

THE INTRODUCTION AND IMPLEMENTATION OF COMPETITION REFORM TO THE AUSTRALIAN WATER SECTOR

Paper presented by Ed Willett, Executive Director, National Competition Council to the 7th Annual New Zealand Water Summit, 8 March 1999

INTRODUCTION

Australia has embarked on an extensive package of microeconomic reforms, known as National Competition Policy (NCP). These reforms affect national and local businesses, infrastructure operators and service providers, and governments at all levels including local, State, Territory and Commonwealth.

More than three years into the NCP programme, evidence of major benefits has begun to emerge. Price reductions of up to 40% for rail freight and 60% for energy give a striking example of some of the benefits available from competition. Competition can substantially lower business costs and make the difference between profitability and non-viability, particularly for businesses competing in export markets.

The water reform agreements are one of the key areas of NCP, and Governments are in the process of implementing these extensive reforms. In its 1997-8 Annual Report, the Council stated that:

'Water reform is an area that extends beyond competition policy matters to embrace social policy issues such as recognising the environment as a legitimate user of water. The Council has said that full implementation of the reform package could do more to benefit the broad community than any other single NCP measure'.

But NCP in general, and water reform in particular, are not a cure-all for Australia's problems. Governments need to address other elements of their policy mix, including social policy, the environment, tax reform, education and the labour market. NCP is but one plank in a platform of policies necessary to secure Australian's wellbeing and help deal with changing economic circumstances.

Political pressure to resist competition reform has increased in recent times, evidenced by, for example, the difficulties encountered by some Governments in meeting fully their NCP commitments. These pressures reflect genuine community concerns from, in part, the inherent costs and social dislocation involved in economic change. They also result from the failure to adequately address related issues of equity and adjustment assistance and limited community understanding and acceptance of the nature, need for and place of competition policy itself. For while the costs of change are often concentrated in a particular area and borne immediately, the benefits are often diffuse and long term. These considerations are as relevant to water reform as to any other aspect of the NCP programme.

Today I will focus on the following matters:

- National Competition Policy and the National Competition Council;

- Australia's commitments to reforming the water industry; and
- Achievements and problems in implementing reform in the water industry in Australia.

OVERVIEW OF NATIONAL COMPETITION POLICY REFORM

Governments started creating a vision for national competition reform in October 1992 when they commissioned the Independent Committee of Inquiry into the National Competition Policy — the Hilmer Review.

In April 1995, the Council of Australian Governments (COAG) agreed to a package of measures arising from the Hilmer Review but also incorporating previous COAG reform commitments in the areas of electricity, gas, water and road transport. In essence, the agreements comprise reform commitments and implementation incentives.

THE NCP REFORM PACKAGE COVERS THE FOLLOWING AREAS.

Ensuring effective regulation of markets, and in particular:

- The review of all legislation restricting competition, and where appropriate, reform of such legislation by the year 2000. The reviews are to ensure that the costs of restricting competition are justified and that the benefits can only be achieved by restricting competition. New legislation which restricts competition must conform to these principles.
- Extending the reach of the restrictive trade practices provisions of the Trade Practices Act to businesses such as State and local government business enterprises and unincorporated businesses.

Reforming government business, achieved by:

- Implementation of competitive neutrality so that government businesses do not enjoy unfair advantages when competing with private businesses. Competitive neutrality is achieved through:
 - in many cases, corporatisation of government businesses;
 - requiring that prices charged by government businesses for goods and services reflect full costs, including charges to ensure that government and private businesses compete on the same basis; and
 - ensuring equivalent regulatory environments.
- Conducting reviews to ensure that appropriate competitive arrangements are in place where competition is to be introduced or before a public monopoly is privatised in areas traditionally supplied by a public monopoly. Some issues to be considered are:
 - whether the natural monopoly elements and the potentially competitive elements of the public monopoly should be separated;
 - how regulatory functions could be separated from commercial functions; and
 - ensuring the continued delivery of community service obligations.

- Application of the competition principles to Local Government.

Improving the performance of essential service industries through:

- Implementation of a competitive National Electricity Market.
- Implementation of free and fair trade in gas between and within the States and Territories.
- Implementation of reforms agreed by COAG for the efficient and sustainable reform of the Australian water industry.
- The effective observance of agreed road transport reforms.
- Introduction of formal mechanisms for third party access to the services of nationally significant natural monopoly infrastructure

THE AGREEMENT TO IMPLEMENT THE NCP AND RELATED REFORMS provides for the gains from the reform process to be shared among all Governments. It includes:

- the conditions for financial payments by the Commonwealth to the States and Territories; and
- the role and functions of the Council in assessing States' and Territories' progress on the reforms and advising the Commonwealth Treasurer on eligibility for these payments.

The NCP reform program has been split into three 'tranches' or portions. The Council assesses each government's progress in meeting its commitments at the end of each tranche: that is, on 1 July 1997, 1999 and 2001. The Commonwealth has agreed to make payments to the States and Territories, provided they make satisfactory progress in implementing the agreed reforms. All up, these payments are worth approximately \$16 billion over the period to 2005-06.

The framework for the water industry is part of this extensive reform package which provides for a consistent approach to addressing competition issues across all sectors.

THE NATIONAL COMPETITION COUNCIL

The National Competition Council was created in 1995 to oversee implementation of NCP.

To date, the most significant work of the Council has been:

- Assessing Governments' progress on competition policy reform;
- Making recommendations to Government on access to significant infrastructure services; and

- Other work on competition policy as agreed by a majority of the stakeholder governments, including the Council's review of:
 - exemptions from the Trade Practices Act; and
 - restrictions contained in legislation governing Australia Post.

ASSESSMENTS

The Council completed its first assessment of governments' progress on competition policy reform in July 1997, and the early progress has been positive. All governments had taken significant steps to meet their NCP commitments although it was still early days and most activity had focused on getting the policy processes right.

With one exception, the Council was able to recommend that all States and Territories receive the complete first tranche NCP payments. I note that water was not the subject of assessment under the intergovernmental agreements for the first tranche.

The Council is currently preparing its second tranche assessment of government's progress in implementing National Competition Policy. It is expected that water industry reform will be a major aspect of the assessments. The Council has sought agreement with governments on the measures to be used when assessing performance. The Council will make recommendations to the Federal Treasurer on second tranche competition payments to States and territories at the end of June 1999.

RECOMMENDATIONS TO GOVERNMENTS ON ACCESS TO SIGNIFICANT INFRASTRUCTURE SERVICES

The Trade Practices Act establishes a regime to facilitate third party access to the services of certain facilities of national significance. Such facilities may include gas and water pipelines, electricity grids and rail networks. The purpose of this regime is to encourage competition in related markets. For example, to enable competition between electricity generators, producers need access to electricity transmission and distribution systems to transport their product to customers. The operation of an access regime needs to balance the interests of access seekers and infrastructure owners and to encourage competition without discouraging investment in infrastructure facilities.

The Council has two major roles in the national access regime: declaration and certification. In respect of both these matters the Council makes recommendations to the relevant Minister.

The Council makes recommendations for *declaration* concerning access to a service provided by significant government and private infrastructure. If infrastructure service is declared any person or organisation wanting to use the service has a legal right to negotiate access on reasonable commercial terms and conditions and a right to legally binding arbitration if negotiation fails. In determining an application the Council considers the following factors:

- Whether access will promote competition in at least one other upstream or downstream market;

- Whether it is uneconomical to develop another facility;
- Whether the infrastructure is nationally significant;
- Whether access can be provided without undue risk to human health or safety;
- Whether the infrastructure is already the subject of an effective access regime
- Whether access is not contrary to the public interest.

There have been no applications made to the Council for declaration of water infrastructure. To improve the level of information available, in the likelihood that some water infrastructure would be covered by the access provisions, the Council contracted a consultant, Tasman Asia Pacific, to identify the infrastructure services likely to meet the declaration criteria. The Tasman Report concluded that many services provided by the water industry are likely to meet the criteria, particularly in irrigation water markets, industrial wastewater markets and urban retail water markets. The report noted the importance of water reforms, particularly as regards pricing, proceeding either concurrently with or, preferably, prior to the introduction of access.

In addition, the Council makes recommendations on *certification* of the effectiveness of State/Territory access regimes. There are a number of State and Territory access regimes which cover major infrastructure services in existence or under development. Governments bring a regime to the Council, which considers whether the regime meets the effectiveness criteria in the CPA prior to making a recommendation to the Commonwealth Treasurer. If the State-based regime is certified as “effective” then the State scheme will regulate the infrastructure services rather than the national regime (and the infrastructure will not be open to declaration). There have not been any applications to certify access regimes by water infrastructure owners.

THE WATER INDUSTRY IN AUSTRALIA AND THE NEED FOR REFORM

INTRODUCTION

Water, sewerage and drainage services comprise one of Australia's largest industries. Apart from water's obvious role as a necessity of life, it has a significant effect on the economy, as well as major impacts on the nation's natural resource base and the environment.

Australia, reputed to be the world's driest continent, uses some 14,600 million cubic metres of water each year. About 70 per cent is used for irrigation, urban areas and industrial users account for 21 per cent, and other rural areas use the remaining 9 per cent. The Australian water industry accounts for about \$90 billion in investment and earns annual revenues of \$6 billion through irrigated agricultural production.

The use of water has a major impact on the nation's natural resource base, particularly the quality and health of the nation's river systems and the long term sustainability of the land to which water is applied.

In the past, water seemed to be readily available. At the same time, the prices people were charged for water did not cover the costs of providing the resource. As the demand for water increased, governments responded by building more dams and increasing the availability of water. But without sufficient funds, water authorities skimmed on maintenance functions, and excessive use of water caused serious environmental problems. Cheap and plentiful water certainly helped some farmers in the short run, but it left a financial and environmental time-bomb for farmers and governments to defuse later on.

Graphic reminders of the effects of inappropriate and inefficient water use in Australia include rising watertables, increased salinity of groundwater and soil, decreasing surface water quality, an increasing incidence of algal blooms and degradation of coastal areas. These are the symptoms of a resource which has not been used in a sustainable way.

Dryland salinity is largely a result of changing land use. The change from native vegetation to agriculture has resulted in rising water tables mobilising stored salts and bringing them near to the surface. A recent study by an independent working group of the Prime Minister's Science, Engineering and Innovation Council found impacts of salinity in the following diverse areas:

- lost agriculture production estimated at \$130m annually;
- loss of capital value of land estimated at \$700m;
- increased salinity of streams and rivers impacting on the aquatic environment and all extractive uses;
- impacts on native and riparian vegetation, with a consequent impact on native wildlife. In one river system degraded by salinity it was estimated that half the waterbird species had disappeared ;
- road and bridge damage causing additional maintenance and reconstruction costs of tens of millions of dollars;
- impacts on urban households including structural damage to houses and decreased water quality.

At present about 2.5 million hectares or 4.5% of cultivated land, representing some of the most productive areas, is affected by salinity. It has been estimated that there is potential for as much as 15 million hectares of land to be affected.

All Australian governments have recognised that concerted action is needed if the underlying causes of problems facing the water industry are to be successfully resolved. In 1994, this recognition culminated in an agreement by the Council of Australian Governments (COAG) to implement a strategic framework for water industry reform (the strategic framework).

The reforms were designed to be implemented as a package where progress in one area may trigger or assist progress on another front. For example, more efficient water use can help minimise environmental impacts - particularly further degradation of the resource base which sustains regional communities. The package has been balanced to provide benefits to all water

users in the longer term. Because the changes flowing from the strategic framework are extensive and far reaching a five to seven year implementation period was required. The timeframe for implementation for the majority of the framework is July 1999, with the States and Territories having until 2001 to implement the rest of the Framework in full including allocations and trading arrangements and rural price reforms. The complexity of issues raised will, in all likelihood, lead to an extension of this timeframe in some areas.

Jurisdictions are required to engage in public consultation on the implementation of the reforms, particularly with regard to urban and rural pricing, water allocations and trade, and develop educational programs on the benefits of the reform process.

Water reform in Australia is also subject to the generic reform requirements of National Competition Policy. For example, government-owned water industries must reform so as to comply with requirements of competitive neutrality and legislation covering the water industry must be reviewed where it restricts competition inappropriately.

Assessment by the Council of second and third tranche National Competition Payments to States and Territories includes the implementation of the strategic framework. The *reform commitments* include:

- Pricing reform;
- Allocation and trading of water property rights;
- Institutional reform;
- Environmental requirements; and
- Consultation and public education.

I will discuss each of these issues in turn.

PRICING REFORM

The strategic framework requires water charges to reflect full cost recovery. Full cost recovery is based on an economic approach and includes the costs of all resources used in direct service provision and costs from externalities such as salinity and environmental costs. Pricing is to be based on consumption rather than the widespread practice of property value based pricing.

In the *urban sector* including non-major urban areas such as country towns, reforms include:

- The implementation of two part tariffs for surface and groundwater where cost effective, comprising a fixed cost of access component and a volumetric cost component;
- The establishment of internal and external charges for metropolitan bulk water and wastewater suppliers, including volumetric charging, cost recovery and the earning of a positive real rate of return;

- The removal of cross subsidies, or where they continue to exist, that they be made transparent; and
- Where a service deliverer provides water services to customer classes at less than full cost, this is to be fully disclosed and paid to the service deliverer as a community service obligation.

In the major urban centres, full cost recovery is occurring rapidly and the financial consequences of reform are highly visible. It is resulting in a restructuring of water tariffs and reduced or eliminated cross-subsidies for metropolitan and town water services.

A focus on appropriate pricing is, however, not only about charging more for water use. It is also about achieving greater efficiency in the industry. A move to full cost recovery brings price signal discipline to bear on the delivery side of the water equation.

Already, jurisdictions have reported significant efficiency gains, offsetting price increases arising from the application of full cost recovery. The cost of water supply per property across Australia in major urban areas has fallen by 19 percent over the last 6 years. Metropolitan Melbourne and the Victorian non-major urban centres have benefited from an 18 percent reduction in water prices from reform, and in Queensland where 10 of the 17 largest local councils have implemented two-part water tariffs, demand for water has been reduced by 20 percent, reducing the need for further water infrastructure developments.

For the *rural sector*, full cost recovery is to be achieved by 2001 wherever practicable with all subsidies made transparent. Current prices paid for water are likely to rise and, in some cases, have already. However, it has been generally recognised in the past that rural water has tended to be underpriced and this in turn has resulted in water resources being put to less than the best use, contributing to accelerated land degradation, salinity problems and nutrient pollution in some water courses.

Full cost recovery requires provision for future asset refurbishment or replacement. This means that farmers and businesses will have certainty that their surface water and groundwater sources will be managed sustainably, and headworks and delivery infrastructure can be maintained or replaced in the future. There will also be improved operational efficiencies arising from changes to the way water is managed and delivered, including approaches such as corporatisation and the creation of commercialised State bulk water businesses. These changes will help to offset whatever price increases might occur.

Pricing regimes established under the strategic framework will generate the financial resources to provide for the long term costs of irrigation infrastructure - this will ensure that supply systems needed by irrigators will be on a sounder financial footing. A sharper focus on water industry charging will also help to identify the real value of water and make clear any subsidies or community service obligations so that decisions can be made about how best to use and protect valuable water resources.

WATER PROPERTY RIGHTS AND TRADING

The strategic framework requires separation of water property rights from land title and clear specification of entitlements in terms of water ownership, volume, reliability, transferability and, if appropriate, quality - not only for certainty but also for an efficient and effective trading system.

In the case of rural water services, it is intended, through a system of tradeable entitlements, to allow water to flow to higher value uses subject to social, physical and environmental constraints. Where not already done, States are to give priority to formally determining allocations or entitlements to water, including allocations for the environment.

Trading in water on a permanent basis, underpinned by clear and certain property rights systems, means that farmers will be able to buy and sell water through a market, within the social, physical and ecological constraints of catchments. This will help irrigators to structure their businesses to increase profitability, or assist those who wish to change the use of their farm or leave the industry to do so through the sale of water property rights.

Governments are at various stages in introducing intrastate trading regimes. In those States where trading exists, the benefits are significant. For example, in Victoria the benefits of intrastate trade are estimated at about \$50 million a year in additional agricultural output, mainly in horticulture and dairy.

Trading between states is also being introduced. On 1 January 1998, the Murray Darling Basin Commission (MDBC) commenced a trial interstate water trading project. Initially the trial is to be limited to the permanent sale and purchase of high security water by private diverters in the Mallee Region in NSW, Victoria and South Australia.

An MDBC study found that in 1993-94 average gross margins per megalitre of water applied ranged from \$100-\$120 for soybeans and lucerne respectively, to over \$1000 for winegrapes. More recently, Victoria estimated the gross margin for winegrapes at \$6800 per hectare, with stonefruit at \$10,200 - \$15,900 per hectare. At present more than 40 percent of irrigation water goes to low value pasture activities. It is clear that water transferred out of broad acre cropping and into winegrapes or stonefruit, for example, is going to boost overall rural profitability. There is not infinite scope for doing this of course. But the substantial increase in wine exports in recent years gives an indication of what can happen when scarce water is used in those irrigation industries which generate the highest returns.

ENVIRONMENTAL REQUIREMENTS

The Framework requires environmental reforms such as recognising the environment as a legitimate user of water, establishing entitlements for the environment on stressed or overallocated rivers as a priority, and improvements in water quality.

Environmental allocations are to be determined on the basis of the best scientific information available and will have regard to the water needs required to maintain the health and viability of river systems and groundwater basins. The NSW Government, for example, has announced two water reform packages to target clean, healthy and productive water use on stressed rivers by ensuring a better balance between water users and the environment. Queensland has

undertaken Water Allocation and Management Planning (WAMPs), based on basin-wide hydrological modelling to make decisions concerning future water use of significant river systems, including explicit provision of water for the environment. The present draft WAMP for the Fitzroy Basin on the central Queensland coast provides, for example, that the first post-winter flows be passed through waterways to provide for the life cycle needs of native fish and other species.

The strategic framework also provides that where significant future irrigation activity or dam construction is contemplated, robust appraisal processes be undertaken to determine economic viability and ecological sustainability of the investment prior to harvesting the water.

The strategic framework recognised the importance of the health of water for country towns and cities alike, calling for reform to improve the environment and national water quality. Included is a National Water Quality Management Strategy (NWQMS) to sustain usage and the environment by protecting and enhancing water quality in a way that meets each jurisdiction's needs. The strategy contains guidelines to raise national drinking quality standards to 1987 World Health Organisation standards. Victoria, for example, will spend \$1 billion to ensure that virtually all country towns have good clean water to international standards by 2001.

INSTITUTIONAL REFORM

Institutional reforms cover a range of issues including administrative arrangements and decision making processes within governments, the pursuit of integrated catchment management approaches, devolution of management of irrigation areas to local bodies and a commercial focus for service delivery organisations. As regards this commercial focus, governments have a range of policy options at their disposal, ranging from corporatisation and contracting out services to privatisation.

The strategic framework requires that governments develop administrative arrangements that ensure an integrated approach to natural resource management. A complementary requirement is the adoption of integrated catchment management approaches in consultation with local government and the community.

Also required is that functions relating to standard setting such as monitoring of water quality standards or guidelines, regulation of water services and natural resource management functions be separated from activities relating to service provision. Aligning organisational structures with objectives means that separate bodies can be provided with clear and non-conflicting roles and more transparent accountability mechanisms. This will allow organisations to focus on core business and in the case of service deliverers leads to improved customer service and greater efficiency.

Constituents are to be given a greater degree of responsibility in the management of irrigation areas through operational responsibility being devolved to local bodies where an appropriate regulatory framework has been established. This means that local users, such as irrigators, can expect to have a more direct say in the type and level of service that they want, linked to the price they are willing to pay. Devolution is important as it means that irrigators will have a

vested interest in seeing that their business runs as efficiently and effectively as possible - the costs are minimised and services are streamlined to be responsive to business needs.

CONSULTATION AND PUBLIC EDUCATION

The scope of reform to the water industry in Australia is extensive. It is complex and requires water users to fundamentally challenge previous assumptions regarding their right to use water and the price that should be paid for water.

Given these considerations, public education and consultation are essential if the long-term benefits of water reform are to be realised. As with other measures of National Competition Policy, the failure to effectively communicate the need for change and consult on implementation can undermine the reform process.

The strategic framework commits States and Territories to public consultation, particularly in relation to pricing reforms and water allocation and trading. It further commits States and Territories to develop public education programmes in relation to water use and the need for, and benefits from, reform. It also requires development of extensive resource materials on water resources for use in schools.

In New South Wales, a discussion paper, '*NSW Water Sharing – Access and Use*' proposes the establishment of separate water access and usage rights and the trading of these rights. Authorities engaged in a six month consultation process following the release of the paper and it is proposed that a series of public meetings will be held regarding the proposed changes. A final paper will be released following this extensive consultation.

In Tasmania, a *Waterwatch* programme is included in the education syllabus. It includes a field handbook and professional development for teachers involved.

In the Northern Territory an interactive CD Rom has been developed to assist in school education, employing characters such as '*Wurgle the Waterdrop*' to introduce students to the principles of water conservation.

THE RISKS OF REFORM FAILURE

The water reform package is a robust and eminently sensible approach to dealing with this valuable national resource. It involves measures to address both the economic viability and ecological sustainability of water supply. It includes reforms to water pricing, allocations and trading of water entitlements, the structure of water supply utilities, and appraisal processes for investment in new or extended rural water schemes.

If governments do not implement this package, there are several real risks.

First, there is the risk that water infrastructure will not be maintained to the standard needed by water users. The pricing reforms mean that prices for water from existing water systems will at least cover the costs of operating those systems, plus enough money to fund future maintenance. Without these changes, there is a major risk that the water infrastructure would be run-down.

That said, the agreements recognise that water users should not pay for inappropriate past investments, nor should they pay for any inefficiencies in government water utilities that inflate the costs of water services. It is also recognised that, in a few situations, the history of, say, an irrigation scheme will make full cost recovery impossible and, therefore, transparent government subsidies are likely to be necessary.

Second, there is the risk that new industries will be unable to secure the water rights they need to undertake investment. The water reform package allows for water rights to be clearly defined and traded. Without the allocation and trading of water entitlements, existing businesses would be deprived of an important asset — their right to use water and the ability to buy and sell that right. Investment in new industries will be riskier without the ability to secure long term rights to use water.

Third, there is the risk that water quality will deteriorate. The National Water Quality Management Strategy focuses on protecting and enhancing water quality.

Another risk if the package is not implemented is that local involvement will be neglected. The package stresses the need for local involvement in water management and consultation on proposed changes. Without this involvement, centralisation could mean that inappropriate decisions are made and that local conditions are not be taken into account.

Fifth, there is the risk that more money is invested in new water infrastructure when it is not necessary or the money could be better spent elsewhere. The water agreements allow for future investment in water infrastructure when this investment is economically viable and ecologically sustainable. This test ensures that all members of the community benefit from the decision to undertake new investments. However, the water agreements do not allow current generations to undertake unsustainable investments at the expense of the environment, people elsewhere, and future generations.

Finally, there is the risk that water businesses will not be focussed on customer service and the best way of operating their business. The package provides for governments to separate the operation of water businesses from other functions such as resource management, standard setting and regulation. This ensures that water businesses can focus on their business and do not face conflicting objectives or unclear goals.

The various risks I have mentioned are most prominent in the Murray-Darling Basin. This Basin comprises about one quarter of Australia's land mass. It covers significant parts of Queensland, New South Wales, Victoria and South Australia, and contains most of Australia's cultivated land. Past water usage practices are destroying this Basin and already there are massive problems with salinity. Without reform, land affected by salinity could easily increase 500 percent in just a few years. For example, according to the CSIRO, more than 20 percent of the Murrumbidgee Irrigation Area is affected by rising water tables and a further 40 percent is at risk, largely as a result of current irrigation management practices.

CONCLUSION

The implementation of water reform, as with other aspects of competition policy, can bring significant benefits to the nation's economic performance and the well-being of Australians generally. I have highlighted specific aspects of reform in the water industry.

The strategic framework provides a sound and balanced policy. Its implementation will go a long way to:

- Ensuring economic gain through a sustainable Australian water industry where water is efficiently delivered and put to its most productive use.
- Providing social gains by ensuring the safe, secure and reliable supply of water to rural and urban communities.
- Recognising the legitimate rights of the environment to use water, and consequent improvements to riparian, aquatic and agricultural systems.

Competition reform in water goes hand-in-hand with other reforms and requires attention to social, environmental and educational policies. Reforms need to be properly based not just in financial terms but having regard to the environment and other social issues. The reforms require a strong commitment and rigorous monitoring. The spectrum of water users need to be consulted in a meaningful way about reforms, including education about the need for reform, explanations of the alternatives for reform and identification of the benefits following reform.

I wish New Zealand well as it grapples with the difficult issues associated with water production and consumption policies. I am confident that the benefits to be had in the long term will justify policies that are sensitive to economic, environmental and social factors.