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## Articles

# The Implications of the Resource Management Act to Property Rights in Agriculture Land Use in New Zealand

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The Resource Management Act 1991 sets new standards for environmental regulations in New Zealand. The emphasis of the legislation is on property rights and market solutions. This paper is concerned with the limits to market solutions in the presence of externalities and potentially high transaction costs.

## 1. Introduction

Economic theory allows us to consider the efficiency of processes by which property rights are established. Property rights, in their positive form, use the assumption of constrained utility maximization to predict individual and aggregate behaviour in response to existing and alternative structures of incentives. In an ordered society, property rights are established through custom, protocol and legislation. From them, property rules are defined which specify who may use a resource and how, and establish rights and obligations between individuals to resources (Hide). Property rights focus on the impact of changes in the incentive structure and, more generally, on collective or governmental activity where these structures are prescribed.

In a period of public scepticism over the treatment of the environment, sustainability and the government's ability to solve resource issues and problems in agriculture, the passing of the New Zealand Resource Management Act 1991 (RMA) stands as a refreshing counterpoint. By many indicators, this Act and the regulations it has generated must be counted as a progressive step towards future management of the environment and the use of natural resources. For example, the inclusion of sustainability criterion in the Act will require land and water resources which are critical in agriculture to be managed in a more reasonable manner. Farmers will require to act and think

more carefully about the impact of their actions on those who come after them. They will also have to understand that their perceptions of their property rights may be challenged by the new management paradigm. Property rights protect the existing *status quo* and incorporate mechanisms for resolving conflict between farmers' interests but may not protect the rights of others.

If property rights are not well identified within an individual system then it follows, axiomatically, that the neoclassical economic properties of choice and utility maximisation would be violated (Bromley). The perception of well defined property rights over resources is that there exist socially recognized and sanctioned rules and legislations that identify who is the owner of the resource in question (Demsetz, 1967). Owners would then have certain interests in managing and using the resource efficiently and rationally. Property rights may be governed by a *property rule* (individual A may not take actions which interfere with individual B without B's consent; but B may act and may only be stopped if A buys off B), or a *liability rule* (A may proceed even though it may interfere with B, but B must be compensated; and B may stop A provided B compensates A); or a right may be *inalienable* (in which case A cannot interfere with B under any circumstances) (Bromley).

This paper present an overview of the property rights structure from an economic perspective and examines the significance of Resource Management Act 1991 and its relevance to farming in New Zealand. It provides a contextual explanation of the implication of the

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Review coordinated and paper invited by the Editor.

RMA in reference to earlier legislation such as the Town and Country Planning Acts 1953, 1977. It also identifies the changes in the institutional arrangement that can be regarded as a legal means of creating property rights to achieve the objectives in the Act. These objectives reflect a change in society values that need to be examined at the farm level. The paper also examines the property rights structure and the significance of it in understanding land use in New Zealand. It focuses on the impact of the RMA on agriculture activities in New Zealand, via its effect on property rights. The paper concludes with a brief comparisons with land use issues and legislation in the United States.

## **2. Property Rights: An Economic Perspective**

Microeconomic theory of production and exchange has shed some light on the fundamental problem of scarcity and resource allocation. An understanding of the role and significance of property rights theory adds considerable insight to this issue. What precisely are property rights? The term property rights refers to the entire range of rules, regulations, customs and laws that define and govern rights over appropriation, use and transfer of goods and services (Randall, 1975; 1987). The market mechanism is an efficient way of accomplishing this. However, the operation of efficient markets depend on a non-attenuated structure of rights.

The concepts "rights" and "rules" have often been used interchangeably in resource and environmental economic issues and problems. Clarity in analysis is reinforced by acknowledging that "rights" are the result of "rules" and therefore not equivalent to rules. "Rights" refer to specific actions that are commissioned, while "rules" refer to the prescriptions that create commission (Ostrom). A property right is the power to undertake particular actions related to a specific domain (Commons, 1970). For every right an individual holds, rules exist that govern or require particular actions in exercising that property right. To possess a right implies that the individual has a commensurate obligation to observe this right (Commons, 1968). Thus rules specify both rights and duties. Rights can only exist when there is a social mechanism that provides duties and binds individuals to those duties.

Rights are only effective when there is some governing system that agrees to defend or protect a rights holder's

interest in a specific outcome. For example, if an individual has a right in some specific situation then it implies that the individual can turn to the state for some form of protection of this right. The effective protection the individual receives is nothing other than a correlated duty for all others interested in the individual claim. The issue of relevance is who will get those rights, and who will have the effective protection of the state to do as they wish? It is the duty of the state to protect and restrain others without the rights; if the state is unwilling or unable, to ensure that compliance to duty, then rights are meaningless.

Many economists believe that well-defined property rights (private or public) on unowned resources will create an opportunity for their rational and efficient use. If all resources have a non-attenuated structure of rights, then every individual would use the resource in an efficient manner and a pareto-efficient condition would prevail. Given competitive conditions and zero transaction costs (Coase), efficiency will be achieved as long as the structure of rights in non-attenuated (Cheung). These conditions are the result of Coase's work describing how private ownership can sufficiently lead to efficiency. A non-attenuated structure of rights has the following attributes (Randall; Tietenberg):

- (a) rights are completely specified. A completely specified set of rights will reduce both uncertainty and inefficiency;
- (b) rights are exclusively specified, so that all rewards and penalties accruing from an action accrue to the actor. This implies that all benefits and costs are internalized and private and social costs are in equilibrium;
- (c) rights must be enforceable and enforced, which is imperative for reducing uncertainty as to the outcomes of decisions and actions;
- (d) rights must transferable, which is essential to ensure achievement of the necessary marginal benefit and cost equalities.

Property right theories suggest that owners will undertake long-term investments in a resource if they have the rights to alienate. Alienation allows a less productive resource to be shifted to a more productive use (Posner). Owners of natural resources in general often make long-term investments that maintain or increase the productivity of the resource so as to capture the

benefits produced by the investment. In addition, rights of exclusion enable owners to decide who can and cannot use a resource. However, the ownership rights conferred by property rights do not include the right to impose costs on others. Thus rights can be attenuated or restricted to prevent adverse effects on others, and to protect owners from the actions of others (Jacobsen). Attenuation of rights in this way is the role of Government.

There are cases in which property rights cannot be clearly defined or identified and result in inefficiency. Externality, that pervasive and persistent source of inefficiency has been analyzed by economists for many years (Pigou). Similarly, analyses of the public good and common property resource problems have been around for quite some time (Gordon). Resources will be depleted quickly, where there is a disparity between private and social benefits. Cheung and Demsetz (1964) have acknowledged that the solution to this disparity is the establishment of a non-attenuated structure of property rights in all relevant resources and the inefficiency problems will disappear in the market, as the process of exchange continues until all gains from trade are exhausted. That solution, by definition, is pareto-efficient.

Property rights analysis of external diseconomies, where they are unavoidable, focuses on the establishment of adequate structures of property rights to allow the efficient operation of the market to continue. An essential component of an adequate set of property rights is the allocation of liability for damages resulting from an external diseconomy. The seminal work of Coase led to improvement in the theory of external diseconomies and the economics of liability rules in the areas of product safety, truth in labelling and consumer protection. The allocation of liability for damages caused by unsafe products can be discussed in terms of their impacts on the incentive structure confronting both consumers and polluters/manufacturers (McKean). It is suggested that the polluter made liable for damages caused by unsafe products would have the following kinds of outcome: relatively unsafe product would become less attractive to consumers, and the demand curve for such products would fall. On the other hand, the supply curve for relatively unsafe products would shift to the left, as polluters' costs would increase due to increased expenses for payment of damages. Thus consumers would pay more for such products, basically purchasing from the polluter insurance against injury or damage.

Institutional structures which enforce the operation of private property rights in which a society operates can be expected to result in efficient outcomes. For example, private ownership of land is a bundle of rights that are legally enforceable. This implies that the land may be used for any purpose or in any way by the owner within the confine of laws, including the exclusion of others from the land. However, rights are never perfectly specified because of the externalities and presence of transaction costs, and some valued attributes remain in the public domain (North, 1991).

### **3. The Resource Management Act and Its Relevance to Farming in New Zealand**

In the early years, there were few rules governing land and water resource use in New Zealand; and agriculture-generated environmental problems were perceived as minor issues. Between 1940 and the implementation of the RMA in 1991, environmental legislation governing land use concentrated on river protection, flood control and soil erosion with little emphasis on agricultural sustainability (SONZA). However, the public's view of the role of farmers has changed substantially over recent decades. Resource conservation and environmental safety have taken precedence over increasing agricultural output. In production and processing, the standard norm on increased output has been replaced by resource use efficiency and environmental quality including land use. Farmers may use resources for economic benefits and gains but society doesn't give unlimited exploitation rights. The result of this changing view is increasing pressure for regulation of farming practices or for making farming in general contingent upon certain rights and obligations. However, the public generally is not well informed with only minimal understanding of how food and fibre are produced and processed.

Evidence incriminating agriculture practices as a major contributor to environmental problems and issues has been a growing concern. In particular, public concern about pesticides and fertilizer contamination of drinking water sources has been on a rise. In addition, for public health reasons, people are increasingly interested in, and aware about, what is in and on the products they eat and wear and the methods used in the production of those products.

Open dialogue between the general public and local government in New Zealand is fundamentally impor-

tant in shaping the policy framework for natural resource management. This is apparent in the introduction of the RMA in 1991, which brought considerable changes in the formal institutional framework governing resource use in New Zealand. The principal objective of the Act is to promote the sustainable management of natural and physical resources including preserving the life supporting capacity of land and water. The Act plays a critical role in underpinning the future security of New Zealand's land use for agriculture and other land uses, for example forestry and mining. The Act authorises local bodies to plan for the efficient use and management of resources in such a manner that it will promote and safeguard the health, safety, convenience, and the economic, cultural, social and general welfare of the people and the amenities of the environment. Regional, district and city councils are empowered to develop plans focusing on resource and land management issues, which will replace those authorised under the Town and Country Planning Act 1977 (SONZA).

The essence of the Act is based on the principle of sustainability that recognizes all public and private decisions regarding soils, land and water resources should be used in a more conserving manner. Users of these resources have to consider carefully about the impacts and effects of current use on future generation use. Regional policy statements, regional plans and district plans will have to integrate the principle of sustainability in management. This involves a balancing of economic viability, ecological soundness and social equity in resource management.

Section 5(2) of the RMA defines sustainable management as "managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural well-being and for their health and safety while:

- (a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generation; and
- (b) safeguarding the life-supporting capacity of air, water, soil and ecosystems; and
- (c) avoiding, remedying or mitigating any adverse effects of activities on the environment."

The above principles suggest New Zealand resource users examine the risks and benefits associated with resource use. The definition also implies that natural resources belong not only to present generations but also future generations. The public mandate for sustainable management expressed in the Act challenges farmers to view the consequences of their current actions in a long-term perspective and to ensure the long-term sustainability of New Zealand's natural resource base. The Act essentially allows land to be used in any way, as long as the use does not contravene a district or regional rule. For example, when farmers own a piece of land, they may apply effluent to their land provided that it does not subsequently contaminate ground or surface water. It is up to the land user to find alternative solutions.

The RMA provides a framework that favours collaboration between government and farmers in setting goals for sustainable farming, and in implementing them. Government departments, and science organisations can play a significant role in working with farmers and growers, industry and regional and local councils in recognising the critical stewardship issues facing agriculture and in recommending changes to agricultural practices that are deemed harmful to the environment and the ecosystem.

#### **4. Property Rights Theory and Its Relevance to Land Issues in New Zealand**

Property rights are a necessary condition for the generation of economic benefit and wealth. In land, this implies that private ownership of land is a prerequisite to the fulfilment of an economic surplus. Property rights theory suggest that the development of exclusive property rights over land and related natural resources would provide owners sufficient incentives and encouragement to efficient and optimal use (North and Thomas, 1977). North and Thomas' position is that any property regime other than private (individual) property is insufficient and subject to over-exploitation and abuse.

The common law of property in New Zealand originated from the English feudal system. In feudal theory, no man could own land except the king. Thus, the foundation of New Zealand's property law is based on the doctrine of Eminent Domain where everyone is a tenant of some kind, 'holding at the lark of the Crown',

which may resume possession, upon paying compensation (O'Keefe and Farrands).

The principle practice of registering title to land in New Zealand is registration of title under the Torrens System, which records the name of the registered owner, the nature of the estate, and all the encumbrances. The system protects any person who is dealing with the land from the infirmities of the vendor's title which do not appear on the face of the register with a State guarantee of recompense (O'Keefe and Farrands). In the property rights context, the Torrens system is well designed and provides full protection and enforcement at low cost which constitutes an efficient set of property rights but subject to the overriding responsibility of the Crown (Johnson, 1992). The strength of these rights gave land holders almost complete control over all land forming and caring activities on a property. But land disturbance is impossible without affecting others in New Zealand, a country of rolling hills and plains, steep mountains, and many rivers and streams. This makes the Torrens system incompatible for cross boundary administration of environmental effects or externalities (Johnson, 1995) and reinforces North's (1991) assertion that rights are never perfectly specified because of the presence of externalities and transaction costs. Johnson further argues that there is a mis-match between the granting of property rights in the new proposed Crown Pastoral Land Bill and introducing higher standards of environmental protection in the high country grazing area of the South Island. The Bill separates off the land where semi-private property rights will prevail from the land which is deemed ecologically threatened. On the land remaining in private occupation, deterioration of the surface cover may not be controlled adequately by private agents as one person's actions will impact on others.

Property rights pertaining to agricultural and rural policy are subject to challenge by those whose interests are in some way adversely affected by an offensive land use. Those who seek to change the adverse actions that are protected by some sort of property right will suggest the system is biased, favouring those who own land. Bromley considers that the *status quo* distribution of rights is inequitable, in that the present generation impose costs on future generations without restitution made to future generations. Bromley advocates a system in which standards of performance should be set via a political or collective process. For example, a local group could determine the desired levels of environmental amenities for their area (exam-

ple, landscape attributes, clean water), and allow land users to choose appropriate production methods, so long as they do not violate the planned attribute levels. The property rights to determine the attributes resides in the collective, not the land users and land users must compensate for any violation from the plan under this scenario (Johnson, 1992; Sinner).

The essence of private rights in land is the ability to exclude non-owners from the property. A landowner possess certain rights, while non-owners possess duties with respect to that individual and the thing owned (Bromley). This implies the owner has rights with respect to the thing owned, all others have obligations. The social problem in land is to provide sufficient protection to encourage private improvement and investment, while by the same token maintaining collective control to protect non-owners against negative externalities. The debate over property and property rights is concerned directly with collective views of what comprises abuse as a basis for redefining domains of choice, control over land use and the external impact on others. For example, in terms of property rights the Land Act 1948 specifies the rights to till the soil and graze livestock but the Act did not explicitly recognize the effects of the holder's actions on third parties (Johnson, 1995)

Early legislation based on the private control of land and related natural resources assumes that the individual owner would make rational management and investment decisions on the basis that good stewardship will return private rewards. Private property is socially compelling as long as the actions and interests of the owner does not impose any external effects resulting from the use of land and natural resources on non-owners. If soil erosion, land degradation, or insufferable odours/sprays stem from a private property regime then the action of that particular owner will come under close scrutiny.

The resilience of private property practices in land and natural resources is also its greatest weakness. Conflict occurs between the presumed rights of landowners to do as they wish and the rights of non-owners to be free from negative externalities. The agricultural sector is seen to resist efforts to change the prevailing property rights position. A recent Ministry of Environment Report (MfE, 1994) illustrates this conflict explicitly by focusing on the issue of who should pay for the costs associated with water pollution generated by farming activities. The councils and environmental group submissions advocated that the farmers should

pay for the externalities; whereas farmers contest that the public should pay if it demands higher water quality. Both groups arguments are based on an implied property structure. Farmers assume that they have the right to use the pollution-dispersing attributes of water passing through their farms. The councils and environmental groups assume that downstream users have the right to use water resources with an expectation of a higher quality. All this reflects the Coasian theory - should the farmers be allowed to reduce the enjoyment of water resources by downstream users, or should downstream users be allowed to impose cleaning costs on the farmers? Coase suggests allocating the property right via the market system to one of the parties with the highest valuation of the right. This would yield an efficient solution, given zero transaction costs. The Coasian solution based on voluntary negotiation or bribes to yield an efficient solution implies bringing together in a neutral forum the polluters and polluted by, say, a Regional Council. This is a way of bringing community pressure to bear on polluters.

Farmers have a wide range of land use choices. They can manage the land to increase crop yields and acreage alone, frequently with accompanying environmental problems. Or, they can manage the land to maximize benefits, for example, plan for increases in quantity or quality, changes in product type or mix and aesthetics or satisfaction, in an environmentally friendly way. According to the RMA, any farming practices that are deemed unsustainable environmentally will have to be either appropriately modified or cease (Chamberlain). For example, the Facilitation of Action for Risk Management (FARM) Partnership proposals provided a framework to address unsustainable land use issues (Cairns). The proposal involved three parties, individual land users, regional communities and central government. The purpose of the proposal was to address the range of land use and land management problems that existed and seek acceptable solutions. This plan was not acceptable to Government at the time it was proposed.

New Zealand farmers are generally aware of the public concern for the quality of the surrounding natural resources and environment. No other segment of New Zealand's society has a more direct and dependent impact with the environment than farmers. Most farmers do understand they have a social responsibility and obligation to protect the environment from pollution and other effects that may occur because of particular farming practices. New Zealand farmers do not deliberately engaged in practices that are damaging to the environment but may be unaware of the implications

of some actions. Councils have been working through different possible approaches with the communities concerned to internalize these environmental costs. For example, many regional councils see land management groups as a process for implementing the RMA. Landcare Research and AgResearch are two Crown Research Institutes whose research activities interact with farmers (SONZA). The Agricultural Compounds Bill introduced into Parliament recently will provide a new framework for regulating animal welfare and agricultural risk arising from the use of agricultural compounds (SONZA).

Many landowners now seek greater control over their operations than in the past. There has been an increase in planning responsibility for the future use of land. Examples include:

- (a) project FARMER (Farmer Analysis of Research, Management and Environmental Resources) to develop a system approach to making better decisions for long-term property management (Arthur-Worsop);
- (b) the Federated Farmers High Country Committee Farmer Monitoring Kit comprising modules to enable individuals and groups to monitor, record and evaluate data on the condition of the land resource (South Island High Country Review);
- (c) the formation of community groups seeking more sustainable land management. The groups are involved in a range of activities pertaining to farm issues and wider questions of resource sustainability. The main reason in forming community groups is to allow farmers to have greater control over decision making relating to their land (SONZA, p.30).

Voluntary actions by land users (both owners and non-owners) to exercise better land management practices are considered one of the better ways to tackle the environmental problems related to land use. This has been advocated by the Ministry of the Environment (1996) in the Environment 2010 Strategy. The Strategy recognises and is designed to complement, assist and strengthen land management practices which regional councils have already undertaken under the RMA. In the property rights framework, the Strategy states that the government will exercise its powers to ensure that sustainable property rights and duties are clearly specified, monitored and enforced in such a way that market incentives promote sustainable land

management. However, the document makes clear primary responsibility for achieving sustainable land management still rests with the individual land user.

## 5. Right-to-farm Laws

The right to use and manage one's land is based on the concept of protection from externalities. A landowner has the right to prevent any use of his neighbour's land that conflicts with his own private enjoyment of his property (McElfish). This U.S. property law originated both from the English common law and colonial America but has never been absolute (Goldstein). As development progressed and industrial society evolved, the laws governing property have regularly been condensed and altered to reflect the changing nature of society.

Most states in the U.S. have legislated pro-farming laws (i.e. "Right to Farm") protecting farmers from neighbours who seek legal remedies for land use dispute (Cornell Cooperative Extension). In addition, some states have sought further limitation on the measures local governments can take to regulate farming practices. For example the right-to-farm laws maintain that farming practices shall not be considered a private nuisance under certain stipulated conditions such as:

- (a) farming was started before the surrounding activity;
- (b) farming operates at fairly constant scale;
- (c) farming is not deemed to be life or health threatening.

In spite of a promising connotation, the right-to-farm law is not designed to shield a farmer from redress occasioned by unreasonable farming practices. Rather, the general implication of the law is to protect farmers against landowners in their use of nuisance arguments in court disputes over farming practices. Farmers do not have the liberty to pursue farming activities without giving consideration to their neighbours. The rationale for such laws is that, by regulating a farmer's farming practices and decreasing the probability of future legal action, the farmer will be encouraged to generate new investments to promote the economic viability of the farm business.

Disputes can result because of the lack of information. For example, an individual could make a choice about residing in a rural area without a full empathy for the farming industry and the subsequent impacts that near-

by farms may have on his or her property. While more educational efforts can fill some of these information gaps, governments (central and local) would have to establish specific guidelines and rules to increase the information flows for buyers of rural property in these circumstances.

Attempts to resolve farming practices and land dispute problems in New Zealand inevitably lie in the ordinance of the RMA. The purpose of the RMA is the sustainable management of natural and physical resources. Section (5) of the RMA can be seen as providing a guideline for policy intervention to ensure that land use is judged compatible in reference to the RMA sustainability principle (SONZA). Any resulting controversy over specific farming practices would be decided by local or regional councils based on the RMA general ordinances. The ordinances indirectly stipulate that individuals cannot use their properties in an unreasonable and irrational manner that impede with another owner's use and enjoyment of his or her property. For example, section (15) of the Act requires that any discharge into water especially farm dairy effluent disposal must either have a resource consent, or be a permitted activity in a Regional Plan.

Under the RMA framework, Regional Councils can control the use of land for soil conservation (section 30). Regional plans may encompass soil resource restoration or enhancement, and control any use of the land which has the potential for adverse effects on soil conservation or water quality (section 65). Therefore no individual may use the land in ways which are inconsistent with a regional or district plan unless expressly allowed by a resource consent.

Government officials, and regional and district councils, are working closely with farmers on an integrated sustainability strategy in agriculture that will provide a framework for cohesive and cost effective and acceptable farming practices. This will include the application of a range of land management and farming techniques. Institutional changes must reflect the true social cost of agricultural practices and provide incentives to alter farmers' farming practices where necessary. Positive changes may identify farming practices that minimise waste and preserve the environment, and



negative changes may identify restraining practices that protect society from excessive externalities. The integration of the sustainability principle in the RMA represents a positive step towards acceptable agriculture practices in the future.

## 6. Conclusion

Property right solutions have been proposed for many of environmental issues and problems which result from agricultural activity. The theory is to establish well specified, non-attenuated property rights to all resources, and allowing free trade to yield an efficient solution. However, there are three major difficulties in the property rights resolution. First, many resources do not have full private ownership. For example, the difficulties of resolving air or water problems hinder such a solution. Second, there are equity distributional issues in the allocation and enforcement of property rights, and finally, the presence of transaction costs prevents the movement of resources to their highest valued uses. In such cases, specific provisions are needed in the appropriate legislation.

While acknowledging these difficulties, most property right reforms suggest moderate changes to the existing structures focusing on reducing the transaction costs involved. Institutions established under such reform may not comply with the *well specified, non-attenuated property rights* model because of the continuing presence of externalities. This suggests an alternative or modified structure would be more appropriate, such as for example, Bromley's collective setting of community attributes. These proposals generally accept the *status quo* property right distribution as given, but seek community resolution of the problem (internalisation).

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