

## **New Zealand's Accident Compensation Scheme and Man-Made Disease**

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This paper proposes that cover provided for "personal injury" within the current Injury Prevention, Rehabilitation, and Compensation Act 2001 should be extended to include man-made disease. The concept of man-made disease is used to distinguish between naturally occurring diseases and diseases that are predominantly caused by human activities. An analysis of the existing principles within the accident compensation scheme reveals that such an amendment is supported by three principles in particular: the replacement of the right to sue for personal injury, community causal responsibility and prevention. It is argued that as well as introducing long-needed consistency into the scheme, cover for man-made disease would remedy some of the problems regarding compensation for work-related diseases.

### **I INTRODUCTION**

On 1 April 1974, New Zealand's Accident Compensation Scheme took over from the common law to provide efficient and comprehensive compensation for victims of accidents. From its inception, a distinction was drawn between accidents and sickness, making cover available for one type of misfortune but not for the other. This distinction is both anomalous and unfair if compensation is to be based on "need". Indeed, some attempts have been made in the past to create a truly comprehensive scheme, but none of them were successful. In light of these unresolved tensions between accident and illness, affordability and justice, arbitrariness and universality, law makers should reach for a middle ground that remedies the lack of principle, but avoids the difficulties of full-scale cover.

Instead of focusing on accidents, the scheme should include cover for both accidents and man-made diseases. The concept of man-made disease encompasses injuries that are mostly non-traumatic and cannot be traced back to a specific time and place. Work-related conditions, diseases caused by exposure to man-made toxins or disease linked to man-made radiation all fall into this category. Man-made diseases can thus be contrasted with naturally occurring diseases such as genetic disorders and infections. Evidently, this classification is not scientific, and the boundaries of the two classes of disease are not fixed. For the purposes of this discussion, the main feature of man-made disease is that it is predominantly caused by human activities, or by the products of human activities. The relevant criterion for cover is not "need", but remains cause-based.

The meaning of "personal injury" within the Injury Prevention, Rehabilitation, and

Compensation Act 2001 (IPRC Act) should thus be extended to include man-made disease. This focus on anthropogenic (man-made) harm is supported by three principles on which ACC already operates: the abolition of the right to sue for personal injury, community causal responsibility and prevention. These principles will be analysed in Part III. Part IV discusses the practicability and the possible scope of such a legislative amendment. Finally, the argument will be made that extending cover to man-made disease would remedy some of the problems in relation to compensation for work-related diseases.

Throughout this essay, reference will be made to a particular case of toxic exposure to illustrate the arguments presented. From the 1960s to 1988, sawmill workers in Whakatane were exposed to pentachlorophenol (PCP), an organochlorine containing dioxins. PCP was used on timber to prevent the fungal infection sapstain and is linked to a range of health problems, including skin rashes, injury to organs and possibly cancer. Out of 59 ACC claims, approximately 40 were rejected because the workers could not show that they had suffered a work-related disease. PCP is the source of both accidents and man-made diseases. It has affected the sawmill workers' health as well as that of their families. This example demonstrates the shortcomings of the scheme as it stands today, and gives an insight into the concept of man-made disease. At present, there are no approved products in New Zealand containing PCP. It is banned in many countries and is classified as a highly hazardous pesticide by the World Health Organization.

## II THE CURRENT LEGISLATIVE REGIME

The distinction between accident and disease originates from the pragmatic decision in 1967 to increase the scheme's affordability by excluding cover for both sickness and disability. Lawmakers did not differentiate between naturally occurring and man-made disease, relying instead on an exception of work-relatedness and on the capacity of other systems, such as social security legislation, to deal with the remaining cases. The current legislative framework of ACC is contained in the IPRC Act. Cover under the Act is limited to "personal injury" sustained in New Zealand. In defining the term "personal injury", section 26 expressly excludes "personal injury caused wholly or substantially by a gradual process, disease, or infection". The only exceptions to this exclusion can be found in section 20(2)(e)-(h). According to that section, the meaning of "personal injury" also extends to a gradual process, disease or infection that is work-related, a treatment injury or "consequential on personal injury ... for which the person has cover". Injuries caused by a gradual process, disease or infection thus only come under the ambit of ACC if they fall within these categories.

"[P]ersonal injury caused by an accident" is specified as one of the main grounds for cover. The term "accident" is set out in section 25 and, in maintaining consistency with sections 20 and 26, does not extend to gradual injuries. In fact, a defining feature of an accident within the meaning of the IPRC Act is the transient nature of its cause. The section includes particular time frames to highlight this temporal limitation, such as "a specific event or a series of events, other than a gradual

process", "the inhalation ... [or] the oral ingestion of any ... foreign object on a specific occasion" or "the absorption of any chemical through the skin within a defined period of time not exceeding 1 month". This terminology thus demonstrates the legislature's intention to prevent gradual diseases from creeping into the Act via an extended meaning of "accident".

It should be noted that, despite this categorical exclusion of disease, some sick claimants can still qualify for cover even if they do not meet the requirements of the recognised exceptions in section 20(2)(e)-(h). In these cases, the claimant's disease is classified as an accident because it was caused by external factors within a limited period of time. The source of the disease is usually man-made. Asbestos-related illnesses demonstrate this point well. Asbestos is the cause of two diseases: mesothelioma, a form of cancer, and asbestosis, a chronic respiratory condition that often leads to lung cancer. While the latter develops with long-term exposure and is therefore not generally covered by ACC, the former is caused by the inhalation of a single fibre of asbestos and thus arises, in accordance with subsection 25(1), "on a specific occasion". As in the case of these two conditions, anthropogenic disease often involves a latency period, that is a period in which the disease is already present but has not yet manifested itself. The question whether the cause of the disease was an isolated event or gradual exposure is therefore far from straightforward.

As the concept of man-made disease is not compatible with the sickness/accident divide of ACC, the legislature has simply ignored its existence. However, the generalisation of sickness has had undesirable consequences. It has marginalised victims of toxic exposure and has created anomalies in the treatment of man-made disease. A non-worker contracting asbestosis would certainly be justified in thinking that ACC subjected claimants to the exact "lottery" that it was supposed to replace. As objectionable as these effects might seem, however, mere injustice cannot constitute a valid reason for recognising man-made disease as an additional ground for cover. The sufferer of a naturally occurring illness is surely as deserving of compensation as the victim of a man-made disease. The suggestion to include man-made disease in ACC must thus be founded on different reasons.

### III ACC PRINCIPLES AND MAN-MADE DISEASE: A QUESTION OF CONSISTENCY

When the Woodhouse Commission first devised the concept of an accident compensation scheme, he envisioned universal coverage for both injury and sickness. This integrated approach would have been supported by two fundamental principles: The first, "community responsibility", is founded on the idea of social solidarity and recognises the state's obligation to support the incapacitated in return for collectively benefiting from the productive work of individuals. The second principle, "comprehensive entitlement", follows automatically from the first and emphasises that, contrary to tort law, the cause of incapacity is irrelevant. It is the incapacity itself which is in issue and which attracts compensation. Consequently, cover should be provided on the basis of need.

It is clear that the injury/sickness divide as described in Part II undermines both these principles. A cancer sufferer and the victim of a car accident are equally deprived of "their ability to contribute to the general welfare" and should therefore automatically trigger social solidarity in the form of comprehensive entitlement. Yet, under ACC, only the accident victim will receive such benefits. Woodhouse himself acknowledged this anomaly, but did not address its theoretical implications. The distinction between injury and sickness is not compatible with the rationale of assisting those in need. On the contrary, it is the cause of a person's incapacity rather than the incapacity itself that determines a claimant's eligibility for cover under the scheme. The scheme as it was implemented therefore has little in common with the original Woodhouse principles.

As the focus on accidents has rendered the "Woodhouse logic" more or less obsolete, a sound argument for extending or modifying ACC has to be founded on a different set of principles. Without a principled framework, changes to the IPRC Act are arbitrary and will lead to a fragmented system of compensation, eroding public confidence in the scheme. This lack of direction also invites judicial expansionism and thereby jeopardises the principle of fiscal responsibility. While it has been suggested that new "mid-level principles" must be created to guide further decision making in this scheme of limited scope, the proposal to extend cover to anthropogenic diseases already conforms with the existing conceptual framework of ACC. It therefore does not require the devising of completely new principles. Both in the present and in the suggested scheme, the cause of incapacity is paramount. A rediscovery of the need principle is thus not advocated here. Instead of distinguishing between accident and disease, however, the system should draw the line between accidents and man-made disease on the one hand, and naturally occurring disease and disability on the other hand.

Hence, the driving force behind this idea is the current accident scheme itself. ACC operates in accordance with a set of principles that can be applied to man-made disease. These principles are the replacement of the right to sue for personal injury, community *causal* responsibility and prevention. Although these principles are deep-rooted in the scheme, the absence of cover for man-made disease presents an unattractive inconsistency. The suggested change to the "boundaries of ACC" is merely a necessary adjustment, intended to close a gap within the current scheme. Each principle will now be analysed in more detail to establish its position within the IPRC Act, to assess its relation with man-made disease and to address some of the effects that result from its inconsistent application.

## A The Replacement of the Right to Sue for Personal Injury

### 1 The replacement of the right to sue for personal injury and ACC

Considering that the conceptual differences between illness and accidents are at first sight easy to grasp, and that cover for illness would involve extensive costs, it appears as if making a distinction between injury and sickness was nothing more than a pragmatic move on the part of decision-makers. Torn between the necessity of affordability and the ideal of comprehensiveness, the line had to be drawn at a clear, yet (seemingly) anomalous point of demarcation. However, some

logic can be detected in this distinction. The groundbreaking feature of ACC was of course the abolition of the right to sue for personal injury. By replacing common law damages with accident compensation, ACC was intended "to supplant the vagaries of actions for damages for negligence at common law". Consequently, sickness was beyond the scheme's boundaries as sick people had never had the option of seeking redress through courts.

Some exceptions to the exclusion of sickness were recognised, however, such as occupational disease. Cover for work-related illness represents a logical departure from the focus on accidents because, in the absence of worker compensation legislation, occupational disease would be actionable at common law. On a narrow approach, the underlying rationale of the system is therefore to provide compensation for harm that would otherwise be actionable at common law (with the accident concept being the most congruent with personal injury law). Broadly speaking, cover is available for injury that has an external cause – an accident and/or actions by a third party. This broader approach is necessary to avoid the replication of tort concepts in a no-fault system.

## 2 The replacement of the right to sue for personal injury and man-made disease

Considering this aim of abolishing personal injury law, it is surprising that anthropogenic disease that is not work-related is excluded from the scheme. At common law, the right to sue for a disease caused by toxic factory fumes for example is – at least in theory – equally available to workers at the factory and to nearby residents. Yet ACC's reach is limited to work-related disease. It has been suggested elsewhere that gradual process conditions should not be generally excluded merely because they are not work-related, and that man-made diseases in particular have to be included in the scheme if a true substitution of the tort-system is to be achieved. There is simply no justification in principle for distinguishing between accidents and man-made disease.

### (a) The survival of tort law

One of the effects of this blanket notion of disease has been the development of a grey area between accident compensation and tort law. As civil claims for non-occupational man-made disease are not barred under section 317 of the IPRC Act, victims retain the option of litigation. This creates uncertainty where the distinction between accident and disease is not clear-cut. In *Rinnai v Pickard*, a mother and her son sought common law damages for carbon monoxide poisoning caused by a heater. The son, however, had previously lodged a claim for the poisoning with ACC which was accepted. The plaintiffs argued that the ACC claim only covered a specific incident of poisoning on a particular day, while the personal injury in issue related to the long-term harm that the heater had caused before and after the "specific occasion". The mother, on the other hand, had solely experienced gradual poisoning. The defendant argued that the proceedings were barred by section 317 and that both causes of action should be struck out. The Court did not agree with this. As described by Robertson J, inhalation of gas while sitting in front of the heater might have been enough to cause illness on a specific occasion, whereas moving about the house and thus inhaling gas intermittently would lead to gradual illness. It is difficult to accept that cover for one type of

health condition caused by the same appliance could depend entirely on the timeframe within which the harm occurred.

Apart from uncertainty as to which compensation system is applicable, the survival of negligence actions has two further undesirable impacts: First, it leads to disparities in compensation as tort damages generally outweigh ACC benefits. Second, it undermines the no-fault principle: With increasing knowledge of toxic substances and disease causation, it is likely that negligence actions for gradual illness will increase in future, reintroducing the fault requirement for personal injury on a growing scale. Where the application of the IPRC Act is uncertain, claimants might attempt to circumvent ACC in order to gain greater compensation through the courts.

Finally, it should not be forgotten that what made ACC possible was the efficiency gain associated with the replacement of the common law. While personal injury actions involved high transaction costs that could be avoided by providing no-fault cover, compensation for naturally occurring illness did not promise any economic gains beyond the benefits of effective rehabilitation. Assuming that man-made diseases are or will be the subject of litigation to a sufficient extent, this class of illness would therefore not stand in the way of the scheme's affordability.

(b) Deficiencies of tort law in exposure cases

There are some general deficiencies of the tort system that motivated the development of an accident scheme, such as the failure to compensate a large number of victims, unnecessary transaction costs and long delays. As was mentioned above, the damages received at the end of a trial might outweigh ACC compensation to a considerable degree, and some victims will no doubt prefer to have their day in court and see justice being done. However, in light of the small proportion of victims that finds redress in the courts, it is fair to say that for many people "certainty of recovery ... [is] worth much more than the chance of recovering a higher sum". In addition to the general points just mentioned, tort law performs particularly poorly in gradual exposure cases. Leaving aside the problem of proving causation, which would present similar difficulties under ACC and which will be addressed in a later part of this paper, there are some inherent features of disease cases that could be remedied by a no-fault approach.

First, proof of fault can present a significant hurdle to plaintiffs in a common law action who have to show that the defendant behaved negligently, that is, that the defendant breached his or her duty of care to avoid reasonably foreseeable harm. Of course, the risk of disease is often extremely difficult to foresee due to a lack of scientific knowledge, and unless, for example, regulatory safety standards were breached, the required level of carelessness would be difficult to establish. Even if the defendant possessed information about health risks associated with the relevant substance or activity and thus acted negligently, or even if such information had been reasonably available, it is uncertain whether this fact would ever be revealed at trial. As reasonable foreseeability of harm is irrelevant in the context of ACC, the unavailability of information before the onset of the disease

will not impact on the success of a claim. Actual or reasonable knowledge of the risk does not have to coincide with the harmful activity. For the purposes of compensation, sufficient scientific information is therefore only crucial at the time of making the claim to determine causation.

Second, the fault requirement is complicated by the matter of corporate liability. For a corporate liability claim to succeed, the company must still be in business when the illness is detected. As diseases often have a long latency period, this condition may well not be satisfied, leaving claimants without redress. Even if the company is still in business, it might not have sufficient assets to pay out damages to a potentially huge group of victims. The rise of "network societies" also shelters businesses from liability. Networks are a form of strategic organisation that interlinks various groups and institutions and is built on dynamic structures of communication. As players within the network become more and more interconnected, the causal chains of their actions become diffuse, enabling them to displace risks on to groups outside of the network. Attribution of fault and proof of causation are rendered impossible. Powerful networks thus shield their participants from liability by transferring the costs to weaker groups.

Third, apportionment of responsibility can be a complex issue in common law actions that involve disease. In the case of multi-source exposure, a court faces considerable difficulties in fairly attributing blame to the defendants. Joint contribution to the development of a disease could impede a finding of negligence, for example. If the cumulative effect of a commonly used chemical was harmful to consumers, individual producers might not be held negligent because the effects of such widespread use were unknown and unpredictable. In *Fairchild v Glenhaven Funeral Services Ltd*, the House of Lords had to deal with the opposite scenario. Different employers had exposed the plaintiff to the risk of mesothelioma, yet it was impossible to determine which single fibre of asbestos and so which defendant had actually caused the disease. Although the judges in this case were able to find an innovative solution to a complex legal problem, the case illustrates the vulnerable position of plaintiffs who have been exposed to hazardous substances from multiple sources. Another difficult task in these circumstances is the allocation of damages once negligence has been established. Disease cases therefore implicate liability boundary problems that would not arise in ACC. Without needing to establish legal liability, it is unnecessary to attribute fault to a diffuse class of defendants.

### 3 Conclusion

Although the abolition of the right to sue for personal injury is a core principle of ACC, common law actions for man-made disease are still possible. Some of the workers at the Whakatane Sawmill took treated timber off-cuts home to use as firewood. If family members had experienced high fevers as a direct result of the exposure (pentachlorophenol causes cells in the body to produce excess heat), section 25 would have applied. However, if regular fires had caused damage to the liver and to the immune system, a common law action would have been the only option. So while man-made diseases are partially covered by ACC, all gradually developing cases will have to be

dealt with in civil actions. This partial survival of personal injury law can lead to uncertainty and injustice.

One of the main motivations to replace negligence actions with no-fault compensation was to remedy the common law's deficiencies. The common law has failed particularly in respect of disease cases. To succeed in a claim of negligence, the sawmill workers would have to establish that Carter Holt knew or should have known of the health risks posed by the use of PCP. The Carter Holt-owned sawmill in Whakatane closed down in 1988, but the dangers of PCP were only officially revealed in a government funded study in the early 1990s. It might thus be difficult to prove negligence on the part of the company.

The scheme's replacement of common law actions is not the only indicator, however, that cover for man-made disease corresponds with already existing principles. Community causal responsibility is another idea that already manifests itself in ACC and that supports the inclusion of man-made disease in the system.

## **B Community Causal Responsibility**

### **1 Community causal responsibility and ACC**

The principle of community responsibility was considered to be one of the foundations for a universal compensation scheme. In reality, however, the principle merely functions as an ideological backdrop to the scheme. With the exclusion of cover for sickness and disability, community responsibility was never put into practice. It would be difficult indeed to reconcile a system that awards cover based on the cause of incapacity with this principle, the idea that the relationship between individuals and society is one of shared interests and reciprocity. Although not regarded as being of great importance by the Woodhouse Commission, community *causal* responsibility is a concept that is much more fitting: its simple premise is that society should bear responsibility for injuries that result from collectively beneficial activities. "Since we all persist in following community activities, which year by year exact a predictable and inevitable price in bodily injury, so we should all share in sustaining those who become the random but statistically necessary victims." Community causal responsibility thus recognises that human activities cause incapacity, and that society is responsible for that harm. Based on this principle, cover should be available for all incapacity caused by human activities. Community responsibility, on the other hand, extends to all incapacity regardless of its cause, and the common law merely addresses incapacity caused by fault.

In its current form, ACC does not operate according to the Woodhouse principle of community responsibility. Instead, it is effectively based on the idea of community causal responsibility. Incapacity resulting from human activities is classified as injury, whereas "naturally occurring" incapacity is considered to be non-qualifying as it falls within the concept of sickness and disability. Section 30 of the IPRC Act follows this logic by categorising work-related sickness and disability – the product of human activities – as injury. Nonetheless, to achieve consistency within the IPRC Act, it is clearly necessary to create another exception – man-made disease that is not work-related.

This is in line with previous suggestions that the principle of community causal responsibility might "support the extension of ACC boundaries to man-made diseases, processes, and so forth, which are not work-related", such as "cumulative environmental exposure to toxic substances".

## 2 Community causal responsibility and man-made disease

The ongoing refusal to acknowledge this logical connection between community causal responsibility and man-made disease disregards the wide-reaching impact that human activities have on people's health. However, there is also a positive argument to be made as to why the burden of disease causing risks should be carried collectively, which is that most of them are "risks of social progress". The use of toxic chemicals such as Polybrominated Diphenyl Ethers (PDEs) for example entails both risks and benefits for society. PDE is a flame-retardant which helps to significantly reduce the flammability of products (like seat-fabrics on planes), but is also thought to be carcinogenic. By permitting such chemicals to be employed, society either rates their benefits higher than the costs associated with them, or it deems progress more important than avoiding possible long-term effects that are yet unknown.

## 3 Conclusion

Community causal responsibility is the second principle within ACC that also applies to man-made disease. The authorisation of PCP as an industrial biocide contributed to the success of New Zealand's timber industry, and allowed people all over the country to benefit from lower unemployment rates and increased export volumes. The use of PCP was widespread, and it can be found in air, soil, water and food. The community thus has to share the burden of the sawmill workers' misfortune. This has not yet happened. After the New Zealand government had ordered the cleanup of all PCP contaminated sites, authorities issued a guideline recommending that consumption of trout from Lake Rotorua should not exceed three servings per week due to PCP discharge from the Waipa Mill. However, it did not assume responsibility for any harm to human health – harm that, as will be seen in the next section, might have been preventable.

## C Prevention

### 1 Prevention in ACC

Beside rehabilitation and compensation, prevention is one of ACC's main purposes. Section 3 describes the principle as an overriding goal "to reduce the incidence and severity of personal injury". The development of a "safety culture" is part of that strategy. ACC therefore offers a framework within which the risk of man-made disease could be comprehensively dealt with. Instead of imposing ex post liability for tortious acts, ex ante regulatory policies can be developed that prescribe certain standards of care or implement strategies of prevention. One such example is the Health and Safety in Employment Act 1992 (HSE Act) which aims to promote the prevention of work-related harm through risk management and enforcement. As well as outlining employers' duties, the Act creates a range of offences and notices for non-compliance with the provisions. Another relevant example is the Hazardous Substances and New Organisms Act 1996 (HSNO Act)

which was passed to prevent or manage harm caused by hazardous substances and new organisms. Like the HSE Act, it contains both a system for safety management and extensive enforcement provisions. The Medicines Act 1981, Food Standards New Zealand and the Food Act 1981 could also be applicable to this area.

## 2 Prevention vs deterrence in respect of man-made disease

Most tort liability systems, once hailed for their deterrence effects, have only been moderately successful at providing incentives that are sufficiently strong to prevent personal injury. The negligence standard simply does not lead to a full internalisation of future risks in the injurer's cost structure, particularly in cases of scientific uncertainty. Even a strict liability standard is said to achieve little risk internalisation because the availability of insurance cuts across any incentive mechanisms of the common law. Woodhouse therefore rejected the validity of any arguments based on the "so-called deterrent effect of the common law action".

Even so, deterrence and prevention are not mutually exclusive concepts. In fact, Woodhouse appreciated that deterrence played an important role in influencing people's conduct and referred to uninsurable threats like fines and sanctions as fulfilling that function. Prevention therefore includes deterrence, but also incorporates "a range of strategies beyond manipulation of personal motives through monetary rewards". Thus, the adoption of a preventative approach towards man-made disease would create an opportunity to fashion a regulatory framework that is both more coordinated and more research-based than tort law.

A common criticism of ex ante regulation is that law makers have imperfect information regarding the costs and the benefits of the substance or the activity that is to be regulated. This is particularly true in the case of disease causation which involves a high level of scientific uncertainty. Aside from the conclusions reached in the previous paragraph, ex post liability would appear to achieve a greater level of certainty and would thus deter tortfeasors more effectively than prescriptive regulations: following the rationale that liability should be imposed on the party best able to prevent the harm, ex post liability provides an incentive for potential injurers to conduct research that a regulator would not be in a position to undertake. Framing a set of offences and guidelines to deter or prevent man-made disease can be a difficult task when it is not even clear if certain activities or substances are harmful or not.

This deficiency of ex ante regulation could be remedied, however, by adopting a precautionary approach for the use of potentially dangerous substances. The precautionary principle has often been discarded as being too vague, and despite its widespread use in international legislation its exact meaning remains elusive. Essentially, it is a more refined version of the truism "better safe than sorry" and, by advocating caution in the face of serious or irreversible harm, stands for the regulation of unknown effects. Although section 7 of the HSNO Act requires decision making by ERMA (Environmental Risk Management Authority) to be guided by this principle, its actual

impact on the process of risk assessment is unclear.

A newly implemented chemicals policy in Europe gives insights into how the precautionary principle might be put to use more effectively. The regulation, entitled "Registration, Evaluation and Authorisation of Chemicals" (REACH), provides for the screening of both existing and new chemicals, and reverses the burden of proof by requiring producers and importers – not authorities – to show that the substances are safe before they can enter the market. Due to its regulatory context, ACC seems much better suited to the implementation of the precautionary principle than the common law. While the principle would no doubt boost tort law's deterrence effect, a regulatory regime would actively manage and control dangerous substances without claimants having to initiate the process. Such a regime would be more comprehensive, efficient and equitable.

### 3 Conclusion

Because man-made diseases are preventable, their inclusion in the scheme would accord with the principle of prevention as stated in section 3 of the IPRC Act to reduce the incidence and severity of injury. It is likely that a coordinated and preventative approach towards managing hazardous substances would have revealed the harmful nature of PCP sooner than 1991. At the time of registration, instead of assuming that PCP was safe because of no known adverse effects on human health, the onus should have been shifted to the timber industry to show that no harmful consequences would ensue from the use of the chemical. With continued exposure of timber workers from the 1950s to 1988, regular assessments of the registered substance would have prevented much suffering.

### D Conclusion

If ACC is to follow a principled approach to the provision of compensation, man-made disease must be included as an additional ground for cover. Although introducing consistency into the scheme would in itself be a valuable achievement, it would be particularly important if legislative changes were planned to widen the scope of the system. Furthermore, excluding cover for the "victims of man-made disease [who are] paradigm examples of the failure of tort and limited non-tort schemes" hampers the effective application of the principles outlined above, and thus interferes with the effectiveness of ACC.

## IV Is a legislative amendment FEASIBLE?

The next question that needs to be answered is whether extending cover to man-made diseases is even possible. As well as having to differentiate between man-made disease and natural illness, an amendment would have to tackle the problem of proving causation and should achieve fairness without "opening the floodgates". As the following discussion will show, it seems likely that an amendment based on exposure would meet those conditions.

### A Scope of the Amendment

#### 1 Man-made vs natural disease

Ideally, the distinction should be made between man-made disease and natural disease as this would accord with the legislative framework outlined above. The substitution of tort law calls for the inclusion of all disease that would have given rise to a claim at common law. Similarly, the principle of prevention is consistent with cover for diseases that are prevented more effectively through ex ante regulation than liability for harm. Community causal responsibility goes further by supporting compensation for harm caused by human activities, and might thus add a potentially large proportion of cases that, although man-made, would not have fallen within the first two principles. Consequently, a principled approach would require cover for all man-made disease.

In practice, however, the distinction between "man-made" and "natural" diseases presents a number of problems. Some authors have even gone so far as to suggest that it is wholly unworkable and administratively unfeasible. The underlying difficulty is, of course, causation: in most cases, it is simply impossible to determine the exact causes of disease. It is estimated for example that 80% of cancers are due to environmental factors, but in individual cases the origin of the illness usually remains unidentifiable. Figure 1 illustrates different classes of disablement and the relationships between them. In an amended IPRC Act, the overlap between accidents and man-made disease would not be of great practical relevance as both class 1 and class 2 would then be covered. The "area of scientific uncertainty" in the disease category, on the other hand, introduces doubts about whether a disease should be categorised as class 2 or class 3 and thus whether a disease is compensable or not.

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It has been argued that, in light of this causal uncertainty between man-made and naturally occurring disease, the inclusion of man-made disease into a no-fault system would yield no improvement to the common law. Both tort and ACC would require proof that the claimant's disease is man-made. This view should be rejected. Science will often lag behind ambitious legal standards. In cases of scientific uncertainty, the reach of the law is therefore typically under-inclusive. As a result of this, ACC is unable to provide compensation when causal uncertainty cannot be overcome and thus will never reach the (relatively) ideal level of cover for all man-made disease. However, this does not render the distinction futile. In the end, a no-fault cause-based scheme simplifies the process of proving causation in three important ways: first of all, the claimant does not need to show that a particular person or company caused the harm; second, the burden of proof does not have to be applied as strictly as at common law; and third, a centralised body of expertise can be developed to support individuals during the claims process. The causation problem would therefore be less significant than in tort. Besides, the fact that one of the difficulties experienced in tort law also arises in a different setting is not a valid reason for rejecting the shift altogether. For a more detailed

argument on how causation should be approached, see the discussion below.

The objection that the man-made/natural distinction would be administratively unworkable should also be treated with caution. Policymakers, not scientists, decide how much scientific uncertainty is acceptable. This decision will effectively determine how resource-intensive the process is. Moreover, the distinction is already made to a certain extent in the assessment of work-related injuries.

It is also important to remember that researching disease causation and collecting relevant data are not wasted efforts. On the contrary, the information would be highly valuable for the purpose of prevention. Determining what the causes are, where they originate and how they develop would enable regulators to verify what "causes the causes" and to control the original source of the harm more appropriately.

## 2 Exposure

### (a) The concept of "exposure"

Despite the foregoing conclusion that the distinction between man-made and natural disease should not be rejected outright, it is not feasible to confine an amendment to solely man-made disease. Instead, the focus should be directed at "exposure" (that is, exposure to substances, agents, contaminants and so on) to avoid the definitional uncertainties that would no doubt ensue from the concept of man-made disease. The fact that a substance occurs naturally for example does not allow the conclusion that any causally connected disease or illness occurs naturally as well. Human factors contributing to the exposure have to be taken into account, such as the role of mining or construction in asbestos exposure.

As the causes of man-made disease are by definition external factors, the concept of exposure covers almost all anthropogenic disease. The principles of substituting tort and community causal responsibility attach to injuries that have external causes, such as another party's actions, harmful substances or "a force (including gravity), or resistance, external to the human body". The only exception to this is section 25(1)(a)(iii), which adds "twisting movement of the body" to the definition of accident in an attempt to bring it into line with common perceptions of the term's meaning.

### (b) Disease caused by exposure to natural agents

The conceptual shift to exposure would evidently lead to problems if it entailed the inclusion of many naturally occurring diseases. Indeed it is not difficult to conceive of diseases that are caused by exposure to natural substances without the causal contribution of a third party or of society. A great share of those diseases is probably caused by natural carcinogens. A case in point is the consumption of pesticides as part of a common diet, 99.99% of which are natural insecticides in plants. Considering that approximately half of all tested natural pesticides are rodent carcinogens, the effect of the remaining 0.01% of synthetic pesticides on cancer rates would be negligible.

Although in some areas harmful exposure to natural toxins thus outweighs the dangers of synthetic substances, this over-inclusive choice of terminology would be of little practical consequence for two reasons.

First, natural carcinogens not only accumulate over long periods of time, but are also ubiquitous, rendering the proof of specific disease causation impossible. As naturally occurring cancer could hence never be established under ACC, it does not need to be expressly excluded. A doctor would simply not be able to determine whether the cause of an individual's cancer was genetic or life-long exposure to natural carcinogens in food. Second, notwithstanding widespread use and contact with carcinogens and other natural toxins, any long-term harm in an individual that is observably caused by exposure can be assumed to arise in conjunction with industrial activities. Although beryllium is a naturally occurring metal for example, it is only man-made exposure through commercial mining and processing that will lead to chronic beryllium disease or lung cancer. Aside from a number of exceptions that can be specifically addressed in legislation, bypassing the express requirement that the disease be of man-made origin therefore does not cause too many inconsistencies.

An important qualification to the exposure concept is infectious diseases, which are caused by exposure to microbial agents, yet represent a large group of usually naturally occurring illnesses. Although most infectious diseases do not arise gradually and are therefore already excluded by the relevant provisions concerning accidents in section 25, cover should be expressly rejected in an amendment. Furthermore, a policy decision would have to be made concerning exposure to radiation and exposure to sunlight in particular. Allergies would also require further examination. Diseases caused by exposure to chemical and physical agents therefore constitute the main class of diseases that qualify for cover, but particular exceptions to this rule may be necessary.

(c) Conclusion

Some of the definitional uncertainties concerning man-made disease could be avoided by a more inclusive approach based on exposure to chemical and physical agents. This new concept would almost exclusively apply to man-made disease. Even if the sawmill workers had exposed their families to a natural but toxic fungicide instead of PCP, for example, the exposure would still be man-made because the fungicide was used industrially.

**B Causation**

**1 The problem of disease causation**

As indicated earlier, the problem of causation arises because of unknown causal connections between exposure to chemicals and disease. Unlike accidents or injuries arising on a specific occasion, disease cannot be traced back to a specific point in time. Some latency is usually involved, and sometimes toxicity only manifests itself in later generations. The more fundamental difficulty is that most diseases are not linked to only one cause: leukaemia for example can be caused by exposure to benzene, but is also associated with radiation, genetic disorders and viruses. The

occurrence of the disease itself is therefore not sufficient to suggest causation through exposure.

In order to show that an individual's disease was caused by toxic agents, the common law requires both general and specific causation to be proved. General causation requires scientific evidence establishing a causal relationship between exposure to the relevant substance and the type of disease suffered. The question of specific causation is directed at the specific medical condition at hand and the level of exposure experienced by the individual victim. Put differently, specific causation can only be found to exist if the particular dose was sufficient to trigger the particular response.

## 2 Disease causation in ACC: room for improvement

The problem of disease causation is not foreign to ACC. Indeed, it is likely that a substantial number of work-related diseases are rejected by ACC due to overly stringent causal requirements. Despite an estimated 300-800 occupational cancers occurring in New Zealand each year, for example, only four instances of ACC cover for occupational cancer were recorded in 2001 and 2002. One of the reasons for this seems to be the confusion of medical and legal causation standards, raising the burden of proof to unrealistic heights. Doctors as expert witnesses might often be much less willing to infer causation than laymen. Some of the existing difficulties could therefore be remedied by a fair and claimant-focused application of the balance of probabilities test, and by consciously differentiating between law and science.

The issue of causation has also been addressed in the courts. Although it is well established that the onus of proof rests on the claimants, it has been held that, where cause and effect are scientifically uncertain, the burden should not be applied too rigorously. In *Accident Compensation Corporation v Ambros*, the Court of Appeal decided that although the claimant was still required to prove causation on the balance of probabilities, a court could draw "robust inferences of causation" if there was a lack of evidence to the contrary. As ACC's role is largely inquisitorial and requires an investigation of all aspects of the claim as a matter of process, Glazebrook J considered the application of such an inference appropriate. However, the Court reiterated that, to establish causation, the evidence would still need to reach the requisite standard of proof. It therefore rejected the High Court's more liberal view whereby the burden of proof shifted to ACC once certain criteria (such as proximity) had been met. Glazebrook J argued that this approach went against the clear wording of the IPRC Act, and that it could not be applied to a statutory scheme like ACC which was outcome- and not risk-focused.

As the scheme's application is not restricted by duty of care questions, New Zealand is in a unique position to take a more lenient approach to causation than would be possible under a tort-based system. Generally, causation in ACC cases is determined in two steps: first, the "but for" test is applied; and second, the policy considerations and statutory objectives underlying the IPRC Act have to be considered. With the proposed extension of the scheme, a more detailed test should be

introduced, assisting medical practitioners in their assessment of gradual exposure cases.

Most importantly, the determination of legal causation should be guided by the goal of compensating man-made disease. Without the support of authorities and realistic assessment procedures, claimants face unreasonable hardship in discharging their burden of proof. Evaluation of occupational exposure for example is often based on the assumption that workers take proper care when handling hazardous substances and that the conditions of use are as prescribed. This assumption makes proof of causation more difficult for workers who tend to remove protective gear that is obstructive or who are ignorant of the risks involved. Maybe it is even appropriate to speak of a lack of "political will" that restricts access to ACC for certain classes of victims. Thus, a pro-active culture should be adopted that does not prejudice disease victims and that eases the burden of proving causation.

### 3 Conclusion

Disease causation involves legal and scientific problems that arise both in the common law and in ACC. In comparison to a civil liability system, however, a no-fault scheme could address causation issues more comprehensively and also more liberally. In the case of the sawmill workers, governmental efforts to clean up the PCP contamination of the environment were paralleled by a complete lack of interest in the victims' welfare, signalling a systematic unwillingness to get involved in chronic exposure issues. A shift in political will is therefore necessary.

## V COMPENSATION OF WORKERS

At this point the objection could be raised that the foregoing conclusions, while offering support for the inclusion of man-made disease into ACC, do not necessitate an amendment to the scheme. Achieving consistency within the current framework would no doubt remedy anomalies in the provision of cover and could also be viewed as an end in itself, yet these benefits might be too immaterial to justify legislative action. Similarly, the mere practicability of cover for man-made disease does not compel its enactment. However, the next ACC principle to be evaluated introduces an element of urgency into the discussion and demonstrates not only that workers' compensation is inadequate, but also that the concept of man-made disease could alleviate the problem to some extent.

### *A Workers' Compensation and ACC*

Originally introduced as a response to unsatisfactory workers' compensation, ACC aims to provide cover for work-related health conditions. By virtue of section 20(2)(e), personal injury for the purpose of the IPRC Act includes "personal injury caused by a work-related gradual process, disease, or infection". Section 30 outlines the requirements that an injury must fulfil to be considered "work-related". If a claimant has a personal injury that is listed in Schedule 2, and if that person "is or has been in employment involving exposure to agents, dusts, compounds, substances, radiation, or things ... described in that schedule in relation to that type of personal injury", he or

she does not have to undergo the test of causation as set out in section 30(2). Schedule 2 therefore provides a fast-track mechanism for injuries in which general causation has already been sufficiently established. A good example is mesothelioma, a particular type of lung cancer that is almost exclusively caused by exposure to asbestos. On 17 December 2007, Cabinet approved an amendment to Schedule 2 that increased the number of occupational diseases from 17 to 41.

Work-related injuries caused by "a gradual process, disease, or infection" that are not included in the Schedule have to meet the test of causation outlined in section 30(2): first, it is necessary that "the person performs an employment task ... or is employed in an environment that has a particular property or characteristic". Second, that property or characteristic has to cause, or contribute to the cause of, the personal injury and cannot be "found to any material extent in the non-employment activities or environment of the person". Last, it has to be shown that:

the risk of suffering the personal injury is significantly greater for persons who perform the employment task than for persons who do not perform it or is significantly greater for persons who are employed in that type of environment than for persons who are not.

Section 30 thus imposes an onerous burden on workers whose claims do not fall under Schedule 2.

#### 1 The issue of work-relatedness

As can be seen from the preceding outline of section 30, the reason why ACC coverage should be extended to man-made disease is that the concept of "work-related" illness is fraught with difficulties. Many illnesses are not included in Schedule 2 simply because a causal connection with work is too uncertain or because there is the likelihood of significant non-work exposure on top of work exposure. Schedule 2 is therefore more limited than it ought to be. If Schedule 2 does not apply and a worker's illness has to be shown to be work-related under section 30, the claimant is subjected to the additional burden of having to exclude non-work exposure as a material cause of the disease. This introduces some of the already-mentioned problems of multi-source exposure into ACC. An example of how burdensome this requirement of work-relatedness is, and how strictly it is applied, is the case *Stumpp v ACC*. In that case, a mechanic appealed ACC's decision not to allow his claim for work-related irritant dermatitis because he had done an average of 1-2 hours per week of mechanic work in his free time.

It is also "increasingly artificial" to continue to employ the notion of "work-relatedness" in modern societies. Relative to traumatic injuries, such as accidents involving machinery, man-made diseases and chronic injuries in workers have been on the increase. More cases thus have to be decided pursuant to section 30. Partially abolishing the requirement of work-relatedness would enable more workers to make claims for man-made diseases, whether they were caused outside of

the work place, both at work and outside of work or wholly at work. As it is known that actual cases of work-related injuries well exceed the claims for such injuries, this would improve the system significantly.

## 2 Bystanders

Moreover, it is not known to what extent non-working bystanders are affected by occupational hazards. The danger of "para-occupational exposure", such as the indirect poisoning of family members with occupational chemicals, should not be ignored. Bystanders are also at greater risk in industries such as farming, where occupational environments are not usually separated from non-occupational environments. This particularly leaves family members and residents in a vulnerable position. Nearby residents of the Ivon Watkins Dow plant in New Plymouth, for example, were unable to obtain compensation for dioxin-related health effects and have to rely on a health support programme commissioned by the Ministry of Health instead. Furthermore, the direct and harmful impact of work activities on residents will likely remain unknown if the requirement of work-relatedness is not abolished and ACC does not commence collecting relevant data.

## B Workers' Compensation and Man-made Disease

Although the concept of man-made disease includes all work-related conditions, it is necessary to differentiate between work-related conditions that are man-made by virtue of their work-relatedness and work-related conditions that would be man-made even if they did not arise in employment. The former are diseases caused by exposure to natural agents, gradual processes and infections. As these conditions are causally linked to occupational activities, they should be considered man-made in accordance with the three principles outlined above. The latter are diseases caused by synthetic or artificial agents. Occupational viral pneumonia is an example of a condition that is only man-made because it is work-related, whereas chemical pneumonia is a man-made disease regardless of the environment in which it arose.

It is evident that the suggested concept of exposure comprises all work-related diseases that would be man-made even if they did not arise in employment and also all work-related diseases caused by exposure to natural agents. Cover for man-made disease would thus obviate the requirement of work-relatedness in those instances. Proof of a disease caused through exposure to chemical or physical agents triggers compensation, whether the exposure can be shown to be work-related or not. Naturally, proof of causation entails indirect proof of work-relatedness if the workplace is the only source of the harm. However, if the type of disease is almost exclusively caused through exposure, or if exposure is mixed (it is both work-related and non-work-related), the wider concept of man-made disease facilitates the claims process for workers. Abolishing the express requirement of work-relatedness in exposure cases also offers the opportunity to extend Schedule 2 as now "disease-exposure" links do not have to be confined to chemical and physical agents that occur almost exclusively in work environments.

Despite the general applicability of the exposure concept to man-made disease, it is apparent

that gradual processes and infections that are man-made by virtue of their work-relatedness are not caused by "exposure". Because these conditions arise in connection with work, they must still be regarded as the result of external factors. The meaning of exposure would be distorted, however, by a reference to "diseases caused by exposure to work-related activities". Work-related gradual processes and infections therefore have to be dealt with separately, and the requirement of work-relatedness must be retained.

## C Conclusion

Workers' compensation is no doubt an integral part of ACC. As the concept of man-made disease incorporates work-related diseases, the suggested amendment could put an end to the onerous burden of establishing work-relatedness in many cases. It would also remedy the lack of cover for para-occupational exposure cases. Whole families in Whakatane were put at risk because the sawmill workers, oblivious to the dangers involved, brought PCP into their homes: some burnt treated wood in their fires, or used the biocide to weed the garden, while others simply arrived home with their clothes drenched in the chemical. Although families were therefore exposed to an occupational hazard, and serious health conditions have affected the descendants of former workers, ACC would not provide compensation for any gradually developing disease that did not arise in employment. The additional exposure of workers to PCP at home would also reduce their chances of establishing work-relatedness. Workers who had relatively little direct contact with the chemical during their employment would find it particularly difficult to show that non-work exposure was not substantial.

## VI CONCLUSION

Many issues arise from the proposal to extend cover to man-made disease that are beyond the scope of this essay. Harm caused by prenatal drug exposure, multiple chemical sensitivity and genetic susceptibility are all health conditions that would require further examination. When determining whether a particular illness should be covered, regard should be had to the principles identified in Parts II and IV: the replacement of common law actions, community causal responsibility, prevention and compensation for workers.

Risks from toxic exposure are widespread and can affect all population segments. A concerted effort should be made to address the problem of man-made disease effectively by integrating compensation and prevention strategies. Although the practical distinction between man-made and natural disease is undeniably difficult, this problem is already causing hardship both within the tort system and ACC and thus ought not to stand in the way of cover for exposure cases. The same applies to the difficulties relating to disease causation. An extension of the scheme to man-made disease in accordance with the four mentioned principles would introduce consistency into the scheme, as much as is possible in a cause-based no-fault system, and would aid a group of victims that has long been neglected.

## VIII APPENDIX

### Injury Prevention, Rehabilitation, and Compensation Act 2001

20 Cover for personal injury suffered in New Zealand  
(except mental injury caused by certain criminal acts)

(1) A person has cover for a personal injury if—

...

(c) the personal injury is described in any of the paragraphs in subsection (2).

(2) Subsection (1)(c) applies to—

(a) personal injury caused by an accident to the person:

(b) personal injury that is treatment injury suffered by the person:

(c) treatment injury in circumstances described in section 32(7):

(d) personal injury that is a consequence of treatment given to the person for another personal injury for which the person has cover:

(e) personal injury caused by a work-related gradual process, disease, or infection suffered by the person:

(f) personal injury caused by a gradual process, disease, or infection that is treatment injury suffered by the person:

(g) personal injury caused by a gradual process, disease, or infection consequential on personal injury suffered by the person for which the person has cover:

(h) personal injury caused by a gradual process, disease, or infection consequential on treatment given to the person for personal injury for which the person has cover:

...

25 Accident

(1) Accident means any of the following kinds of occurrences:

(a) a specific event or a series of events, other than a gradual process, that—

(i) involves the application of a force (including gravity), or resistance, external to the human body; or

(ii) involves the sudden movement of the body to avoid a force (including gravity), or resistance, external to the body; or

(iii) involves a twisting movement of the body:

(b) the inhalation of any solid, liquid, gas, or foreign object on a specific occasion, which kind of occurrence does not include the inhalation of a virus, bacterium, protozoan, or fungus, unless that inhalation is the result of the criminal act of a person other than the injured person:

(ba) the oral ingestion of any solid, liquid, gas, fungus, or foreign object on a specific occasion, which kind of occurrence does not include the ingestion of a virus, bacterium, or protozoan, unless that ingestion is the result of the criminal act of a person other than the injured person:

(c) a burn, or exposure to radiation or rays of any kind, on a specific occasion, which kind of occurrence does not include a burn or exposure caused by exposure to the elements:

(d) the absorption of any chemical through the skin within a defined period of time not exceeding 1 month:

(e) any exposure to the elements, or to extremes of temperature or environment, within a defined period of time not exceeding 1 month, that,—

(i) for a continuous period exceeding 1 month, results in any restriction or lack of ability that prevents the person from performing an activity in the manner or within the

range considered normal for the person; or

(ii) causes death.

...

26 Personal injury

...

(2) Personal injury does not include personal injury caused wholly or substantially by a gradual process, disease, or infection unless it is personal injury of a kind described in section 20(2)(e) to (h).

...

30 Personal injury caused by work-related gradual process, disease, or infection

(1) Personal injury caused by a work-related gradual process, disease, or infection means personal injury—

(a) suffered by a person; and

(b) caused by a gradual process, disease, or infection; and

(c) caused in the circumstances described in subsection (2).

(2) The circumstances are—

(a) the person—

(i) performs an employment task that has a particular property or characteristic; or

(ii) is employed in an environment that has a particular property or characteristic; and

(b) the particular property or characteristic—

(i) causes, or contributes to the cause of, the personal injury; and

(ii) is not found to any material extent in the non-employment activities or environment of the person; and

(iii) may or may not be present throughout the whole of the person's employment; and

(c) the risk of suffering the personal injury—

(i) is significantly greater for persons who perform the employment task than for persons who do not perform it; or

(ii) is significantly greater for persons who are employed in that type of environment than for persons who are not.

(3) Personal injury caused by a work-related gradual process, disease, or infection includes personal injury that is of a type described in Schedule 2 that is suffered by a person who is or has been in employment involving exposure to agents, dusts, compounds, substances, radiation, or things (as the case may be) described in that schedule in relation to that type of personal injury.

(4) Personal injury of a type described in subsection (3) does not require an assessment of causation under subsection (1)(b) or (c).

...