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The Oombulgurri Project Clancy Committee report

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Recommended Citation

Clancy, D J, McCosker, P, Mayberry, C, Millington, A J, and Ryan, P. (1976), *The Oombulgurri Project Clancy Committee report*. Department of Agriculture, Perth. Report.

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THE OOMBULGURRI PROJECT
CLANCY COMMITTEE REPORT : 24.8.76

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In early August the Oombulgurri community requested assistance in the following terms.

"On behalf of the Oombulgurri Community, we invite assistance in developing the grain and pasture cropping at Oombulgurri.

We have experimented with peanuts, sorghum, and many varieties of vegetables. This has tested the reality of hopes to expand acreage and varieties to become self-sufficient in stock feed. The Farm and Garden Guild now needs the expertise of your services to plan a four-year programme. We need assistance in choosing from the many options, opinions and advices available from Australia and elsewhere, for grain production, pastures, methods appropriate to our geography, and machinery, to minimise expenditure and produce food for the stock expansion necessary to be self-sufficient in locally produced food for the town.

Our concerns so far have been to start poultry, pigs, goats and horses stocking to provide useful work for everyone and food. We believe we can produce stock feed locally and gradually increase production and decrease imports with the appropriate use of manpower, water and other resources.

We attach our initial estimates of need which includes an estimate of projected stocking and machinery needs as well as a list of what is on hand."

An ad hoc committee comprising the following was convened and visited Oombulgurri on August 24th, 1976.

Mr D J Clancy	Kimberley Regional Administrator <u>Chairman</u>
Mr P McCosker	Farm Manager, Department of Agriculture
Mr C Mayberry	Veterinarian, Department of Agriculture
Dr A J Millington	Senior Research Officer, Office of the North West
Mr P Ryan	Farm Manager, Office of the North West

The above letter from the Oombulgurri Community has been used together with other information supplied as the terms of reference in the preparation of this report. The comments offered apply only to the conditions that prevailed on the 24th August, 1976. Relevant appendices are attached.

The party was met at Oombulgurri by Mr Bill Pfaff who was acting as leader of the group. Mr Pfaff is a Veterinarian from the United States of America and has been at Oombulgurri since March of this year.

An inspection of the Machinery, irrigation facilities and land was made during the visit and the proposals for further development of the cattle enterprise discussed with Mr Phillip Dowsett.

OOMBULGURRI: Physical Resources

1. Land

The Oombulgurri Community is a small Aboriginal settlement located 45 kilometres north west of Wyndham on the former Forrest River Mission Station site. Vested in the Aboriginal Lands Trust the Oombulgurri Group have an area of 364.3 ha. within the A Class Reserve 3960 (Mission Station) of 40,063.8 ha. These are incorporated within the Aboriginal Reserve 13873 of 1,073,884 ha. which extends from Home Valley Homestead in the south to the Kimberley coastline in the north (see map). At best only about 5,000 of the 1,000,000 ha. appears to have any value for agricultural or pastoral purposes.

Apart from 4 square miles of arable alluvial soil at Oombulgurri and 20 square miles at Bulla Nulla at the mouth of the Durack River at the southern end of the reserve, all the country in the region is stony and rugged with a few small pockets of low hilly country suitable for grazing cattle. Most of the country in the coastal regions is saline flats affected by tidal changes. Such areas as produce grazing are heavily infested with feral donkeys.

2. Climate

The climate in the Forrest River area is "hot dry monsoonal" characterised by a rainy season from November through to March. The mean average annual rainfall is 720 mm with an average of 45 rainy days.

TABLE 1

MEAN MONTHLY RAINFALL FIGURES FOR FORREST RIVER MISSION
(1914-1968)

<u>Month</u>	<u>Rainfall</u>	<u>Rain days</u>
	mm	
January	188	11
February	173	10
March	139	8
April	24	2
May	8	1
June	5	1
July	3	0
August	0.1-0.4	0
September	1	0

<u>Month</u>	<u>Rainfall</u> mm	<u>Rain days</u>
October	10	1
November	45	4
December	124	7
<u>Annual Total</u>	<u>720</u>	<u>45</u>

Source: Bureau of Meteorology

Almost all the rain is from thunderstorms which produce heavy but localised falls often at intervals of one or more weeks. Between these falls the temperatures can exceed 38°C on most days.

3. Water Supplies

The settlement obtains very limited supplies of fresh water from a Forrest River pool upstream in extremely rough country. Water is piped six miles to the settlement and the intervening country is so rough that the pumps can be serviced only by packhorse.

Water Supplies may exist 4 miles to the north and funds have been made available for a boring contractor to test the area in the near future. The cost of equipping the bore if water is found and bringing the water to the settlement will be very high. Bores and wells near the settlement have been too saline for general use.

4. Community and Accommodation

The community consists of about 200 people of whom less than 50 would be males of working age. Accommodation is mainly reconstructed shacks on the former Forrest River Mission site.

A trade school is being constructed and it is understood that buildings are in the process of being transferred from Wyndham.

5. Transport

The Bulla Nulla area (which is at the southern end of the reserved areas) can be reached by four wheel drive vehicle during the dry season.

Heavy transport to the settlement from Wyndham is by a 24ft barge. Two small boats are also operated by the Community and it is said that a third is being purchased for it by the

Commonwealth Government.

The committee did not sight the water transport fleet but it is of the impression that the vessels are in poor condition and will be expensive to rehabilitate. A recent report by Social Worker Mr P J Howard mentions that the 'Arlagu' a 21 ft fibre glass boat desperately needs replacing and the engine of the staff boat badly needs overhauling.

Chartered light aircraft operate into the short dirt airstrip from Wyndham during the dry winter months and for part of the 'wet' season until rain makes the surface unfit for landing and taking off.

11. Objectives of the Community

The Community has nine social, five business and four primary industry programmes. The Committee reviewed the "Primary Industry" programmes and because it impinged on these, the "Multi-Repair Shop" and the Demonstration Farm".

The "Economic Development Programme" objectives have been stated as follows:

"The search for economic self-sufficiency is foundational for the people of Oombulgurri. Without success here they know that educational and cultural gestures become hollow and have no enduring effect. Their first step is clear: local production of food and usable supplies. Their anticipations in this arena are now deeply embedded in the mind of the community. Similarly, stabilizing basic services to the point of having dependable water supplies, communications, transportation and housing has become crucial to the people. The securing of these intermesh with the third, Income Systems, where the creative energies of the people can be freed to flow into producing animals, market produce and other items for export. As all of these begin to be realized, Oombulgurri's thrust into the future can be expected to move the whole community into a new day."

The Community lists the following primary industries as income sources which by 1983-87 are expected to produce as follows:

Cattle	\$100,000
Eggs	\$ 20,000
Pigs	\$ 15,000
Crops	\$ 10,000
Vegetables	\$ 5,000
	<hr/>
	\$150,000
	<hr/>

111. Maintenance of Equipment

The machinery at Oombulgurri overall has been poorly maintained. The present mechanic appears to be very competent but a sizeable budget will be required for maintenance and rebuilding before the machinery is operational. The ploughs and combines are very old machines and are sound provided parts are available to restore them. As most of the parts would have to come from secondhand yards there are likely to be long delays in supply.

The isolation of Oombulgurri and the difficulty of access pose great problems of transport and communications so necessary for for the efficient operation of farm machinery.

1V. Equipment

a. Tractors - none operational

- (i) Two Massey Ferguson 135 tractors
Both were stripped down for major engine top overhauls but the transmissions were reported to be sound.
- (ii) Canelander Chamberlain
Requires new cylinder rings.
- (iii) International Farnall A554
The front wheel bearings were awaiting replacement.
- (iv) Massey Ferguson 200 track tractor with a bucket.
This had not been run but the engine is probably in very poor shape.

b. Tillage and other equipment

Disc harrows	posthole digger
Carrier	rotary hoe

Slasher

International combine
(vintage)

Front end loader

Derelicts: Shearer combine and Sunshine, disc
cultivating plough.

A harvester (donation) in Wyndham was not viewed
by the Committee.

V. Crop Production

(1) Organization.

While it is a recipe for disaster to run a haphazard enterprise and it is not necessary to insist on too much perfection, farming in the tropics is fraught with enormous difficulties and for success requires the highest levels of management and equipment. There was no evidence of either of these in the facilities for cropping or the maintenance of equipment at Oombulgurri.

(2) Supervision of Projects.

The Advisers and consultants in the Community appear to be basically geared toward improving housing, education and general community standards rather than towards agricultural pursuits. This is a situation in which the Department of Agriculture could be co-opted if funds were made available from the Department of Aboriginal Affairs.

(3) Grains.

Because of the soil type, the only marginal total amount and the wide daily and annual variability of the rainfall, the probability of grain crop failure due to drought alone is at least two years in five.

Under optimum conditions the cost per hectare of growing any grain crop would be prohibitive compared to the cost of purchasing grain locally. Estimated crop costs are at least \$220 per hectare given the availability of essential machinery and efficient operators.

Working on a generous sorghum yield estimate of 1.5 tonnes per hectare in a good season the cost of production is \$146 per tonne. Crop failures of 2 years in 5 and the likely disease and insect incidence plus the weed problem in good years rules out any possibility of an economic grain production.

As the grain would be required for livestock which must be fed in every year, it is of interest to note in this context that broken Rice was available at Kununurra in 1976 for \$75/ tonne while top quality sorghum can be obtained at Wyndham for less than \$100.00 per tonne.

Any animal enterprise must therefore be based on feeds purchased elsewhere and transported to the Community.

The growing of cereal grains at Oombulgurri is not recommended as a commercial enterprise or as a stock feed.

(4) Pastures

Townsville Stylo and Buffel grass were growing fairly well in the vicinity of the settlement but this is no indication that pasture improvement should take precedence over other forms of development. Pasture improvement in the Oombulgurri area will require high inputs of expensive phosphatic and nitrogen fertilizers as well as seed. It would be preferable to set up a deliberate strategy to give priority to improving the quality of the herd in the first instance while at the same time getting into pasture improvement slowly and methodically. The alluvial soil in the vicinity of the settlement and Bulla Nulla as well as the spinifex seem the most suitable for introducing grasses and stylo. When the soil analyses are available a more definite programme can be drawn up.

VI. Livestock Production

1. Beef Cattle

Based on soil types there are basically two regions (i) the area around the settlement and (ii) Bulla Nulla which are suited to the grazing of cattle.

Watering facilities are likely to be a problem in both areas. Transport to the meatworks from the settlement area, would have to be by the very costly means of the barge, whereas from the Bulla Nulla area, the animals could be walked into Wyndham along the old Barclay Stock Route, at very low cost (or trucked at moderate cost). The cost of barge transport from Oombulgurri would absorb the present market value of the animals and leave little or no nett income. The problem of getting the cattle to the works after disembarking them from the barge could be formidable because of the wild nature of the cattle.

If the beef cattle operation was transferred from Oombulgurri to Bulla Nulla the land at the settlement would be available to run a few dairy animals.

Since water is fairly scarce in the Bulla Nulla area, watering points provided by bores or by pumping water from further up the Durack River could be used as trapping sites for cattle, making mustering a simpler operation.

Preparations are underway for a cattle muster using a helicopter for which funds have been made available. The following comments and suggestions could be considered, which take into account the equipment and facilities on hand and the more general considerations for running cattle on Oombulgurri including the actions that are required if the industry is to succeed.

(a) Equipment and Facilities

(i) A helicopter mustering yard has been completed recently in the Bulla Nulla area.

(ii) Horse Plant: some 50 horses are at present on hand but only 28 are usable. The remainder require breaking while saddles and pack equipment will need to be purchased.

(iii) Vehicles: One truck is available although it requires repairs. Light FWD vehicles are available but they will require maintenance.

(iv) Barge: It may be necessary to have the barge surveyed before it is used to transport cattle across the Cambridge to Wyndham. The barge which has been used for this purpose before would carry only 15 cattle and make 3 trips per week to the meatworks. Consideration is being given to driving a truck load of cattle onto the barge on the Forrest River side and up to the meatworks on the other side.

(v) Waters: No permanent waters are available in the Durack-Pentecost River area. The possibility of employing a boring contractor to find a reliable source of water would have to be investigated.

(vi) Cattle: At least 1,000 head are estimated to be accessible in the Durack-Pentecost region. Approximately 300 could probably be mustered by a helicopter in one muster.

It would be necessary for at least 60 "coacher" cattle to be horse mustered previously to provide a nucleus in which to run cattle brought in by helicopter.

(vii) Subdivision: If it is intended to run cattle on both sides of the Durack River (the most practical area) it would then be desirable to fence off the river frontage on each side to prevent cattle moving back and forth. It is estimated that at least 700 bullocks could be run on the south side of the Durack - i.e. Home Valley side. Breeder cows and steers could then be run on the north side of the Durack. Steers moving into the bullock paddock would have to be driven across the river.

(viii) Summary: Overall the prospects for running cattle on Oombulgurri is poor. There is a general lack of good land, water, equipment and expertise. At best the project could only be run as a small operation and under present circumstances the economics would appear to be at best questionable, particularly if the donkeys are not eliminated.

There is a lack of suitable direction of the labour force on Oombulgurri and it would need an experienced cattleman with ability to direct aboriginal stockmen to maintain an efficient mustering plant.

To date there has been an obvious disregard for the care and maintenance of equipment. Any future venture would have to ensure that this problem is overcome.

Should cattle mustered into the Bulla Nulla yards the best approach would be:

- a) draft off bulls, suitable bullocks and old cows for immediate shipment to the meatworks.
- b) draft steers off from cows, calves and weaner cattle.
- c) place steers in paddock on Home Valley side of Durack River
- d) unbranded cows, calves and weaners left on the north side of the river to be branded and earmarked and where necessary the male animals castrated.
- e) all movement of cattle to meatworks could be made through Home Valley yards utilizing road transport.
- f) once a suitable breeding herd nucleus is established bulls could be purchased - preferably Brahman - to upgrade the herd and provide a measure of hybrid vigour to the progeny.

It must be emphasized that any operation involving cattle requires constant year-round attention and a practical knowledge of cattle management as well as the associated skills in machinery maintenance etc. Unless there is complete surety it is questionable whether the operation should be attempted.

2. Sheep

The Community is giving consideration to a sheep flock but there is little chance that such a venture would do more than provide a light snack for the wild dogs. In any event those that survived the dingoes probably would be killed by the blowflies.

The two main problems with sheep are that they must be shorn annually (shearing equipment can be expensive and shearing is an art that must be learned) and in wet/humid weather they are prone to diseases such as foot abscess and fly strike. Further, dingoes can affect the economics of keeping sheep rather than cattle. To run sheep effectively, more yards must be built, and regular attention is necessary to control disease, and mustering in the wet would be a problem. The suggested areas for running sheep (namely the "peninsulas" on the Forrest River where it meanders near the settlement) are unsuitable because they are subject to flooding during the wet.

3. Dairying

(i) Dairy Breeds

Goats or local cattle could be a source of milk and would utilise lower grade fodder than good dairy cattle. If dairy cattle were brought in from southern areas, the disease testing required to get them into the Kimberley, plus the cost of transport would make them quite expensive animals. Further, most dairy cattle are not suited to the heat and tick conditions prevailing in the Kimberley and those that are would be very expensive.

The high levels of production of which dairy breeds are genetically capable can be achieved only at generous levels of feeding and housing, neither of which would be practicable at Oombulgurri yet.

(ii) Local Cattle

Many of the local shorthorn cattle have fairly good milk production and are used by most stations as house cows. A heifer selected from the cattle already on the property, using her growth as a guide to how much milk the dam produced, could become a quiet milking cow. The capital expenditure on this type of beast would be negligible, but the time and energy to be put in would be very considerable.

(iii) Goats

Goats require close supervision, as the dogs in the Community are a danger to them, and if they escape, their hardy nature and ubiquitous appetite would make them a great risk to the vegetation of the area.

High producing type dairy goats require an abundance of good quality fodder to maintain their production and health.

For these reasons, it would probably be best to commence any dairy enterprise with either goats or local cattle, the choice depending (a) on how closely the animals can be supervised

(b) the availability of goats

(c) The facilities which can be erected

(d) the area of pasture which can be made available.

Irrigation is required to grow high producing pastures.

4 Pigs

Health regulations prevent the sale of home killed meat for human consumption. The nearest abattoir with facilities for slaughtering pigs is in the Northern Territory so the outlook for pigmeat production beyond local needs is grim.

Since the basis of any good big (or Broiler) diet is starch, in the form of grain, these animals will be an expense to the Community as a whole, and can therefore be considered as a luxury.

A small scale pig operation could be run as it is now, using waste from the vegetable garden and the kitchen, plus donkey and fish meat and offal as the main feeds. The potential for pigs reared on this type of diet to spread disease is fairly high and as parasitism could become a problem, there would need to be an

expenditure on drenching materials. The high cost of the facilities and operation would necessitate that the pigs be run on a semi-intensive open range type of system, with farrowing in special pens. This envisages a high level of husbandry and care would have to be taken that the pigs do not become a health hazard.

Fencing for the piggery must be pig-proof, which involves burying the bottom of the fence, and using strong expensive materials. Shade must be provided for the pigs, but this could be built cheaply out of scrap building materials and spinifex.

Farrowing pens are required to provide protected areas for the piglets and prevent the sow lying on them. Shade and cooling in the summer, as with the poultry, could be done cheaply by using spinifex thatching for the roof, and sides with old corrugated iron and pipes for support. Several good designs can be built cheaply. The section of the market garden earmarked for production in the wet season would provide good forage in the dry season for some pigs. This would provide a measure of weed control for the garden and some nitrogen for the soil.

5. Poultry Farming

Poultry farming poses difficult problems but provided proven simple rules of care and feeding are followed there is no reason why a small scale industry should not succeed.

The basic diet for poultry is grain plus a protein source, and since a reliable crop of grain cannot be grown without irrigation (see submission on crops) most of the diet would have to be bought.

(a) Egg production and feed requirement

To produce one egg/person/day i.e. 200 eggs/day, a laying hen flock of about 300 would be necessary. (This assumes that the population of Oombulgurri remains at 200)

Birds over the age of about 18 months become uneconomical to maintain as layers and should be culled for age. Since age at point of lay is about 22 weeks it would be necessary to produce 300 replacement birds/year.

300 birds on laying ration could be expected to consume in the order of 11 tonnes of feed in the year.

300 replacement birds would consume in the order of 3 tonnes to the point of lay.

The total feed required plus a margin for safety would be approx. 15 tonnes.

To obtain a ration of 15% protein, with meat meal from the Wyndham abattoir @ \$9.00/65 kg bag, the meat meal would cost \$260.00.

Imported grain of 10% protein, at \$100.00/tonne, would cost \$1,300.00. (This cost is minimal and is based on around \$85.00/tonne in Kununurra.)

Total feed costs \$1,550.00 i.e. each egg costs about two cents to produce if inputs apart from food are discounted. If eggs are to be sold at 50 cents/dozen, a flock of 600 layers would be self sufficient. The culled birds would be suitable for home consumption.

A small irrigated legume plot to give a section hand mown daily, would provide greens, which are a cheap source of vitamins and guarantee good yolk colour (an important selling point). Kitchen scraps, donkey, fish meat, offal and beef carcass bones can be used to cut the feed bill.

(b) Brooding

The present system of brooding young chickens could be expanded quite cheaply by using a rebuilt single cylinder engine, an old car generator, voltage regulator and a battery to run 12 volt lights. Fuel costs for this would vary according to the capacity of the engine and the power of the lights used, but could be fairly low.

(c) Broiler Poultry

Because of health regulations applying to slaughter, these could not be sold to outside markets except as live birds. Production would probably be limited to home consumption.

6. Vegetables and Market Gardening

The objectives of the vegetable garden are to grow enough to give self sufficiency and eventually a surplus for marketing in Wyndham.

(a) Water availability is one limiting factor. Although the initial capital cost has been high the development of a trickle system of irrigation has been undertaken.

Even though the trickle system conserves water and the present garden is modest in size, the water supply from the billabong is sufficient only for part of the year. Unless there is a fortuitous thunderstorm, no water is likely to be available from it in the three hottest months of October, November and December. The feasibility of increasing the capacity of the billabong by building another bank downstream should be investigated. It may be possible during the dry part of the year to cut into the town water supply. To keep the capital outlay on the trickle system as low as possible $\frac{1}{2}$ " polypipe and microtube should be used provided the water is low in bicarbonates. The Department of Agriculture would plan an efficient layout and Mr K Cole, has the necessary experience and qualifications.

Samples of soil are being analysed and future nutrient applications should be based on the results and on the requirements of the particular plants being grown.

There is a possibility that trace elements as well as N.P. & K. may be required.

The gardens should be laid out with each type vegetable in a separate block to facilitate catering for specific water and nutrient requirements. Plantings should be made progressively within each block to provide continuity of supply without which any marketing programme is unrealistic.

The varieties of vegetable and seed proven suitable for growing in the tropics should be used. Apart from climatic difficulties insects are likely to be a problem and vegetables that are least attractive to them are recommended. In a situation where management is neither experienced nor expert in this field, it is not advisable to undertake extensive chemical control of insects. Alternate rows of garlic or onions could be used to assist in the control of insects.

There should be no shortage of labour to start the Community on the way to self sufficiency in vegetable production at least during the dry season but the provision of an adequate water supply is mandatory.

Unfortunately the Group member responsible for the garden was away at a Conference but he is to be complimented on the level of production which he was achieving at the time of the visit.

CONCLUSIONS

It is obvious that considerable funds have been spent on the development of Oombulgurri to date and in a strictly materialistic sense there is little to show in terms of agricultural capacity, or orientation towards agricultural pursuits.

The resources either available or probable appear to be totally inadequate for the budget objectives outlined above.

1. Cattle (Budgeted value 1983, \$100,000)

If the present economic conditions continue it is highly unlikely that beef production would be a profitable venture. The Station is unlikely to be able to carry more than 3,000 cattle which means by normal Kimberley standards a turn off of about 300 per year. After home consumption is accounted for only about 100 steers could be sent for slaughter annually. The current value of these at the meatworks is about \$4,000.00 - \$5,000.00.

It must be assumed however that beef prices will improve in the future and efforts should be made now to:-

- a) Get the cattle handling facilities organised using presently available resources as far as possible (yards, fences, watering etc.)
- b) Get the beef herd organised, so that the animals can
 - i) be handled efficiently in the future.
 - ii) provide meat for the community now.
 - iii) be culled now to get rid of undesirable individuals (especially old wild bulls) - shoot them if necessary.
 - iv) provide dairy heifers.
- c) Get the men used to handling cattle again.
- d) The feasibility of constructing a dry weather road through Home Valley to the Bulla Nulla and should be investigated.
- e) Get rid of the donkeys that are eating good food that should go to the cattle.

2. Eggs (1983 Budget value \$20,000)

To achieve the 1983 Budget of \$20,000 and at the same time allow for consumption of 1 egg/day by the 200 members of the Community would mean an egg production of 373,000 eggs/year, and egg sales of 250,000 @ 10 cents/egg (i.e. 8 cent mark up on each egg). This would mean a flock of 1,615 laying hens.

This does not allow for much retailers margin and the Community would have to keep up a constant output if the market was to be retained.

3. Pigs (1983 Budget value \$15,000)

To achieve this target would require a special abattoir and a modern piggery run by trained competent staff.

4. Crops (1983 Budget value \$10,000)

The production of crops without irrigation facilities is not recommended.

5. Vegetables (1983 Budget value \$5,000)

Because of the high unit value of vegetables, the Community should become self sufficient in winter vegetable production and with slightly better water supplies, in the early summer.

SUMMARY

It is the considered opinion of the Committee that the Community will be hard pressed, even with improved water supplies which will be extremely costly to install even if they can be located to achieve anything like real self sufficiency.

The physical resources are available however for the community to become self sufficient in some food lines by growing vegetables, killing cattle and raising poultry.

The economic prospects for earning a substantial nett cash income from cattle, grain crops or vegetables are not encouraging. Eggs alone offer some prospect of catering, at a small profit for a limited local market at Wyndham but on provision that the quality and price are competitive with eggs from Kununurra or a similar

more favoured area and if deliveries to the market are regular.

RECOMMENDATIONS

1. The Community should seriously consider moving to a location which has the physical potential to achieve the levels of primary production visualized in the manifesto and in the first instance it should request the Western Australian Department of Agriculture to seek potential sites within the Reserve.

After 30 years of futile endeavour at their original barren site the Kalumburu Mission moved in 1937 to the present location where ample water and good soil are available.

2. The Community should establish a Local Committee or Local Advisory Board of appropriate agricultural scientists, veterinarians, engineers and farmers to formulate programmes and prepare meaningful budgets. These should be discussed with and explained in depth to the Community which, as it is they who do the work, would have to give approval. Members of the Committee should make regular visits to advise, to monitor development and maintain the interest of the Community.

3. The day to day operations should be under the control of an experienced farm manager who is adaptable to local conditions and is prepared to remain for more than two years.

4. The programmes and farm budgets should be set out step by step by the Committee in consultation with the farm manager. They should be prominently displayed on notice boards for all the Community to see so that they will be aware of their involvement. Funds should be allocated to each step of the programme and finance for each made available on the satisfactory completion of each preceding step.

5. A number of cottage industries could be developed in an area that was more accessible and had better transport facilities.

REMARKS

The findings of the above report are a matter of grave regret to the Committee but it is felt that the following schematic illustration delineates the procedure which must be followed.

AGRICULTURAL LAND plus WATER plus TECHNOLOGY plus MACHINERY —————>
AUTONOMOUS COMMUNITY plus OUTPUT plus IMPROVED QUALITY OF LIFE.

To attempt to reverse the direction of the chart can only result in disaster in both the material and social senses. An appreciation of this fact is necessary and it is hoped that the Oombulgurri Community will act quickly and in doing so will have the respect and support of the Department of Aboriginal Affairs.

OOMBULGURRI

Garden watered with trickle



Banana trees



Citrus



Cabbage and Tomatoes



Silver Beet & Rock
Melons



General View



Fowl house

Sisal

In looking for an agricultural system for Oombulgurri, the following points must be remembered:

1. The crop must be simple to grow.
2. The harvest of the crop must be such that there is no real pressure or urgency at harvest time.
3. It must produce an article that is readily saleable.
4. It must be relatively labour intensive so as to physically occupy as many people as practicable.
5. The finished product must be of a high price to withstand freight out.
6. Minimum water requirements.

Such a crop could be sisal. Sisal is grown mainly in Africa to produce sisal cordage used in the manufacture of ropes. It is a "cactus" type plant and very slow growing taking 3 years to reach the stage of first harvest and continues to grow until about 7-10 years old when it flowers and dies. Planting is by suckers or bulbils which are produced at flowering time. There is a small number of bulbils which could be planted out now for evaluation over the next few years.

Referring to the above requirements:

1. Sisal is relatively simple to grow.
2. Harvest can be done continually over the year.
3. The product could be sold in Australia as Australia imports all its requirements.
4. It is labour intensive as it is estimated that 60 people would be required to work, harvest and treat all the sisal that could be grown on 200 acres.
5. The price per tonne fluctuates between \$500 and \$1,000.
6. It would probably require 2 irrigations over the dry season.

Problems:

1. No experimental work has been done locally.
2. Yield is unknown and would have to be evaluated.
3. Cost of dicordicating mill is unknown. (To seperate and clean fibres.)
4. The crop would probably not stand the current wage rates but could work under a Co-operative system.

5. A system of farming would have to be developed to minimise fertilizer and water requirements. For example grow a legume between rows of sisal to provide nitrogen and plant on the contour to get maximum utilization of rainfall.
6. All necessary capital plant to be provided by D.A.A., after which Oombulgurri would be responsible for repairs and maintenance.

Suggestions:

1. The present supply of bulbils, at the Gin, be planted at Oombulgurri during the wet.
2. Visually appraise its survival over the dry.
3. Run a small trial for fertilizer rates.
4. Plant in an area where it could be watered over the dry at least once.

ESTIMATED PROGRAMME

1976-77 Wet Season: Plant $\frac{1}{2}$ acre of bulbils. These will flower in 1984 which will provide enough material to plant 200 acres.

1984-85 Wet Season: Plant 200 acres.

1988 Dry Season: Full harvest.

In between time, suckers that are produced can be dug out and re-planted.

In the event of promising growth and a desire to start earlier, there are isolated plants around the gardens in the Kimberleys that, when they flower, could be used to provide planting material.

If further information is required, contact Pat Ryan, Broom Millet Promotions, Office of the North West, Kununurra.

Handicrafts

The Oombulgurri Community is already programmed to move into the Tourist industry by entering into the handicrafts and artifacts market in Canberra.

There is a steady market in Kununurra and Wyndham and anything surplus to these markets could probably be sold through the "Centre for Aboriginal Artists & Craftsmen", in Alice Springs, N.T. Other Marketing outlets are available in most capitals and should not be hard to locate if a determined effort was made. Resources for handicraft industries include boab nuts which are in plentiful supply, native timbers and skins. Donkeys abound and hides could be tanned and crafted or sold whole. Home killed cattle would supply some skins too. Reeds for weaving grow in fresh water upstream while clays suitable for pottery are in plentiful supply.

Other Tourist Orientated Arts

Tourist Corroborees could be a thing of the future as could tours of the area.

Imagination, organization and application are necessary but the results would be well worth while, as the Tourist industry is an expanding one and very lucrative if handled in bulk.

Folklore - Mission Days Stories. Arrangements have been made to sell some of these to Jacarandah Press of Brisbane. Tact and sensibility would have to be employed in the publication of stories. A Mr Robert Hannan of Kununurra is associated with the local Aborigines and could probably assist in this area.

Aboriginal music from the region could easily be taped and sold, as was the "Moongoon Darwung" of Kununurra once the will to do it was created.

Fishing

Fishing probably has more relevance to assisting the Community to become self sufficient in terms of home consumption of food. Fish abound in the rivers and in the Gulf but the nearest market, Wyndham, seems to be well supplied.

The following information was obtained from the Department of Fisheries and Wildlife in Wyndham.

1. Tidal waters can be netted but under no circumstances can they be used in fresh water.
2. If the Community wish to fish only for themselves they can remain as amateur fishermen, but if they wish to sell to anyone, including members of the Oombulgurri Community, a Professional Fisherman's Licence is required.
3. To obtain a Professional licence the following steps will have to be taken:
 - a) Vessel must be surveyed by the Department of Harbour and Lights.
 - b) An application form obtainable from the Dept. of Fisheries & Wildlife must be filled in and submitted to the Department in Wyndham.
 - c) In the application the professional fisherman and three assistants must be nominated. In case the vessel coxswain is not the professional fisherman it must be noted that he is not allowed by law to take part in the actual fishing. Only those licensed to do so can fish professionally.
 - d) Present a Notice of Survey from the Dept. of Harbour & Lights, of the boat to be used to the Dept. of Fisheries & Wildlife.
4. If it is intended to go outside of the rivers into the Cambridge Gulf it will be necessary for the Master to possess a valid Coxswain Ticket.
5. If there is any dispute on this matter application will have to be made for an exemption. The exemption would be difficult to obtain as the Cambridge Gulf is looked on as open sea.
6. For successful marketing freezing facilities are needed.
7. Professional fishermen must furnish a monthly return stating:
 - a) How much fish was sold.
 - b) What species was sold.
 - c) To whom it was sold.
8. There are plenty of Barrumundie, Shark and Salmon in the rivers and in the Cambridge Gulf. The retailing price in

Wyndham is about 50¢/lb. The fish must be in good condition, fresh and clean. Suggested places to sell would be the butcher, hospital, hotel and hostel.

9. A point to be noted is that in Wyndham alone there is one full time and five part time fishermen and the market at the present time is reported to be well supplied.

REPORT OF PRELIMINARY SURVEY OF FORREST RIVER MISSION
CARRIED OUT BY AGRICULTURAL ADVISERS EXTREMAID AND
RETURN IN MAY 1955.

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As the result of a direct request from the Australian Board of Missions in Sydney, to the Minister for Agriculture in Western Australia, a visit was made to the Forrest River Mission in May 1955, for the purpose of carrying out a preliminary survey with regard to possible improvement of the agricultural potential of the Forrest River Mission.

General Description -

The Mission is situated on the bank of the Forrest River to the North North West of the town of Wyndham. There are three means of communication, viz: by water, by air, and by horseback. The trip by launch to the Mission takes from 4 to 5 hours, depending on the tides, and is the most frequently used. There is a small aerodrome on the Mission suitable for use by light aircraft, and is used once per month on the Flying Doctor schedule operating from Wyndham - the 'drome is not all-weather. The journey by horseback takes several days from Wyndham as many deviations have to be made to cross rivers and rocky outcrops - the distance from Wyndham is approximately 120 miles. There is no motor road from Wyndham to Forrest River Mission.

The annual rainfall at the Mission is 25 inches.

The total area of the lease is 100,000 acres, of which approximately 65,000 acres are unsuitable for grazing, i.e. they are of rough terrain, mostly sandstone and quartzite, and covered by coarse spinifex. There has been a fence erected and this encloses about 2,000 acres of grassland which provides reasonable grazing, and a further 2,000 acres of semi-marsh which is used for grazing only at certain periods of the year. Outside this fence there is a further 3,000 acres of reasonable grassland. The balance of the lease, some 28,000 acres, is semi-marsh, semi-salt flats subject to tidal influence and considered unsuitable for development. Rice grass on these flats give a little picking for a short period after the 'wet'.

Cattle -

There is an estimated 500-600 mixed branded cattle on the run, of Shorthorn blood. There are also reported to be a number of cleanskins in the back-country, but no estimate of numbers can be given. There have been no cattle turned off to an outside market for the last 10 years. The working of the cattle has been rather haphazardly carried out by native stockmen, as there have been no white stockmen available to supervise.

There has been no marked incidence of disease in the cattle - several were noticed with bone malformations and swellings, e.g. lumpy jaw, enlarged knee joints, etc. Bone chewing was noticed among the wild donkeys but not amongst the cattle, although it is most probably present.

As regards the parasite population, the Buffalo Fly was very heavy on both horses and cattle, and the infestation of Tick was moderate. The horses only are sprayed to control these parasites but Cooper's Arsenical Cattle Dip is used. No dipping or spraying is carried out on the cattle.

Four Shorthorn bulls were purchased from Argyll Station in 1951 - this was the last infusion of new blood into the herd. The cattle are used for rations only on the Mission itself - an average of 3 being killed every 2 weeks - this means approximately 78 killed per year.

Dairy Stock -

At the time of our visit 5 cows were being milked, but up to 10 are milked at various times of the year. The present milkers are out of hard cows by a grade A.I.S. bull - both their condition and type are very poor, and they were heavily infested with Buffalo Fly and Tick. They have been in for 4 - 5 months. The milk is used for Mission consumption only - the estimated daily production is 3 gallons from the 5 cows. The calves are not weaned and there is no organised mating of the cows. The cows are milked once per day - in the morning - and the calves are penned up over night. The male progeny from the above-mentioned cross are used as herd bulls.

Horses -

There are a total number of 15 on the run - 10 of which arrived from Perth in January. Of these 15 one is a colt and seven are mares, so that there are only seven horses available for stock work. The horses are carrying only a moderate infestation of Buffalo Fly, but they are sprayed - mentioned above - periodically. Some trouble has been experienced with Walkabout Disease but no Crotalaria retusa was noted on the run. Crotalaria trifoliolatum and Indigofera an. were present however in the horse paddock.

Donkeys -

Outside the paddock adjacent to the Mission, wild donkeys were very prevalent - far in excess actually. In one day's travel on horseback, approximately 200 were counted - usually in mobs of from 20 to 40 - during this same day it is estimated that more donkeys were seen than cattle. Shooting out of these donkeys took place within recent years, but they have quickly bred up again. A few have been broken in and are used about the Mission for carting, moving, etc - there are about 10 of them.

There is one mule - used for riding.

Goats -

There are about 280 adult goats and 20 kids at the Mission - they are a mixed mob and cause much worry in the agricultural area by breaking into the garden. They have also eaten out good stands of Buffel grass and other native grasses about the Mission. About 50 are killed per year for rations - they are not used for milking purposes.

Water for Stock -

No artificial waters are provided on the run - the stock are entirely dependent on natural waters and waterholes with varying degrees of permanency. These waters vary from fresh to brackish. There are some coopages in the foothills.

Features -(a) On Sandstone - Quartzite Ridges.

The dominants are spinifex and annual sorghum (both *stilpoides* and *australiensis*).

The soils are skeletal, of low fertility and of rough terrain.

The dominant herbs are *Gomphrina* sp., *Polanisia* sp. and *Polycarpea* sp.

The dominant legume is *Tephrosia* spp.

The main trees of the area are:-

Eucalyptus terminalis
" *grandiflora*
Gardenia sp.
Terminalia sp.
Eucalyptus tectifica
" *phoenicia*
Acacia sp.

Bauhinia is established in restricted localities in the lower areas.

(b) Semi-marsh Soils.

Zoroachloa dominant.

Sporobolus sp.)
Eriachne sp.) both common

The soil is a pedsollic grey clay - probably saline.

There are no trees.

(c) Grassland.

The dominant grasses are *Aristida* sp., *Chrysopogon pallidus*, Annual Sorghum - mainly *Stilpoides*.

The following grasses are common in this area:-

Panicum sp.
Pennisetum sp.
Eragrostis sp.
Brachiaria niliiformis
Dactyloctenium radicans
Setaria sp.
Digitaria sp.
Leptanthes
Chloris barbata
Eriachne sp.
Pectis papposa

On lower patches and around depressions -

Alletoropsis conicalata
Eulalia fulva
Arundinella nopalensis
Crasslandia setifolia

Legumes

Dominants - *Ingefera* sp.
 Common - *Crotalaria trifoliastrum*
 Desmodium sp.
 Alysicarpus sp.

Trees

Eucalyptus terminalis } dominant
Cyrtocarpus americanus }
Ficus orbicularis - Sandpaper fig. }
Wentilago sp. - Supplejack } common
 Beef Wood - *Hakea* sp.

Buffel grass has been established in this area and is doing very well. It is spreading slowly throughout the area.

The bloodwood - *Euc. terminalis* - is used predominantly for yards and fence posts.

Agricultural Section -

(a) Water Supply.

Water is pumped from Camera Pool - a distance of 10 miles further up the Forrest River than the Mission. This pool is above the tidal influence of the river. The water is remarkably low in Sodium Chloride - showing only 1 grain salt/gal.

There is a 20 h.p. Southern Cross Diesel engine set up at the pool and connected to a 5 stage Stalker Pump with a 2" inlet and a 1½" outlet.

From the pump to the first storage tank of 20,000 gals. is a 410 ft. total head - a 3" delivery line connects the pump to the tank. From this tank the water is gravitated to 2 more storage tanks of 12,000 gals. and 4,000 gals. respectively by a 2" delivery line. These tanks are situated on a sandstone jump-up immediately behind the Mission. There is a 2" connecting line between the tanks. From the 12,000 gal. tank a 3" pipe runs down to the garden - from the 4,000 gal. tank a 1½" line runs down to the Mission for domestic supply purposes. The delivery is estimated at 1,500 gal/hour at the garden, with approximately 50 lb. pressure in the sprinklers - there is no booster pump necessary.

All irrigation is by sprays of the Monsoon type. The total area prepared for cultivation is 5 acres.

Soil in Agricultural Section -

The soil is mainly a deep, fine leamy sand - in the depressions it is slightly heavier, but then only light clay sand at the surface and with leamy sand coming in at about 3 ins. and extending to several feet.

Topography -

Slight ridge and hollow.

The soil is very permeable and freely drained - practically no organic matter in the A. horizon.

The pH of the soil is 6.0.

Pot trials carried out at Kintbury Research Station on these soils, showed response to both nitrogen and phosphorus, maximum response to nitrogen and phosphorus, and no response to potassium.

The following fertilisers are being used on the garden:

Superphosphate
Blood and bone
Ammonium sulphate
Liquid manure - animal origin.

The following is a list of crops being grown at the moment:

Maize - 1 acre
Sorghum - grain - $\frac{1}{2}$ acre
Peanuts
Bollies lab.lab. - both for consumption and green manure.
Beans
Melons
Pumpkins
Sweet Potatoes
Tomatoes
Onions
Radish
Beetroot
Carrots
Lucerne

A number of insect pests attack the garden in varying degrees - dusting with both DDT and Gammaxane is carried out as a preventative. The most important of the insect pests are listed below:

Pumpkin beetles
Healy bugs
Aphids
Grasshoppers
White Ants
Orange piercing moths - in the tomatoes.

Poultry -

There are approx. 50 White Leghorn fowls at the Mission, and more day-old chickens are arriving soon. Roosters are present in the fowl run. There are also a couple of Barred Plymouth Rocks - hens - in the run. A few of the hens are rather anaemic looking but the remainder look in fair to good condition. There is no stickfast flea and no evidence of lice on the birds. There have not been any losses. The feed for the birds consists mainly of wet bran mash, shell grit and cooked meat. No Epsom Salts are added to the drinking water and not enough green feed is provided.

Mission Ground -

There is a particularly good stand of Buffel grass developed around the Mission buildings themselves - the area has been cut with a donkey drawn mower, and the grass stacked for hay.

In this same area Townsville lucerne (*Stylosanthes cundaica*) has become well established, and is doing well - spreading and producing seed.

RECOMMENDATIONS:

(a) Proposals.

At the present moment there are 20 natives available who are suitable for working stock, but there are not enough horses to outfit a mustering plant.

If the cattle are to be worked on a sound basis, the following points will have to be looked into :-

- (1) The employment of a full-time White head stockman capable of running a camp.
- (2) Purchase of extra horses, pack-saddles, saddles and other camp equipment.
- (3) Elimination of the donkeys.
- (4) Construction of yards (probably an additional 3) and fences.

It is estimated that the herd can be built up to a maximum of 1000 head - this will give a turn-off of approx. 100 bullocks per year to Wyndham.

The cleaning out of the herd, and purchase of better herd bulls, will come under the responsibility of the head stockman.

(b) Pastures.

It would be best to concentrate on the extension of the Buffel and Townsville lucerne areas - the fenced paddock as mentioned before. Seed of Buffel grass is obtainable from the Mission itself, i.e. the seed should be kept, not sold as is the present idea. Seed of Townsville lucerne may be obtained in larger quantities from the Queensland Missions operated by the same organisation.

Para grass could be established successfully around all the water holes and billabongs, by hand planting of cuttings - this would be of additional importance in those water holes that bog cattle in dry times. Later it may be possible to extend the Para grass out from the waterholes on to some of the lower flats.

(c) General Agriculture.

The scope of agricultural activities is governed by the supply of water. Supplies at Camera Pool are virtually unlimited, but the pumping and storage capacity would limit the areas cultivated. Where sandy soils are watered by a sprinkler irrigation system it is considered advisable to supply not less than 30,000 gal/acre/week on an average throughout the year - a higher rate in hot, dry times, but less in cooler weather.

With the present pumping capacity of 1500 gals/hour delivered to the area through the sprays, it would be necessary to pump for 20 hours to supply sufficient water for one acre for one week. Thus, with the 5 acres at present under cultivation, to water the area adequately it would be necessary to pump for 14-2/7 hours per day each day of the week. A maximum of 8 acres could be watered by pumping 24 hours, 7 days of the week. (It is assumed that the difference of 500 gals per hour between water pumped from the pool, and water delivered to the garden, would be consumed as domestic supplies etc.).

A pumping schedule such as this would be difficult, if not impossible to maintain. It seems more reasonable to assume that a pumping programme of 4 days per week each of 12 1/2 hours could be arranged. This would provide 75,000 gals/week, or adequate water for not more than 2 1/2 acres.

In most irrigation projects it has been found preferable to give infrequent heavy waterings, rather than frequent light ones, and while this is a sound recommendation, on the light soils at Forrest River Mission it will probably be necessary to water at least twice per week.

It should be possible to arrange for the pumps and spray equipment to operate overnight if the larger area is desired. If so, it would be advisable to spray a pasture or fodder crop where a little excess moisture would do no serious harm. Such a decision would have to be left to the discretion of the Superintendent.

Another obvious way to increase the area under irrigation, would be to instal a bigger pumping unit and increase the storage capacity, but with the high costs involved, and the uncertainty of the local markets for produce from this area, the expenditure does not seem warranted.

Poultry.

It is considered that the Wyndham market could absorb all the eggs produced at the Mission, and an increase in fowl numbers would seem advantageous.

This is borne out by the good condition of the fowls at the Forrest River Mission and the excellent possibilities for growing grain Sorghum and green feed for the fowls.

The market would present no difficulty.

Pigs.

Although there are no pigs at the Mission, it is pointed out that pigs do very well in this country, if kept in hand.

There would be a market for fresh pork and bacon in Wyndham if it could be produced locally.

However, before establishing pigs in the area, it is essential that adequate supplies of grain can be produced under natural rainfall conditions.

The question of starting pig raising at the Forrest River Mission should be seriously considered if, and when, grain Sorghum can be grown in sufficient quantities to feed them.

Dairy Cattle.

There is an excellent market in Wyndham for fresh whole milk, which could be supplied by an improved dairy herd on the Mission. Before undertaking this project all cows would have to be tested for Tuberculosis, and better control exercised over external parasites. The milking yards would need to be much improved, and an improved standard of hygiene practised in the dairy.

The cows would need to be supplementary fed to maintain a high level of production - Elephant grass and lucerne would be ideal for this purpose.

Onions.

Onions would be quite a good crop to grow as a source of revenue. Arrangements could be made to obtain suitable seed from Fitzroy Crossing. The crop could either be marketed in Perth during the 'shortage' periods of August and early September, or, if a later planting, in Wyndham itself during the 'wet' season. Either way the project should prove quite remunerative.

Pineapples.

Should do well. The soil is well drained, and with a pH of 6.0, should be well adapted to the growing of pines. Wyndham would be able to absorb all the fruit grown on the Mission, and thus the marketing costs would be reduced to a minimum.

Equipment.

If the agricultural programme of the Mission is to be intensified, some form of mechanisation seems essential. Taking into account the areas involved and the variety of jobs, it would seem that a Derguson outfit would be ideal for the purpose. Just what implements are purchased would depend on the programme decided upon, i.e. a plough for the garden, disc harrows for further spreading of Buffel grass, post-hole digger for fencing and yard building, trailer for transport purposes etc.

It is felt that whatever decision is made concerning the above recommendations, the emphasis should be to further the development of those already in existence at the Mission before branching out into further spheres of activity.

J. D. Ritson

Agricultural Advisor