



**Asia-Pacific  
Economic Cooperation**

**INDEPENDENT ASSESSMENT OF THE POLICY  
PARTNERSHIP ON  
SCIENCE, TECHNOLOGY AND INNOVATION  
(PPSTI)**

**SOM Steering Committee on ECOTECH (SCE)**

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## **CONTENTS**

EXECUTIVE SUMMARY.....	5
INTRODUCTION .....	9
Structure of this Assessment.....	9
BACKGROUND .....	9
Method.....	10
History of PPSTI .....	10
Structure of PPSTI.....	11
Terms of Reference of PPSTI .....	11
Outputs of PPSTI.....	12
ALIGNMENT OF PPSTI WITH APEC PRIORITIES.....	13
Bogor Goals 1994 .....	13
APEC Leaders’ Growth Strategy 2010 .....	13
Alignment of PPSTI Outputs with ECOTECH Priorities .....	15
APEC Tasking Statement for 2015.....	17
APEC Gender Agenda .....	19
Best practices .....	19
Recent developments.....	19
Discussion and Conclusions.....	20
FORUM OPERATIONS .....	22
Structure and Operations of PPSTI.....	22
Compliance with APEC policies .....	22
Meeting management and Documentation.....	23
Project initiation, funding and management .....	24
Communication .....	25
Management of PPSTI “APEC Centers” .....	26
Relevance of the Terms of Reference (ToR).....	26
Advisory Committees .....	26
Scheduling of Sub-groups to enhance effectiveness.....	26
Discussion and Conclusions.....	27
CO-OPERATION.....	28
Co-operation with other APEC Fora .....	28
Cooperation with other Stakeholders.....	29
Academia.....	29
ABAC.....	29

Wider industry.....	29
Co-operation with Other International Organizations.....	30
Discussions and Conclusions .....	30
Streamlining / merger with other APEC fora.....	31
RECOMMENDATIONS AND IMPLEMENTATION GUIDE.....	31
Terms of Reference .....	31
Project planning.....	32
Project Monitoring and Reporting .....	33
Sub-groups.....	34
Administration and Communication .....	35
Co-operation.....	35
Appendix A – APEC Working Groups.....	36
Appendix B – Method.....	38
Appendix C – Results of Written Survey.....	39
Appendix D – Face to Face Survey.....	52
Appendix E – Source Documents .....	53
Appendix F – PPSTI Publications.....	54
Appendix G – Detailed Map of PPSTI’s Activities Against its Terms of Reference .....	55

## **TABLES**

Table 1: Mapping of PPSTI projects against Leaders’ Growth Strategy .....	13
Table 2: Mapping of PPSTI Projects against APEC ECOTECH Priorities .....	16
Table 3: PPSTI Initiatives Mapped Against the APEC 2015 Tasking Statement.....	18
Table 4: Mapping of 2015-2025 Strategic Plan Against ECOTECH Goals .....	20
Table 5: PPSTI Meeting History .....	22
Table 6: PPSTI Activities Mapped Against its Terms of Reference .....	26

## EXECUTIVE SUMMARY

This report contains an independent assessment of the efficiency and effectiveness of APEC's Policy Partnership on Science, Technology and Innovation (PPSTI). The Terms of Reference (ToR) for the assessment are:

- ❖ to evaluate whether PPSTI is operating effectively and efficiently;
- ❖ to evaluate whether the group's Terms of Reference, strategic plan or operations could be modified to better respond to APEC ECOTECH priorities and contribute to the achievement of APEC goals;
- ❖ to identify ways to strengthen PPSTI's strategic priorities and direction for future work;
- ❖ to recommend how PPSTI can better focus and more efficiently and effectively manage its tasks and assure that its capacity building activities are providing benefits according to Leaders' and Ministers' priorities; and
- ❖ to identify ways to develop synergies among the work of the forum and other relevant APEC groups.

The PPSTI was formed in 2012 (from the former Industrial Science and Technology Working Group). The first meeting of PPSTI was held in early 2013, hence, the term of the evaluation spans 2013-2015.

### Key findings - effectiveness

The PPSTI is an active working group currently managing many projects and overseeing a large number of APEC Centers.

The PPSTI's projects and Centers are addressing APEC's Bogor Goals (insofar as these relate to the work of PPSTI) as well as its Economic and Technical Cooperation (ECOTECH) priorities and are going some way towards meeting the targets set out in the 2010 Leaders' Growth Strategy. In relation to the latter, efforts could be better balanced as most attention is currently being paid to innovative growth – while this is perhaps understandable (given the innovation focus of PPSTI) there is more scope to extend projects into APEC's targets for inclusive growth and balanced growth (particularly in relation to emerging standards for new technologies).

PPSTI's activities against the 2015 APEC Tasking Statement are patchy, being strong on regional S&T cooperation and utilization of science and technology (S&T) but more limited in relation to SME development, supply chain support (including innovation technology dialogues in relation to emerging markets) and gender. There is no effort going into raising public finance for innovation<sup>1</sup> and work on oceans has commenced in 2015, with approval of an Australian-sponsored project "[Building Regional Ocean and Land Observation Systems to Safeguard APEC Resources and Communities](#)" (PPSTI 03 2015S).

PPSTI should be congratulated on the level of energy and commitment demonstrated by its delegations and their host economies in self-funding projects. However the spread of effort across such a large number of projects, and the short duration of many of these, diminishes the effectiveness of its outputs. Many projects, though complete, do not appear to have resulted in APEC publications – publications are a key output, because it is through these that the findings of each project are made public.

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<sup>1</sup> APSEC Leaders' Tasking Statement for 2015, page 12

### *Issues of concern*

While PPSTI has recently adopted a Philippines' proposal to strengthen its policy focus, more needs to be done to enhance consideration of and contributions to innovation policy (and related areas of commercialisation linked to the APEC Leaders' Statement). PPSTI's ongoing emphasis on R&D/S&T means that innovation, commercialisation and market-led R&D are running behind what is required to meet the intention of the change of Terms of Reference in 2013.

Part of the difficulty is an incomplete understanding of what is "innovation" amongst delegations.

### **Key findings – efficiency**

PPSTI is run efficiently and is following the APEC Guidelines for the structure and terms of its Board. The Secretariat is meeting requirements for timely distribution of materials. Of the 6 meetings since PPSTI commenced, three have been run back to back with other relevant meetings.

Communication is also efficient, though the website could be improved by more rapid upload of recent outputs. PPSTI's website would also benefit from a link to the Executive Summaries of all previous meetings, so that stakeholders can track the progress of the group. The selection criteria for the ASPIRE Science Prize, which has played a valuable role in raising awareness of scientific research, could be amended to enable recognition of successful examples of market-led innovation. This scope is already implied by its name, but the current scoring system favours success in publications over commercial innovation.

PPSTI's has three sub-groups which are intended to streamline operations of the group, given the large number of projects being managed. These are also managed efficiently.

### *Issues of concern*

While the level of commitment of individual delegations to funding of projects is to be applauded, the large number of unconnected projects being managed by PPSTI is hampering its ability to take a strategic view of its agenda. Further, the 7 Centers nominally under PPSTI do not appear to have been reviewed since the ToR changed at the end of 2012.

The streaming of sub-groups means that small delegations have to choose which one to attend. There appears to be time in the agenda to bring the sub-group discussions into the plenary sessions, while maintaining the current administrative and chairing arrangements for each of these. Sub-groups need to ensure that they map their activities against the ToR to cover areas that are currently omitted (market-based innovation policy and market-driven dissemination of technology).

### **Key findings – Co-operation**

PPSTI has good contacts with academic institutions: individually through its Centers, strategically through specific projects, and at a multi-lateral level through the Association of Pacific Rim Universities.<sup>2</sup>

While its relationship with ABAC faltered in 2013, there is a line of communication through the Special Advisor and PPSTI is conscious of the need to re-engage. It is currently planning

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<sup>2</sup> It is noted, however, that APRU's members only include those universities on the Pacific Rim – which may also therefore exclude universities with strengths in regional engagement from some member economies. For example, only 3 of 39 Australian universities are members, and the only US members are from the US West coast

to co-operate with ABAC on the latter's initiative to map incubators – one of the areas which PPSTI is failing to cover from its ToR.

### *Issues of concern*

PPSTI's activities have had only some success in engaging wider industry and SMEs. Potential models for raising the level of engagement, from the Concept Note onwards, have been suggested. It is considered that once PPSTI effectively engages industry, then the relationship with ABAC can be repaired.

Other APEC fora do not appear to be aware of the potential relevance of PPSTI to their work. PPSTI needs to reach out to engage such fora in PPSTI's projects. The work of PPSTI is relevant, or has the potential to be relevant, to many other APEC sub-groups, including but not limited to working groups in Agricultural Technical Cooperation, Emergency Preparedness, Energy, Fisheries, Health, Human Resource Development, Women and the Economy, Small and Medium Enterprises, Telecommunications, Transport and Tourism. The Internet of Vehicles Project shows how collaboration with other APEC fora and industry can be achieved effectively.

### **Recommendations**

Recommendation 1: PPSTI's Terms of Reference should remain unchanged; however overall PPSTI should place greater emphasis on innovation and innovation policy in its deliberations and sponsored activities.

Recommendation 2: PPSTI should establish an Expert Advisory Committee made up of experts in industry engagement, innovation and commercialisation policy to assist it to expand its focus beyond S&T and towards innovation and closer involvement of industry including SMEs.

Recommendation 3: PPSTI's Strategic Plan 2015-2025, should be re-cast to group activities under the ToR rather than sub-groups, with the annual work plan activities also re-cast under the same headings and focussed on short-term targets.

Recommendation 4: PPSTI, with advice from its Advisory Committee, and drawing on outputs of multi-lateral fora such as the OECD, should agree on definitions of the key terms in its Terms of Reference, including but not limited to "innovation", "commercialization" and "market-driven" to assist member economies to expand their understanding of innovation policy and focus project proposals appropriately.

Recommendation 5: PPSTI should take a proactive approach to identification of new projects and activities, to ensure that they cover all of its Terms of Reference and are appropriately aligned with Leaders' Statements, the relevant Tasking Statement, ECOTECH Priorities and associated targets include targets for involvement of women and SMEs.

Recommendation 6: In general, PPSTI as a whole should take a more pro-active role in identifying key priority areas so that proposals which enable PPSTI to address all of its Terms of Reference are sought. This means moving away from its current (passive) practice of receiving proposals from individual economies. In order to enhance short-term balance, PPSTI should, in 2016, call for proposals on projects and activities that meet the ToR targets of developing market-based innovation policy (including projects to identify successful models of seed and venture capital funds, business incubation and acceleration) and market-driven dissemination of technology (and associated legal and regulatory frameworks).

Recommendation 7: PPSTI should develop its own additional internal procedures for assessing and ranking project proposals against its ToR, with short term preference to be given to those which fill current gaps against the ToR and provide opportunities for appropriate cross-fora and multi-economy collaboration and third party engagement. Only those high-scoring proposals endorsed by PPSTI should be eligible to be self-funded as “APEC PPSTI projects”, should an application for APEC central funding fail.

Recommendation 8: Progress reports for each funded or self-funded PPSTI project should contain clear outcomes against one or more PPSTI ToR AND statements against how the project has met the goals of Leaders’ Statements, ECOTECH Priorities and is contributing to women’s and SME development.

Recommendation 10: PPSTI should initiate a formal review of its sponsored Centers, to identify where and how these are contributing to PPSTI’s terms of reference, what opportunities there may be to expand their scope to cover more than one term of reference and how they can contribute to broader APEC goals. Where Centers are not meeting PPSTI’s objectives, and are not able to change their focus to meet these objectives, PPSTI/APEC endorsement of Centers should cease.

Recommendation 11: Any PPSTI-endorsed APEC Center should be asked to report at least annually to PPSTI, outlining how its activities have contributed to PPSTI’s goals and the wider goals of APEC.

Recommendation 12: PPSTI’s three sub-groups need to be clearly aligned with PPSTI’s ToR so that there are no gaps in activities. The names of the sub-groups should be changed to more closely align with the ToR and project proposals (which may address more than one ToR) should clearly identify which sub-forum is to provide overarching supervision. Each sub-forum should follow similar reporting guidelines so that their activities can be compared and contrasted across the board, and the sub-group sessions need to ensure that policy issues are being discussed.

Recommendation 13: PPSTI should consider running sub-forum meetings in plenary, with the existing Chairs of sub-groups managing proceedings, to enable smaller delegations to attend all sub-group sessions. Plenary sessions need to include discussion of substantive issues (meeting of ToR, gaps, mechanisms to address new APEC directives and policy issues) rather than just reporting on activities.

Recommendation 14: Material on the PPSTI APEC web page needs to be kept current, with outcomes of the most recent meeting updated within 2 months after each meeting, and links through to (at least) executive summaries of past meetings.

Recommendation 15: PPSTI should seek opportunities for existing projects to collaborate with other APEC fora, either through ongoing involvement or one-off events (e.g. involvement in Symposia).

Recommendation 16: PPSTI should proactively identify opportunities to work with and be relevant to ABAC through reference to ABAC’s current agenda, including considering a joint meeting with ABAC (preferably in the next 12 months) as part of its forward program.



## INTRODUCTION

This report presents the results of an independent assessment of the operations and structure of the Policy Partnership on Science, Technology and Innovation (PPSTI) in order to ensure that the partnership's economic and technical cooperation (ECOTECH) activities are targeted, effective, efficient, and make the best use of scarce resources. This independent assessment also recommends actions to ensure that the working group is responsive to APEC's current priorities and contributes to the achievement of APEC's overall vision and objectives.

The terms of reference for the assessment include:

- to evaluate whether PPSTI is operating effectively and efficiently;
- to evaluate whether the group's Terms of Reference, strategic plan or operations could be modified to better respond to APEC ECOTECH priorities and contribute to the achievement of APEC goals;
- to identify ways to strengthen PPSTI's strategic priorities and direction for future work;
- to recommend how PPSTI can better focus and more efficiently and effectively manage its tasks and assure that its capacity building activities are providing benefits according to Leaders' and Ministers' priorities; and
- to identify ways to develop synergies among the work of the forum and other relevant APEC groups.

### **Structure of this Assessment**

This assessment is divided into 6 sections which follow the format prescribed by APEC:

- Introduction, including purpose of the independent assessment, methods, and a short overview of PPSTI and its history;
- Background, including a short overview of the history of PPSTI, its structure and the review's terms of reference (ToR);
- Assessment of the PPSTI's alignment with APEC priorities;
- Assessment of PPSTI's operations;
- Assessment of Co-operation with other APEC Fora and other stakeholders including industry, academia and other multilateral organisations;
- Recommendations and Implementation Advice

## BACKGROUND

The APEC Policy Partnership on Science and Technology (PPSTI) is one of 15 APEC Working Groups and partnerships (Appendix A – APEC Working Groups). PPSTI supports the development of science and technology cooperation and effective innovation policy in APEC economies. It also serves as APEC's primary forum to engage government, private sector and academia in joint scientific research.

According to the Terms of Reference for PPSTI negotiated at the 43<sup>rd</sup> meeting of the Industrial Science and Technology Working Group, the PPSTI is intended to be "the APEC community's primary forum to engage actors involved in joint scientific research

and in the technology inception, dissemination and commercialization cycle, with both its competitive commercial sectors and non-profit elements.”<sup>3</sup> Thus, PPSTI’s mandate lies not only in science and technology development, but in its commercialisation. Engagement with both the public and private sectors is central to its mandate. Further, PPSTI is to pursue “positive gains for each member economy, the region, and the world economy, by enhancing member economies’ innovative capacity, and by helping to strengthen collaboration and build human capacity. PPSTI will also exchange innovation policy information, and develop modern market-driven innovation mechanisms.”

The independent assessment focussed on the 6 meetings held since PPSTI commenced work, and sought evidence of changes in focus since the cessation of ISTWG. Thus, the focus of the work was on PPSTI’s activities between 2013 and mid-2015.

### **Method**

The Method is detailed at Appendix B – Method and included a survey of member economies’ PPSTI representatives (Appendix C – Results of Written Survey); face to face or phone interviews with a number of representatives of PPSTI economies (Appendix D – Face to Face Survey ); and attendance by the author at PPSTI-6 held in Manila, the Philippines, in August 2015. Both surveys were developed in consultation with the Program Director for PPSTI and were approved by the Chair. Summary responses to each question in the written survey are provided in the appendices. All projects adopted by PPSTI and included in the APEC Project Database from 2013 to mid 2015 were included in the review.

Appendix E – Source Documents includes a list of written sources which provided background to the purpose and activities of PPSTI and the SCE. Documents presented to PPSTI-6 were also reviewed.

The draft assessment was submitted to the APEC PPSTI Secretariat and Board for initial comments on factual matters and then was circulated to representatives of member economies. On finalisation and adoption by APEC it will be transmitted to PPSTI for implementation.

### **History of PPSTI**

APEC’s goals focus on achievement of free trade and open investment by reducing barriers to trade and promoting free flow of goods, services and capital (Bogor Goals, 1994). These goals were later moved to an action footing with agreement on the Osaka Action Agenda in 1995. Actions by APEC fora were identified as an integral component of this action agenda.

In 1996, APEC’s Economic Framework for Strengthening Economic Cooperation and Development (ECOTECH) were agreed and included the intention to cooperate in economic and technical areas at a regional level, through constructive and genuine partnership. In 2010 officials agreed on medium term priorities, highlighting the importance of regional economic integration, inclusive growth, quality of life and sustainability, structural reform and human security.

PPSTI was formed in 2013 as a result of changes to the terms of reference for the former Industrial Science and Technology Working Group (ISTWG). ISTWG was itself a modification of the original Working Group on Expansion of Investment and Technology Transfer, dated from 1990. At the time, the stated reason was to include issues of innovation policy development and intensify cooperation among business, government and academia.<sup>4</sup> PPSTI

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<sup>3</sup> PPSTI Terms of Reference, APEC 2012/CSOM/021 Section 1 - Mandate

<sup>4</sup><http://www.apec.org/Home/Groups/SOM-Steering-Committee-on-Economic-and-Technical-Cooperation/Working-Groups/Policy-Partnership-on-Science-Technology-and-Innovation>  
accessed August 2015

reports to the APEC SOM Steering Committee on Economic and Technical Cooperation (SCE), which in turn reports to the APEC Senior Officials Meeting (SOM).

The changes to this particular APEC working group over the years demonstrates APEC's evolving understanding of innovation – moving from the concept of technology transfer (technology push) through to a greater understanding of the importance of innovation by both industry and the research sector in economic growth, and the related importance of collaboration and capacity building in APEC economies.

The rebranding of ISTWG to PPSTI was thus intended to broaden the group's scope to include innovation policy, including the active participation of business and academia in order to build market-drive innovation policies.<sup>5</sup>

The 2014 APEC Leaders' Declaration has since committed to fostering “a pragmatic, efficient and vigorous partnership on science, technology and innovation” including strengthening collaboration between government, academia, and the private sector; building science capacity; and enhancing commercialization and regional science and technology connectivity; all with a particular emphasis on Small to Medium Enterprises (SMEs).<sup>6</sup>

### **Structure of PPSTI**

PPSTI is one of 15 Working Groups and Partnerships that report to the Standing Committee on ECOTECH (SCE) (for full list see Appendix E). All 21 member economies of APEC can provide delegates (officials, industry and academic representatives) to PPSTI meetings and can nominate others to participate in PPSTI activities.

A separate organisation, the APEC Business Advisory Council (ABAC), which was established to advise APEC on business sector priorities, also provided a delegate to PPSTI but withdrew in 2013. However, the Principal Advisor to PPSTI, Mr Nicholas Brookes, is connected with ABAC and acts as an informal channel of communication between the groups.

There is provision for specific individuals to be accepted as delegates and guests.<sup>7</sup> The Association of Pacific Rim Universities (APRU), The World Intellectual Property Organisation (WIPO) and Macao, China have guest status and provide representatives. There is provision for specific individuals to be accepted as delegates. Philippines-based Mr Sherwin Nones, also a former representative of ABAC, had guest status in 2014 and 2015. Decisions to invite guests follow APEC Guidelines on Managing Cooperation with Non-Members

### **Terms of Reference of PPSTI**

The Terms of Reference (ToR) for PPSTI were set in 2012 as part of the expansion of the working group to encompass innovation policy.<sup>8</sup> They are:

- to develop common approaches to science, technology and innovation (STI) policies that promote the development, dissemination and commercialization of innovative technologies and R&D;
- to encourage economies' innovation capacity building, including absorptive capacity, through the development of human capital, scientific research and infrastructure;

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<sup>5</sup> Senior Officials (2012): *Report on Economic and Technical Cooperation*.

<sup>6</sup> APEC (2014): Leaders' Declaration

<sup>7</sup> Table 5 lists events associated with PPSTI meetings

<sup>8</sup> APEC Policy Partnership on Science, Technology and Innovation (PPSTI) - Terms of Reference, 2012/CSOM/021, Agenda Item: 5c

- to encourage the establishment of seed and venture capital investment funds, as well as technology business incubation and acceleration organizations, within APEC by propagating successful models, best practices and success stories in this area.
- to encourage an environment that enables cross-border investment in cutting-edge technologies.
- to develop networks/platforms that foster STI cooperation.
- to strengthen cooperative projects and programs related to the technology inception, dissemination and commercialization cycle;
- to facilitate voluntary, market-driven dissemination of technology and promote measures to create a relevant legal framework and regulatory environment; and
- to discuss potential mechanisms to evaluate the level and impact of innovation cooperation within APEC to better develop policy recommendations.

### **Outputs of PPSTI**

PPSTI has, on average, two meetings per year. The Executive Summary of each meeting is released shortly after the meeting. Meeting documents are uploaded onto a central APEC site soon after the meeting. As projects are approved they are listed on the APEC Project Database, which is a public source that can be searched for PPSTI-specific documents.

Each completed project is asked to publish a report. PPSTI's publications are listed at Appendix F – PPSTI Publications. There have been 5 reports in the period since PPSTI was formed (three in 2013, two in 2014 and (to date) none in 2015), with one of these being the outcomes of a project completed under the former ISTWG. The average number of publications from working groups in 2014 appears to be approximately 5,<sup>9</sup> but the range is significant and it is difficult to rely on only one year's data to comment on whether PPSTI is meeting expectations.

It is acknowledged that many projects include intermediate outcomes e.g. proceedings of symposia or scientific meetings. Such material may be published on a Center's or conference's website rather than APEC's website. As an example the APEC Smart City Innovation and Technology Cooperation Forum, funded in 2013, is now complete. The forum was run in April 2014 and included, as planned, sub-fora for CEOs, academics and research institutes; and sub-fora on smart homes, smart factories, smart healthcare and smart transport; an official website; and an official declaration (Changzhou Declaration).<sup>10</sup> According to the project summary on the APEC database, the planned outputs also included an APEC Development Report on Smart Cities, an APEC Research Initiative for Smart Cities, and a final report – these do not appear to have been produced. Centers could be encouraged to link their website material with PPSTI's site so that the material is easy to find and is clearly under the "umbrella" of PPSTI.

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<sup>9</sup> According to SCE, 83 reports were published in 2014, from 15 groups including SCE itself. The range was 1 to 27 reports.

<sup>10</sup> <http://www.czubitech.com/apec2014/delegate.html>

## ALIGNMENT OF PPSTI WITH APEC PRIORITIES

A particular focus of the review was how PPSTI could better support APEC’s Economic and Technical (ECOTECH) priorities, and alignment of its activities with Leaders’ and Ministerial objectives including the Bogor Goals of 1994.

### **Bogor Goals 1994**

APEC’s 1994 Bogor Goals aim to achieve economic cooperation and growth within APEC by adopting “the long term goal of free and open trade and investment in the Asia – Pacific.”<sup>11</sup> The Bogor Goals Dashboard<sup>12</sup> summarises these as (removal of) tariffs, reducing costs to export and import, developing free trade agreements, and allowing foreign ownership.

PPSTI’s ToR are focussed on STI policies rather than trade and capacity building in STI. The most relevant ToR to the Bogor Goals is encouragement of an environment that enables cross-border investment in cutting edge technologies. This has been achieved by the large number of PPSTI projects that enable and encourage S&T cooperation including development of new technologies.

### **APEC Leaders’ Growth Strategy 2010**

PPSTI’s activities can be mapped successfully against the growth strategy components outlines by APEC Leaders in 2010 (Table 1). The emphasis of these projects is on innovative growth, with the second emphasis being on sustainable growth. PPSTI stated that its PPST-6 meeting operated under an overarching theme of inclusive growth. To give full effect to this statement, project reports could have (but did not) highlight their relevance to SME’s, entrepreneurship and women’s growth.

A review of project reports tabled at PPSTI-6 revealed that by far the main focus is innovative growth. However, it is also true to say that within this strategy the main focus of PSTI is S&T. .

**Table 1: Mapping of PPSTI projects against Leaders’ Growth Strategy**

Project (No.) Or Center (Y rest.)	Balanced Growth	Inclusive Growth	Innovative Growth	Sustainable Growth	Secure Growth
C indicates completed project	Growth within & between economies & infrastructure development	Involvement of all citizens, promote SMEs, entrepreneurship and women’s growth	Promoting innovation & emerging sectors	Protection of environment and transition to green economies	Protection of wellbeing; secure environment for economic activity
<b>APEC Center for Technology Foresight (1998) incl PPSTI 05 2014S)</b>			✓		
<b>APEC Climate Center (1998)</b>			✓	✓	✓
<b>APEC Cooperation Earthquake Simulation</b>					✓

<sup>11</sup> APEC Policy Support Unit (2012): *APEC’s Bogor Goals Progress Report*, APEC#212-SE-01.12

<sup>12</sup>

[http://www.apec.org/~media/Files/AboutUs/AchievementsBenefits/2014\\_BG\\_Dashboards/APEC\\_BogorGoalsDashboard\\_August2014.pdf](http://www.apec.org/~media/Files/AboutUs/AchievementsBenefits/2014_BG_Dashboards/APEC_BogorGoalsDashboard_August2014.pdf)

(1999)					
APEC Cooperative Forum on Internet of Vehicles (PPSTI 01 2013a)			✓		
APEC Green Video Festival (PPSTI 03 2014S)			✓	✓	
<b>APEC Mentoring Centre for the Gifted in Science (2008)</b>	✓	✓			
<b>APEC Research Centre for Advanced BioHydrogen Technology (2009) – with APEC Energy WG)</b>			✓	✓	
<b>APEC Research Center for Typhoon and Society (PPSTI 04 2014S)</b>					✓
APEC Smart City Innovation and Technology Cooperation Forum (PPSTI 05 2013A) <b>C</b>			✓	✓	
APEC Technology Commercialization Program (PPSTI 02 2014S)	✓		✓		
<b>APEC Typhoon Symposium (PPSTI 04 2014S)</b>				✓	✓
<b>Asia Pacific Center for Theoretical Physics (1993)</b>		✓			
ASPIRE Science Prize (2011) (ongoing)			✓		
Building Regional Ocean and Land Observation Systems to Safeguard APEC Resources and Communities (PPSTI 03 2015A)	✓		✓	✓	
Development of BioEnergy Crops as Renewable Energy Sources (PPSTI 07 2013A)		✓	✓		
Development of Methodology and Analysis of STI Cooperation in APEC (PPSTI 02 2013A)	✓				
Development of APEC Virtual Center – Single Entry Point (Environmental Information Exchange) (PPSTI 03 2013A) <b>C</b>	✓		✓	✓	
High level Policy Dialogue on		✓	✓		

S&T in Higher Education					
Regional Cooperation in Drought Prediction to Support Disaster Preparedness (PPSTI 04 2013A) C			✓	✓	✓
Regional Herbal Medicine Database (PPSTI 09 2015S)			✓		
Workshop on Strategies to Address Non-Communicable Diseases (Nutrigenomics) (PPSTI 01 2014S)	✓				
Young Scientist Workshop for APEC Roadmap of Science Communication in 21 <sup>st</sup> Century (PPSTI 01 2014A)		✓			
Total	6	5	14	8	5

Source – APEC project list (PPSTI projects 2013 to mid 2015) and Secretariat

### **Alignment of PPSTI Outputs with ECOTECH Priorities**

In 2010 APEC Senior Officials endorsed a new Framework to Guide ECOTECH activities to guide APEC-funded capacity building and all ECOTECH activities, including those of working groups.<sup>13</sup> Definitions of these are elucidated, in the main, in other APEC documents and are as follows:

- Regional Economic Integration, ensuring that goods, services and people move easily across borders with the focus being on customs, the business environment and aligning regulations and standards;<sup>14</sup>
- Addressing The Social Dimensions Of Globalisation (inclusive growth), which includes the impact of globalisation on the life and work of people, families and societies through employment, working conditions, income social protection; security, culture and identity, inclusion or exclusion and family/community cohesiveness<sup>15</sup>;
- Safeguarding The Quality Of Life Through Sustainable Growth, which includes sustainable development of the marine environment, clean technology and clean production, and sustainable cities<sup>16</sup>;
- Structural Reform, relating to domestic policies and institutions that affect the operation of markets and the capacity of international businesses to access those

<sup>13</sup> APEC Economic and Technical Cooperation Priorities, final February 2010

<sup>14</sup> <http://www.apec.org/About-Us/About-APEC/Fact-Sheets/Regional-Economic-Integration-Agenda.aspx>

<sup>15</sup> From World Commission on the Social Dimension of Globalization (<http://ilo.org>). Inclusive growth refers to participation of all members and communities in the region through initiatives which enhance human capital development see <http://www.apec.org/About-Us/About-APEC/Fact-Sheets/Inclusive-Growth.aspx>

<sup>16</sup> <http://www.apec.org/Groups/Other-Groups/Sustainable-Development.aspx>

markets and operate efficiently including competition policy, regulatory reform, public sector governance, corporate governance and economic and legal infrastructure;<sup>17</sup> and

- Human Security, relating to counter-terrorism, health security, emergency preparedness and energy security<sup>18</sup>

PPSTI activities can be grouped under each of the ECOTECH priorities (Table 2). The activities are relatively evenly spread across the priority areas. Respondents' examples of alignment are in Question 16, and gaps are noted in Question 17.

**Table 2: Mapping of PPSTI Projects against APEC ECOTECH Priorities**

Current Project (PPSTI reference) or Center (Yr. est.)	Regional Economic Integration	Globalization's Social Dimensions	Safeguarding Quality of Life	Structural Reform	Human Security
<b>APEC Center for Technology Foresight</b>		✓	✓		
<b>APEC Climate Center</b>	✓				✓
<b>APEC Cooperation Earthquake Simulation</b>					✓
APEC Cooperative Forum on Internet of Vehicles	✓	✓		✓	
APEC Green Video Festival			✓		
<b>APEC Mentoring Centre for the Gifted in Science</b>		✓			
<b>APEC Research Center for advanced BioHydrogen Technology</b>			✓		
<b>APEC Research Center for Typhoon and Society</b>					✓
APEC Smart City Forum	✓	✓		✓	
APEC Technology Commercialisation Program	✓			✓	
APEC Typhoon Symposium			✓		✓
Asia Pacific Center for Theoretical Physics		✓			
ASPIRE Science Prize		✓			
Building Regional Ocean and Land Observation Systems to Safeguard APEC	✓		✓		✓

<sup>17</sup> <http://www.apec.org/About-Us/About-APEC/Fact-Sheets/Structural-Reform.aspx>

<sup>18</sup> APEC (2007): *Preliminary Conference for APEC 2007 - 'Reshaping APEC for the Asian Pacific Century – Priorities and Strategies'*, 11 and 12 December 2006, Melbourne, page 5



Resources					
Development of BioEnergy Crops as Renewable Energy Sources (complete)	✓		✓	✓	
Development of Methodology and Analysis of STI Cooperation in APEC	✓			✓	
Development of Virtual Center – Single Entry Point (Environmental Information Exchange)			✓		
Regional cooperation in Drought Prediction to Support Disaster Preparedness			✓		✓
Regional Herbal Medicine Database	✓			✓	✓
Workshop on Strategies to Address Non-Communicable Diseases through Nutrigenomics	✓		✓		
Young Scientists Workshop for the APEC Roadmap of Science Communication		✓			
Total	9	7	9	6	7

Source – APEC project list (PPSTI projects 2013 to mid-2015) and Secretariat

Respondents reported (Question 18) that the biggest barriers preventing PPSTI from meeting ECOTECH priorities were lack of APEC funding for PPSTI projects, lack of support from ABAC and lack of industry involvement in PPSTI’s work plan.

### **APEC Tasking Statement for 2015**

APEC’s Tasking Statement for 2015 proposed several requirements for PPSTI in relation to S&T, SMEs, Women, and Emergency Preparedness. These are summarised in Table 3, which shows how PPSTI’s work maps against the tasking statement requirements. The lack of effort towards public finance for innovation was also noted by respondents (Question 21).

It is noted that the tasking statement refers to “of public finance for innovation in science, technology, and related fields” – this appears to re-interpret the original intent of the PPSTI terms of reference (which emphasised private venture capital and technology business incubation, and market-led innovation). This gradual shifting of intent makes it difficult for working groups to remain true to their original ToR and encourages drift from their original goals.

**Table 3: PPSTI Initiatives Mapped Against the APEC 2015 Tasking Statement**

Tasking Statement Requirement	Relevant PPSTI initiatives
Strengthen the promotion of regional science and technology collaborations through the Policy Partnership on Science Technology and Innovation (PPSTI) and cross-fora collaborations with APEC Chief Science Advisors and their equivalents' and the APEC Science Prize for Innovation, Research, and Education (ASPIRE) program	Regional S&T collaborations supported through existing projects and PPSTI's APEC Centers PPSTI-6 agreed to support planned meeting of Chief Science Advisors in November 2015 ASPIRE ceremony held at PPSTI-6 and ongoing support planned
Make efforts to raise the proportion of public finance for innovation in science, technology, and related fields	Not specifically addressed
Strengthen SMEs' cooperation, ethical business practice, and involvement in production and supply chains, through standards and conformance; improve the environment for SMEs' innovation and further strengthen SMEs' innovation capacity; promote SME R&D through various means including financial inclusion; explore feasible ways to drive SME innovation based on information technology and e-commerce; encourage the supportive role of APEC service platforms; and support the development and resilience of innovative start-ups and high-growth SME	Limited. Selected projects provide opportunities for SME involvement and development of standards. Symposia may attract SMEs and academia from local regions or internationally but opportunities for SME involvement could be strengthened
Sustain momentum from economies to provide policy support for women's economic empowerment and establish a gender-responsive enabling environment to advance women's full and equal economic participation, including in women's access to jobs, capital, markets, business networks, skills and capacity building, and innovation and technology	Not specifically addressed, although project Concept Notes address gender issues through involvement of women in symposia held as part of project activities
Advance efforts to utilize the application of effective science and technology and ICT approaches in disaster preparedness, risk reduction, response and post-disaster recovery and cooperation in search and rescue AND Progress work to ensure ease of mobility of emergency responders and their equipment to save lives in the early aftermath of disaster	S&T focussed e.g. APEC Cooperation for Earthquake Simulation APEC Research Centre for Typhoon and Society APEC Climate Centre
Commit to improving the resilience of supply chains in APEC economies during disaster relief operations; encourage additional emergency response mechanisms to increase resiliency of APEC's energy infrastructure to natural disasters and climate change; progress work to identify new technologies to improve a collective response to disasters and emergencies including those affecting SMEs and Global Value Chains and progress work under the Trade Recovery Program	Work in disaster management is focused on prediction e.g. through APEC Research Centre for Advanced BioHydrogen Technology
Organize future Innovation Technology Dialogues (ITDs) to discuss key emerging technology markets and related technologies and prospects for their application in terms of addressing current challenges facing Asia-Pacific economies.	A range of workshops on future issues in science and technology,

Pursue cross-sectoral work under the APEC Initiative on Mainstreaming Ocean-related Issues	Proposed forum on Integrated Coastal Management in 2016 and commencement of Building Ocean Observation Systems in 2015
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### **APEC Gender Agenda**

A specific focus of the review's terms of reference was to identify how PPSTI can better take into account the APEC commitment to give gender greater consideration in accordance with directions outlined by the Policy Partnership on Women and the Economy. APEC Ministers issued a statement on advancing gender equality in 2014,<sup>19</sup> highlighting a course of action on women and green development, women and regional trade/economic cooperation, and policy support for women's empowerment.

According to participants, gender issues are addressed in the development of Concept Notes, and in project reports (noting number of attendees). However gender issues are not a separate part of the Working Group discussion and, in general, have not been highlighted in project reports. Participants pointed to the high proportion of female delegates at PPSTI.

### **Best practices**

The PPSTI activity that seems to demonstrate market-led innovation and cooperation between government, industry and academia is the PPSTI's Internet of Vehicles project, for the following reasons:

- It is sponsored by People's Republic of China, Chinese Taipei and the USA, with 15 co-sponsors – that is, 18 of the 21 APEC economies.
- It has clear goals.
- Industry is engaged through the Institution of Electrical and Electronics Engineers (industry peak body).
- The APEC Telecommunication and Information Working Group, the Telecommunications Working Group, the Automotive Dialogue and the Sub-Committee on Standards and Conformance are also involved.
- The project takes a multi-dimensional approach – inter-vehicle network, intra-vehicle network, and vehicle mobile internet – all components address social dimensions of change by including human interactions with internet, vehicles and the road infrastructure.
- An Internet of Vehicles symposium, to be run in conjunction with the 4th International Conference on Connected Vehicles (October 2015), and co-sponsored by IEEE, is expected to attract a large number of industry participants from around the world.
- The project focuses on translation of the science into innovation with the concurrent development of standards.
- A policy White Paper is to be prepared as a key output.

### **Recent developments**

The PPSTI-6 meeting endorsed a new five year strategic plan for 2015-2020. The Strategic Plan is grouped according to the three sub-groups under which PPSTI conducts its business. This has been mapped against ECOTECH goals in Table 4. It should be noted that the plan

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<sup>19</sup> [http://www.apec.org/Press/News-Releases/2014/0526\\_gender.aspx](http://www.apec.org/Press/News-Releases/2014/0526_gender.aspx)

priorities address both S&T and innovation (as commercialization) and that there is some imbalance in how the ECOTECH priorities are reflected in the sub-group structures.

**Table 4: Mapping of 2015-2025 Strategic Plan Against ECOTECH Goals**

ECOTECH GOALS	PPSTI Strategic Plan	Plan Priorities
Social Dimensions of Globalisation (Inclusive growth)	Building Science Capacity (Sub-group A)	Enhance human capacity Improve science integrity Increase science awareness
Quality of Life through sustainable growth	Promoting an Enabling Environment for Innovation (Sub-group B)	Promote S&T Entrepreneurship Accelerate Commercialisation of Science and Technology
Structural reform		Promote Public Private partnerships for S&T innovation
Human security		
Regional Economic Integration	Enhancing regional science and Technology Connectivity (Sub group C)	Promote and empower young/early career innovators Accelerate S&T knowledge sharing Create STI ecosystems and Networks that strengthen regional linkages

At PPSTI-6 two new initiatives were discussed which will address some of the issues highlighted elsewhere in this assessment:

1. PPSTI agreed to approach ABAC to participate in the latter’s Innovation Agenda. ABAC, at its meeting in April 2015 stated that it sees “strong links between innovation and inclusiveness” and that innovation “in the use of new technology and new ways of doing things is key to empowerment which is at the heart of the ABAC agenda.”<sup>20</sup>
2. PPSTI agreed to approach Malaysia and New Zealand to co-operate in third second Meeting of Chief Science Advisors and Equivalentents (CSAE) planned for October 2015 (the First CSAE meeting was held in conjunction with PPSTI-2 (Table 5).

Since PPSTI-6, PPSTI has also been invited to attend the first meeting of the Ad Hoc Steering Group on the Internet Economy, in September 2015. This Steering Group was formed in 2014 (as the result of Ministerial Statements)<sup>21</sup> to discuss issues arising from the Internet Economy, propose actions, and encourage collaboration across multiple APEC fora.

### **Discussion and Conclusions**

PPSTI has met the following requirements:

1. Its activities meet the objectives of the Bogor Goals, insofar as these trade-focused goals apply to the work of PPSTI. It is noted that only one of PPSTI’s ToR relate specifically to trade (encouragement of cross-border investment in cutting edge technologies).

<sup>20</sup> ABAC Calls for Access to All Business Opportunities, News Release, Mexico, 23 April 2014, [http://apec.org/Press/News-Releases/2015/0429\\_ABAC.aspx](http://apec.org/Press/News-Releases/2015/0429_ABAC.aspx)

<sup>21</sup> [http://www.apec.org/Meeting-Papers/Ministerial-Statements/Annual/2014/2014\\_amm/annexf.aspx](http://www.apec.org/Meeting-Papers/Ministerial-Statements/Annual/2014/2014_amm/annexf.aspx)

2. PPSTI's projects and Centers can be mapped successfully onto Leaders' Growth attributes, with a preponderance of activity mapping on to innovative growth (as might be expected). There is scope for existing and future projects to more effectively engage with other growth targets, particularly inclusive growth and balanced growth (the latter relating to harmonization of standards for new technologies)
3. PPSTI's projects and Centers can be mapped successfully onto ECOTECH priorities, with most emphasis on regional integration and little effort in structural reform (the latter being of the least relevance to PPSTI's ToR).

There are, however, significant gaps in PPSTI's activities:

- little overt attention is paid to APEC's gender agenda, either through actions from the Tasking Statement for 2015 or specifically in projects;
- little or no attention being paid to public finance for innovation, an issue contained in both APEC's Tasking Statement and PPSTI's ToR;
- there has been long term difficulty in engaging industry, particularly SMEs (this is discussed further in the next section); and
- cross-sectoral work under the APEC Initiative on Mainstreaming Ocean-related Issues, which was endorsed in 2014,<sup>22</sup> has only just commenced.

Barriers identified by respondents (Question 18) in meeting APEC's ECOTECH objectives – lack of central APEC funds, lack of support from ABAC and lack of industry involvement with PPSTI's work plan – are symptoms of a disconnect between the work of PPSTI and the rest of APEC, and indeed the wider community.

PPSTI should be congratulated on the level of energy and commitment demonstrated by its delegations and their host economies in self-funding projects. However the spread of effort across such a large number of projects and the short duration of many of these diminishes the effectiveness of its outputs. Many projects, though complete, do not appear to have resulted in APEC publications.

In general, PPSTI appears to be suffering from a failure to shift its focus towards both policy and innovation since changing its structure from the former ISTWG. A focus on policy is only just emerging, following submissions to PPSTI-5 and PPSTI-6 (requiring all projects to demonstrate an impact on policy formulation). This is to be applauded, but it retains the R&D/S&T focus of PPSTI to date, by referring to S&T innovation, rather than ST AND innovation.

There is a need, therefore, to also shift PPSTI's focus towards innovation – that is, “the implementation of a new or significantly improved product (good or service) or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relation.”<sup>23</sup> This shift is being hampered by:

- an incomplete and variable understanding of what is “innovation”, with no agreed definition in operation, despite availability of a number of authoritative sources on innovation and innovation policy;<sup>24</sup>

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<sup>22</sup> 2014 APEC Senior Officers' Meeting: Report on Economic and Technical Cooperation – Annex 4

<sup>23</sup> OECD/Eurostat, 2005 Oslo Manual

<sup>24</sup> For example, the 2011 Innovation, Trade and Technology Policies in Asia Pacific Scorecard (ITIF) and a range of OECD reviews

- as a result, a lack of understanding that innovation policy needs to include not only R&D policy but policies on (at least) IP protection, procurement, finance and commercialisation/technology transfer at both government and institutional levels and both competition and foreign direct investment policies at government level; and
- structural issues in member economies – delegations to PPSTI may be drawn from S&T Ministries, which understandably are more focussed on capacity building and “open innovation,” whereas the innovation component of policy development may be part of the economic or industry portfolios, but representatives from these portfolios do not attend PPSTI.

PPSTI remains, appropriately, the main APEC forum at which science Ministries are the focus – however to encompass innovation effectively, PPSTI needs to ensure that it doesn’t allow the S&T agenda to dominate proceedings and activities.

## FORUM OPERATIONS

This section covers operational issues that contribute to the ability of PPSTI to meet its objectives.

### *Structure and Operations of PPSTI*

#### ***Compliance with APEC policies***

PPSTI complies with the Revised Guidelines for Lead Shepherd/Chair and Deputy Lead Shepherd/Chair of APEC Working Groups and SOM Task Forces.<sup>25</sup> In compliance with those guidelines the PPSTI has:

- a Chair (People’s Republic of China) whose term runs for two calendar years (ending December 2016);
- one Vice-Chair with a two-year term selected from APEC member economies (USA, ending 2016);
- one Vice-Chair nominated by the host economy for the year ( the Philippines for 2015, Peru for 2016);

The Secretariat’s current Program Director has been in place since 2015. PPSTI-6 endorsed the new Chair and Deputy Chairs to take over operations from the second half of 2015.

Again in line with APEC practice, the host economy rotates annually, being the Philippines in 2015, Peru in 2016 and so on, with the forward plan being mapped out to 2022. Host economies determine the timing and location of meetings – there may be one or two meetings per year. In 2015, these were held in May and August. In previous years, however, these meetings have been more spread, either 5/7 months apart or or 6/6 months apart. There is a forward calendar which lists all PPSTI activities including project workshops.

PPSTI meeting history is summarised in Table 5. It should be noted that in three of the six meetings opportunities have been taken to hold concurrent events with other organisations or other APEC working groups.

**Table 5: PPSTI Meeting History**

Meeting	No. economies	Guests*	Associated Events

<sup>25</sup> 2012/SOM1/SCE-COW/004

PPSTI-1, Surabaya, Indonesia (9-11 April 2013, margins of SOM2)	19	ABAC; APRU; Macao, China and Mr Yang Tianchu	
PPST-2, Medan, Indonesia (1-3 July 2013, margins of SOM3)	19	ABAC; APRU; Macao, China; Mr Yang Tianchu and Dr Carissa Klein (2013 ASPIRE Prize winner)	First Chief Science Advisors and Equivalents meeting, 29-30 June 2013
PPSTI-3, Changzhou, China (9-11 April 2014)	17	APRU and Macao, China and Mr Tianchu Yang	
PPSTI-4, Beijing, China (17-19 September 2014)	18	APRU; Macao, China; Mr Sherwin Nones; Mr Sean Lam; Mr Hugo Zhang; Ms Stella Chou; Alicia Wise; Agachai Sumalee (2014 ASPIRE Prize winner); Veronica Wu; Shawn Gao; David Lake; John Yang; Fu Lu; Grace Tao; ZHENG Yonghe; ZHANG Xiangping; Ching Chuen Chan; Jun Xu	PPSTI Cooperation Achievement Exhibition
PPSTI-5, Boracay, the Philippines (16-18 May 2015, margins of SOM2)	17	APEC Study Center Consortium; APEC Human Resources Development Working Group (HRDGW); APRU, Mr Sherwin Nones; Mr Yang Tianchu; and Mr Michael Mudd, World Intellectual Property Organization; Macao, China	Day 2 – PPSTI Innovation Policy Sharing Seminar with the theme of "Small and Medium Science & Technology Enterprises for Inclusive Growth"
PPSTI-6, Manila, the Philippines (10-12 August 2015)	16	APRU, Mr Mark Robertson, Mr Sherwin Nones and Macao, China and Dr Lyndal Thorburn (Independent Assessor)	High Level Policy Dialogue on Science and Technology in Higher Education, 13-14 August 2015

*Source – APEC documents and PPSTI Secretariat*

*\*Mr Nicholas Brooke attended PPSTI-1 and PPSTI-2 as an ABAC Principal Advisor and thereafter in his own right*

Economies can bring delegations of any size. These can range from one person to over 20 people. There is room at the main table for only 2-3 people per economy. Generally the host economy takes the opportunity to bring additional delegates from local industry and institutions (e.g. the Philippines delegation in 2015 numbered almost 200).

### **Meeting management and Documentation**

The APEC collaboration system hosts documents for each meeting. While the Project Manager asks for papers 10 working days ahead of the meeting, documents often arrive late. Documents are, however, uploaded to the collaboration system within 24 hours of receipt. Documents may also be tabled at the meeting and are uploaded to the collaboration system after the event.

The PPSTI Chair and Governing board lead the collective work on the agenda and any economy can submit documents. Documents are clearly marked “for information” or “for consideration”. Where endorsement (following consideration) is required, delegations must act on behalf of their economy. This sometimes leads to further amendment, and delays in endorsement.

The agenda is circulated in draft some weeks before the meeting, and in final form shortly before the meeting. There are usually 70-80 documents per meeting, because of the large number of projects underway and being developed. There is also a forward work program which lists PPSTI activities, including workshops (under individual projects), over the coming 12 months (approx).

The Board of PPSTI meets immediately before each meeting, to review the agenda and discuss timing and other logistical issues, including those related to post-meeting “technical tours”, if planned – PPSTI-6, for example, included a technical tour to local research institutions.

Day 1 of PPSTI-6 commenced with a plenary session which included adoption of the 2015 work plan, with the afternoon devoted to three parallel sessions for Sub-groups A, B and C. Day 2 included reports back to the plenary from the sub-groups, and presentations from each of the APEC Centers which operates under the auspices of PPSTI. The meeting closed at midday on Day 2.

The Executive summary for PPSTI-6 was drafted in between Day 1 and Day 2 and was finalised at the end of Day 2. This document included summaries of key statements, plenary and sub-group discussions, endorsements (e.g. to the strategic plan) and intersessional actions, including a timetable to finalised the full minutes.

PPSTI-6 followed its allotted timetable and covered all agenda items.

Respondents to the survey noted no concerns evident around meeting planning and associated documentation.

### ***Project initiation, funding and management***

Most of PPSTI’s work plan is implemented through projects. A Concept Note for each new project is developed and then submitted to PPSTI for approval. Proponents of projects must follow broad APEC guidelines and proposal format<sup>26</sup> when proposing projects. The Concept Note must justify the project against broad APEC objectives (including gender), explain how the project will assist PPSTI to meet APEC’s key priorities, explain the method, beneficiaries and provide a communications plan.<sup>27</sup>

Project Concept Notes are submitted for funding from APEC and are initially prioritised by SCE and then the APEC Budget and Management Committee. Larger projects may also be considered by SOM. Those which are accepted through initial screening are then invited to submit full proposals.

Up until 2015 there was a “science and technology” sub-fund, totalling ~US\$200,000, to support projects over a specific time period. PPSTI projects could also apply for funding by the by APEC “general” fund (totalling about US\$1 million), which funds 8-10 projects per year, from over 100 submitted. As at 2016, there will be an APEC “Innovative Development, Economic Reform and Growth fund. For all central funding, applications from all working groups are ranked by the Senior Officials Meeting. Projects which were aligned strongly with APEC themes of “inclusive economy” and SMEs received priority in the last round.

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<sup>26</sup> Guidebook on APEC projects, Edition 9

<sup>27</sup> Ibid, Appendix B



There are unlimited opportunities to self-fund projects as a single delegation, or in partnership with others, once the project has been endorsed by PPSTI.

The end point of a project is a report, which includes an evaluation of success using a range of metrics, which might include attendance, gender split and audience feedback for a workshop; or a policy outcome such as impact on domestic regulation. According to PPSTI, there is no requirement for a report to be produced for self-funded projects, although this is encouraged. Respondents commented that a final report should be mandatory.

During Session 1 in 2015 PPSTI submitted 16 project Concept Notes and received funding from the S&T fund for only one – the Internet of Vehicles Stage 2 project (led by USA, China and Chinese Taipei). Five of the remaining projects were then self-funded by one or more delegate economies. The funding economy chooses the sub-group through which that project reports.

Within PPSTI, self-funded projects are funded by one or more individual delegations and are accepted as PPSTI project if no-one objects. According to respondents, there is no mechanism to rank self-funded projects and no active exclusion of those which may not meet PPSTI's and APEC's goals.

### **Communication**

The Program Director in the Secretariat is the central point through which information flows (mainly by email) in between meetings. The Secretariat also provides support and advice to the Chair, although the Chair may also have his/her own small secretariat to provide greater capacity. The Program Director will also attempt to keep delegates/economies up to date on other issues related to PPSTI activities.

Documents for each meeting are made available prior to the meeting – with the timing dictated by receipt of such papers by the Secretariat. According to some respondents, the volume of papers presented at PPSTI hampers the ability of economies to consider and provide substantive input to policy discussions at the meeting. PPSTI could consider a more dynamic format for circulation of papers and key meeting documents so that discussion at the meetings could focus on policy issues rather than the practicalities of project activities and outputs.

The APEC website ([www.apec.org](http://www.apec.org)) has a dedicated PPSTI page. However, some of the material on this page is out of date. While the “News” and “events” tabs appear to be current, the “activities” tab omits any 2014 and 2015 activities; the “contacts” tab omits contact details for the current Philippines Vice-Chair; and the current tab only has information up to September 2014. In addition, the “find out more” tab to the right of the main page links to non-existent ISTWG documents. There does not appear to be a central public repository of the outcomes of PPSTI meetings. PPSTI-6 also has photos on the APEC 2015 Facebook page <https://www.facebook.com/apec2015ph>.

The ASPIRE (APEC Science Prize for Innovation, Research and Education) is an annual award which is gaining traction in raising PPSTI's profile in APEC economies. While its stated target includes innovation, the selection criteria for prize favour excellence in scientific research, as demonstrated by scientific publications.<sup>28</sup> Sponsorship of ASPIRE by national academies of science and their equivalents, and scientific publishers, is perpetuating the science focus of this award.

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<sup>28</sup><http://www.apec.org/Home/Groups/SOM-Steering-Committee-on-Economic-and-Technical-Cooperation/Working-Groups/Policy-Partnership-on-Science-Technology-and-Innovation>

### ***Management of PPSTI “APEC Centers”***

APEC sponsors “Centers” which are long term collaborations between a number of research institutions across several economies. PPSTI has established 7 Centers, a significant proportion of the 20+ Centers which operate under APEC. These Centers are not part of the 50-strong APEC Study Centers Consortium (ASCC), which are managed separately.

The seven PPSTI “APEC Centers” are highlighted in Appendix G – Detailed Map of PPSTI’s Activities Against its Terms of Reference. Many of these pre-date PPSTI and in fact some go back as far as 1996.

The PPSTI APEC Centers are wide ranging and, as shown in Appendix G – Detailed Map of PPSTI’s Activities Against its Terms of Reference, are focussed in S&T and innovation cooperation (6) with one classified under innovation capacity and none relating to other PPSTI terms of reference. This reflects in large part their historical beginnings, when ISTWG was more focussed on science and technology. The current majority involvement of representatives from science (rather than innovation/industry) portfolios has maintained the S&T focus to the detriment of work on innovation.

### ***Relevance of the Terms of Reference (ToR)***

Mapping of the ToR against the 2015 work plan Appendix G – Detailed Map of PPSTI’s Activities Against its Terms of Reference shows that PPSTI’s activities can be classified against each of the Terms of Reference EXCEPT for developing seed and venture capital funds and technology business incubation, and facilitating voluntary market-driven dissemination of technology and associated legal and regulatory frameworks. The latter may in part be addressed by PPSTI’s new focus on policy outcomes from its projects.

The current terms of reference enable PPSTI to undertake activities which both build capacity in S&T and address innovation. It is to be expected that there will be some imbalance in emphasis when reviewed against the Leaders’ Growth Strategy and ECOTECH priorities; however PPSTI’s activities cover all these objectives.

### ***Advisory Committees***

There is no advisory committee in place, but the PPSTI has access to the services of a Special Advisor, who originally represented ABAC.

### ***Scheduling of Sub-groups to enhance effectiveness***

PPSTI implements its Work Plan through three subgroups – building science capacity (Sub-group A), promoting an enabling environment for innovation (Sub-group B) and enhancing regional science and technology connectivity (Sub-group C). The activities of the sub-groups are mapped onto the terms of reference for PPSTI in the table below, with source data provided in Appendix G – Detailed Map of PPSTI’s Activities Against its Terms of Reference. It is noted that despite the ToR focussing on innovation policy, Sub-group A is based on science capacity, and hence is not a direct match to the ToR.

**Table 6: PPSTI Activities Mapped Against its Terms of Reference**

<b>Term of Reference</b>	<b>Sub-Group</b>	<b>No. Activities in 2015 Work Plan*</b>
S&T co-operation	C	7
Effective Innovation Policy	B	4 common approach to STI policy** 1 evaluate innovation cooperation
Enhance economic growth	B	Components of several projects
Develop market-based	A	0

innovation policy		
Promote innovation capacity	A	3 innovation capacity building 0 market-driven dissemination of technology
Facilitate innovative co-operation	C	8

\* includes APEC Centers which operate under the auspices of PPSTI

\*\*Most of these relate to science and technology

### **Discussion and Conclusions**

Working Group operations comply with APEC policies. The operation of the Secretariat appears to be efficient and is strongly supported by survey respondent (Question 23). Communication around meetings is good, but public communication could be enhanced with more attention paid to keeping the website up to date, and a more active program of publishing the results of projects.

Project development is centred on responding to proposals from economies rather than directing project formulation against PPSTI's ToR and APEC's broader priorities. As a result there are gaps with some ToR not covered by any activities, and resources are spread thinly across a large number of activities with limited cohesion. While self-funding of projects is to be lauded, PPSTI's failure to attract APEC funding for all but one project can be read as a signal that PPSTI's activities are not aligning with APEC's objectives.

Projects need to be grouped against PPSTI's Terms of Reference and APEC's objectives so that PPSTI can see whether its projects are aligned with its ToR. A more pro-active approach, however, is desirable, potentially through a "call for proposals" approach with specific PPSTI criteria (in addition to those standard criteria required by APEC), that are used within PPSTI to fill the gaps in the work program *vis a vis* PPSTI's ToR, and ECOTECH priorities. This would enable PPSTI to better focus and more efficiently and effectively manage its tasks and assure that its capacity building activities are providing benefits according to Leaders' and Ministers' priorities.

Positive developments which seem to be indicating closer alignment with current APEC goals include the proposal for Promoting Commercialization and Investments for Science and Technology Products and Developing Potential Technology in the APEC Region and the APEC Workshop on Commercialization and Popularization of Research and Market-based Innovations through Policy Translation – both proposed at PPSTI-6 and since adopted.

There was discussion at PPSTI-6 about the need to more closely monitor and possibly review PPSTI's APEC Centers to ensure their continuing relevance given the new focus of PPSTI. While the Centers are self-funded, it is acknowledged that an "APEC Center" is prestigious and PPSTI must ensure that they contribute to PPSTI's overall goals. These Centers need to be reviewed against the current ToR of PPSTI. Many appear to be "pure" science and while many are also focussed on capacity building there is little alignment with goals in innovation, commercialisation and the broader APEC agendas around gender and SMEs.

The ToR for PPSTI remain valid. However, there needs to be a shift in effort so that ALL ToR are covered by appropriate activities and that innovation policy is also central (note that this is not the same as innovation in S&T policy).

This shift could occur through re-naming the sub-groups to ensure that they reflect all aspects of the ToR, rather than an S&T-biased interpretation. This is particularly important for Sub-forum A, which needs to re-focus on innovation policy rather than S&T. ASPIRE could also be extended to include innovation as well as science (as implied by its name). There is value in recognising science and research and this needs to remain – additional sponsors

could be found to sponsor ASPIRE2, focussed on successful examples of innovation and market-led commercialisation of academic research.

While the sub-groups are a useful way to manage activities, they may be preventing all delegations from useful participation, given that several delegations with only numbering 1-2 people had to choose which sub-groups to attend when these were run as parallel streams. Given that the timetable for PPSTI-6 covered only 1.5 days, there would be capacity to bring the sub-groups into the plenary session, while still enabling the sub-group chairs and vice-chairs to manage that part of the proceedings.

Given the strong science-focus of past activities, delegations and projects, PPSTI may benefit from establishing an advisory committee to review project proposals and suggest ways to strengthen commercialisation/innovation components.

## CO-OPERATION

This section explores co-operation by PPSTI with other APEC fora. The assessment was also required to identify opportunities for greater collaboration with non-APEC parties, including the private sector, civil society and other international organizations; and ways for PPSTI to tap resources for its programs.

### **Co-operation with other APEC Fora**

There is a long list of APEC working groups for which the work of PPSTI has potential relevance, without duplicating their work (Questions 5, 7). An existing list of relationships is in Appendix G – Detailed Map of PPSTI’s Activities Against its Terms of Reference. However, it is clear that many other activities of PPSTI can be relevant to other working groups. Respondents (Question 8) ranked the existing relationships with APEC working groups with the Human Resource Development Working (HRDWG) group being ranked most highly because of its relationship to S&T capacity building, followed by the Disaster Management Working Group (directly relevant to several APEC Centers) and the Energy Working Group; and potential future relationships (Question 9) with the Policy Partnerships on Food Security and Women in the Economy.

PPSTI’s contact with other APEC fora is usually initiated by specific projects, which may involve other groups long term as part of their initial plan (e.g. the Internet of Vehicles has involved the Transportation Working Group,<sup>29</sup> the Telecommunications Working Group,<sup>30</sup> the Automotive Dialogue<sup>31</sup> and the Sub-committee on Standards and Conformance<sup>32</sup>) or invite other groups to specific events (e.g. attendance by the Chair of the HRDWG to PPSTI-5 meeting to discuss higher education; and involvement of the Emergency Preparedness Working Group in development of the Concept Note for the project From Science to Action: The Use of Weather and Climate Information for Efficient Disaster Risk Management (PPSTI 06 2015S).

The difficulties of arranging joint meetings of working groups and other APEC fora are noted. However there are other ways to consult with APEC fora e.g. the Australia’s self-funded project on marine earth observations around the Rim engaged the Oceans and Fisheries

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<sup>29</sup><http://www.apec.org/Groups/SOM-Steering-Committee-on-Economic-and-Technical-Cooperation/Working-Groups/Transportation.aspx>

<sup>30</sup><http://www.apec.org/Groups/SOM-Steering-Committee-on-Economic-and-Technical-Cooperation/Working-Groups/Telecommunications-and-Information.aspx>

<sup>31</sup><http://www.apec.org/Groups/Committee-on-Trade-and-Investment/Automotive-Dialogue.aspx>

<sup>32</sup><http://www.apec.org/Groups/Committee-on-Trade-and-Investment/Sub-Committee-on-Standards-and-Conformance.aspx>

Working Group inter-sessionally and other projects have sought expert advice from other Working Groups on specific issues. Indeed, there is scope for PPSTI involvement with a range of fora, given the importance of science, technology and innovation in all economic sectors.

PPSTI-6 meeting considered a letter from the Chair of SCE which listed potential cross-fora contacts, suggesting that a number of working groups that could be relevant to the work of PPSTI. However, PPSTI was not listed on this document as being relevant to the work of other groups. This is of some concern as it sends a message that PPSTI's agenda is relatively invisible to other fora.

Respondents to the survey were asked to rank a list of other APEC Fora that could be relevant to the work of PPSTI but were not yet collaborating with PPSTI. The top ranked suggestion (from a list presented) was the Policy Partnership on Food Security. It was followed by the Policy Partnership on Women and the Economy (relevant to increasing female graduates from university science programs) and Agricultural Technology Cooperation (re agricultural STI development), which were ranked equally.

### **Cooperation with other Stakeholders**

#### ***Academia***

PPSTI has existing relationships with the Association of Pacific Rim Universities (APRU), a representative of which attends PPSTI meetings. Many PPSTI projects have ongoing and extensive contacts with academic institutions, particularly through the PPSTI-sponsored APEC Centers. The PPSTI-sponsored ASPIRE awards also raise awareness of PPSTI with universities whose young researchers are nominated for the awards, particularly in those economies where science academies are coordinating applications (e.g. in Australia, through the Australian Academy of Science).

#### ***ABAC***

The APEC Business Advisory Council (ABAC) comprises up to three senior business people from each APEC economy and presents recommendations to APEC on business sector priorities and concerns.<sup>33</sup> There is much of interest to PPSTI in the ABAC agenda; for example, in its first meeting in 2015 ABAC considered, among other things, the need to maximise innovation and human capital potential (relevant to PPSTI's human capital development ToR) and the promotion of liveable, sustainable cities (relevant to PPSTI's ToR to encourage cross-border investment in cutting edge technologies).

ABAC, however, withdrew from PPSTI in 2013, following PPSTI's first meeting. There was no public reason provided for this and indeed ABAC's representative, Mr Nicholas Brookes, has maintained his involvement at a personal level in the role of Special Advisor. PPSTI has asked him to develop a longer term industry engagement strategy for the group. Respondents noted the role of the principal Advisor in maintaining the link with ABAC (Question 14, 15).

At PPSTI-6 the Secretariat briefed PPSTI of the ABAC project to map incubators – an activity which fills one of the gaps in PPSTI's project list in relation to its ToR. PPSTI is now writing to ABAC to propose supporting this initiative.

#### ***Wider industry***

PPSTI is heavily focussed on S&T issues and its projects do well at engaging academia but, generally, are of limited interest to wider industry. This was acknowledged by survey respondents (Question 5). PPSTI-6 had some industry involvement in the form of Guests

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<sup>33</sup> <http://www.apec.org/Groups/Other-Groups/APEC-Business-Advisory-Council.aspx>

from large companies as event sponsors (for ASPIRE) and a participant in one major project. However these individuals, as representatives of large companies, do not allow PPSTI to claim that its activities are relevant to APEC's Small to Medium Enterprise (SME) agenda. In this discussion SMEs can range from manufacturers to service companies to providers of professional services (e.g. clinicians, for whom PPSTI's work on non-communicable diseases may be relevant).

The survey (Question 12) asked for indications of support for a number of models of industry/SME engagement, with the most favoured being industry/academic participation in development of the work plan. However it must be said that none of the mechanisms proposed in that question received strong support.

PPSTI's engagement with SME's needs to be proactive rather than reactive and needs to be addressed at the time of Concept Note development.

### ***Co-operation with Other International Organizations***

PPSTI has invited the World Intellectual Property Organisation (WIPO) to participate in its activities as an invited guest for three years, commencing 2015.<sup>34</sup> WIPO is to be involved in APEC-funded PPSTI project developing and analysing S&T cooperation in the Asia Pacific Region.

As noted earlier, PPSTI could draw on work by the OECD on innovation policy and related fields.

### ***Discussions and Conclusions***

While PPSTI has had some good interactions with other APEC for a, there are indications that PPSTI is not working as effectively as it might in engaging more broadly with APEC's agenda. The distance between PPSTI and ABAC is of considerable concern and, taken together with omission of PPSTI from the recent letter from SCE, indicates that many in APEC do not see PPSTI as relevant to its broader agenda. PPSTI needs to build the relationship with the rest of APEC, including ABAC, through initiatives proposed throughout this assessment.

Not only will such involvement raise awareness throughout APEC of PPSTI's scope, but it will also enable PPSTI to get feedback from these fora on issues relevant to them and where PPSTI may provide useful input.

The difficulties of involving SMEs in multi-economy projects is recognised, and it may be that significant SME involvement needs to be considered in the context of a) involving local SMEs in events held in conjunction with PPSTI by the host economy (as has happened in several projects e.g. the Smart City project) or b) longer term engagement with SME and their relevant industry associations at the project and/or meeting level.

Other options may emerge as the type of project being sponsored by PPSTI changes in coming years. Models which might also be considered by PPSTI in deciding to support project proposals (and supporting the ranking provided by respondents in Question 12) include:

- methods of SME engagement adopted by Australia's Co-operative Research Centres program<sup>35</sup> (particularly relevant to PPSTI's APEC Centers);
- the IT-platform approach of the Cooperative Alliance for Technical and Vocational Education and Training (TVET) / Career and Technical Education (CTE)<sup>36</sup> (HRD 04 2013S);

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<sup>34</sup> PPSTI Annual Work Plan for 2015

<sup>35</sup> <http://crca.asn.au/wp-content/uploads/2012/05/CRCGuideD-SME-Engagement-with-CRCs.pdf>

- customization of the outputs of PPSTI projects for SMEs and/or specific events or publications/sites designed to communicate the results of PPSTI projects to an SME audience, along the lines adopted by the World Intellectual Property Organization' SME Division;<sup>37</sup> and
- setting levels of SMEs engagement as part of project key performance indicators (at the time of approving Concept Notes).

PPSTI could also take a more strategic approach to discussions, including the roles of research-industry linkages, and relationships with other fora, in determining which projects to support.

### ***Streamlining / merger with other APEC fora***

PPSTI has had some limited contact with other fora but there is a lot of opportunity for collaboration and joint projects. However, there would be little benefit in merging PPSTI with these other fora, given the latter's focus on specific industries and sectors. Rather, it is considered that PPSTI should extend its efforts in cross-fora collaboration to ensure that innovation is considered by these fora and to also enhance PPSTI's capacity to address the innovation, SMEs and gender aspects of APEC's goals.

## **RECOMMENDATIONS AND IMPLEMENTATION GUIDE**

The following recommendations are grouped under key headings and are followed by comments that can guide implementation.

In considering the recommendations, SCE needs to consider:

- additional resourcing requirements (if any) for the proposed Expert Advisory Group (Recommendation 2);
- whether a common project reporting framework (Recommendation 8) is better developed by SCE and promulgated to all workings groups and policy partnerships (and updated regularly as APEC priorities develop); and
- whether the review of PPSTI's Centers should be extended to review Centers sponsored by other Working Groups (but excluding APEC Study Centers).

Some of the recommendations will put an additional load on the secretariat. SCE may need to consider Secretariat resourcing, particularly in the light of additional responsibilities placed on the program director during 2015.

### **Terms of Reference**

**Recommendation 1: PPSTI's Terms of Reference should remain unchanged; however overall PPSTI should place greater emphasis on innovation and innovation policy in its deliberations and sponsored activities.**

Comment – This extends the existing policy commitment (as proposed by the Philippines) to focus on innovation policy as well as S&T policy. The intention is not to subjugate S&T policy – rather it is to ADD innovation policy. However, the lack of focus on innovation policy in the past will mean necessarily that in the near term there will be more focus on the latter, until balance is obtained.

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<sup>36</sup> <https://aimp2.apec.org/sites/PDB/Lists/Proposals/DispForm.aspx?ID=1376>

<sup>37</sup> [http://www.wipo.int/export/sites/www/sme/en/activities/pdf/activities\\_report06.pdf](http://www.wipo.int/export/sites/www/sme/en/activities/pdf/activities_report06.pdf)

**Recommendation 2: PPSTI should establish an Expert Advisory Committee made up of experts in industry engagement, innovation and commercialisation policy to assist it to expand its focus beyond S&T and towards innovation and closer involvement of industry including SMEs.**

Comment – This recommendation complements the current makeup of PPSTI delegations AND is a response to the need to bring in industry expertise. There are models elsewhere in APEC that provide a guide as to how this may be implemented with in-kind support, and how members might be selected.<sup>38</sup> A PPSTI Expert Advisory Committee’s terms of reference should include providing advice on developing and implementing projects with a focus on regional engagement, innovation and supporting deliver of the APEC Leaders’ Tasking Statements. An Expert Advisory Committee can operate virtually but members could be invited to attend PPSTI meetings if funding can be found for this. An online resource (e.g. Wiki) could be the primary means through which members communicate and provide advice to delegations in development of project proposals. Expert advisory group members could also be invited to specific project events, funds permitting, to help support the enhancement of work in innovation policy and associated activities.

**Recommendation 3: PPSTI’s Strategic Plan 2015-2025, should be re-cast to group activities under the ToR rather than sub-groups, with the annual work plan activities also re-cast under the same headings and focussed on short-term targets.**

Comment – it is difficult for all APEC working groups to keep abreast of the demands of various overarching fora. this recommendation is to provide a format to enable PPSTI keep a running check on how its activities are meeting APEC goals. The revised Strategic Plan could be circulated inter-sessionally and presented for endorsement at PPSTI-7.

The strategic plan needs to identify specific topics for collaboration between PPSTI and other working groups and ensure that the annual work plan states how each goal will be addressed with specific and measurable KPIs.

### **Project planning**

**Recommendation 4: PPSTI, with advice from its Advisory Committee, and drawing on outputs of multi-lateral fora such as the OECD, should agree on definitions of the key terms in its Terms of Reference, including but not limited to “innovation”, “commercialization” and “market-driven” to assist member economies to expand their understanding of innovation policy and focus project proposals appropriately.**

Comment – This needs to be on the agenda for PPSTI-7 and agreed definitions could be incorporated into the strategic plan.

**Recommendation 5: PPSTI should take a proactive approach to identification of new projects and activities, to ensure that they cover all of its Terms of Reference and are appropriately aligned with Leaders’ Statements, the relevant Tasking Statement, ECOTECH Priorities and associated targets include targets for involvement of women and SMEs.**

Comment – The difficulty of needing to align PPSTI activities with so many over-arching (and annually changing) statements has been noted. SCE and other APEC fora also need to avoid morphing terminology when drafting such statements, to ensure that directions to PPSTI and other working groups remain true to their original intent.

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<sup>38</sup> <http://www.ewg.apec.org/experts.html> - Energy Working Group Expert Groups



**Recommendation 6:** In general, PPSTI as a whole should take a more pro-active role in identifying key priority areas so that proposals which enable PPSTI to address all of its Terms of Reference are sought. This means moving away from its current (passive) practice of receiving proposals from individual economies. In order to enhance short-term balance, PPSTI should, in 2016, call for proposals on projects and activities that meet the ToR targets of developing market-based innovation policy (including projects to identify successful models of seed and venture capital funds, business incubation and acceleration) and market-driven dissemination of technology (and associated legal and regulatory frameworks). Levels of SME engagement should be specified as part of project proposals.

Comment – once Recommendation 3 has been implemented the gaps in current activities will become obvious and can be addressed pro-actively. It is suggested that PPSTI-7 can include a gap analysis so that PPSTI-8 can consider project proposals that fill gaps in addressing ToR (e.g. financing) and APEC goals (e.g. SMEs, women’s participation). New projects to fill these gaps should be considered at PPSTI-8 and/or through the operation of the expert advisory group.

**Recommendation 7:** PPSTI should develop its own additional internal procedures for assessing and ranking project proposals against its ToR, with short term preference to be given to those which fill current gaps against the ToR and provide opportunities for appropriate cross-fora and multi-economy collaboration and third party engagement. Only those high-scoring proposals endorsed by PPSTI should be eligible to be self-funded as “APEC PPSTI projects”, should an application for APEC central funding fail.

Comment – implementation of the above two recommendations might be aided by maintaining a checklist of current activities, progress and outputs against which PPSTI projects can be mapped. The long term effect will likely be a reduction in the number of projects but enhanced engagement and better alignment with APEC priorities.

It is not intended that PPSTI be given additional criteria before projects can be funded centrally – rather, the intent is to provide a more rigorous framework for internal use by PPSTI to help it ensure that its internal procedures are directed towards filling gaps and ensuring that approved projects (whether APEC funded or self funded) are, collectively, meeting ToR and APEC goals.

### **Project Monitoring and Reporting**

**Recommendation 8:** Progress reports for each funded or self-funded PPSTI project should contain clear outcomes against one or more PPSTI ToR AND statements against how the project has met the goals of Leaders’ Statements, ECOTECH Priorities and is contributing to women’s and SME development.

Comment – the Secretariat can develop reporting guidelines to assist delegations. Revised report frameworks should be current from PPSTI-8..

Both women’s and SME development need to be addressed specifically and PPSIT needs to target support to increase their participation. Future PPSTI meetings could explore the issues women face in developing careers in science; and the issues that SMEs face in innovation in particular topic areas, and how both groups can be better supported through PPSTI’s activities.

**Recommendation 9: Project reports should include a section on translation of project outputs into long-term outcomes for participating economies.**

Comment – Project reporting templates could include sections on outputs and outcomes in relation to policy, and the contribution of the project to APEC’s strategic priorities. PPSTI could continue to track the impact of projects over time by establishing a post-project reporting requirement.

**Recommendation 10: PPSTI should initiate a formal review of its sponsored Centers, to identify where and how these are contributing to PPSTI’s terms of reference, what opportunities there may be to expand their scope to cover more than one term of reference and how they can contribute to broader APEC goals. Where Centers are not meeting PPSTI’s objectives, and are not able to change their focus to meet these objectives, PPSTI/APEC endorsement of Centers should cease.**

Comment – this will require additional resources and can take place during 2016, with the intention of ratifying or ceasing endorsement of specific centers as APEC Centers by 2017 (PPSTI-9).

**Recommendation 11: Any PPSTI-endorsed APEC Center should be asked to report at least annually to PPSTI, outlining how its activities have contributed to PPSTI’s goals and the wider goals of APEC.**

Comment – an annual reporting program will provide PPSTI with ongoing contact with Centers. A common format will assist with comparisons and tracking.

**Sub-groups**

**Recommendation 12: PPSTI’s three sub-groups need to be clearly aligned with PPSTI’s ToR so that there are no gaps in activities. The names of the sub-groups should be changed to more closely align with the ToR and project proposals (which may address more than one ToR) should clearly identify which sub-forum is to provide overarching supervision. Each sub-forum should follow similar reporting guidelines so that their activities can be compared and contrasted across the board, and the sub-group sessions need to ensure that policy issues are being discussed.**

Comment – The tracking format presented by Chinese Taipei at PPSTI-6 provides a useful starting point for a common reporting format, but needs to be extended to provide space for reporting on policy impacts.

**Recommendation 13: PPSTI should consider running sub-forum meetings in plenary, with the existing Chairs of sub-groups managing proceedings, to enable smaller delegations to attend all sub-group sessions. Plenary sessions need to include discussion of substantive issues (meeting of ToR, gaps, mechanisms to address new APEC directives and policy issues) rather than just reporting on activities.**

Comment – Sub-group chairs could be tasked with presenting such a report at each meeting.

### **Administration and Communication**

**Recommendation 14: Material on the PPSTI APEC web page needs to be kept current, with outcomes of the most recent meeting updated within 2 months after each meeting, and links through to (at least) executive summaries of past meetings.**

Comment – it is important for policy makers and other stakeholders to be able to track the outputs and outcomes of PPSTI and to be able lessons learned. There is scope to expand the website further as a repository of reference documents, resources permitting.

### **Co-operation**

**Recommendation 15: PPSTI should seek opportunities for existing projects to collaborate with other APEC fora, either through ongoing involvement or one-off events (e.g. involvement in Symposia).**

Comment – PPSTI-7 could include review of all projects to identify touch-points with other fora, so that this can be progressed now rather than only addressing it in new projects.

**Recommendation 16: PPSTI should proactively identify opportunities to work with and be relevant to ABAC through reference to ABAC's current agenda, including considering a joint meeting with ABAC (preferably in the next 12 months) as part of its forward program.**

Comment – The Chair should approach ABAC to meet inter-sessionally so that this can be progressed immediately and planning can commence.

## APPENDIX A – APEC WORKING GROUPS

Working Group	Relevance to APEC objectives	Working Group Objectives	Current Priorities
Agricultural Technology Cooperation	Contribution of agriculture to APEC economies	To enhance agriculture's contribution to the region's economic growth and social well-being	To improve capacity of agriculture and related industries and to share information in agriculture, biotechnology, and animal and biogenetic resource management.
Anti-Corruption and Transparency	Reduce the threat to good governance and economic growth in the Asia-Pacific	To coordinate the implementation of Santiago Commitment, APEC Course of Action and APEC Transparency Standards	To implement the UN Convention Against Corruption
Counter Terrorism	secure the region's people and its economic, trade, investment and financial systems from terrorist attack or abuse and trade-based money laundering	To coordinate commitments on fighting terrorism and enhancing human security; assist members to identify and assess counter-terrorism needs; coordinate capacity building and technical assistance programs	
Emergency Preparedness	enhancing human security and reducing the threat of disruptions to business and trade	To enable the region to better prepare for and respond to emergencies and disasters	To build capacity in relation to emergencies and disasters, and collaboration on emergency preparedness issues
Energy	Further APEC goals to facilitate energy-related-trade and investment	To maximize energy sector's contribution to APEC's economic and social well-being, while mitigating environmental effects of energy supply and use	To ensure energy security, removing barriers to energy trade and investment, facilitating LNG trade, promoting new and renewable energy, energy efficiency, and smart communities, keeping up safe nuclear power development, and cooperating on clean fossil fuel.
Health	Address multi-sectoral impacts of health threats	To address health-related threats to economies' trade and security, focusing mainly on emerging infectious diseases	To provide policy guidance, align activities with ECOTECH priorities, address life sciences and innovation
Human Resource Development	promote well-being of all people and achieve sustainable and inclusive economic growth	To build the region's human capacity and achieving this goal.	To develop initiatives on education, labour and capacity building to develop human resources
Illegal Logging and Associated Trade (Experts Group)	Enhance cooperation to address concerns with illegal logging and associated trade	To enable member economies to strengthen policy dialogue on combating illegal logging and associated trade and promoting trade in legally harvested forest	To exchange information on policies, regulations, governance and law enforcement relating to combating illegal logging and promoting trade in legal forest

		products	products
Ocean and Fisheries	Facilitate trade and investment opportunities that promote the sustainable use of fisheries, aquaculture, and marine ecosystem resources.	To exchange information and help foster institutional capacity building; advance discussions and the development of solutions for common resource management problems and share best practices	Measures to establish a more integrated and sustainable ocean partnership in the region.
Science Technology and Innovation*	APEC's primary forum to engage government, private sector and academia in joint scientific research.	To enhance economic growth, trade and investment opportunities, as well as social progress, in harmony with sustainability	Strengthen collaboration and enhance innovative capacity; develop science, research and technology cooperation; build human capacity; support infrastructure for commercialization of ideas; develop innovation policy frameworks and foster an enabling environment for innovation.
Small and Medium Enterprises	Contribution of SMEs to APEC economies	To encourage the development of SMEs and to build their capacity to engage in international trade	To build management capability, financing and business environment
Telecommunications and Information	Building confidence and security in the use of ICT to promote economic growth and prosperity	To improve telecommunications and information infrastructure in the Asia-Pacific to become an information society	Telecommunications regulations liberalisation, development and implementation of advanced information and communications technologies, promoting security in these technologies
Tourism	Sustainable tourism as an economic driver	To share information and exchange of views and development of cooperation	Removal of impediments to tourism, increasing mobility, sustainable management of tourism, enhance understanding of tourism as a means of economic development
Transportation	Liberalisation of Transport Services; enhanced safety of transport systems	Efficient and safe transportation of Goods and People	Harmonisation of security measures, capacity building in security and safety compliance, liberalisation of air services
Women and the Economy*	Promote greater inclusion of women in the regional economy	To advance the economic integration of women in the APEC region	Focus on women's access to capital, access to markets, skills and capacity building, leadership and agency, innovation and technology

\* Policy Partnerships

## APPENDIX B – METHOD

The detailed steps of the Method are as follows:

### **1. Understanding of APEC's goals**

Review of APEC key documents, APEC goals/objectives and procedures, other official and non-official assessments of APEC work including ECOTECH goals.

### **2. Review and Research PPSTI objectives and activities**

Review of PPSTI key documents, primarily the agenda papers for PPSTI-5 and PPSTI-6 (both held in 2015), and statements by APEC associated with the convergence of ISTWG to PPSTI in 2012.

Review of Leaders' and Ministers statements, PPSTI records of meetings, key project documentation and activities to assess the outcomes and how PPSTI supports the main objectives/goals of APEC, including mapping PPSTI activities onto APEC's current major objectives and measurement of outputs and outcomes of PPSTI through its projects.

### **3. Survey**

A short online survey of PPSTI economy representatives was developed in consultation with the PPSTI Program Director. The questions were cleared with the Chair prior to dissemination in mid-July. Respondents were asked to complete the survey online by end July but due to low response rates the closing date was extended until the end of the PPSTI-6 meeting. Summary answers from the survey are contained in Appendix D – Face to Face Survey.

A short survey guide was developed for use in face to face discussions during PPSTI-6. This was also developed in consultation with the Program Director and was cleared by the Chair prior to use. Notes were taken during each interview and have been referred to in compiling the assessment.

### **4. Draft Assessment**

A draft assessment was submitted at the end of August 2015 to the PPSTI Program Director and Chair for comment on factual matters. A revised version of this assessment was then circulated to member economies for comment in mid-September by the Program Director. These comments were also incorporated into the final assessment and significant comments were analysed.

Recommendations were provided with commentary regarding implementation and the specific issues that needed to be addressed by SCE rather than by PPSTI itself.

The draft final report was delivered to SCE at the end of September 2015

## APPENDIX C – RESULTS OF WRITTEN SURVEY

A written survey was developed and, following input from both the Secretariat and the Chair’s Office, was administered using SurveyMonkey.com during July 2015. Seven of the 21 delegations provided responses during that period. The remaining delegations were invited to complete the survey during the PPSTI meeting held in Manila from 10-11 August 2015 – this resulted in a further 3 survey responses, bringing the total to 11.

The following pages summarise the responses to each question in the survey. Note that some respondents did not answer all questions and hence the total respondents in each question may be less than 11.

### PPSTI’s Current Performance

**Question 1** – The PPSTI is tasked with “development of an enabling environment for market-based innovation policy” – what do you think are the three main initiatives that could implement this goal?

No.	Most important initiative	2nd most important initiative	3rd most important initiative
1	Sharing platform to promote innovation from APEC economies	APEC economies facilitate common innovation policy	APEC economies bring in industry as vital players
2	Translation of STI activities to policy statement or document		
3	Development of regional workshops/competitions designed to encourage the entrepreneurship of early-mid career researchers with mentorship by industry, similar to the ASPIRE prize.		
4	Workshop on Commercialization and Popularization of Research and Market-based Innovations through Policy Translation	APEC Technology Commercialization Program	Development of Methodology and Analysis of STI Co-operation in APEC Region
5	APEC Research and Technology (ART)	Development of APEC-VC single entry point	
6	Toward Innovation-Driven Development Initiative	APEC Internet of Vehicle cooperation (Phase I & II)	The Co-establishment of an Online Service Platform for Collaboration Innovation of SMEs in APEC Member Economies
7	Involving more private sector and academic participants in PPSTI meetings/symposium	Ensure that projects have a policy recommendation	

		component	
8	Private sector engagement program	Policy Dialogue	Technology Transfer Centre
9	A Government led Supporting Framework including related access to funding	A robust innovation and technology eco-system both within economy and cross-APEC economies	A Business community which fosters and encourages the commercialisation of new ideas
11	Joint agreement on policy measures that enable fostering of innovation	Increase innovation policy-making capacity among members	Fostering commercialization of research through PPPs

**Question 2** – PPSTI’s mission includes the aim of building science capacity – name the top three initiatives since 2013 which you consider to have been important in meeting this objective (respondents could suggest up to three initiatives)

No.	First initiative	Second initiative	Third initiative
1	Training initiatives	Science communication	Open science
2	ART Program	APEC S&T Mentoring Center for the Gifted in Science	
4	APEC Research and Technology (ART)	High Level Policy Dialogue on STI in Higher Education (HLPD-STHE)	Earthquake Simulation Workshop
5	APEC Internet of Vehicles		
6	ASPIRE	ART program	APEC Young Scientist Workshop on Effective Science Communication in the 21st Century
7	APCC climate symposiums and events	ACTS workshops	ACES
8	APEC Internet of Vehicles (IoV) Forum	APEC Climate Centre's Forums/Workshops on Disaster Preparedness and Management	APEC Co-incubation Training Workshop
9	APEC S&T Mentoring Center for Gifted in Science	APEC Science Prize for Innovation Research and Education (ASPIRE)	Workshop/Seminar that deals with sharing of knowledge and best practices
10	Establishment of Group of National Science Advisors	Young Scientist of the Year Competition	Individual Economy Initiatives`
11	APEC Smart City Forum and Exhibition on Information Technology	Internet of Vehicles - Phase 2: A Global Exhibition + Symposium in Asia-Pacific	Regional Workshops on Measurement Challenges in Renewable Energy



**Question 3** – PPSTI’s mission includes the aim of enhancing regional S&T connectivity – name the top three initiatives since 2013 which you consider to have been important in meeting this objective.

No.	First initiative	Second initiative	Third initiative
1	Early career innovations	Communication capability	Models of entrepreneurship
2	ASPIRE	APEC Smart City Forum and Exhibition on Information technology	
4	APEC Smart City Forum and Exhibition on Information Technology	An Exhibition and STI Policy Workshop on Intelligent Transportation (Internet of Vehicles--IoV)	APEC Virtual Centre project
5	APEC Typhoon Symposium 2015	APEC Smart City Forum and Exhibition on Information Technology	Promoting innovative and high value-added recycling production technologies for sustainable development of APEC's regional connectivity
6	Toward Innovation-Driven Development Initiative	long term mechanisms under PPSTI	APEC Smart City Forums
7	ASPIRE	Young Scientist Workshop	
8	APEC Smart City Forum	APEC Climate Centre's Forums/Workshops on Disaster Preparedness and Management	
9	ART Program	Establishment of regional database	
10	The PPSTI Meetings themselves	The various workshops held in between	
11	The Co-Establishment of an Online Service Platform for Collaborative Innovation of SMEs in APEC Member Economies	Identification of long-term priorities for international STI cooperation in APEC	Regional Workshop on Measurement Challenges in Renewable Energy and Climate Science

**Question 4** – PPSTI’s mission includes the promoting an enabling environment for innovation – name the top three initiatives since 2013 which you consider to have been important in meeting this objective.

No.	First initiative	Second initiative	Third initiative
1	PPSTI policy recommendation to enhance the ecosystem	data sharing	Academia, industry and government connectivity
2	APEC Workshop on Commercialization and Popularization of Research and Market-based Innovation through Policy Translation	APEC PPSTI Innovation Policy Sharing Seminar	x
4	Workshop on Commercialization and Popularization of Research and Market-based Innovations through Policy Translation	Development of Methodology and Analysis of STI Co-operation in APEC Region	An Exhibition and STI Policy Workshop on Intelligent Transportation (Internet of Vehicles--IoV)
5	APEC Workshop on Commercialization and Popularization of Research and Market-based Innovations through Policy Translation		
6	Toward Innovation-Driven Development Initiative	APEC Internet of Vehicle cooperation projects (Phase I & II)	The Co-establishment of an Online Service Platform for Collaboration Innovation of SMEs in APEC Member Economies
7	ART program	Internet of Vehicles	
8	APEC Internet of Vehicles (IoV) Forum	APEC Smart City Forum	APEC Climate Centre's Forums/Workshops on Disaster Preparedness and Management
9	Private sector engagement program	Innovation and Commercialization Initiatives	Technology Transfer
11	APEC Smart City Forum and Exhibition on Information Technology	Internet of Vehicles - IoV Project Phase 2: A Global Exhibition with a Symposium in the Asia-Pacific Region Internet of Vehicles	

**Question 5** – The rows below list the factors which PPSTI’s 2016-2025 Strategic Plan deems to be critical for the success of PPSTI’s mission. Please nominate how well you feel PPSTI is currently positioned to meet these critical success factors.\*

FACTOR	Average Score
Enhancing capacity-building through individual workshops and projects	4.36
Sharing of best practices	4.09
Development and implementation of projects aligned with PPSTI’s objectives	4.00
Active participation by member economies in PPSTI’s initiatives	4.00
Collaboration among stakeholders to facilitate dialogue and create opportunities to exchange views and share knowledge	3.82
Promoting collaboration with other APEC fora	3.82
Commitment by stakeholders to identifying and addressing issues and needs	3.73
Avoiding duplication of work by other APEC fora	3.73
Adapting to changing circumstances to meet the needs of the “new normal”	3.36
Development of policy recommendations	3.18
Active participation by private sector and academia from member economies in PPSTI’s initiatives	3.00
Adequate funding for PPSTI proposed activities	2.55

*\*Note – this and other questions asked for responses on a Likert scale from “Strongly Disagree” to “Strongly Agree”, with the midpoint neutral. These were converted to scores of between 1 (strongly disagree) to 5 (strongly agree) and are presented as averages for these and similar questions.*

All 11 respondents answered this question. An average score of 4 equates to an “agree” and that of 3 is neutral.

**Question 6** – Please suggest ways to improve action on any items above which you ranked “Disagree” or “Strongly Disagree”

Suggestions:

- ❖ source fund from private sector
- ❖ Private actors complicated to participate, leaving out innovation aspects.
- ❖ All require a pro-active and co-ordinated approach.

#### PPSTI and Other APEC Fora

**Question 7** – PPSTI aims, among other things, to work collaboratively with other APEC fora to enhance its own activities and to reduce duplication. PPSTI’s work plan is already relevant to that of several other APEC working groups, many of which have been involved in PPSTI’s work. Please rank the relative importance of the following APEC fora to PPSTI’s existing work (1 is highest, 7 lowest)

APEC FORUM	Average	Reasons for top ranking*
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	rank	
Human Resources Development	3.4	Relevance to S&T capacity building and cross-cutting theme to most S&T activities and direct relevance to PPSTI “building science capacity” sub-group
Disaster management	3.9	Direct relevance to several APEC Centers
Energy	4.1	
Transportation	4.3	
SME	4.4	
Emergency preparedness	4.4	
Health	5.1	
Telecommunications	6.5	

*Note – 9 respondents ranked all working groups*

*\*Taken from answers to Question 8.*

**Question 9** – Please rank the relative importance of the following APEC fora, with which PPSTI currently does not have any working relationship, to the future work of PPSTI (1 is highest, 5 lowest)

APEC FORUM	Average rank	Potential initiatives suggested*
Policy Partnership on Food Security	2.25	Testing and Certification and Establishment of appropriate standards; and food innovation
Policy Partnership on Women and the Economy	2.75	Increase the number of women graduates from university science university programs
Agricultural Technology Cooperation	2.75	Agricultural STI development in APEC
Ocean and Fisheries	3.00	Building regional ocean and land observation systems to safeguard APEC resources and communities  Joint work on science for sustainable marine resources and ecosystems
Tourism	4.43	No suggestions
Other	N/A	Other suggestions include the APEC Study Centers Consortium, and the Sub-Committee on Standards and Conformance

*Note – 9 respondents ranked all working groups \*Taken from answers to Question 10*

*\*\*Taken from answers to Question 11*

### PPSTI and External Organisations

**Question 12** – APEC is required to work with industry as well as academia. Please indicate whether you agree or disagree in relation to whether any of the following initiatives might progress this objective

Answer Options	Average Score
Industry/academia participation in economy delegations	3.78
Industry/academia participation in PPSTI workshops	3.56
Connections with industry associations	3.44
Roundtable events involving industry/academia	3.33
Industry/academia involvement in development of the work plan	3.22
Industry/academia leading of PPSTI workshops	3.0

*\*Likert scale question*

Ten respondents answered this question. An average score of 4 equates to an “agree” and that of 3 is neutral.

**Question 13** - Please provide details of one initiative by organisations other than PPSTI which has been, in your opinion, successful in strengthening ties between an APEC forum and industry/academia

Initiatives suggested included “food security” and Cooperative Alliance for Technical and Vocational Education and Training (TVET) / Career and Technical Education (CTE)

### ABAC and ECOTECH Priorities

**Question 14** – What do you consider to be the main role of the Principal Adviser, whose role is related to the APEC Business Advisory Council (ABAC)?

Responses:

- ❖ Connecting academia and industry
- ❖ Private sector priorities
- ❖ The principal adviser should act as a conduit between the PPSTI and ABAC. The advisor should also provide advice on how best to work with industry to improve the relevance of outcomes.
- ❖ Increase direct communication with Program Officers and stakeholders participating in the various APEC fora.
- ❖ Enhancing the connection between PPSTI and business sector and conveying the policy recommendations from business sector to PPSTI.
- ❖ Advice, Expertise, Liaison with ABAC if appropriate
- ❖ To come up with ways on how to bridge the gap on the work done by PPSTI so that we can get support from ABAC on PPSTI's work
- ❖ To Act as the Bridge and Conduit between PPSTI and ABAC
- ❖ To shape PPSTI work in a way that it becomes useful for private sector

**Question 15** – How do you think that PPSTI could best improve its relationship with ABAC?

- ❖ provide solutions for industry
- ❖ Joint activity
- ❖ PPST needs to clarify its identity; set clearer, more meaningful and achievable goals; and then actively engage with ABAC by seeking its input and provide regular and meaningful status updates.
- ❖ Improve communication mechanisms between ABAC and PPSTI through the sharing of executive documents stating clearly ABAC’s priorities in relation to STI activities and needs.
- ❖ PPSTI should design more tangible programs & projects, which could attract more enterprises to participate in PPSTI activities.
- ❖ Set up PPSTI-ABAC roundtables, etc.
- ❖ To have a private sector engagement strategy
- ❖ Working on a Project by Project Basis
- ❖ get them engaged - give them ample opportunity to design agenda

**Question 16** – APEC senior official endorsed a new Framework to Guide APEC-funded capacity building and all ECOTECH activities. Please identify what initiatives of PPSTI have supported the following medium term ECOTECH priorities agreed since 2013

INITIATIVE	Initiative
Regional Economic Integration	Workshop on Commercialization and Popularization of Research and Market-based Innovations through Policy Translation  APEC Workshop on Commercialization and Population of Research and Market-based Innovations through Policy Translation, The Co-establishment of an Online Service Platform for Collaborative Innovation of SMEs in APEC Member Economies
Addressing the social dimensions of globalisation	APEC Virtual Center Project APEC Smart City Forums
Safeguarding the quality of life through sustainable growth	Development of Bioenergy Crops as Renewable Energy Sources for APEC Economies  APEC Internet of Vehicle project, Green Video Festival, Workshop on Energy Efficiency for a Sustainable Asia-Pacific Community
Structural reform	High Level Policy Dialogue on Science and Technology in Higher Education (HLPD-STHE)  Advanced Co-Incubation Training Forum, HLPD-STHE
Human security	Use of Weather and Climate Information for Efficient Disaster Management  Initiatives from APEC Climate Center and APEC Research Center for Typhoon and Society, APEC Workshop on Strategies to Address Non-Communicable Diseases

*Note – two respondents*

**Question 17** - Please comment on any areas where you feel that PPSTI has failed to support APEC's ECOTECH priorities as listed above

1. The PPSTI could show more commitment to achieve the objective of promoting inclusive growth among the APEC economies by creating specific initiatives for women and developing economies.
2. I don't think PPSTI has failed to support any APEC's ECOTECH priorities but I agree that PPSTI might consider to strengthen its work on regional economic integration and structural reform.

**Question 18** – Rank the following barriers to meeting APEC’s ECOTECH objectives since 2013, from PPSTI’s perspective.

BARRIER	Average rank in descending order of importance
Lack of central funds for PPSTI projects	6.38
Lack of support from ABAC	5.38
Lack of industry involvement with PPSTI’s work plan	5.00
Lack of engagement initiated by PPSTI with other APEC fora	4.88
Lack of engagement initiated by other APEC fora with PPSTI	3.50
Lack of academic involvement with PPSTI’s work plan	3.25
Lack of self-funding of PPSTI projects from individual economies	2.50
Unwillingness of other APEC fora to engage with PPSTI	2.00

*Note – original question asked for 1 highest – this has been converted to align with the presentation of data in other tables in this Appendix, for ease of comparison. Many respondents only partially completed the question with max respondents = 8.*

**Question 19** - Are there any other factors which you consider to be barriers to PPSTI's ability to meet APEC's ECOTECH objectives since 2013 (apart from those listed in Q18)?

1. Each implements his own projects. It leads to fragmentation of outcomes. PPSTI needs more joint efforts.
2. Lack of policy formulation and joint agreement on them

**Question 20** – APEC’s Tasking Statement for 2015 sets a number of foci for PPSTI. How well do you think that PPSTI is addressing these?

FOCUS	Average score*
Acknowledge and support collaboration among young scientists in the APEC region through the APEC Science Prize for Innovation, Research and Education (ASPIRE)	4.27
Progress work to identify new technologies to improve a collective response to disasters and emergencies including those affecting SMEs and Global Value Chains	3.82
Strengthen promotion of regional S&T collaborations	3.73
Improve the environment for SME’s innovation and further strengthen SME’s innovation capacity	3.73

Explore feasible ways to drive SME innovation based on information technology and e-commerce	3.55
Organise future Innovation Technology Dialogues to discuss key emerging technology markets and related technologies and prospects for the application in terms of addressing current challenges facing Asia-Pacific economies	3.27
Sustain momentum from economies to provide policy support for women’s economic empowerment and establish a gender-responsive enabling environment to advance women’s full and equal economic participation	3.00
Make efforts to raise the proportion of public finance for innovation in S&T and related fields (targeted at PPSTI economies)	2.82

*\*Likert scale question, 3 9 is neutral, higher is better*

All respondents answered this question. A score of 4 is equivalent to “well” and a score of 3 is neutral.

**Question 21** - Please suggest one way that one of the areas (if any) that you have ranked poorly or extremely poorly in Question 20 (above) can be improved

1. Currently, many project organisers only make a token effort to specifically involve women their projects, More genuine efforts would help advance women's economic participation
2. Create specific prizes for women entrepreneurs and/or academics
3. Interface with the Private Sector and Academia
4. Engagement of the SME community

**Question 22** – Please list ways that PPSTI could support APEC’s medium term priorities

Priorities	Suggestions
Developing human capital through capacity building	Brand APEC PPSTI training program Funding The development of cross-regional workshops supported by all economies that encourage connectivity and collaboration across and within regions. Increase direct cooperation with the Human Resources Development Working Group PPSTI could organize more training courses to enhance science capacity building. Capacity Sub-Group to enhance current and explore new projects Trainings and workshops, enculturation All require focus and delivery time scales ART is a good model but further consultation across APEC members required in terms of its agenda and meeting objectives
Developing and strengthening the dynamism of SMEs	Database of APEC economies SMEs control organisation Funding Building on China's web resources for SMEs and extending these resources regionally in order to share information on



	<p>entrepreneurial programs, best practice and policy recommendations, mirroring similar initiatives in Europe</p> <p>Facilitate access to venture capital funding and capacity building opportunities for SMEs.</p> <p>Help SMEs to enhance innovation capacity and facilitate Links with academia and access to universities' technological outcomes.</p> <p>Rank projects highly that have SME component; consider a second PPSTI symposium with SME component</p> <p>Private sector engagement program</p> <p>Need engagement from SME communities and innovation policy makers</p>
Harnessing technologies for the future and supporting innovation	<p>Sharing knowledge that have solution based to address needs</p> <p>Information</p> <p>Through workshops showcasing particular technologies across the region, allow opportunities for connecting industries and research in the region.</p> <p>Support dialogue between the industry and the academia on Smart Cities topic</p> <p>Implement more tangible projects such as joint research, the common use of large-scale labs</p> <p>Innovation Sub-group to enhance current and explore new projects</p> <p>Technology foresighting</p>
Regional economic integration	<p>Common innovation policy</p> <p>Networking</p> <p>Increased opportunities for human capital mobility through joint initiatives between member economies</p> <p>Contribute to regional economic integration by scientific and technological cooperation.</p> <p>Connectivity Sub-group to enhance current and explore new projects</p>
Structural reform	<p>Coordination body</p> <p>Advocacy</p> <p>Present successful cases of structural reforms which have enhanced better cooperation for STI joint activities</p> <p>PPSTI could promote structural reform by policy coordination such as facilitation of investment to R&amp;D to create more jobs</p> <p>Policy dialogue</p> <p>Research work could be done on ST&amp;I structural reform in given APEC economies to help shape recommendations</p>
Safeguarding the quality of life through sustainable growth	<p>SST solutions for sustainable growth</p> <p>Funding</p> <p>Foster scientific cooperation on climate change effects measurement and mitigation</p> <p>PPSTI could pay more attention to the S&amp;T domains which are closely related to the improvement of people's livelihood and daily life, such as medicine, renewable energy etc.</p> <p>Sharing of best practices</p> <p>Joint research projects could be launched on issues such as</p>

	marine preservation and green energy,
Inclusive growth – addressing the social dimension of globalisation, health and gender	<p>Sharing experience on how to mitigate the social issues</p> <p>Information</p> <p>Developing APEC policy statements that regions can aspire and work towards</p> <p>Creation of a set of indicators to identify the beneficiaries of the PPSTI initiatives</p> <p>PPSTI could promote the ITC and medical technologies to enhance regional connectivity and globalization and health.</p> <p>PPSTI could call for more active participation of women in R&amp;D activities</p> <p>Rank projects highly with social dimension</p> <p>More bottom of the pyramid approach</p> <p>Considerations could be given to projects on how best to leverage ST&amp;I for inclusive development</p>
Human security	<p>Common policy among APEC economies</p> <p>Information</p> <p>Create opportunities for regional political dialogue on the main issues affecting food security and disaster management in the APEC economies</p> <p>Contribute to secure growth through its APCC, ACES and ACTS networks and programs.</p>

#### PPSTI's Efficiency

**Question 23** – PPSTI is served by a Secretariat based in Singapore. For each statement please indicate your level of agreement to the following questions which relate to the efficiency of the Secretariat

Efficiency Measure	Average score*
Meeting agenda documents are made available within a short time of their receipt by the secretariat	4.45
After each meeting, summaries and other meeting outcome documents are made available promptly on the APEC meeting document site	4.45
Meetings are managed smoothly	4.18
The number of documents provided for meeting is manageable	4.09
Meetings run to time	3.91
The three sub-groups around which meetings are currently structured enable the PPSTI to focus on its main objectives	3.73
The structure of the meeting agenda is well matched the aims and objectives of the PPSTI	3.64
There is sufficient funding available for the PPSTI's projects	2.00

\*Likert scale question, 3 is neutral, higher is better

All respondents answered this question. A score of 4 is "agree" and a score of 3 is neutral.

**Question 24** – What do you suggest, if anything, that would make the PPSTI secretariat more efficient than it is today?

1. Ability to synthesise the programs and initiatives towards common goal
2. Strong coordination
3. We have found the PPSTI secretariat to be highly effective.
4. Prepare a calendar of activities on a yearly basis to share with PPSTI members. Communicate clear profiles of the experts required for each of the activities (workshops, symposiums, etc.)
5. More staff and involvement
6. MORE RESOURCES

**Question 25** – What suggestions do you have for improving the process of developing the work plan?

1. The secretariat to work closely with the chair to strategies in order to achieve the goals
2. Consultation with all economies
3. Start by developing a clearer set of objectives and then map key activities to each objective. Providing more time to consult on the plan would also help. In addition it would be helpful to have more focus on cross-regional activities agreed to be all economies, rather than single economies.
4. Could be managed by select group of member economies (such as friends of the chair committee)
5. Improve dialogue with PPSTI members: introduction of APEC structure, bodies and priorities; elaborate a statement of their responsibilities; communicate outputs and conclusions of main activities.
6. More PPSTI members should be active involved in the process of developing the work plan and share their constructive ideas and inputs.
7. Have the work plan developed into an action plan
8. A realistic approach to deliverables

**Question 26** – Characteristics of respondents

Respondents ranged from Researcher to Head of Delegation.

## APPENDIX D – FACE TO FACE SURVEY

### PPSTI Independent review – guide for face to face interview

*The following questions were used as the basis for a face to face discussion during the PPSTI meeting in Manila in August 2015. Where the delegation also answered the written survey, the opportunity was taken to clarify or expand on some of the issues raised.*

1. Introduction to the discussion –how long respondents have been on PPSTI, general background, describe purpose of the face to face as supplementary to the survey
2. PPSTI came into being in 2012 after the mandate of the former Science and Technology Working Group was extended to include innovation. What has been the main evidence of the change in activities and focus since that mandate was extended?
3. The 2014 APEC Leaders’ statement included endorsement of the initiative “Toward Innovation Driven Development”, which came from PPSTI. This included fostering of partnerships and dialogues. How do you think PPSTI could achieve this objective, beyond what it is already doing?
4. Where are the gaps in PPSTI’s work program, in relation to its stated objectives?
5. Many of PPSTI’s new projects were not funded last year. What processes could be improved to increase the chance of getting funding for PPSTI projects in the future?
  - a. What other sources of funding might there be for those that were not self-funded?
6. What overlaps (if any) do you see between PPSTI and other APEC working groups?
7. How can PPSTI enhance its response to gender issues in APEC?
8. If PPSTI had more resources, what would be the first thing you would recommend it does?
9. What do you think ought to be the main three recommendations from this review?

The following people were interviewed for the study:

- ❖ Guests Mr Sherwin Nones (industry), the Association of Pacific Rim Universities delegate, Mr Mark Robertson (Wiley)
- ❖ Members of the delegations of Australia, Chinese Taipei, Japan, Malaysia, Papua New Guinea, the Philippines, People’s Republic of China, Russia, USA
- ❖ Project Manager for PPSTI
- ❖ Special Advisor to PPSTI

## APPENDIX E – SOURCE DOCUMENTS

The following documents were reviewed for information on PPSTI's and APEC's terms of reference, objectives etc:

2014 Leaders' Declaration: The 22nd APEC Economic Leaders' Declaration - *Beijing Agenda for an Integrated, Innovative and Interconnected Asia-Pacific* (This statement endorsed PPSTI's proposal *Toward Innovation-Driven Development*).

ABAC (2015): *Innovation for Inclusive Growth*, paper presented to ABAC meeting August 2015, Melbourne Australia

APEC (2012) – *Bogor Goals Progress Report* <http://www.apec.org/About-Us/About-APEC/Achievements%20and%20Benefits/2012-Bogor-Goals.aspx>

APEC (2014): 22<sup>nd</sup> APEC Economic Leaders' Declaration – *Beijing Agenda for an Integrated, Innovative and Interconnected Asia-Pacific*, [http://apec.org/Meeting-Papers/Leaders-Declarations/2014/2014\\_aelm.aspx](http://apec.org/Meeting-Papers/Leaders-Declarations/2014/2014_aelm.aspx)

APEC Policy Partnership on Science and Technology 5 – Agenda for its Meeting, May 2015 – and the set of documents provided for or tabled at the meeting including the Executive Summary APEC 2015/SOM2/PPSTI/061

APEC Policy Partnership on Science and Technology 6 – Agenda for its Meeting, August 2015 –and the set of documents provided for or tabled at the meeting

APEC Policy Partnership on Science, Technology and Innovation (2012): *Terms of Reference*, 2012/CSOM/021

APEC Policy Partnership on Science, Technology and Innovation (2013): *Summary Meeting*, Surabaya, Indonesia, 09 – 11 April 2013

APEC Policy Partnership on Science, Technology and Innovation (2015): *Annual Work Plan*

APEC Policy Partnership on Science, Technology and Innovation (2015): *Policy Statement* 2015/SOM2/PPSTI/045 (submitted by the Philippines to the May 2015 meeting)

APEC Policy Partnership on Science, Technology and Innovation (2015): *Strategic Plan (2016-2025) – Draft* – presented at the May 2015 meeting and final adopted at the August meeting

APEC Policy Partnership on Science, Technology and Innovation (PPSTI) (2012): *Terms of Reference*, 2012/CSOM/021, Agenda Item: 5c

APEC Secretariat (2014): *Guidebook on APEC Projects*, Edition 9, February 2014

APEC Senior Officials (2012): *Report on Economic and Technical Cooperation*, September 2012, APEC#212-SE-01.2

APEC Senior Officials (2014): *Toward Innovation-Driven Development*, paper presented at the Concluding Senior Officials' Meeting, Beijing, China, 5-6 November 2014. 2014/CSOM/010

APEC Senior Officials (2014): *APEC 2014 Senior Officials Tasking Statement (for 2015)*, Informal Senior Officials' Meeting, Manila, Philippines, 9 December 2014.

APEC Senior Officials' Steering Committee on Economic and Technical Cooperation (2010): *Terms of Reference*, February 2010

## APPENDIX F – PPSTI PUBLICATIONS

### 2013:

APEC Workshop on Innovation Service Chain Based on Information Technology  
Accessed 1017 times

Low Carbon Intelligent Operations for Textile Industry  
Accessed 1529 times

APEC Smart City Industrial Technology Cooperation Forum – Final Report  
Accessed 1795 times

### 2014:

Policy Practice and Technology Applications – Experiences In low Carbon Emission  
Operations in Chinese Taipei  
Accessed 721 times

Cooperative Study on Efficient Renewable Resources Integration and Distribution  
Technology for Smart Grid Construction  
Accessed 892 times

### 2015:

Nil

## APPENDIX G – DETAILED MAP OF PPSTI’S ACTIVITIES AGAINST ITS TERMS OF REFERENCE

Term of Reference	Tasks	Sub-group	2015 Work Plan - primary purpose	Relevance to other WG
Develop S&T cooperation	To develop networks/platforms that foster STI cooperation	C	Use of weather and climate data for efficient disaster management/ disaster risk reduction ASPIRE Science Prize for Research and Education APEC Young Scientist Workshop on Science Communication <b>APEC Climate Centre</b> <b>Asia Pacific Centre for Theoretical Physics</b> <b>APEC Centre for Technology Foresight</b> <b>APEC Cooperation for Earthquake Simulation</b>	Emergency Preparedness
Develop effective innovation policy	To develop a common approach to ST&I policy that promote development, dissemination and commercialization of R&D	B	Innovation policy sharing seminar High Level Policy Dialogue on S&T in Higher Education APEC Workshop on Commercialisation and Innovations through Policy Translation APEC Workshop on Strategies to Address Non-communicable Diseases Regional database on herbal medicine	SMEs  Health  Health
	To discuss mechanisms to evaluate innovation cooperation within APEC to better develop policy recommendations	B	Development of Methodology and Analysis of STI Co-operation in APEC Region	
Enhance economic growth, trade and investment opportunities	To encourage an environment that enables cross-border investment in cutting edge technologies	B	Several projects include aspects of cross border development of cutting edge technologies (e.g. Internet of Vehicles, BioHydrogen technologies)	
Develop market-based innovation policy to support commercialisation	To encourage establishment of seed and venture capital investment funds, technology business incubation and acceleration organizations, by propagating successful models	A	<i>Nil identified</i>	

Promote innovation capacity	To encourage innovation capacity building, including absorptive capacity, through development of human capital, scientific research and infrastructure	A	APEC Research and Technology Program <b>APEC S&amp;T Mentoring Centre for Gifted in Science</b> Green Video Festival	SMEs
	To facilitate voluntary, market-driven dissemination of technology and promote a relevant legal framework and regulatory environment	A	<i>Nil identified</i>	
Facilitate innovative cooperation	To strengthen cooperative projects and programs related to the technology inception, dissemination and commercialization cycle	C	Exhibition and Workshop on Intelligent Transport <b>APEC Research Centre for Typhoon and Society</b> Renewable Energy & Climate Change Metrology & Technology Challenges Workshop Promoting innovative and high value-added recycling technologies for sustainable regional connectivity Smart City Innovation and Technology Coop'n Forum APEC Single Gateway for environmental innovation <b>APEC Research Centre for Advanced BioHydrogen Technology</b>	Transportation Disaster M'gnt  Energy  Energy