

Chapter 10

The Employment impacts of Major Projects and Government Initiatives

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THE EMPLOYMENT IMPACTS OF MAJOR PROJECTS and GOVERNMENT INITIATIVES

1. INTRODUCTION

Major projects and government initiatives can have significant direct and indirect effects on employment and the availability of skilled workers. It is important that the consequences of projects and initiatives are understood so that challenges can be managed to benefit all Territorians¹.

Under the Northern Territory (NT) Government's *Jobs Plan: Building the Northern Territory Workforce*, funding in excess of \$160m will be made available over the next three years for a broad range of vocational education and training programs. The aim is to increase apprenticeship and traineeship numbers, and to maximise employment opportunities for Territorians on major projects and related labour market activity. Project proponents also need to work with the NT Government to maximise local employment.

The government also provides supporting infrastructure and a positive business climate for major projects. It is seeking investment, which will boost the Territory's capabilities and create jobs and strong social and economic development².

When considering the employment impacts of major projects, the following points are important factors to be remembered:

- major projects need to be viewed on an individual basis
- each project should have an overall training plan
- major projects should all have training programs (eg, welding) during the construction period if not before
- major projects rely on a mobile workforce across northern Australia and for some skills across the whole of Australia
- project demand across northern Australia affects skill shortages
- equally important is the timing interaction between project skill demands
- the main training opportunities are short courses for semi-skilled occupations eg, labourers, trades assistants, steel fixers, welders, etc
- training in the NT should concentrate on average or long term skills demand
- short-term peaks in skills demand will tend to be supplied via a fly-in and fly-out labour force.

¹ Jobs Plan: Building the Northern Territory Workforce (Workforce NT)

² Strategic Developments in the NT, Office of Territory Development, Department of the Chief Minister

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2. CHAPTER SUMMARY

This chapter provides a summary of the characteristics, impacts and labour and skill requirements of major projects so that programs and strategies can be developed and implemented where required to meet these challenges and the demands for labour and skills.

This chapter:

- identifies the likely impact of major projects across government and industry
- provides an overview of the characteristics of major projects
- outlines the major projects in the NT
- provides general employment information emanating from major project taskforces
- provides estimates of skill requirements for major projects.

3. MAJOR PROJECT IMPACTS AND CHARACTERISTICS

Major projects, by definition, have a major impact on the NT economy and its workforce. These impacts are generally greatest during the construction phase but may also be significant during the operational phase. The impacts, in terms of economic activity, include contributions to gross state product. Impacts on the workforce include the movement of skilled people away from local businesses to major projects.

The following overview briefly summarises the main impacts and characteristics of major projects³.

Economic

- Major projects, like other export oriented or import replacement economic activity including tourism, provide jobs that form the basis for all the 'follow-on' or support service jobs in industries such as retail, education, health, and other service sectors.
- The construction and flow-on workforce (supplying goods and services to the construction project) can also create secondary general economic activity in the broader community, further increasing labour demand.
- Profit from the major project may go straight out of the Territory economy to the major project company or to pay off debts.
- Resource based major projects tend to be capital intensive and so the number of operational jobs tends to be modest relative to the capital investment.

Defining Characteristics

- Impact on the Territory workforce can extend beyond the onsite workforce to businesses in the community supplying construction, fabrication, supply or support services to the project.
- Construction activity is generally over a period of one to three years.
- Project construction and fabrication occurring on-site versus off-site varies.

³ Office of Territory Development, Department of the Chief Minister

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- Proponents and major construction contractors are reluctant to commit to advanced labour planning and training programs until project go-ahead is sanctioned.
- There is usually a trade-off choice between duration of construction and number of employees in the construction workforce.
- Often the time lag from project commitment to skill demand is relatively short.
- Average construction workforce size can be as low as two-thirds of the peak workforce as a result of the ramp up and wind down period. The peak workforce number is generally not employed over the length of the project.
- There is an emphasis on hiring the local labour force where possible.
- Like much of the general Territory building industry, these projects rely on a mobile workforce across northern and remote Australia.

Patterns of Labour/Skill Demand

- Major projects attract skills away from smaller, local businesses, thus amplifying skill shortages where they already exist and creating others.
- Patterns of construction labour skill demand vary between projects, although there are certain similarities in patterns of labour demand and in the skills demanded.
- Labour demand generally follows a bell curve pattern ie, employment during construction has a ramp up period, then a peak period, then tails off to lower numbers.
- Skills demand tends to follow a sequential pattern ie, multi-skilling can extend the work period for individuals.
- Skills demand can have peaks, with demand that often cannot be fully satisfied from local labour supply.
- The large and peaky demand and attractive wages rates compete strongly for construction labour in the general workforce, creating significant skill gaps.
- Skill gaps occur for both major projects and the local industry.
- There is usually uncertainty regarding the scale and timing of skills demand.
- Sections of the workforce relocate in anticipation of large construction projects and other sections are engaged on a fly-in and fly-out basis.
- Labour and skills demand for a project are subject to a continual revision in terms of scale, definition and accuracy. For example, there can be a change in labour and skills demand from the early stages of project definition and design, to construction commencement.
- Construction of a project can be subject to ongoing optimisation with consequent changing impacts on labour and skills demand. For example, if part of the project is behind schedule then the options may be to hire more workers, work a second shift or have an offsite person/company construct part of the works.

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- The management and supervisory workforce may be around 15% over and above the number of construction tradespersons. Support (non-construction) labour is a similar additional number. The management, supervisory and non-construction workforce tends to be more stable and is additional to the construction workforce. Part of the non-construction workforce may not be based interstate or overseas.
- Construction workforces for resource development or resource processing projects may peak at over 1 000 people.

Training

- Some skill gaps can be met through short, targeted training programs.
- Many trade and specialised skills require longer training programs, for which the training would take longer than the length of the construction project.
- Training lead times are longer for operational jobs eg, a broad spectrum of training is possible, whereas lead times for the construction workforce are much shorter.
- If a project starts off bringing in specialised parts of the workforce, there is opportunity to train locals to take over.

Operational Labour Demand

- Operational labour demand is much easier to predict than construction labour demand and is more stable.
- Operational labour demand may be employed directly by the operating company or by short and long-term contractors to the project.

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4. MAJOR PROJECTS IN THE NORTHERN TERRITORY

There are a number of major projects currently committed to or planned for in the NT. While all of these are important in how they impact on the Territory's economy and workforce, some projects are more significant than others.

The following is an overview of some of the significant major projects currently under construction or at an advanced stage of planning⁴.

Wickham Point LNG Plant and gas pipeline from Bayu-Undan gas field:

- construction of a 3 million tonne per annum liquefied natural gas plant at Wickham Point, Darwin (A\$1.6 billion capital expenditure)
- construction on the plant has already commenced and completion is expected in late 2005
- offshore pipeline from Bayu-Undan gas fields to Wickham Point (A\$0.7 billion capital expenditure)
- pipeline construction is due to start in July 2004 and finish in late 2004 (with an extended commissioning phase).

Alcan Gove mine expansion, Trans Territory Pipeline and Blacktip Development:

- expansion of the Gove alumina refinery from 2 million tonnes per annum to 3.5 million tonnes per annum (A\$1.5 billion capital expenditure)
- development of the Blacktip field with two wells initially, a well-head platform, pipeline to shore and gas processing plant onshore (A\$0.5 billion capital expenditure)
- construction of the Trans-Territory Pipeline (TTP) from the gas processing plant near Wadeye to the Gove alumina refinery (A\$0.5 billion capital expenditure including A\$50 million for infrastructure)
- construction period: refinery expansion 2004 - 2007; Blacktip/onshore gas processing plant 2005 - 2006; Trans-Territory Pipeline 2005 - 2006.

Darwin Waterfront Redevelopment and Convention Centre:

- more than 25 hectares of prime waterfront land
- a convention centre is the centrepiece of Stage 1
- potential additional investment opportunities include hotels, tourism/marina developments, restaurants/retail and inner city residential
- preferred developer to be selected by August 2004
- construction is expected to commence early to mid 2005
- Convention Centre is expected to be completed by late 2006.

Other major resource projects are proposed but are at an early stage of development.

⁴ Office of Territory Development, Department of the Chief Minister

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5. OTHER MAJOR PROJECTS

This section provides a summary of other major developing projects that are expected to have a significant impact on the Territory economy over the next 5-10 years. Each of these projects has an expected capital expenditure in excess of A\$5 million⁵.

East Arnhem Region

- Alcan Gove Capital Equipment Project (separate from the expansion).

Central Australia Region

- Desert Peoples Centre – Stage 1.

Katherine Region

- Katherine Daly Basin Development Area.

Darwin

- Darwin Business Park (road/rail transfer and distribution centre)
- New fuel storage facility adjacent to East Arm Port
- Defence projects, for example helicopter base, patrol boat update, construction of Bradshaw Defence Training Area facilities
- East Arm Wharf Development Stage 2
- Harbour City Apartments – Stage 2
- Hastings Over Mindil, Apartment and Function Complex – Stage 1
- Nautilus Apartments
- Oncology and Radiotherapy Unit, Royal Darwin Hospital
- Ord Irrigation Scheme Stage 2 Development
- Part 28 Woods Street, Darwin City (2-3 bedroom apartments)
- Ridgeview Estate (quality residential building blocks)
- Tiwi Islands Barramundi Aquaculture Project (expansion).

⁵ Department of Business, Industry and Resource Development

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6. EMPLOYMENT INFORMATION

NT Government agencies apply considerable effort to engage with proponents and industry organisations to identify training opportunities to maximise local employment and satisfy skill demands. As major projects proceed and employment information becomes available, the project proponents and the NT Government release this information, as appropriate, to the general public.

A brief summary of current employment information for each project is provided below. These details may change as revisions to labour and skill requirements are undertaken by project proponents.

Wickham Point LNG Plant⁶:

- peak construction workforce: more than 1 000 jobs
- expected long-term employment – 80 direct full-time staff during the operations phase (there may also be extra staff employed by contractors on-site).

Bayu-Undan Offshore Pipelaying Project⁷:

- peak construction workforce: 350 jobs.

Alcan Gove Mine and Alumina Refinery Expansion⁸:

- peak construction workforce: 1 350 jobs
- operational workforce on-site will increase by 80 to 120 (relative to estimated numbers without the expansion).

Trans Territory Pipeline⁹:

- peak construction workforce: 1 600 jobs (over 140 days) plus camp support crews and logistic support crews
- estimated employment for 30 people for operating the pipeline.

Blacktip Gas Processing Plant¹⁰:

- peak workforce: 120 local jobs for the onshore pipeline construction and onshore plant fabrication/construction/hook-up/commissioning (over a period of one dry season ie, up to eight months)
- estimated ongoing employment for 9-10 local people
- specialised fly-in and fly-out jobs in some support areas.

⁶ Wickham Point LNG Plant, Fact Sheet 2 – Jobs and Contracts, Department of Business, Industry and Resource Development

⁷ Office of Territory Development, Department of the Chief Minister

⁸ Office of Territory Development, Department of the Chief Minister

⁹ Office of Territory Development, Department of the Chief Minister

¹⁰ Office of Territory Development, Department of the Chief Minister

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Darwin Waterfront Redevelopment¹¹:

- an estimated 1 000 people employed over a period of 10-15 years (this project will more than likely proceed as the market demands it – hence, slow growth may take 15 years development and rapid growth may take less than 10 years development)
- employment profile will depend on the rate of development.

Convention Centre¹²:

- an estimated 280 people employed during construction over a two-year period - the bulk of the employment will be during the last year of development
- direct employment for 20 people during operation (excluding employment in the hospitality industry resulting directly from accommodation and meals etc, for convention attendees).

7. SKILLS FORECAST BY PROJECT

It is important to understand at an early stage of the development of a project, the skill requirements and labour demand for both the construction and operational phases. We need to understand these requirements so that:

- an assessment of the capacity of the current labour force to meet these demands/needs can be undertaken
- training programs and strategies can be developed and implemented to meet the skill requirements of both the project and local businesses (in the event that major project employees are recruited from the existing Territory workforce).

For each of the major projects outlined in part 4 of this chapter, a forecast of the skill requirements for each project has been done by the Construction Industry Policy Group of the Department of Infrastructure, Planning and Environment. A skills forecasting model has been applied which is based on a project's details eg, the cost and scope of the project. The project details are put into the model, which then calculates the numbers of people required in each skill area for the life of the project.

The figures are estimates only and should be used as a guide rather than be taken as definitive. They have not been cleared by project proponents.

Care should be exercised in interpreting the numbers of jobs and the number of months or hours demanded. Estimates of jobs available and full-time equivalents can be affected by the long hours that employees work on major project construction work.

The skill forecasts, by project, follow¹³. The figures are based on the assumption that these projects are a 100% probability to happen.

¹¹ Office of Territory Development, Department of the Chief Minister

¹² Office of Territory Development, Department of the Chief Minister

¹³ Construction Industry Policy Group, Department of Infrastructure Planning and Environment

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Wickham Point LNG Plant

Skills Requirement	Skills Forecast (2003-2005) maximum number of persons required	Skills Requirement	Skills Forecast (2003-2005) maximum number of persons required
Abrasive Blasters	3	Labourers	42
Bitumen Workers	3	Laggers/Cladders	9
Boilermakers/Welders	18	Landscapers	1
Brick/Block Layers	9	Material Handlers	3
Carpenters	21	Material Testers	2
Chain Persons	2	Mechanical Fitters	3
Civil Supervisors	3	Painters	9
Coded Welders	30	Pipe Fitters	42
Communications	2	Pipe Layers	3
Concrete Block Manufacturers	2	Planners/Programmers	2
Concrete Batchers	2	Plant Mechanics	1
Concreters	9	Plant Operators	9
Contract Admin – Clerical	5	Plumbers	9
Corrosion Protection	15	QA Auditors	2
Crane Operators	12	Riggers	14
Dogmen	12	Roofers/Cladders	6
Drafters	3	Safety Officers	2
Electricians	36	Scaffolders	14
Engineers	6	Sheet Metal Workers	3
Environmental Advisors	1	Site Foremen	9
Estimators	6	Sprinkler Fitters	6
Fencers	2	Steel Benders	6
First Aides	3	Steel Fixers	30
Floor Finishers	2	Stone Pitchers	1
Foremen	15	Surveyors	2
Fuellers	2	Tilers	2
Instrument Technicians	12	Trades Assistants	18

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Gas Pipeline from Bayu-Undan

Skills Requirement	Skills Forecast (2003-2005) maximum number of persons required	Skills Requirement	Skills Forecast (2003-2005) maximum number of persons required
Boilermakers/Welders	1	Laggers/Cladders	1
Brick/Block Layers	1	Mechanical Fitters	1
Carpenters	2	Painters	1
Coded Welders	2	Plant Operators	1
Concreters	1	Plumbers	1
Contract Admin – Clerical	1	Quarry Operatives	18
Corrosion Protection	2	Riggers	1
Crane Operators	1	Scaffolders	1
Electricians	1	Site Foremen	1
Engineers	1	Sprinkler Fitters	1
Estimators	1	Steel Benders	1
Foremen	1	Steel Fixers	2
Instrument Technicians	1	Trades Assistants	2
Labourers	3	Truck Drivers	5

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Alcan Gove Mine Expansion

Skills Requirement	Skills Forecast (2003-2005) maximum number of persons required	Skills Requirement	Skills Forecast (2003-2005) maximum number of persons required
Abrasive Blasters	24	Irrigation Installers	3
Air Track Drillers	12	Kerb Layers	3
Bitumen Workers	12	Labourers	171
Boilermakers/Welders	73	Laggers/Cladders	12
Brick/Block Layers	49	Landscapers	3
Carpenters	86	Material Handlers	37
Chain Persons	6	Material Testers	6
Civil Supervisors	12	Mechanical Fitters	24
Coded Welders	24	Painters	24
Communications	18	Pipe Fitters	24
Concrete Block Manufacturers	12	Pipe Layers	12
Concrete Batchers	6	Pit Builders	12
Concreters	37	Planners/Programmers	6
Contract Admin – Clerical	18	Plant Mechanics	3
Corrosion Protection	37	Plant Operators	37
Crane Chasers	49	Plumbers	37
Crane Operators	24	QA Auditors	6
Cultural Advisers	3	Quarry Operatives	3
Drafters	24	Riggers	55
Electricians	147	Roofers/Cladders	37
Engineers – Civil	12	Safety Officers	6
Environmental Advisors	3	Scaffolders	24
Estimators	24	Sheet Metal Workers	12
Fencers	6	Site Foremen	37
Fire Detector Installers	12	Sprinkler Fitters	24
First Aiders	12	Steel Bender	37
Foremen	61	Steel Fixers	61
Fuellers	6	Supervisor Plant Ops	12
Galvanisers	12	Surveyors	6
Geo Technicians	6	Trades Assistants	73
Instrument Technicians	37	Truck Drivers	37

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Trans Territory Pipeline

Skills Requirement	Skills Forecast (2003-2005) maximum number of persons required	Skills Requirement	Skills Forecast (2003-2005) maximum number of persons required
Air Track Drillers	15	First Aiders	7
Boilermakers/Welders	118	Foremen	29
Brick/Block Layers	7	Fuellers	7
Camp Attendants	118	Instrument Technicians	15
Carpenters	29	Labourers	59
Chain Persons	15	Mechanical Fitters	15
Civil Supervisors	29	Pipe Layers	59
Coded Welders	176	Planners/Programmers	3
Communications	15	Plant Mechanics	29
Concrete Block Manufacturers	1	Plant Operators	294
Concrete Batchers	4	Project Supervisors	15
Concreters	29	Safety Officers	15
Contract Administrators – Clerical	29	Shot Firers	7
Corrosion Protection	59	Site Foremen	7
Crane Chasers	29	Steel Benders	1
Crane Operators	29	Steel Fixers	7
Cultural Advisers	3	Supervisors Plant Ops	15
Engineers – Civil	15	Surveyors	15
Environmental Advisors	7	Trades Assistants	59
Estimators	15	Truck Drivers	59

Blacktip Development (Wadeye Intake Station only)

Note: These estimates are for the intake station civil works only and do not include the skill/number requirements for construction of other parts of the gas processing plant.

Skills Requirement	Skills Forecast (2003-2005) maximum number of persons required	Skills Requirement	Skills Forecast (2003-2005) maximum number of persons required
Boilermakers/Welders	2	Labourers	4
Brick/Block layers	2	Laggers/Cladders	2
Carpenters	2	Mechanical Fitters	2
Coded Welders	4	Painters	2
Concreters	2	Plant Operators	4
Contract Administrators – Clerical	1	Plumbers	1
Corrosion Protection	2	Quarry Operatives	15
Crane Operators	1	Riggers	1
Drafters	1	Site Foremen	1
Electricians	2	Sprinkler Fitters	1
Engineers – Civil	1	Steel Fixers	2
Estimators	1	Trades Assistants	2
Foremen	1	Truck Drivers	4
Instrument Technicians	2	Roofers/Cladders	2
Bitumen Workers	2	Security System Installers	1
Concrete Batchers	1	Solid Plasterers	2
Crane Chasers	1	Steel Erectors	2
Fencers	2	Tilers	2

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Darwin Waterfront Redevelopment and Convention Centre

Skills Requirement	Skills Forecast (2003-2005) maximum number of persons required	Skills Requirement	Skills Forecast (2003-2005) maximum number of persons required
Air-conditioner Installers	3	Material Handlers	8
Aluminium Fabricators	4	Material Testers	2
Air Track Drillers	2	Painters	18
Bitumen Workers	5	Pipe Fitters	6
Boilermakers/Welders	5	Pipe Layers	6
Brick/Block Layers	13	Pit Builders	5
Cabinet Makers	7	Planner/Programmers	2
Carpenters	32	Plant Operators	41
Chain Persons	6	Plasterboard Fixer	6
Civil Supervisors	3	Plumbers	9
Communications	5	Project Supervisors	3
Concrete Block Manufacturers	3	QA Auditors	3
Concrete Batches	1	Quarry Operatives	1
Concreters	2	Refrigeration Mechanics	6
Contract Administrators – Clerical	15	Riggers	5
Corrosion Protection	5	Roofers/Cladders	6
Crane Chasers	3	Safety Officers	2
Crane Operators	3	Scaffolders	6
Drafters	7	Security Systems Installers	4
Electricians	22	Sheet Metal Workers	3
Engineers – Civil	5	Sign Writers	1
Estimators	2	Site Foremen	6
Fencers	1	Soft Furnishing	3
Fire Detector Installers	3	Soil Treatment	1
First Aiders	1	Solid Plasterers	4
Floor Finishers	3	Sprinkler Fitters	3
Foremen	11	Steel Benders	1
Geo Technicians	1	Steel Fixers	15
Glaziers	6	Stone Pitchers	1
Irrigation Installers	2	Surveyors	13
Kerb Layers	2	Tilers	6
Labourers	42	Trades Assistants	6
Landscapers	3	Truck Drivers	7
Soil Treatment	1		