

QUALITY EDUCATION FOR SUSTAINABLE DEVELOPMENT

Gisela P. Concepcion

The Marine Science Institute
University of the Philippines Diliman

**NAST Visayas Regional Scientific Meeting
...on Fisheries and Other Aquatic Resources 20/20**

Marco Polo Hotel, Cebu City

April 18-19, 2017

Sustainable **PROGRESS** in the **PHILIPPINES**

Requires an **Education System** with

VERY GOOD

- **Philosophy**
- **Purpose**
- **Policies**
- **Plans**

HIGH QUALITY

- **Persons**
- **Processes**

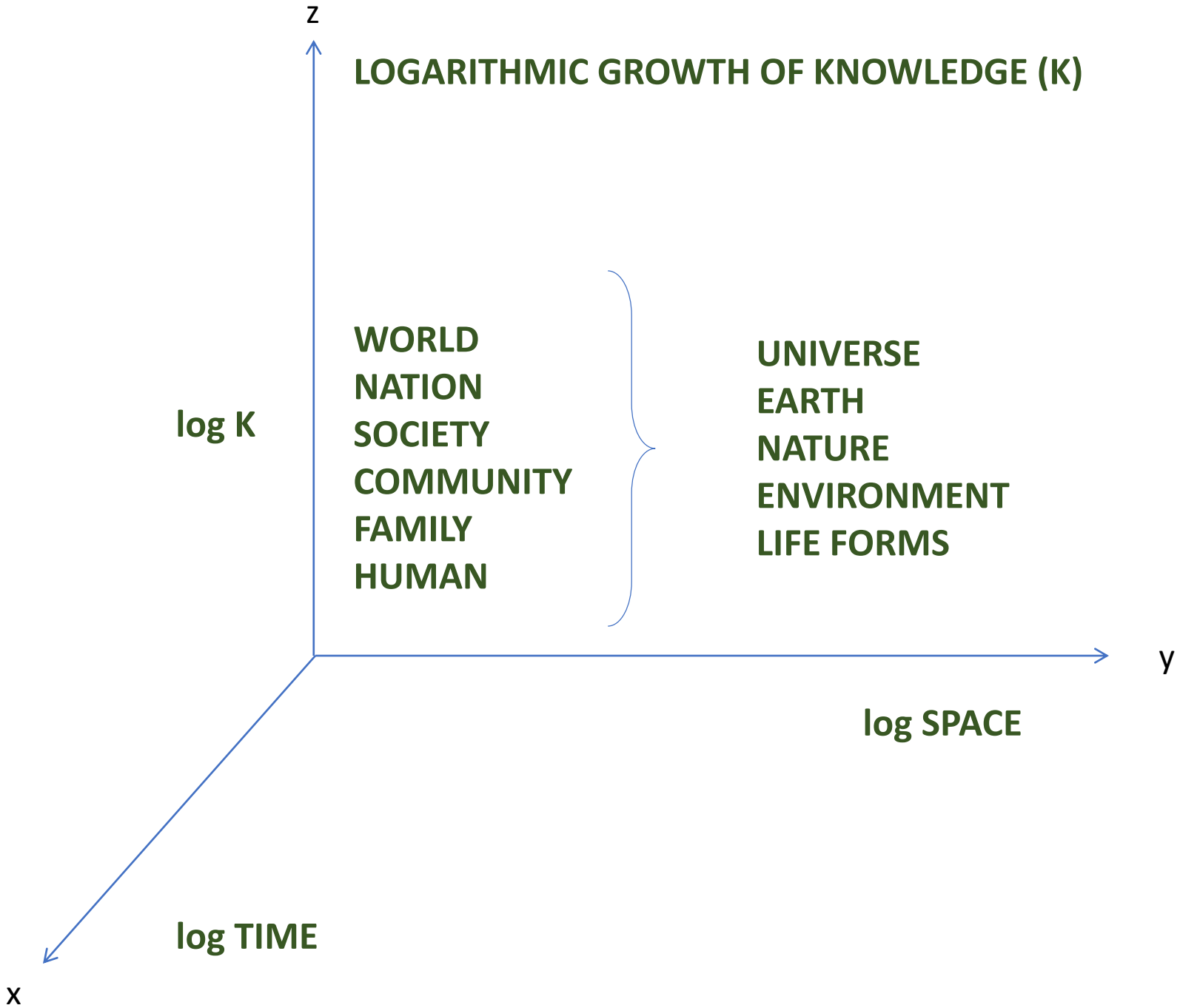
RESULTING IN...

- **Productivity**

1. PHILOSOPHY: Seek knowledge to

- understand oneself, other persons, and the world around us
- develop one's mind, spirit and body
- live a purposeful, meaningful, productive, and happy life

PERSONAL PHILOSOPHY developed from K-12 to General Education Programs, from childhood to youth to adulthood.



2. **PURPOSE:** Seek an education to

- make a living
- be fairly secure and comfortable
- pursue one's interests
- become successful in one's chosen profession or vocation

PURSUE A GREATER, NOBLE PURPOSE:

- help one's fellowmen and society
- protect the rest of nature and the environment
- use one's talents and training to contribute to well-being and prosperity in the country

KNOWLEDGE to develop **ETHICS, SKILLS, COMPETENCIES** and **EXPERTISE** acquired in K11-12, TECHVOC, college and postgraduate education

PUBLIC GOOD PUBLIC SERVICE

**Transparent,
accountable,
and
participatory
governance**

**Poverty
reduction and
empowerment
of the poor and
vulnerable**

**Rapid,
inclusive, and
sustained
economic
growth**

**Just and lasting
peace and the
rule of law**

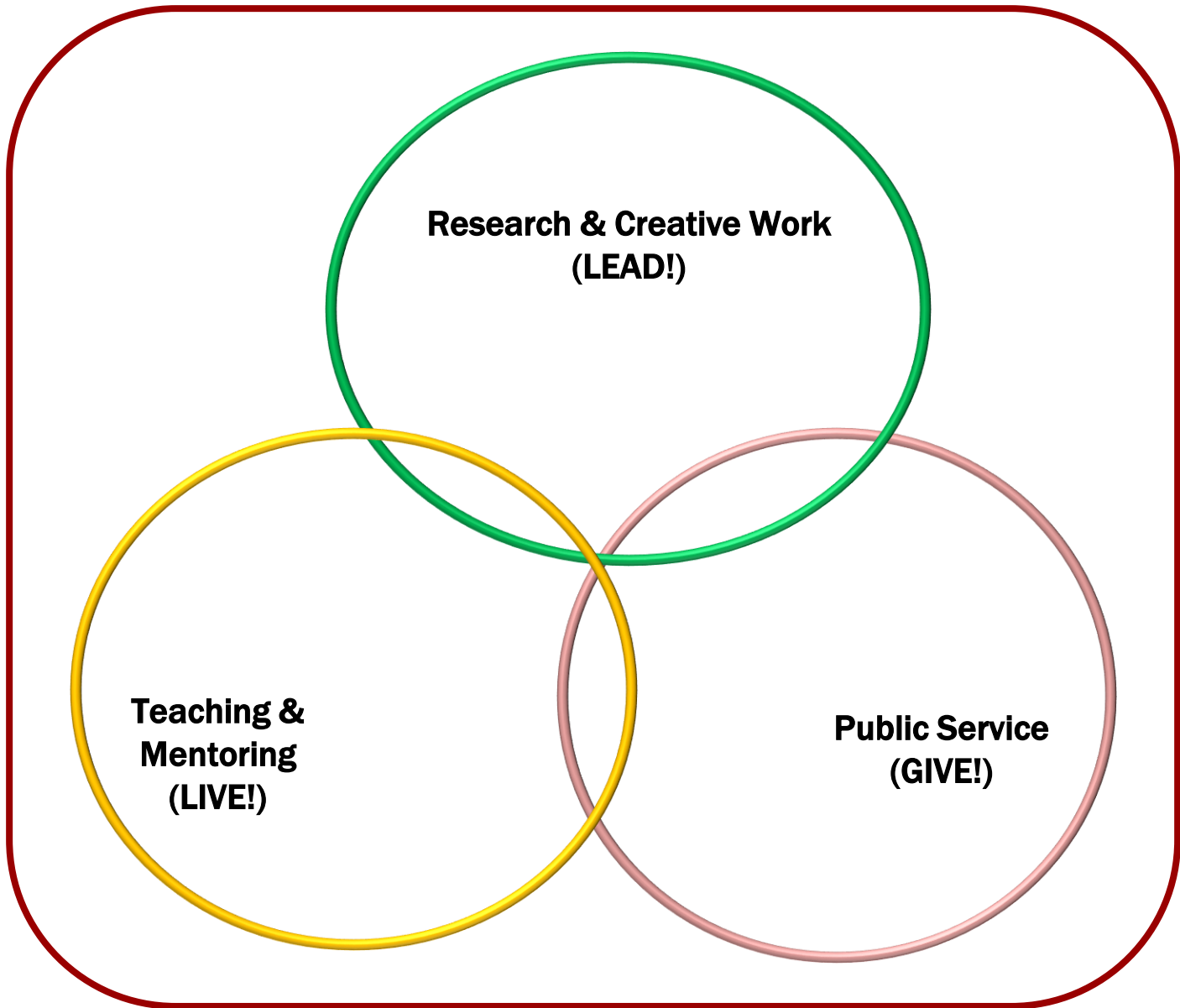
**Integrity of the
environment
and climate
change
adaptation and
mitigation**

R&D

Creative Work Higher Education

GE





3. POLICIES: government directives to improve, on a massive scale, education at all levels:

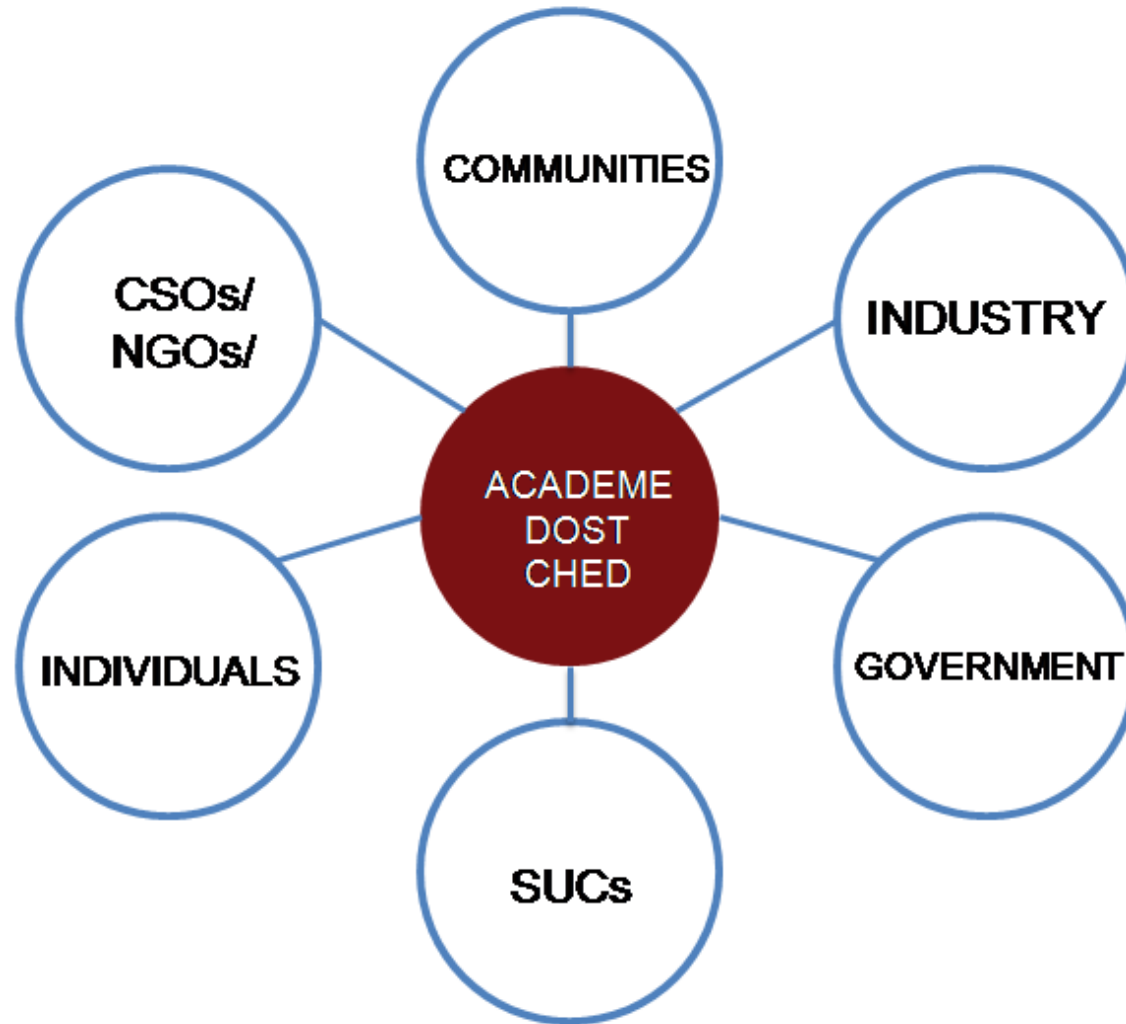
- Basic Education Reform: K to 12 Program
- *Iskolar ng Bayan*: free tuition for all freshmen
- General Education Program Revision
- Advanced Majors Courses Review (ASEAN Quality Assurance Reference Framework for Higher Education)
- Massive support for R&D programs for INNOVATION

PROPOSED POLICIES:

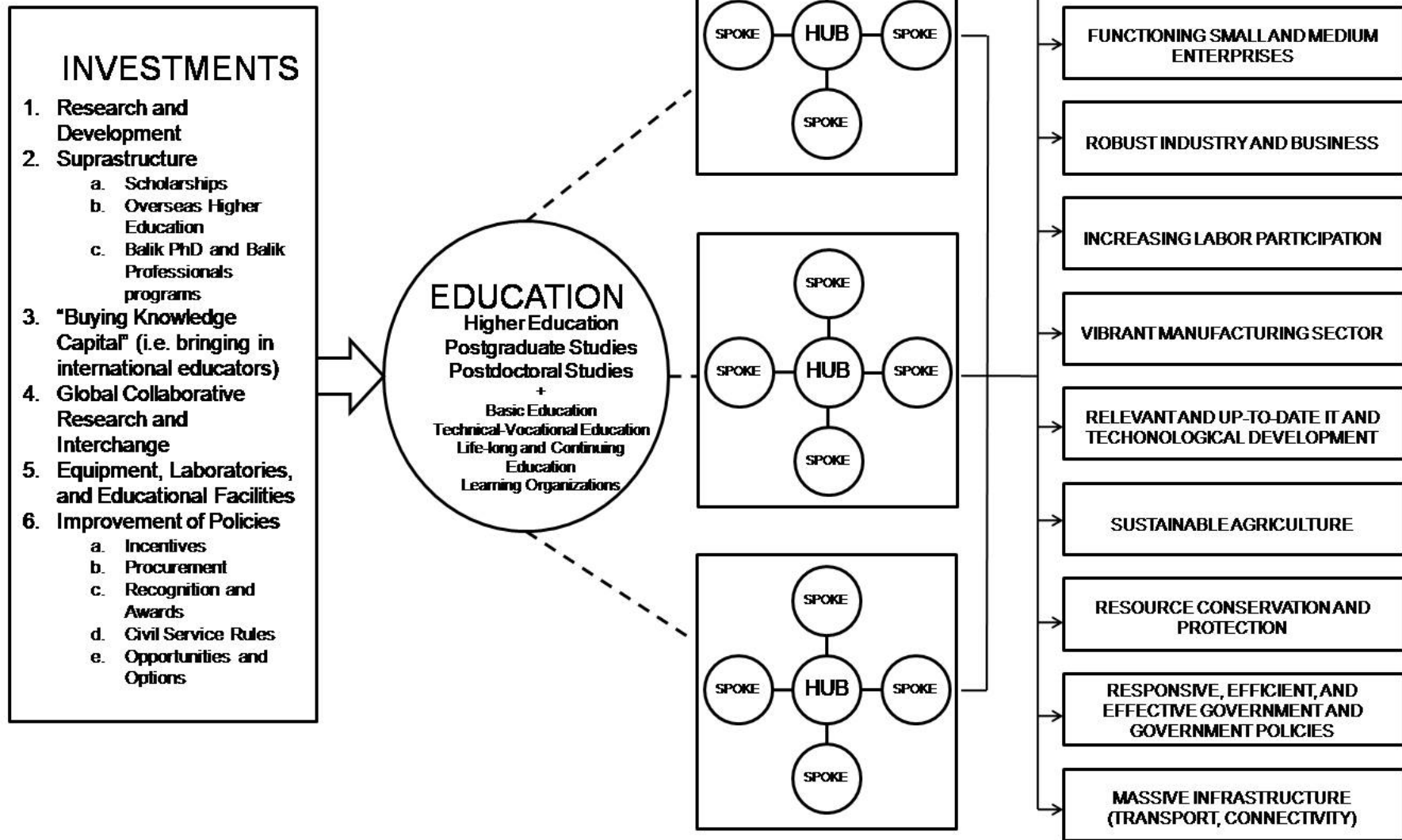
- Regional Hubs & Spokes model for Knowledge-based Governance and Development
- Massive support for Postgraduate Education
- Internationalization: Collaborations & Benchmarking

UP KNOWLEDGE PAPER

www.up.edu.ph/.../20160315-UP-Knowledge-Paper-Final.pdf



-
Model-3!

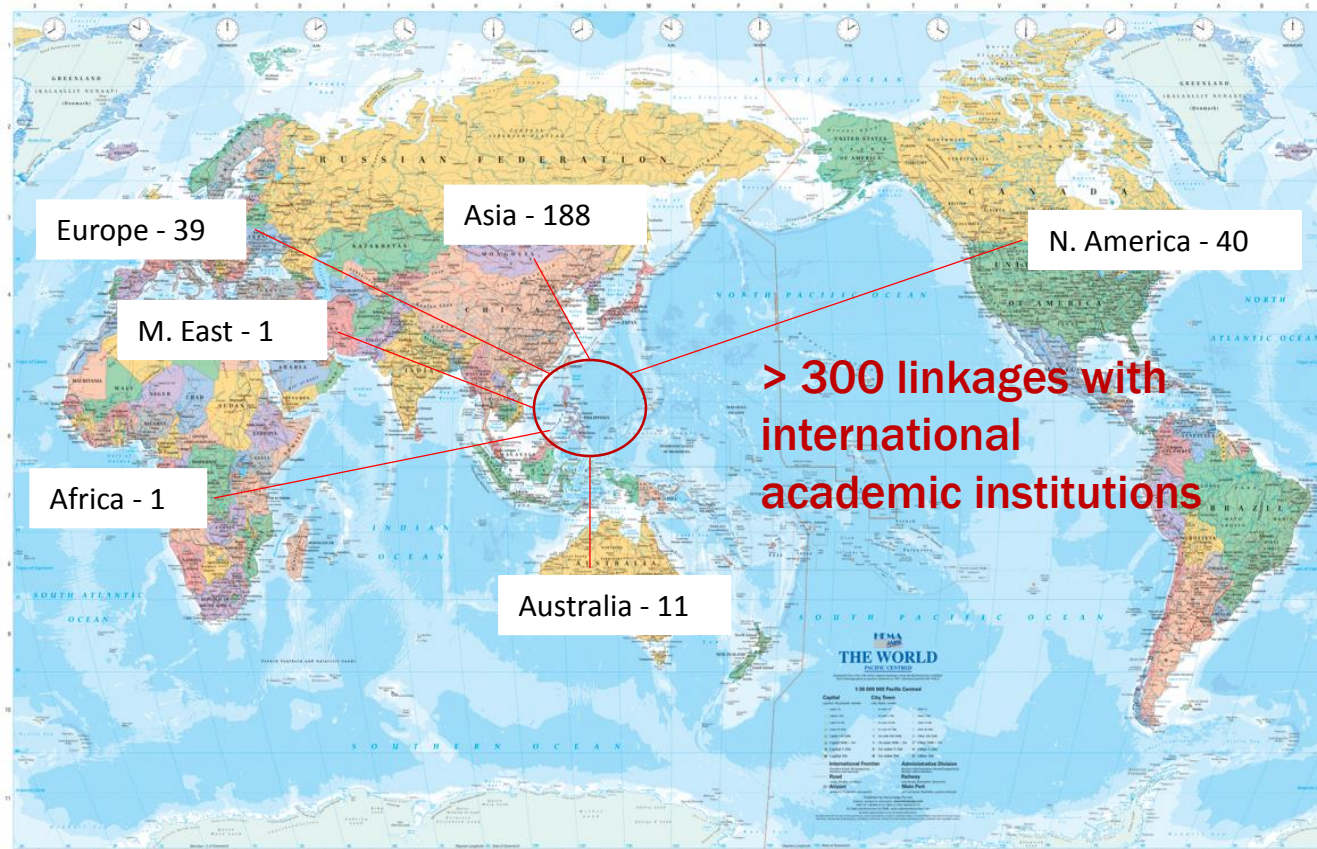


A-Framework-for-Knowledge)Based-Development-and-Governance-

Intensifying Internationalization

UP's International linkages

- Implementing more working relationships with foreign universities and international institutions (research, student & faculty exchanges)



UP Southern Taiwan universities network

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UP Southern Taiwan universities

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2017 DEADLINES

10 February, 10-15 May, 10-15 August, 10 November - Research Dissemination Grant applications

PH and Taiwan strengthen academic ties with UP visit



Since 2014, the Office of International Linkages (OIL) under the Office of Vice President for Academic Affairs (OVPA) has been implementing the Continuous Operational and Outcomes-based Partnership for Excellence in Research and Academic Training Enhancement (COOPERATE) program for faculty and students. It provides financial support to a UP master's or PhD student (preferably at the thesis or dissertation level), together with the UP faculty adviser/co-adviser, wishing to conduct a research or creative work in a partner university abroad through advisorship or co-advisorship. The program has seen success such that recently, a "focused COOPERATE" has been explored by UP. From 22-27 May 2016, forty-four representatives of UP were in [...]



4. PLANS:

implementation of policies requires

- funding allocation
- implementation plan
- Implementation team
- Infrastructure and facilities
- public information and dissemination campaign
- regular monitoring and evaluation of outcomes

5. PERSONS: EDUCATION LEADERS

HIGH VALUE, HIGH QUALITY FACULTY:

- dedicated, inspiring teachers and mentors
- competent, innovative researchers and artists
- inspiring, efficient academic leaders and administrators

FACULTY ARE RESPONSIBLE FOR THE KNOWLEDGE, VALUES, COMPETENCIES AND SKILLS ACQUIRED BY THE STUDENTS.

They must be...

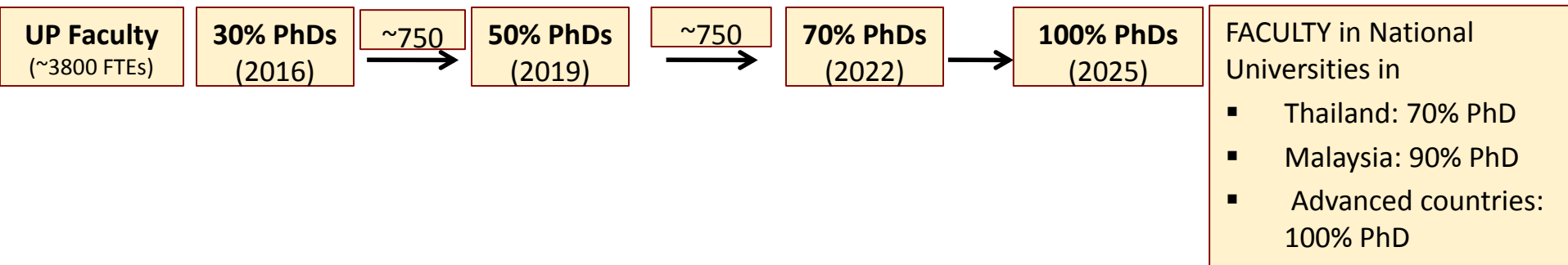
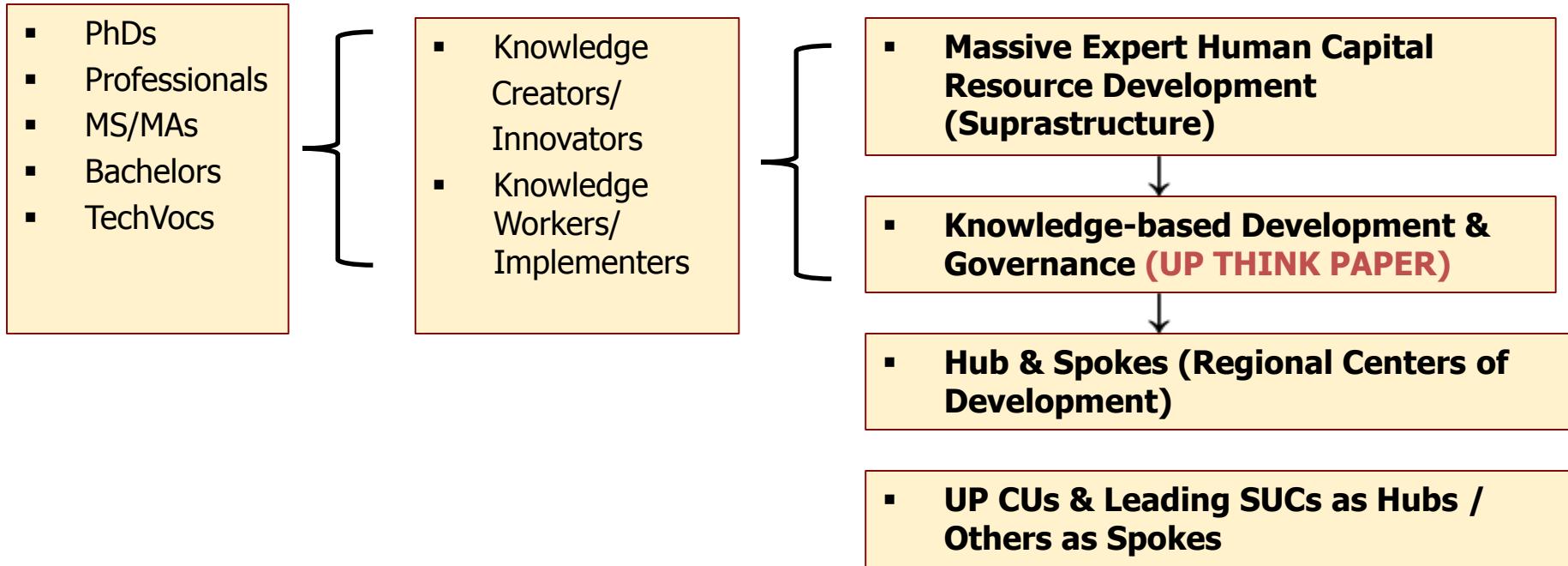
- Models, Catalysts and Enablers
- With a Personal and Team Philosophy
- With Strong Commitment to Academic Excellence, Creativity and Research Productivity

Strengthening & Incentivizing the Faculty

- The UP faculty is a precious resource that the nation must nurture.
- Extending involvement of retirees
- Increasing masters and doctorates:
 - Recruiting PhDs from abroad and providing incentives
 - Financing for post graduate studies (UP & abroad)
- Giving more and increased research grants:
 - More funding for Emerging Interdisciplinary Research Program (EIDR)
 - Enhanced Creative Work & Research Grant (ECWRG)
- Enhanced international publication awards: included Scopus-listed and high impact journals, in addition to ISI journals.
- More research dissemination (travel grant) awards: to publicize our accomplishments, and explore foreign collaborations



UP's Great Challenge to Lead in Building the Country's **SUPRASTRUCTURE**



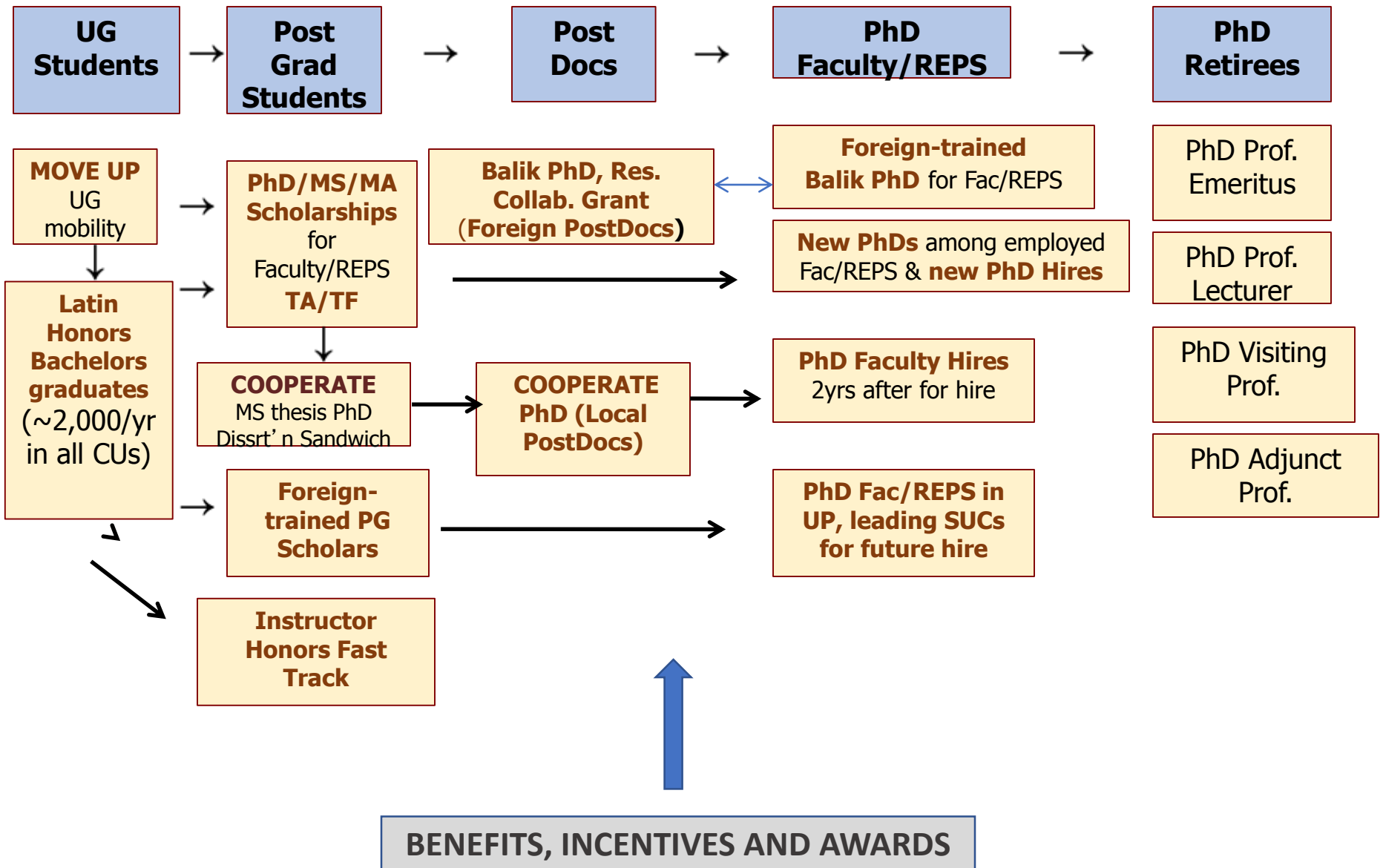
Why create the critical mass of PhDs in UP CUs ?

- **more research grants and projects, more and higher quality research publications and output**
- **more postgraduate (PG) students, more PG graduates**
- **more complete, functioning research groups**
- **more interdisciplinary research, more interdisciplinary expertise**
- **more competent problem solving of societal problems, more public service, greater impact on gov't programs**
- **more policy papers, better legislation**
- **more products, services, systems for commercialization**
- **more contracts and nteractions with industry**

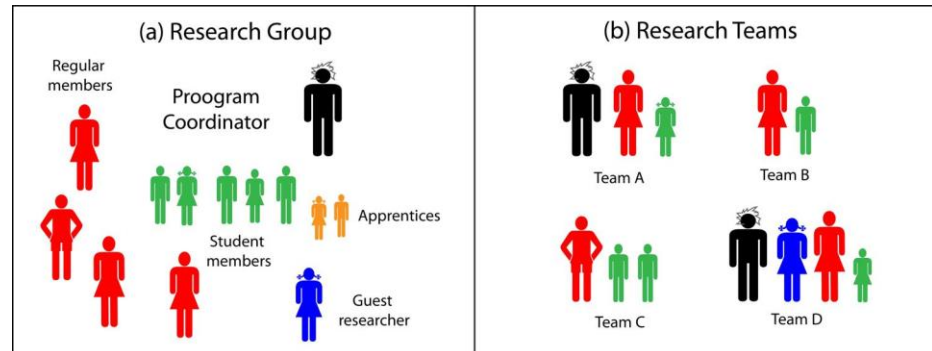
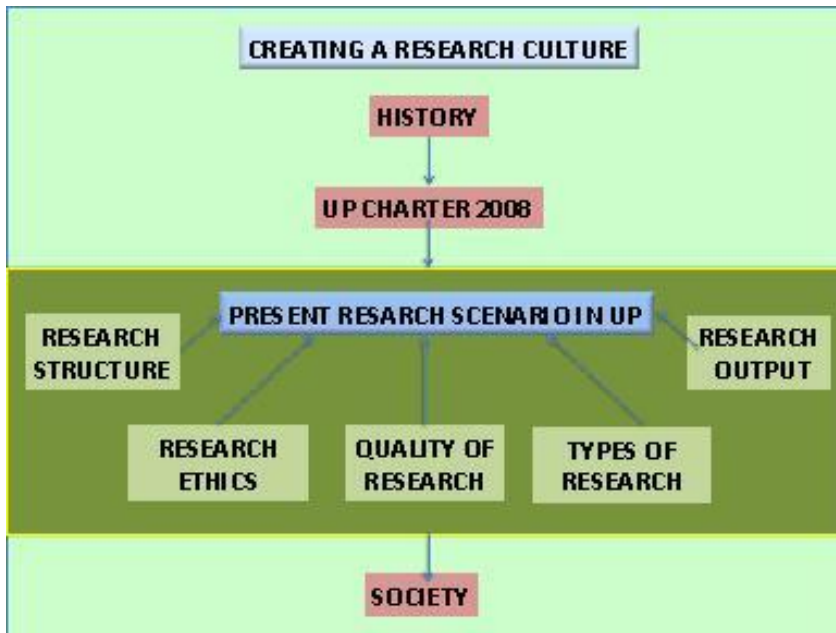
Why increase the number of PG students pursuing higher-level education to become ACADEMICS (Researchers and Creative Artists) in UP?

- **to produce knowledge workers: knowledge creators and implementors through the VALUE CHAIN**
- **to provide and maintain various basic utilities, facilities and services in every region of the country**
- **to lead in innovation in niche industries, to spur growth and expansion in every region in the country**

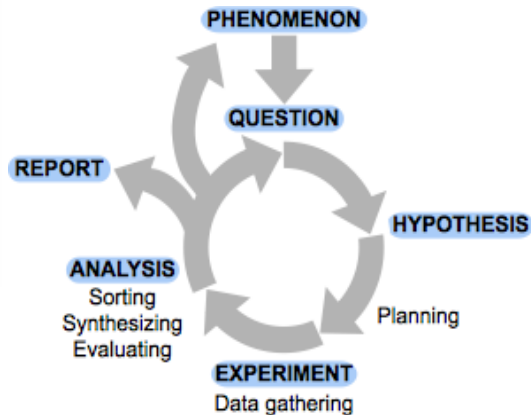
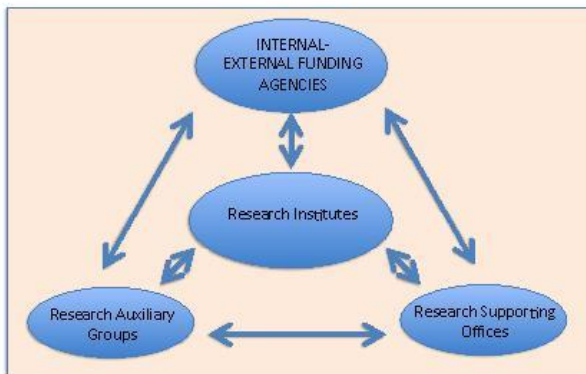
“SHEPHERDING” the Development of UP’s Suprastructure: Knowledge Creators and Implementers (UP Academic Career Development Plan)



CREATING A RESEARCH MENTORING STRUCTURE & CULTURE



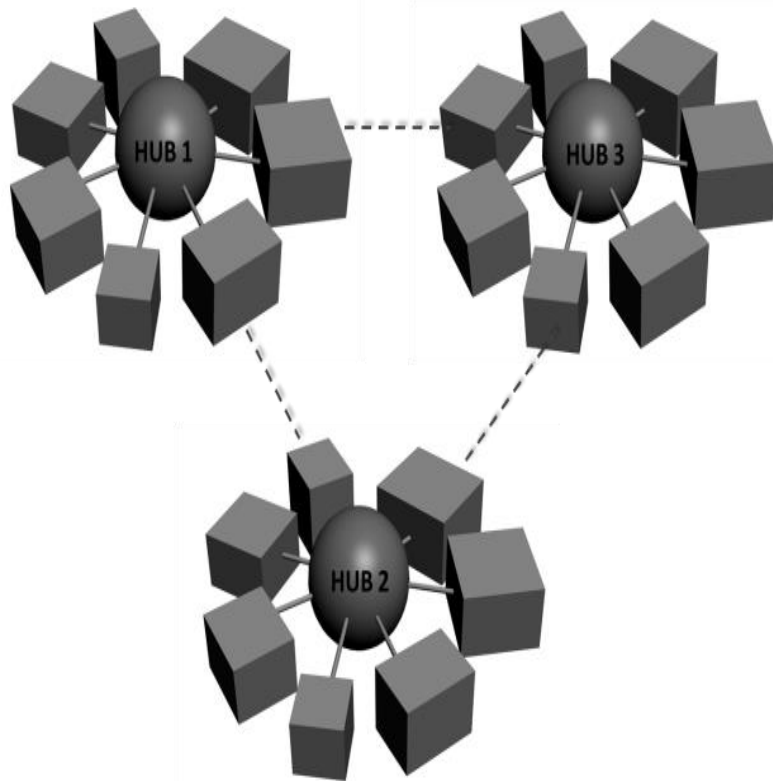
RESEARCH IN UP



Are the parameters measurable? (measurability)	Are the results replicable? (replicability)
Are the results consistent with other established facts? (consilience)	Is the presentation simple and understandable? (economy)
Do the results stimulate further investigations? (heurism)	



UP's EMERGING INTERDISCIPLINARY RESEARCH (EIDR) PROGRAM



- ‘Suprastructure’ of Hubs and Spokes sets the scientific R&D framework of the University towards long-term productivity, sustainability and progress.
- UP constituent universities as the Hubs; Philippine and foreign higher education institutions (HEIs), government and other agencies, industries and non-government organizations acting as the Spokes.
- Categories of the R&D Hubs & Spokes:
 1. national government priorities (public good)
 2. industry priorities (private good, job creation for public good)
 3. academic and basic “pie-in-the-sky” research priorities

6. PROCESSES and PLATFORMS:

- DEGREE PROGRAMS:
CONTENT AND PEDAGOGY
- QUALITY ASSESSMENT

- CURRICULUM
- COURSE SYLLABI

Fisheries degree programs

*LEARNING BY DOING (“mens et manus”)
BRIDGING THEORY AND PRACTICE
KNOWLEDGE + TECHNIQUE = HUMAN CAPITAL
TRANSLATE WORDS INTO ACTIONS*

CONTENT:

General Education or Liberal Arts program

Bachelors majors courses

Postgraduate majors courses

Advanced (GE) interdisciplinary problem-solving courses

Electives

PEDAGOGY:

Traditional Learning Methods

Experiment-, Process-, Field-, Action-based Learning

Student-centered, Outcomes-based Learning

UP's TEACHING & LEARNING CONTENT & PEDAGOGY:

- From traditional pedagogy to blended learning
 - Revised GE Framework and Courses in response to K-12 and ASEAN Integration
 - EIDR **“100 MASTER VOICES”** MOOCs for GE Courses
 - **TV UP** – UP's on-demand internet TV
 - New **inter-CU Postgraduate degree program offerings**
 - New international collaborative degree program offerings

Gawad Pangulo Competitions for Progressive Teaching and Learning, Choral Competition, Competition for Multimedia Competition, ...for New Products, Symbols and Designs, Student Invitational Debates



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Open Educational Resources



QUALITY ASSESSMENT:

Internal Academic Assessment and Development System (iAADS)

Primary objective: to assess and improve the core academic functions

Aims:

1. Gather up-to-date baseline data.
2. Improve the academic unit.
3. Help the unit to plan more effectively.
4. Enable it to benchmark against other units in the UP System or other universities.
5. Serve as a basis for evaluating requests for additional resources.
6. Serve as a basis for the grant of institutional incentives and awards.

Implementation:

1. Each institute/department shall review its programs on a regular three-year cycle.
2. *Phase 1*: data gathering
3. *Phase 2*: quantitative assessment on 5 aspects of academic performance:
 - a. Academic credentials
 - b. Overall track record
 - c. Teaching performance
 - d. Research/artistic output
 - e. Extension service

AUN-QA* Model for Program Level: 15 Criteria

1. Expected learning outcomes
2. Program specification
3. Program structure and content
4. Teaching and learning strategy
5. Student assessment
6. Academic staff quality
7. Support staff quality
8. Student quality
9. Student advice and support
10. Facilities and infrastructure
11. Quality assurance of teaching and learning process
12. Staff development activities
13. Stakeholders feedback
14. Output
15. Stakeholders satisfaction

*ASEAN University Network Quality Assurance

Country Report:
PHILIPPINE FISHERIES EDUCATION:
STATUS AND PROSPECTS

Encarnacion Emilia S. Yap

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Professor, College of Fisheries and Ocean
Sciences University of the Philippines Visayas
Miagao, Iloilo, The Philippines

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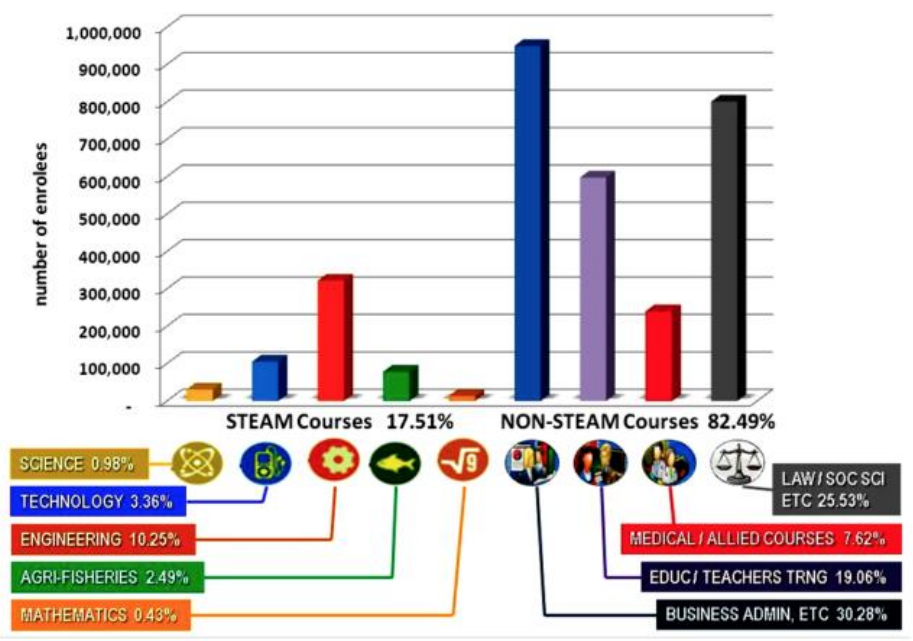


Figure 2. Number of enrollees (in percentage) in different degree courses at the different HEIs in the Philippines, as of AY 2013-2014 (Source: CHED 2015)



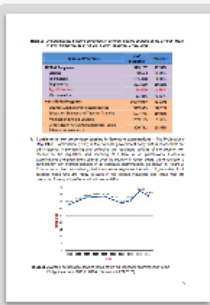
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Table 2.. Undergraduate Student Enrolment in different degree courses at the different HEIs in the Philippines, as of AY 2013-2014 (Source: CHED 2015)

Types of Programs	# of Students	Percent
STEAM Programs	549,107	17.51%
Science	30,673	0.98%
Technology	105,318	3.36%
Engineering	321,630	10.25%
Agri-Fisheries	78,000	2.49%
Mathematics	13,486	0.43%
Non-STEAM Programs	2,587,217	82.49%
Business Admin and related courses	949,545	30.28%
Education Science and Teacher Training	597,745	19.06%
Medical and Allied Courses	239,195	7.62%
Others (Law, Arts and Humanities, Social Science courses, etc)	800,732	25.53%

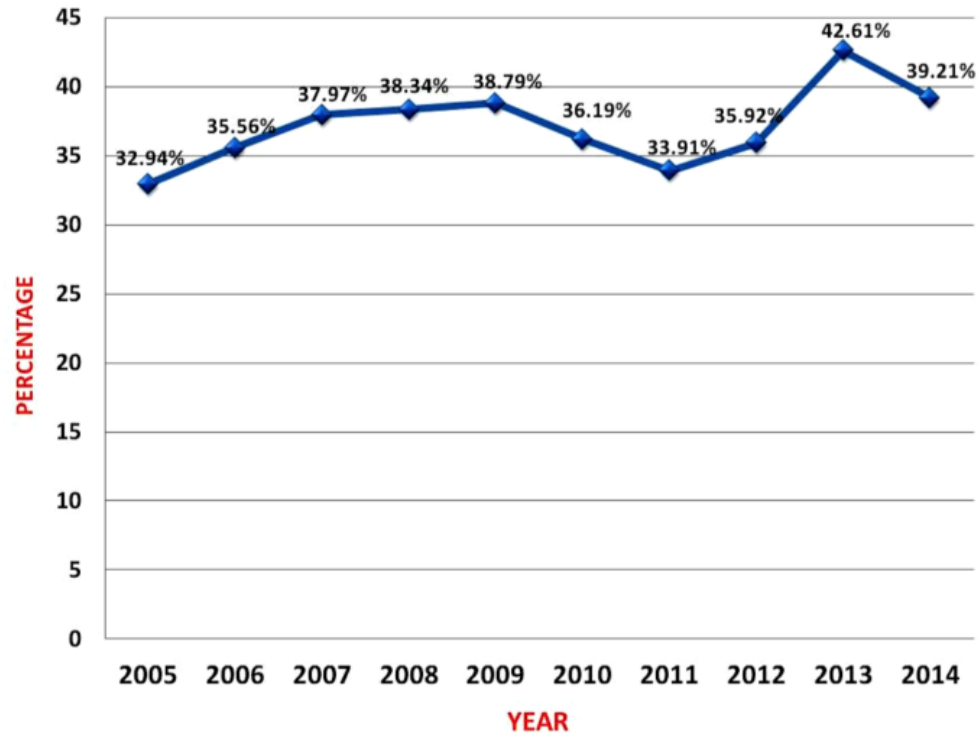
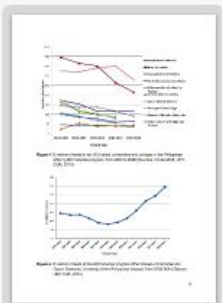


Figure 3. Average percentage passing rates of the 43 licensure examinations in the Philippines from 2005 to 2014 (*Source: CHED 2015*)

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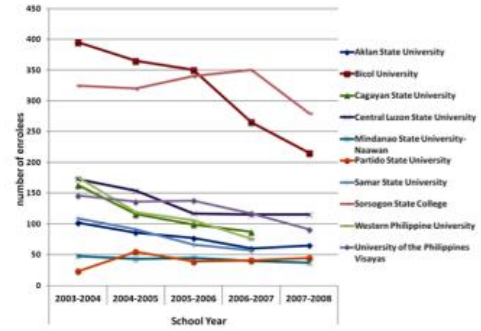


Figure 4. Enrollment trends in ten (10) select universities and colleges in the Philippines offering BS Fisheries program, from 2003 to 2008 (Sources: Flores 2008; UPV-OUR, 2015)

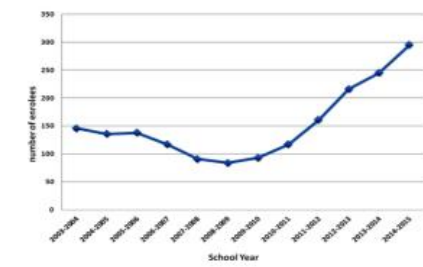
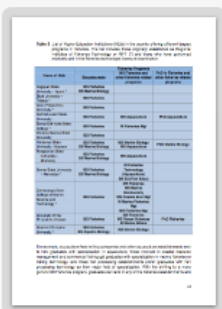


Figure 5. Enrollment trends of the BS Fisheries program of the College of Fisheries and Ocean Sciences, University of the Philippines Visayas, from 2003-2014 (Source: UPV OUR, 2015)



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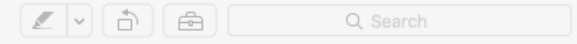
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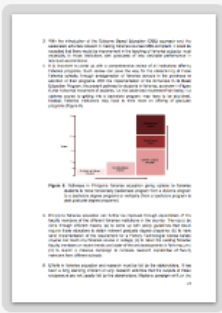
Table 5. List of Higher Education Institutions (HEIs) in the country offering different degree programs in fisheries. The list includes those originally established as Regional Institutes of Fisheries Technology or RIFT (*) and those who have performed relatively well in the fisheries technologist licensure examination.

Name of HEIs	Fisheries Programs		
	Baccalaureate	MS Fisheries and other fisheries related programs	PhD in Fisheries and other fisheries related programs
Cagayan State University – Aparri *	BS Fisheries BS Marine Biology		
Bicol University – Tabaco *	BS Fisheries		
Cebu Polytechnic University *	BS Fisheries		
Central Luzon State University	BS Fisheries	MS Aquaculture	PhD Aquaculture
Davao Del Norte State College *	BS Fisheries	M Fisheries Mgt	
Mariano Marcos State University	BS Fisheries		
Mindanao State University - Naawan	BS Fisheries BS Marine Biology	MS Marine Biology MS Aquaculture	PhD Marine Biology
Pangasinan State University - Binmaley	BS Fisheries BS Marine Biology	MS Aquaculture	
Samar State University – Mercedes *	BS Fisheries BS Marine Biology	M Fisheries Technology (Aquaculture) BS Ed (Fish Educ)	
Zamboanga State College of Marine Science and Technology *	BS Fisheries	MS Fisheries MS Marine Biodiversity MS Coastal Envi Mgt M Marine Fisheries Mgt MS Fisheries Mgt	
University of the Philippines Visayas	BS Fisheries	MS Fisheries MS Ocean Sciences M Marine Affairs	PhD Fisheries
Western Philippine University *	BS Fisheries BS Aquatic Biology	MS Marine Biology	

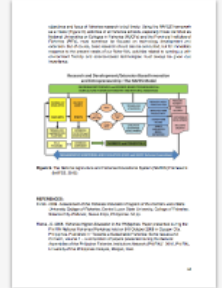


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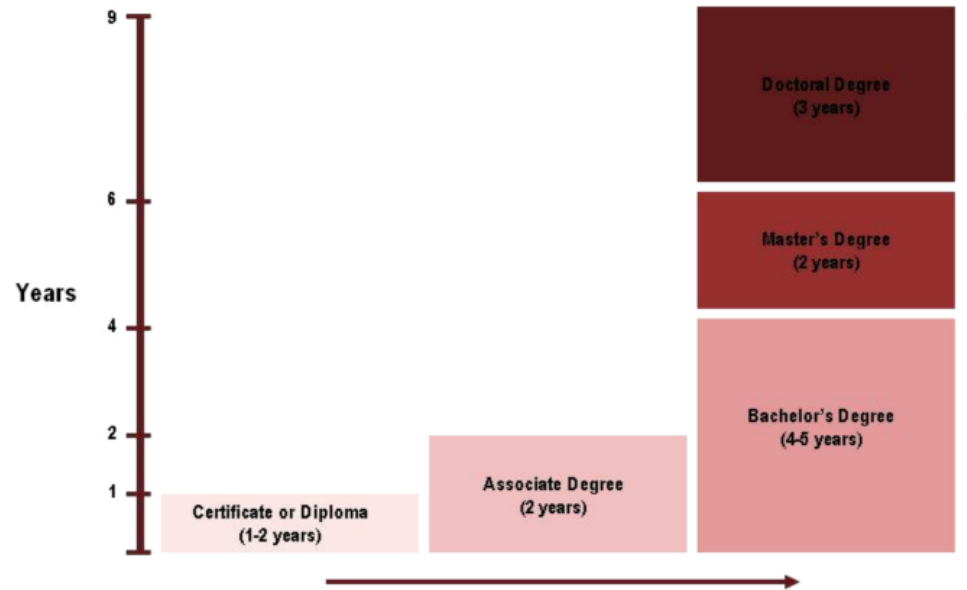


Figure 8. Pathways in Philippine fisheries education giving options to fisheries students to move horizontally (ladderized program from a diploma program to a bachelors degree program) or vertically (from a bachelors program to post graduate degree programs)

CHED MEMORANDUM ORDER

No. _____

Series of 2017

**SUBJECT: POLICIES, STANDARDS AND GUIDELINES
 FOR THE BACHELOR OF SCIENCE IN FISHERIES
 (BSFi) Program**

Dr. Carlos Baylon, CFOS, UPV
Head, CHED Technical Working Group

ARTICLE I

INTRODUCTION

Section 1. Rationale

Based on the *Guidelines for the Implementation of CMO No. 46 s 2012*, this PSG implements the “shift to learning competency-based standards/ outcomes-based education.” It specifies the ‘core competencies’ expected of BS in Fisheries graduates “regardless of the type of HEI they graduated from.” However, in “recognition of the spirit of outcomes-based education and of the typology of HEIs,” this PSG also provides “ample space for HEIs to innovate the curriculum in line with the assessment of how best to achieve learning outcomes in their particular contexts and their respective missions ” .

In addition, with the impending integration of the ASEAN economies, it is also important to make the BS in Fisheries curriculum compliant with the regional standards so the graduates may be able to practice their profession throughout the ASEAN Region and vice-versa.

Section 5. Program Description

5.1. Degree Name

The degree program shall be called Bachelor of Science in Fisheries

5.2. Nature of Field of Study

- a) Aquaculture
- b) Capture Fisheries
- c) Post-harvest Fisheries
- d) Aquatic Resources Management

?

1. Specific Professions /Careers/Occupation for Graduates

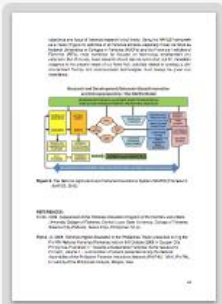
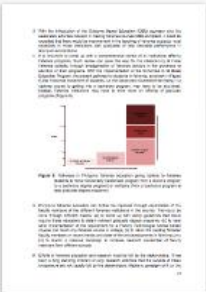
- a) Fisheries resource management
- b) Fisheries research
- c) Fisheries extension service
- d) Fisheries entrepreneurship
- e) Fisheries industry management
- f) Fisheries education
- g) Fisheries engineering
- h) Fisheries nutrition
- i) Fisheries biotechnology

1. Allied programs

ARTICLE V CURRICULUM

Section 8. Curriculum Description

This curriculum is designed to prepare well-rounded fisheries professionals with competencies in the principles and practice of fisheries science. The curriculum is made up of five components; 1) General Education courses (39 units) 2) Foundation courses (26 units), 3) Professional courses (76 units), 4) Electives (18 units), 5) Other Required Courses (14 units).



Research and Development/Extension Based Innovation and Entrepreneurship : The NAFES Model

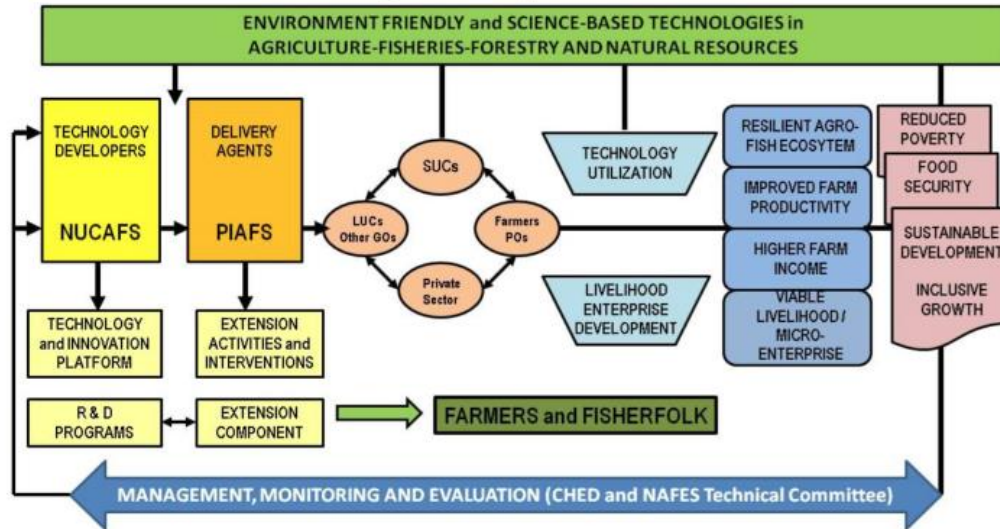


Figure 9. The National Agriculture and Fisheries Educational System (NAFES) Framework (NAFES, 2015)

7. PRODUCTIVITY: metrics for

EDUCATION:

- Bachelors, Masters, PhD graduates
- Professional degree graduates
- Passing in Licensure Exams

SCHOLARLY PUBLICATIONS:

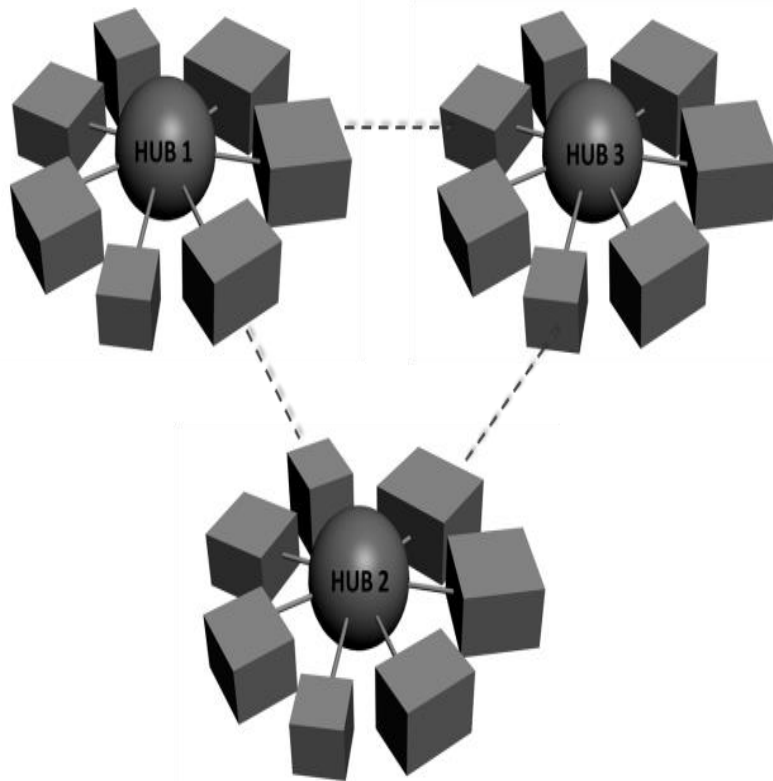
- Scopus-indexing, ISI-indexing, Google Scholar indexing
- H-index, Number of Citations (Research Impact or Influence)
- Invention Disclosures, Patents, Business Development

KNOWLEDGE-BASED PUBLIC SERVICE AND SOCIAL ENGAGEMENT:

- Community Engagement, Training Workshops
- Public Discourse, Public Policy, Legislation



UP's EMERGING INTERDISCIPLINARY RESEARCH (EIDR) PROGRAM



- ‘Suprastructure’ of Hubs and Spokes sets the scientific R&D framework of the University towards long-term productivity, sustainability and progress.
- UP constituent universities as the Hubs; Philippine and foreign higher education institutions (HEIs), government and other agencies, industries and non-government organizations acting as the Spokes.
- Categories of the R&D Hubs & Spokes:
 1. national government priorities (public good)
 2. industry priorities (private good, job creation for public good)
 3. academic and basic “pie-in-the-sky” research priorities

EIDR: interdisciplinary VALUE CHAIN research from nature to human society and back

R&D Hub & Spokes 1: Fundamental/basic academic research

- | | |
|--|---|
| <ul style="list-style-type: none"><input type="checkbox"/> Creative arts, music, culture and history (human and natural)<input type="checkbox"/> Higher education: teaching and learning<input type="checkbox"/> Socio-political, economic, business and legal frameworks and systems<input type="checkbox"/> Community development and protection<input type="checkbox"/> Population, fertility, child care, child nutrition, and care for the aging<input type="checkbox"/> Mental, psychological, social and physical/sports-based health and wellness<input type="checkbox"/> Communicable and non-communicable diseases | <ul style="list-style-type: none"><input type="checkbox"/> Food and nutrition<input type="checkbox"/> Agriculture, livestock, and fisheries<input type="checkbox"/> Environment conservation, pollution control and disaster mitigation and resilience<input type="checkbox"/> Biodiversity and biomaterials<input type="checkbox"/> Renewable energy<input type="checkbox"/> Recycling of waste materials and by-products to produce high value products<input type="checkbox"/> Computational biology, systems biology, complex systems and informatics |
|--|---|

R&D Hub & Spokes 2: Research contributing to the national government's key result areas (KRAs)

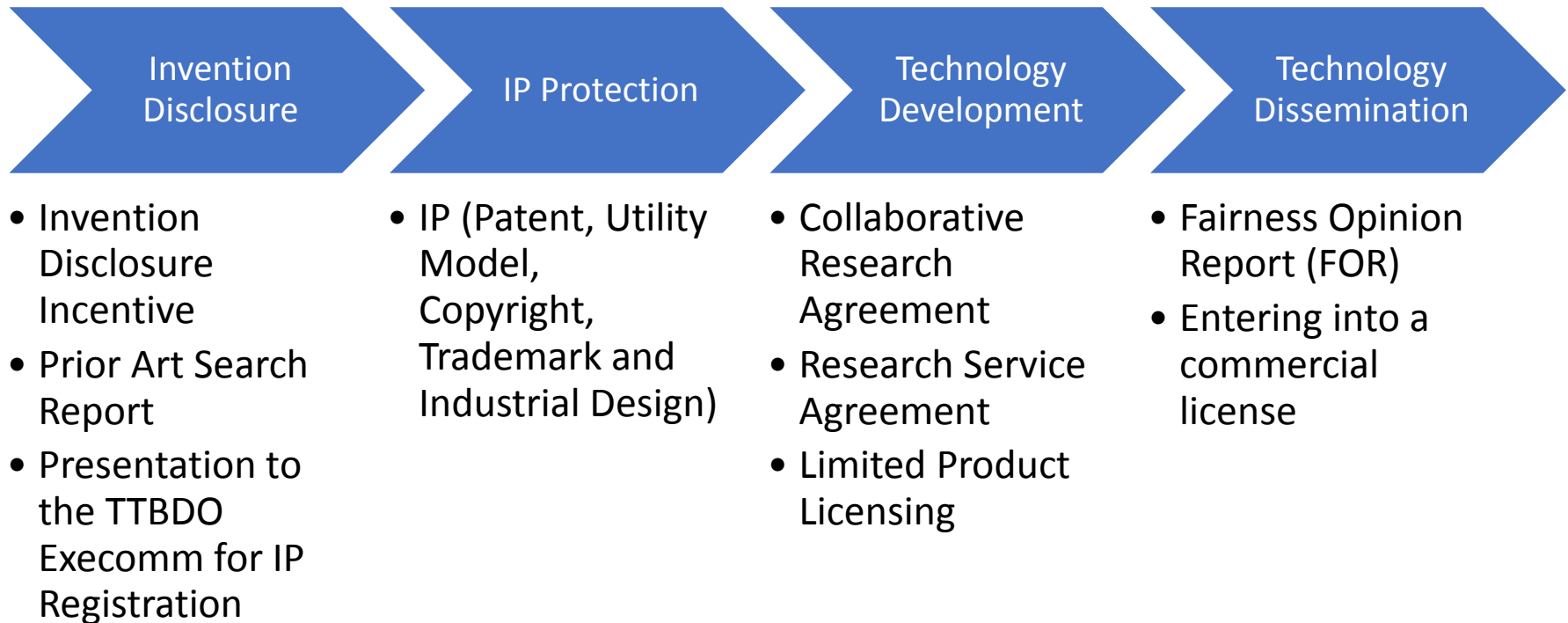
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|---|--|
| <ul style="list-style-type: none"><input type="checkbox"/> Transparent, accountable and participatory governance<input type="checkbox"/> Justice and lasting peace and the rule of law<input type="checkbox"/> Rapid, inclusive and sustained economic growth | <ul style="list-style-type: none"><input type="checkbox"/> Poverty reduction and empowerment of the poor and vulnerable<input type="checkbox"/> Integrity of the environment and climate change adaptation and mitigation<input type="checkbox"/> Basic and higher education to support the above KRAs |
|---|--|

R&D Hub and Spokes 3: Research focused on the development of products, services, processes, or systems based on the needs and priorities of industry, SMEs and community cooperatives

- | | |
|--|---|
| <ul style="list-style-type: none"><input type="checkbox"/> Philippine culture, arts, music, history, environment based-products for tourism and overseas Filipino market<input type="checkbox"/> Higher education and specialized learning and training modules to support industries<input type="checkbox"/> Local and outbound, higher level, skilled, expert manpower development (BPOs and OFWs)<input type="checkbox"/> Disaster mitigation and resilience products and services<input type="checkbox"/> Electronics, semiconductors, software and ICT products<input type="checkbox"/> Health, disease, sports and wellness: health and disease-prevention regimens and products, nutraceuticals, therapeutics, diagnostics, and medical devices; products for leading diseases | <ul style="list-style-type: none"><input type="checkbox"/> Energy: new sources, cost reduction and efficient utilization<input type="checkbox"/> Light manufacturing products, including petroleum/natural gas-based products such as polymers, synthetic fibers, solvents, fine chemicals, epoxies, and packaging materials<input type="checkbox"/> Agriculture, livestock and fisheries products, including feeds, biofertilizers and biopesticides<input type="checkbox"/> Food, drink, clothing/fabric and shelter/structural materials from coconut and other agricultural crops<input type="checkbox"/> Safety of food, drugs, and other products |
|--|---|



From Lab to Market

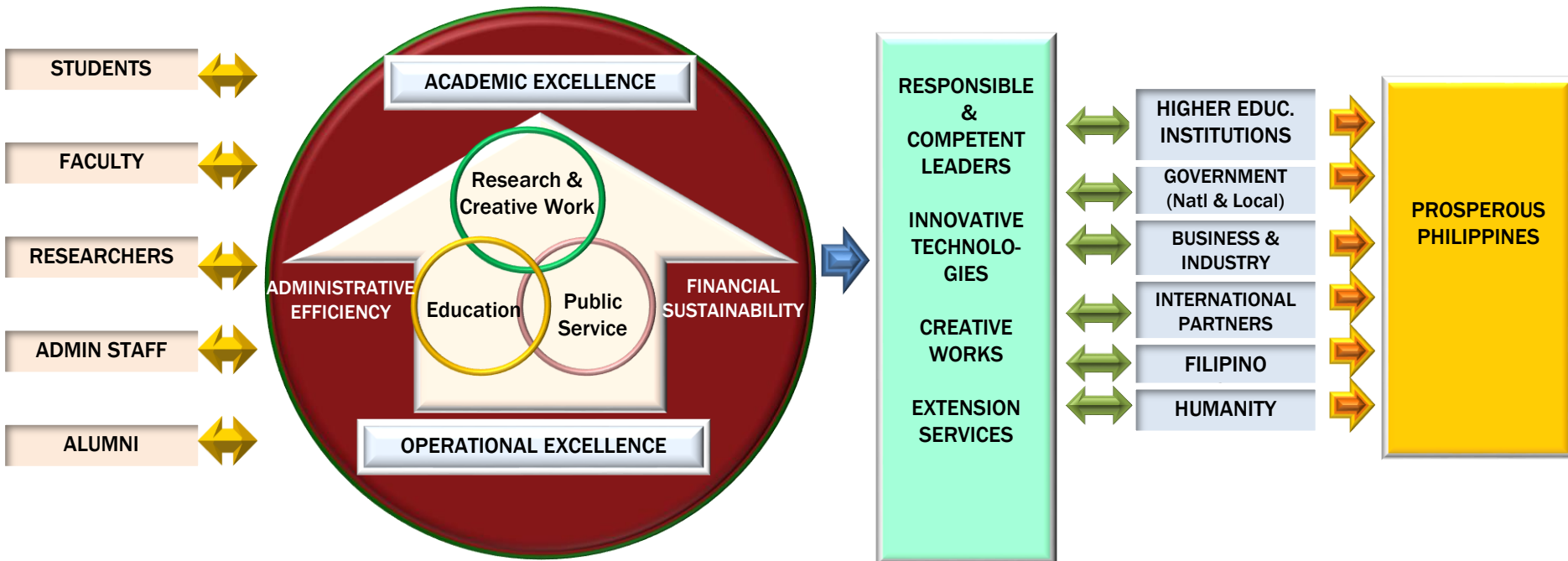


UP Strategic Plan 2011-2017



VISION: A great university, taking a leadership role in the development of a globally competitive Philippines

Guiding Spirit: ONE UNIVERSITY, ONE UP



Maraming salamat po!