10YFP programme name(s) Sustainable Building and Construction

Project Title

Built environment curricula: responding to climate change through industry engagement

Overview – "sales pitch" (one short paragraph): make the case for the flagship, why it is needed by stakeholders, and why the 10YFP should support this, through which programme(s) and and partners

High urbanisation and rapid building and construction activity is anticipated in many growing economies in the Asia-Pacific and Latin American region. If building and construction growth is not directed within the right framework, carbon emissions will continue to grow, perhaps exponentially. The aim of this flagship project is to develop a methodology for understanding and guiding change in tertiary and vocational programs that educate built environment professionals, while aligning these changes with professional development for academics and industry practitioners for designing and building low carbon cities. The project meets the aims of the 10YFP by building on an underlying foundation of sustainable consumption and production. It will foster awareness, training and capacity building in industry and academia, using best practice examples and show casing cutting edge technology in the buildings and construction sector.

The project will be driven through the Sustainable Buildings and Construction Programme, but also has links to Sustainable Tourism, Sustainable Lifestyles and Education Programme and Sustainable Public Procurement Programme.

1. Context and justification (0.5 page)

What is the problem/why is the project needed? Include details of the global context in which the project is taking place. Use evidence where possible, reference reports/publications. Include a brief reference to the 'how', 'where' and 'when' of the project.

Current growth of greenhouse gas emissions in the building and construction sector needs to be arrested. This is particularly the case in developing economies. In OECD economies buildings consume up to half of available raw materials and account for up to a third of final energy consumption (OECD 2002). For example: it has now been well documented that growth in Asia will continue and will result in increased energy use and carbon dioxide emissions (Ito et al. 2006). Key highlights of this are that:

- Asian GDP will expand from 27 per cent in 2004 to 34 per cent in 2030, the highest compared to other blocks including Europe and North America
- Asian population is forecast to rise to half the world population, with India and China being the largest by 2030
- Primary energy demand and attendant carbon dioxide emissions are expected to rise by 9 per cent in 2030 under a business as usual scenario
- Primary energy demand in Asia is expected to grow to 6.2 billion tonnes of energy equivalent by 2030, a growth of 200 per cent from 3.1 billion tonnes of energy equivalent in 2004.

Within Asian cities, it is anticipated that:

- Total energy consumption through building use is expected to rise 65 per cent to 1150 million tonnes of energy equivalent by 2030 (Hong & Chiang 2007).
- Building energy consumption is predicted to comprise 18.5 per cent of total energy consumption in 2030.

It is in response to these issues, that this flagship project is situated. As already described in the SBC programme concept note, the sustainable buildings and construction programme will contribute to the promotion of the environmental, social and economic agendas thereby addressing the broader 10YFP goals related to sustainable, inclusive and equitable growth, poverty eradication and employment opportunities.

It builds on work already undertaken. The project *Integrating sustainability into engineering and built environment curriculum* (funded by United Nations University (UNU) Promotion of Sustainability in Post Graduate Education and Research (ProSPER.Net) from 2012-14: Phase 1) found, amongst a range of other outcomes, that university academics sought assistance in extending curriculum change beyond single courses to whole professional programs. They sought assistance to change programs so that the capacity of built environment professionals to design and build low carbon cities was institutionalised. This institutional focus suggests that building-on from the first phase of the project, the focus currently should be on developing a means for understanding built environment professions, in particular engineers, architects and, construction and project managers, in relation to:

- country specific conditions: industry, faculty, curriculum, pedagogy and organisation of the professions
- government policy: urban planning, building code regulation and economic development strategies supporting low carbon urban development.

Academics sought to also bridge links with industry. A professional development program encompassing industry practitioners and academics is required.

Further information of Phase 1 project is available at:

http://prospernet.ias.unu.edu/index.php/projects-2/current-projects/integrated-sustainability-education/

Book chapter relating to this project is available at:

http://prospernet.ias.unu.edu/wp-content/uploads/2012/09/2014_ProSPER.Net-book_interactive.pdf

NOTE: As Phase 2 of the UNU project is now being undertaken with Indonesia as the focus country. Additional funding through APN identified at the Flagship workshop in Paris in July 2015 was sought. Unfortunately, this funding was not secured, despite making progress to the last round of funding.

2. Project overview and objectives (1 page)

Include a summary of the project objectives and expected impacts with brief details of the way the project will deliver them, including:

A recent World Bank (2012) report, *Inclusive green growth: the pathway to sustainable development* argues strongly for coupling economic growth and sustainability objectives. It states that greening growth is 'necessary, efficient and affordable'. The context for this pursuit of sustainable development is continuing rapid urbanisation and city building globally. A key requirement in this context is a workforce with appropriate skills.

> [G]reen innovation like innovation in general, depends on people who are able to generate and apply knowledge in the workplace and society at large. Required innovation skills include basic skills (reading, writing) technical skills (science, engineering), generic skills (problem solving, multicultural openness, leadership), managerial and entrepreneurial skills, creativity and design skills. The green economy requires greater emphasis on design and multidisciplinary team work, strategic leadership and adaptability, and knowledge of the sciences (ibid 75).

However, there is a skills deficit problem because education and training systems are not producing graduates with the right skills.

> Many of the skill shortages already reported in connection with green growth strategies appear to result from generic failings in education and training. And they reflect long-standing issues such as the lack of functioning universities and research centers, the mismatch between students' choices of discipline and the needed skills, the lack of incentives for employers to invest in developing the transferable skills of their workforces, the lack of access for the disadvantaged to time and finance for training, and the stickiness of relative pay rates (ibid 100).

This skills deficit also applies to built environment professionals that lead continuing rapid urbanisation and city building. Their output is measured largely by building and construction activity levels. Little attention is paid to the accompanying use of resources and impact on climate change. To maximize building related impacts of climate change and associated greenhouse emission levels, some professional development opportunities exist, but they are fragmented. There is untapped opportunity to use professional development as a strategic opportunity at both undergraduate/postgraduate levels in universities and in the built environment professions to maximize understanding of the impacts of the built environment.

The principal objective of this project is to institutionalize the capacity of future generations of built environment professionals to design and build low carbon cities, commencing with a focus on Asia. This will be done through a networked collaborative program that develops guides and implementation capacity in individual countries in the Asian region, and beyond where needs are identified, such as Latin America. Professional continuing education may be used as feature in tandem, where built assets may be used as a learning opportunity for both academics and industry

professionals. Participants include: universities, industry bodies, professional associations and government agencies with responsibility for city planning, building and economic development.

The aim of this project, *Built environment curricula: responding to climate change through industry engagement*, is to increase the supply of built environment professionals able to support future low carbon urban growth by extending the use of the guide developed already in the project: *Integrating sustainability in engineering and built environment curriculum*. This is undertaken through the development of integrated continuing professional educational opportunities for built environment professionals contextualized within individual country context, and using existing collaborative networks. Using Indonesia as a case study currently, the project will develop a model for system wide change within one profession.

The key sub aims are to:

1. Prioritize and contextualise changes to curricula, commencing with one built environment discipline, ie architecture. The focus audience will be built environment professionals. For example, in Indonesia, existing networks such as the architectural profession's Building Science collaborative network (BISA) will be used as a key vehicle for effecting professional change for Indonesian built environment academics.

2. Develop commitment from industry bodies, professional associations, universities and key urban development and economic policy government agencies to align policy objectives for low carbon growth with university built environment curricula, while simultaneously building professional development opportunities.

3. Develop a "template" that may be used in other countries to support institutionalizing additional capacity within universities to enable curriculum development in support of a low carbon urban futures.

4. Identify areas of professional development opportunities for university academics and industry professionals.

- **10YFP Programmes and functions**

  Present the project in the context of the 10YFP programme(s) it belongs to, showing how it will contribute to achieving the objectives and activities of this/these programme(s)

  The 10 Year Framework of Programmes on Sustainable Consumption and Production Patterns (10YFP) is a concrete and operational outcome of Rio+20. The 10YFP is a global framework that enhances international cooperation to accelerate the shift towards sustainable consumption and production (SCP) in both developed and developing countries. It provides capacity building and technical and financial assistance to developing countries, and encourages innovation and cooperation among all countries and stakeholders, so as to shift to SCP patterns in this sector.

  The 10YFP Sustainable Buildings and Construction (SBC) Programme aims to foster a mutual understanding of sustainable buildings among relevant stakeholders and to identify the

knowledge, resources and incentives required to build, maintain and use them; ensuring structures are healthy to live and work in; that they sustainably utilise energy, water, land and other key resources, respect environmental limits; are responsive to climate change; and contribute to the social and economic development of the communities where they stand.

This flagship project is aligned to the goals of the 10YFP SBC programme. It builds knowledge in the various disciplines comprising the building and construction sector, for both current and future professionals. It enhances capacity building in the building and construction sector, whilst acknowledging the need to share research, tools, financial and other approaches to promote a common language for tackling current and future sustainable buildings and construction policies. It focuses efforts directed towards certain types of problems in the buildings and construction sector, for example, an urgent need for focusing on low cost housing in countries with increased urban populations. It brings knowledge and capacity building for ensuring new and refurbished construction activities to consider resource efficiency, supply chain management, low emissions and resilient planning, policies and practices in building and construction.

The flagship project also links with the goals of the Sustainable Public Procurement programme, Sustainable Tourism programme and the Sustainable lifestyles and Education programmes.

- **Sustainable Development Goals**

  Specify how the project may contribute to the UN post 2015 Development Agenda and the Sustainable Development Goals (as currently proposed)

  This flagship project supports that green economies may be able to achieve sustainable development, it supports sustainable production and consumption, it brings in a range of stakeholders including civil society, science, technology, legislation, industry, and others to support sustainable development holistically. It focuses on Goals 4, Goals 6-13 and 15-17 of the Sustainable Development Goals.

- **Regional SCP Strategies and Initiatives**

  Specify how the project contributes to the 10YFP regional roadmaps and/or existing regional or sub-regional SCP strategies and initiatives

  The project contributes to the goals of SCP strategies and initiatives. It meets the Arab Strategy on SCP, the key aims of which are to encourage the utilisation of products and services that ensure environmental protection and conservation of water, energy and other natural resources, while contributing to the poverty eradication and sustainable lifestyles (Arab Regional Strategy for Sustainable Consumption and Production, 2009).

3. Project Details (1-2 pages)

Explain the different work streams and activities of the project, what they include, how they contribute to the objectives and expected impacts of the project, and outline the performance indicators to measure the project's progress and impacts.

10YFP programme name(s) Sustainable Building and Construction

This flagship project contributes to work streams as follows:

Work stream 1: Establish and promote enabling frameworks to implement SBC policies

- Foster and share research, tools, financial and other approaches related to SBC
- Maintain and engage in global dialogue to develop and promote common language and tools related to SBC
- Foster enabling frameworks for SBC

Work stream 2: Support and promote sustainable housing

- Piloting sustainable housing approaches in the affordable and social housing markets
- Support synergies with relevant programmes

Work stream 3: Enhance sustainability in the building supply chain

- Identify and share core analytical tools, conceptual work and improved knowledge base for supporting decision making towards resource efficiency in building supply chain
- Promote policies to integrate resource efficiency in the building supply chain
- Engage upstream stakeholders and supply chains towards resource efficiency

Work stream 4: Reduce climate impact and strengthen climate resilience of the building and construction sector

- Identify and share core analytical tools, conceptual work and improved knowledge base for supporting decision making towards a more climate resilient and low emission building and construction sector
- Promote resilient and low emission SBC planning and piloting

Cross cutting theme: Knowledge sharing, outreach and awareness raising

- Promote awareness raising efforts and promote understanding of sustainable buildings and construction across the stakeholders and general public,
- Support organization of international conferences and platforms for disseminating activities and results
- Support building of peer groups based on region specific conditions to share lessons and experiences with building codes, solutions, geographically bound infrastructure
- Promote interdisciplinary exchanges between institutions of higher education for architecture, urban planning, engineering etc. informing the development and application of SBC policies and foster integration of sustainability consideration in relevant curricula supported by concrete case studies

The main work streams are aligned to the SBC programme workstream activities, flagship project activities with subsequent indicators, shown in the table below.

Work/focus areas	Programme activities	Flagship project	Activities	Indicators of success
Work Stream 1: Establish and promote enabling frameworks to implement SBC policies	1. Foster and share research, tools, financial and other approaches related to SBC	✔	Curriculum change to include: industry case studies in the curriculum, engagement of industry stakeholders as guest speakers, providing internship opportunities to students, industry and peer mentoring, setting up professional development opportunities for academic staff and industry practitioners. Both academia and industry are targeted.	• Curriculum changes across more than one discipline
	2. Maintain and engage in global dialogue to develop and promote common language and tools related to SBC	✔	Use conferences and other professional platforms to inform, engage and bring new thinking with tools to engage in practice.	• Reporting in local, regional and international conference
	3. Foster enabling frameworks for SBC	✔	Setting up a community of practice, where academics and industry professional education programme leaders and coordinators can network and share experiences.	• Community of practice established
Work Stream 2: Support and promote sustainable housing	1. Piloting sustainable housing approaches in the affordable and social housing markets	✔	Using tools for measuring environmental, economic and social approaches for housing.	• Student involvement in the community for TBL outcomes. • Working with industry.
	3. Support synergies with relevant programmes	✔	Through supporting networks of communities of practice, a range of activities impact on other programmes such as the Sustainable Public Procurement programme, Sustainable Tourism programme, Sustainable Lifestyles and Education programme.	• Links with at least one other 10YFP programme.
Work stream 3: Enhance Sustainability in Building Supply chain	1. Identify and share core analytical tools, conceptual work and improved knowledge base for supporting decision	✔	Teaching and providing examples to relevant stakeholders such as academics, small to medium enterprise holders and other relevant	• At least one best practice example included in the teaching suite of materials,

	making towards resource efficiency in building supply chain		stakeholders in the building supply chain to learn about knowledge pertaining to sustainable futures, including resource use, climate change adaptation and mitigation.	including professional development materials.
	2. Promote policies to integrate resource efficiency in building supply chain	✔	Working with universities and other educational institutions to change curriculum to include underpinnings for sustainability thinking and practice in the curriculum.	• Inclusion of life cycle thinking, supported by practice in the curriculum.
	3. Engage upstream stakeholders and supply chains towards resource efficiency	✔	Use case studies with stakeholders up down the supply chain to set up detailed studies of successes for all types of business, including volume home builders, small to medium enterprises and large organisations.	• Case studies each of: • Volume builders • SMEs • Large commercial builders And other relevant stakeholders such as architects, engineers, consultants, surveyors, and others.
Stream 4: Reduce climate impact and strengthen climate resilience of the building and construction sector	1. Identify and share core analytical tools, conceptual work and improved knowledge base for supporting decision making towards a more climate resilient and low emission building and construction sector	✔	Focus on tools such as Life cycle assessment. Include thermal assessment and modeling in building simulations for energy efficiency by using software such as IES, Ecotect and others. Use of rating tools and assessments for different types of buildings.	• Use of at least ONE software tool in the curriculum. • Professional development provided to the teaching community to use the tool.
	2. Promote resilient and low emission SBC planning and piloting	✔	Extension of tools across all built environment professions to include resilience and climate change adaptation, in addition to climate change mitigation for various types of projects; including residential and non residential projects.	• Move from one core profession to another related profession such as engineers or builders.
Cross-cutting theme: Knowledge sharing, outreach and awareness raising	Promote awareness raising efforts and promote understanding of sustainable buildings and construction across the	✔	Set up information sessions and seminars, professional development sessions across a range of stakeholders, including the general	• Sharing across other professional disciplines, e.g., between architects and

	stakeholders and general public.		public.	engineers.
	Support organization of international conferences and platforms for disseminating activities and results.	✔	A range of international conferences, for example, the Sustainable World Building Conference series and their regional conferences.	• Report in at least one local/regional, national and international conference
	Support building of peer groups based on region specific conditions to share lessons and experiences with building codes, solutions, geographically bound infrastructure.	✔	A network of community of practice will be set up in each country where the flag ship project is rolled out and there will be networked sharing of information between countries. It will also be linked to other professional industry associations.	• Community of practice is active, that is, they share best practice examples and support each other.
	Promote interdisciplinary exchanges between institutions of higher education for architecture, urban planning, engineering etc. informing the development and application of SBC policies and foster integration of sustainability consideration in relevant curricula supported by concrete case studies.	✔	The foundational basis of the programme reflects this. The progamme is about linking built environment related disciplines in a curricula focusing on enhancing sustainability integration in the curriculum supported by realistic and practical case studies. This ensures industry and wider stakeholder involvement.	• Foundation for longitudinal research is set up so that the programme is monitored and tracked to ensure long term sustainability.

Outline the products and services provided through the flagship project

Start with an overview of the types of products and services that the 10YFP programme will provide through the flagship. Specify why the 10YFP programme is the best placed to do this work. Indicate how high impact and scalability can be achieved.

This flagship project is about scaling up current study taking place in Indonesia to prepare the architecture profession for a future where current and future generations of architects can cope with climate change mitigation and adaptation. The outcome of the current project is to develop a template that can be used for other built environment related disciplines, and in other countries. This current project is supported by ProSPER.Net, United Nations University, Institute of Advanced Studies (UNU IAS), also a MAC in the SLE programme.

The flagship proposal is to use the template developed for the architecture profession in Indonesia across other disciplines and in other countries. It is essential that the template developed is used across countries that are in emerging economies, where building and construction activities are currently being undertaken at a rapid pace or expected to increase in the near future. It is essential that the building and construction sector is set on a sustainable path, rather than an unsustainable one. The template is a starting platform for built environment related disciplines within identified countries. It is not meant to be prescriptive, it supports and facilitates engagement with relevant stakeholders. Working with key players such as the building and construction industry code developers and regulators, the various professions comprising the built environment, universities and schools of architecture or relevant disciplines, city governments, in country government department/ministries such as ministry of education, ministry of environment and ministry of public works, a workshop will be undertaken in the countries identified. In doing so, there will be buy-in from the team and support from each of the stakeholders engaged in meeting the goals of the project.

Built environment curricula: responding to climate change through industry engagement is about harnessing change in built environment professional education, including post university education as professional development in the disciplines. The focus is to integrate sustainability thinking and practice in curricular and post graduation education such that seeds of change for a foundation in recognising current challenges in the built environment are front and centre of the educational system, equipping current and future graduates to deal with climate change.

This flagship is a large scale development requiring large injection of resources across various countries. It requires considerable effort from various stakeholders across industry, government and academia, and will need in-country project management support. It also needs an organisation such as the UN to tie the successes of the project, and develop communities of practice to be shared on platforms such as the Sustainable Consumption and Production Clearinghouse. It also requires support from other programmes such as the Sustainable Public Procurement programme and the Sustainable Lifestyles and Education programme, so there are cross learnings and shared case study experiences.

- **Detail out the products and services. Use the following structure for each product/service:**
  - *Title or type of product/service (e.g. assessment, policy development, strategy development, etc.)*

The product is curricular and professional development change, which will vary from country to country; not in the intent and learning outcomes, but in the context of the building and construction sector in the country and links to the professional development needs of the industry, and various accreditation bodies nationally and internationally. It is critical that a range of various stakeholders are involved to ensure buy–in, and to work out the best set of changes for optimum outcomes for that particular set of discipline/s. Curricular changes will include learning outcomes holistically from a programme level for that particular discipline and at the course level for each course/subject, including case studies. Professional development will occur at the industry level and this knowledge will be brought into the academic programmes. It will include assessments. The programme will need to be monitored through the use of surveys with various stakeholders, for example.

  - *Description of product/service*

Curricular change at the undergraduate and post graduate levels will be undertaken using a guiding template provided to universities/course and program developers. Once issues are identified for inclusion, industry practitioners will also involved in development of content and guide the change. Engagement with various stakeholders within the country to accelerate curricular change in tandem with industry will be focused upon. Changes that post graduation will require will also be included, to ensure that graduates and academic staff are upto date with current industry knowledge and expertise. It is not possible to only make change/s at the university level, without getting support and acknowledgement from the wider industry and government. That is why, the template developed is not prescriptive, but to be used as a starting position for debate and discussion in the countries choosing to be part of the flagship project.

  - *10YFP programme partners' expertise in that area*

10YFP partners for the SBC programme are yet to be identified. However, some work has already been undertaken in collaboration with other Asia Pacific universities in setting up a template. This template is now being fine tuned with the development of an in-country case study, using Indonesia as an example, focusing on the architecture profession in Indonesia.

  - *Expected results and impacts within specific timeframe*

It is anticipated that the flagship will yield short term and long term results. In the short term, curricular change with best practice examples will set the ball rolling for debate and discussions in changing traditional unsustainable approaches to building and construction. Indicators of results are involvement of local businesses in providing case studies for the students and the academics.

It is essential that graduates of the programmes where these changes or interventions are implemented are tracked. Using longitudinal surveys to close the feedback loops will test the assumptions that the approaches taken for curricular change are indeed appropriate and providing expected results. Such longitudinal surveys will need to be undertaken upon graduation and post graduation when students have entered the workforce, armed with knowledge regarding sustainability.

4. Project beneficiaries (0.5 page)

Project beneficiaries are primarily students (current and future professionals in the built environment industry), academics and industry. Students benefit because they are not subjected to the same pedagogies of teaching and learning that has set us on our current unsustainable path.

Academics benefit because they are able to get support for their teaching from industry and the flagship programme. Academics' knowledge and resource base improve as they are subjected to professional development opportunities themselves. They also get the opportunity to work with industry, learning from the industry and supporting professional development of industry.

Industry benefits because they get value add for their time through sharing knowledge and expertise that they would not otherwise get. They are in a position to shape young professionals that have foundational knowledge on the theoretical frameworks of sustainability and even practical or best practice examples of upto date knowledge. Industry do not need to retrain students to meet the needs of the work force.

5. Partnerships (0.5 – 1 page)

- *Who are the leading partners of the flagship?*

The leading partners of the flagship are:

- RMIT University
- MAC members: Polito, Energies 2050, BCA
- Current project partners for the study in Indonesia: University of Gajah Madah, University of Indonesia, International Finance Corporation Indonesia, Ministry of Public Works Indonesia, Indonesian Green Building Council, BISA- Building Science Alliance of Professionals, Indonesian Institute of Architects, Indonesian Schools of Architecture (APTARI)
- ProSPER.Net, University of Peradeniya (Sri Lanka), NIASA (National Institute of Advanced Studies in Architecture (India), Asian Institute of Technology (Bangkok), University of Philippines (Philippines), Tongji University (China).

- *Which other partners will support its implementation?*

  - This is yet to be decided.

- *What will the modalities for the partnership be?*

- If the project receives funding requested, industry partnerships are expected to be in-kind partnerships, where industry supports the curricular change through providing case studies and best practice examples, professional development opportunities, mentoring, internships and the like to support academic-industry engagement.

- *List and categorise organisations which have currently expressed interest in the project*

  - Universities mainly
  - Local government
  - Professional organisations
  - Green Building Councils

- *Indicate if project leads are interested in securing additional partners*

  Yes

6. Project timing (0.5 page)

- *Detail the high level timings of the project including the proposed kick off date, phases, important review points and project completion.*

  The project workshop in Indonesia, supported by ProSPER.Net is expected to take place late 2015. Therefore, it is anticipated that this flagship project will commence in the first quarter of 2017.

  It is expected that the flagship will be rolled out in four other countries in the Asia Pacific region, initially. Sri Lanka, Thailand, Philippines, China, and Indonesia have already expressed interest through ProSPER.Net. Malaysia and India are also represented on the ProSPER.Net Board, but they have not yet shown formal interest.

  The focus will be changing the architecture curriculum in these countries, using the Indonesian experience. The template developed in Indonesia will be used in the countries simultaneously so that communities of practice may be developed as a support network for the academics and industry.

  Workshops will be undertaken in the identified countries over a period of 2 years from 2016-2018. Changes identified will be implemented and will be monitored over the duration of the undergraduate program (3, 4 or 5 years, depending on the country).

  Base case information will be gleaned prior to trialling the interventions to compare before and after intervention scenarios.

- *Estimate timing of products/services (key deliverables).*

Using the template developed from the Indonesian case study, countries interested in participating in the flagship project already identified will be contacted to commence the project with introductory workshops. Most countries in the northern hemisphere work on a September to June academic calendar or a June to April academic calendar, hence the commencement dates will be worked back from these dates.

The timing of the project will vary depending on the length of the programme. Architecture programmes vary in length from 3-5 years, depending on the country. For example, for a 3 year program, the workshops for making curricular changes and developing interventions may be set up in 2016. Once identified, the interventions will be applied the following year, 2018, and the changes tracked from 2019-2020. Surveys will be undertaken in 2021. Thus the time period for a 3 year program for trialling the interventions is 5 years. Likewise, for the 4 year program, it will be 6 years, and for the 5 year program, it will be 7 years.

The major milestone timelines are presented in Table 1 below, and costings are presented in the next section.

Table 1

	Year 1													Year 2																
	wk1-4	wk 4-8	wk 8-12	wk 12-16	wk 16-20	wk 20-24	wk 24-28	wk 28-32	wk 32-36	wk 36-40	wk 40-44	wk 44-48	wk 48-52	wk1-4	wk 4-8	wk 8-12	wk 12-16	wk 16-20	wk 20-24	wk 24-28	wk 28-32	wk 32-36	wk 36-40	wk 40-44	wk 44-48	wk 48-52	Year 3	year 4	Year 5	Year 6
Tasks																														
Identification of relevant schools and stakeholders																														
Intervention template organised																														
Intervention implementation discussions																														
Key stakeholders invited.																														
Intervention application workshopping with associated travel																														
Interim report																														
Intervention tested over two semesters																														
Feedback from stakeholders																														
Report																														
Curriculum mapping over program																														
Curriculum mapping over program																														
Curriculum mapping over program																														
Final report drafted.																														

7. Estimated Project costs (0.5 – 1 page)

Include details of the total project costs per high level activity and deliverable

Working on a rough estimate of USD $500,000 per country, based on the work done to date ($60,000 committed and $60,000 in the pipeline) total project costs would amount to USD $5,000,000.

WORKSHOP 1:

Task	Timeframes	Budget		Subtotal
		Research Officer* (AUD $1,200/day excl GST)	Senior Research Officer/Expert** (AUD $1,500/day excl. GST)	
Background work/IFC/APTARI collaboration	10 weeks	5 days= 6,000	1 days= 1,500 (UIR)	$7,500.00
Workshop event and associated administration	1 week: 2 days workshop	3 days = 3,600	3 days = 4,500 (UIR)	$8,100.00
Workshop event		See Table 2	See Table 2	$17,660.00
Workshop report	2 weeks	2 days = 2,400	1 days(UIR) = 1,500	$3,900.00
Identification of intervention and stakeholder discussions re application	10 weeks	4 days = 4,800	2 days(UIR) = 3,000	$7,800.00
Final report	10 weeks	2 days = 2,400	2 days (UIR) =3,000	$5,400.00
Total in AUD				**$50,360.00**

* Trivess Moore, ** Usha Iyer-Raniga

Funding for this is already secured through ProSPER.Net

INTERVENTION IMPLEMENTATION, per discipline

Task	Timeframes	Budget		Subtotal
		Research Officer* (AUD $1,200/day excl GST)	Senior Research Officer/Expert** (AUD $1,500/day excl. GST)	
Intervention application-discussions with various schools and accreditation bodies within discipline	10 weeks	10 days= 12,000	3 days= 4,500 (UIR)	$16,500.00
Implementation of intervention and associated travel, based on 3 days stay in country	1 week: 2 days workshop	2 days = 2,400	2 days = 3,000	$6,400.00
Travel: Disbursements, as per Table 2				$17,660.00
Interventions over the year (Year 1)	48 weeks	10 days= 12,000	3 days= 4,500 (UIR)	$16,500.00
Report	4 weeks	2 days = 2,400	1 day= 1500	$3,900.00
Years: 2, 3 and 4. No of years depending on length of programme, av 4 years	3 years			$49,500.00
Final report	10 weeks	3 days = 3,600	3 days (UIR) =4,500	$8,100.00
Total in AUD				**$118,560.00**

* Trivess Moore, ** Usha Iyer-Raniga

Disciplines:
Architecture/Design
Civil Engineering
Planning
Building
Quantity surveying

TABLE 2: WORKSHOP 1 ASSOCIATED EXPENSES

Item	Rate	No of days	No of persons	No of nights	Total cost	Comments
Australian contingent						
Hotel in Jakarta for 3 persons (RO, PLs)	200		2	4	1600	
Flights for 2 people to and from Australia	1500		2		3000	
Cost of visa	30		2		60	
Per Diem	30		2	4	2400	
Transportation to and from aiprort: Melbourne	100		2		200	
Subtotal					7260	
Venue details						
Venue hire	500				500	University of Indonesia venue, donation only
Catering at venue	1000	2			2000	
Transportation to and from aiprort	1200				1200	lumpsum
Stakeholder gifts	50		20		1000	local Indonesian gifts
Subtotal					4700	
Local staff						
Travel for 3 local indonesian Building Science Committee	400		3		1200	
Accommodation	200		3	3	1800	
Per diem	30		3	3	2700	
Subtotal					5700	
Invited participants						
Expected to pay their own airfares and acommodation					0	
TOTAL in AUD					**17660**	

RO: Research Officer
PLs: Project Leaders

This funding has been secured through ProSPER.Net.

8. Risk analysis outline (0.5 – 1 page)

Risks are identified as follows:

- Commitment by academics and universities are not followed through
- Political instability/changes prevent local governments/relevant ministries from participating
- Industry are not prepared to share best practice examples or case studies due to IP issues or personality conflicts

Annexes – to be developed later

Annex A: Project activities

Include details of the activities and products/services that will be delivered by the project, show who will be responsible for delivering them and where they will be implemented. Use diagrams if required.

Annex B: Project budget

Include details of the project budget broken down by work package (but not by specific activity). Show how and where the budget will be spent.

Annex C: Gantt chart

Include a high level Gantt chart showing when the key activities will be delivered, the review and reporting dates and overall task responsibilities and dependencies.

Annex D: Other project specific annexes

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