# Impact Statement Canvas for Indigenous STEM Education Project

## **PARTICIPATION**

CSIRO, BHPB, QUT, UoM

ISEP Team, Project partners
Technical Experts

ISEP team, jurisdictions, Teachers, Principals, CEDO, Students, Elders, Family, Community, Universities

Universities, Community

Jurisdictions, Schools, CSIRO

#### **INPUTS**

What we invest

BHPB Foundation funding \$28m/5 years

30 year CSIRO BHPB relationship in science education

Indigenous leadership

Relationships with Indigenous communities

Experienced Indigenous and non-Indigenous staff

CSIRO experience in science inquiry education – esp. CREST, Land and Learning Program

CSIRO national infrastructure and university partnerships

Partner/Stakeholder expertise (e.g. YuMiDeadly Centre, Tangentyere Land and Learning, UoM Bachelor of Science & Arts extended

#### Assumptions

Indigenous leadership is essential

Importance of high expectations, culture and personalised support
Importance of working at the cultural interface of two-way science
Importance of Indigenous curriculum contexts and building teacher and school capacity
Importance of building strong relationships with community
Rigorous evaluation is required to demonstrate program effectiveness

#### **ACTIVITIES**

What we do

# Innovative curriculum, pedagogy and TPD

Development of innovative, place based, high-expectations Indigenous contextualised curriculum, pedagogy, support resources for schools/universities and associated TPD training

# High expectation extra – curricular opportunities & support

Development of highexpectations extra-curricula opportunities including summer schools, work placements, awards & leadership programs with personalised support.

## Local & strategic engagement

Student recruitment and engagement of key stakeholders (esp. schools, universities, CSIRO sites, Aboriginal organisations, Elders and patrons to support the delivery and sustainability of the above).

# Management, monitoring & evaluation

Deployment of project management, monitoring and evaluation methodologies to support delivery and sustainability of the above.

#### **OUTPUTS**

Our deliverables

Teacher completion of high expectation Indigenous context and pedagogy focused TPD courses and on the job training including train the trainer

Innovative, place based, Indigenous contextualised and/or led STEM curriculum (inquiry based) delivered in schools and university and documented in school plans

Schools/students engaged in extra-curricular supports and alternate pathways e.g. summer schools, awards, leadership and support programs, BScExt

Partnerships with schools, jurisdictions, universities, mentors, and other key stakeholders

Project Steering Committee (governance), PM tools and databases, skilled staff, M&E frameworks, methods, data, reports and publications

### **OUTCOMES**

The uptake, adoption or consumption of our work

More Indigenous (and

non- Indig.) students

education pathways,

enrolment in STEM

careers & leadership

Schools are culturally

science in partnership

with Elders, families

and communities &

flow on benefits to

broader curriculum/

Best practice in

high expectation

maths education

programs & TPD

universities &

identified.

M&E input to PE CQI processes

science inquiry and

Jurisdictions, CSIRO,

partners scaling up

teaching

delivering two way

pursuing STEM

years 10-12 &

opportunities

competent in

university, STEM

Increased student engagement, attendance, results and recognition

Increased student aspiration, sense of value, cultural identity and school belonging

Increased parental, family &community, engagement and recognition of role models

Increased teacher capacity in: inquiry; place based, hands on curriculum development; and delivery in an Indigenous context/ Indigenous led

# **IMPACTS**

Benefits to eco, environ, soc

Indigenous knowledge & culture valued: complementarity to western science & maths demonstrated

Greater understanding and care of environment

social cohesion/ reconciliation

More, higher quality & greater workforce diversity of STEM professionals.

Schools, students and families increasing high expectations focus contribute to new cultural norm of Indigenous students attending university and having high STEM engagement

increased innovation and workplace productivity

#### External factors

National/Global - Availability of STEM jobs, global and local economy, political environment Jurisdictions/School – culture of low expectations, teacher quality, relationship with Indigenous community Student – level of family support and understanding of tertiary education context CSIRO - Staff recruitment and training essential (need external expertise)