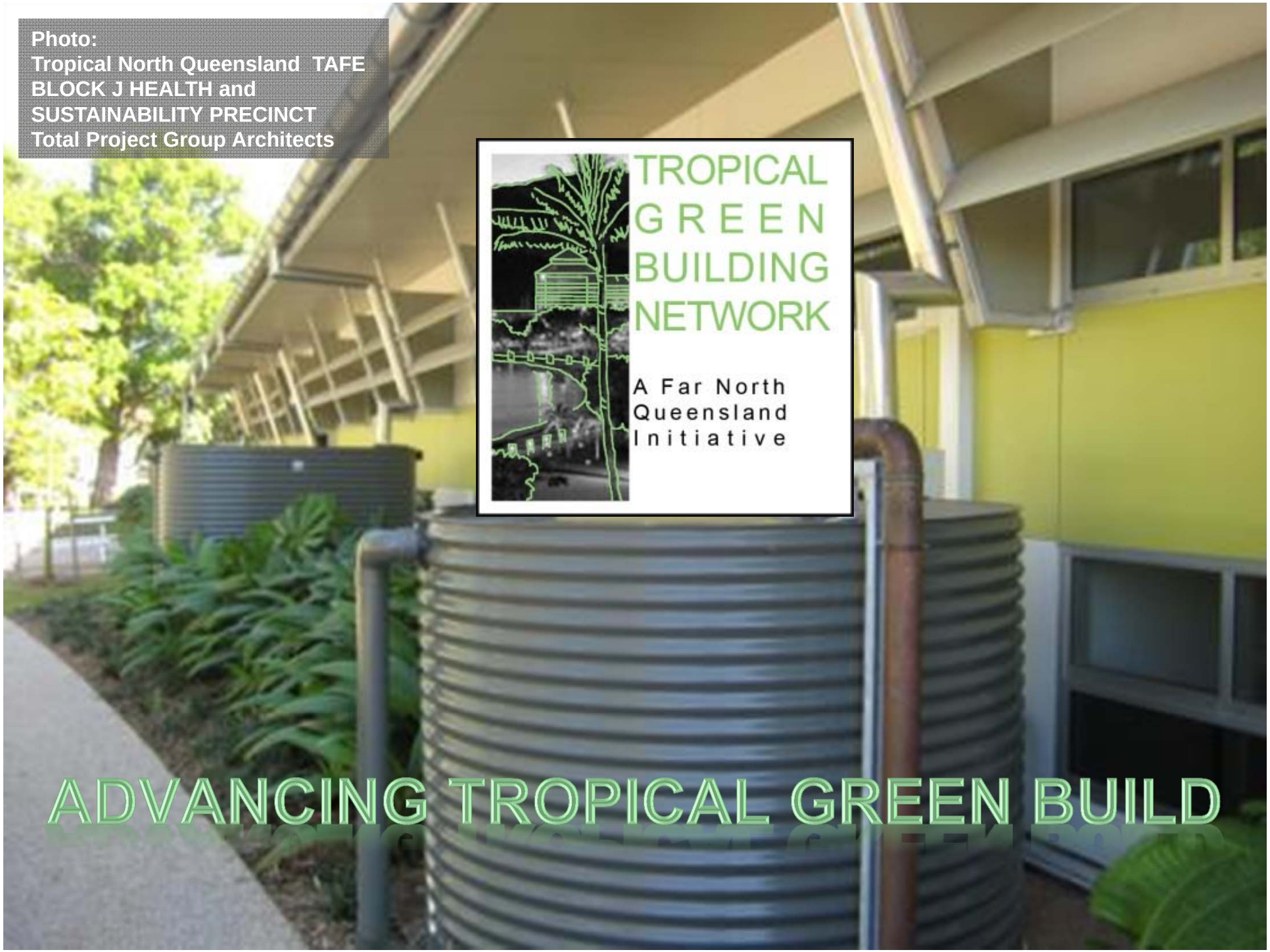

Photo:
Tropical North Queensland TAFE
BLOCK J HEALTH and
SUSTAINABILITY PRECINCT
Total Project Group Architects
TROPICAL
GREEN
BUILDING
NETWORK
A Far North
Queensland
Initiative
ADVANCING TROPICAL GREEN BUILD

presenters



Edi Piagno FRAIA

Director of Total Project Group Architects

Tropical Green Building Network: Steering committee member

Total Project Group Architects

Emma Thirkell MRICS

Director: Thirkell Consulting Engineers & Beachcomber Building Solutions

Operator of www.GreenBuild.com.au tropical and eco-living resource

Tropical Green Building Network: Steering committee member

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The Tropical Green Building Network aims to encourage learning and leadership in sustainable tropical built environments.

The network also aims to promote information sharing and collaboration between individuals and organisations in the industry to improve practices that work towards sustainability.

The network has over 300 members from varied professions including builders, home designers, architects, government advisers, engineers, town planners, university lecturers, building technicians and building contractors and suppliers.

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A Far North Queensland Initiative



WILLIAM MCCORMACK PLACE STAGE 2

CA Architects and Cox Rayner Architects

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Cairns Regional COUNCIL



Tropical Green Building is growing rapidly worldwide due to scarcities of natural resources, rising costs of fossil fuel energy, rising material costs and climate change concern.

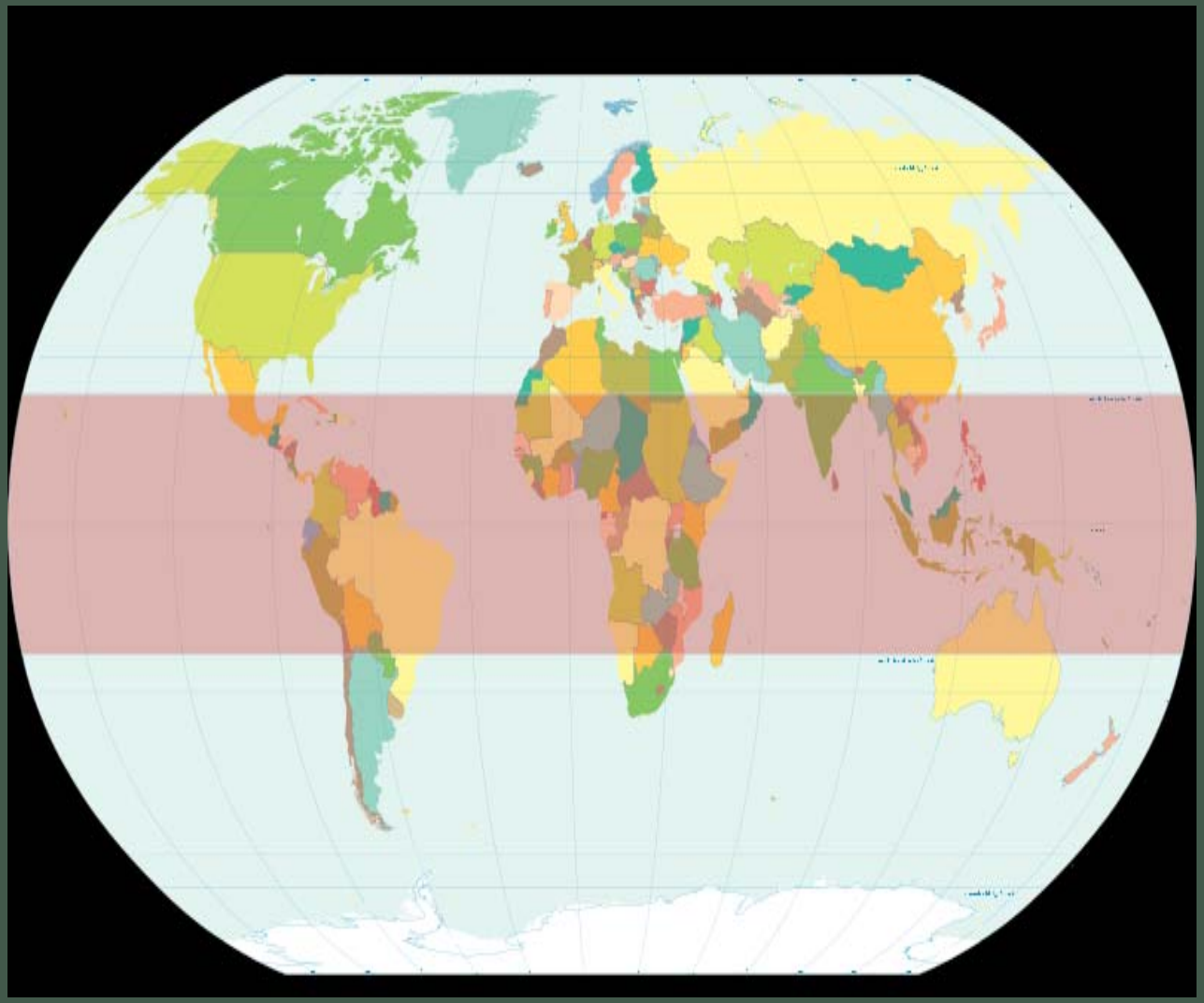
The economic growth forecast for the tropical zone including India and South East Asia will lead to increased demand for innovative, climate resilient, energy efficient tropical green build technologies.

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World map with the inter tropical zone highlighted in red



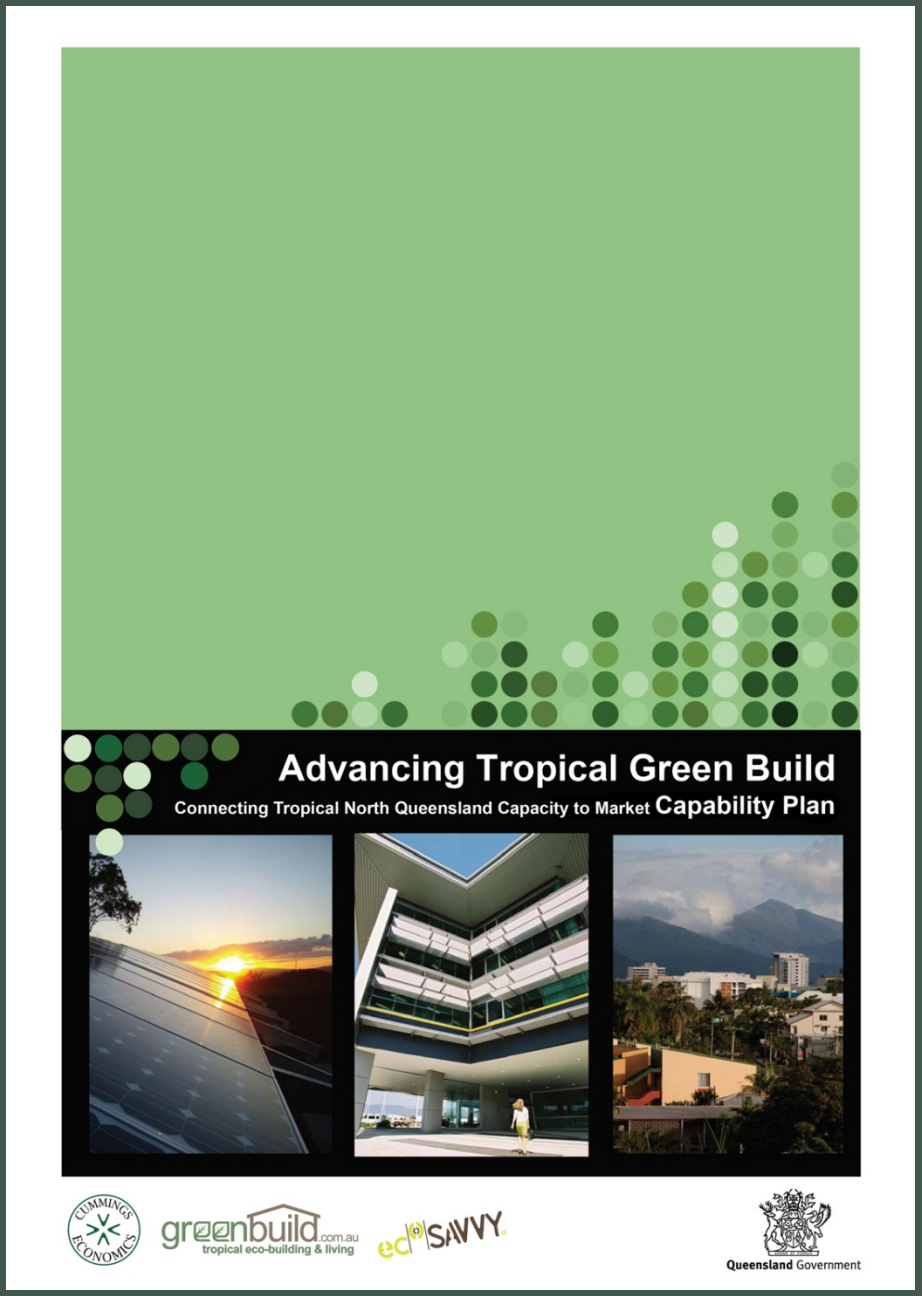
the tropics

North Queensland, one of the worlds most developed tropical regions, has the expertise, technologies and solutions to become the worldwide hub for building design and construction for tropical lifestyles

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Advancing Tropical Green Build:

- Business Directory

  112 North Queensland businesses profiled in the directory.

- Connecting Tropical North Queensland Capacity to Market Capability Plan

  117 businesses were surveyed to determine the composition, capability and economic value and to identify market opportunities and industry challenges for the future growth of the sector.

download from
www.tgbn.org.au.

What is tropical green building expertise?

- 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

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MISSION BEACH HOUSE

Chris Van Dyke Building Designer



Pavilion Style building with single depth rooms for maximum cross ventilation.

Flexible boundaries between indoor and outdoor space

Openable sides and louvres for cross ventilation.

High ceilings for convection cooling.

Deep overhangs for sun & rain protection.

Roof ventilation to allow hot air to escape.

Raised platform maximise ventilation through and around the building.



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DISPLAY HOME
PALM COVE

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Pavilion Style building with flexible boundaries between indoor and outdoor space.

Raised platform to catch cooling breezes.

Flexible boundaries between indoor and outdoor space for flexible living.

High ceilings and openable sides for maximum natural ventilation.

Locally sourced stone



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HP HOUSE, CAIRNS

MMP Architects

Oriented for minimum solar heat gain.

Pavilion Style building with flexible boundaries

Single depth rooms for maximum natural ventilation.

PV cells on roof. Solar hot water. Locally sourced stone. Sustainably harvested timber.

The building 'floats' on its galvanised steel support structure which carries through from the ground to the roof ensuring minimum site disturbance, low maintenance and structural integrity.

Completion of the roof early in the construction process afforded weather protection for the following trades

Photographer: Michael Martino



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KENICK CONSTRUCTIONS

Affordable Tropical Sustainable
PROJECT HOME
Redlynch Valley
Designer: Green at Heart

Completed 2012
Cost $250,000
Passive design
3 bedrooms & 2 bathrooms
Media Room & Open living
Water saving
Solar and Zero Energy
No VOC paint or cabinetry
Earthwool insulation
Material recycling

















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TEECE HOUSE EARLVILLE

Designers

Beachcomber Building Solutions

Thirkell Consulting Engineers

Builders

IFCM Constructions

Australian Finalist HIA GreenSmart

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TAFE BLOCK J HEALTH and SUSTAINABLITY PRECINCT

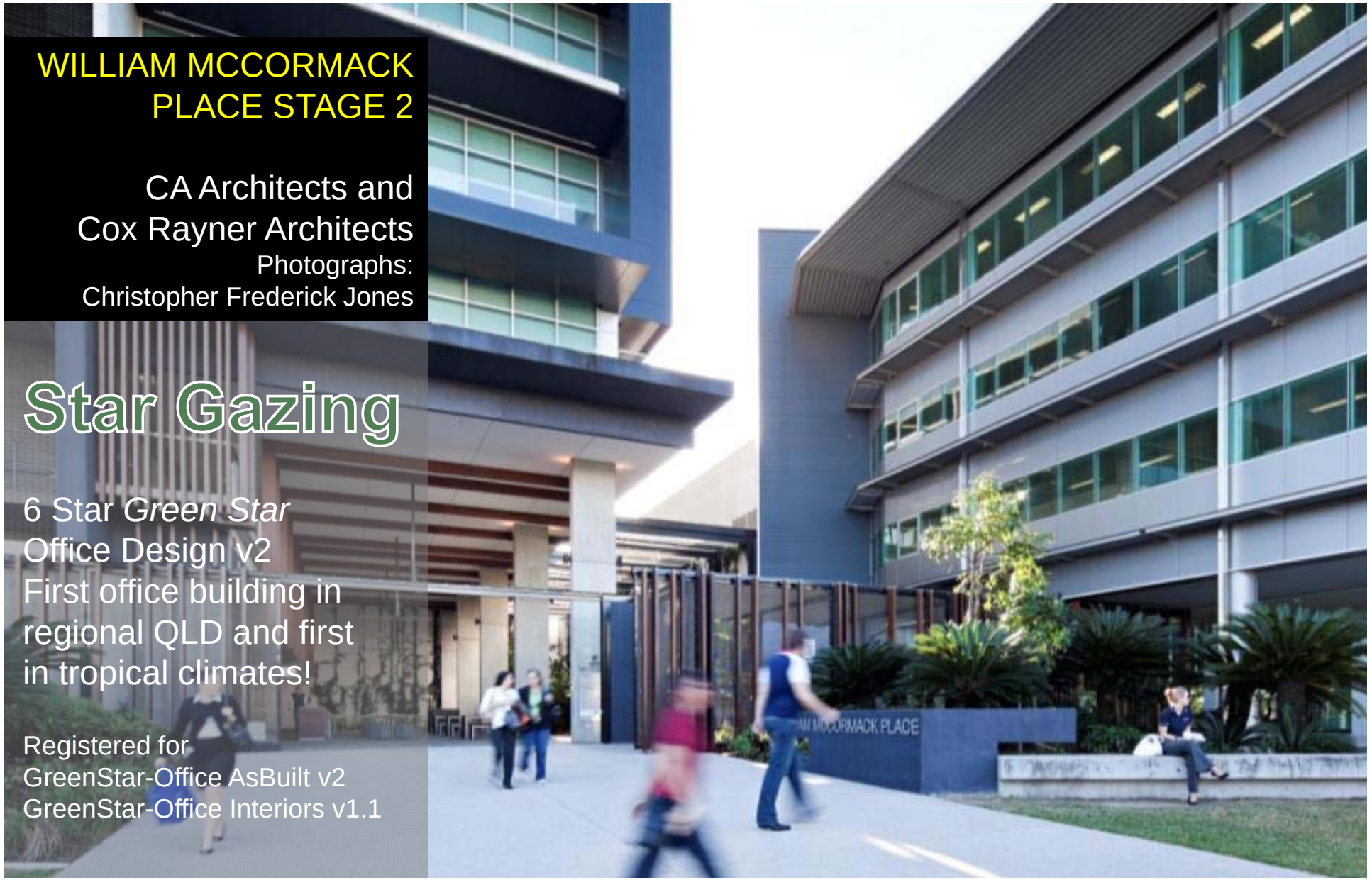
- First educational building in Queensland to be designed to achieve a 5 star *GreenStar* rating in a tropical/ hot humid zone.
- 5 star rating recognises and rewards “Australian Excellence”



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WILLIAM MCCORMACK PLACE STAGE 2

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Photographs:
Christopher Frederick Jones

Star Gazing

6 Star *Green Star*
Office Design v2
First office building in regional QLD and first in tropical climates!

Registered for
GreenStar-Office AsBuilt v2
GreenStar-Office Interiors v1.1

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Builders
Dawsons Construction

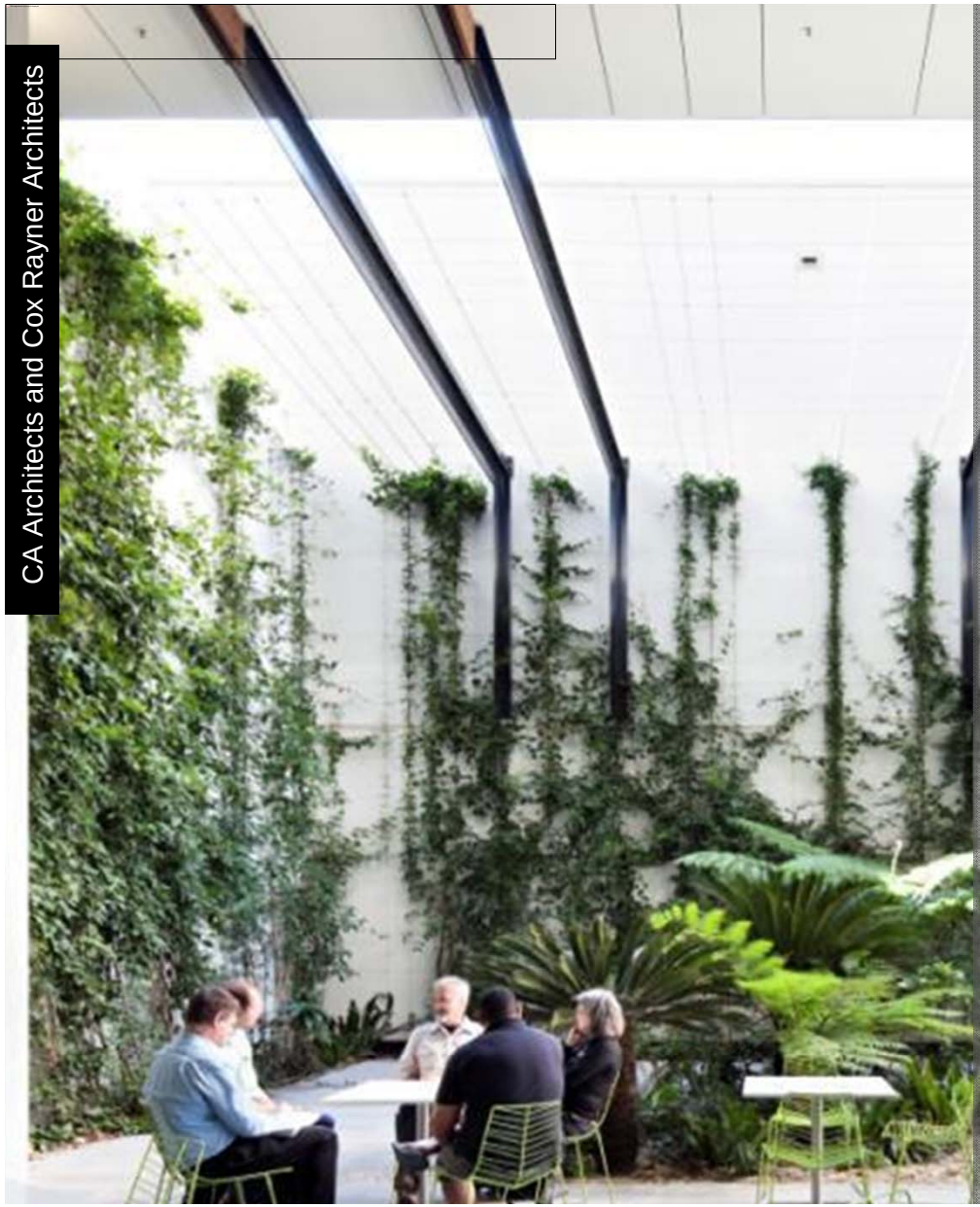
Bana Yirriji
Art & Cultural Centre
Wujal Wujal
5 Kilometers

Completed 2011
Café & Gallery
Art & Craft Workshop
Set on the remote Bloomfield River, Wujal Wujal

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Connecting Tropical North Queensland Capacity to Market Capability Plan

REGIONAL ECONOMIC BACKGROUND

- North Queensland leads a large construction sector and $12.5bn in total value of building approvals over the six years to 2010/11.
- Cairns & Townsville has almost 900 manufacturing businesses and over 5,200 construction and 2,100 professionals, scientific and technical businesses.
- We are well positioned to service PNG and the Asia/Pacific area, south and west across northern Australia.

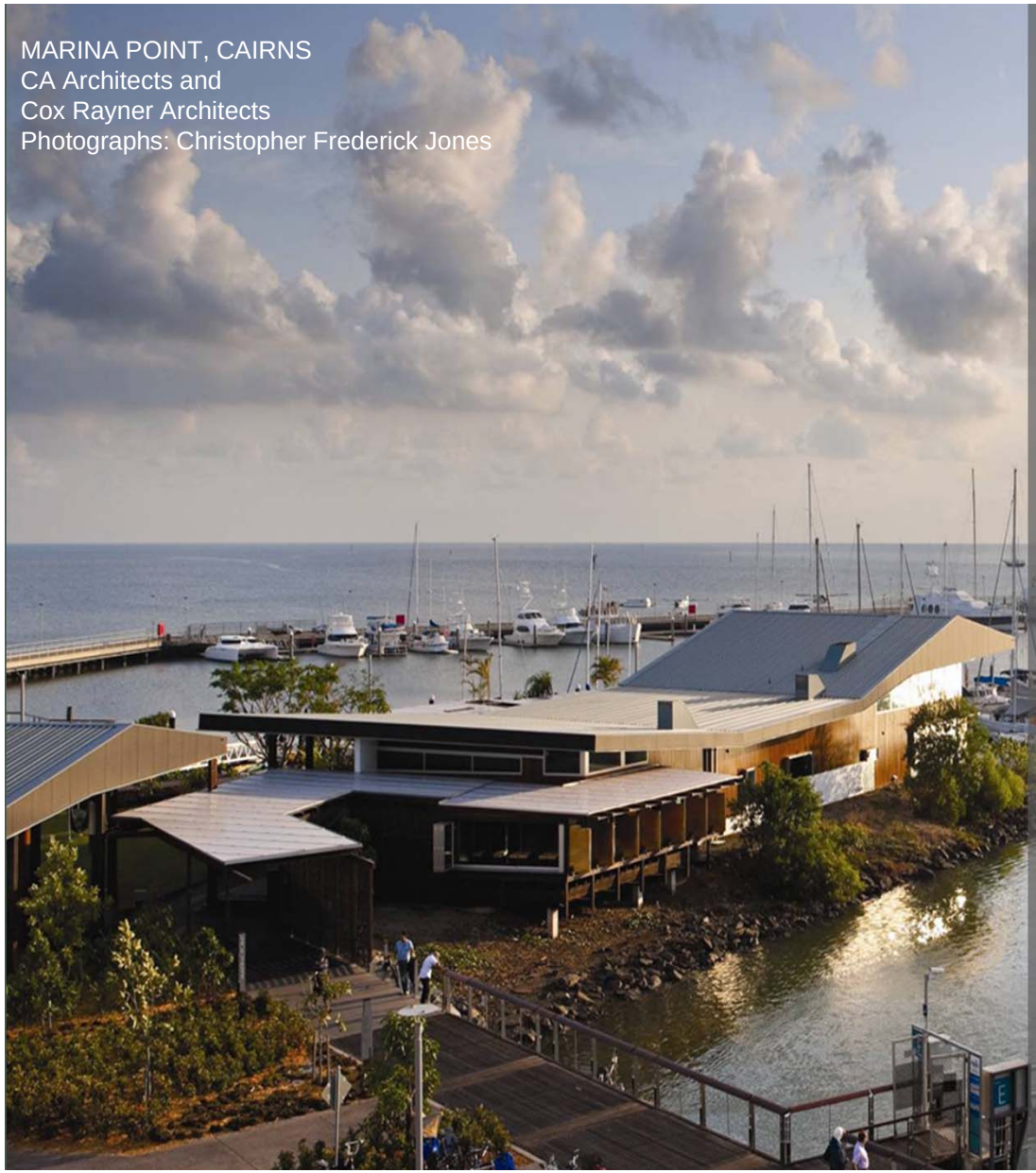
CURRENT CAPABILITY

- Very strong in tropical design, smart technology, development and construction.
- Strong in water engineering, air-conditioning, consultancy, advice and ratings.

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MARINA POINT, CAIRNS
CA Architects and
Cox Rayner Architects
Photographs: Christopher Frederick Jones

Connecting Tropical North Queensland Capacity to Market Capability Plan

VALUE OF THE TROPICAL GREEN BUILD SECTOR

- Gross earnings is estimated at $170 M p.a.
- Exporting represent 14% of the sector with great opportunity.
- Total employment of businesses surveyed 2,300.
- The average employment is 21.7 persons per business.
- Growing rapidly at an average of over 10% p.a. over the past 10 years.
- Businesses anticipating growth of 10% to 15% p.a.

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Connecting Tropical North Queensland
Capacity to Market Capability Plan

TRENDS, OPPORTUNITIES & IMPEDIMENTS

Key Growth influences include:

- Greater awareness.
- Mandated requirements
- Rising energy costs.
- The need to combat hazards
- New improved technology.
- The increasing capability of local firms in the field.

Major impediments to growth include:

- Lack of education
- Red tape and conflicting processes
- Lack of understanding a tropical built environment.

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Our Competitive Advantage:

- Quality, experience and track record

Our Competitive Disadvantages:

- Business structures too small.
- Regional location.
- Inexperience.

New Market Opportunities:

- Focus on domestic markets.
- Start out on the path of penetrating overseas markets.

Bana Yirriji Art & Cultural Centre Wajal Wajal 5 Kilometers

Designers
Beachcomber Building Solutions
Thirkell Consulting Engineers Builders
Dawsons Construction

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INVESTMENT, EQUIPMENT & TECHNOLOGY NEEDS

- Specialised equipment and technology.
- The construction sector has difficulties financing it.

RESEARCH, DEVELOPMENT & CERTIFICATION

- Accelerated testing and certification.
- ‘Whole of Life’ performance’
- Review of certifications and ratings.

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LABOUR SKILLS & TRAINING

- Depend on outside agencies
- Lack of locally available facilities.
- Special need for re-skilling

PROBLEMS IN ACCESSING & RETAINING SKILLED STAFF

- Size of the pool of skilled workers.
- Career opportunities for staff.
- Lack of continuity of work.

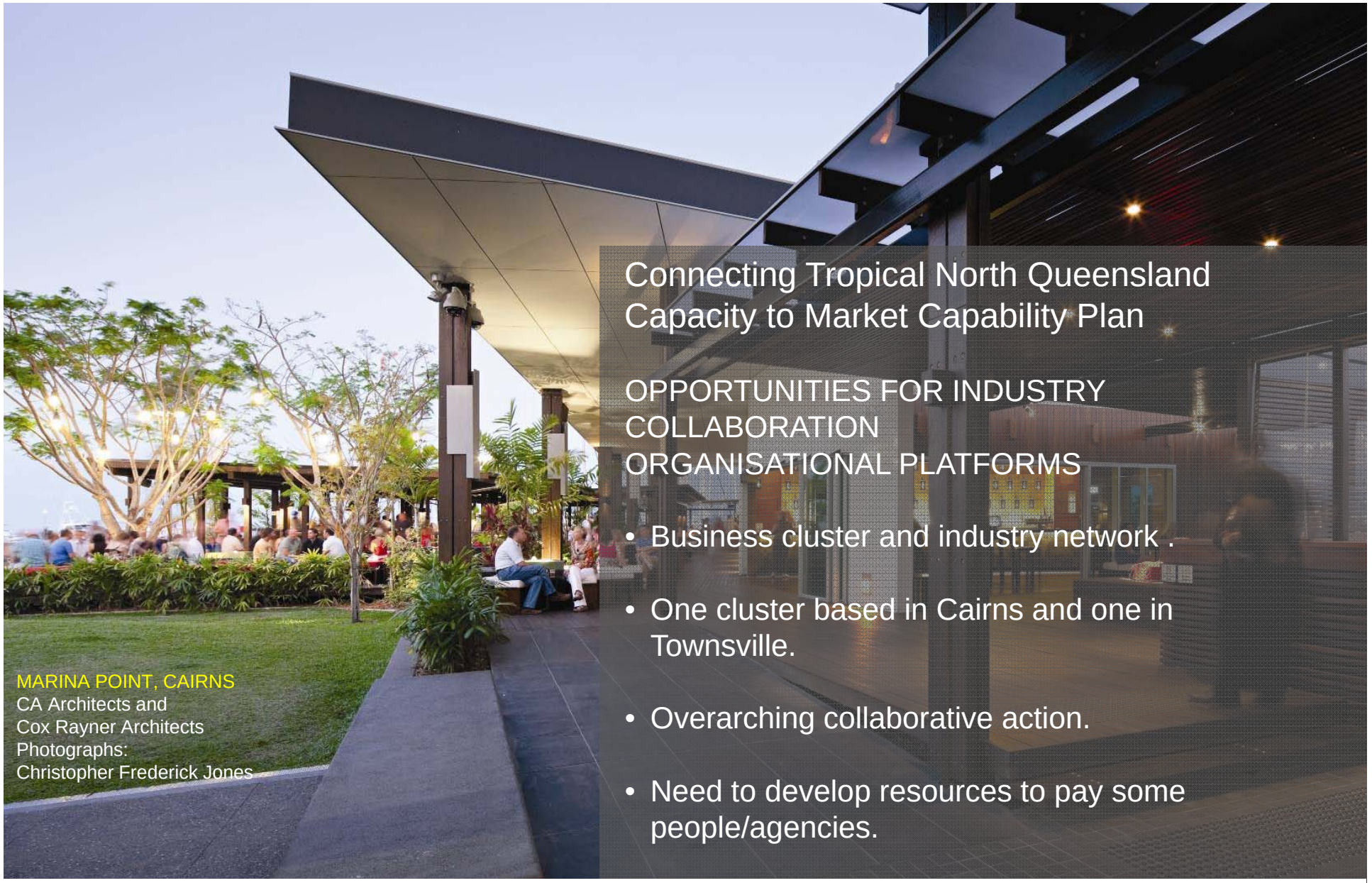
MEETING EDUCATION & TRAINING NEEDS

- Strengthen local availability
- School of Tropical Architecture and Design.
- CPD as well as TAFE level courses

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MARINA POINT, CAIRNS
CA Architects and
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Photographs:
Christopher Frederick Jones

Connecting Tropical North Queensland Capacity to Market Capability Plan

OPPORTUNITIES FOR INDUSTRY COLLABORATION ORGANISATIONAL PLATFORMS

- Business cluster and industry network .
- One cluster based in Cairns and one in Townsville.
- Overarching collaborative action.
- Need to develop resources to pay some people/agencies.

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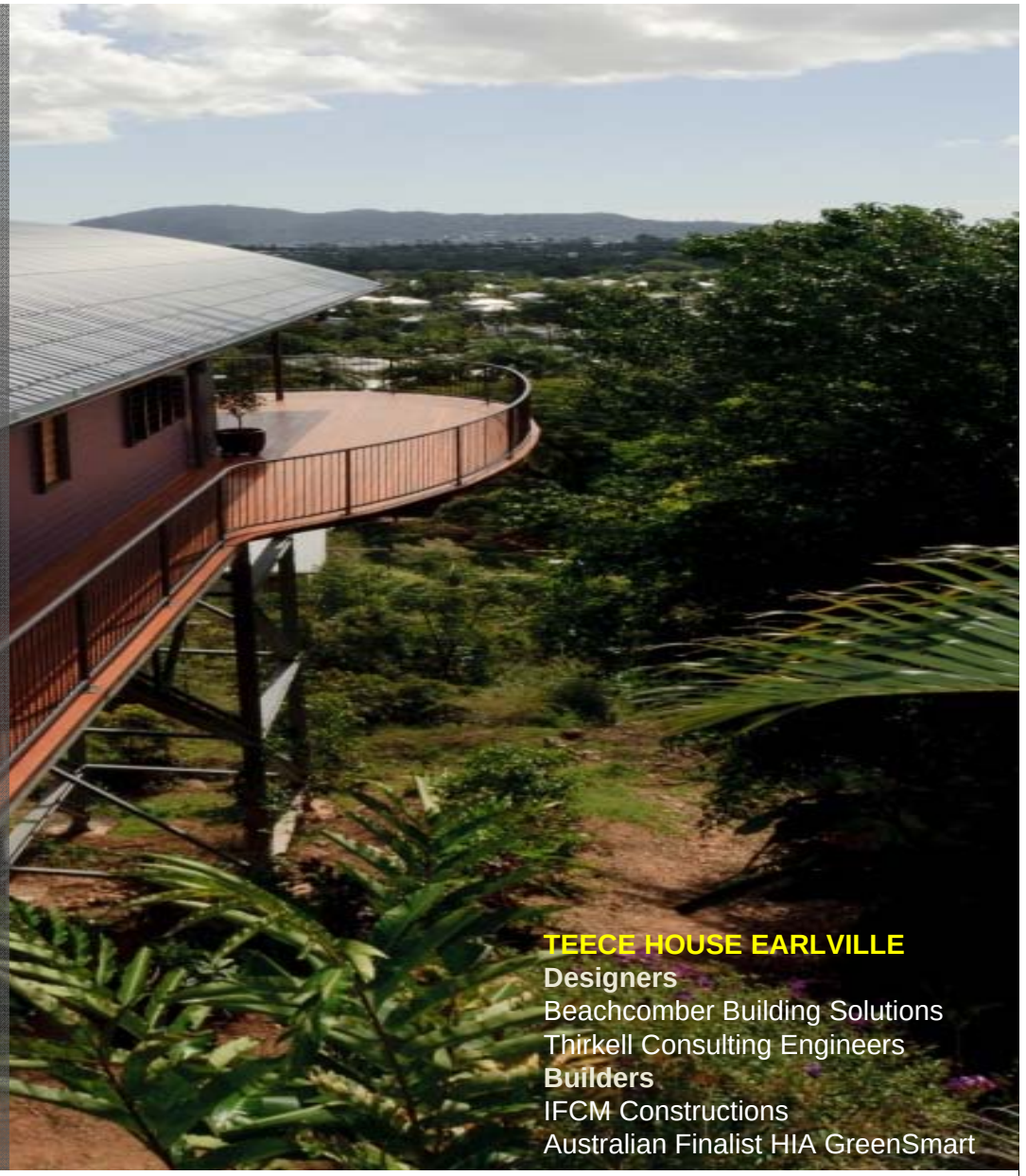
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Connecting Tropical North Queensland
Capacity to Market
Capability Plan

ACTIONS TO PROMOTE GROWTH

- Accelerate development of specialist knowledge and skills.
- Strengthen relationships throughout the tropical zone.
- Raise awareness to assist export development.
- Assist developing products.
- Support recycling of building material waste.
- Adjust some procurement processes.



TEECE HOUSE EARLVILLE
Designers
Beachcomber Building Solutions
Thirkell Consulting Engineers
Builders
IFCM Constructions
Australian Finalist HIA GreenSmart

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CONCLUSION

There are multiple challenges associated with the planning, design, construction and operation of sustainable buildings and infrastructure in tropical environments as compared to other climatic environments.

Far North Queensland as one of the few developed tropical regions in the world is poised to share its expertise with the rest of the world .

Inspirational and creative spaces encourage use

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