出國報告（出國類別：其他）

參加2012亞洲科學園區協會(ASPA)第16屆年會暨第24屆理事會議出國報告

服務機關：行政院國家科學委員會中部科學工業園區管理局
姓名職稱：李安妤/中部科學工業園區管理局投資組 業務推展科科長
趙士玲/中部科學工業園區管理局工商組 企劃研考科科員
派赴國家：越南胡志明市
出國期間：中華民國101年10月24日至10月27日
報告日期：中華民國102年1月15日

目　　錄

壹、前言

提升中科園區的國際知名度，加強國際科技合作與科技交流，加入世界科學園區組織協會，並與世界各地科學園區簽署合作協議，是本局近年來積極推動的重點業務；截至目前為止，中科在國際合作方面的成績有目共睹，除了加入亞洲科學園區協會(ASPA)、世界科學園區協會(IASP)、世界研究園區協會(AURP)等3個國際性組織之外，也陸續與韓國昌原聚落發展局、大邱科技園區、吳倉產業聚落推進團及濟州科學園區、西班牙莫西亞科學園區、日本北九州產業學術推進機構及橫須賀研究園區、英國曼徹斯特科學園區、俄羅斯托木斯克經濟特區、越南和樂高科技園區等10個科學(技)園區締結為姐妹園區，以汲取國際事務經驗，逐步讓中科與世界舞台接軌。

亞洲科學園區協會(ASPA)第 16 屆年會暨第 24 屆理事會議於 101 年 10 月 24 至 27 日在越南胡志明市(Ho Chi Minh City)西貢高科技園區舉辦，中部科學工業園區管理局由李安妤科長、趙士玲科員代表參加本次會議。本次出國主要目的有二，一是中科管理局以理事身分參加理事會議及擔任 ASPA Awards 年度獎的評審委員，二是透過參加國際性會議，分享中科園區開發經驗，增加與其他各國園區互動的機會，相互觀摩與學習，同時了解國外科學園區最新營運模式，並透過廠商參訪行程，了解越南當地產業發展現況，尋找潛在商機，蓄積中科園區招商能量。

貳、亞洲科學園區協會第16屆年會暨第24屆理事會議

一、行程

日期	時間	行程	住宿地點
10/24(三)	上午	桃園→越南胡志明市(07:20-09:45) 長榮航空 BR 395	♦KIM DO ROYAL CITY HOTEL 133 Nguyen Hue Str. Dist.1 Ho Chi Minh City, Vietnam Tel:(848)38225914
	下午	♦16:00-17:00 參加 ASPA 理事會議 ♦17:00-19:00 ASPA 大會報到	
10/25(四)	上午	參加 2012 ASPA 年會 ♦8:00-9:00 開幕式 ♦9:00-10:15 參加專題演講 ♦10:15-12:00 參加 ASPA 年度獎決選評審作業	♦KIM DO ROYAL CITY HOTEL
	下午	♦14:30-18:00 拜訪越南醫療器材廠商 THUY AN ♦19:00-21:00 參加 ASPA 年度獎頒獎典禮	
10/26(五)	上午	參加 2012 ASPA 年會 ♦8:00-10:30 參加專題演講 ♦10:30-11:30 閉幕式	♦KIM DO ROYAL CITY HOTEL
	下午	14:00-18:00 胡志明市文化之旅	
10/27(六)	下午	越南胡志明市→桃園(12:55-17:15) 長榮航空 BR 392	

二、參與狀況

亞洲科學園區協會（Asian Science Park Association）自 1997 年成立以來，迄今已有 15 年的歷史，會員園區數也穩定成長中，目前有 105 個會員，早期以台、日、韓、中之科學園區為主，漸漸的擴展到其他國家，

ASPA 已成為開發中國家學習園區開發的重要平台，2012 年有 13 名新成員加入，包含韓國、伊朗、澳洲、蘇俄、蒙古、香港、泰國、印尼及馬來西亞等國，繼伊朗舉辦 2011 年 ASPA 第 15 屆年會之後，越南西貢科技園區(Siagon Hi-Tech Park)也積極爭取主辦 2012 年 ASPA 第 16 屆年會暨第 24 屆理事會議，顯示出開發中國家參與國際事務及對國家發展的的強烈企圖心。

中科管理局於 2011 年主辦 ASPA 第 6 屆領袖會議之後，已正式成為 ASPA 理事一員，本次年會首場重頭戲，即是率先登場的第 24 屆理事會議，本局李安妤科長以理事代表身分參與理事會議及擔任 ASPA Awards 年度獎的評審委員。

(一)ASPA 第 24 理事會議

ASPA 第 24 屆理事會議於 10 月 24 日下午 4 點在胡志明市的 REX HOTEL 召開，計有來自日本神奈川園區及京都研究園區、韓國京畿科技園區及大邱科技園區、越南和樂高科技園區及西貢高科技園區、伊朗伊斯法罕科技城、約旦科技城、台灣新竹科學園區及中部科學工業園區等多國理事代表與會，討論 ASPA 會務相關議題。

本次理事會議主要議程及重要討論結果如下：

1.2012 年 ASPA 會員狀態：

2012 年新增會員 13 個，其中韓國 4 個、伊朗 2 個，以及澳洲、蘇俄、蒙古、香港、泰國、印尼、馬來西亞各 1 個，因

此會員總數達到 105 個，包括 14 個理事、44 個園區/組織、34 家公司會員及 13 個個人會員。

2. 本屆理事會議有下列幾項重要任務與決議：

(1)評選下一屆(第 7 屆)ASPA 主席

14 位理事無異議通過由韓國李鍾炫博士續任。

(2)評選 2014 年第 18 屆 ASPA 年會主辦國

由伊朗 Fars Science andTechnology Parks 奪得主辦權。

(3)變更 ASPA Awards 提名、候選資格及方式

考量公平性與透明度,ASPA Awards 推薦人須具有會員資歷兩年以上，且為鼓勵新創公司，ASPA Awards 候選人名單中，至少須有一家為新興公司;定義新興公司為成立 3-6 年公司、成長中公司為成立 7-15 年公司。

101.10.24 ASPA 第 24 屆理事會議　與會理事合影

(二)2012 年 ASPA　Awards 年度獎總決賽評選作業

本屆理事會議最讓人印象深刻的，就是 10 月 25 日上午參與 ASPA Awards 年度獎的決選作業，擔任首獎的評審委員，本次年會召開之前，已先行進行年度獎初審作業，評選出下列 5 家公司參加最後階段的決選(依據簡報順序):

候選公司	提名代表
Data Processing Shole Aria Company	Isfahan Science & Technology Town (伊朗)
Hi-Grimm Environmental and Research Co.,Ltd	Thailand Science Park(泰國)
Middle East Bio Researchers	University of Tehran Science and Technology(伊朗)
W-SCOPE	Kanagawa Science Park (日本神奈川)
Zetta Co., Ltd	Chungnam Technopark (韓國忠南)

評選過程是由各候選公司進行簡報後，再由每位評審委員選出 2 家公司為首獎代表，經過一番激烈的角逐，2012 年 ASPA Awards 首獎於 10 月 25 日晚上正式宣布，最後由泰國科學園區所推薦的 Hi-Grimm Environmental and Research Co.,Ltd 獲得此項殊榮，該公司創辦人 Mr.Watson Ariyaphuttarat 曾經來台灣參加 2012 年 9 月台北國際發明暨技術交易展，所以對台灣有很好的印象，其生動活潑的簡報方式，著實令人印象深刻，而且該公司所研發的產品充分結合本次會議主軸-綠色經濟，其之獲獎確是實至名歸。

泰國 Hi-Grimm Environmental and Research Co.,Ltd 簡介如下：

- 2008 年成立之新創生技研發公司
- 前瞻性創新技術（green+innovation）新開發的研究領域
  -生物復育(Bioremediation)
  某些突變的微生物或植物,可以分解汙染物的特殊分子,嚐試以生物方式來復育。
- 藉由生物科技的力量來減少各種重金屬、核廢料以及原油的污

染處理，相較於物理化學領域人類對生命科學有更高的期許。

101.10.25 ASPA Awards 年度獎總決賽評選作業

獲得年度首獎的泰國 Hi-Grimm Environmental and Research Co.,Ltd 簡報情形

(三)年會專題演講

本屆年會出席人數踴躍，分別有來自亞洲科學園區代表、企業界、學界、甚至金融界人士共計 208 人參與盛會 ，其中國內 126 人、國外 82 人，會議主題係配合全球節能減碳及綠色浪潮，以「科學園區邁向綠色經濟」為主軸，期望園區的永續發展，是建立於正在改變世界的友善環境科技基礎上，而在追求綠色發展與創新的過程中，科技園區扮演重要的中介角色。

在短短一天半的時間裏，大會十分用心的安排了 4 場論壇，邀請 25 位國際專家學者進行下列相關之延伸探討：

- 科學、科技與創新，是經濟永續發展的趨動力。
- 加速國際合作，科學園區邁向綠色成長。
- 園區永續發展，奠基於友善環境與科技合作的基礎。
- 追求綠色發展與創新的過程中，科技園區扮演重要的中介角色。
- 科學園區的產學合作。

參與年會期間，透過世界各國科學園區與會代表之論文發表，了解各國園區的發展、規劃與策略，借鏡大家的寶貴經驗，做為日後中科園區產業發展與永續成長的學習參考。更重要的是，與來自亞洲各地科學園區代表分享經驗，並透過文化與生活交流，激盪出創新的思維模式，各國代表之論文發表，亦可適度與國內園區發展軌跡進行優劣比較，尋求最適合台灣發展的模式。

(四)廠商參訪

1. THUY AN 公司簡介

ThuyAn Trade
Living a Better Life

THUY AN 公司總部設在台灣台中，為醫療器材通路商，在越南胡志明市設立據點已逾三年，針對越南醫材市場做行銷佈局。該公司主要營業項目為各類醫療器材、手術器械、醫療設備、檢驗產品及藥品等相關產品之進口銷售業務。THUY AN 公司在越南的主要客戶群為當地醫院及其他通路商，此外，也販售至位於胡志明市的藥品市場，客戶層相當廣泛。

2. THUY AN 公司參訪情形

本次參訪係由南科管理局林威呈副局長、業推科王雅嫻科長、中科管理局李安妤科長、趙士玲科員、金屬中心陳進明副執行長、呂姝嬋專員共六位人員參與，拜會 THUY AN 公司海外部梁彥宇總裁，當天同時邀請到台灣普惠醫工股份有限公司莊正國總經理一同與會，普惠醫工公司為越南唯一一家台灣人設立的醫療器材工廠，THUY

AN 公司及普惠醫工公司分享了許多台商在越南投資與設廠的經驗，也針對越南醫材市場概況做了介紹；目前越南當地的醫療器材產業技術發展尚在起步階段，且極度仰賴進口，在近年越南政府以計畫性的政策手段將醫療產業列為優先獎勵投資項目，鼓勵外商投資並提供多項優惠條件，又越南為東國協之一員，市場潛力前景不容小覷，可考量作為台灣醫療器材廠商踏入東南亞市場的參考之一。

此外，我們對越南人力資源市場的發展現況也有更進一步的認識，越南本地勞工效率約僅為台灣勞工的三分之一，另因成本考量，目前很多越南廠商的基層主管係進用大陸幹部，中、高階主管則由台幹擔任，透過參訪，讓我們對越南政府的行政效率、當地的風俗民情等，都有更深入的瞭解，同時也對台灣廠商的潛在商機，有更多元與不同面向的思考，這應該是此行最大的收穫！

參訪 THUY AN 公司

(五)文化之旅

本次主辦單位西貢高科技園區於閉幕式結束之後，特別安排了半天的文化之旅，讓與會者充分感受越南文化及認識越南歷史，而此行最讓人感到驚訝的是，原名西貢的胡志明市，其國際化程度竟遠高於台北市，不同於到台灣旅遊的歐美背包客，胡志

明市區隨處可見歐美觀光旅遊團，經瞭解係因越南曾經為法屬殖民地與越戰發生地，所以當地遺有許多歐式風格的建築物、咖啡館，源於對歷史、文化的情懷，所以西方人士十分喜愛至當地感受思古之幽情。

我們首先至胡志明市的總統府參觀，這棟建築物可依說是見證了→整部越南近代史，現今已是著名的觀光景點，歐美旅客人潮如織：

1873 年 法國人建造

1887-1944 年 法屬印度支那總督辦公室

越戰期間，則是配合美軍反共大計的南越總統府

1975 年 南北越統一後，改稱統一府

接著我們觀賞了越南國寶-水上木偶戲的表演，已有一千年悠久的歷史，目前是全世界獨一無二的木偶戲，表演內容均取材自越南傳統農村生活、歷史故事、神話傳說為主，木偶戲於水池面上演出，表演者必需長時間浸泡水中，利用強勁的臂力及純熟的控繩技巧，才能讓玩偶呈現生靈活現的演出。

參、心得與建議

本屆年會雖然僅有短短的 3 天，但還是獲益匪淺，看到越南這個近年來積極竄出的新興國家，如何藉由外資的協助，努力的開發轉型，來到胡志明市，其市區與郊區雖然有著反差頗大的兩樣情，然而，整體而言，越南人們充滿積極向上的精神與希望，國力雖然不雄厚，但是仍然努力在國際舞台上發聲與自我呈現。

近年來中科積極參與國際事務，本次年會期間，除了參加重要的理事會議之外，並參與多場科學園區未來發展議題的研討會，與各國科學園區代表意見交流與經驗分享，以科技外交方式拓展國際科技合作，對提升中科的國際影響力與國際知名度，有極大助益；此外，透過拜訪越南當地牙科醫療器材通路商 THUY AN 公司，進一步瞭解越南當地產業發展現況，積極尋求潛在商機，達到中科園區產業聚落發展多元化與國際化的目標。

參加本次年會，見證了亞洲新興科學園區例如香港、泰國、印尼、伊朗的崛起，各國因經濟發展或、引進高科技產業等因素，莫不積極參與國際會議，以嶄露頭角、增加國際能見度。在參與 ASPA Awards 年度首獎的評審作業之後，同時讓我們省思，應該更加鼓勵台灣科學園區廠商加入 ASPA 會員，積極參與 ASPA Awards 年度獎的角逐，發揮另類台灣科學園區的群聚效應，而這也是行銷國際、揚名海外的最佳

時機，期許台灣科學園區能在國際舞台更加發光發熱，創造下一波的科技矽島奇蹟。

Nomination for ASPA Awards 2012

Nominating Organization				
Organization	Thailand Science Park			
Nominator	Name	Dr. Janekrishna Kanatharana		
	Position	Executive Director		
	Phone	+662 546 7200	E-mail	janekrishna@nstda.or.th

Please describe the detailed reasons for nomination.

Hi-Grimm Environmental and Research Co., Ltd. is a representative for the successful research of a Thai ecologist with scientists capability to add the value creation. We, on behalf of simple SME entrepreneur who catch the global concerns or green concept to create a greenovation products for industries. This innovation product (green+innovation) was researched and developed to resolve the industrial waste treatment problem prior to discharge to natural resources.

The nominator is a volunteer to be one of representative of "Local Ignition - Global Recognition". Our product concept only came from biotechnology of small microbes that digest oil molecule, as well as the combination between innovatization and commercialization, develop to create the greenovation product. In addition, we are also a representative innovation product which be achievement for ONE BRAND - ONE PRODUCT -THREE GREATEST RECOGNITION in Asia.

I nominate the following company for ASPA Awards 2012.

Nominated Company			
Name of Company	Hi-Grimm Environmental and Research Co., Ltd.		
Company Category	□ Growing Company	▪ The SMEs commenced within 5 ~ 10 years and being incubated by STPs ▪ Or SMEs graduated from STPs within 3 years ▪ Or SMEs after being public company within 3 years	
	√ Start Up Company	▪ The SMEs commenced within 5 years ▪ And not being invested by a big company ▪ And not a spin-off company	
Representative	Mr. Watson Ariyaputtharat	Year of Establishment	2008
Address	999 Biotechnology Factory Building-Mahidol University, Putthamonthol 4 Road, Salaya, Putthamonthol,Nakhon Pathom, 73170 Thailand.		
No. of Employees	15	Website	www.keeen.co.th
Phone / Fax	+66-2-8002570-3 / +66-2-8002779	E-mail	a.watson@keeen.co.th

Please describe the brief introduction of the nominated company.

We had collaborated with The National Center for Genetic Engineering and Biotechnology (BIOTEC), the National Science and Technology Development Agency (NSTDA) and other environmentalists on the development of new innovation, namely "Bioremediation Agent". This innovation product was researched and developed to resolve the industrial waste treatment problem prior to discharge to natural resources. We continually have Biotechnology Research and Development - Strategic Alliance in Mahidol University.

Our innovation product that developed to be the greenovation products. We is offering about 13 formulas which are created to suit the specific requirement of different industries with reasonable price while offering more effective. The production could also be closely monitored throughout all stages of production production: since culture, fermentation, formulation until product processing within the modernized technology operating facilities which is the joint research & development with Thailand's leading researcher house, BIOTEC, located in Thailand Science Park and Mahidol university.

We provide its services into seven lines of business to cater the specific demand of its customers; 1. Wastewater Treatment, 2.Oil Storage Tank Degassing & Cleaning Remediation, 3. Oil Spill Response & Cleanup, 4. Industrial Application, 5. Site Contamination & Remediation Service, 6. Sanitary Treatment and 7.Testing, Diagnosis & Research.

Please describe the history and major achievements of the nominated company.

Our company had soft-launched the product over five years throughout the industrial sector and has gained customer's satisfaction. With high efficiency and extraordinary quality, we has received warm welcome by industrial sector, including Oil, Petrochemicals, upstream to downstream petroleum sector, Automobile, Food processing, Hospitals and Residences.

We recently won a gold award at the 23rd International Invention, Innovation and Technology Exhibition (ITEX 2012) in Kuala Lumpur. We were also honored as the Best Invention in Biotechnology from Japan and the Best Invention in Environment from China. ONE BRAND - ONE PRODUCT -THREE GREATEST RECOGNITION

Please describe the personal history of the representative.

Mr. Watson Ariyaphuttarat

- Founder and Industry Pioneer, Chief Industrial Ecologist of Hi-Grimm Environmental and Research Co., Ltd.
- Green CEO of year 2011
- the committee and one of founder in Thai Bio Association
- Managing Director of Hi-Grimm Meditrade Co., Ltd.
- Managing Director of Hi-Grimm International Co., Ltd.
- Guest speaker for several industrial estates and university

Please describe the products and technologies the company has.

This innovation product is the bioremediation formulation for treatment of hydrocarbon contaminated wastewater comprises nonpathogenic sporulating bacteria, inorganic nutrients, a stabilizer, and biodegradable surfactants. The bacteria are stabilized until used and activated when applied to organic waste including hydrocarbons.

The invention relates to bioremediation of difficult organic waste including hydrocarbons. It formulates to a single liquid product for digesting and cleaning the residual hydrocarbon waste spills. The component is biodegradable thereby reducing the need for expensive waste handling and disposal.

Please describe the products and technologies the company has. (continued)

The invention relates to bioremediation of difficult organic waste including hydrocarbons comprising bacteria and biodegradable components. It formulates to a single liquid product for digesting and cleaning residual waste spills, thereby reducing the need for expensive waste handling and disposal.

There are 13 formulas that suit for different industries as following:

1. Surface Cleaner - F.O.G Digester
2. Parts Cleaner
3. Oil Spill Control
4. Bio Sanitizer
5. Wastewater Treatment
6. Odor Neutralizer
7. Natural Hand Wash
8. Max Blends
9. Oil Biosorb
10. Oil Absorbent
11. Surface Cleaner - Sensitivity
12. Germ Killer - Blood, Scale & Oil Remover
13. Odor Eliminator

Please describe the strong points of the products & technologies of the nominated company.

The presence of the inorganic nutrients solution promotes an increase in the growth and reproductive capacity of the microbes while feeding on the material being decomposed. The result of increased microbe growth and reproductive capacity is a greatly increased microbe population available to decompose waste organic compounds including hydrocarbons soon after application, and the sustaining of this microbial activity. The formulation enables microbiological digestion of difficult waste organic materials to inert volatile organic compounds, carbon dioxide and water.

The product formulates to a single product useful for digesting and for cleaning the residual hydrocarbon waste spills. Using biodegradable components which biodegrades the residual spill product in situ, thereby reducing the need for expensive waste handling and disposal methods which usually involve the removal and disposal of the contaminated soil material.

Financial Summary of Company

(Unit: US $)

Category		2009	2010	2011
Applied Exchange Rate		USD 1 = (30 baht)	USD 1 = (30 baht)	USD 1 = (30 baht)
Current Assets		5,000	150,000	300,000
Total Assets		6,700	175,000	340,000
Fixed Assets		1,700	25,000	40,000
Current Liabilities				
Total Liabilities				
Sales Revenue		200,000	400,000	800,000
Operating Profit		50,000	150,000	320,000
Net Profit		113,136.39	188,560.65	268,458.65
Sales	Domestic			
	Export			

* Please attach the audited financial statements with the nomination form (Audited Income Statement, Balance Sheet, etc).

Number of Patents	3	3	3
Amounts of Research Grants from Government	(USD)	(USD)	(USD)
Number of Awards			
Etc			

* Please attach the copies of awards and other documents to certify the facts of the table.

Asian Science Park Association
11F, Daegu Venture Center, 475, Dongdaegu-ro, Dong-gu, Daegu, 701-730, Republic of Korea
Phone: +82-53-218-4103~7 / Fax: +82-53-757-4108
E-mail: aspa@cyberaspa.org / http://www.cyberaspa.org

A bioremediation formulation for treatment of hydrocarbon contaminated wastewater comprises nonpathogenic sporulating bacteria, inorganic nutrients, a stabilizer, and biodegradable surfactants. The bacteria are stabilized until used and activated when applied to organic waste including hydrocarbons.

The invention relates to bioremediation of difficult organic waste including hydrocarbons. It formulates to a single liquid product for digesting and cleaning the residual hydrocarbon waste spills. The component is biodegradable thereby reducing the need for expensive waste handling and disposal.

The invention relates to bioremediation of difficult organic waste including hydrocarbons comprising bacteria and biodegradable components. It formulates to a single liquid product for digesting and cleaning residual waste spills, thereby reducing the need for expensive waste handling and disposal.

Abstract

A hydrocarbon-bioremediation formulation comprises of an aqueous mixture of preselected nonpathogenic sporulating bacteria, inorganic nutrients, a stabilizer, and biodegradable surfactants. The surfactant selected being harmless to the microbiological component used both when the microbes are in a spore state and when activated, and the selected biodegradable surfactants further being biodegradable by the microbes of the microbial solution. The bacteria in this mixture are stabilized until used and then activated when applied to waste organic compounds.

The presence of the inorganic nutrients solution promotes an increase in the growth and reproductive capacity of the microbes while feeding on the material being decomposed. The result of increased microbe growth and reproductive capacity is a greatly increased microbe population available to decompose waste organic compounds including hydrocarbons soon after application, and the sustaining of this microbial activity. The formulation enables microbiological digestion of difficult waste organic materials to inert volatile organic compounds, carbon dioxide and water.

The product formulates to a single product useful for digesting and for cleaning the residual hydrocarbon waste spills. Using biodegradable components which biodegrades the residual spill product in situ, thereby reducing the need for expensive waste handling and disposal methods which usually involve the removal and disposal of the contaminated soil material.

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Green way to clean up

Through a unique partnership, Watson Ariyaphuttarat found the right formula for cleaning up oil spills organically.

Business, B1

ENERGY

Slick operator

Thanks to a unique public-private partnership, Watson Ariyaphuttarat found the right formula for cleaning up oil spills organically

By **Yuthana Praiwan**

After searching for an appropriate microorganism and enzyme to treat oil spills for a decade, Hi-Grimm Environmental and Research Co has found the outcome was worth the perseverance.

The company's strenuous research and development yielded 13 formulas of microorganisms and enzymes for bioremediation (the use of organisms to remove pollutants).

Bioremediation techniques have become a major mechanism for removing oil residue from affected shorelines.

The various methods include enhancement of natural biodegradation, seeding of new bacteria and fertilisation of indigenous populations.

Watson: Chemicals not a good solution

The application of nutrients such as nitrogen and phosphorus in the form of fertilisers has proved the most effective in accelerating the biodegradation process and is environmentally safe.

Keeen, the company's product line developed with the National Center for Genetic Engineering and Biotechnology, won a gold award at the 23rd International Invention, Innovation and Technology Exhibition (Itex 2012) in Kuala Lumpur.

Keeen was also honoured as the Best Invention in Biotechnology from Japan and the Best Invention in Environment from China.

Itex, held by the Malaysian Invention and Design Society, brings together the latest innovations from universities, research institutions, individual inventors and companies in Asia and Europe.

A demonstration shows the efficiency of Hi-Grimm's Keeen line of oil-degrading bacteria. An oil spill is simulated (top), Keeen microorganisms are sprinkled in (centre), and the oil is rapidly broken down (bottom).

Itex 2012 showcased more than 800 new inventions and innovations.

The Thai product was developed by a team of scientists to screen local oil-degrading bacteria for commercial bioremediation products.

It was launched in 2010 and since then has served several industries including petrochemicals, automotive, food, hotels and hospitals.

Watson Ariyaphuttarat, Hi-Grimm's chief industrial ecologist, said oil spills a decade ago were the hardest accident to treat, whether on water or land.

"I always thought that there must be a product that can treat oil spills without chemical use," said Mr Watson, who founded Hi-Grimm himself in 1992.

Substances to treat oil spills tended to be mostly chemicals that left the oil to silt into the seabed.

"In the first five years that I studied and researched chemical substances, I decided it was not the right solution for oil spills," said Mr Watson.

In 2008, he teamed up with the National Science and Technology Development Agency's Business Incubation Center (BIC), which offers support for researchers, infrastructure, consulting and finance.

Mr Watson and BIC researchers collected soil and waste from oil pumps, tanks and refineries.

More than 30 species of microorganism were selected, eight of which were shortlisted.

Those eight were developed into formulas for oil-spill control, surface cleaning and odour elimination.

Local clients include PTT Plc, Esso, S&P Syndicate Plc, Petronas, B-Quik and Black Canyon.

Hi-Grimm recently finished a 12-million-baht factory for Keeen with monthly capacity of 1,000 tonnes at Mahidol University's Salaya campus.

"The dream of a small-business operator such as us can hardly come true without assistance from the BIC programme, as this sort of business desperately needs highly qualified researchers, financial support, infrastructure, reputation and public trust," said Mr Watson.

KEEEN & AWARDS

BY

Mr. Watson Ariyaputtharat

Hi-Grimm Environmental and Research Co., Ltd.

The Best Innovation in Biotechnology, Japan

Golden Medal Award - ITEX 2012, Malaysia

ITEX 12

Certificate of Award

This is to certify that

HI-GRIMM ENVIRONMENTAL AND RESEARCH CO.,LTD.,
WATSON ARIYAPHUTTARAT

has been awarded the

ITEX GOLD MEDAL

for the invention

BIOREMEDIATION AGENT DEVELOP TO GREENOVATION PRODUCTS

at the

23rd International Invention, Innovation & Technology Exhibition
ITEX 2012
Kuala Lumpur, Malaysia
17th - 19th May 2012

Tan Sri Datuk
Dr Augustine Ong Soon Hock
President
Malaysian Invention and Design Society

The Best Invention in Environment, China

KEEEN PRODUCTS

Thank you
for interesting in
our product