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## **CONTAMINATED SOILS – COMPARATIVE RISKS**

### **There are no health risks at the bottom of your garden**

*The greatest challenge facing mankind is the challenge of distinguishing reality from fantasy, truth from propaganda. Perceiving the truth has always been a challenge to mankind, but in the information age (or as I think of it, the disinformation age) it takes on a special urgency and importance.*

*We must daily decide whether the threats we face are real, whether the solutions we are offered will do any good, whether the problems we're told exist are in fact real problems, or non-problems.*

Michael Crichton – opening paragraphs of a speech to the  
Commonwealth Club,  
San Francisco, 2003.

**A report prepared for councillors of the Auckland Region,**

**by , Director,**

**Centre for Resource Management Studies.**

## Executive Summary.

The soil in your back yard is perfectly safe.<sup>1</sup> Those who have been affected in any way by the reports of ‘contaminated soils’, can be confident there is no reliable evidence to support the claim that Auckland land, which has been used for horticulture, contains soils that pose a threat to human health.

The Gaw Report<sup>2</sup>, (which started it all) and subsequent reports and statements by the Auckland Regional Council, have created the impression that the gardens of Auckland, and the fresh fruit and vegetables being grown in them, are somehow contaminated and harmful to people’s health. These claims are not supported by the evidence.

Claims that urban lawns and gardens are unsafe for children or pets to play in, and require that even adult gardeners should wear gloves and remove their shoes before coming inside, are false, and based on no scientific evidence.

This conclusion is reinforced by a Crown Law opinion. After examining the Gaw Report and related documents, Crown Law concluded that **“...the test of a real and substantial risk of contamination is not met. Thus, such information... is not a mandatory inclusion in a LIM.”**

The overriding recommendation of the Crown Law Report is that Councils cease including statements within their LIM reports that suggest garden soils may pose a threat to human health, solely on account of their having been used for agricultural purposes.

Furthermore, none of the tested sites exceed international standards based on effects on human health. The readings were all below the ‘soil acceptance criteria’<sup>3</sup> recently developed by experts within Landcare Research, the Crown Research Institute.<sup>4</sup>

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<sup>1</sup> If you live on clay soil your 20m x 20m backyard probably contains about 2 kgs of uranium. It’s perfectly safe. Background radiation is good for you, because it stimulates your immune system and reduces your risk of cancer. All soils contain elements such as copper, lead, arsenic and so on. These are what the planet is made of. They are part of our natural environment.

<sup>2</sup> *Pesticide Residues in Horticultural Soils in the Auckland Region*. Auckland Regional Council, Working Report No. 96, February 2002.

<sup>3</sup> The choice of the most suitable term is still debated but ‘soil acceptance criteria’ is the current terminology employed in existing NZ guidelines.

<sup>4</sup> See page 15 of the full report for a table which compares the Landcare ‘acceptance levels’ with the ‘trigger levels of the Gaw report.

Certainly, none of the evidence to date can justify requiring anyone to carry out soil tests on their properties prior to use or development, solely on the basis of the land having being used for horticultural or agricultural purposes in the past.

Sadly these false claims and impressions may have actually, or potentially, damaged some people's health, by discouraging them from eating fresh fruit and vegetables. Groundless fears may increase depression among those prone to believe in such campaigns. Depression can depress our immune systems, which protect us from both external infections, and internal degradation of our cellular makeup. If you have a splendid vegetable garden in your back yard, eat the produce and enjoy it. It will do you good.

Similarly, New Zealand's reputation for enjoying a "clean and green" environment remains secure. Our living environments have certainly not been tarnished by the transformation of former horticultural and agricultural land into suburban or countryside sites for houses, gardens or small farms. Claims of a polluted countryside simply don't stack up when these 'elevated levels' of copper, dieldrin, arsenic and other alleged contaminants are put up against well-researched international findings for the same compounds in natural environments.

This report will demonstrate in plain language<sup>5</sup> that the 'contaminated-soil' fear campaign was a case study in 'junk science', 'junk economics', 'junk policy' and 'junk outcomes'.

'Junk science' is a form of pseudo-science carried out by people are attached to certain theories and who then carry out surveys or other 'experiments' to find evidence which supports these theories. Junk science has no interest in any objective findings that refute the theories.

'Junk economics' squanders scarce resources, and rejects the use of any analysis of benefits and costs. No matter how much we spend on cleaning up these horticultural sites, not a single premature death will be averted, and there will be no beneficial effect on human health. This is a waste of resources, which can be better used addressing real threats to human health.

'Junk Policy' arises from junk science, junk economics and inadequate procedures. A recent Ministry of Transport report<sup>6</sup> claims that vehicle pollution leads to about 250 premature deaths from vehicle pollution in the Auckland Region each year.<sup>7</sup> Yet the Auckland Growth

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<sup>5</sup> Every equation and statistic loses a reader. If anyone wants detailed confirmation of some of the assertions in this report please contact the author at the addresses on the letterhead.

<sup>7</sup> *Health effects due to motor vehicle air pollution in New Zealand*, NIWA, Report to the Ministry of Transport, January 2002. Exec Summary, p ii.

Strategy wants to concentrate future residential development residential near to congested transport routes. Surely these locations are more ‘dangerous’ to the residents than the thousands of dwellings located on sites previously used for market gardening and horticulture. Yet the Growth Strategy wants us all to live near transport corridors and protect us from agricultural land. This is classic ‘junk policy’.

This report also exposes the inadequate procedures that enabled the Gaw report to be commissioned and undertaken without adequate reference to authoritative policy and legal advice, and technical guidance. The fact that the Crown Law opinion has had to be belatedly sought after the horse has bolted is testimony to the weak policy processes and political leadership within the ARC at the time.

An excellent example of a ‘junk outcome’ is to be found in the ARC’s objection to the siting of a childcare centre in a rural zone.<sup>8</sup> One of the grounds for objection was that the soil, having been used for agricultural purposes, is likely to be contaminated and hence inappropriate for children to play on. This is remarkable condemnation of the New Zealand countryside as a safe place to bring up the kids.

Taranaki is one region that has got it right on this issue, and offers a model that other regions and districts could well adopt. Taranaki started with MfE’s list of activities likely to lead to contamination of soil and then examined them, cleaning up those needing such remediation.<sup>9</sup> Most certainly, if local government in Auckland is to maintain credibility, councillors must assert their governance role and develop techniques to check such any future ‘campaigns’ in the bud. This report outlines the history of the events that generated the “toxic soils” scare, and makes the following recommendations:

**A Recommendations to fix the specific “contaminated soils” problem:**

- Councils act on the Crown Law opinion that adequate proof of substantial risk of contamination of sites used for horticultural/agricultural purposes is not met, and therefore such information is not a mandatory inclusion in a LIM.
- Councils cease attaching statements to their LIM reports suggesting that soils may pose a threat to human health solely on account of their having been used for agricultural purposes.

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<sup>8</sup> See section 6.3, *The Childcare Centre in the Rodney rural zone*, p 32 of the full report.

<sup>9</sup> See appendix 1 for details and the reference.

- Councils reject the recommendations of the Gaw report, as set out in the executive summary of that report, and in particular, reject the trigger levels set out in Table 3.24 p 75.
- Councils acknowledge that it is up to councils to prove harm or the probable risk of harm; not for citizens to prove safety.
- Councils clarify their roles in protecting the biophysical environment and protecting health and ensure that any policies and testing regimes are based on a clear understanding of these different roles.
- Councils develop clear and distinct policies and methodologies in relation to the cleaning up of known contaminated sites and for setting acceptable levels of concentrations of known hazardous or toxic contaminants.
- The Crown should indemnify councils against litigation based on claims of harm from contaminated soils. The costs would be low and the benefits high.

**B Recommendations to address root causes and policy development weaknesses.**

- Councils act with caution in declaring land ‘out of bounds’ for residential use. Regulation is a crude means of managing risks of hazard, and there must be a clear and present danger before imposing such regulation.
- Councils should examine other regional policy development and governance models, both in New Zealand and overseas, to identify and adopt process to ensure that policies based on ‘disinformation’ are exposed and refuted well before they are adopted and imposed on the citizens.
- Councillors should have their own access to contestable advice.
- Make research funding ‘blind’ or ‘balanced’ by keeping the source of the funding secret from the researcher, or by sharing the costs between competing interests.
- Ensure that researchers are not driven by current enthusiasms which might impact on their work – or at least ensure their ‘enthusiastic years’ are some reasonable number of years behind them.
- Finally, reports that claim we are threatened by invisible environmental toxins should attract healthy skepticism.

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## **THE REPORT**

### **1 A Panic Begins – and Ends?**

#### **1.1 The official record.**

The best way to provide an authoritative background to this report is to open with extracts from two reports, one from the Auckland City Council, and the other from the Crown Law Office.

#### **1.2 The Auckland City Council Media Release.**

After receiving the opinion of the Crown Law Office as to whether Auckland City Council had a duty to record past horticultural use on LIM reports, the Council responded with a media release, which opened with the following brief history of the project.

#### **History of the project**

*The Auckland region has a long history of horticultural activity, such as market gardens, orchards, glasshouses and vineyards. In Auckland City's case, that history is far less extensive, but some parts of the city were used for horticultural purposes in the 1940s, 1950s and in a few cases later than that.*

*In 2001, the Auckland Regional Council and the Auckland District Health Board undertook a research project into the potential effect of past horticultural activity on soil.<sup>10</sup>*

*The study aimed to identify whether regular activities on land used for horticulture, such as weed spraying and the use of pesticides, left a build up of different chemicals in the soil.*

*The study involved sampling 43 horticultural and agricultural sites in the Auckland region. Only one site within Auckland City's boundaries was tested.*

*The study concluded that past horticultural activity resulted in comparatively higher levels of contaminants on less than half (approximately 45 per cent) of the sites that were tested. The remainder of the sites showed acceptable levels.<sup>11</sup> The site tested in Auckland City*

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<sup>10</sup> The report was prepared by Ms Sally Gaw, as a thesis as part of the requirements for completion of a Ph D. The Centre understands the Ph D has not yet been awarded.

<sup>11</sup> Note that this Council statement continues to assume that an 'elevated level' is somehow 'unacceptable. The implication is that raising the pH of soil is also 'unacceptable'. Surely, we need some evidence of harm before reaching such a conclusion.

*showed acceptable levels. A copy of the report is available on the Auckland Regional Council website.*

*After receiving this report, Auckland City initiated a study to identify any properties within Auckland City's boundaries that may in the past have been used for horticultural activity. The study did not involve sampling. Instead, old aerial photographs from the 1940s, 1950s and 1960s were used to identify areas of land where horticultural activity may have taken place. These areas were then identified on a modern map of the developed isthmus.*

### **1.3 The Crown Law Office Report.**

The report from the Crown Law Office to the Auckland City Council, opens with the following summary of the 'Background':

*7. Auckland City Council has received two reports relating to contaminant levels of soils in certain parts of the city. You have provided us with copies of these. The first report, received in 2002, came from Auckland Regional Council. This report, based on tests of horticultural sites in the Auckland region, found that some former horticultural sites have contaminant levels elevated above guideline levels. The second report, received in 2004, was produced by Pattle Delmore Partners. This report, based on tests of council parks and reserves identified as being on former horticultural land, found isolated areas of pesticide residue. These isolated areas of pesticide residue were found on fewer than one third of the sites tested. The sites were not picked at random and specifically included areas known as sites for chemical storage.*

*8. As a result, Auckland City Council has declared that it will include notices on the LIMs of up to 5000 properties indicating that the land was, to the best of the council's knowledge, previously used for horticultural purposes. The notices are to specify that council has no knowledge of whether the property is or is not contaminated as a result of such use. They will refer to the soil reports. The notices set out that the council may require soil testing if subdivision, new activities, or an extension of existing activities is proposed.*

*9. Auckland City Council claims that its actions are in accordance with the Ministry for the Environment Guideline No. 4 on disclosure under a LIM. A copy of this Guideline has also been provided.*

*10. There have been claims about the reduction in the values of properties and inability to sell houses as a result of the council's announcement. Your queries have arisen from this situation.*

At this stage, readers should understand that councils were including this information in LIM reports, and landowners were being required to test land prior to any subdivision, use and

development of their land, without any reference to rules within Planning Documents generated under the Resource Management Act.

Council staff were claiming that the risks were so great as to require that the plan preparation process be bypassed, and such rules and requirements be imposed by fiat, and using other legislation, without the normal exposure to wide-ranging public and expert scrutiny.

This appears to be increasingly common practice around the country. Regional and District Councils are using their powers to address environmental hazards directly and without reference to rules in regional or district plans.

In this case the Crown Law Office found that the council staff had overstepped the mark when it found:

*15. As set out above, s 44A(2)<sup>12</sup> requires the inclusion of any information on "... potential erosion ... or inundation or likely presence of hazardous contaminants...". Accepting that the chemicals said to have been used on former horticultural sites are probably hazardous contaminants, the key word here is 'likely'. For s 44A(2)(a) to be triggered, the presence of hazardous contaminants must be 'likely', whereas erosion, inundation and other specified features or characteristics need only be 'potential' risks to trigger the section. The threshold requirement in relation to hazardous contaminants is different than that relating to other special features or characteristics, and, in my opinion, is a higher standard. It is noted that none of the other paragraphs of (2) impose a standard at all. They concern information that is known.<sup>13</sup>*

*16. In the case "Port Nelson Limited v Commerce Commission" [1996] 3 NZLR 554, 562-63 the Court of Appeal discussed what degree of probability the term 'likely' contemplated and said:*

*"The appropriate level is that above mere possibility, but not so high as more likely than not, and is best described as a real and substantial risk that the stated consequences will happen. That is a construction adopted in a different context in Colonial Mutual Life Assurance Society Limited and Wilson Neill Limited [1994] 2 NZLR 152, 161 and one well known in the criminal law: R v Harney [1987] 2 NZLR 576, 581."*

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<sup>12</sup> Section 44A was added to the LGOIMA by the *Local Government Official Information and Meetings Amendment Act (No. 2) 1991*.

<sup>13</sup> Again, the distinction is important. Such standards are normally developed through extensive consultation, and then introduced into RMA plans by extensive hearings and review. They may be finally tested in the Environment Court. Standards are not 'known' but must be developed.

17. *The term "potential" indicates the possibility of something occurring but the risk or chance of it occurring is not as certain as "likely". It is a possibility rather than a probability.*

18. *The two reports referred to above do not appear to provide a basis for concluding that there is a real and substantial risk that hazardous contaminants are present on any particular property in question. According to your letter, the Auckland Regional Council report found that "some" sites had elevated levels of contaminants. The Pattle Delamore Partners report found isolated areas of residue on less than a third of sites tested. Neither report related to specific residential properties.*

19. *The presence of hazardous contaminants on any particular piece of land among the 5000 properties in question can, therefore, properly be regarded as a mere possibility. In the case of a previous horticultural use of the land where there is no evidence that the property, or any part of it, is or is not contaminated as a result, the test of a real and substantial risk of contamination is not met. Thus, such information does not fall under section 44A(2)(a). It is not a mandatory inclusion on a LIM.*

In other words, the Crown Law Office found that the evidence of the Gaw report, when combined with further sampling and overlays and maps, failed to pass the test of there being ‘likely’ contamination, ‘likely’ to pose a risk to human health. These are not this author’s findings; they are the findings of the Crown Law Office applying established legal tests.

In common terminology, the whole exercise had been a ‘beat up’, in which many parties joined to generate a campaign of fear.

The Crown Law Office reached its conclusions by legal analysis, drawing on the appropriate case law, as it should.

This report seeks to extend the analysis to explain how this happened, what was driving the campaign, and how we can avoid a repeat of such foolishness in future.

### **1.5 The Need for ‘Groundproofing.’**

The Auckland City Council’s own media release acknowledges”

*After receiving this [ARC] report, Auckland City initiated a study to identify any properties within Auckland City's boundaries that may in the past have been used for horticultural activity. The study did not involve sampling.<sup>14</sup> Instead, old aerial photographs from the 1940s, 1950s and 1960s were used to identify areas of land where horticultural activity may have taken place. These areas were then identified on a modern map of the developed isthmus.*

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<sup>14</sup> Author’s emphasis.

The fact that the study of Auckland sites involved no sampling, but simply used map overlays, should have rung warning bells in someone's mind.

The ARC work has proposed a connection between previous horticultural use of land and 'elevated' levels of contaminants in that land, even though elevated levels are not necessarily dangerous.

Any such theory should be 'ground-proofed' before being acted upon, especially when the proposed action (including claims on LIM reports) have such potentially disastrous outcomes for the landowners of the district.

Sadly, 'ground-proofing' is remarkably absent from much regulation enforced in the name of 'the environment'.

For example, claims that the islands of Tuvalu were sinking under the waves were so frequently made by global warming pundits that it came to be accepted as a truth even though no one had carried out any 'ground proofing' measurements. When Australian scientists were finally asked to present the evidence to a conference called to bring the plight of the Tuvalu people to the attention of the world, the scientists had to report that Tuvalu is at the centre of an area of the Pacific where sea levels are actually falling. This good news was not well received. This 'ground-proofed' fact still struggles to overturn the myth.

### **1.6 'Contaminated' does not mean 'Toxic'**

Unfortunately, the word 'contamination' has two meanings.

One meaning simply advises that some material, or chemical has managed to invade some otherwise pure sample. For example, forensic scientists investigating crime scenes attempt to ensure their samples of fabric, or whatever, are not 'contaminated' by threads or dust from their own clothing. However, when such 'contamination' is found, there is no implication that the samples are made toxic or dangerous by this contamination. Most scientists working in the field of soils and similar materials use the word in this sense. Contamination, as such, does not imply toxicity.

In common language, and especially since the debate on Genetic Engineering, contamination has come to imply danger, even when none is present. For example, newspaper reports talk of container loads of corn being contaminated by a few grains of GE corn. The corn is contaminated, in the sense that it is not all one kind of corn. For many of us the presence of a few grains of GE corn poses no threat to health.

But to those with a deep fear of GE, this low level contamination does imply toxicity or hazard. Increasingly this is what ‘contaminated’ means in ordinary discourse.

However, we need to be aware that when a soil expert or toxicologist, records that soil has been contaminated with dioxin or zinc they do not intend to imply a proven hazard exists.

Typically, they are just reporting on the concentrations of these materials, which have been introduced from some outside source. We should all be conscious of this potential threat from ‘language’. Organic farmers and gardeners, vineyard owners, rose enthusiasts, are all likely to ‘elevate’ the concentrations of copper in their soil by their routine use of copper sprays. It would be unfortunate if New Zealanders were forced to abandon their organic farms, vineyards and rose-gardens because of the potential threat of being charged with ‘poisoning the soil’ with ‘contaminants’.

## **2 ‘Soil Contamination’ goes Public.**

Aucklanders were first made aware of the supposed ‘contaminated soils’ problem by a series of reports and articles in the *New Zealand Herald* with headlines such as “*110 face land pollution bombshell*” and “*The Soil of the Century Lottery*”

Reporters in the news media were soon describing ‘contaminated’ sites as ‘toxic sites’, and old horticultural sites were described as containing ‘unsafe soils’. The Minister for the Environment advised people on such land not to worry, but to wash their vegetables before cooking them. Other ‘experts’ advised parents not to let their children play in the gardens and to change their shoes before coming inside. Gardeners were advised to wear gloves.

Within a short time many Auckland landowners were in an ‘elevated state of fear’. This climate of fear soon spread to other Districts and Regions around New Zealand.

For the sake of everyone’s mental and physical health the Centre would like to make a few things clear.

There has never been any evidence tabled anywhere, which suggests that any of these sites, previously used for horticultural or agricultural purposes, contain soils which pose any threat to human health. While many reports imply that the vegetables are somehow contaminated, there have been no reported leaf tests carried out on any plants, anywhere, at any time.

The reports and subsequent claims that created this climate of fear were based on inappropriate standards, manipulated data, false conclusions and flawed analysis.

New Zealanders are keen gardeners: they have nothing to fear, and their exercise in their gardens, and their consumption of their home-grown fresh fruit and vegetables, will do them for more good than harm.

Copious studies have measured the substantial ‘benefits’ arising from the exercise and mental benefits of gardening, and from the consumption of fresh fruit and vegetables. None have been able to find any evidence of harm.

The implication that the more fresh homegrown fruit and vegetables these landowners eat, the more they are at risk of some unknown and nameless poisoning, is probably the most pernicious message to come out of this whole fiasco.

The typical New Zealand diet contains too few fresh fruit and vegetables, eaten too infrequently. One outcome is an elevated incidence of bowel cancer. And yet the ARC, the Auckland City Council, and the Auckland District Health Board, and our major news media outlets, have all been associated with a campaign, which actively discouraged this contribution to a healthy diet.

Any damage to human health was for more likely to arise from the reports and reporting than from any chemicals in the soil.

### **3 A Sorry Case of ‘Junk Science’.**

#### **3.1 What is ‘Junk Science’?**

There is science – and there is ‘junk science’.

Science is developed by a process, which develops hypotheses from observations of the world, and then sets out to test these hypothesis against experiments carefully designed to test the theories against outcomes in the same real world. Scientific experiments should be designed to refute false theories – not to provide support for theories, which are held for non-scientific reasons. If one firmly believes all swans are white it is easy to find a million white swans to confirm your conviction. It takes only one black swan to challenge your belief.<sup>15</sup>

‘Junk science’ is a form of pseudo-science carried out by people who have an agenda, and have developed theories which support that agenda, and who then carry out surveys or other

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<sup>15</sup> Or you can give white swans another name. The naming game is a key feature of deconstructionism, and other attacks on the scientific method.

‘experiments’ to find evidence which supports their theories, and hence further supports their original agenda.

If you believe in global warming every warm day will endorse your belief. If you don’t believe in global warming then every cold day will give you similar comfort.

Examples of ‘junk science’ from the recent past are the eugenics movements, and Lysenko’s genetics, both from the first half of the twentieth century. Both served firmly held political beliefs of the time, and led to millions of deaths.

Sometimes junk science is a result of simple ignorance. Sometimes it is the result of a deliberate policy to deceive. Frequently, there is some combination of both.

The contaminated soil scare has been based on such systematic and consistent corruption of data and analysis that it cannot be attributed to ignorance alone.

### **3.2 The Gaw Report<sup>16</sup> lists ‘trigger levels’ which pose no threat to human health**

It should have taken only a few minutes for a person with any reasonable knowledge of chemistry and human health to pick up that something was seriously amiss in the information being reported in the media and contained in the source documents.

For example, almost all New Zealanders know that lead is a genuinely toxic heavy metal that accumulates in the human body. Although rare, lead poisoning is real.

On the other hand, most New Zealanders are aware that our soils are copper deficient and that farmers need to provide supplementary copper for their cattle, either by dosing their food or their salt tablets, or by direct injection. Copper deficiency is a significant problem in Northland where farmers routinely inject livestock with copper and/or provide copper enriched salt tablets. However, in Taranaki, recent work by Landcare Research suggests that the allophanic soils, which account for 50% of the productive agricultural soils of Taranaki, have copper levels ranging from 50 to 120 ppm. (90% probability) In other words any farm in Taranaki has a better than even chance of significantly exceeding the 40 ppm level for agricultural land recommended in a Ministry of Health report. These high levels of copper are typical in volcanic soils. Taranaki farmers have not been told to stop milking their cows.

A bottle of *Healtheries* mineral tablets available at the local supermarket contains copper salts to compensate for the general and widespread copper deficiency in the New Zealand diet.

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<sup>16</sup> *Pesticides Residues & Horticultural Soils in the Auckland Region*, Working Report No 96. Auckland Regional Council.

Each tablet contains one mg of copper equivalent, and the label encourages a dose of one tablet a day to maintain good health. Alternatively, one could go out into a back garden, and, if the soil contains the ARC's "unsafe" level of 80 ppm of copper, eat a generous handful of soil each day, to match the daily dose of the pill.

One can only wonder why the ARC, and all those involved in this campaign, have not demanded these *Healtheries* tablets be removed from the shelves.<sup>17</sup>

The *New Zealand Herald* (of November 27 2004) carried a feature story *The Soil of the Century Lottery* which included a table listing the 'safe residue level' for copper in soil as 80 parts per million<sup>18</sup> and the 'safe residue level' for lead in soil as 70 parts per million.

This table, in effect, is saying that the copper in your backyard soil is about as toxic as the lead. Yet many Aucklanders, quite properly, and safely, continue to specify copper water pipes in their houses, but would never dream of specifying lead. Surely, this should have suggested that something strange was going on.<sup>19</sup>

While it takes very high levels of these 'contaminants' to pose any risk to human health, much lower levels can have an effect on habitats and water bodies. For example, spraying zinc on pastures to control facial eczema can have a massive impact on prawn farms in lakes surrounded by such pastures. Breeding prawns are highly sensitive to water-borne zinc. But such cases are indeed special cases, and are best treated as such.

### 3.3 The Cavanagh Reports.

When the impact of the LIM reports on property value and saleability became apparent, and the public outcry became significant, Mr Eddie Grogan, the ARC's Manager of Land and Water Quality, decided it would be prudent to seek another opinion.<sup>20</sup> He turned to Landcare Research and engaged the services of Dr Jo Cavanagh, a genuine expert in toxicology and soil contamination, and who understands the use of different measurements systems used in soil analysis according to the circumstances. At this point the ARC began the journey on its path

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<sup>17</sup> Other varieties of *Healtheries* tablets contain 10 mg of zinc – another ARC 'contaminant'.

<sup>18</sup> Such measurements are normally expressed as mg kg<sup>-1</sup> of dry soil. (milligrams per kilo). This is equivalent to parts per million (ppm), which is more readily recognised, pronounced and understood. 80 parts per million of copper in soil is equivalent to about 80 grams of copper per tonne of soil.

<sup>19</sup> Many international tables list "trigger levels" for copper that are similar to those of lead. These are focusing on effects on habitats or soil biota rather than on human health. Circumstances alter cases.

<sup>20</sup> And in response to submissions from Paul Mitchell and others in the Oratia District of Waitakere City.

to redemption and Mr. Grogan deserves commendation for his action. The organizational pressures to remain ‘staunch to the cause’ must have been considerable.

To date, Ms Cavanagh has filed reports on the “Soil Acceptance Criteria”<sup>21</sup> for Lead, Copper, DDT, and Dieldrin.

The difference between the ‘trigger levels’ of the Gaw Report, and the ‘Soil Acceptance Criteria’ determined by Ms Cavanagh, are startling, as revealed in the following table:

<b>(All ppm)</b>	<b>The Gaw Report</b>	<b>The Cavanagh Reports</b>	<b>Ratio: Cav. over Gaw</b>
<b>Lead</b>	70	300	4.3
<b>Copper</b>	80	370	4.6
<b>DDT</b>	0.7	25	35.7
<b>Dieldrin</b>	0.2	6	30.0

The Gaw ‘trigger levels’ for Lead and Copper, are close to the ‘ambient’ or naturally occurring level for soils in Auckland. Hence it was inevitable that 43% of the sites tested exceeded these ‘trigger levels’ for these natural substances.

In no case did the median or mean levels of these substances exceed the Cavanagh reports’ ‘Soil Acceptance Criteria’. Only a glasshouse site recorded lead concentrations higher than the Cavanagh threshold, and the report acknowledges that the soil inside the glasshouse contained flakes of lead paint. Even these high concentrations did not exceed international standards based on human health criteria. High levels of lead in soils are more associated with paint and petrol than with pesticides. This was the case in the Auckland studies, but the Gaw report and the ARC commentaries, made no mention of the need to clean up old paint – but focused on pesticides used in horticulture and agriculture.

Overall none of the Auckland sites tested for any of the substances on the list (including DDT, Dieldrin and Arsenic), exceeded international ‘standards’ or ‘triggers’ based on effects on human health. The means and median levels were all below the Cavanagh criteria.<sup>22</sup>

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<sup>21</sup> All manner of ‘threshold’ terms are used in this field. They include trigger levels, threshold levels, safe levels, and soil acceptance criteria. The context and objectives determine the appropriate numbers and the appropriate terms. These are explained later.

<sup>22</sup> The mean for DDT inside glasshouses was 25.20 which is just above the Cavanagh threshold but the median at 0.7 is well below, which suggest one or a few “outriders”.

Those few sites that exceeded the Cavanagh concentrations represent ‘elevated levels’ of those substances, but ‘elevated level’ does not equate to ‘unsafe level’. All it means is that the concentration of the named element or compound has been changed to some level higher than the concentrations that occur naturally in the surrounding environment. Farmers and home gardeners routinely ‘elevate’ the natural concentrations of boron, copper, zinc, potassium and cobalt in their soils, and every season most gardeners elevate the soil pH to keep the soil sweet. Elevating soil pH does not make it unsafe. Reticulated drinking water in Auckland has ‘elevated’ concentrations of fluoride salts. This does not make the water unsafe, and the concentration of fluoride salts has been ‘elevated’ as a human health measure.

A useful guide to our understanding of such reports is to keep reminding ourselves that ‘elevated’ does not mean ‘dangerous’. None of the soils<sup>23</sup> tested during the preparation of the Gaw report could be classified as posing a threat to human health.

Enjoy your gardening and let your children play. More importantly, all those Aucklanders, who enjoy their ownership of a rear yard, should grow their own fresh fruit and vegetables, eat them with gusto, and to be of good cheer.

### **3.4 How did this Happen?**

How did the Gaw report come to select such low concentrations of these substances that they were either near to ambient levels, or are so much lower than the ‘Acceptance Criteria recommended by the Cavanagh reports?

In a report to the Ministry for the Environment,<sup>24</sup> J. Cavanagh and K. O’Halloran point out that the choice of such ‘trigger levels’ or ‘acceptance criteria’ is a highly technical process and depends on the context and environment of decision making. They write:

- *If one is concerned about human health, then one set of levels is appropriate.*

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<sup>23</sup> A prudent parent would discourage their children from playing in an old glass house where flakes of old lead paint were lying around. The risk to children from lead paint is more likely to come from inside the house or from old “heritage” toys. Emphasising soils and pesticides misdirects attention and hence is poor public policy.

<sup>24</sup> J.E. Cavanagh and K. O’Halloran, *International Legislative Frameworks for Managing Contaminated Land – derivation and application of numeric values*, Centre for Environmental Toxicology, Landcare Research, Lincoln, June 2003.

- *If one is concerned about leaching into water ways, another set of levels is appropriate.*
- *If one is cleaning up a site that is known to be contaminated by a range of known chemicals, another set of levels is appropriate.*

In the summary, the authors state:

*The differences in the legislative and political frameworks for contaminated site management in individual countries and the scientific and philosophical approach to the derivation of numeric values unsurprisingly results in the production of different values. These differences should be understood before applying these values in a New Zealand context.<sup>25</sup>*

Clearly, making the right choices requires considerable knowledge, and a depth of understanding of the different philosophical and political frameworks that prevail in different countries. It is easy to criticise the Gaw report for making the wrong choices. But surely, the fault lies with those who lay such an onerous task on a Ph D student from the University of Waikato. The ARC managers must have been aware of the potential impact of such a study and should surely have turned, from the outset, to the obvious expertise in Landcare Research.

### **3.5 The Impact of the ‘Ambient’.**

In any particular environment there is a natural tendency to relate ‘desirable levels’ to the existing ambient levels for the surrounding soils. United States law requires all regulatory authorities to establish ambient levels before setting regulatory triggers or other criteria. Their rules then prohibit setting ‘acceptance levels’ which are lower than ambient. This makes good sense. It is foolish to set a ‘threshold level’ of 150 ppm copper in soil if the ambient level is 500 ppm.<sup>26</sup>

In New Jersey, for example, lead levels are naturally high, and these naturally high ambient levels are further elevated because of long exposure to leaded petrol exhausts. Hence the New Jersey authorities have set the ‘threshold levels’ for lead at 450ppm, where children play regularly, and at 1,250 ppm elsewhere in residential areas. Given our lower ambient levels

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<sup>25</sup> Author’s emphasis.

<sup>26</sup> Such levels are not uncommon in parts of Australia and other copper rich countries. It suggests there is a copper mine or smelter nearby.

and our adoption of the methodologies used for dealing with Timber Treatment Sites, Dr Cavanagh’s interim acceptance level of 300 ppm makes good sense.

### 3.6 The Canadian Guidelines

Presumably because of the strategy driving the study, the Gaw report settled on a table which drew from the lowest concentrations from a range of guidelines, including the Canadian *Environmental Quality Guidelines for Agricultural Use*.<sup>27</sup> The Canadians have developed these guidelines for a range of purposes – including human health, environmental protection, and for a range of ‘land use’ categories such as residential, industrial and agricultural.

Naturally, the concentrations listed in these tables are low because they represent target levels after cleaning up contaminated sites, where it is standard practice to restore the profile of the soil to what it was prior to use, or to achieve some ‘optimum’ profile. These are ‘clean down to’ guidelines. If you are seeking low ‘trigger levels’ these remediation guidelines are the ‘standards of choice’. On the other hand if one is looking for high ‘concentrations’ then one goes to tables which set maximum acceptable concentrations in something like sewage sludge. These concentrations are high because otherwise we would not be able to distribute such sludge on to soil. These are ‘pollute up to’ guidelines. Saskatchewan Environment’s tables for sewage sludge (for example)<sup>28</sup> are:

**Table 1. Maximum Acceptable Concentrations of Metals in Sewage Sludge**

Metal	MAC of metals in sewage sludge (mg/kg of dry weight)
Arsenic	75
Cadmium	20
Chromium	1060
Cobalt	150
Copper	760
Mercury	5
Molybdenum	20
Nickel	180
Lead	500
Selenium	14

<sup>27</sup> *Environmental Quality Guidelines for agricultural land use, Canadian Council of Ministers for the Environment*, (CCME, 1999). The other sources are NZ Timber Treatment remediation guidelines and for dieldrin a USEPA preliminary Remediation Goal. These all relate to remediation targets of known contaminated sites.

<sup>28</sup> Saskatchewan Environment (SE), Land Application of Municipal Sewage Sludge Guidelines, EPB 296, June 2004.

Zinc

1850

However, these tables are normally accompanied by the maximum acceptable levels in the soils after the sludge has been worked in. These are “clean down to” guidelines and seem to be drawn from the Canadian CCME soil quality guidelines..

**Table 2. Maximum Acceptable Concentrations of Metals in Soils**

Metal	MAC of metals in soils (mg/kg of dry weight)		
	<u>Agri land use</u>	<u>Comm land use</u>	<u>Indus land use</u>
Arsenic	12	12	12
Cadmium	1.4	22	22
Chromium	64	87	87
Cobalt	40	300	300
Copper	63	91	91
Mercury	6.6	24	50
Molybdenum	5	40	40
Nickel	50	50	50
Lead	70	260	600
Selenium	1	3.9	3.9
Zinc	200	360	360

These tables are included here for two reasons.

The first is that they illustrate the difference between “clean down to” and “pollute up to” guidelines.

The second is to make the point that some table, somewhere, can deliver almost any ‘concentration’ to suit your needs – if you have decided in advance what concentrations you want to set.<sup>29</sup>

No reputable analyst should simply scan the sources for the lowest concentrations available, on the grounds of being ‘cautious’ or ‘precautionary’. Excess cautious costs and can deliver counter productive outcomes such as turning populations away from fresh fruit and vegetables. Nor should one scan for the highest concentrations. Both are misleading.

The key point is that the Gaw report has consistently selected “clean down to” guidelines and these are not appropriate when setting acceptable concentrations in terms of threats to human health. Furthermore these ‘clean down to’ guidelines are targeted at optimising soil and water quality, not human health.

<sup>29</sup> New Zealand has developed its own guidelines for sewage sludge, *New Zealand biosolids guideline*, available at [www.nzwwa.org.nz/projects/mfe/biosolids/index.htm](http://www.nzwwa.org.nz/projects/mfe/biosolids/index.htm)

### 3.5 Volcanic or Non-Volcanic Soils

The Auckland Region contains substantial areas of both clay-based and volcanic soils. Most of our market gardeners gravitated to volcanic soils because these soils tend to be light, well drained, and highly fertile.

Volcanic soils tend to have higher levels of copper than clay soils.

In clay soils copper levels of 30 – 60 ppm are common but many of the volcanic soils on dairy farms in Taranaki have copper concentrations of 120 ppm or more. The Gaw report chose 80 ppm as the ‘trigger level’ for copper which meant that many of Auckland’s volcanic soils would inevitably record ‘elevated’ copper concentrations.

It does not take many applications of copper sprays per year to raise copper concentrations in soils from say 50 ppm to say 100 ppm. All the tabulations relating to copper in the Gaw report, compare sample levels to the ambient levels of ‘non-volcanic soils’. Naturally, because these soils have been used for horticulture almost all of them are above 80 ppm. But this would not usually exceed the ambient level of copper in volcanic soils.

My analysis of the tables suggests that had volcanic soils been chosen then probably none of the soils sampled would have exceeded any of the ‘trigger levels’ because copper was the main offender. (An exception was lead from paint flakes inside greenhouses – but these are irrelevant to a report on pesticide use in horticultural soils. On the other hand they may have been the only finding worth reporting on. Lead poisoning in children is a real, albeit rare, health risk.)

Why did the Gaw report select non-volcanic soils to set the ambient level for copper?

One can only conclude that early sampling showed that the ambient levels of volcanic soils too frequently exceeded 80 ppm ‘trigger level’ to support the pre-determined cause.

### 3.7 Timber Treatment Sites and Copper

The Gaw report, and documents from the Ministry of Health and others, frequently refer to the *Timber Treatment Guidelines*<sup>30</sup> which are recommended as the guideline for people developing such ‘acceptance levels’, ‘trigger levels’ or other measures of concentration.

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<sup>30</sup> MfE and MoH 1997. *Health and environmental guidelines for selected timber treatment chemicals*. Wellington

Dr Cavanagh also refers to these guidelines in developing her ‘acceptance levels’, which are so markedly different from those chosen by Ms Gaw. Why do these two analysts reach such different conclusions given that they appear to be using the same methodology?

The MfE refers analysts to these guidelines but leaves their use open to interpretation. Good practice suggests that analysts looking to develop figures based on human health would use the methodology set out in the Guidelines – not to pick up the actual figures established as targets for cleaning up timber treatment sites. The methodology provides a guideline for determining how much of any potentially hazardous chemical is absorbed by different routes, such as dietary intake, inhalation or direct contact.

Instead of using the methodology, Ms Gaw has selected the ‘target levels’ for the clean up of timber treatment sites as ‘trigger levels’ for horticultural soils in the Auckland region. Mr Waters of the Ministry of Health appears to agree. He writes that the guidelines listed in the report on the rehabilitation of old timber treatment sites can be used to set copper contamination levels “appropriate for different land uses based on estimated human exposures taking into account also plant and animal toxicity”. But he has said they should be used to set the levels – not that they are the levels. The distinction is subtle but significant. However, I may be reading too much into his choice of words.

Similar reports around the world make the point that guidelines for old timber treatment plants are quite inappropriate for use as an indicator of soil contamination from regular horticultural use in terms of human health, and even toxicity for plants. In general one can say that regulatory authorities should not use ‘clean down to’ standards, when they are setting ‘pollute up to’ standards. In particular they should not select ‘clean down to’ standards designed for optimal soil quality for agriculture, when setting ‘pollute up to’ standards designed to protect human health. Humans are much more tolerant of copper than the microflora in quality soils.

The timber treatment guidelines have been established out of concern for contamination as a result of the use of CCA (copper chrome arsenate), rather than the copper used in horticultural and agricultural sprays etc. CCA is highly toxic. While the guidelines refer to copper as ‘copper’ it is reasonable to assume that any copper found on such sites is an indicator of the past use of CCA. When we find elevated levels of copper in horticultural soils it will normally reflect the use of the Bordeaux mixture, and similar mixes of copper sulphate and copper hydroxide. These sprays are so benign that they are among the few chemical sprays approved for use by organic growers.

While some suggest that ongoing use of copper sprays may not be viable in the long term because of the eventual impact of high concentrations of copper on soil quality, this is not related to human health. The current debate is all about human health. If the ARC is worried about soil quality or plant health, then the testing regime would need to look at plant uptake by measuring the levels of contaminants in leaves. Orchardists routinely test levels of trace elements in soils and in leaves. There is no point in achieving good soil profiles if these are not reflected in the plants.

An extensive web search reveals that, outside of timber treatment sites, it is difficult to find any concerns regarding soil contamination by copper in relation to human health. Copper is not a carcinogen, it binds tightly to soil, and does not bioaccumulate in the body. Searches based on the terms 'copper' and 'health' typically open web pages dealing with the impact of copper deficiency on human health. Most Western diets are deficient in copper, and many soils in New Zealand have copper concentrations below that needed to meet the nutritional needs of grazing animals in particular.

Here is a typical opening statement from a web page describing copper in the environment:<sup>31</sup>

### ***Copper in the Environment***

#### ***What is copper?***

*Copper occurs naturally in most soils and in fruits and vegetables. Both humans and animals need some copper in their diet. In humans, it helps in the production of blood haemoglobin.*

*Copper (Cu) is a pliable, malleable metal, having a bright reddish metallic luster and is an excellent conductor of both electricity and heat. Copper occurs naturally in a wide range of mineral deposits. It is used in making textiles, marine paints, electrical conductors and wires, plumbing fixtures and pipes, as well as coins and cooking utensils. Copper is very toxic to fungi and algae, which is why copper based - compounds are widely used as a wood preservative and fungicide.*

*Copper is an essential micro-nutrient required in the growth of both plants and animals. In humans, it helps in the production of blood haemoglobin. In plants, copper is especially important in seed production, disease resistance and regulation of water.*

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<sup>31</sup> *Copper in the Environment*, Government of Ontario, MoE, Sept 2003.

### ***How much copper is there in our soil?***

*Copper is relatively abundant in the earth's crust. The amount of copper present in soil is dependent on the parent rock type, distance from natural ore bodies and/or manmade air emission sources. Most soils have copper in them. MOE soil survey results show that background concentrations of copper in Ontario soils commonly average less than 25 parts per million (ppm),<sup>32</sup> but can contain copper levels as high as 85 ppm.*

### ***Is copper harmful to us?***

*Both humans and animals need some amounts of copper in their diets, but very high concentrations of copper can be toxic causing adverse effects. The most common symptoms of copper toxicity are injury to red blood cells, injury to lungs, as well as damage to liver and pancreatic functions.*

### ***How does exposure to copper occur?***

*Although humans are exposed to copper from many sources, including drinking water, soil and dust, 75 to 99% of total copper intake is from food (CCME 1997).<sup>33</sup> Each day, people come in contact with items, which contain copper (e.g., coins, cooking utensils). The average Canadian ingests about 2 milligrams of copper per day from various sources.*

The world-wide average content of copper in soil is 50 ppm, but natural soil concentrations range from 5 to 5,000 ppm.

One reference, suggests that based on the 'one day event' (babies chomping on dirt) copper levels in excess of 2,140 parts per million (mg/kg) may pose a health hazard.<sup>34</sup>

The Commonwealth Government of Australia recommends health intervention concentrations for copper of 2,000, 4,000 and 5,000 parts per million depending on land use. (The Australian government has to take into account the sensibilities of all those worthy Australians living near to copper mines, smelters and deposits.)

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<sup>32</sup> For whatever reason, ambient concentrations of copper in Canadian soils are low. This is reflected in their remedial soil guidelines.

<sup>33</sup> Author's emphasis.

<sup>34</sup> *Proposed modifications to identified acute toxicity-based soil cleanup target levels (SCTLs)*, prepared by Hazardous Substance & Waste Management Research Ltd, Tallahassee, Florida for Methodology Focus Group Contaminated Soils Forum, Dec. 1999. p9.

These levels are a far cry from the 80 parts per million listed in the ARC report, and accepted by Waitakere and other cities, as posing some risk to human health.

### **3.7 Summary**

The Cavanagh reports, which sets realistic ‘acceptance levels’ demonstrates that there are no grounds for assuming that the soils on properties in the Auckland Region, which have been used for horticultural or agricultural purposes, pose any threat to human health.

## **4 A Sorry case of ‘Junk Economics’.**

### **4.1 We cannot afford to waste scarce resources.**

Economics means many things to many people. While many definitions abound, most economists agree that economics is the study of how we should best allocate scarce resources.

Economists generally discourage the waste of scarce resources. If we waste millions of dollars on junk programmes then we have millions fewer dollars to spend on useful things such as parks, roads, health and the like.

Hence, we all have to decide what issues should actually demand our attention. All regulations cost money, both to develop and to implement. Bad regulations lead to bad decision-making and can destroy wealth. Many Auckland landowners who had accumulated their life-savings in their residential properties suddenly found that the reference to contaminated soils on their LIM reports made their properties unsaleable. A new regulatory regime had savagely reduced their life savings. These are real and personal costs, and are deeply felt by those who have to bear them.

At a meeting of 8<sup>th</sup> February, 2005 the Waitakere City Council decided to reject a landowner’s application for compensation for the costs of their required soil testing which had revealed that the site was ‘safe’. The minutes explain that the Council rejected the application on the grounds that the landowners could now advertise their site as being ‘uncontaminated’ and that the added value would more than compensate for the costs of the tests. (About\$3,000).

By reaching this decision, Council has acknowledged that all the other properties carrying such LIM reports have been devalued. Otherwise why would a declaration that the site is not ‘contaminated’ increase the value? When spread across many hundreds of properties this mounts up to a major cost to the people and communities of Waitakere City.

When a council requires landowners to carry out soil tests at their own expense to prove that their soil is “safe” they are potentially in breach of three of our constitutional norms as follows<sup>35</sup>:

- The citizen is free to act unless the state can prove harm of the likely risk of harm.
- Citizens are innocent until proven guilty
- Citizens cannot be required to bear witness against themselves.

The crown and its agents can only breach these principles by referring to specific legislation granting specific powers to do so.

For example, if a District Plan contains a rule which requires an applicant to carry out soil tests under certain circumstances then the requirement may be lawful. However, if such a requirement is backed up by no more than a decision by council or council staff then it almost certainly is unconstitutional and in breach of Human Rights.

Under our constitutional norms the citizen is not required to prove safety before acting. It is up to the state to prove harm, or the likely risk of harm.<sup>36</sup> In the total absence of such evidence councils have no mandate to further increase the cost of housing and of doing business in New Zealand by imposing extra costs on those attempting to provide sites for residential use.

Most Anglo-American democracies require that any regulatory regime be justified by some form of cost and benefit analysis to ensure that the costs of the regulations do not far exceed any claimed benefits.

Unfortunately, a wave of environmental enthusiasm has tended to set such disciplines aside. It seems that no cost is too high to ‘protect the environment’. Seemingly the ARC analysts believe that no cost is too high to protect our soils, and the people who walk on them, from some form of ‘contamination’.

The first round of concerns about contaminated soils surfaced when Americans became worried about residual chemicals in the soils on the sites of old Timber Treatment Plants. Timber treatment does involve the use of genuinely toxic materials such as Copper Chrome Arsenate. (CCA)

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<sup>35</sup> Paraphrased – these expressed differently in different documents.

<sup>36</sup> This is also expressed in the convention “innocent until proven guilty”.

American governments, and subsequently governments in New Zealand and elsewhere, introduced programmes to identify these sites, to clean them up, and to restore these soils to the 'normal' or 'ambient' profiles of surrounding soils.

The present scare in Auckland soils has nothing to do with timber treatment plants, or Copper Chrome Arsenate. The substances found in horticultural sites and vineyards are comparatively benign substances such as copper, and zinc. Even arsenic is a trace element which we must consume in small quantities. The Dieldrin and DDT used in formulations which were used to spray vegetable and fruit crops were used in much smaller quantities and are much less toxic than timber treatment compounds.

DDT itself is essentially non-toxic. *Africa against Malaria*<sup>37</sup> reports that the South Africans are painting their children's bedroom walls with DDT to help protect their children from malaria. In the same paper, Tren and Bate report:

*Every year scientists publish new laboratory studies linking DDT to various deleterious effects in wildlife and humans. Yet, to date, no scientific study has been able to replicate a case of actual human harm from DDT, despite more than five decades of its use around the globe. The U.S. National Cancer Institute classifies DDT as a possible human carcinogen, but it has a lower carcinogen rating than coffee. Indeed, there is no convincing evidence that DDT or its metabolites are carcinogenic to humans. No study has been able to link the use of DDT by sprayers with any negative human health impact, even though sprayers work with the chemical many hours every day.*

#### **4.2 The High Cost of Needless Regulation.**

The *Economist* of October 1992 published an editorial essay titled "America's Parasite Economy" which addressed the explosion in 'safety' regulation, and the costs of these regulations to the general economy.

The essay reported a "growing suspicion that much regulation is unnecessary or expensive or both" and published a table titled *Is it worth it? – Costs effectiveness of selected regulations*.

This table listed several sets of regulations alongside an estimate of the 'Cost per premature death averted'.

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<sup>37</sup> Richard Tren and Roger Bate, South Africa's War against Malaria – lessons for the developing world. The Cato Institute, March 2004, for *Africa Fighting Malaria*, of which Richard Tren is a Director. <http://www.fightingmalaria.org/research.php?ID=21>

Car seatbelt standards, introduced in 1964, were cost-effective, at a cost of only US\$100,000 per premature death averted. Not many people would argue with that. Similarly the children's night-clothes flammability ban, introduced in 1973, cost only US\$800,000 per premature death averted. This is getting expensive, but we need to consider the pain and suffering avoided for those children who were burned but did not die.

However, the hazardous-waste listing for wood-preserving chemicals (i. e. the listing and clean-up of timber treatment plants), introduced in 1990 have cost the US economy a staggering \$5,700,000,000,000 per premature death averted. This is a genuinely astronomical figure, being almost the same number as miles in a light-year. (A light-year – the distance that light travels in a year – is 5,865,696,000,000 miles.) We are talking about some six million million dollars per premature death averted.<sup>38</sup>

There must be better ways to spend that money.

Note that this is the cost per premature death averted for cleaning up the genuinely toxic chemicals used in Timber Treatment Plants. The ARC report is about cleaning up sites which have 'elevated levels' of copper in the form of copper sulphate and copper hydroxide, which are so benign that these are among the few artificial pesticides which organic farmers are allowed to use.

In other words, no matter how much we spend on cleaning up these horticultural sites, not a single premature death will be averted, and there will be no beneficial effect on human health.

When risks (which reflect these costs) are this low then they are effectively non-existent because we all have to die of something, such as not doing up our seat belts. The risk to our health from these so-called contaminated sites is somewhere below the risk of being captured by aliens.

This is not a totally idle comparison. Many people who claim they have been captured by aliens genuinely believe they have been, and this does affect their mental health – although the cause and effect may be reversed. Similarly, people who worry about contaminated soils may literary worry themselves sick. This is a reason to avoid such campaigns of fear, rather than to justify totally useless regulatory costs.

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<sup>38</sup> In reality this number is telling us that no deaths have been averted. We eventually all die of something and timber treatment chemicals are actually not on the list.

## **5 A Sorry case of ‘Junk Policy’.**

### **5.1 Smart Growth leads to ‘Junk Policy’**

The ARC staff who promoted this fear of soils are keen advocates of ‘Smart Growth’ as implemented by the Auckland Growth Management Strategy.<sup>39</sup> One of the objectives of the Growth Management Strategy is to encourage people to live alongside ‘growth corridors’. Of course most people would rather live near the beach, or some sensible distance from growth corridors, because motorways and railway lines tend to be noisy and polluted places.

Be that as it may, the Growth Strategy is clear on this matter.

Yet the ARC heartily endorsed the Ministry of Transport (MoT) report which claims that 399 New Zealanders, and 250 Aucklanders, aged 30 and over, die prematurely each year from exposure to microscopic particles from vehicle emissions.<sup>40</sup>

So we have the curious situation where the ARC wants to discourage Aucklanders from living on horticultural and agricultural sites because they claim the soil is dangerous (even though there is not a shred of epidemiological evidence to support the claim) and yet the same ARC is determined to encourage people to live next to transport corridors, even though the MoT report claims that vehicle pollution, which naturally is most intense around transport corridors, kills 250 Aucklanders a year. Maybe one way to reduce congestion is to knock off the drivers.

The highest vehicle pollution levels in Auckland are recorded at the intersection of Wyndham Street and Queen Street, and at the corner of Mountain Road and Khyber Pass. Auckland City and ARC planning policies encourage high-density living around both locations.

Any Aucklander can see a whole estate of medium density housing at the intersection of Khyber Pass and Upper Symonds Street.

We can be reasonably confident that, if we accept the findings of the MoT report on deaths from vehicle pollution, the Khyber Pass site is more dangerous to the residents than the thousands of dwelling located on sites previously used for market gardening and horticulture.

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<sup>39</sup> I shall provide the evidence for this claim later in this report. But given that the whole of the ARC has adopted the Auckland Growth Strategy as an official document and policy we should not be surprised.

<sup>40</sup> *Health effects due to motor vehicle air pollution in New Zealand*, NIWA, Report to the Ministry of Transport, January 2002. Exec Summary, p ii.

And yet the Growth Strategy wants us all to live near growth corridors and protect us from horticultural land. This is surely 'junk policy'.

Finally, we should all wonder why the ARC has not suggested that Councils include a statement in the LIM reports for property near to transport corridors and nodes advising owners and potential purchasers that the occupants of such sites are at risk of premature death from vehicle pollution. On the basis of their own evidence, these sites are much more dangerous to human health than sites previously used for horticulture.

## **6 'Junk Outcomes' – What is Going On?**

### **6.1 'Junk Science' as a servant of 'Smart Growth' Strategy**

The Growth Management Strategy, which was developed by the ARC, and has been adopted by the Auckland Growth Forum, is a local implementation of the widely discredited American theory of 'Smart Growth'.

Essentially, 'Smart Growth' theory assumes that urban sprawl is a major problem,<sup>41</sup> and hence promotes the use of Urban Limits (or fences) to contain urban growth by increasing densities, and by actively discouraging people from living on land that is currently in rural or similar use.

One of the benefits claimed by proponents of Smart Growth is that the higher densities which concentrate people within the urban fence, will promote the use of public transport and reduce congestion, pollution and energy use.

In reality Smart Growth has failed to meet any of these objectives wherever it has been tried. Indeed those American states with the strictest anti-sprawl legislation have the highest rates of urban sprawl. It's not difficult to see why. If people are not allowed to live in the rural areas of the Auckland Region many of them will leap-frog the boundary and settle in Northland.<sup>42</sup>

The standard tool used to prevent urban sprawl is large minimum lot sizes, such as 4, 8 or even 20 hectares. The end result is that if four families move into the countryside the district plan may force them to use up 80 hectares of rural land when they would be happy using only 2 hectares. How do these large lot rules "save rural land"?

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<sup>41</sup> Presidential hopeful Kerry scoffed at American's longing for a dwelling with a back yard – many blue collar Democrats found this a bit hard to swallow when Kerry and his wife own six mansions between them.

<sup>42</sup> As I did.

The end result of such policies is that Americans – and now New Zealanders – end up living on sections that are either far too small, or far too large. The evidence is all around us.

In America the different states control their own land use planning by state legislation which openly gives their planners power ‘to direct and control’ the use of land, to a degree quite unheard of in New Zealand. In 1991, we repealed the Town and Country Planning Act, which had given our planners such powers, and replaced it with the Resource Management Act. This reforming legislation was intended to focus on the management of adverse environmental effects.

Hence, if our local ‘Smart Growth’ planners want to declare rural land ‘out of bounds’, they must find some ‘legitimate’ environmental reason for doing so.

They declare some land out of bounds because it is ‘high quality soil’, and other land because it is ‘too steep’, or ‘too prone to flooding’, and, soon, no doubt ‘too prone to tsunamis’.

But this still leaves much of the land on the immediate urban perimeter (peri-urban land) and huge quantities of more distant land, suitable and available for residential development. There are hundreds of square miles of rolling rural land that is now surplus to farm production, and people want to live on it.

However, if Smart Growth planners could establish that such land is likely to be toxic or contaminated, then people can be made fearful of living on such land. Alternatively, the costs of testing and remediation can further price low and middle-income households out of such locations.

The rationing of the land supply by Smart Growth drives up the price of land. This is one reason why New Zealand housing is now among the least affordable in the world. Costs of testing and remediation are simply another nail in the unaffordability coffin.<sup>43</sup>

The opening paragraph of the Gaw report reads:

*The Auckland Region has a long history of horticulture. Many of the greenfields areas designated for urban development in the Auckland Regional Growth Strategy have had intensive horticultural usage. This study was undertaken to assess the probable magnitude and extent of residual contamination in soils on horticultural properties in the Auckland Region.*

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<sup>43</sup> See the commentary by *Demographia* referred to in Appendix II, to this report. The Auckland Metropolitan Area now ranks 16<sup>th</sup> in the list of the 26 most ‘severely unaffordable’ housing markets in the US, Canada, Australia and New Zealand.

The third to last paragraph reads:

*The results from this study indicate that historic farming practices, including the use of agrichemicals on horticultural properties in the Auckland region, have resulted in comparatively elevated levels of contaminants in soils above background concentrations. These elevated levels of contaminants have the potential to impact on the suitability of such land in its current state for residential development.*

Note that the report does not claim that these levels are dangerous. It simply says that the ‘contaminants’ are ‘elevated’ above local ambient. It is a big leap from ‘elevated’ to ‘toxic’ but the authors must have expected the daily news media to make such a leap – and of course they duly did.

The second to last paragraph reads:

*Territorial local authorities should consider requiring site assessments involving contaminant analysis prior to allowing a change in landuse, subdivision or redevelopment on greenfields sites.*

In other words, the thrust of the report, and the policy environment, is not focused on human health impacts, as claimed. The whole investigation is designed to facilitate the implementation of Smart Growth theory through the Auckland Regional Growth Strategy.

## **6.2 The Connolly Report to the new Auckland Regional Councillors**

Further evidence of this focus on urban containment policies is provided within the report to the first meeting of the new Auckland Regional Council following the elections of October 2004.

Kerry Connolly, Director Environmental Management, and Eddie Grogan, Manager Land and Water Quality, reported to the meeting of 29<sup>th</sup> November 2004 on the subject of “Horticultural Contaminated Soils.”

The third paragraph reads:

*The health authorities have advised that there are no immediate risks to public health posed by the contaminants and that simple practical measures such as general hygiene should minimize risk.<sup>44</sup>*

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<sup>44</sup> Author’s emphasis.

It seems reasonable to ask if there are ‘no immediate risks’, then what are the risks that need to be minimized? We can presume that this new reassurance is in response to the arrival of the early Cavanagh reports.

The final paragraph reads:

*The ARC is continuing to undertake its responsibilities under the RMA with regard to individual sites where information is provided regarding soil contamination levels by assessing the risks to the environment. We are ensuring that any new developing land, particularly with MUL<sup>45</sup> changes, at risk from horticultural contamination, is properly assessed and remediated.*

This first sentence suggests that the issue is about risk to the environment rather than to human health. But the reference to the MUL is clearly related to urban expansion.

The central issue on any reporting on such ‘trigger levels’ is whether the levels relate to human health directly, or to loadings on water, or to loadings on ecosystems – or whether the targets relate to the final profile after remediation. As we have seen, these different policy frameworks all generate their own ‘standards’.

### **6.3 The Childcare Centre in Rodney.**

The most solid evidence that this whole investigation and campaign was driven by the control requirements of Smart Growth is found in evidence presented to the Rodney District Council in which the ARC objected to the location of a childcare centre in a rural zone.

Late last year, Sovereign Homes Ltd, applied to build and operate a childcare centre for seventy children on rural land in the Waikoukou Valley in Rodney District, North of Auckland.

The Auckland Regional Council objected to the application, mainly on the grounds that it was in the wrong location. One might think that those who promote and invest in such facilities would know best where to put them. But no. The planners know best.

The ARC’s Regional Policy Statement seeks to “protect rural character from urban uses”. In the ARC planners’ world, a rural childcare centre is an urban use.

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<sup>45</sup> Metropolitan Urban Limit.

The evidence, presented by Craig Shearer, Director Strategic Policy, opened by explaining the purpose of the Auckland Regional Policy Statement, and the framework it provides for “guiding urban growth and development throughout the Auckland Region” explaining that:

*Central to this direction, in relation to urban growth management, is the Metropolitan Urban Limits (MUL) and containing urban development within these defined limits. ... Strategic Policy 2.5.2(3) specifies that:*

*Urban development is to be contained, within the Metropolitan Urban Limits ... and the limits of coastal settlements.*

After discussing the impact of the proposed centre on rural character and vehicle use, section 3 of the objection focuses on *Reverse Sensitivity and Potential Site Contamination*.

The second paragraph reads:

*Given the sensitive use of the proposed, [sic] consideration needs to be given to the potential for the site to be contaminated from existing or previous rural/horticultural activities. If contamination is suspected, it is suggested that investigation is undertaken in accordance with the Ministry for the Environment Guideline No 5: Contaminated Land Management Guideline, Site Investigation Analysis of Soils.*

Suddenly, the goal posts have moved. Up until this submission the focus had been on sites which had been used for horticultural purposes, market gardens or vineyards.

But in this submission the ARC is suggesting that all rural land is potentially contaminated, solely on the grounds that it has been used for rural activities.

This is a remarkable policy position for a country that continues to earn most of its export earnings from products grown on our rural soils. It seems we are prepared to believe that they are all potentially contaminated and unsafe for children to walk on and play on.

There is of course no evidence, of any kind, to support this assertion.

#### **6.4 The Liability Risk: the problem and the solution**

On the 8<sup>th</sup> February, 2005, Waitakare City Council resolved to continue to attach information relating to contaminated soil risks on the LIM reports for land previously used for horticulture in its peri-urban areas.

The notice attached to the LIM report directs prospective purchasers to the Gaw report as a source of advice.

The Press release contained the following statement:

*We also need to consider that if we do not disclose the information and contamination is found later, the Council may be sued at a cost to ratepayers.*

We have seen that the risk of anyone being able to bring a successful action against council on the grounds of ill health is so tiny as to hardly worth considering. Certainly, the costs to individuals are high. Properties are being devalued and sales are falling through.

If this fear of litigation leads to similar responses throughout New Zealand then the costs to the whole economy will be massive – and these costs are more than monetary costs. They include the costs of sustaining a culture of fear.

The easiest and most efficient way to address this fear of litigation is for Government to include insurance against such litigation in its earthquake and war damages fund or even through a dedicated indemnification of all local bodies in the country.

The cost to government would be low while the benefits to the national economy would be high.

## **6.5 The Next Campaign**

Now that the contaminated soil arguments are wearing somewhat thin the Smart Growth group are already mounting their next campaign designed to keep us all locked up behind some urban fence. This new campaign is set to persuade us that drinking water collected off our roofs or from bores is unsafe.<sup>46</sup> The inevitable conclusion is that we should all drink water supplied by reticulated supplies, which of course are only available within urbanized areas.

Of course, those of us who live in rural areas know there are a host of technologies, now available, which make our water both safe and sweet to drink.

## **6.6 A Remarkable Change in Policy**

On the 7<sup>th</sup> January 2005, Sarah Harvey, Environmental Scientist and Team Leader Contaminated Land Management wrote to the Chief Executive of Waitakere City in response to a letter from Waitakere City seeking clarification of the status of the new ‘acceptance levels’ provided by Dr Cavanagh of Landcare Research.

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<sup>46</sup> See for example *House Roof Runoff: is it as clean as we think?* By Gudd and Kennedy of Kingett Mitchell and Associates, presented to the 2<sup>nd</sup> South Pacific Stormwater Conference, 2001.

The letter includes the statement:

*The ARC is unable to recommend or endorse the revised human health trigger limits<sup>47</sup> for Copper, DDT, Lead and Dieldrin, as we don't have a public health mandate.<sup>48</sup>*

Surely, it is somewhat late in the day for the ARC to decide that it has no 'public health mandate'? Should they not have established this before commissioning the Gaw report which lead to landowners' LIM reports carrying notices regarding contaminated soils, and to newspaper articles and editorials talking of toxic sites, and to Ministers of the Crown advising occupiers of such sites to wear gloves in the garden, and to refrain from eating their home grown fruit and vegetables?

The letter goes on to advise Waitakere City as follows:

*However, TLA's<sup>49</sup> have a public health role under the Health Act, therefore Waitakere City Council can choose to accept and use the scientific information provided in the reviews for your own purpose.*

The buck appears to have been swiftly, and conclusively, passed.

## **7 Conclusion – A means to achieve a discredited End.**

Smart Growth becomes more discredited by the day.<sup>50</sup> If fails to achieve any of its stated goals but is remarkably, but predictably, successful at pricing low and middle income households out of the housing market. Smart Growth policies make it particularly difficult for new entrants to enter the housing market and get their feet on the first rung.

The end result is an inflated property market, with excessive borrowings, reduced real disposable incomes, and reduced fertility rates. Families and low-income households migrate to more affordable housing markets whether they are domestic or in overseas locations such as Queensland or middle USA. Start-up businesses soon follow. Ironically Smart Growth promotes urban sprawl and low quality inner city housing, which is all overpriced. It is difficult to imagine a worse set of public policies.

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<sup>47</sup> Dr Cavanagh's 'acceptance levels'.

<sup>48</sup> Author's emphasis.

<sup>49</sup> Territorial Local Authorities – ie City and District Councils.

<sup>50</sup> See *Anti-Sprawl Laws, Property Rights Collide in Oregon*, Washington Post, by Blaine Harden, February 28 2005. A new law in Oregon, now catching on in other States, compels the government to pay cash to longtime property owners when land-use restrictions reduce the value of their property -- or, if the government can't pay, to allow owners to develop their land as they see fit.

The need to restrict the use of land outside the Metropolitan Urban Limits means that Smart Growth planners have to keep inventing reasons for making land unavailable for residential development. This recent attempt to declare all our rural land as unfit for human habitation and use is the most recent and most publicized example. We should not be surprised that the contaminated soil scare campaigns have been imported from America. America is the home of Smart Growth and these supplementary policies follow the base policy as surely as night follows day.

The costs are massive.

## **8 How can we prevent this happening again?**

### **8.1. Bad strategy leads to bad outcomes**

The first and obvious step is to abandon Smart Growth policies. There can be little doubt that without the Smart Growth Strategy there would have been no reason for the ARC staff to initiate these actions designed to put so much peri-urban land 'out of bounds' for urban development to accommodate urban growth. This simply follows a pattern already established in the Smart Growth States of the United States and elsewhere. When so much land is available some exercise of the imagination is required to convince decision makers that a great shortage prevails.

Now that we have disposed of contaminated soils, Tsunami will no doubt emerge as the next front runner.

'Junk science' emerges as a servant of political ends.

### **8.2 Contestable Advice**

Most councillors have to receive all their advice from their own internal sources.

Parliamentarians have access to contestable advice.

Councillors should have their own access to other sources of information and have access to fund which can be used to commission those sources where appropriate. At present, councillors have to either accept or reject such reports, and there is considerable pressure against rejection. The opportunity to seek external advice would be a useful check. Probably the very existence of the 'contestable option' would reduce the need to use it.

An obvious response is to subject all such technical reports to rigorous peer review. Had the Gaw report been subject to serious peer review, prior to distribution and publication, many of the downstream costs and outcomes might have been averted.

### **8.3 Neutral analysis.**

One of the greatest inventions of the twentieth century was the double-blind medical trial. In such a trial, neither those who are the patients in the trial, nor those who administer the treatments, know which are the genuine drugs and which are the sugar pills.

Unfortunately, so many scientists now depend on patronage, from either the public or private sector, their science all too often reflects the bias of the patrons who supply the funding.

There is a strong case for keeping the source of the funding secret from the researcher. An alternative is to have the costs of any research project shared between groups with opposite interests. For example a study of the pollution of water ways could be funded by the MfE, the Ministry for Economic Development, Fonterra, and the Royal Forest and Bird Society. Or each organization could fund four different scientists to carry out the same research.

Justice must be blind and evenly balanced. And so should research. Hence funding should be blind, balanced or both.

### **8.4 Objective analysts.**

We are all entitled to our enthusiasms. When handing out research projects we should check people's CVs to ensure that they are not driven by current enthusiasms which might impact on their work – or that at least their years of enthusiasm are some reasonable number of years behind them.

### **8.5 Healthy Skepticism.**

Finally, all those who receive such papers and reports should approach them with a healthy skepticism. Some useful tips follow:

- Computers are toys for grown-ups seeking government funds. Computer models are the outputs of such toys. Such models will generate any output the programmer desires. If you need to announce that global warming will raise the temperature of the earth by ten degrees in five years time a few key punches will deliver such an outcome. Hitting different keys will deliver global cooling.

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- Look for the ‘ground proofing. If vehicle pollution is killing Aucklanders from respiratory diseases one would expect the respiratory disease wards to be full of white collar workers from the CBD. They are not.
- Look for counterfactuals. If you are told that all swans are white, only one black swan is needed to prove that theory wrong. When told that people hate reflective buildings on ridges wonder why we admire the Parthenon.
- Measurements beat theories. Some theories tell us that the sea level must be rising in Whakatane. It isn’t. Measurements tell us that because the local tectonic plate is rising the sea level is actually falling.
- Have a healthy suspicion of research reports that create jobs for the departments that generate them. It would seem unwise to employ a soil-testing laboratory to report on the need to sample soils.
- Finally, remember this. If our environment is so toxic and our food so dangerous how come we are the longest lived, and healthiest generation the world has ever known?
- Look up *hormesis* on the web. And learn why a little bit of what is bad for you does you good.

**Centre for Resource Management Studies**

## Appendix I

### Another Region Gets it Right

See *Taranaki – Our Place, Our future. Report on the state of the environment of the Taranak Region – 2003, Part 3.4 Hazardous substances.*

This report prepared by Worley Consultants is a salutary contrast to the Auckland story.

The consultants identified a range of 28 land uses likely to lead to contaminated sites.<sup>51</sup> The list included such activities as Airports, Petrochemical plants, Timber treatment plants, Vehicle Wreckers, and Horticulture. There were 1138 sites on the list.

After a ten year testing programme only 13, or 1.8%, of the sites were confirmed as contaminated and the report found ‘based on current knowledge, no sites currently pose an unacceptable environmental risk. Nine sites have been remediated and one was in the process of being remediated.

‘Scrap metal yards’ had generated the most contaminated sites – 3 out of the 423 tested.

‘Other metal processing’ was next, with two sites confirmed as contaminated.

‘Horticulture’ gave rise to no confirmed contamination.

The report clearly recognizes that copper on timber treatment sites indicates the presence of CCA (Copper Chrome Arsenate).

The survey had tested sites actually used for the storage of dieldrin and found no residual contamination.

The Taranaki Councils had decided there was ‘a perceived problem’, and set out to test the reality against the perception. The survey was not driven by any other agenda and the methodology was systematic and robust. The end result was to set the public minds at rest, and must have generated some level of confidence in the local authorities concerned.

The survey found that the Dow chemicals sites had been cleaned up, and there was no residual contamination in current soils. These findings are not inconsistent with the later studies which found elevated (but not dangerous) levels of dioxin in the blood sera of those who had been exposed to dioxin while the company was operating its plants from the 60s to

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<sup>51</sup> Probably drawing on the *Hazardous Activities and Industries List*, (HAIL) developed by MfE and listed on their web site.

the 80s. The recent awards of compensation are similar not related to residual contamination of soils.

The Centre believes that the processes and methodologies adopted by the councils of the Taranaki region provide a sound model for others to follow.

## **Appendix II**

### **The Massive Economic Costs of Smart Growth**

In 1996 the Governor of the Reserve Bank commissioned , now director of the Centre for Resource Management Studies, to report to the bank on *The Impact of the Resource Management Act on the Housing and Construction component of the Consumer Price Index*.

The executive summary of this 1996 document concluded with the following observations:

#### **The High Cost of "Providing for Growth by Containment"**

##### **The ARC policies of containing growth**

The major cause of ongoing increases in housing costs is the ARC's policy that Auckland's growth should be managed by a policy of containment which restrains growth outside the present urban limits, while concentrating development within the present urban limits. These policies rest on the unfounded assumption that the present city form is 'unsustainable'. These arguments are without foundation both in fact and probably in terms of the Act. Opinion surveys and Census Data, indicate that the Regional Policy Statement seeks outcomes which the majority of Aucklanders do not want, and are likely to resist, and are contrary to present practice. Such a massive re-direction of preferences must introduce high costs with downstream effects on the whole economy.

## The Concluding Paragraph

The Executive Summary concluded with:

*Unless changes are made, the shortage of residential land in Auckland seems set to continue and new housing prices will continue to escalate, with a consequent impact on the CPI and monetary policy.*<sup>52</sup>

## By 2005 these 1996 Predictions had Come True

Sadly these findings were ignored and the Councils of the Auckland Region continued to implement Smart Growth strategies. The end result is a dysfunctional housing market, which has now earned the Auckland Metropolitan Region the dubious distinction of being sixteenth in the list of the 26 most “severely unaffordable” housing markets in the markets of the United States, Canada, Australia and New Zealand. (See the recently published findings of a report by Wendell Cox of *Demographia*<sup>53</sup> – which are attached to this submission.)

Remarkably, 23 of these 26 severely unaffordable markets have adopted “Smart Growth” planning strategies. None of the “affordable” markets identified in the *Demographia* report have adopted “Smart Growth” strategies.

Housing affordability is calculated using an index jointly developed over several years by Wendell Cox, The Centre for Resource Management Studies, and others. Recently Hugh Pavletich of Christchurch joined with Wendell Cox of the US to use this index to compare the housing affordability of houses in the markets of the US, Canada Australia and New Zealand.

The index is the ratio of the median house price for any bounded area over the median household income within that bounded area. The bounded area can be a city block, a region, or a whole country. The boundary area used in the current study by Cox and Pavletich is the Metropolitan Urban Area. So the term “Auckland” or “Houston” refers to the Metropolitan Urban Area. (Making sure this measure was reasonably consistent took up most of the research behind this current report.)

All major Australian markets are “severely unaffordable”, while only Auckland is “severely unaffordable” in New Zealand. “Severely unaffordable” markets have an affordability index of 5.1 or greater. (Auckland is 5.9, Sydney is 8.8).

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<sup>52</sup> This was 1996. Most commentators claimed this prediction was wrong.

<sup>53</sup> If you are not in receipt of the full submission go to [www.demographia.com](http://www.demographia.com)

Affordable markets have indices of 3.0 or less. These include some of the largest and most rapidly growing cities of the United States such as Houston (2.7) Atlanta (2.6), and Calgary (3.0) in Canada. Wellington at 4.1 is ranked “seriously unaffordable”, while New Orleans and Memphis are ranked “affordable”.

The conclusion is clear. “Smart Growth” policies (no matter what their name) generate unaffordable housing markets. Other work by Wendell Cox and others (including myself) demonstrates that “Smart Growth” also fails to deliver any of its claimed benefits. Those States in America with the most stringent anti-sprawl rules have the highest rates of urban sprawl.

This should not surprise us. For example the rationed land in North Shore and Rodney means that many migrants leapfrog over the North Auckland cities to settle in the Kaipara District, because it is out of range of the ARC.

Also, large minimum lot sizes are a standard tool of those “Smart Growth” planners who seek to reduce sprawl and save productive rural land. Yet if four households want to move into the countryside they may typically only want a 1/2 hectare lot each, which means they use only 2 ha of rural land. But if your rural zone has a 20 ha minimum lot size then those four households use up 80 hectares of rural land. How do such large lot sizes reduce the “loss” of rural land.

“Smart Growth” has made the Auckland Metropolitan Urban Area one of the least affordable housing markets in the New World. The news media have generally alerted us all to the fact that this makes it difficult for young families and low income households to enter the housing market. So I shall not dwell on those costs – which are both economic and social.

There are other equally serious costs. While “Smart Growth” is normally introduced to manage rapid urban growth the “Smart Growth” policies soon reduce fertility rates (because young couples cannot afford to house their children) and reduce immigration rates (as potential immigrants find cheaper housing markets elsewhere.) Hence these rapid growth cities soon go into population and economic decline and aging households come to dominate their population. Schools and shops close and a vicious cycle sets in. Suddenly land and house prices collapse in the face of falling demand and thousands of families lose their life savings or retirement funds.

Also the general philosophy of 'Smart Growth' is hostile to change and development, so new business start-ups migrate to more 'aspirational' markets where new citizens are seen as a benefit rather than a cost. 'Aspirational' markets do not fine their new citizens with 'development levies' – which are actually 'anti-development' levies. They welcome them as wealth producers rather than dead-weight costs. Only "Smart Growth" councils regard new customers as a costly problem.

The current house-price-driven property boom has meant that the Reserve Bank has had to increase interest rates to probably double what would prevail in an economy with an "affordable" housing market. These high interest rates drive up the value of the New Zealand dollar with a negative impact on our export sector. These costs are massive and impact on every part and on every member of the New Zealand economy.

The current so-called economic boom has not been fuelled by investment in productive plant and hence is not driven by increased productivity. The boom is driven by borrowing against inflated house prices and valuations and is used to fund consumer spending.

When this current business cycle enters its inevitable downturn we shall not find a reservoir of investment in plant and equipment or human capital. We shall find a housing market suffering collapsing prices, forced mortgagee sales and diminishing savings.

Asking well-established decision makers to make an affordability index of 3.0 their goal (as it used to be in the eighties) may seem like asking turkeys to vote for an early Christmas. After all they are the ones benefiting the most from inflated house values.

But we have to remember that the index is a ratio of house value over household income. If we reduce spending on mortgages (and the excess is almost entirely funded by offshore borrowing) then we shall all have extra money to spend in our pockets and we will invest some of that in productive enterprises and equipment and our household incomes will increase. Hence, we can manage a situation where affordability is improved by keeping house prices stable household income increases. So if median house prices in Rodney are \$300,000 and median household incomes are \$60,000 we have a high index of 5.0. If we let things drift this will eventually correct to three by a collapse of house prices to \$180,000. A much better way is to steadily increase the supply of affordable land, and promote economic growth, so that we end up with house prices of \$300,000 and household incomes of \$100,000 which gives us an index of 3.0,

This is perfectly feasible if we abandon "Smart Growth".

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Surely we should pursue the “win-win” game.

On the other hand, if we continue to pursue Smart Growth the bubble will finally burst and the social and economic costs will be massive.

Smart Growth is a “lose-lose” game.

### **A Social Policy Goal for Government**

*The Government should acknowledge that unaffordable housing is now a serious issue and that the Government should set an affordability index of 3.0 or less, as a goal to be achieved within five years, across all the housing markets of New Zealand.*

Achieving an affordability index of 3.0 or less would really be doing something for future generations.

They will thank us for it.