

Lessons from the Ord

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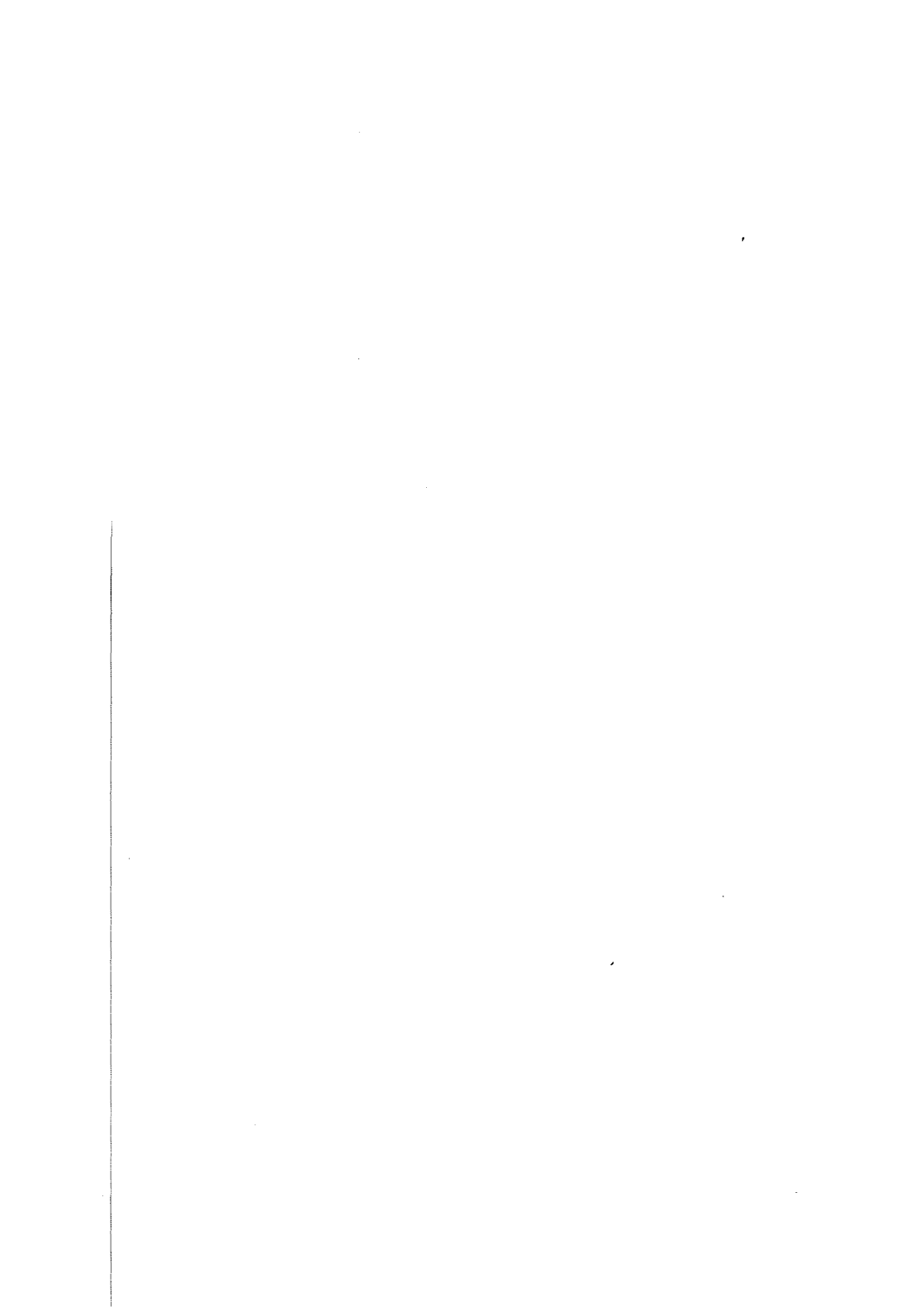
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Contents

| | |
|---|-----|
| INTRODUCTION Greg Lindsay | vii |
| ECONOMIC ASPECTS OF THE ORD RIVER PROJECT B.R. Davidson | 1 |
| A CRITICAL HISTORY OF THE ORD RIVER PROJECT Susan Graham-Taylor | 23 |



Introduction

Readers will draw their own various conclusions from these two modest but compelling essays. It may nevertheless be helpful to spell out briefly some of the lessons from the Ord as they here emerge so that the reader can proceed more comfortably from the general to the particular.

Most obviously it is clear that at the time the major decisions were made there was no clear and public argument about the respective virtues of private and public investment. It was indeed argued at one stage that the moneys invested in the Ord might have been better invested by the government of the day in some other project. But to argue that, is to argue only one half of the case. The test must surely be that the best possible investment by government must offer a return better, not than any alternative public investment but than the best **private** investment. That argues, in the simplest case, that the investment must be known to be better than the use to which individual taxpayers would put their moneys had government not deprived them of their choices. Clearly in the case of the Ord, the decision does not stand up to either test.

The delightfully stoic comment by Sir Robert Menzies (on page 32) leads us into another area where rational public argument has been lacking, namely, fiscal responsibility in our federal system. The Ord Scheme, indeed, offers ample ammunition for those who take the extreme view that responsibility is directly proportional to the taxing power. Certainly even those who hold a less extreme position may argue that the history of the Ord shows that our federal system has insufficient discipline built into it.

That leads us to another political consideration, of the role of our parliaments in the scrutiny of expenditure. It would be pleasant to think that these days the enabling Bills would stand a fair chance of being referred to one or another parliamentary committee. But it would not happen of necessity, and that in itself shows how little we have learnt since 1967. One of the virtues of such scrutiny is that it enables access to alternative sources of advice. Indeed one of the more interesting subsidiary themes of this study is the varying quality of bureaucratic advice, which may lead readers to wonder to what degree the worth of expert opinion

Lessons from the Ord

varies in relation to its independence from government.

In other areas the two authors touch on issues which merit full-scale studies. The events of 1967, for instance, lead one to ask: What is the price of a Senate seat? The promise of \$48,180,000 in that year was only just sufficient to retain the last Senate place in Western Australia for the Government; similar more recent promises - the Burdekin Dam, the Darwin/Alice railway - show how badly governments need a reliable calculus of the pork-barrel. This is not so cynical as it sounds: for if we are forced to tolerate election by auction, the least we can do is ensure that the auction is efficient.

And finally we have here again a demonstration of the vicious circular nature of government intervention: the role of the cotton bounty was crucial; and whether the Ord moves on to crystal sugar, sugar cane for ethanol or hydro-electric generation, viability will depend again on entry into regulated industry.

The two papers which make up this small book end their survey of the Ord in 1981. The story of the Scheme, however, goes on.

A recent statement by the Western Australian Minister for Agriculture (reported in *The West Australian*, 17 June 1982), contains the following statement: 'While the Government has not ruled out a cane-for-ethanol industry, this would entail detailed negotiations with the Commonwealth . . . The preferred option for sugar cane on the Ord is to produce crystal sugar. Although global sugar prices are depressed, the international sugar market is noted for its volatility and there should be several years' lead time for an Ord sugar industry to come on stream . . . The reservations concerning an Ord sugar industry on the part of the existing Australian industry in the Eastern States need to be acknowledged. At the same time, however, there is little doubt that the Queensland sugar industry will expand, given the opportunity; it is seeking Commonwealth funds for the Burdekin Dam to do just this. If it is good enough for Queensland to seek to produce at least several hundred thousand tonnes more sugar a year, then surely it is equally justifiable for Western Australia to establish a 160,000 tonne industry on the Ord.'

There are sufficient hints already, therefore, to lead one to suspect that in a few years' time the CIS may be able to publish *Further Lessons from the Ord*. If, on the other hand, the present book does its job, we may be relieved of the task.

Greg Lindsay

Economic Aspects of the Ord River Project

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Economic Aspects of the Ord River Project

B.R.Davidson

I. INTRODUCTION

In retrospect, the most interesting aspect of the Ord River Irrigation Project is that anyone should at any time have thought that it would be economically viable.

Australians had had many years of experience with irrigation in the south of the continent, commencing with the establishment of local irrigation trusts in Victoria in 1886 under which farmers were permitted to borrow money from the colonial government to construct irrigation channels. In addition, the state was to supply them with water for irrigation from state reservoirs.¹ It was believed that the additional profits from farms would be high enough to enable the trusts to impose a special rate on land from which loans could be repaid and the state reimbursed for the capital it had invested in reservoirs. It soon became obvious that additional profits were not high enough to achieve either of these objectives and the government was forced to write off the trusts' debts and to supply farmers with irrigation water at a price which was only sufficient to maintain the irrigation works.² Results for irrigation projects in South Australia were the same as in Victoria, even though expensive reservoirs were not part of the project.³

Undeterred by these experiences, the New South Wales Government constructed Burrinjuck Reservoir to irrigate land on the Murrumbidgee River. Irrigation from the scheme commenced in 1913. The Government believed that the difference between the price it paid for grazing land and the land rents and water rates paid by farmers for a guaranteed supply of irrigation water would be sufficient to cover the cost of the reservoir and distributory works.⁴ It was discovered that the farmers were unable to pay the high rents that the Government had expected for land and, as in Victoria, the State was forced to supply water to farmers at a price which was only sufficient to cover the operating costs of the scheme.⁵ All later schemes in all States were operated on this basis.⁶

In addition, many irrigation farmers only survived

Lessons from the Ord

because the price paid to them for their produce was higher than the free market price. Since the 1930s, butter, cheese, rice and dried fruits could only be sold through state marketing boards and these exercised their monopoly powers and sold on the Australian market in most years at above export parity price. The Queensland Sugar Board exercised similar powers.⁷ In all but five of the 36 years between 1924, when Australia first exported sugar, and 1960, the Australian price exceeded the export price.⁸ A special arrangement existed whereby tobacco manufacturers were permitted to import tobacco free of duty if they included a sufficient proportion of Australian tobacco in their product to absorb the Australian crop.⁹

Irrigation was an economic failure in southern and eastern Australia, partly because there was no natural storage of water over spring and summer in the form of snow, as there was in Europe and the USA, and large expensive reservoirs had to be constructed. More importantly, Australia had approximately 12 times as much well-watered land capable of producing crops and highly productive pasture per capita as Europe, and four times as much as the U.S.A. For this reason the free market price of agricultural land in Australia was and is lower, and the wages of rural labour higher than in other developed countries. In addition, the population was small and the domestic market for highly priced perishable products, such as fruit and vegetables - the only ones which might have given high enough returns to repay the capital invested in irrigation works - was limited. Thus Australia had a comparative advantage in producing agricultural commodities which required large areas of land and little labour such as wool and meat from grazing animals and wheat. Irrigation on the other hand used little land and required a great deal of labour.¹⁰

The economic problems associated with irrigation were likely to be even greater on the Ord River than in southern Australia, as wages were twice as high and all other farm inputs much more expensive than in the latter region. Freight to overseas markets were also higher from Wyndham than from ports in the south. Any product which could be grown on the Ord could be produced in northern New South Wales or Southern Queensland. Thus irrigation could only succeed in the region if yields were very much higher than in southern and eastern Australia, or if economies of size were enough to reduce costs greatly.¹¹

II. SCIENTIFIC INVESTIGATIONS ON THE ORD RIVER

In 1939 a Royal Commission investigated the possibility of irrigation on the Ord River. Unlike the early attempts at irrigation in southern Australia, the possibilities of the Ord were to be investigated in a scientific manner. A satisfactory dam site was discovered and an initial soil survey was carried out in 1941.¹² In 1941 a research station was established by the Western Australian Government and this was expanded to form Kimberley Research Station (KRS) in 1945 when scientists from the Council for Scientific and Industrial Research (CSIR, later CSIRO) joined the venture. Experimental trials to establish the best varieties, and cultural methods for producing a range of crops, were commenced. By 1959 scientists concluded that sugar cane, cotton, and both Indica (long grain) and Japonica (short grain) varieties of rice could be produced, the former in the wet season, the latter in the dry season. Hopes were also expressed that linseed and safflower might be produced in the area.¹³

Sugar cane was the most favoured crop, as it was observed that experimental yields were higher than those obtained from sugar cane grown on irrigated farms in Queensland, and it was free of diseases and insect attack.¹⁴

III. THE CONSTRUCTION OF STAGE I

It was on this slender evidence that the Western Australian Government asked the Federal Government in 1959 if it could expend a grant of \$6 million on a diversion dam which could be used as a storage for water, capable of irrigating 10,000 hectares of land, to act as a pilot scheme for the Ord River Irrigation Area (ORIA). If this were successful the large dam and distributory works capable of irrigating 70,000 hectares would be constructed at a later date.¹⁵

No attempt was made to assess the economic viability of the project. To carry out such an analysis it is necessary to establish the present value of all benefits and all costs of the project, including capital invested by the state, by discounting them, using an interest rate equal to the opportunity cost of capital. The opportunity cost of capital can be defined as the rate it would earn in its next most profitable investment. If discounted benefits exceed discounted costs, then the project leads to an increase in the nation's wealth.

The method of assessing economic viability is summarised in the following equation:

Lessons from the Ord

$$\text{N.P.V.} = \frac{b_1 - o_1}{(1+r)} + \frac{b_2 - o_2}{(1+r)^2} + \frac{b_3 - o_3}{(1+r)^3} \dots + \frac{b_n - o_n}{(1+r)^n} - k$$

Where N.P.V. = Net Present Value

b = annual revenue from farms and other sources

o = farm and other operating costs

k = initial capital invested by the state

r = the opportunity cost of capital invested

(The subscripts 1, 2, etc. indicate the year in which benefits and costs incurred.)

Both benefits and operating costs should be calculated by valuing commodities and resources at their opportunity cost. Normally this is the price received or paid for them in a free market excluding any subsidies paid by the state.

In irrigation projects, a high proportion of the benefits consists of the profits earned by the irrigation farmers. If farming is unprofitable, it is most unlikely that the indirect benefits of the project will be sufficient to pay for the capital invested by the state. Thus the first step in such an analysis is to estimate the profits which farmers are likely to make. In an area like the Ord River where the only information concerning farm inputs and yields is that available from experimental data, it is necessary to establish the relationship between farm and experimental yields before farm budgets can be constructed, but this aspect of the problem was ignored. The whole basis of the decision to proceed with Stage I of the project appeared to rest on the assumption that higher yields of irrigated sugar cane would be obtained on the Ord than on farms in Queensland, and therefore the project would be economically viable.

IV. FURTHER RESEARCH AND PLANNING

In the four years that elapsed between the decision to construct Stage I of the project and 1963 when farming first commenced, changes were made in the suggested use of the project.

It was realised that large scale production of sugar on the Ord River would increase the quantity of sugar exported. As the price received for exported sugar was lower than that paid for sugar consumed on the domestic market, increased exports would decrease the prices paid to Queensland

farmers. Plans for producing sugar on the Ord were cancelled and experimental work on this crop was discontinued.¹⁶

Further experimental work was carried out on rice, safflower and linseed. The results revealed that experimental yields of rice varied between 3,400 and 4,500 kgs per hectare compared with 6,300 kgs per hectare obtained by farmers on the Murrumbidgee Irrigation Area (MIA).¹⁷ As production was only possible on the MIA because of the home support price, it was obvious that production on the Ord would be unprofitable.

On the other hand, average experimental yields of 885 kg of cotton lint and 3,100 kg of safflower per hectare were obtained.¹⁸ However, in 1962, investigations into the relationship between farm and experimental yields suggested that if commercial crops of 80 to 120 hectares were produced, farm yields were unlikely to be more than two-thirds of experimental yields.¹⁹ Past experimental yields suggested that 584 kg of cotton lint per hectare and 2,000 kg of safflower per hectare might be obtained on commercial farms.

In 1962 the first estimates of farm profits were made for various combinations of crops by B.R. Davidson of the CSIRO, but the results were not published until September, 1963, as it was considered that they were based on assumptions which were open to question and that the economic analysis of the Ord project was the responsibility of the Bureau of Agricultural Economics (BAE) and the Western Australian authorities to whom they were forwarded.²⁰ Davidson concluded that neither safflower nor cotton could be produced profitably without financial assistance from the state, but cotton production would be profitable if the existing subsidy were paid.

The prospects of the cotton industry in Australia were examined by the BAE later in 1962. The survey concluded that cotton could be grown profitably on the Ord if a farm yield of 664 kg per hectare of lint were obtained, but only if the crop were subsidised. The survey also pointed out that unsubsidised cotton production would be profitable on the Namoi River in New South Wales where costs were lower than on the Ord River.²¹ (Table 1). Thus all the economic studies made prior to the commencement of farming in 1963 indicated that farming would be unprofitable unless it was subsidised.

The most unusual argument for proceeding with the Ord River Project was that developed by Dr C.A. Cannegeiter, who claimed that the project was justified by the combined

Lessons from the Ord

primary and secondary benefits which would arise from it and because of its contribution to Australia's defence.²²

Cannegeiter stated that the primary benefits arising from the scheme would have a present value of \$36 million, although the only published calculations based on a realistic assessment of yields at that time suggested that primary benefits would be negative.²³ Secondary benefits were alleged to arise because the scheme was the only one available in Australia which was capable of employing a large number of people; as the total work force was then fully employed, this would lead to large numbers of people migrating to Australia who would otherwise not have done so. However, in the same month in which Cannegeiter published his paper, it was calculated that the same amount of capital invested in the south of Western Australia in financing farmers to stock existing pastures more heavily, or in clearing land on existing farms or on crown land, would create an annual net output of from \$9.6 million to \$7.0 million, compared with an annual net loss of \$4.0 million if the Ord were completed.²⁴ In addition, a benefit cost analysis carried out by the Bureau of Agricultural Economics, and published in 1963, indicated that an annual return of 12.4 per cent could be obtained on capital invested by farmers and the state in clearing 3 million hectares of brigalow land in Queensland for cattle grazing.²⁵

Cannegeiter's arguments concerning the national importance of secondary benefits arising from a particular scheme, and the basis on which they were calculated, were criticised by a number of economists. It was pointed out that the Ord was probably not the region of Australia where farmers could be established or cotton grown at least cost.²⁶ In addition overseas experience indicated that although secondary benefits from large scale projects benefited a particular region they were of little importance from a national point of view.²⁷ The same amount of capital invested elsewhere in the economy would create secondary benefits of a similar magnitude.

The most remarkable claim made by Cannegeiter was that the Ord project would contribute to the defence of the nation, because closer settlement in that area would discourage land-short Asian countries from attempting to occupy Northern Australia. However, Asian nations had been aware of the sparsely populated regions of northern Australia for centuries and had shown little interest in them.²⁸ Australian economists had pointed out that many south-east Asian nations had large areas of unused land which were much more

s suited to agriculture than northern Australia.²⁹ Even if this were not so, it was difficult to see why any would-be conqueror would prefer an undeveloped region to a densely settled developed one. In the 1930s and 1940s Japan had shown much more interest in the conquest of densely populated China and south-east Asia than northern Australia.

The good communications which might be established in north-western Australia and between this region and the south of the continent as a result of closer settlement, were just as likely to aid an aggressor as a defender. One of the reasons for the rapid conquest of Malaya by the Japanese was that the good road system developed by the British made the transport of troops and munitions over the 500 miles from the north of the peninsula to Singapore an easy matter. On the other hand the Japanese failed to take Port Moresby by a one hundred mile overland march from Buna on the north coast of New Guinea. A major reason for this was the lack of good communications. All items of equipment had to be carried by men.³⁰

Cannegeiter even attempted to quantify the value of the Ord River project as part of Australia's defence. He argued that the net subsidy to the Queensland sugar industry by way of a tariff between 1901 and 1914 had been \$90 million, and the Ord should be credited with the same amount. The basis for this claim was that the Australian public had knowingly and willingly paid this amount to ensure the defence of the continent, and depended on a conclusion drawn by the Royal Commission of 1912 into the sugar industry, that it should be preserved because population in the north contributed to defence. Even if this conclusion of the Commission was correct, there was no reason to suppose that the isolated Ord project would make an equal contribution to the sugar industry, which involved a much larger area and many more people.³¹ Even Cannegeiter's supporting statement that the availability of tractors from sugar farms aided in the construction of vital airstrips in Queensland in World War II is incorrect. These were constructed by special government organisations, including the Allied Works Council and the Civil Construction Corps, and not by sugar farmers.³²

Cannegeiter failed to understand that the main reason for supporting the sugar industry was not defence, but the fear of low wage levels. Before 1901 the sugar industry only survived because the field workers were Melanesians who were paid lower wages than Europeans. In 1901 when the self-governing Australian colonies decided to join together to form the Commonwealth of Australia, it was feared that

Lessons from the Ord

Melanesian and other non-European labourers might enter other states and depress wages. To prevent this and to maintain the sugar industry, it was agreed to replace the Melanesians with more highly paid Europeans and to sell sugar on the Australian Market at above import parity price and so preserve the sugar industry.³³ The additional price paid for sugar was a price paid for Federation, which had many aims in addition to defence.

V. COMMERCIAL FARMING ON THE ORD RIVER

In 1963 the first five farmers were settled on the Ord River. In the dry season of that year a safflower crop was sown and harvested, but yields were so low that this crop was not sown again. During the next 7 years, cotton was the only crop produced by most farmers.³⁴ The price paid to farmers for cotton was to be the import parity price, less freight, ginning and marketing costs, plus a bounty which varied with the quality but was 6 cents per kg for Middling White Grade 2.54 cm Staple Cotton, which was similar to the average type produced by Ord River farmers. This bounty was created by the Commonwealth *Raw Cotton Bounty Act* of 1964 and was to be paid to all Australian cotton growers for a period of five years. It was then to be phased out over a period of 3 years. In addition, the bounty was not to exceed \$4 million in any one year.³⁵ Thus if Australian cotton production exceeded 61 thousand bales* in any year, the bounty paid to each farmer would be less than the full amount. This limitation was to be of great importance to Ord River cotton growers in the future. The first commercial crop of cotton had been harvested on the Namoi River in 1962, and yielded more than 830 kgs of lint per hectare, a higher yield than that expected on the Ord.³⁶ If cotton production expanded in this and other areas in Queensland and New South Wales, the quantity of cotton produced would exceed 61 thousand bales and the bounty would decline. This would be more serious for Ord River farmers than for those in eastern Australia, as costs, and consequently the break-even yield, were lower in the latter regions.

Economic surveys of the 1963/64 Ord River cotton crop simply confirmed what the estimates made by Davidson and the BAE had suggested, namely that farmers could not make a profit unless they were paid a substantial subsidy (Table 1).³⁷ In the three following years better cultural methods,

* 1 bale contains approximately 226 kg of lint.

TABLE 1

Estimated and actual net returns and subsidies from farming on the Ord River in the early 1960s

| Estimates | Area of cotton per farm ha | Yield of lint ha | Subsidy paid per farm \$ | Subsidy needed to break even:* per farm \$ | Subsidy needed to break even:* per ha cotton \$ |
|---------------|----------------------------------|---------------------|--------------------------------|--|---|
| Davidson 1962 | 122 | 584 | - | 17,890 | 147 |
| BAE 1962 | 81 | 664 | - | 10,112 | 125 |
| Actual | | | | | |
| 1963-64 | 111 | 501 | 16,176 | 18,046 | 144.5 |
| 1964-65 | 115 | 711 | 25,370 | 14,722 | 112.1 |
| 1965-66 | 130 | 905 | 23,516 | 18,217 | 151.2 |
| 1966-67 | 155 | 872 | 27,177 | 16,000 | 106.3 |

*Subsidy needed to cover all costs including a \$4,000 living allowance for the farmer and a 6 per cent return on the capital the farmer had invested.

Source: Adapted from: B.R. Davidson, 'The economics of irrigated farm policy on the Ord River', *Farm Policy*, 1963, 3, pp. 54-60; G.D. Oliver and A.W. Hogstrom, 'The 1965 Ord River cotton crop', *Journal of Agriculture of Western Australia*, 1966, 7, pp. 32-34; Bureau of Agricultural Economics, *The Australian Cotton Growing Industry: An Economic Survey 1964-65 to 1966-67*, pp. 51-73; Ord River Irrigation Review, 1978, p. 150.

Lessons from the Ord

and particularly the more effective control of insects, led to higher yields. However, the improved technology was expensive. It was also found that it was difficult to exploit the one advantage of the Ord River, its long harvesting season, because the quality of the cotton declined with exposure to the sun.³⁸

The only person to suggest that cotton could be produced profitably on the Ord after the 1964 harvest was R.A. Patterson, who argued that if the average yields obtained in the 1965 harvest were achieved at the same cost as for the 1964 crop, farmers would make a satisfactory profit without subsidies from 450 acres of cotton, even if the crop were sold at export prices.³⁹ However, Patterson failed to realise that the increase in yields between 1964 and 1965 was accompanied by an increase in costs from \$291 to \$337 per hectare. In addition, revenue assumed by Patterson was 8 per cent higher than that achieved by Ord River farmers growing the area of cotton and achieving the yields he suggested. To accept Patterson's views, the Western Australian Government would have had to ignore the results of economic surveys carried out by economists of its own Department of Agriculture, and the surveys of the Bureau of Agricultural Economics. A separate analysis by the Faculty of Agricultural Economics at the University of New England also rejected Patterson's conclusion.⁴⁰

The BAE surveys of the Australian cotton growing regions for the years 1964-65 to 1966-67 showed that the cost per kilogram of lint produced was 66 per cent higher on the Ord River than on the Namoi River in New South Wales or in Central Queensland (Table 2). In addition, the Australian cotton crop harvested in 1966 exceeded 61,000 bales and the bounty paid to farmers declined.⁴¹ Surveys carried out by the BAE for the three years 1964-65 to 1966-67 in all the major Australian cotton growing areas, revealed that satisfactory returns could be obtained without the bounty in all regions except on the Murrumbidgee Irrigation Area and on the Ord River Irrigation Area (Table 3).⁴² From 1966 the Western Australian Government assisted Ord River cotton growers by:

- a) deferment of rental payments on the state-owned Ginnery No 1;
- b) subsidising ginnery marketing charges; and
- c) deferment of capital repayments on the co-operatively owned No 2 Ginnery.⁴³

In spite of this aid the BAE concluded that Ord River

TABLE 2

Cost per hectare of cotton and per kilogram of lint for selected items in the main cotton producing regions

| | Three year average 1964-65 to 1966-67 | | |
|----------------------|---------------------------------------|---------------------------------|-----------|
| | Namoi | Region Central Queensland | Ord River |
| | \$ | \$ | \$ |
| Fertiliser | 32 | 17 | 64 |
| Sprays | 81 | 40 | 104 |
| Contract spraying | 27 | 7 | 47 |
| Ginning & marketing | 146 | 104 | 205 |
| Depreciation | 74 | 54 | 47 |
| Total per hectare | 360 | 222 | 467 |
| Yield lint | | | |
| (kg per hectare) | 1,094 | 674 | 853 |
| Cost per kg lint (c) | 33 | 33 | 55 |

Source: BAE, *The Australian Cotton Growing Industry, 1964-65 to 1966-67*, p. 67.

TABLE 3

Net farm incomes* in the major cotton producing regions excluding the Commonwealth Bounty

| | 1964-65 | 1965-66 | 1966-67 |
|--------------------------|---------|---------|---------|
| | \$ | \$ | \$ |
| New South Wales | | | |
| MIA | 9,294 | -527 | 10,187 |
| Namoi | 32,911 | 45,081 | 15,445 |
| Queensland | | | |
| South | 8,584 | 10,514 | 6,595 |
| Central | 3,374 | 6,184 | 7,796 |
| Rain Grown | 3,182 | 2,855 | 6,259 |
| Western Australia | | | |
| Ord River | -2,195 | -8,826 | -6,563 |

*Net Farm Income = Farm Receipts minus Total Costs

Source: BAE, *The Australian Cotton Growing Industry, 1964-65 to 1966-67*, AGPS, Canberra, p. 71.

Lessons from the Ord

cotton growers would not make satisfactory profits once the Commonwealth Cotton Bounty was withdrawn. On the other hand, cotton growers on the Namoi and in Central Queensland, where costs were lower, would continue to make satisfactory profits.⁴⁴

Attempts were also made to produce grain crops for fattening cattle. In 1969 the Hooker Corporation commenced growing sorghum for feeding cattle which were slaughtered and sold as high quality beef in Japan. Why it was thought that such an enterprise would succeed is difficult to understand. Lot feeding of cattle had failed in southern Australia where costs were lower and where cattle were sold for 53 cents per kg live weight. On the Ord, the expected price was only 38 cents per kg live weight. Inevitably the venture proved to be unprofitable and the feed-lots closed in 1973.⁴⁵

VI. THE CONSTRUCTION OF STAGE II

Although no profitable system of farming had been developed for the ORIA, the Western Australian Government was determined to complete the scheme and requested the Commonwealth to provide funds for this purpose in 1966. It is possible that this Government realised that it had a better chance of obtaining Federal finance in the mid-nineteen-sixties, when subsidised cotton production was still profitable, than in 1971, when the withdrawal of the Commonwealth cotton bounty would make cotton farming unprofitable.⁴⁶ It is even possible that it was hoped that the bounty would be continued after 1971 when it became apparent that the fate of the Ord River project depended on it. If this were so, the hope was in vain. The BAE surveys clearly indicated that all of Australia's cotton requirements could be produced by unsubsidised growers on the Namoi and in central Queensland, and from the rapidly developing cotton industry in the Macquarie Valley in New South Wales where conditions were similar to those on the Namoi. It was probable that surplus cotton would have to be exported.⁴⁷

It was always possible that further research would lead to some method of profitable farming in the area, and this factor was probably the crucial one in the Western Australian Government's decision to build the large dam. However, this hypothesis could have been tested on the 12,000 hectares of land which could be irrigated from the diversion dam without constructing the large dam.

The Western Australian Government's persistence in

constructing Stage II of the project may have also been influenced by its awareness that the funds needed for it would be raised by taxation throughout Australia, but the bulk of the capital would be spent in Western Australia. Thus that State would benefit, even if the scheme could not be justified nationally on economic grounds.

It was not surprising that the Federal Government was reluctant to grant the capital necessary to proceed with the project, but it finally agreed to provide an additional \$48 million in 1967. Of this sum, \$22 million was to be given as a non-repayable grant to construct the main dam, and the remaining \$26 million as an interest bearing loan to construct the distributory works. The Commonwealth decision to provide the capital to complete the large dam in the light of the evidence before it remains one of the unexplained mysteries of the project.⁴⁸ It has even been suggested that the Commonwealth grant was made in the hope that the then Liberal Country Party Government would obtain an additional Senate seat in the 1967 elections.⁴⁹

VII. FURTHER ATTEMPTS TO FIND A SOLUTION

It was only after the completion of the main dam that doubts concerning the economic viability of the project were expressed by its proponents. In 1971 a special sub-committee was appointed by the Ord River Project Coordination Committee to review all aspects of Stage I of the project which would have a bearing on Stage II. The committee concluded that any form of cropping would be unprofitable without state support and that cattle fattening remained unproven.⁵⁰ Why a similar conclusion was not drawn before Stage II was commenced in 1968 has never been explained.

By 1976 even the Western Australian Government had its doubts and an 'on the spot' review committee, consisting of members of the State Government cabinet who had responsibilities for the Ord, was formed. The committee concluded that 'There is no crop which the existing farmers can economically produce to utilise the present irrigation area', and that this position would not improve with the present level of technology.⁵¹

The attempt to export 7,000 tonnes of sorghum to Japan from the region in 1977, which cost the Western Australian Government \$150,000 in subsidies, tended to confirm the committee's conclusions.⁵²

In desperation, a re-examination was made of the possibility of using the scheme for producing sugar by CSR

Lessons from the Ord

Limited in 1976. It was estimated that to establish a 220,000 tonne per annum sugar industry would require a capital investment of \$230 million, and that net returns of \$229 per tonne would have to be obtained if farmers and sugar millers were to make a satisfactory profit. In 1979 it was estimated that the International Sugar Agreement might stabilise sugar prices at \$210 per tonne. Thus sugar production in the region would not be profitable.⁵³

A further investigation of the project was made by the Joint Commonwealth and Western Australian Government Committee in 1978.⁵⁴ The Joint Committee realised that farmers could only make profits using existing technology if they received financial support and recommended that this should be paid in the form of a guaranteed farm gate price for commodities produced in the area. It hoped that further farming practice in the region, and research, would lead to the evolution of a farming system which would be profitable without financial aid.⁵⁵ The Committee concluded that research should continue and should be particularly directed at developing a system of farming which would take advantage of the region's 12 months growing season.⁵⁶ Presumably the Committee was thinking of some form of double cropping which might increase farmers' profits. But the possibility of double cropping on the Ord has always been recognised by scientists, economists and farmers. The suggested plan for the first farmers had been that safflower should be produced as a dry season crop, and cotton as a wet season crop.⁵⁷ Double cropping with cotton and a combination of wet and dry season rice had also been investigated. All of these were shown to be unprofitable.⁵⁸ It is noticeable that a profitable system of double cropping has not been developed at either the experimental or the commercial level. Even if one were developed, it could probably be practised in Queensland where costs are lower.

There is also reason to think that the budgets prepared by the Western Australian State Department of Agriculture, on which the Joint Committee based its conclusions, give an optimistic picture of the position.⁵⁹ The variable costs for the same crops on the MIA in 1979 and adjusted to 1978 costs using the BAE Index of Prices Paid for Farmers are shown in Table 4.⁶⁰ With the exception of rice, variable costs are estimated as being higher on the MIA than on the Ord River, although similar yields are assumed in both areas. Much of the additional cost of producing rice on the Ord is explained by the large amount of nitrogen fertiliser which must be applied. On the MIA a high proportion of the nitrogen needed

TABLE 4

Variable costs associated with producing irrigated crops on the MIA and on the Ord River (\$/ha)

| | Rice | | Sunflower | | Soya Beans | | Sorghum | |
|----------------------|------|-----|-----------|-----|------------|-----|---------|-----|
| | Ord | MIA | Ord | MIA | Ord | MIA | Ord | MIA |
| Seed | 30 | 13 | 14 | 23 | 18 | 33 | 17 | 12 |
| Inoculum | | | | | 3 | 2 | | |
| Fertiliser | 112 | 24 | 58 | 54 | 37 | 24 | 116 | 76 |
| Herbicide | 45 | 10 | - | 10 | - | 10 | - | 16 |
| Water | 11 | 47 | 7 | 21 | 7 | 29 | 10 | 26 |
| Insecticide | 41 | 8 | - | 3 | 21 | 4 | - | - |
| Fuel & Repairs | 37 | 22 | 37 | 30 | 27 | 29 | 37 | 30 |
| Aerial sowing | | 10 | | | | | | |
| Harvesting & Cartage | 30 | 69 | 20 | 41 | 20 | 45 | 24 | 36 |
| Total | 306 | 203 | 136 | 182 | 133 | 176 | 204 | 196 |
| Yield (tonnes/ha) | 4.0 | 6.3 | 2.9 | 1.9 | 1.5 | 1.6 | 5.0 | 5.0 |

Source: Ord River Irrigation Review, 1978, 1979 pp. 157-165; N.S.W. Department of Agriculture, S.W. Region, *Budgets for Irrigated Summer Crops in Southern New South Wales*, by Philip Penman, Economist, Economic Information Series, Leeton, 1979, pp. 8-27.

Lessons from the Ord

is obtained by rotating the crop with the legume, subterranean clover, which is capable of fixing nitrogen from air in the soil. The budgets suggest that if the cost of nitrogen fertiliser is ignored, the variable cost of producing rice on the Ord would be only 8 per cent higher than on the MIA. Yet the Committee explains carefully that wages on the Ord are double those paid in the south. It stated that the price of fertilisers was 70 per cent higher on the Ord. However, the budgets suggest that the price of urea is only 14 per cent higher on the Ord than on the MIA. The Committee also stated that isolation and high freight rates increase the cost of fuel, machinery and insecticides on the Ord, but for some crops, the budgets suggest that the cost of these is lower on the Ord than on the MIA.⁶¹ In these circumstances, it is difficult to believe that the variable costs per hectare on the Ord for the same crop could be similar to or lower than those on the MIA, particularly as crop yields with the exception of rice, are assumed to be the same in both regions.

In 1981 it was claimed that farming was so profitable on the Ord River that irrigable land was in short supply. However, the official statistics show that only 3,581 hectares of cash crops were grown in 1980-81, a smaller area than the 5,538 hectares sown in 1967-68, the year in which the largest area of cash crops was sown.⁶² If farming is now profitable in the region, why is the area of cash crops lower than in the past?

As the diversion dam is capable of irrigating over 12,000 hectares, it is difficult to see how a land shortage could exist unless large areas of land are being retained by individuals and not cropped. This would be unlikely if satisfactory profits can be made in the region. It is possible that cropping is profitable for farmers who already possess land prepared for irrigation and cropping equipment, providing they supply a limited market such as Darwin where high prices can be expected for farm commodities. On the other hand, it could well be unprofitable for a new farmer who must meet the cost of preparing land for irrigation and purchase new equipment, particularly if he expects that he will have to sell his produce in low priced markets in the future.

It is also possible that those who already own land in the region expect a sugar industry will eventually be established on the Ord. It is difficult to see how sugar could be produced at lower cost on the Ord than in Queensland. However, in view of the record of both State and Commonwealth Governments in constructing the Ord project and maintaining the existing sugar industry in Australia, a landholder might be

justified in concluding that a heavily subsidised and, to him, highly profitable sugar industry might be established in the region in the near future.

It would also be interesting to know the degree to which the existing farmers are being subsidised. The Joint Committee recommended that they should be paid a guaranteed farm gate price for their produce. In addition, subsidies in the form of state-supported exports, processing plants and freights may be available as they have been in the past. Without subsidies the area cropped at present might be much smaller.

In 1981 the possibility of using spillage water, which would otherwise be lost from the main Ord River dam, to supply Darwin with electricity, was investigated. The total cost of the project, including transmission lines to Darwin, was estimated as \$90 million. At first sight the project appears to be attractive, as Darwin is at present supplied with electricity from an oil burning thermal station, which requires a subsidy of \$50 million per annum.⁶³ However, this station is to be replaced by a coal fired thermal station which will presumably reduce the subsidy required. In addition, as the electricity from the Ord River is to be generated by spillage water, it would only be available during the wet season. The period over which electricity could be generated would also vary with the amount of water in the dam at the commencement of the wet season, which would vary with the amount of irrigation carried out in the previous dry season. The amount by which such a supply of electricity from the Ord would reduce the operating costs of a thermal station at Darwin, which would still be required to supply electricity in the dry season, is unknown. Until this data is available it is impossible to calculate whether the use of surplus water from the Ord to generate electricity for Darwin could be justified on economic grounds.

VIII. CONCLUSION

Forty years of research and seventeen years of farming experience have simply resulted in the construction of a large irrigation project in which the state has invested nearly \$100 million and on which it is impossible for farmers to make a satisfactory profit.⁶⁴ A further \$26 million (at 1968 prices) would have to be invested on distributory works if all of the water stored in the large reservoir is to be utilised.⁶⁵

The project clearly demonstrates the danger of proceeding with any large scale agricultural development in isolated

Lessons from the Ord

areas of Australia without a thorough examination of the economics of the scheme. The decision to build the second stage of the project when it had been shown that farming was unprofitable suggests that the political advantage to be gained from proceeding with the project outweighed the economic advantages of not proceeding with it.

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Lessons from the Ord

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A Critical History of the Ord River Project

Susan Graham Taylor

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A Critical History of the Ord River Project

Susan Graham Taylor

I. INTRODUCTION

The Ord River Scheme, located in the East Kimberley region of Western Australia some 3500 kilometres by road from Perth, has been called:

An ambitious attempt to establish a large scale irrigation area for intensive irrigated agriculture in an isolated region of tropical Australia.¹

It has also been called 'a money hungry monument to importunate politicking'.² Despite public expenditure on the project to date in excess of \$100 million, the Scheme has had a chequered existence: 'enthusiasms have waxed and waned, projects have been started and stopped, fingers have been burned and hearts have been broken.'³ However, the Scheme has always had, and continues to have, its fervent supporters, as well as its critics.

The Joint Commonwealth and Western Australian *Ord River Irrigation Area Review* Committee which reported in 1979, concluded that the project had failed up to that time - 'not on the score of defective administration, but rather as a result of its own inherent high cost structure, [and] the still incomplete understanding of the basic Ord agronomy.'⁴

This study will attempt to show that 'defective administration' of the Scheme was more important than has been claimed. The successive decisions to keep spending money on the Scheme, beyond the point where rational analysis pointed to a withdrawal of support, were to some extent a result of making economic decisions for political party reasons. The Scheme was not based on extended prior scientific research. The 'inherent high cost structure' and the 'still incomplete understanding of the basic Ord agronomy' were two of the most important problems with which an administration should have grappled before making any decision involving the Scheme. An examination of the history of the Ord Scheme will show, however, that there was

Lessons from the Ord

no break in the early decision-making process in order to carry out a review of the situation before taking further action. The project moved from minor to major decisions, with the early low cost decisions creating precedents which made the later, high cost decision to proceed with Stage II, a seemingly inescapable commitment - despite failures and increasing problems. In short, decisions were **not** made after extensive examination of possible courses of action, nor were they made with complete information.

II. BACKGROUND

Alexander Forrest's report of his exploration of the Fitzroy and Ord Valleys between 1875 and 1879 sparked permanent interest in, and movement to, the Kimberley district of Western Australia. Forrest named the Ord River after Governor Ord, stating his belief that 'an extent of country equal to about 25 millions of acres has been opened up for pastoral and agricultural experiments'.⁵ The area was soon surveyed, and cattlemen from Victoria, Queensland and New South Wales began to arrive in the East Kimberley, having overlanded their stock.

In the face of problems experienced by the pastoral industry by the 1890s, the Western Australian Government began to investigate the schemes for tropical agriculture. In 1909, an expert in tropical agriculture, Adrian Despeisis, was commissioned to proceed to the North West to look at detailed possibilities for tropical agriculture. He reported that the North West soil was suitable, both physically and chemically, for raising tropical crops. Cotton, he felt, would become an important agricultural industry.⁶

No government action was taken until 1920, when a Department was established to control the North West and F.J.S. Wise, an officer of the Queensland Department of Agriculture, was appointed as Tropical Adviser. Throughout the 1920s, it was continually stressed, both in Parliament and in the press, that the North West must be developed for the safety of Australia - 'to complete the chain of defence essential for the protection of Australian against the thousand millions of coloured people adjacent to Western Australian shores.'⁷

By the mid 1920s, a total of £6,000 had been spent trying to establish tropical agriculture in the area around Derby, with very little to show for it. However, in 1926, when the Commonwealth Government offered to assume responsibility for that part of Western Australia north of the 26th parallel

of latitude, the Western Australian Government did not accept. By the end of 1926 the North West Department had been abolished. Sir James Mitchell exclaimed, 'God knows the people of this country know little enough of the North West! Still, we know more than do the people of the Eastern States.'⁸

Having rejected the Commonwealth offer, it was now imperative that the Western Australian Government formulate a policy for the development of its North West. However, the Department of the North West had been abolished, schemes for tropical agriculture in the North West had failed dismally, and depressed conditions in the pastoral industry were forcing many owners to withdraw from the Kimberley district.⁹

It was the possible settlement of the Kimberleys by a group of Jewish refugees from Europe which, in the late 1930s, led to renewed government interest in the Ord River area. The aim of the Freeland League for Jewish Territorial Colonization was 'to create a Jewish settlement in some unoccupied area for those who seek a new home and who cannot or will not go to Israel'.¹⁰ In 1938, the London branch of the League resolved to investigate the prospects for Jewish colonization in Australia. At that time, G. Miles (M.L.C. North Province) was in Britain seeking a buyer for properties in the Kimberleys. He began negotiations with Dr I. Steinberg (Secretary and Founder of the League), and in May 1939 Dr Steinberg arrived in Western Australia to investigate the feasibility of establishing a refugee settlement in the Kimberley area. He was particularly enthusiastic on seeing the Ord River:

Here was the mighty source of water that could be turned into a generous source of food and livelihood. Large irrigation works could be built on this site as well as on others if competent engineers confirmed the presence of the necessary natural conditions. Those engineers could also easily provide the reservoirs for the collection and storing of the torrential rains.¹¹

Steinberg's initial plan was to establish small farming schemes using waters for irrigation. Tropical fruits, perennial pastures and vegetables would be used, with additional crops such as maize, rice, millet, hay, peanuts, soya beans or cotton being grown during the wet season.

Steinberg's plan aroused great interest and support within all sectors of the community - in Western Australia and

Lessons from the Ord

interstate. The Western Australian Government gave Steinberg its encouragement in his approach to Prime Minister Menzies in August 1940. The Commonwealth decision was postponed because of the European War, and it was not until July 1944 that Steinberg was told his proposal could not be implemented - it being government policy to avoid community settlements.

The Commonwealth delay in reaching a decision meant that the Western Australian Government had time to reconsider the development of the area. By the time the Commonwealth decision was announced, the Western Australian Government had already authorised surveys and investigation of the Ord River area with a view to establishing an irrigation scheme for improving the quality and quantity of beef production in the East Kimberleys.

In March 1940, a Commission established by the Western Australian Government 'to inquire into and report upon the financial and economic position of the pastoral industry in the leasehold areas of Western Australia', presented its report.¹² It stressed the need for research into the potential of the East Kimberley district, and for the classification of the country along the Ord River, to ascertain the extent of land suitable for irrigation and pasture development.

The area was explored for possible dam sites in August 1941. The Director of Works, R.J. Dumas, reported that, providing the levels made the distribution of water practicable and soil analysis confirmed the appearance of fertility, an area of 100,000 acres could be found suitable for irrigation. He felt that, if irrigation was demonstrated to be a successful means of developing the Kimberleys, the Ord River flow could be controlled by a series of dams built over a number of years. Later in 1941 a small agricultural research site was established on the eastern bank of the Ord River, at Carlton Reach. Water was pumped from the river into a stilling pool, and from there was distributed by a system of channels. It was soon found that the experimental site had been unfortunately chosen, the soil of the plots not being typical of the area to be irrigated.

On the basis of the soil survey undertaken by Surveyor A.H. Richter in 1944, money was made available to move the equipment and buildings to a new experimental site on black soil plains further upstream from the Carlton Reach site. Richter estimated that 80,000 acres could be irrigated, and that irrigated agriculture could be slowly developed as a sideline to irrigated pastures.¹³ In 1945, a committee established by the Western Australian Government to prepare

a comprehensive development scheme for the North West, supported the idea of a permanent research station with Commonwealth Government co-operation.¹⁴ The committee felt that an irrigation project would be based primarily on the cattle industry, with a view to the delivery of fat beasts to the Wyndham Meatworks.

In 1945, the Commonwealth Rural Reconstruction Commission presented a series of reports, the eighth entitled *Irrigation, Water Conservation, and Land Drainage*.¹⁵ This report stressed the need for a national policy on irrigation projects, and recommended that the Commonwealth and Western Australian Governments discuss the basis of development of the proposed Ord Scheme, and the need for a full scale research station.

Negotiations were already under way, and eventually a mutually satisfactory arrangement was reached between the Council for Scientific and Industrial Research (CSIR) and the Western Australian Department of Agriculture, for a permanent research station at the Ord.¹⁶ The new Kimberley Research Station (KRS) jointly administered by the Commonwealth and Western Australian Governments, comprised 2,000 acres of heavy black soils. Two of its stated objectives were to determine whether the black soil plains of the Ord River region were suitable for irrigation, and to determine whether a stable system of agriculture could be devised which would provide a sound basis for settlement in the area, and to gather data of value to the development of similar areas in other parts of northern Australia.¹⁷

III. THE DECISION

Since the mid 1940s the Western Australian Government had been pressing the Commonwealth Government for assistance in developing the north of the state. In February 1949, the Commonwealth Government was asked to consider a submission for 'works and undertakings to improve the quantity and quality of beef exported through Wyndham.' Appendix five of the submission contained details of the proposed Ord River Scheme and asked for Commonwealth assistance.¹⁸ The main objective of the Scheme was felt to be the improvement of the cattle industry, but the submission also stressed the possibilities for crops such as cotton, rice, groundnuts, tobacco; and later, sorghum, millet and soybeans. The cost of the Scheme was an estimated £4,300,000. The Commonwealth Government responded with the *States Grants (Encouragement of Meat Production) Act*

Lessons from the Ord

1949, providing financial assistance for the construction of roads and watering facilities. The proposal involving the Ord Scheme was ignored, but the issue of northern development remained alive.

In 1951, the Kimberleys Development Committee, a joint Commonwealth-Western Australian committee, was appointed to review the possibilities for development in North Western Australia, and to report on steps which could be taken to improve production in the area. The committee recommended that KRS be continued, but with larger areas and a high degree of mechanisation, which would enable adequate farming methods to be practised. It was also recommended that an entomologist survey the insect pests, a survey of land use be made, and a farm scale trial with rice and sugar be established.¹⁹

An all-party committee presented proposals for the development of the Kimberleys and the North West to Prime Minister Menzies and Treasurer Fadden in June 1955. Their plan involved the development of the Ord River Scheme. The water from the proposed dam it was felt, could be used in growing sugar cane and rice, with beef fattening as an important subsidiary activity.²⁰ In December 1956, the State Government prepared a more detailed submission on the Ord Scheme, estimating costs at £11.5 million, for a storage capacity of three million acre feet. The State Government felt that 'these works should be considered a charge against a national effort to encourage settlement in our northern areas.'

Despite persistent pressure for a Commonwealth decision in relation to the all-party submission of 1955, no announcement was made until November 1957, when Prime Minister Menzies announced a general development grant to Western Australia. This grant, totalling £2.5 million over a five year period, was to promote the development of that area of the state north of the 20th parallel of latitude.²¹ The State Government was to submit projects for approval to the Commonwealth Government.

Reaction to the proposed grant was varied. Government members and senators are reported to have described the grant as 'chicken feed', and 'a political sop to stop Western Australian members from howling.' A group of Western Australian Senators commended the Commonwealth, pointing out that it was 'the first ever made for the development of a designated region unconditionally and without requiring matching state expenditure'. Premier Hawke felt that the grant fell far short of the needs of the north of the State.

Despite its criticism, the Western Australian Government lacked any well defined projects for development in the North West. Proposals for expenditure of the £2.5 million grant were not submitted for three months. They were for a deep water port at Black Rocks (near Derby), extensions to Wyndham jetty, and improvements in communications in the Napier-Broome Bay area.²² Much work was needed before final designs and estimates could be prepared for any of the three projects.

The 1958 Federal election campaign saw both the Liberal and Labor parties expressing an interest in the problems of northern Australia. The Leader of the Federal Opposition, Dr H. Evatt, promised that a Labor Government would implement the £20 million plan for North Western Australia, taken to Canberra by the all-party delegation. He felt that the Ord Scheme was completely justified, on the grounds of defence and closer settlement. In his election speech, Prime Minister Menzies promised to double the existing grant to Western Australia for the development of that part of the State north of the 20th parallel of latitude.

The election of 22 November 1958 resulted in a decisive Liberal-Country Party victory, and on 1 December 1958, the Western Australian Cabinet appointed a sub-committee of four to draw up a list of suggested works on which the additional £2.5 million grant could be spent. The sub-committee found no concrete, well researched plans for possible development projects in the North West. In fact they considered preparing a case to spend the money south of Derby.²³ The *West Australian* pressed for the money to be spent on the Ord Scheme; however, by the end of February 1959, the State Government had decided to spend most of the second grant on the three schemes approved under the first grant. Premier Hawke said that 'rather than lose the second grant, we decided to agree that the money be used for purposes other than the irrigation scheme at Ord River.' He told of Canberra's concern at the lack of investigation, and the uncertain marketing possibilities for rice, sugar, cotton and the types of products that could be grown in the proposed Ord River Irrigation Area.²⁴

With further research and investigation the three proposals were gradually abandoned, and four months after announcing the second grant, the Commonwealth Government was still awaiting a decision from the Western Australian authorities on the spending of both grants. The Black Rocks port project was abandoned, and the extensions to the Wyndham jetty and surveys in the Napier-Broome Bay area

Lessons from the Ord

required only a small proportion of the grant. Disbursement of the major part of the £5 million grant on the Ord Scheme now appeared virtually certain - there was no alternative if the money was to be spent. Details were submitted to the Commonwealth Government for approval on May 7, 1959.

Commonwealth approval for the Ord Scheme as a proposal under the *Western Australian Grant (Northern Development) Act 1958-1959*, was received on 26 August, 1959. The Commonwealth Government, however, was not convinced as to the merits and economic soundness of the scheme. Prime Minister Menzies wrote:

If we were spending the money ourselves and of our own choice, we would, I think, like to have a good deal more information as to the problems of transport and marketing. It is one thing to feel reasonably satisfied that certain commodities can be grown under irrigation. It is, of course, quite another to determine whether they can be profitably grown. But we have come to the conclusion that this is, after all, your business. You have the immediate responsibility for developments in your state; we have esteemed it our duty to provide some financial assistance.²⁵

He felt it would have been wise to take the preliminary step of establishing, on a normal farming basis, several irrigated farms supplied with water from the river, before a decision on the Diversion Dam was made. The State's decision to submit the Ord Scheme for inclusion as a project under the *Western Australia Grant (Northern Development) Act 1958-1959*, was not based on definitive scientific information. Despite fourteen years of research at KRS, there were still many outstanding problems, and no single commercially viable crop available. The proposal that the greater part of the money be spent on the Diversion Dam would appear to have been a last resort. All other alternatives disappeared as they were further researched.

The early development of the Scheme was to suffer from these deficiencies in planning. With only four years between the decision to proceed and the arrival of the first five farmers, there were bound to be problems including the administration of the Scheme, the layout of the area, and the early farming methods.

Shortly after the Commonwealth decision to allow the Scheme to proceed, an Ord Cabinet Sub-Committee was named by the Western Australian Government to coordinate

the planning of the Ord Diversion Dam Project. In October 1959, the committee recommended a basis for the coordination of the Project. First, the Cabinet Sub-Committee was retained at ministerial level. Secondly, a committee known as the Ord River Diversion Dam Project Committee (later to become generally known as the Ord Project Committee) was established, with both Commonwealth and State representation. State Cabinet approved the formation of such a committee, and the initial meeting formulated terms of reference. These included: coordination of all the requirements necessary for the building of the Diversion Dam, establishment of the town-site, land tenures, research into long term marketing problems of crops expected, liaison with KRS, and the preparation of data from which the State's case for presentation to the Commonwealth could be prepared, i.e., for financial assistance to proceed with the Main Ord Dam (Stage II).²⁶

The Ord Project Committee comprised nominees of the Ministers for Works (Chairman), Agriculture and Lands, and, from 1960 a Treasury representative; a nominee from KRS; nominees of the Prime Minister and the CSIRO Land Research Division. During the early construction phase of the Project, two major sub-committees of the Ord Project Committee were created - the Townsite Coordinating Committee and the Farm Development Committee. From September 1964, members of the Ord Project Committee were also members of the newly created North West Planning and Coordinating Authority, and in 1971 the Ord Project Committee was reconstituted as a sub-committee of that body. In 1962 the Ord Project Committee resolved that the appointment of a Project Manager was necessary. However, in 1963 it was decided that the Resident Engineer could liaise with the farmers and the engineering staff. The farmers expressed dissatisfaction with the Ord Project Committee in 1969, and as a result, the position of Kimberley Regional Manager was created. There was then, during Stage I of the Ord Scheme (construction of the Diversion Dam and irrigation of the first 10,000 acres), no single fulltime body or person concerned with the administration of the Scheme. All members of the Ord Project Committee had other heavy responsibilities throughout the State. This fact, as well as the area's distance from Perth, was to prevent the efficient administration of the scheme and alienate the farming community in Kununurra.

The administration of the Scheme was but one of the problems facing the State Government in 1959. There were

Lessons from the Ord

also problems to be solved as far as the engineering of the Scheme was concerned. The major aspects of the proposal were a main dam for the storage of water, and a diversion or offtake works, calling for a structure on the river downstream from the dam to divert the water into a major channel and network. The Public Works Department stated that the construction of a Diversion Dam in advance of the major storage would offer an opportunity to develop a substantial pilot irrigation project which would ultimately be extended as part of the major Ord River Scheme and from which the economics of the full development could be more accurately assessed.¹²⁷ The tender for the construction of the Diversion Dam, on a natural quartzite bar known as Bandicoot Bar about 30 miles downstream from the proposed major damsite, was accepted in July 1960. Construction began in March 1961 and the dam was officially opened in July 1963.

The Ord Project Committee determined that units of 200 acres should form the basis of farm development, with three units forming a farm. In order that the first farmers should be given every chance of success, the Project Committee decided that the Government prepare a certain proportion of the land surface of each farm. The first five farmers were selected by a Land Board from a total of 45 applicants, in April 1962. Thirty farms were progressively allocated under Stage I of the Scheme, the final group being selected in 1965.

IV. STAGE I

In reviewing its research achievements in July 1963, the KRS Policy Committee claimed that the work carried out at KRS since 1946 had enabled the Western Australian government to decide, in 1959, to undertake the development of commercial farming in the area.²⁸ It also felt that its intensive research on cotton had led to the decision that the first farmers grow this crop. A brief history of work at the Research Station will indicate that by the time the first farmers arrived in the area in 1963, there were still many outstanding problems and, in fact, there was no one economically attractive crop on which to base the future of the Ord Scheme.

The main problem which faced the Research Station through the 1940s and 1950s, and with which the first farmers had to grapple, was the problem of the control of insect pests. Until 1960, the main insect pests found at KRS were budworms in linseed, safflower and cotton; rough and pink bollworm in cotton; and stemborer in rice. In the 1952/53

season, it was felt necessary to keep the KRS cotton-free in the hope of reducing the pest population. Short term success was obtained with insecticide Endrin on a small cotton area in 1955. However, the KRS Supervisory committee concluded that insect pest control based on intensive application of insecticides would be hopelessly uneconomic in commercial farming. From 1960, there was a marked increase in numbers of the Cluster grub (*Prodenia litura* [F]) particularly in cotton and linseed. Strict sanitation measures were undertaken late in 1962: all channel and drains were cleared, crop residues ploughed in and migrating caterpillars sprayed. These measures were not fully effective, and when the first farmers arrived in 1963, *Prodenia litura* was the most important and urgent research problem.

A further problem was the lack of a crop which could be presented to the first farmers as economically attractive for the future. Sugar cane was a crop with which KRS had early success, and which did not suffer from any major pest. In 1959, research on sugar cane was suspended as it was felt that sufficient experience and data had been gained to conclude that sugar was well adapted to the Ord River.

The Ord Scheme was first conceived as a means of assisting the ailing pastoral industry. However, yields were unsatisfactory, and in 1959 it was decided that pastures and fodder crops would not warrant the establishment of an irrigation scheme. Rice was, from the beginning, hailed as a possible cash crop for the area, despite the continuing stemborer and nutritional problems, and the crop was recommended, along with safflower, as the basis for initial commercial development in the Ord River area. Safflower yields had been erratic throughout the 1950s, but the KRS Policy Committee was confident enough to recommend safflower for commercial development. Peanuts were giving high yields by 1950, but investigations were suspended because of problems with harvesting, sorting and disease control.

In April 1959, the KRS Policy Committee recommended that a pilot farm be established in the area, so that practical experience could be achieved before irrigation water was available from the Diversion Dam in 1963. Northern Developments Pty Ltd, the company operating the Camballin Irrigation Scheme on the Lower Fitzroy River, was given the contract for the farming of 2,400 acres in the vicinity of the Ord River Diversion Dam. Three years later, after State Government expenditure of £175,645 on the pilot farm project, little or no knowledge had been added to that provided by KRS.

Lessons from the Ord

The KRS had aimed to provide scientific data on which the government could base its decision as to whether a Diversion Dam on the Ord River was justified. It would appear, however, that the decision to build the Diversion Dam was made with limited information as to the agricultural potential of the region. Despite the work at KRS and the pilot farm, there were still many problems requiring solution when the first farmers arrived in the area in 1963. There was no commercially attractive, well proven crop available; insects were still a problem as were weeds. Little attention had been given to soil problems, yet with the development of irrigation on a large scale, drainage problems were likely to emerge.

A total of 922 acres of safflower was planted in May 1963, but yields were far lower than expected. The main problem was the *Prodenia* caterpillar, which was also proving a problem at KRS. In July 1963, the KRS Policy Committee was informed that the insect was the main problem to be faced in growing hard leaf crops (cotton, safflower and linseed) and as yet, no effective method of control had been found. Low safflower yields, combined with a price drop of up to £10 per ton (probably caused by an American surplus), made the growing of safflower less attractive than expected. In early 1964, when in Kununurra, North West Minister C.W. Court agreed with local farmers that the government should not make it mandatory for them to grow safflower in the dry season. With no other commercially and agriculturally viable crop available, the Commonwealth cotton bounty was obviously an important factor in the State Government's decision to recommend cotton to the first farmers.

From 1907 to 1963, the Australian cotton growing industry had received support from successive Commonwealth Governments, in the form of price guarantees, bounties and/or tariffs. In 1963, after an economic survey into the Australian cotton growing industry, the 1963 *Raw Cotton Bounty Act* was introduced. Rates payable varied according to grade and staple length, and the annual bounty distribution was subject to a maximum payout of £2 million. Bounty payments were to be an important part of Ord producers' total returns from growing cotton.

The problem of insect control arose early. The remoteness of the Ord River from Australian spinners caused unavoidably high freight costs for Ord farmers. Westralian Farmers (Wesfarmers) Cooperative's offer to form a growers' cooperative in the area was accepted by the Ord Project Committee. In September 1963, Wesfarmers accepted the

management of the Ord River District Cooperative on behalf of the farmers. The ginnery was operating by October 1963. The growers soon expressed concern at the high costs of ginning, marketing and freight of Ord cotton. The cost for the 1963/64 cotton crop was 13.5d per pound lint (ginning, freight and marketing), compared with 4.6d per pound lint for Narrabri (N.S.W.) farmers.

Another problem the early farmers faced was the unsatisfactory layout of their farms and the facilities provided. This problem was, once again, the result of inadequate background research and planning before the scheme was required to be operational. As the surveying for Stage I of the Scheme progressed, it became clear that the flat grades were posing problems for furrow irrigation and for cotton growing in particular. Much of Stage I was flatter than the first areas allocated in 1962/63. A committee comprising representatives of the Public Works Department and the Department of Agriculture was formed to investigate layout problems. A minimum slope was laid down for land suitable for cotton growing, and it was specified that each new farm should contain not more than 400 acres or less than 350 acres of land suitable for cotton growing. The design of drains for Stage I was of a similarly piecemeal nature. Drains were found to be inadequate, and authorities were forced to revise their design to allow for discharges 50 per cent greater than the original design.

When outlining a timetable for agricultural development, Court had said, in 1959, that the project development authorities wanted to be in a position by the end of 1965, to evaluate the results of the Diversion Dam Project and present a case for the greater Ord Scheme. However, as early as 1961, even before the first farmers had arrived, Court had requested that the Department of Economics and Commerce, University of Western Australia, inquire into the economic aspects of the Ord Scheme, in view of the need for a strong case on the Ord Main Dam. The *Case for financial assistance from the Commonwealth Government to complete the Ord Irrigation Project* was submitted in February, 1964,²⁹ incorporating a secondary benefits study by the Economics and Commerce Department, and a benefit-cost analysis undertaken by the Bureau of Agricultural Economics. The *Case* requested financial assistance to complete the Ord Project, by the construction of a Main Dam about 30 miles upstream from the Diversion Dam, and by the extension of existing channels, drains and ancillary works to irrigate a total area of 150,000 acres of which about 30,000 acres were

Lessons from the Ord

already being developed as Stage I of the Scheme. Plans also included the construction of an underground hydro-electric station at the Main Dam, housing for farmers, essential farm labour and administrative staff. The estimated cost of the program was £30 million.

The *Case* stated that proven crops for the area were cotton, sugar, safflower, linseed and rice. It was asserted that agricultural development could be expected to stimulate the cattle industry, and from an engineering point of view, a Main Dam would protect the Diversion Dam from flood damage and silting.

By February 1964, when the *Case* was submitted to the Commonwealth, the Western Australian Government was in no position to evaluate the results of the Diversion Dam Project. The first farmers had not yet harvested their cotton crops, their safflower crops had been disappointing, and the pilot farm experiment had added little to existing knowledge. The commercial success of cotton depended on the control of *Prodenia*, and although sugar cane was well suited to the area, the matter of sugar production on the Ord was still a delicate political question. When justifying the State Government's decision in 1959 to go ahead with the construction of the Diversion Dam as part of Stage I of the Scheme, North West Minister Court claimed:

No great project was ever undertaken without a degree of risk. The State Government has faith in the State and in the north. It has accepted the challenge and is prepared to take the calculated risk that might be involved. Surely, it is infinitely better to gain practical experience of farming and the needs of servicing a community in the Ord River area at a cost of £3 million rather than sit back and do nothing, or alternatively, to wait until a later date and take a risk on a £20 million project for the greater Ord Scheme.³⁰

But, less than five years later, with little more definitive information on the commercial prospects for the area, the State Government was asking the Commonwealth Government to 'take a risk', not on a £20 million project, but on a £30 million project for the greater Ord Scheme. The Western Australian Government's submission for funds for the Main Dam stimulated extensive public debate during 1964 and 1965. The debate centred around the Bureau of Agricultural Economics cost-benefit analysis of the Scheme, the secondary benefit study by the Economics and Commerce Faculty of the

University of Western Australia, several articles and a book by Dr B.R. Davidson, and a paper by Dr R.A. Patterson.³¹ These conflicting studies had little impact on Government decision making on the Ord Scheme. The project had already been launched when the Western Australian Government submitted its *Case*, with the attached cost-benefit and secondary benefit study, in an attempt to justify its arguments for the Main Dam. The Commonwealth decision to grant financial assistance for the Main Dam was not made as a direct result of a definitive cost-benefit analysis. The decision was not announced until November 1967, by which time the economic studies of the Ord were outdated, having been replaced by four years of practical farming. The process by which the Commonwealth Government arrived at its decision in favour of the Ord Scheme must now be examined.

V. THE MAIN DAM

The Commonwealth interdepartmental committee, appointed in 1964 to examine the *Case* for the Main Ord Dam, worked closely with the newly established Northern Development Division of the Department of National Development and its head Dr R.A. Patterson. However, it was soon obvious that Federal Cabinet had deferred a decision on the Ord, despite the Western Australian Government's attempt, with the help of a CSR Report, to justify sugar as a crop for the Ord. North West Minister Court claimed that he would consider other sources of finance if necessary; in fact, he said, he had been offered overseas private capital to carry out the whole of the £30 million project.³² He expressed impatience at the lack of a Commonwealth decision: 'if this case does not warrant support - backed by the soundly prepared case and all the other good reasons for making a start - then we must regard the concept of vigorous northern development as being doomed.'³³

The delay on the part of the Commonwealth Government was seen by some as a result of Dr B.R. Davidson's influence. Senator M.F. Scott asked for assurance from the Minister for National Development that the Government would ignore Dr Davidson's 'continued, unrealistic attacks on the Ord River Scheme.' Senator S.D. Paltridge replied that all opinions for which there was scientific basis would be taken into account.³⁴ However, Dr Davidson's announcement that the first cotton crop had cost taxpayers £55,000 in subsidies, or £2,600 for every farmer and farm worker emp-

Lessons from the Ord

loyed, provided fuel for those opposing the Ord Scheme.³⁵

In May 1965, Menzies announced his decision to defer a decision on the Ord Scheme:

despite the agricultural and engineering research work that has been undertaken over the years, the Government considers that more detailed information needs to be known about such issues as the profitability of cotton production, the ability of the farmer to control insect pests which apparently abound in the area, and the behaviour of these tropical soils after intensive production has been commenced.³⁶

Later the same month, before the harvesting of the 1964/65 cotton crop had been completed, the Western Australian Government made a new submission to the Commonwealth. The submission claimed that further information was available on yields, pest control, repeated cropping on Kimberley soils, and the benefits to the cattle industry. Harvesting of the 1964/65 cotton crop was proceeding, and it was felt that yields would, in general, be 50 per cent higher than the 1963/64 crop. With several farmers intending to obtain a second crop from the 1964/65 plants, this could well mean a total annual yield in excess of 3,000lbs seed cotton per acre. It was also claimed that there existed a case for proceeding urgently with the Main Dam and associated works - to protect and maximise existing investment. Flood and silt damage could occur if the Main Dam did not provide essential protection in reasonable time. In November 1965, the Western Australian Government presented a revised case based on the results of the 1965 cotton growing season. The case was the original request for £30 million, with updated statistics.

On 10 May 1966, an urgency motion criticising the Federal Government's failure to proceed with the next stage of the Ord Scheme, was moved in the House of Representatives. The urgency debate was poorly attended; fewer than 30 of the 124 members were present.³⁷ The *West Australian* commented that the debate reflected the sorry state of affairs into which the Ord Scheme had been allowed to drift. It had become, it asserted, a sawhorse for political lobbying by sectional interests.³⁸

Federal Cabinet met one week later, to discuss the findings of the interdepartmental committee established to examine the Ord Project. After two days of talks Prime Minister Holt issued a statement saying that it would be

unwise to establish a community dependent on a single crop which faced falling world market prices. He stated that, with the pressure on resources in Western Australia, it was an inappropriate time to launch another major construction project.³⁹

Further talks took place late in May and in August 1966, after which the *West Australian* claimed that the Federal Government had not been moved from its 'chronic procrastination over the Ord Scheme.'⁴⁰ Prime Minister Holt announced that a firm decision could be expected before the next Federal election, fixed tentatively for 26 November 1966. The Commonwealth decision to defer a decision again, was made at a Federal Cabinet meeting on 18 October 1966. Holt told of the persistent major uncertainties about the future prospects of the Scheme, which could only be clarified by further experience in its pilot phase.⁴¹ He saw the major difficulty as the world market for cotton which, he claimed, was a surplus commodity. He reiterated the fact that there had been no attempt to argue for an alternative crop.

Late in October 1967, the Western Australian Government presented a new submission answering, Premier Brand claimed, the doubts expressed by the Commonwealth when rejecting previous Ord proposals. The new submission claimed a good future for cotton as the main crop, and for grain sorghum and the enrichment of the cattle industry with protein fodders.⁴²

On 1 November 1967, four days after receiving the amended Western Australian Government submission, the Federal Government decided to grant the financial assistance necessary for Stage II of the Ord Scheme to proceed. The financial assistance totalled \$48,180,000 - a \$20,930,000 non-repayable grant for the construction of the Main Dam, and a \$27,250,000 interest bearing loan for associated irrigation works in the area.

Dr Patterson was now the Federal Member for Dawson in the House of Representatives and he claimed that the eventual Commonwealth decision was simply 'grandstanding in the worst sense of the word for the Senate election.' Each decision the Government had made in respect of northern development was, he said, announced as a matter of political necessity or as a result of an election promise.⁴³

It is easy to see why the Commonwealth was willing to defer a decision on Stage II of the Ord Scheme, but more difficult to see why it saw fit to give financial assistance on 1 November 1967. Had the prospects for the Scheme drast-

Lessons from the Ord

ically changed for the better between 1966 and 1967? Until the Commonwealth decision in favour of the Ord in late 1967, commercial production on the Ord had been limited almost exclusively to the production of cotton. The commercial production of rice, begun on the pilot farm in 1960, and continued by the Mullumbar Irrigation Company, had failed by 1966 as a result of heavy freight costs and rice diseases.

In late 1967, grain sorghum appeared to be 'the new wonder crop on the Australian primary producing scene - the answer to an irrigator's 'dream'.⁴⁴ There were glowing reports of a rapidly expanding market for grain sorghum in Japan. However, a Bureau of Agricultural Economics market survey stressed the need for caution. The survey warned that even if Japanese imports of grain sorghum and maize were to double during the next decade, the United States would be able to supply this increase in Japanese requirements.⁴⁵ Two Australian firms had already, in fact, announced contracts to supply the Japanese market with grain sorghum.

It would appear that there was little cause to be too optimistic about sorghum as a second crop for the Ord. Yet National Development Minister Fairbairn claimed that it was the hope for sorghum that persuaded the Commonwealth. He stated, 'the plain fact of the matter is that sorghum now appears as a suitable alternative to cotton.'⁴⁶ Production of sorghum on the Ord over the 1966/67, 67/68 and 68/69 seasons proved disappointing, and this, combined with high transport and wharf handling costs, meant that farm gate returns were reduced, and the crop was unattractive for export.

Despite the fact that one of the stated objectives of the scheme was to benefit the pastoral industry, it was not until 1968 that a Research Officer was appointed at KRS to investigate beef production from irrigated forages, crops and pastures. In late 1968, a committee was formed to consider the best way of integrating the cattle industry with the Ord Project.⁴⁷

The situation facing cotton growers at the time of the Commonwealth decision to finance Stage II was not bright. The number of growers had increased from 6 in 1963/64 to 29 in the 1966/67 season. Cotton yield per acre had increased from 920 lbs in 1963/64 to 1950 lbs in 1965/66, declining to 1876 in 1966/67. The poor quality of cotton was an added problem. Australian spinners complained about the quality of Ord cotton, and the low standard of farming practice in respect to weed control and contamination of lint with grasses. At this time, the total Australian cotton crop

exceeded spinners' requirements.

The Ord farmers were faced with an increasingly serious financial position. By 1967, most farmers were finding the raising of loans for crop finance a serious problem. The fact that the 1968 harvest was to mark the end of the *Raw Cotton Bounty Act 1963*, was an added problem which faced Ord farmers and the Western Australian Government in 1967. Without the Bounty, the average net Ord farm income and rate of return would have been negative for the 1964/65, 1965/66, and 1966/67 periods. After persistent lobbying from the Western Australian Government, the Commonwealth Government agreed to continue the Bounty for a further three years from September 1968.

When the return to growers from the 1967/68 crop looked to be barely sufficient to cover costs, the Ord Project Committee concluded that some form of special State assistance would be justified. The assistance totalled \$56,649 in 1966, \$55,310 in 1967, \$151,121 in 1968 and \$290,012 in 1969. It included direct price support on a per lb basis, and indirect assistance including deferment from 1968 of rental payments on the No 1 Ginnery, payment by the State from 1969 of capital payments on the cooperatively owned No 2 Ginnery, subsidisation of ginning power charges and low water charges. Financial assistance for the 1972/73 crops was limited to a maximum of \$12,000 to any one grower, to be phased out over five seasons beginning with the 1974 crop.

Financial problems were not the only problems with which farmers had to grapple in the late 1960s. Irrigation and drainage deficiencies had not been remedied. In the 1967/68 heavy wet season, approximately 1,000 acres of cotton were badly waterlogged. The 1968/69 wet season was even more severe, and despite the completed redesign of three of the main drains, crop losses resulted from poor drainage.

It is obvious then, that in 1967 when the Commonwealth Government decided to give financial assistance for Stage II of the Ord Scheme, there was no basis for optimism. Western Australian Government thinking was that the construction of the Main Dam would solve all problems. The *West Australian* asked in January 1972 (the Main Dam was to be opened in June 1972): 'when the great dam has been filled from its catchment area of 17,800 square miles and the last reptiles and marsupials have been rounded up by the Ord Noah rescue team, an embarrassing question will remain to be answered - when will Australia draw a dividend from its mammoth venture into tropical irrigation?'¹⁴⁸

Lessons from the Ord

It was only after the commencement of construction of the Main Dam in 1969 that the State Government, and later the Commonwealth Government, began to review progress of the Scheme. In August 1970, the Ord Project Committee set up a working group - the Stage I Ord Review Sub Committee - to review all aspects of the development of Stage I which would have a bearing on Stage II of the Ord Scheme.

The *Stage I Ord Review* submitted on 3 November 1971 provided little analysis of problems which had arisen during the Stage I years.⁴⁹ It did highlight several mistakes made during the period. These included the problems of the pilot farm, and the fact that the Land Board did not place sufficient emphasis on starting capital, except for the first allocation of five farms. The *Review* stated that the drainage problems were due to inadequate planning of layout and facilities, primarily 'the result of there being inadequate time from the decision to proceed before the components were required to be in operation.' The report was not publicly released, nor used as a basis for a decision on the timing or nature of Stage II development. To 1971, a total of \$40,500,000 had been spent on the Ord Project and another \$34,250,000 was required for the construction of the entire irrigation works, townsite and housing facilities. In August 1971, the Ord Project Committee recommended that greater emphasis be placed on agricultural research and development in an endeavour to solve the present problems, before undertaking further major capital expenditure.

VI. STAGE II

The situation at the Ord Scheme did not improve with the opening of the Main Dam in June 1972. The number of cotton growers declined from 28 in 1967/68 to 16 in 1973/74. In 1966/67, the area under cotton represented 98 per cent of the total irrigated area; by 1974 it had fallen to 64 per cent. Yield had reduced, as had the staple length of Ord cotton. At the same time the market was paying less for lower grade cotton.

The main reason for the declining yield and increase in cotton production costs, was the problem of *Heliothis armigera*, the dominant cotton pest since 1970. As it became increasingly resistant to D.D.T., insect control costs rose and heavier and more frequent sprays became necessary. By 1974, insect control costs represented 50 per cent of a grower's total costs.

High transport and marketing costs placed Ord farmers at

a disadvantage in relation to processors in Eastern Australia. Despite favoured treatment for storage and wharfage charges at Wyndham, freight charges in 1974 represented approximately two-thirds of total Ord marketing costs. Facilities at the port of Wyndham were inadequate, industrial disputes and subsequent delays were frequent. The Ord growers were in a poor competitive position, too, because of the lateness of the area's harvesting season. In late 1974 the Ord cotton farmers told the State Government that they did not want to produce cotton in 1975 and on 12 November 1974 Premier C.W. Court announced that no commercial cotton crop would be produced next season.

The Hooker Pastoral Company's departure from the Ord area in August 1974 was evidence of the worsening situation. It was reported that the company's pilot farm was economically unsuitable.⁵⁰ The beef situation was deteriorating; grain prices in relation to beef market prices and the cost of fertilisers made beef feed lotting unprofitable. There was a problem, too, of the D.D.T. spray drift from cotton crops. In 1972 there was an export ban on cattle grazed on irrigated pastures, because of high D.D.T. concentrations.⁵¹

Sorghum growing was also uneconomic for farmers. Any sorghum grown by Ord cotton growers would be in excess of local and Darwin requirements and would have to be shipped through Wyndham, either to Perth or Japan at an estimated shipping cost of \$60 per tonne. It was estimated that the growing of sorghum for export would incur a loss of about \$140 per tonne or \$250 per hectare.

Research on peanuts had resumed in the 1968/69 season, and a small commercial crop was grown in 1971. Yields were disappointing, with problems of weed control, plant stand, and harvesting difficulties in the black soils. Work on safflower had also continued, the problems being root rot and insect attack. Despite failure of the 1971, 1972 and 1973 plantings of safflower, it was felt that if the boom in oilseed prices continued, further crops should be planted.

The Ord farmers claimed that due to distance, lack of communication and the fact its members had other major responsibilities, the Ord Project Committee was not conscious of the gravity of the situation. The need for a single body to plan and coordinate development in the Ord area was often stressed. In mid-1975 plans were announced for an Authority to manage the Ord Project.⁵²

In 1974, when many problems which had arisen during Stage I of the Scheme were only just being acknowledged, the

Lessons from the Ord

State Government requested an additional \$2.39 million in loan money under the *Western Australian Agreement (Ord River Irrigation) Act* 1968 for the development of five more holdings totalling 2380 hectares (5880 acres) in Stage II. The Australian Government deferred the request, and the editorial of the *West Australian* of 18 July 1974 claimed 'there is no justification for a penny pinching delay that would halt the impetus and cause a bold \$44 million Commonwealth State venture to become a languishing asset.'

By 1976, most farmers were in deep financial difficulties with little hope of improvement. There was still no crop which the farmers could economically produce, although various crops had been tried on small acreages on an experimental basis. In February 1976, Sir Charles Court (now Premier), members of his Cabinet, technical advisers and heads of departments with direct or indirect responsibility in the Ord area, met in Kununurra to discuss the future of the Scheme.⁵³

The meeting concluded that there was no outstanding viable crop for the farmers, and no enterprises on which the Scheme could be based. The meeting could not see any change in sight, at least for five years. It was felt that there was no future in expecting agricultural research to produce yields high enough to offset the disadvantages of remoteness and small scale operation. There must be expansion and capital investment. It was felt that cost savings could be achieved by investment in bulk handling and storage facilities.

The committee reviewed the crops available, warning against unprofitable sorghum, wheat and feed-lotting. It was suggested that safflower could be grown if firm contracts were available, and peanuts could be a commercial proposition on lighter soil types. The idea of industrial crops such as kenaf, cassava, and sugar cane was fine in theory, but knowledge and experience at the Ord was limited. It was felt that the present scale of research by the Department of Agriculture and the CSIRO was 'inadequate to assure a breakthrough in agricultural development on the Ord.'

The biggest disadvantage the Ord faced, the committee concluded, was that the costs in Kununurra were above those elsewhere - fertiliser and freight costs being particularly high. Based on this review of the situation, the Western Australian Government decided:⁵⁴

* that it would proceed with the establishment of a pilot sugar farm on the Ord, as the first step towards the

- development of a sugar industry for the state;
- * that an expanded research programme be undertaken by the Department of Agriculture 'in relation to the various factors which had been adversely affecting the commercial viability of the crops that had shown the greatest promise';
- * that rice growing be continued on a controlled basis, and storage and milling charges should be held to a level of \$40 a tonne of paddy rice;
- * that farmers should receive assistance with water rates, and government guarantees to cover farmers' borrowings for working capital requirements would be continued;
- * that bulk loading facilities and extensions of existing jetties would be provided when economically viable bulk crops made this necessary, and improved container handling facilities would be provided at the port of Wyndham after consultation with local residents.

Two years later, several important changes had occurred. Sunflower and rice appeared more promising, practical research had increased, the insect problem on the commercial crops (sunflower, rice and sorghum) was almost nonexistent, and the cost of moving bulk grain at Wyndham had been reduced, with the introduction of a bulk loader.

Sugar appeared to many to be the hope for the Ord area. In 1975, the Western Australian Government had commissioned CSR Limited to undertake a feasibility study into the prospects of establishing a sugar industry in the Ord Irrigation Area, and decided to allocate funds for a research programme involving sugar cane under normal farming conditions. In August 1976, CSR reported that to establish a 220,000 tonne per annum sugar industry would require a capital investment of \$230 million. The yields at the pilot sugar farm, established in 1976, were promising. By July 1977, the President of the Ord Growers' Association could say 'I think there is more optimism in the area today than there has been in the last four or five years. This is mainly due to the excellent results achieved so far with the sugar pilot farm and the bulk handling facilities the State Government has installed at Wyndham. This means we can now export any crop we produce.' He added, 'I am not kidding myself, but I reckon there is now a definite light at the end of that tunnel.'⁵⁵

In January 1978, the Joint Commonwealth and Western Australian Review Committee was established to examine the problems and the prospects of the Ord Scheme. The

Lessons from the Ord

Committee comprised Sir Norman Young as Chairman, two Commonwealth, and two State members (M.D. Carroll, Premier's Department and C.W. Bayly, Divisional Manager Shipping and Export, Wesfarmers). The Committee reported in February 1979. In reporting, it had two main options - to recommend that the Scheme no longer be supported by Government or that support be continued in some way.⁵⁶

Despite the fact that the Ord Project had not fulfilled expectations, the Review Committee recommended that the Project be supported for at least another five years, to ensure financial stability. However, further expansion of the Ord area was, it felt, unwarranted. Practical research should be maintained, but expanded - to provide proper evaluation of Ord crops that showed commercial promise. The Commonwealth Government, however, should reassess its commitment to agricultural and environmental research in the area, because CSIRO programmes had no direct relevance to the immediate problems of the Ord River area. The *Review* recommended that Western Australian Government financial support for the farmers, for the next five years, be in the form of a guaranteed farm gate price for crops it felt had the best potential for the area.

The *Review* was cautious about agricultural prospects. It said that rice and sunflower crops, though yet to be proved, were showing promise of commercial success. On present indications, sorghum was unprofitable, but would continue to find a limited market in Darwin. On available information, the *Review* concluded, there was no prospect for an immediate investment in a sugar industry. However, the present sugar programme should be continued, to increase data on varieties and yields. The production of ethanol from sugar cane was also unlikely to be economic in the foreseeable future. The same was said of the production of pulp or paper from kenaf. Great caution was needed before any decision was made to reintroduce cotton as a commercial crop.

In a joint statement, the Prime Minister (Mr Malcolm Fraser) and the Premier of Western Australia (Sir Charles Court), welcomed the report as 'an important advance in assessment of the Ord Project's future.'⁵⁷ The *Australian* editorial commented on the *Review*, pointing out that up to June 1978, the Scheme had consumed \$100 million, and 'as the report politely puts it' still showed no signs of contributing to net increase in national output. The editorial added: 'This is not to say that the scheme cannot ever be profitably productive. The problem is to find out what it should be

producing - and this, of course, should have been done before all the vast capital work started.⁵⁸

Other reactions to the comprehensive *Review* were varied. Kununurra residents felt that it contained no unexpected information. Ord District Manager, H. Lyons, said: 'I am optimistic that the five year period referred to for continuing support will give us time to show that some crops are heading in a commercial direction.'⁵⁹ Western Australian Opposition Leader, Mr R. Davies, committed a future State Labor government to support the project for at least five years. But the Federal Opposition's spokesman on primary industry, Senator Peter Walsh (W.A.), said he could see no justification for continuing commercial agriculture at the Ord. He did not see why a handful of Ord farmers should be guaranteed a price to ensure their viability. He believed that commercial farming would continue only because of 'the self-indulgence of the Premier, Sir Charles Court, and his inability to acknowledge a blunder.'⁶⁰

Since the publication of the *Ord Irrigation Area Review*, the outlook for the area has brightened. In April 1979, the Commonwealth Government agreed to support the Scheme for another five years at least. At the end of this period, National Development Minister Newman stated, there would have to be a long, hard assessment.⁶¹ By 1981 there was a new demand for Ord land and there was a greater area under crop than during the peak of the cotton industry. Farmers were growing a range of crops including rice, sunflower, sorghum and soybean, mung beans, hay and peanuts, melons, and a range of hybrid seeds.

In 1981, the Grain Pool of Western Australia negotiated the first export order for sunflower seeds produced in the Ord River region. The Western Australian Government is expecting that approval be given for a \$200 million Ord River sugar cane project by the end of 1981. Fruit and vegetable growing has been undertaken on some farms and farmers have begun to look to the boom in mineral exploration as a potential market. Late in 1979, a group of companies headed by CRA Limited released details of a rich diamond discovery in the Ord region, approximately 200 kilometres by road from Kununurra. Business in the town has gained from the exploration activity, and when mining begins the Ord area will get a permanent boost.

A hydro-electric power generation project to supply the Kimberleys and the Northern Territory is under investigation. In July 1980, an environmental review and management programme was released for public comment.

Lessons from the Ord

The review claimed that operating procedures had been developed that would use water for power generation that would otherwise be lost by spillage from the reservoir. Work on the project, at an estimated cost of \$45 million, was expected to take four years and would involve raising the Ord Dam spillway by six metres. A 600 kilometre, 200,000 volt transmission line to Darwin, to be built by the Northern Territory Electricity Commission, would cost an additional \$45 million.

VII. CONCLUSIONS

The long-term future of the Scheme cannot be assessed as yet, perhaps not even after the five year period recommended for financial support by the joint Commonwealth - State Review. However, the research and the commercial experiments being undertaken now should have been undertaken twenty years ago. The crops now being hailed as the hope for the Ord were grown at the Kimberley Research Station between 1945 and 1959, and could have been tried on a commercial basis much sooner. The Review states that the Ord Scheme like all pioneering schemes 'is operating within a framework of imperfect knowledge and a degree of trial and error is unavoidable.'⁶² The knowledge need not have been imperfect if decisions on the Ord had not been taken for political rather than rational reasons, and if a comprehensive review of the Scheme had been undertaken much sooner.

The multiplicity of bodies (Commonwealth and State), each with their own specific interests, goals and perspectives of the Ord, militated against comprehensive planning. So too did the fact that there was no break in the continuity of the decision-making process, to carry out a major review of the situation. The *Stage I Ord Review* was to have been a major overview of the situation; however, it was provided too late - Stage II was already underway, and the Review itself was purely a history of the Scheme. As such, it failed to present comprehensive guidelines for Stage II in the light of Stage I. Early low cost decisions such as the establishment of KRS, and the £5 million Commonwealth grant for northern development, created precedents which meant that the later, high cost decision (the Main Dam) was an almost compulsory commitment in the long run. Once committed to the Scheme, despite its failures and increasing problems, the State Government continued to move forward, to Stage II and increasing levels of assistance for Ord farmers.

Decisions were made without complete information. In

1959, despite fourteen years of research at KRS, there were still many problems concerning agriculture in the area which required further research. There was no obvious crop on which success of the irrigation scheme could be based; and lack of planning as to drainage and layout of the area was to lead to problems later. The Ord Scheme, it seemed, was submitted only because of the lack of other, well-researched schemes for the North West. Application for finance for Stage II was presented to the Commonwealth Government in 1964, before there was any detailed knowledge of farming capabilities in the area.

The eventual Commonwealth decision in 1967, to finance Stage II of the Ord Scheme, deferred to direct electoral implications. It was made in the face of declining cotton yields, insect and financial problems. A brief analysis of the various decisions affecting northern Australia over the years 1961 to 1967 proves interesting. The joint Senate/House of Representatives election of 9 December 1961 resulted in a gain of fifteen seats by the Australian Labor Party (ALP) leaving the Liberal-Country Party coalition with a majority of two which, after the election of a Speaker, shrank to one. The ALP regained two Western Australian seats which it had lost in 1958 (Kalgoorlie and Stirling), and won eight new seats in Queensland. The subsequent 1962/63 budget provided funds for Beef Roads in Queensland and Western Australia, and for the Brigalow Land in Queensland.

The Northern Division of the Department of National Development was formed as the result of an election promise before the 30th November 1963 election. In that election, the government parties' effective majority in the House of Representatives increased from two to twenty two. It regained three of the eight seats it had lost in Queensland in 1961, and gained a majority of seats in Western Australia (although the ALP retained Kalgoorlie and Stirling).

Before the next election, for the House of Representatives, the Commonwealth Government announced three times that it would defer a decision on financial assistance for Stage II of the Ord Scheme. From late 1964, every Gallup Poll conducted gave Government parties an absolute majority over the Opposition, and it was predicted that the Government would be returned with a majority of 30. The 26th November 1966 election was a great electoral triumph for the Liberal Party which won 61 seats (compared with previous 52 seats) and the Country Party, with 21 seats.

Gallup polls taken before 25 November 1967 Senate election (and before the 1 November 1967 decision to assist

Lessons from the Ord

the Ord Scheme) showed that the Liberal-Country Party coalition had lost all the gains it had made at the last Federal election. In the closing months of 1967, the Liberals failed to win the Capricornia by-election (this Queensland seat had been held by the Liberals 1949-1961), which was fought mainly on the issue of northern development and the Government's record in this regard.

The parliamentary scandal associated with the issue of the use of V.I.P. aircraft, the Capricornia by-election (won by Dr Doug Everingham), the decline in Government support in public opinion polls, and the impending Senate election, could all have been contributory factors to the Commonwealth Government's sudden decision in November 1967, to give financial assistance for the Main Ord Dam, the Emerald Irrigation Project in Queensland, and for Beef Roads in Queensland and Western Australia. For, from 1964, the Commonwealth Government had claimed that it lacked adequate information on which to make a decision, and it has been shown that this situation had not changed by 1967.

The joint Commonwealth-State *Review* claimed, in 1978, that the administration of the Scheme was in no way responsible for the disappointing progress to date. Rather, it said, the Project failed as a result of 'its own inherent high cost structure, the still incomplete understanding of the basic Ord agronomy and the severe limitations which have existed on the effective marketing of the relatively small volumes of Ord agricultural production'.⁶³ It is difficult to separate any of these problems from the administration of the Scheme. Any administration should surely have investigated problems such as high costs and imperfect understanding of Ord agronomy, before making decisions. The high cost structure due to the isolated region in which the project was located, is very important in defining the reasons for the problems in the Ord area. However, this does not explain why the administration, at Commonwealth and State levels, did not take more time to seek information before proceeding with the Scheme.

C.W. Court (when Minister for the North West) explained his views early in the development of the scheme:

International pressures prevent us from awaiting the ultimate results of investigation before beginning practical action. The time is never 'ripe' for undertaking great and difficult projects; it is necessary to make a practical start with the most obvious resources first, taking a calculated risk based on

available knowledge.⁶⁴

However, with a full time administrative body to coordinate all aspects of the Scheme, knowledge available, although not complete, could have been used to greater advantage. Research could have been more meaningful and commercially oriented, and planning less haphazard and piecemeal.

Notes

1. *An Outline of the Ord Irrigation Project Western Australia*, Department of National Resources (Canberra, April 1976) p. 1.
2. *The Australian*, 28 February 1979.
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4. *Ord River Irrigation Area Review: 1978*, Australian Government Publishing Service (Canberra, 1979), p. 9.
5. A. Forrest, 'Journal of expedition from de Grey to Port Darwin', *Votes and Proceedings of the Legislative Council 1880*, No. 3., p. 40.
6. A. Despeissis, *Handbook on Tropical Agriculture*, (Perth, 1913), p. 16.
7. *Western Australian Parliamentary Debates (W.A.P.D.)*, Vol. 73, 18 October 1925, p. 994.
8. *ibid.*, Vol 75, 15 December 1926, p. 3061.
9. S. Graham-Taylor, 'A History of the Ord River Scheme', Ph.D. Thesis, Murdoch University, Chapter 1.
10. *Freeland*, Spring 1972, Vol XXIV, No. 1 (65).
11. I.N. Steinberg, *Australia - The Unpromised Land: In Search of a Home* (London, 1948), p. 20.
12. *Report of the Royal Commission appointed to inquire into and report upon the financial and economic position of the pastoral industry in the leasehold areas of Western Australia* (Perth, 29 March 1940).
13. A.H. Richter, *Surveys and Soil Classification of the Ord River Valley and Watershed*, Department of Lands and Surveys - Kimberley Surveys (Perth, 1944), p. 26.
14. *Report of the Committee appointed by the Government to investigate measures necessary to promote the development of the North West*, (Perth, 1945), p. 13.
15. The Rural Reconstruction Commission, 8th Report, *Irrigation, Water Conservation and Land Drainage*, (Canberra, 11 December, 1945)
16. Council for Scientific and Industrial Research, became the Commonwealth Scientific and Industrial Research Organization (CSIRO), in May 1949.
17. Quoted in *Stage I, Ord Review Sub Committee Report*, 3 November, 1971.
18. *Submission for works and undertakings to improve the quality and quantity of beef exported through Wyndham*, Perth, February 1949.
19. *Report of the Kimberleys Development Committee*, Perth, 1 November 1951, p. 3.
20. *West Australian*, 21 June 1955, p. 1.
21. *C.P.D.*, H. of R., vol. 17, 28 November 1957, pp. 2650-1.
22. *West Australian*, 17 April 1958, p. 11.
23. *W.A.P.D.*, Vol 151, 2 December 1958, p. 2561.
24. *West Australian*, 26 February 1959, p. 1.
25. R.G. Menzies to D. Brand, 24 August 1959 (P.W.D.).
26. After the completion of the Diversion Dam, the terms of reference were extended to cover the work associated with the remainder of the Scheme, including the construction of the Main Dam and associated works.
27. *Diversion Dam - Notes on Diversion or Offtake Works*, 21 February 1959 (P.W.D.).
28. KRS Policy Committee Meeting, 16-19 July, 1963.
29. *A case for Financial Assistance from the Commonwealth Government to complete the Ord Irrigation Project*, February 1964.
30. *West Australian*, 3 September 1959.
31. The most important writings involved were :
Davidson, B.R., *The Northern Myth*, (Melbourne, 1965) and 'The Economics of Irrigated Agriculture on the Ord River', *Farm Policy*, Vol 3, No. 2, (September 1963), pp. 54-60.
Patterson, R.A., *The Economic Justification of the Ord River Project*, 38th Congress ANZAAS, Hobart, 20 August 1965 and *The Ord River Irrigation Project - a Benefit-Cost Analysis*, BAE (Canberra, 1964).

32. *West Australian*, 16 November, 1964.
33. *West Australian*, 18 March, 1965.
34. C.P.D., Senate, Vol 28, 24 March 1965, p. 62.
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37. C.P.D., H. of R., Vol 51, 10 May 1966, p. 1612.
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40. *West Australian*, 27 August 1966.
41. *West Australian*, 19 October 1966.
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44. *Australian Financial Review*, 3 November 1967.
45. J.L. Sault, 'The Market for grain sorghum in Japan', *Quarterly Review of Agricultural Economics*, Vol.XX, No. 4, pp. 165-177.
46. C.P.D., H. of R., Vol 57, 8 November 1967, p. 2772.
47. Late in 1967, Hooker Pastoral Company purchased the whole of the issued and paid up capital of Northern Developments (Ord River) Pty. Ltd., controlling the pilot farm area, for grain sorghum. The State Government insisted that at least 400 to 600 acres of cotton be grown.
48. *West Australian*, 17 January 1972.
49. *Stage I Ord Review Sub Committee Report*, Perth, November 1971.
50. In April 1969, the State Government approved the formation of a consortium of four companies (Ord Agronomics), to undertake research into large scale cropping on the Ord. Hookers had 51 per cent interest in the company, which aimed to experiment with growing cash crops, in particular sorghum and maize, and to investigate cattle grazing.
51. *Australian Financial Review*, 19 August 1974.
52. The Ord Project Advisory Committee, headed by a Resident Project Manager, was appointed in April 1976. *West Australian*, 28 April 1976.
53. *Ord River Irrigation Area Review: 1978. op. cit.*, p. 32.
54. *ibid.*, p. 38.
55. *West Australian*, 28 July 1977.
56. *Ord River Irrigation Area Review: 1978, op.cit.*, p. 1.
57. *The Australian*, 28 February 1979.
58. *ibid.*
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60. *ibid.*
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62. *Ord River Irrigation Area Review: 1978, op. cit.*, p. 2.
63. *ibid.*, p. 135.
64. C.W. Court, 'Northern Australian Development', *Public Administration (Australia)* Vol XXIV, No. 1 (March 1965), p. 6.

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