

Funding Research and Research Systems Facing Global Grand Challenges

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嘉漢林業珠三角環境應用研究中心

Sino-Forest Applied Research Centre for Pearl River Delta Environment (ARCPE)



香港浸會大學

HONG KONG BAPTIST UNIVERSITY



Hong Kong Baptist University

- One of the ten Govt Universities
- A total population of 12000 students
- Rank Top 50 Asian University, top 350 in the world
- A liberal art University with world class research
- First University with Chinese Medicine
- Seven Schools and Faculties



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Contents

- Funding opportunities in Hong Kong for sustainability research
- Experience in Securing Funds in sustainability area
 - Adjusting research directions to tap in the different research resources
 - Partnership with the different stakeholders
 - Sustainability and community engagement



Funding Sources in Hong Kong

Local Government Funding



Local Private Funding



Croucher Foundation
裘槎基金會

Mainland Funding



National
Natural
Science
Fund

Overseas Funding



Rockefeller
Brothers Fund



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Research Grant Council (by UGC) – Individual Research

- Funding exercises
 - ❖ Early Career Scheme
 - ❖ Promotes the success of the newly appointed researchers (within 3 years)
 - ❖ General Research Fund
- Focus
 - ❖ Basic and fundamental research
 - ❖ Relevance to Hong Kong
 - ❖ International academic contributor.
 - ❖ Boosting Hong Kong's scientific image globally – HK as a knowledge hub
 - ❖ Promote excellence in the higher education sector



General Research Fund



Discipline	No. of projects	Fund (Million HK\$)
Biology & Medicine	193 (20%)	158.3 (27%)
Humanities and Social Sciences	187 (19%)	97.0 (16%)
Physical Sciences	159 (16%)	101.4 (17%)
Engineering	287 (30%)	186.6 (32%)
Business Studies	143 (15%)	48.6 (8%)
Total (2014/2015 Round)	969	591.8
Total (2013/2014 Round)	920	560.6
Total (2012/2013 Round)	770	523.8
Total (2011/2012 Round)	801	643.1
Total (2010/2011 Round)	764	626.3



Research Grant Council Public Policy Research



- **Definition:** Academic research that will have explicit policy implications on public policy development in Hong Kong.
- Scheme was launched by the Government in 2005 to promote public policy research in higher education institutions.
- **Two categories:** Public policy research (PPR) & Strategic Public policy research (SPPR)
- The research areas set out by the Central Policy Unit (CPU)
 - ❖ Social
 - ❖ Public Administration / Government
 - ❖ Economic
 - ❖ cooperation with the Mainland
 - ❖ Reinforcing the Four Traditional Pillar Industries
- 12 - 20 Million HK\$ /year

Year	Total (M HK\$)#
2012/2013	17.5
2011/2012	18.2
2010/2011	12.6
2009/2010	17.6



Group Research : Collaborative Research Fund



- ❖ Promotes the consortium of researchers across disciplines and/or institutes within a research area - **bring in different expertise together**
- ❖ Establish a **critical mass of researcher** – Successful on global stage
- ❖ Around 5-8 Million HK\$/proposal; 3-5 years with renewal possibility
- ❖ **Criteria:**
 - long term goal of the proposal and its **potential to develop into an area of strength**;
 - Opportunities for **effective synergism** among the participating researchers; and



Group Research : Area of Excellence (AoE)



- ❖ Launched in 1998 – Till now 6 rounds had been undertaken
- ❖ Areas to be recognized internationally as of equal status to their peers in the same subject areas
- ❖ Additional investment in state-of-the-art facilities and activities which would maintain the researchers among the world leaders.
- ❖ Expertise from different areas for a consortium
- ❖ Co-funding from other sectors or other funding agencies are encouraged
- ❖ Give a multi-dimension to the proposed area of research
- ❖ Forces to include both basic and applied research
- ❖ Longer term goals eventually should strive for practical solutions
- ❖ Relevant to Hong Kong
- ❖ International excellence



Group Research : Area of Excellence (AoE)



Round	Year	Fund (HK\$)	No. of projects	Area
1	1999	126	3	Information Technology; Economics and Business Strategy; Plant and Fungal Biotechnology
2	2001	100	3	Molecular Neuroscience; Chinese Medicine Research; Molecular Technology for Drug Discovery and Synthesis
3	2004	95	2	Genomics & Skeletal Research; Marine Environmental Research
4	2007	106 (87)*	2	Circulating Metabolites; Pandemic and Inter-pandemic Influenza
5	2009	378 (195)*	5	Network Biology; Anthropology of Chinese Society; Nasopharyngeal Carcinoma; Molecular Functional
6	2012	144	3	Neuro-materials

Areas are not based on specific themes; but supported based on the merit, sustainability and viability to achieve the objectives of synergy, excellence and long-term effectivity

* - Other funding sources in addition to RGC



Group Research : Theme Based Research (TBRS)



- ❖ Launched with one-off grant of \$18 billion in 2009
- ❖ Focus academic research efforts on themes of strategic importance to the long-term development of Hong Kong
- ❖ 3 themes (should find a potential area within a theme)
 - ❖ *Promoting good health*
 - ❖ *Developing a sustainable environment*
 - ❖ *Enhancing Hong Kong's strategic position as a regional and international business centre*
- ❖ Encourage consortium and other funding sources
- ❖ The outcomes should address/achieve the sustainability, HK as a leader in this area



Group Research : Theme Based Research (TBRS)



Change of topics over time

Theme	Topics in 1 st round	Topics in 5 th round
Promoting good health	<ul style="list-style-type: none"> ➤ Infectious Diseases ➤ Post Genomic and Personalized Medicine ➤ Neuro-degeneration and Aging ➤ Stem Cells. 	<ul style="list-style-type: none"> ➤ Infectious Diseases ➤ Understanding Disease Mechanisms to Improving Health ➤ Stem Cells and Regenerative Medicine
Developing a sustainable environment	<ul style="list-style-type: none"> ➤ Water Pollution and Waste Water Treatment in PRD Region ➤ Sustainable Water Resources ➤ Energy Efficient Buildings ➤ Organic Photo-voltaic and LEDs ➤ Development of Effective Air Quality Management Strategies for HK & PRD ➤ Strategic Urban Planning for Resilience and Sustainability. 	<ul style="list-style-type: none"> ➤ Water Pollution and Water Treatment ➤ Sustainable Built Environment ➤ Energy Harvesting, Conversion and Conservation ➤ Air Quality
Enhancing Hong Kong's strategic position as a regional and international business centre	<ul style="list-style-type: none"> ➤ HK's Future as an International Financial Center; ➤ HK as the Knowledge Center for China Business, Economics and Institutions ➤ Understanding and Promoting HK's Networking Capability ➤ Promoting HK as a Center of Excellence for Services Innovation ➤ Creating and Developing HK's Advantages as an Education Hub ➤ Hong Kong's Legal and Governance Systems as Business Advantages (including, but not limited to Intellectual Property) 	<ul style="list-style-type: none"> ➤ HK's Future as an International Financial Centre ➤ Promoting HK's business through networking capability ➤ Promoting HK as a Centre of Excellence for Business Services ➤ Innovation and Business Creation



Group Research : Theme Based Research (TBRS)



Details of funding

Round	Theme-1 (HK\$ M)*	Theme-2 (HK\$ M)*	Theme-3 (HK\$ M)*	Total (HK\$ M)#
1	177 (4)	57 (1)	13 (1)	248 (6)
2	135 (2)	52 (2)	15 (1)	203 (5)
3	116 (2)	60 (1)	-	176 (3)
4	137 (2)	47 (1)	20 (1)	205 (4)

Theme 1: Promoting good health

Theme 2: Developing a sustainable environment

Theme 3: Enhancing Hong Kong's strategic position as a regional and international business centre

* Numbers of projects funded are presented in the parentheses

Totals may not tally due to rounding-off

Health > Environment > Business



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Innovative Technology Commission

- ❖ Supports commercially viable projects in different technology areas

Automotive Parts & Accessory Systems	Biotechnology
Chinese Medicines	Communication Technologies
Consumer Electronics	Environmental Technology
Integrated Circuit Design	Logistics & Supply Chain
Management Enabling Technologies	Nanotechnology & Advanced Materials
Opto-electronics	Textile & Clothing

- ❖ Support midstream/downstream research of universities, R&D centres, industry support organizations, professional bodies and trade and industry associations
- ❖ Types of funding
 - Innovation and Technology Support Programme (ITSP)**
 - The General Support Programme (GSP)
 - The University-Industry Collaboration Programme (UICP)
 - The Small Entrepreneur Research Assistance Programme (SERAP)



Innovation and Technology Fund

Statistics of Approved Projects (as at 30/9/2014)

Programme	Approved Projects	Funds Approved (HK\$ Million)
Innovation and Technology Support Programme	1753	7,292.0
General Support Programme	1783	637.4
University-Industry Collaboration Programme	258	294.8
Small Entrepreneur Research Assistance Programme	393	470.4
Total	4187	8,694.5



Environmental and Conservation Fund

- ❖ Relevant to Hong Kong environment – technical, social and educational
- ❖ Research, technology demonstration and other projects and activities in relation to environmental and conservation matters, as well as community waste recovery projects
- ❖ Promotes individual behavioral and life style changes to protect the environment and achieve sustainable development
- ❖ Priority Research Themes (2012-2014)
 - ❖ Climate Change - Adaptation and Mitigation
 - ❖ Waste Recycling
 - ❖ Biodiversity Studies and Conservation, and Geo Conservation
 - ❖ Air Quality



Environmental and Conservation Fund

Number of projects funded and the amount in 2013/2014

No.	Scheme	Number of projects	Amount (Million HK\$)
1	Energy Conservation Projects for NGOs	146	38.6
2	Research, Technology Demonstration and Conference Projects	17	9.9
3	Community Waste Reduction Projects & Programme of source separation	27	59.9
4	Environmental Education and Community Action Projects – General & Minor Works Projects	247	37.6
5	On-site Meal Portioning Projects in Schools	8	10.8
6	Food Waste Recycling Projects in Housing Estates	23	23.5
7	Large scale Environmental education projects coordination	8	24.4
		476	204.8

Waste reduction & food waste recycling projects are getting more attention



International Funding for Developing Countries

- ❑ Concentrate on 'Global problems in a regional context' such as disease epidemics, food safety, and environmental sustainability
- ❑ Examples of funding agencies:
 - ❑ US Agency for International Development (USAID): Works with universities, businesses, and other partners in developing countries.
 - ❑ Swedish International Development Cooperative Agency (SIDA): Offers research grants in natural sciences and health research for researchers in developing countries.
 - ❑ **Rockefeller Foundation**: Funds projects to create health research networks, to run biomedical research initiatives
 - ❑ International Development Research Centre (IDRC): Supports research in developing countries to promote growth and development focusing on reducing poverty and creating equitable access to resources and services
 - ❑ **GIZ** (German International Cooperation)





**As a Uni researcher,
how we deal with it.....**



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Adjusting the Research Directions: Retrofit with Emerging Areas

Adjusting the research directions towards the demands of the sustainable society – a way to survive and excel

Own experience

- >15 years of experience in composting a range of substrates
- Two-pilot plants in Hong Kong
- Key consultant in the waste treatment and management

Retrofitting new direction

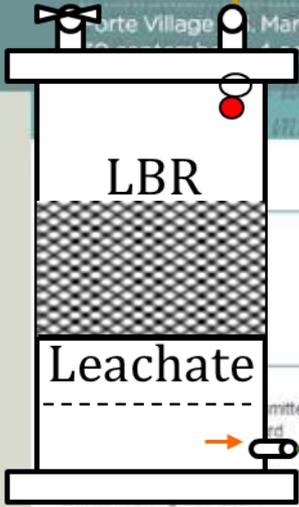
- Agricultural sustainability in Hong Kong
- Environmental sustainability
 - Waste treatment
 - Community education and awareness
 - Corporate social responsibility



Pressure sensor

INTERNATIONAL WASTE MANAGEMENT AND LANDFILL SYMPOSIUM

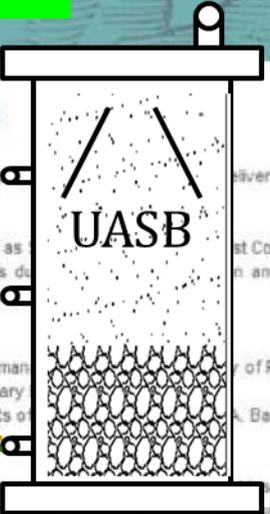
Valentini Solchiani



LBR-gas-UASB



Control LBR-UASB



MFC



AUTHOR INFO
Call for abstracts
Key dates

BEST PAPER AWARDS

Luigi Mendicino Award for the best paper on waste management
2013 Winner: 'Ways and engagements of waste management in developing countries' by M.C. Lavaonolo and S. Falli (University of Sardinia, Italy)

Kriton Curi Award
Award for the best paper on development of waste management in developing countries.
2013 Winner: 'A close view of waste management in Africa: the 'Africa and its derivatives' project' by M.C. Lavaonolo and S. Falli (University of Sardinia, Italy)

Country, an award was given to the best paper by a Brazilian author.
and demolition wastes' by F.A.S. Barbosa and E.C.G. Santos (Polytechnic University of Rio de Janeiro, Brazil)

Professor Luigi Mendicino, University of Naples, one of the first scientists to study the anaerobic digestion of organic waste.
Baril (Vienna University of Technology, Austria)

Particulars	Gas transfer	Control
Methane production (L/g VS _{added})	0.27 ± 0.04	0.22 ± 0.03
COD removal efficiency (%)	94.0 ± 4.1	90.8 ± 3.8
Contribution to methane increase	40%	

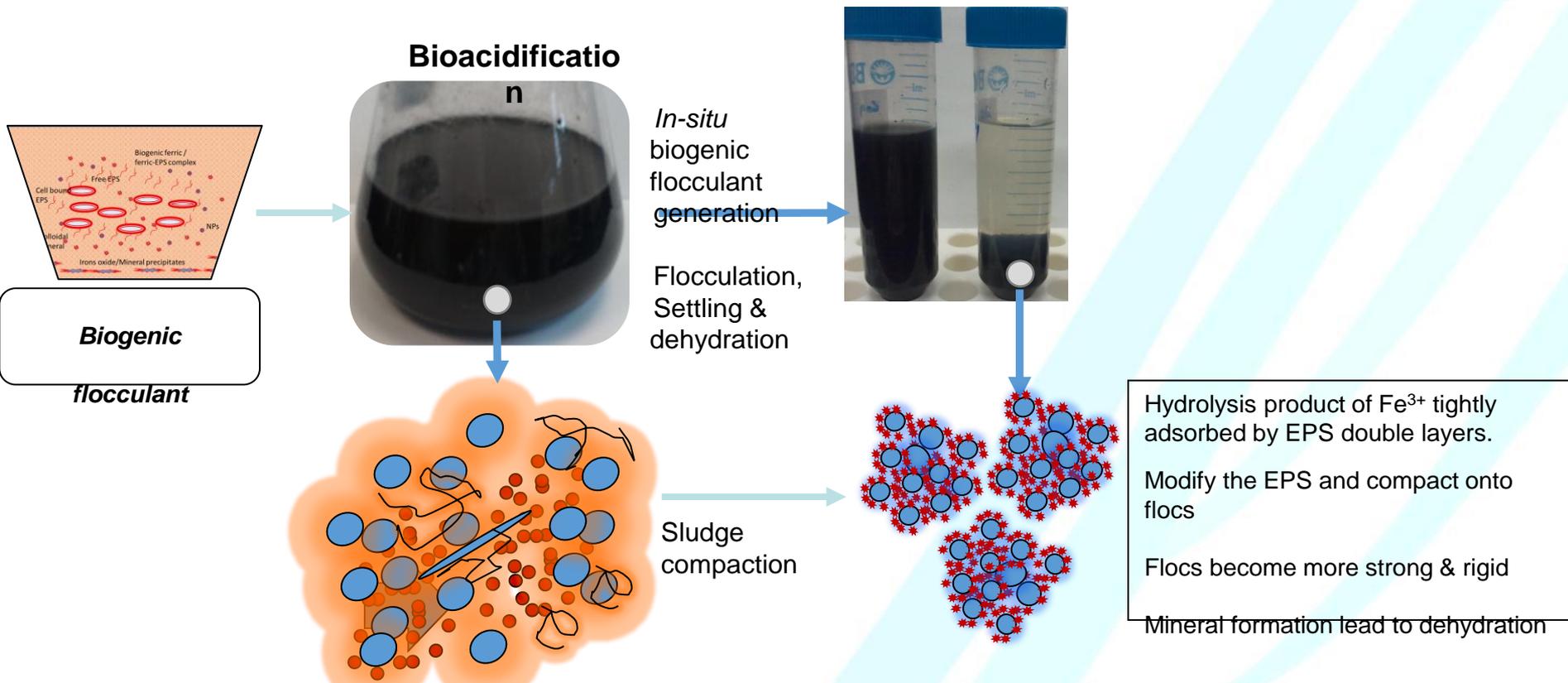
Social programme
A life for waste
Best paper awards

on the base of the quality of the contents reported and the quality of visual presentation itself.
2013 Winner: 'Plasma technology for the abatement of pollutants emitted by mechanical-biological treatment plants' by M. Ragazzi, E.C. Rada, V. Torrella and M. Schiavon (University of Trento, Italy)



Possible mechanisms of sludge dewatering

ITF Funding



Possible dewatering mechanisms of AF biogenic flocculant



Government Funding for Sustainable Agriculture – Organic Farming in HK



Critical for positioning the research towards the needs

Case study: Establishment of HK Organic Resource Centre (HKORC)

❖ Establishment

- ❑ Established in 2002 with the funding from **Agricultural Development Fund**, Vegetable Market organization (2002-2005)
- ❑ To develop an organic standard and certification system in Hong Kong and relative standards.
- ❑ Assist farmers to convert to organic and to educate the public about organic products and certificatio

❖ Continuous Funding Support (2002 – 2015)

❖ Current Standing

- ❑ The only third-party organic certification system and opinion surveys
- ❑ Yearly operatio nof HKD 7 million(with more than 15 staff)



Educate the public about organic certification and organic living



3.17 全城有機日

有機拾年 豐收嘉年華

精彩節目

- 謝安琪共創「有機毛巾蓋巨作」體力士紀錄
- 「有機拾年」豐收回顧展
- 親子有機農莊體驗區
- 有機蔬菜早餐會
- 大型有機漁業加工產品攤賣
- 有機環保遊戲坊

齊來參與

日期：3月17日（星期日）
時間：10:00am - 6:00pm
地點：中環遮打道及遮打道行人專用區
（部份區域開放，恕不另行通知）

星級有機大使
謝安琪

齊來買有機 優惠益晒你！
全港逾百間有機零售點均設
區供折扣優惠！

A woman in a purple top and white pants, smiling and pointing, stands next to a large, smiling cartoon carrot character. The background is yellow with green accents. There are logos for '10 Years Organic' and '3.17'.

Private Funding/Donation – Multi-stakeholders Platforms for Sustainability

- ❑ Private – Institute partnership
- ❑ Provide a platform for applied research
- ❑ Establishment of Sino-Forest Applied Research Centre for Pearl River Delta Environment in 2008
- ❑ Sponsors
 - ❑ Sino-Forest Corporation, Wofoo Foundation & Mr. Allan T.Y. Chan
 - ❑ HKBU – Host
- ❑ Excellent Platform to attract funds from Government and from Private
- ❑ Initial funding – 9 million HK\$ Matching Fund – 4.5 million
- ❑ Funds secured during the operation - ~24 million HK\$ (~90% from Government funding agencies)
- ❑ Create platforms for collaborative research within Hong Kong and also with overseas institutions



Sustainable Future – University Positioning

Building Low Carbon Campus

- University's role in creating a sustainable culture
- Educations institutes are 'Knowledge hubs' – make public education easy and effective
- **Case study – HKBU Strategic Grants**
 - Sustainable Low Carbon Campus at HKBU – 5 Million HK\$ for hardware installation to improve campus environmental sustainability and also to instill education and awareness programs for the students
 - Won the Silver Award of the prestigious Hong Kong Award for Environmental Excellence in 2011
 - First tertiary education institute in Hong Kong build a low carbon campus



香港環保卓越計劃
Hong Kong Awards for Environmental Excellence



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University - Government - Private Sector Decentralized Composting of Food Wastes

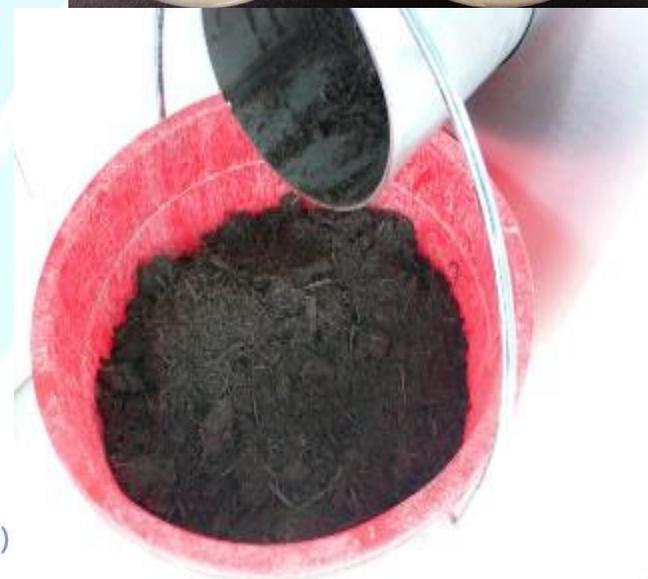
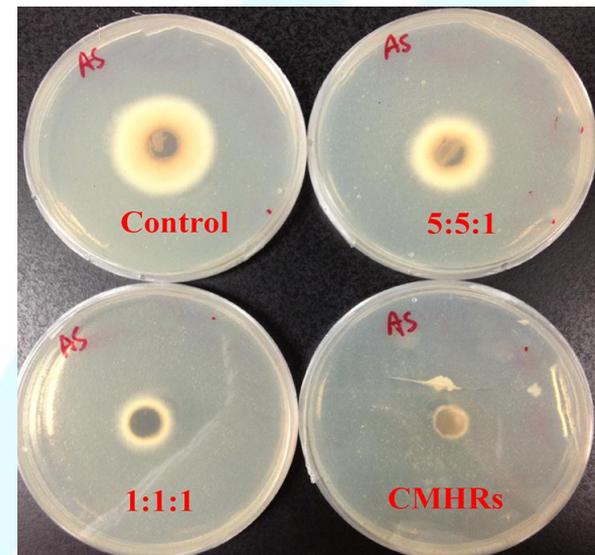
- ❑ A funding methods to encourage collaboration between university and the industrial sector
- ❑ Develop on-site composting process and inoculum for community composting
- ❑ Funding support from Environmental Conservation Fund
- ❑ Matching funds from Innovative and Technology Fund with an industrial partner – Australian Composting Company
- ❑ The IPR can be owned by the Research institute & the industry involved
- ❑ Boosting cutting edge technology



Institutional Collaboration – Work Out the Solution

Composting of Chinese Medicine Herbal Residues

- ❑ Partnership with the industry to provide research and development support to solve their problem
- ❑ Partnered with Kwong Wah hospitals – One of the biggest Chinese medicine clinics – generate residues and need solution to dispose or recycle
- ❑ We provide our expertise in composting
- ❑ Application for Government funding support from ECF
- ❑ Win-win situation for both parties
- ❑ Develop an anti-pathogenic compost with special competitive niche in the market
- ❑ A patent has been filed and is now looking for potential investors.



Community Education and Awareness for Sustainable Waste Management

- ❑ Often the problems are regionally relevant but requires global knowledge
- ❑ Main funding body can be the Government while the local bodies supplement
- ❑ ‘Waste separation, management and recycling’
- ❑ The University research centre takes up the role as a knowledge transfer centre
- ❑ Project – Waste separation study in housing estate
- ❑ Project - “Kown Your Own Waste” project
- ❑ Project – Waste characterisation and waste separation at Macau private sector



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Linking to the Community - Environmental Policy

- Environmental engagement and education program
- To supplement the government's environmental policy
- The needs
 - Ways to improve public acceptance on "user-pays" principle
 - Community engagement and environmental awareness in Hong Kong



Consortium Effort for Foreign Funds Hengxian Waste Separation Project

- ❑ Rockefeller Brother Foundation (RBF) has special focus on South China
- ❑ Building capacity of developing country in their resource sustainability
- ❑ Orient towards creating template of working modules that can be applied in other regions
- ❑ A collaboration among
 - ❑ Institution for technology development – ARCPE - HKBU
 - ❑ NGO as a local engagement agent – ActionAid China
 - ❑ Local government as the local executor – Hengxian Environment Bureau
 - ❑ Develop the first waste separation program in China and the conversion of organic waste into compost



Linking to the Community - Waste Separation System in Hengxian, China



Source Separation

Compostable & non-compostable



Collection



Transfer



composting



A simple system – But a potential template for developing countries



Corporate Social Responsibility

- Amway little organic farmer – cumulative funding of 2.4 m for 4 years for the construction of 40 school organic farms



- Hong Kong Shanghai Banking Corporation – Territory-wise carbon minus program
- HSBC high school organic farming program
- Lee Hysan Foundation – International Conference on Solid Waste



Bring Home Message

- The global emphasis on sustainability
- Funding agents expectation – more applied research
- Academic vs community work
- Inter-disciplinary collaboration
- Ready to change



Thank You!

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