Advancing Tropical Green Build

Connecting Tropical North Queensland Capacity to Market Capability Plan







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Queensland Government

ADVANCING TROPICAL

GREEN BUILD :

CONNECTING TROPICAL NORTH QUEENSLAND

CAPACITY TO MARKET

DEEDI Ref : CM117_11

Capability Assessment

by

CUMMINGS ECONOMICS

in association with

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BACKGROUND

What is tropical expertise?

Tropical Green Build is included under the cleantech banner. The cleantech sector is growing rapidly worldwide due to scarcities of natural resources, rising costs of fossil fuel energy, rising material costs and climate change concern. The economic growth forecast for the tropical zone including India and South East Asia will lead to increased demand for innovative, climate resilient, energy efficient tropical green build technologies including:

- Cyclone resilience
- Tropical urban planning
- Tropical architecture and infrastructure
- Water resources and supply
- Storm water management
- Climate change adaptation and resilience (including energy efficiencies)
- Natural resource protection
- Heating, ventilation and air-conditioning
- Smart building technologies

The objective of the Advancing Tropical Green Build: Connecting Tropical Queensland Capability to Market project is to:

- Determine the composition, capability and economic value of the Tropical Green Build sector in Tropical North Queensland (which spans North, North West and Far North).
- Identify market opportunities and industry challenges for future growth of the sector.

METHODOLOGY

Input of information and views from businesses operating in the tropical green build sector were gathered using a questionnaire. Over 100 businesses participated in the survey. The Executive Summary contains an analysis of the survey findings based on industry responses.

REGIONAL ECONOMIC BACKGROUND

The Cairns and Townsville regions comprising Tropical North Queensland lead tropical Australia in population and industry.

The population of the region is about 550,000 (more than the State of Tasmania, 510,000).

The two regions have recorded strong population growth over the past decade of over 20% and have a large construction sector recording over the six years to 2010/11, 29,000 dwelling approvals and $12.5bn in total value of building approvals.

Latest available figures record almost 900 manufacturing businesses in the two cities, over 5,200 construction and 2,100 professionals, scientific and technical businesses.

The two cities are well positioned to service north into Papua New Guinea and the Asia/Pacific area, and south into central Queensland, and west across northern Australia.

VALUE OF THE TROPICAL GREEN BUILD SECTOR

- Gross earnings (turnover) per annum for the Tropical Green Build sector is estimated at 170m.
- The value of the sector is dominated by a small number of very large firms who reported a turnover of over $10m per annum, representing 43% of the estimated total turnover for the sector.
- Small businesses with a turnover of less than $250,000 are high in number, but account for only 5.4% of the value of the Tropical Green Build sector.

EXPORTS GENERATED

- Tropical Green Build businesses who are exporting represent 14% of the sector.
- Total export earnings recorded were in the order of $3million per annum.
- While exports outside the region are currently low and confined to a relatively small group of operators, there are indications that demand in overseas areas will increase and that there will be an increase in overseas opportunity.

EMPLOYMENT

- A total employment of businesses responding was 2,300. However, this was heavily affected by four large respondents with employment over 100.
- The average employment is 21.7 persons per business, if the 4 largest firms are excluded; average employment is 12.7 per firm.
- The 4 largest entities were more likely to employ full time and much less likely to employ contractors, part time and casual.

GROWTH

- The Tropical Green Build sector has been growing rapidly at an average of over 10% per annum over the past 10 years.
- Business sales for the sector are expected to be quite strong over the next 10 years with businesses anticipating growth of 10% to 15% per annum.
- Key growth markets for the Tropical Green Build sector include the tropical Australia market, Papua New Guinea and the Pacific and South East Asia.

TROPICAL GREEN BUILD INDUSTRY - CAPABILITY

The 112 Tropical Green Build businesses identified were sorted into three major groups:

Services – 54, (including professional service providers to the sector, architects, engineers, building design, town planners, building certification, interior design, land surveyors, property surveyors, property lawyers, property management).

Products – 33, (including building materials, solar panels and systems, water technology and proprietary systems).

Construction - 21, (including builders, construction firms and property development).

Table #1: Summary by Types of Activity

Type of Activity	Primary Activity for firm	Secondary activity for firm	Total
Local inventions	-	13	13
Climate resilience	2	6	8
Tropical design	38	22	60
Development and construction	18	8	26
Water	7	16	23
Air-conditioning	3	11	14
Smart technology	31	61	92
Tropical local and recycled	1	16	17
Environment management	4	9	13
Advice and ratings	11	9	20
Education and training	5	4	9

It can be seen that the sector has a very strong capability in Tropical design, Smart technology, and Development and construction. Numbers in Water, Advice and ratings, and Air-conditioning are also strong and there were a number in the Local inventions category.

TRENDS, OPPORTUNITIES & IMPEDIMENTS

GROWTH INFLUENCES

The key influences impacting the growth of the Tropical Green Build sector include:

- A general growth in awareness of benefits/desire/demand for Green Build solutions for lifestyles suited to the tropics.
- Government mandated requirements.
- Government requirements for government buildings and offices and government funded sectors such as aged care.
- Rising energy costs.
- Rising needs to combat hazards such as cyclonic winds and flooding.
- New improved technology becoming available.
- The increasing capability of local firms in the field.

IMPEDIMENTS TO GROWTH

Major impediments to growth specifically relating to the sector include:

- Lack of education and awareness of the benefits of Tropical Green Build approaches, especially awareness of longer term benefits as opposed to higher 'up front' costs.
- Red tape, taxes and a belief that some current approval and valuation processes worked against adoption of Green Technology.

In this regard, there is a belief that some of the regulations and requirements aimed at promoting Green Build nationally and in Queensland are designed to meet conditions in southern Australia and South East Queensland and can work against achieving Green Build outcomes in a tropical environment.

ACTIONS TO PROMOTE GROWTH

- Accelerating the development of specialist knowledge and skills for the Tropical Green Build sector through specialist education and training such as architecture, engineering and design that will lessen the dependence on training outside the region which is not adapted to tropical requirements.
- Strengthening relationships with potential partners throughout the tropical zone that will support new business development.
- Raising awareness of the capability of the Tropical Green Build sector in overseas markets that will assist export development.
- Assisting those developing products within the region source manufacturing capacity and market penetration.
- Supporting strategy and investment into recycling of building material waste in the region.
- Adjusting some government procurement processes to engage more with local businesses, and reduce /streamline regulation and administration processes.

COMPETITIVE ADVANTAGES & DISADVANTAGES

The dominant competitive advantages identified related to the quality of firms' products and services and their experience and track record in completing projects in the local tropical environment.

Apart from lack of demand for Green Build, competitive disadvantages were mainly seen to lie in business structures, especially being too small, the disadvantages of a regional location, perception problems of local capacity, inexperience in marketing, and problems with costs.

MARKET ACCESS & DEVELOPMENT

NEW MARKET OPPORTUNITIES

Currently, the sector is focused on developing the immediate domestic market and probably has a substantial way to go in achieving full realisation of regional potential.

There is a penetration of other Australian markets such as Central Queensland and across northern Australia with scope to develop these markets further.

Penetration of potential markets outside Australia is still low and is heavily oriented (with some exceptions), to Papua New Guinea/Pacific area and South East Asia.

It is clear that the region faces major challenges in being able to market Tropical Green Build technology to most other parts of the tropics.

Against this background, it is suggested there needs to be two major elements in market development efforts:

a) Building up the market in the region and the remainder of tropical Australia.

b) To start out on the path of penetrating overseas markets.

INVESTMENT, EQUIPMENT & TECHNOLOGY NEEDS

The Tropical Green Build sector operates with a very wide range of specialised equipment and technology with computer software and services being very heavily involved throughout, especially in the services sector.

It was of special interest that compared with the number of firms in the construction sector; the listings of new specialised equipment planned or needed were particularly high. This, plus a higher incidence of responses about problems with finance, would tend to indicate that it is the construction sector that has the greatest need to bring in new specialised equipment and technology but was having the greatest difficulties in financing it.

RESEARCH, DEVELOPMENT & CERTIFICATION

Major needs have been identified in this field that are critical to the sector's progress.

a) **The need for accelerated testing and certification** to speed up the take up of new products and designs. While cyclone/wind testing is well established, activities in this field need to extend to general climatic testing with a special emphasis on products' ability to cope with combined very high moisture levels in warm conditions.

b) **The need for analysis and reports to assist marketing on 'whole of life performance' of Tropical Green Buildings** mainly in relation to economic benefits and costs but also in relation to other factors, e.g. health and well-being and retention of value.

c) **The need for a major review of the <u>'Green' certification and rating systems</u> as they apply to tropical areas.** There is a strong belief that national and state codes, standards and ratings are based on climatic conditions in the south that are leading to undesirable design outcomes in tropical areas and unnecessarily working against achieving green building objectives.

LABOUR SKILLS & TRAINING

GENERAL

The Tropical Green Build sector's skills and training needs are high.

a) The sector requires a range of high level specialist skills. Over two-thirds registered training specialised to their business.

b) The sector is dominated by small firms that depend on outside agencies for provision of education and training. Only a few had in-house training. For experienced staff, finding time to train new staff was a problem.

c) The sector is located in a non-metropolitan area with severe problems of local availability of education and training facilities.

d) The sector is breaking new ground in technology, in products and designs especially suited to tropical areas.

e) The rate at which new technology and designs are coming forward leads to a special need for re-skilling and retooling in the construction sector.

PROBLEMS IN ACCESSING & RETAINING SKILLED STAFF

The survey indicated major problems in this field. In the first place, this was due to a regional location, the size of the pool of skilled workers, lack of on-going career opportunities for staff, problems of attracting capital city staff and of them settling in.

Lack of continuity of work, competition from other sectors (especially mining), wage rates and costs compounded the problem. By and large, collaboration with other firms was seen as a solution by only a few.

MEETING EDUCATION & TRAINING NEEDS

The major need was seen to strengthen the local availability of education and training that was adapted to local tropical conditions. The major single need identified was for a School of Tropical Architecture and Design to be established.

Other needs relate mainly to:

a) Courses in Green and star rating/energy auditing.

b) The need to bring in a range of training workshops, lectures and specialists in various fields including continuing professional development (CPD).

c) A number of TAFE level courses including technical drafting courses.

OPPORTUNITIES FOR INDUSTRY COLLABORATION

ORGANISATIONAL PLATFORMS

The survey identified the need for an organisational platform to actively promote the Tropical Green Build industry.

It is recommended that this take the form of developing a cluster arrangement or industry network led by the private sector firms with an interest in this field across the region.

The practicalities are that there needs to be two – one based in Cairns and one in Townsville - but with a coordinating mechanism between the two. The Tropical Green Building Network in Cairns and The Centre of Excellence in Tropical Design in Townsville have provided good starting bases.

Apart from attending to awareness and marketing issues, these groups could consider attending to issues relating to education and training, research and development, and government regulations, indeed, anything vital to the sector.

The major issue however, is the increased resources required to support these activities.

The groups could consider delivery of marketing as being through its constituent businesses. Its role is to coordinate and provide a platform for overarching collaborative action, working wherever possible, through existing agencies and organisations to achieve marketing and other objectives. The organisations may need to develop resources to pay some people/agencies to carry out tasks to help it reach its objectives.

This report provides guidance to the two groups for:

- The networks deciding on activities to pursue collectively.
- Informing members and helping constituent businesses take appropriate action to pursue opportunities and adjust operations to enhance capacity.

It could also be used by the government and referred to general development promotion organisations to inform their potential support for the sector.

OTHER AREAS OF COLLABORATION

Responses to the survey indicate there is room for the sector to raise its profile among some of the industry member organisations. Key skill areas, resources, and other activities could be shared by partnering with related businesses. The construction industry associations in the Tropical North Queensland (TNQ) area are generally under resourced and would benefit from collaboration.

A need for collaboration with various firms outside the sector were mentioned including those involved with marketing, business skills, and distribution, etc. There is also a need to bring to attention of outside providers, potential opportunities for them to become involved with the sector. This might be promoted by providing information on the sector through presentations to Chamber of Commerce luncheons and the like.