Strengthen the Indispensable Public/ Private Partnership for Competitiveness

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20 mins

Content

Dynamic changes in global economy

Need to strengthen RD&C partnership

Role of IP

Successful RD&C partnership in Malaysia

Collaboration opportunities in Africa

Challenges

Dynamic changes in global economy

Source of technologies - Univ. PRIs. & In house R&D

Nokia: Every 2 weeks – a new model

The Business Philosophy

In Business

IF

You don’t

INNOVATE

&

COMMERCIALISE

You will

EVAPORATE

Global R&D Patterns: Spending Between Regions

Business world today is dynamic, complex, & intensively competitive

No longer wise to produce & sell product locally

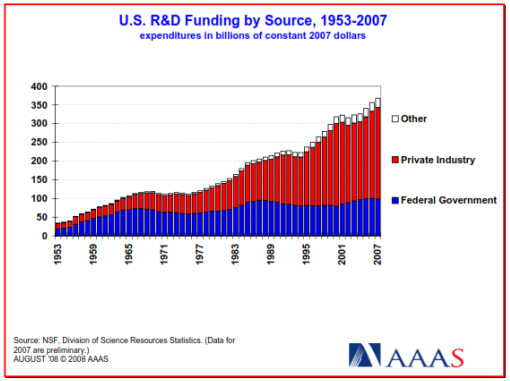
http://www.industrytap.com/global-collaboration-key-to-major-innovation/2458

Global R&D Patterns: Spending Between Regions

- Top business management
- focus on integrating into countries & regions to benefit from **symbiosis**

R&D Budgets

- Alone **will not promote global growth**
- **Need new ways** of operating & interacting
- Important factor in growth will be **spending between regions**



Universities/RI need to be proactive

Engine for future growth

- Private sector still **keep looking for technologies** from advance countries
- We have **world class scientists & inventions**
- We need to be **proactive in seeking partners** & collaborate for R, D&C

Africa's Competitiveness Challenge

- High economic growth rates not translated into better living standards
- 48.5% of Sub Saharan population struggles to survive on < $1.25/day
- Job creation not at pace with booming population – project to increase to 20% by 2030
- Falling labour productivity figures & manufacturing sector remained largely stagnant since 1970s
- Many African economies trail the rest of the world in competitiveness

The need to strengthen R D & C partnership

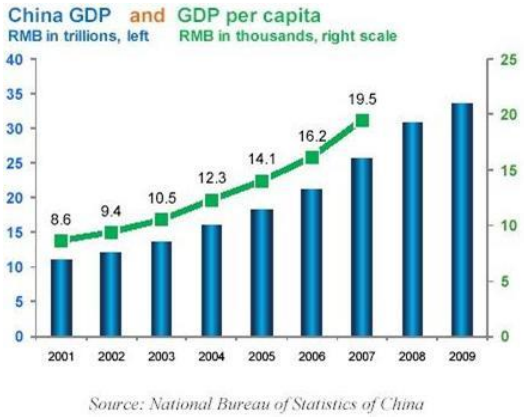
Major reasons for Partnership

- Intense competition
- Insufficient funds
- Lack of know how
- Inability to generate opportunity alone

Partnership - meaningful only when win-win situation & adds value

Collaborative Research

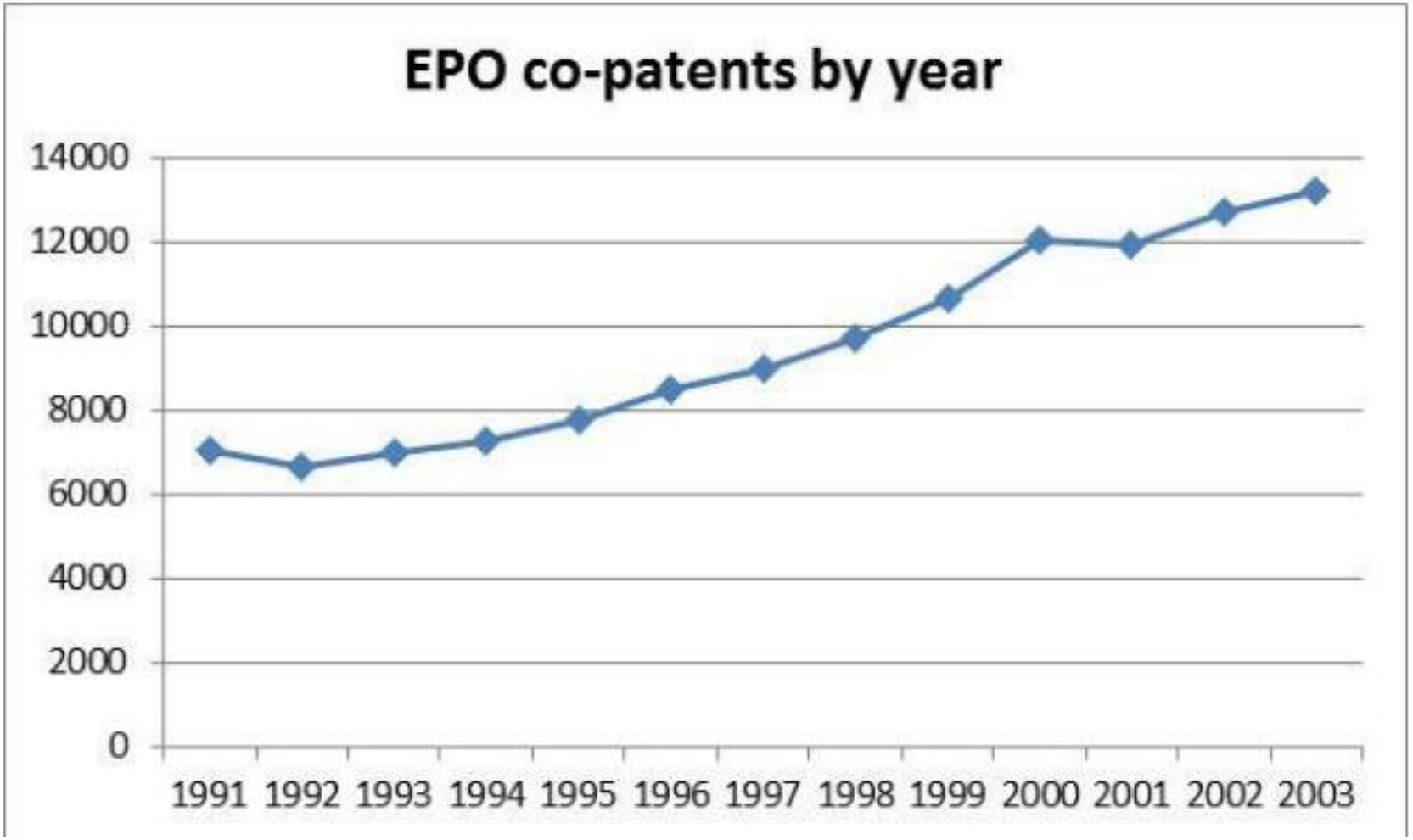
- Essential for national programs to **increase pace of growth**



Source: National Bureau of Statistics of China

- Sustainable growth & future prosperity depends on:
  - creation of **innovative technology ecosystems**
  - **& linking them** together to spur maximum growth

Co-patenting is important phenomenon



Azzola, Landoni, Van Looy (2010). Patstat data ECOOM/INCENTIM (KU Leuven)

International Collaboration across countries

Enhanced by:

- ✓ **Internet**
- ✓ **Unique platform for generating & promoting innovation**

The world is at your desktop!

R&D Collaboration - Role of IP

- Helps companies gain complementary IP resources
- Access to diverse markets
- Share product development cost
- Shorten time to market new products
- Enhances quality of product

Strengthen Co. competitive position in long run

R&D Collaboration - Role of IP

Sustainability of company

- IP enhance Co. current technologies & help them to stay competitive in market

Make new product development process more effective & efficient

Role of Patent

- Increases possibility of **licensing** or **spin-offs**
- High value Patent – with broa technical claims & **high citation index**
  - **Increase financial rating** of companies

Role of IP

- Responsible for **1/2 of the economic growth** in highly industrialized countries
- Suitable instrument for influencing **sustainability & return-on-investments**

Role of Patents

- Actively **facilitate & contribute** to upstream & downstream activities

- Mature economies & major emerging economies **use patents to facilitate R,D & C**

Success stories of partnership in Malaysia

Palm oil industry
5 million ha
2011 - $26 B

International Research Collaboration

Malaysian Palm Oil Board

MPOB

Collaboration with Netherlands

international environmental policy

Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer

WAGENINGEN UR
For quality of life

- Peatland projects
- Biodiversity
- Carbon emission studies

Palm Diacylglycerol Fat Health Oils of The Future

- Immediately burned as energy by body
- Not stored as body fat
- Decrease serum blood triacylglycerol & cholesterol level
- Prevent & manage obesity

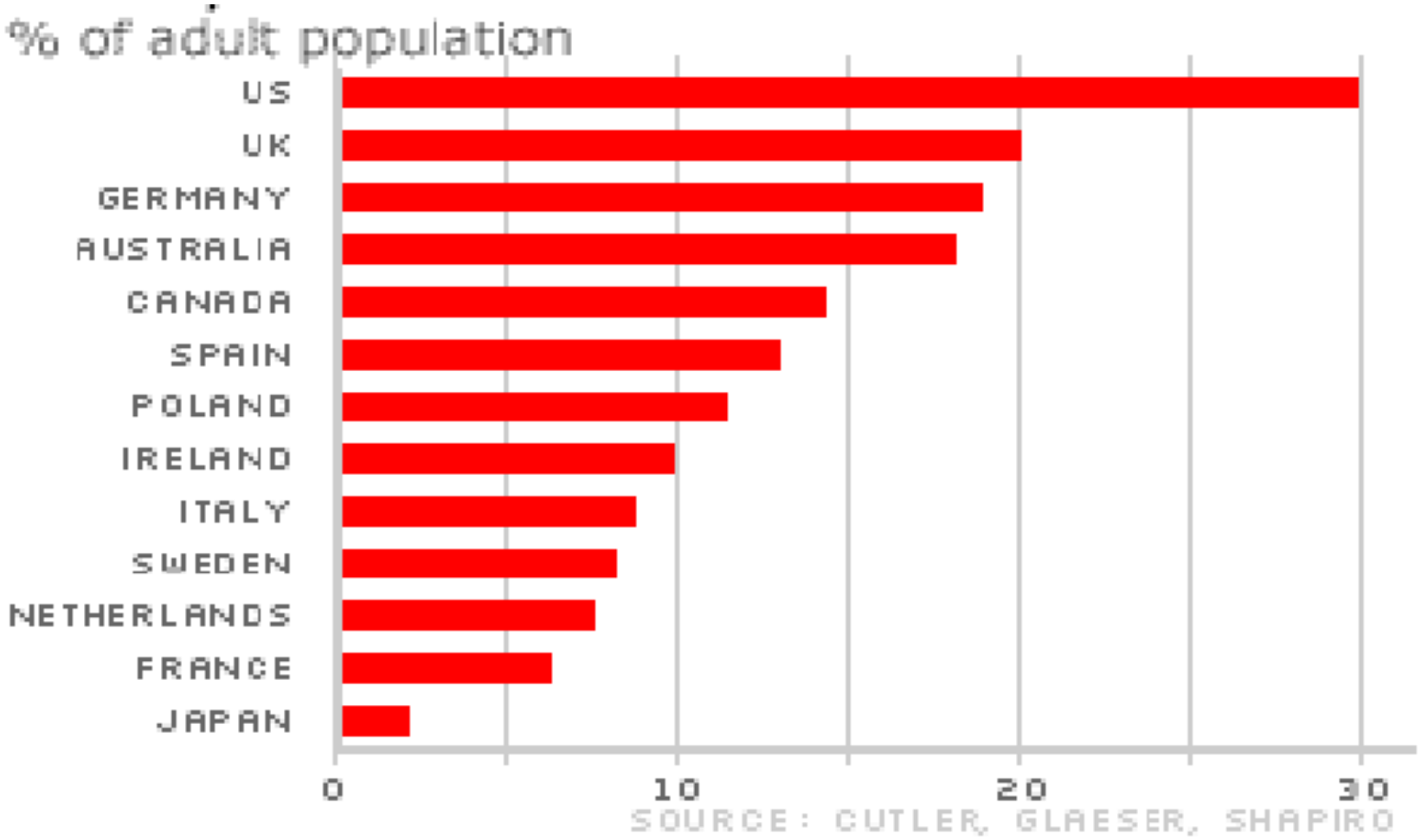
Palm Diacylglycerol Fat Health Oils of The Future

Filed patent all over the world !

- JAPAN
- EUROPEAN
- UNITED STATES
- SINGAPORE
- AFRICA
- INDONESIA
- MALAYSIA


Quelle: A. Berg

European Obesity Increase



DAG Clinical Studies

- Suppress serum TAG in rats
- Anti-obesity effect by long term consumption in mice model
- Prevent excess fat accumulation (adiposity) in human
- Body weight reduction in obese person.

Clean & Green Technology for Sustainable Palm Oil Industry

Universiti Putra Malaysia

Kyushu Institute of Technology (Japan)

FELDA Palm Industries (Malaysia)

Sumitomo Heavy Industries (Japan)

Diversification by adding value to biomass

Biomass – 80 million tons 2010
110 million tons 2020

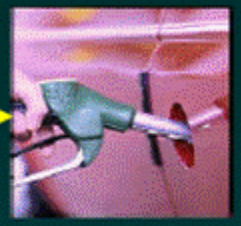
10% oil
90% biomass

OIL PALM FRONDS

FRESH FRUIT BUNCH

OIL PALM TRUNK

Crude Palm Oil



Biofuel / Biodiesel

Palm Biomass

Fuel for CHP

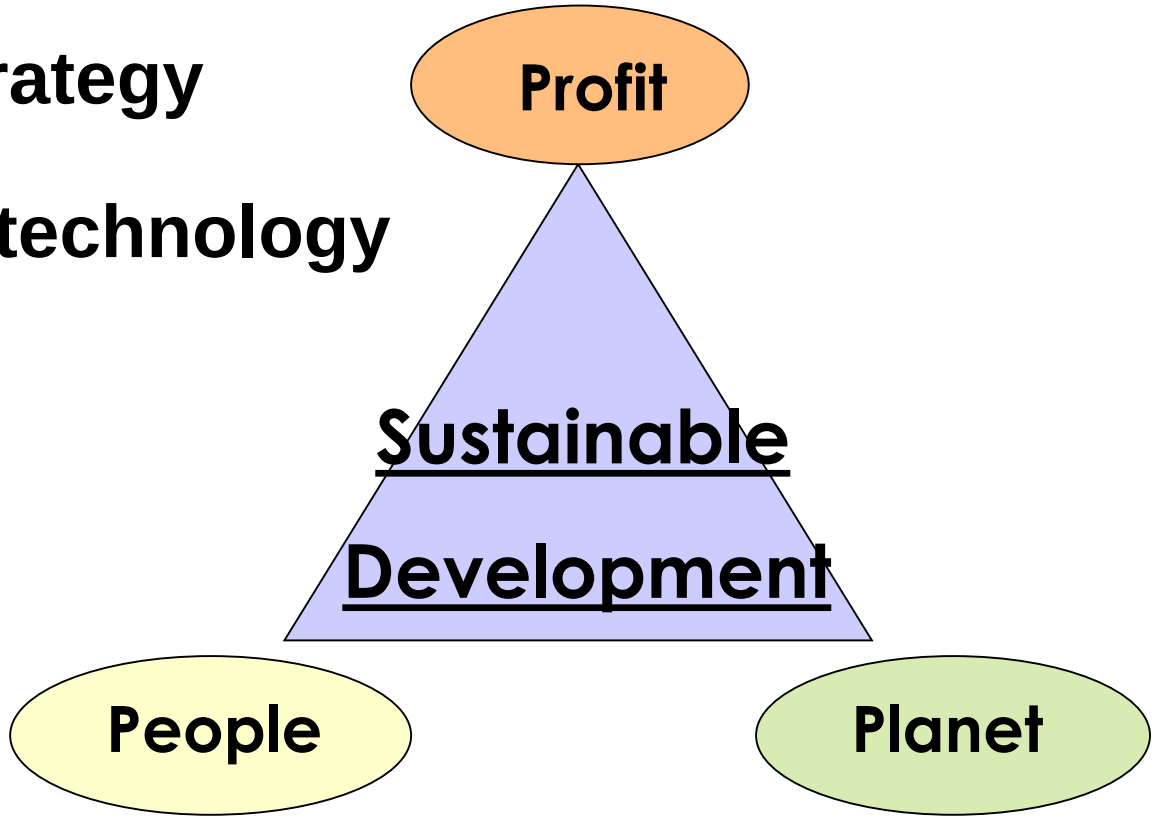
Palm oil mill effluent (POME)

Biogas

MPOB

Sustainability & Green Technology

- Merging the 3Ps
- Win-win-win strategy
- Develop green technology



Biomass

Problem *Profit*

→

Waste to wealth

Benefits & achievements

Actual transfer of technology

- Improvement of POME wastewater treatment
- Mitigation measures of greenhouse gases emission
- Generation of renewable energy from methane

Promote sustainable development of palm oil industry

Biogas Pilot Plant Performance

Process parameters	Open Digesters	Biogas Pilot Plant
COD removal (polluting strength)	80%	95%
Treatment time (days)	20	10
Methane utilization	X	√
Methane production (kg/kg COD)	0.10	0.18
Methane content (%)	36	55
Biogas production (m^3/tonne POME)	-nd- (28* in lab)	20
Solid discharge (g/L)	20	8

Serting Hilir Mill

Bioga[illegible] CDM

P[illegible]

About
380,000 tons
CO_2 reduced
in 10 years

Approved by
UN CDM

"zero emission"
waste-to-wealth

COMPRESSED NATURAL GAS DIRECT INJECTION VEHICLE (CNG/DI)

Campro 1.6L

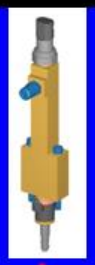
Proton WAJA

R&D

- Utilise Natural Gas (NG) as alternative fuel
- NG is cheaper & cleaner compared to petrol

PROJECT MATRIX

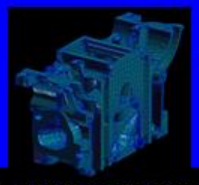
3. INJECTOR



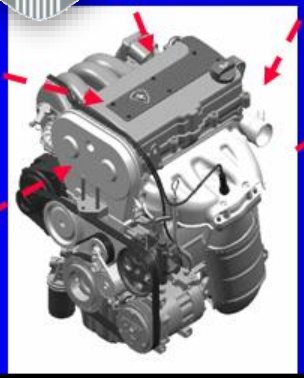
11, 12, 13 ECU

7. IGNITION

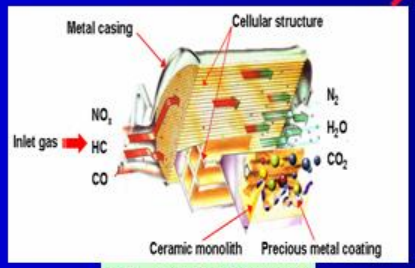
CNG VEHICLE



5. CYLINDER HEAD



CAMPRO ENGINE



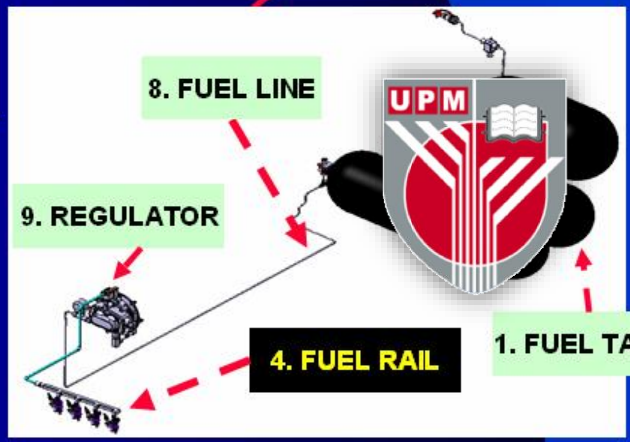
10. CATALYTIC CONVERTOR

2. PLATFORM

6. PISTONS

8. FUEL LINE

9. REGULATOR



4. FUEL RAIL

1. FUEL TANK

ARAB SCIENCE & TECHNOLOGY FOUNDATION - (RAWAFID)

Development of Rapid Diagnostic Kit for Multi-drug Resistance *via* Bacteriophage Biotechnology

Grant Source:

ARAB SCIENCE & TECHNOLOGY FOUNDATION (RAWAFID)

EU Funded Projects

- Malaysia
- Thailand
- Vietnam
- Belgium
- Italy
- United Kingdom

EU Funded Projects

- indication of antibiotic resistance in SEA aquaculture
- Identify resistance genes involved
- Assess potential for transfer of antibiotic resistance from aquaculture environment to human pathogens

Outcome of the project

- Greater awareness of antimicrobial resistance problem
- Clear demonstration - antimicrobial resistance, involving multi-drug resistance at high levels
- Policy makers can confront problem constructively & effectively
- Effective standardised methods for sampling & processing

Publications from Research Collaboration

Co-publish with authors from 2 or more countries

- Higher citation impact
- Internationalisation of ownership of technology

Vol. 66: 197–204, 2005 | DISEASES OF AQUATIC ORGANISMS
Dis Aquat Org | Published September 23

Intra- and interlaboratory performance of antibiotic disk-diffusion-susceptibility testing of bacterial control strains of relevance for aquaculture environm

14 Authors
6 countries

Geert Huys[1,*], Margo Cnockaert[1], Kerry Bartie[2], Dang Thi Hoang Oanh[3], Nguyen Thanh Phuong[3], Temdoung Somsiri[4], Supranee Chinabut[4], Fatimah Md Yussoff[5], Mohamed Shariff[5], Mauro Giacomini[6], Stefania Bertone[7], Jean Swings[1,8], Alan Teale[2]

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[4]Aquatic Animal Health Research Institute, Kasetsart University Campus, Jatujak, Bangkok 10900, Thailand
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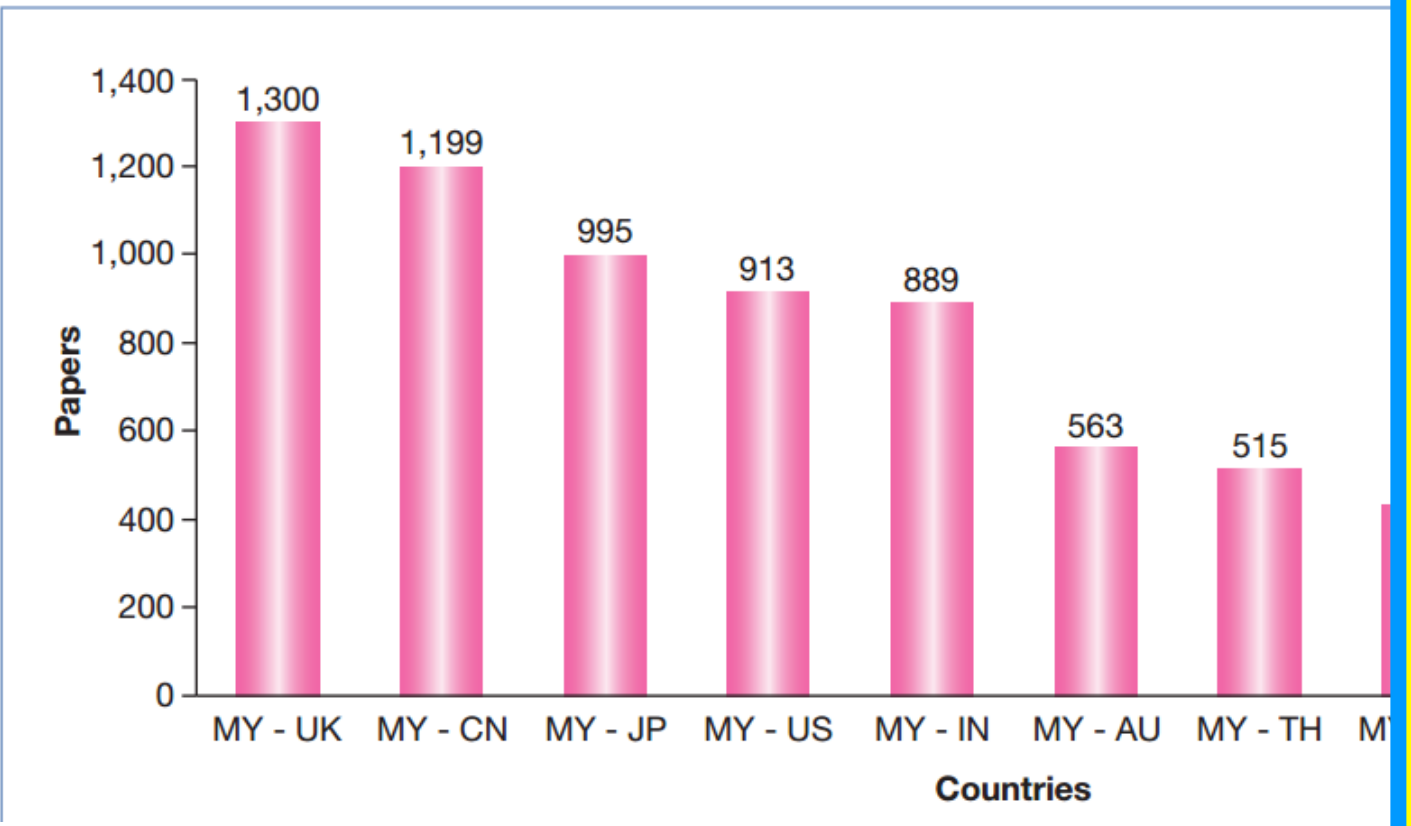
[8]BCCM/LMG Bacteria Collection, Ghent University, K. L. Ledeganckstraat 35, 9000 Gent, Belgium

ABSTRACT: In the course of an international research project on hazard analysis of antimicrobial resis-

International Papers by Top Collaborating Countries

Figure 2.4.8: International Papers by Top 10 Collaborating Countries

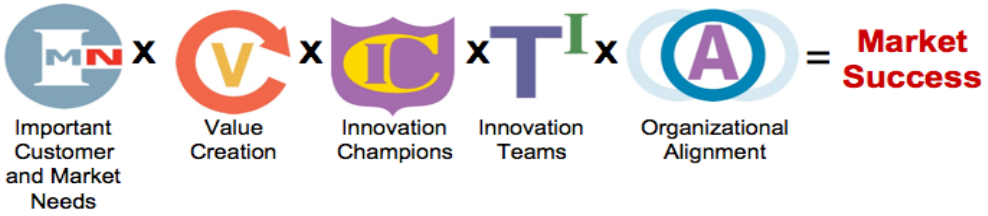


UK
China
Japan
USA
India
Australia
Thailand
Singapore
Germany
Indonesia

SRI's Innovation Process

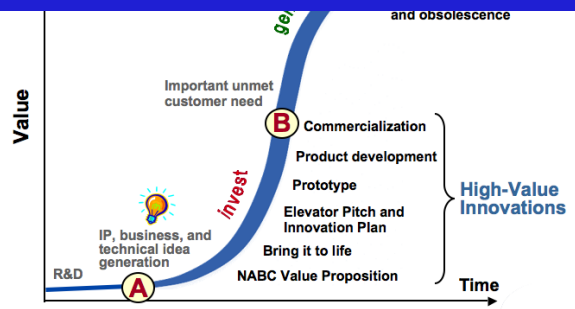
We teach these ideas to all staff

Apply the Five Disciplines of Innovation

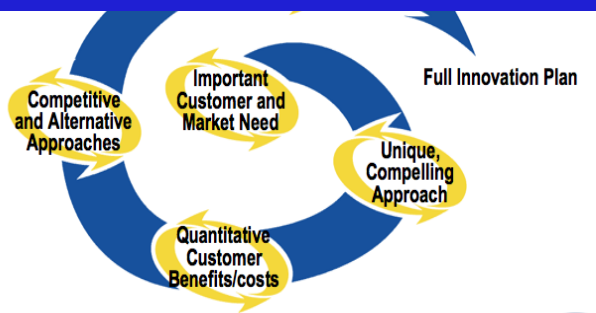


"One of the world's leading research centres, producing some of the most important technology breakthroughs"

The Times (UK)



Go for high value innovations



Iterate - iterate - iterate

Be a champ and create world class teams

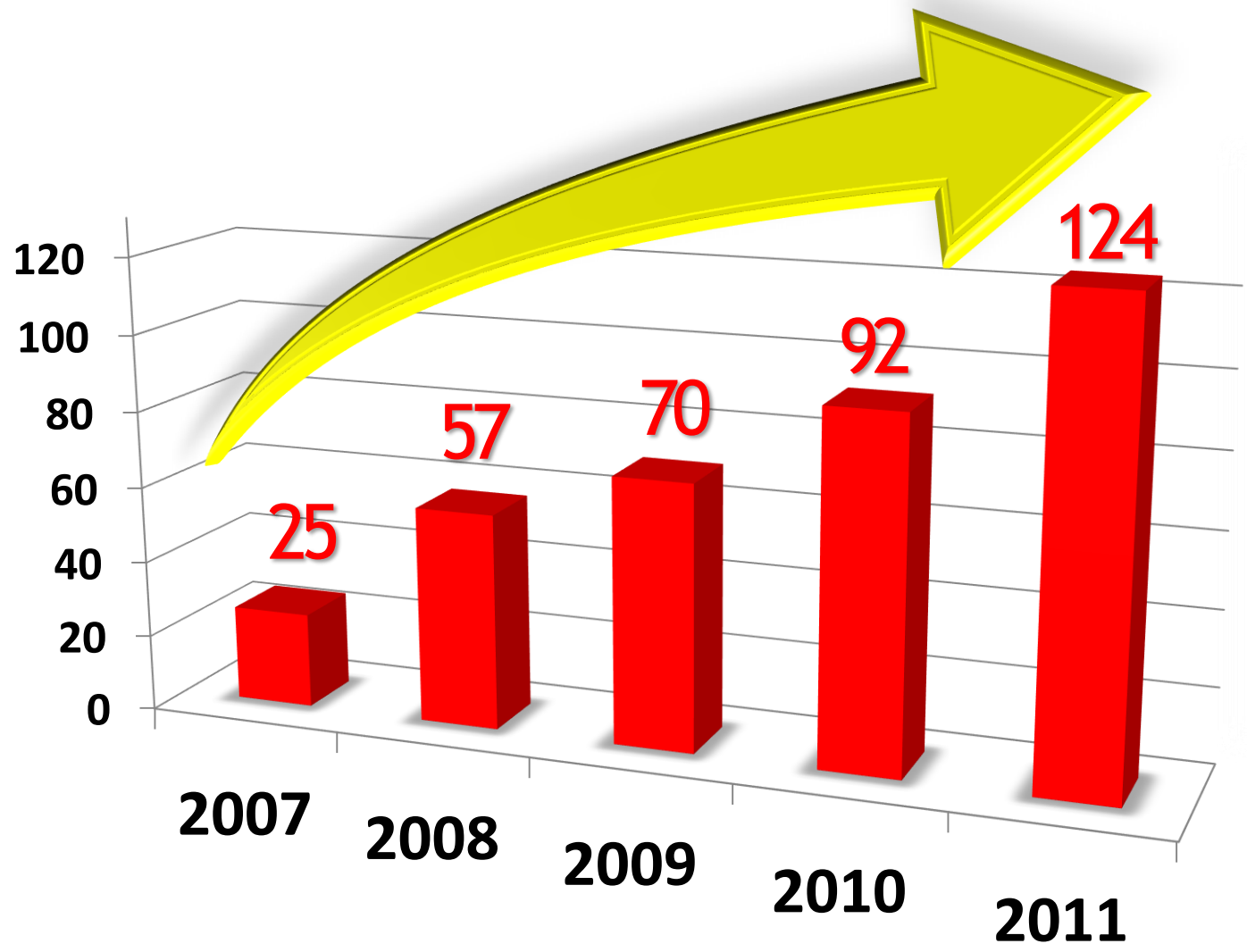
Disclaimer: Subject to approval by SRI International Board and partners. Final version will be co-created with partners and stakeholders and be subject to final agreement of funding and business model.

Signing of MoA

Area of Collaboration

- Exchange of teaching & research personnel
- Exchange of administrative and other personnel
- Exchange of students
- Collaboration in research projects
- Establishment of joint programs

Patent Applications



COMMERCIALIZATION

- **Products commercialized = 59**
- **Gross Sales = > $11.8 million**
- **Income** *(royalty, licenses fee, outright)*

  = $1,023,225 million

Commercialised Technology

Vita-Grow ®

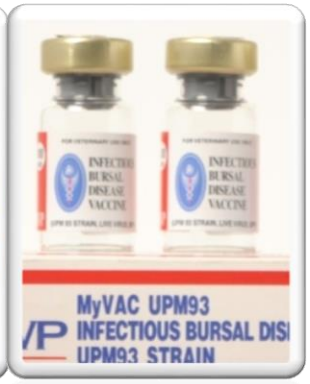
ZAPPA ®

Fertilizer

Poultry vaccines

NDV

Fowl Pox Vac.



MyVAC

Rank top out of 16 others products !

Partnership opportunities in Africa

Opportunities for Africa

- Great pool of untapped scientific talent
- Can enhance industrial output by networking & collaboration
- Contribute to wealth creation & nation building

Donors looking for strong team, & institutions to provide funds

OPINIONS

Africa Analysis: Donors should focus on national R&D funds

Linda Nordling

8 November 2012 | EN | FR

Aid agencies and international research funders have a role in supporting Africa's nascent national science funds, writes *Linda Nordling.*

Finding reliable sources of funding has been a perennial problem for African researchers. A long-term lack of interest in university research means that few countries have substantial national research grants open to scientists.

In the absence of such grants, the majority of African science depends on

Africa: Bill Gates - How We Measure Impact to Improve Lives

BY BILL GATES, 30 JANUARY 2013

MORE ON THIS

Mozambican Wins Vaccine Innovation Award

- Mozambican Wins Prestigious Vaccine Innovatio...
- Gates Foundation Announces Winner of

Today I am launching my Annual Letter. This year, I concentrate on the power of clear goals and accurate measurement-simple concepts really-to improve the lives of the poorest people around the globe.

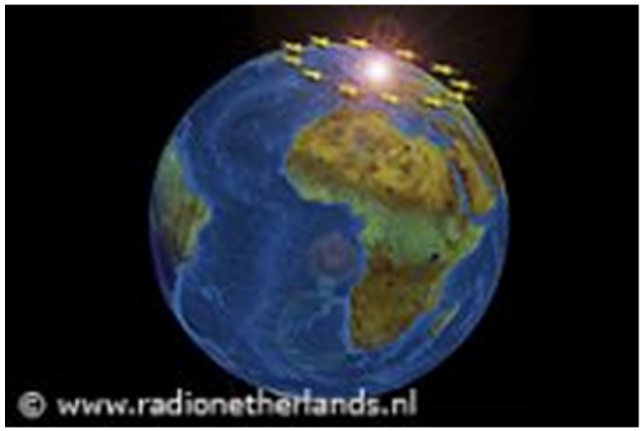
It may not be the sexiest of themes, but the proof of its impact

Photo: Pierre Albouy/WHO

Bill Gates, co-chair of the Bill and Melinda Gates Foundation (file photo).

Home › Health & Lifestyle › News

EU urged to fund research in Africa



Published 28 October 2010, updated 14 December 2012

Tags Africa, biobanking, development, Research

Like 0 Tweet 0 Share 0

European development funds should be tapped to build re banks in Africa, according to a leading African research ex also urging policymakers to invest in Europe's own scient order to maintain global competitiveness.

Daan du Toit, a senior advisor on science and technology at th Mission to the European Union, called on policymakers to view as an effective way of supporting progress in Africa.

"One of the key challenges is to tap not just basic research fu development funds and use these for research infrastructure

BACKGROUND:

The European Strategy Forum on Research Infrastructures (ESFRI)

- **Euro 80 billion 2014-2020**
- **Horizon 2020**

- Technology and Innovation should be factored into other initiatives
- Enhance the role of the private sector
- Apply the principles of win-win

Impactful implementation

Catalyst for Industrial Development: How

- **Joint research activity with partners**

STRAPA - Strategic Partnership Agreements

3 African Univ. – Makerere University,
University of Nairobi
Sokoine University of Agriculture

http://www.nepad.org/about

Increase international collaboration

- Become leader in academic research
- & industrial R&D
- Economy benefit by increasing scientific activity across the globe

Catalyst for Industrial Development

- Attract talent from partner country
- Achieving industrial development output
- Contributes to global pool of scientific knowledge & technological innovations

Improving national competitiveness

Challenges

R&D Collaboration – Legal Instruments

Contracts & regulations:

- Short
- Clear
- Practical

- Avoid infringement risks & future disputes
- IP be shared & used smoothly.

Insufficient funds

- R&D projects
- Mobility of staff
- Training programs
- Procurement, Maintenance & Calibration of Equipment
- Protection of technologies (Patent)

Monitor/Evaluate Regional & International Collaboration

MOUs & MoAs

- ❑ Continuously monitored & evaluated to ensure optimal benefits
- ❑ & Safeguard interest of the country

Effective implementation!

Misunderstanding & Culture Shock

Important to ask for clarifications

Ensure excellent research

- **Build strong RD&C teams**
- **Focused research**
- **Headed by core competent scientists**
- **Appoint “champions” in targeted fields**

Champions: Strong leadership

- **Lead by a strong univ. chancellor/director**

Have

- **experience**
- **vision**
- **will to move institutions into new roles & greater heights**

Leadership to rally Sponsors, Co & public decision makers


Thank you

references

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International Journal of Science and Engineering Vol.3, No.1 (2013): 1-12