study, using the Choice Modelling technique, Bennett et al interviewed over 1000 households individually, explaining the nature and scope of the study and inviting them to place a value on an extra 1000 hectares of healthy river red gum forests, an extra 100 breeding pairs of parrots and so on. The valuations were as follows:

Sub sample →	Melbourne ($/yr/hh)	Bairnsdale ($/yr/hh)	Within region ($/yr/hh)
Attribute ↓			
Healthy RRGs /1,000 ha	1.45***	3.29**	0.0677
Parrots /100 pairs	4.39***	8.39***	3.96***
Cod /1% increase	1.02***	1.37***	1.09***
Recreation /campsite	-0.11	-0.85	-0.24

Significance levels indicated by: * 0.1, ** 0.05, *** 0.01.

Many of these values will be part of the compendium of option values, quasi-option values, vicarious use values, bequest values and existence values.

Multiplying these values by the numbers of households allowed the authors to arrive at a gross benefit of $6.5 million per annum (from which costs of reduced grazing, timber-getting etc would have to be deducted). Problems with such estimates include:

- Are people truthful; do they virtue signal? Is it really credible that people in Melbourne would pay $1 million a year for the uncertain knowledge that this would bring a one per cent increase in the population of the Murray cod?

- Would the same answers be given if the entire suite of environmental and unpriced goods were to be placed before the sample? Even if offering accurate answers on one issue alone, how do people react when asked how much they would willingly set aside for the thousands of such values?

- How much might the respondents discount the value of additional conservation in the context of existing levels of expenditure? Contingent valuation estimates must take into account the budget available to those expressing their value on a service and this is difficult to do.

- If those people remote from the area in Melbourne value the conservation at half of those close by, how much is the valuation worth for other people who are further removed - would the seven million other Australian households put a value of $1 per annum on the services, (in which case the aggregate value would double)? If 2 billion households around the world had a willingness to pay just 2 cents the annual value would jump by $40 million. If confined to Bairnsdale the estimated valuation would be about $200,000 per annum. Which, if any, of these valuations should carry most weight?

The measured values comprise benefit that consumers obtain from the non-use or restrained use of the environmental services. But this cannot be compared with the price paid in commercial markets where, in addition to the price actually paid, consumers also gain considerable surplus value. This is disregarded and an asymmetry is therefore in place which amplifies non-use values compared with commercially purchased use values.

Bennett himself outlines some of the deficiencies of the approach he champions

"At one level, the value of environmental assets is indisputable. Without those assets – the air, water, soils, biota – the survival of humanity is untenable.

"While the overall magnitude of the environment's value to humanity is not in dispute, the significance of that information in the formulation of decisions regarding the condition of the environment is very limited. Those decisions do not involve the loss of the total environment; rather, they usually involve trade-offs being made between benefits to people from using elements of the environment and costs to people resulting from that use of the environment. In other words, such decisions typically involve incremental or marginal environmental losses."

"These 'revealed preference' techniques are relatively well established in the economics literature and have been widely applied internationally. However, they are limited in their capacity to value the environmental impacts of choice because they rely on the existence of markets that are in some specific way related to the value in question.

For this reason, "stated preference techniques remain the subject of some academic, as well as policy, debate. Their foundations in people's stated intentions cause questions to be raised about the validity of the responses, while their capacity to convey sufficient relevant information for respondents to make well-informed choices is queried. Further, the ability of members of the general public to cope with the cognitive demands made by this type of questionnaire is also called into question". He adds, "The challenges facing economists in

estimating non-marketed environmental values should not be dismissed lightly. There are conceptual complexities involved as well as practical obstacles to be overcome."

Economic theory suggests that with each increment of a good that a person has, the value to that person of additional quantities of that good decreases. The different values when a good is in ample supply are illustrated by Bennett in the table below.

Single versus multiple choice format implicit price estimates

	Single binary choice format	Multiple binary choice format
Implicit price (A$/ha)	6.44	2.98
95% confidence interval	3.42 – 13.08	1.88 – 4.34
Notes: Implicit prices are one-off payments		

The foregoing illustrates the hazards of trying to estimate and to rely upon the values as measured even by the most careful studies. People are willing to pay for public goods but measurement is very difficult. Thus, people are willing to give to charity, even anonymously. But, as attested by the "third door knocker on a Sunday morning", they have a global budget and attempting to estimate this to ascertain the values for a particular environmental good is impossible. Governments gauge political and economic moves to set budgets for public goods, including environmental goods, but these are aggregate sums, even though they might be spearheaded by iconic features as in the case of the Tasmanian Dams in 1982. Households' funds for these purposes are not open-ended.

Examining actual behaviour and placing a value on it–as in the Travel Cost methodology–allows a summation of each person's outlays so that an aggregate level of consumer benefit can be established. However, although this offers a plausible estimate of the worth of an activity, it throws up bizarre results if we add the costs of transport to purchases of commercial goods and services. Travel Cost components can be considerable, as evidenced by this year's Spice Girls concert in London attended by people who travelled from Australia, thereby incurring travel and accommodation costs 50-fold the cost of the ticket's price and, therefore, "consumer benefits" of at least that magnitude.

About the author

Alan Moran has considerable experience in analysing the interface of regulation and economics. He has undertaken this activity within both government and "think tanks".

Within government, he headed up the Commonwealth's major regulatory watchdog, the Office of Regulation Review, until 1990 and was the Deputy Secretary Energy in the Victorian Government 1994-96, where he assisted with the development of the National Electricity Market and with the privatisation of electricity and gas assets.

He has worked on regulatory matters with the Tasman Institute (now ACiLTasman) and the Institute of Public Affairs and has published extensively. His books include "Markets, Resources and the Environment" Allen & Unwin, 1991; "The Price of Preservation", Tasman Institute, 1993; "The Tragedy of Planning" IPA 2006; "Climate Change the Facts", Stockade Books 2014; and "Climate Change: Treaties and Policies in the Trump Era", Connor Court 2017. He has also contributed chapters to many books on energy and environmental matters, and has published over 800 journal and newspaper articles and delivered dozens of papers in Australia and internationally. Most of his publications can be found on www.regulationeconomics.com.

He has a PhD from the University of Liverpool, and MSc from the University of Salford and a BSc (Econ) from the London School of Economics.

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