

# **Research Capability Building - A Strategy to Sustain Research Climate in the SUCs and Poverty Alleviation in the Countryside: The UNP Experience**

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## **Abstract**

*The University of Northern Philippines employed strategic solutions to create a research climate, build research interests, and sustain the enthusiasm of faculty members by employing and enhancing their research capability through conducting research capability building seminar-workshops (RCBSW) cum presentation. The performance of the University is evaluated based on some indicators provided by the Commission on Higher Education (CHED) as a result of the 2001-2003 SUC leveling and a self-assessment for 2004-2006 and the present year. The conduct of the mandatory RCBS in all the 12 colleges of the university increased substantially the number of active researchers and upgraded the performance of the faculty members and the University as a whole. Institutional initiatives were fully implemented. Policies and guidelines on benefits, opportunities, and grants were realized. Research linkages and networks were forged with local and international entities. Research climate was established and sustained. Research outputs were presented, published, disseminated and adopted; some were commercialized. Local government units facilitated the adoption of technologies in the countryside. Private entrepreneurs were also benefited from the technologies generated.*

## **Introduction**

### **Background of the Study**

The University of Northern Philippines was established in 1905 as a trade school, the Vigan Trade School, and was converted as the Northern Luzon School of Arts and Trades, which was renamed Ilocos Sur School of Arts and Trades (ISSAT),

and finally called the University of Northern Philippines (1965) under RA 4449 authored by Hon. Floro S. Crisologo.

UNP is a pioneering center of excellence for *instruction* in the humanities, the arts and the sciences; functional scientific, social and technological *researches*; relevant *extension* services; and quality *production* towards empowerment of graduates for sustainable development. It provides quality *education* through modernization, accreditation, and effective consultation and linkages; enhances *research* through expansion of commodity coverage and capacitation of faculty and staff members; intensifies *extension* through provision of impact projects; and improves *production* through the optimal utilization of available resources making its graduates effective development managers and useful citizens in the community.

It has a four-fold function. Being a Level IV University, it is tasked to perform instruction, research, extension, and production. From its humble beginnings as a trade school and the first state university in the North in 1965 offering only four degree courses, it has grown into a comprehensive university the latest of which is the offering of Doctor of Medicine, Bachelor of Laws, and graduate studies in Engineering and Sciences.

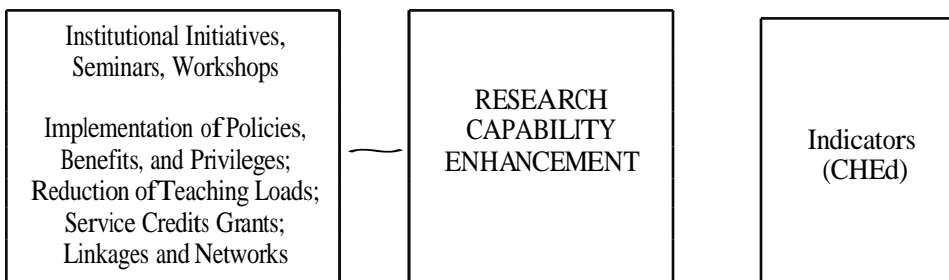
In the field of research and development, the Research Center was established in 1983 having three areas of discipline: social sciences and education, vocational and technical education, and arts and sciences. Now, the center has metamorphosed into a Research and Development Office with seven areas. It has institutionalized the research function of the University. From a 12 hectare campus in Vigan City, it has added four more campuses, Candon, Sinait, Quimmarayan (Sto. Domingo) and Nalvo (Sta. Maria) consisting of 17 research centers.

Side by side with the research function, the extension function is in close coordination in order to complete the RD&E continuum making the University relevant to the needs and concerns of the people.

## Objectives

1. To assess the research capability of the faculty members and the University as a whole from 2002 to 2006.
2. To assess the extent of implementation of the Research, Development, and Extension (RD&E) functions of the University.
3. To account the extent of utilization of the research outputs in the countryside.
4. To trace the benefits of R & D activities in the countryside.

### Conceptual Framework



### Methodology

The study was conducted to assess the performance of the research and development functions of the University . It specifically determines the research capability of the faculty members and the University as a whole after being provided with interventions.

These activities involved the conduct of research capability building seminars and workshops, implementation of guidelines in the conduct of research, provisions of benefits and privileges, and the institutional initiatives to further motivate faculty members to go into research.

After these activities or interventions have been made, the outputs of the faculty members and the University as a whole were summarized and were based on criteria set by the Commission on Higher Education .

Indicators on faculty members and the University are the following:

1. Number of active researchers
2. Number of researches published in refereed journals locally and abroad
3. Number of research outputs utilized
4. Number of research disseminated in appropriate scientific symposia, seminars, conferences
5. Number of R&D proposals endorsed by DBM for funding
6. Number of R&D projects funded by external sources locally and abroad.
7. Number of GAA and locally funded R&D projects
8. Number of completed R &D projects not yet reported and published
9. Number of awards of distinction given to faculty R &D projects
10. Number of R&D reviews, seminars, and symposia conducted
11. Annual appropriation (GAA) for research in pesos

Other indicators to evaluate the University which served as bases in the determination of the research capability are:

1. publications (flyers, brochures, books, newsletters, video)
2. patents
3. copyrights
4. MOA
5. technology adopters

## **Findings and Discussion**

### **Before 1998**

Sustaining the research climate in a comprehensive university employs unique strategies, appropriate, and relevant techniques. Being the source of ideas and knowledge, the research and development activities must be relevant to the needs and concerns of people.

There was a research center with three main agenda. The research function was not yet catering to the entire needs of the University particularly the faculty members. This was 6.0% of the total number of faculty members of 500. Research proposals were not subjected to panel or audience for critiquing. Only a few research proposals were processed,

### **Conduct of Research Capability Building Seminar-Workshops**

The conduct of research capability building seminar workshops (RCBSW) was planned and implemented to solve the problem of low profile and interest along research functions. Prior to 2002, RCBSWs were conducted but only those who had the interest in the field were the ones who were excused and who participated. With this situation, not many were convinced and motivated.

In 2004, one of the policies of the university was to require all faculty members to undergo RCBSW. In this activity, all participants were required to present their research proposals for improvement in front of panels coming from the Area Coordinators of the R&D Office and invited experts along the field being tackled.

Table 1. Number of RCBSW conducted in the University

Seminar-Workshops	2004	2005	2006	2007
College of Nursing				
College of Health Sciences	1			
College of Criminology				
College of social Work				
College of Engineering		1		
College of Architecture		1		
College of Fine Arts		1		
College of Arts & Sciences			1	
College of Teacher Education			1	
College of Business Administration & Accountancy				
College of Technology				1
College of Computer Studies				

After the conduct of RCBSW, the research climate of the University was upgraded. This was manifested by the submission of research proposals attuned to the research agenda of the University and to the region and the country. The number of active researchers had a quantum leap from 7.0% to 16.95%. These are the faculty members who actually conducted researches and published their outputs in journals. These researches were financed by the GAA. The figures show that there are 149 faculty members out of 879 which is much higher than the figures prior to 2002. In its real sense, 96.7% (850/879) do their research functions.

Research proposals submitted and reviewed are prioritized by the Office. Researches with significance to the regional and national agenda are endorsed to various government agencies and to the linkages and networks of the University. Some even financed their own projects due to limited budget.

Table 2. Comparison of Research Information

	Before 1998	2002-2006
1. Number of Research Areas	3	7
2. Number of Active researchers	30	149
3. Research Centers	2	15

There are now seven areas of R & D at the university. They are the following:

1. Natural Science & Health & Nutrition Researches
2. Agriculture, Forestry, Business & Cooperatives Researches

3. Marine and Freshwater Researches
4. Education, Culture, & Sports Researches
5. Socio-Economics & Gender Studies
6. Industry & Energy Researches
7. Agrarian Studies & Local Governance Researches

The surge in the enthusiasm and motivation of the faculty researchers paved the way to the creation of new areas of discipline. Originally, there were only three; by 2002-2006, there were already seven. With the varied expertise and the education they finished in graduate studies, new research and research-related centers were established. It increased by 13. Recently, two new centers were established.

**Table 3. Research Centers of the University (2002-present)**

	NAME	BASE	YEAR
1.	Natural Products Chemistry & Biotechnology_ Laboratory	Science Lab	2002
2.	Mushroom Research and Spawn Production Lab.	CEESDev	1999
3.	Plant Tissue Culture Lab. (Root Crops)	R&D Office	2005
4.	RIHRDC	CHS	2003
5.	Ceramics Research & Productivity	OP	1987
6.	Research Statistics Assistance Center	OP	1995
7.	Bioelectronics Center	CTech	2007
8.	Gender & Development Center	OP	1999
9.	<i>Nalvo</i> Marine Research Station	CEESDev	2001
10.	Freshwater Research Station, <i>Sta. Catalina</i>	CEESDev	2002
11.	Center for Culture & Performing Arts/ Ilokano Studies Center	OP	1999 <b>/1978</b>
12.	Center for Inland Fisheries and Aquatic Research ( <i>Quinmarayan</i> )	R&D Office	2007
13.	Envt & Sustainable Resources Center	CEESDev	2000
14.	Center for Alternative Energy & Renewable Resources Research	R & D Office	2006
	a) Pilot : Rugsuanan, Vigan City		
15.	Bamboo & Organic Farming Research and Training Center <i>Pilot: Lidlidda, San Emilio.</i>	R&D Office	2004
16.	Litsea (Sablot)Conservation Network ( <i>Experimental Sites: Rugsuanan, Puroc A Bassi, Vigan City</i> )	R&D Office	2004
17.	FITS Center Ayusan Nore, Vigan City	R &D Office	2001

## Implementation of Policies, Benefits, Incentives and Motivations

The Research and Development Office which is tasked to oversee all research programs and projects, policies and guidelines are followed. Upon notification on the approval for funding, researchers are required to submit their operational plans, conduct their activities and submit their accomplishments. Their outputs upon incorporating all suggestions for publication, service credits are given to them as long as they were not reduced on the nonnal teaching load. Such are attested by the VPAA. Their works were published in the UNP Research Journals and endorsed to refereed journals. Any approved research that was not completed on the approved time frame is a basis for another grant in the succeeding year.

The researchers are provided with funding in the presentation of their research both local and abroad. Researches are packaged into matured technologies. The university provides funds for production of flyers, brochures, patenting, and copyright applications and processing.

## Linkages and Networks

The University from 2002-2006 got substantial number of linkages and networks. The efforts were initiated and spearheaded by the R&D Office and other university offices including the Office of the President and the Office of the VPPRE. The R&D Office had 18 international and 24 national and regional linkages thus contributing to the sustained increase in the indicators. The partnerships and collaborations they generated and forged paved the way to a better and sustained performance of the researchers. Highlights include the membership of UNP to ILARRDEC, a regional agriculture consortium; UNP being the chair of the ICIERD; which garnered the Best Industry and Energy Consortium in the country in 2006 (Table 4) and the secretariat of the RIHRDC, regional health consortium in Region I. The existence of collaborations between the University to each of the organizations facilitated the fast movement of expertise to and from the collaborators. All started from the spirit of partnership and cooperation which brought the university into global perspectives. With each organization working hand in hand with UNP, it had benefited from them commodities which include bamboo, multipurpose trees propagation and utilization, **kakawate** (*Gliricidia*), sablot (*Litsea*), vetiver, water and soil conservation, organic agriculture, wood chemistry, plant biochemistry, environment, wood preservation and spectroscopy, and specectropbotometry.

Table 4. Research Linkages and Networks of UNP

## A. International

Name	Headquarters	Year
1. Intl Network for Bamboo & Rattan (INBAR)	Beijing, China	2004
2. Asia Pacific Assn of Forestry Research Institution (APAFRI)	FRIM, Serdang, Malaysia	2001
3. IUFRO	Yokohama, Japan	2002
4. Intl Timber Trade Organization (ITTO)	Nagoya, Japan	2002
5. Intl Society for Plant Molecular Biology (ISPMB)	Athens, Georgia, U.S.A	1997
6. Intl Union of Biochemistry & Mol. Biology (IUBMB)	Hawaii, U.S.A	1998
7. Sustainable Resources Development (SURED + Southeast Asia + China)	Germany	2003
8. Intl Society for Strategic Agr. Sciences (ISSAAS)	UPM, Malaysia	2007
9. Ministry of Science & Tech (MOST)	Beijing, China	2004
10. INFORTRACE	Beijing, China	2004
II. Arid Forest Research Institute (AFRI)	Jodhpur, India	2004
12. Nanjing Technological University (NTU)	Nanjing, China	2004
13. Zhejiang Forestry University (ZFU)	Zhejiang, China	2004
14. University Putra Malaysia (UPM)	Serdang, Malaysia	1995
15. National University Singapore (NUS)	Singapore	1997
16. American Association for the Advancement of Science (AAAS)	New Haven, Connecticut, USA	2000
17. Nagoya University	Chikusa, Nagoya, Japau	1994
18. UNESCO Regional Network for the Chemistry of Natural Products	UPM, Serdang, Malaysia	1993

## B. National &amp; Regional Linkages

Name	Headquarters	Year
I. UPLB-FPRDI-ERDB-BioTech-CFNR	Los Banos, Laguna	1984
2. ILARRDEE-PCARRD	Batac, Ilcoos Norte	1998
3. ICIERD-PCIERD	San Fdo., La Union	2000
4. RIHRDC-VCHRD	UNP, Vigan City	2001
5. NOLAMRDZC-PCAMRD	Bacnotan, L.U./Laguna	1997
6. NEDA	San Fdo., La Union	1986



Table 4 continued

Name	Headquarters	Year
7. NRCP	Taguig City	1986
8. De la Salle University	Manila	2005
9. UP Diliman –NSRI-MSI-CEngg	Quezon City	
10. Maritime Academy of the Asia and the Pacific (MAAP)	Mariveles, Bataan	2006
11. Kalinga State College (KSC)	Tabuk, Kalinga	2007
12. Ilocos Sur Polytechnic State College	Sta. Maria, Ilocos Sur	2005
13. Notre Dame University	Marbel, South Cotabato	2004
14. Local Government Training Research Institute Philippine Network	Mandaluyong	
15. CHED-ZRC/CHED	Batac, I.Norte /Pasig City	2001/01
16. Natural Products Society of the Philippines (NPSP)	UP Diliman, Q.C.	1997
17. Silliman University	Dumaguete City	2006
18. West Visayas State University	La Paz, Iloilo	2003
19. UST	Espana, Manila	2005
20. PUP	Sta. Mesa, Manila	2006
21. Grassland Society of the Philippines	ERDB, Laguna	2000
22. Cavite Sate University	Indang, Cavite	2007
23. Benguet State University	La Trinidad, Benguet	2007
24. St. Louis University	Baguio Ciy	2001

## Indicators

After the conduct of RCBSW to the faculty members, the performance of the faculty members and of the University as a whole showed a dramatic change in the values. The activity created an awareness and provided motivations for them to start and think of research topics in their respective fields of disciplines (Table 5). The capability of the researcher is manifested by the outputs he finished, for example, presentations made locally and internationally, and publications where the papers were done.

UNP researchers presented their outputs in Vietnam, China, Singapore, Malaysia, Thailand and India. International papers were presented in the Philippines. There were 19 and 29 proposals in 2002 and 2006, respectively. Endorsed by

DBM for funding, all of them were funded under GAA. There was a substantial increase of proposals and GAA funded projects compared to the earlier time frame.

**Table 5. UNP Performance in R&D Based on Indicators, 2002-2006**

<b>Indicators</b>	02	03	04	05	06	Total
I. Number of Faculty involved in research	22	24	28	94	149	317
2. Number of researches published in refereed Journals local & international	7	2	8	16	18	51
3. Number of research outputs utilized	7	8	12	16	18	61
4. Number of research disseminated in sym, seminars and conferences	4	8	23	9	21	109
5. Number of R&D proposals endorsed by DBM for funding	19	23	24	26	29	121
6. Number of R&D projects funded by external sources				5	8	25
7. Number of GAA and locally funded R&D Projects	19	19	24	26	29	117
8. Number of completed R&D not yet reported and published	5	4	7	5	3	24
9. Number of Awards of distinction given to faculty R&D Projects	3	5	5	6	12	31
10. Number of R&D reviews, seminars and symposia conducted	3	5	5	6	12	31
11. Annual Appropriation (GAA) Research in million pesos)	2.56	2.90	2.90	2.93	3.14	14.45

### **Research Dissemination and Utilization**

The research generated were packaged in forms understood and utilized by the target clients, beneficiaries, and end-users. From 2002 to 2006, there were 61 out of 117 or 52.1% which were utilized. Flyers, brochures and VCDs of the technologies were also distributed to the end-users. Other media include the assembly called by the local executives where seminars and workshops were conducted. Demonstrations of matured technologies were also shown to the participants. IPR registration was acquired for the technologies before they were given to the adopters.

Primary targets on the utilization of matured technologies were in the countryside. Some were adopted for commercialization. The R&D Office and the Extension Services Office of the University arranged with local chief executives and officials on the dispersion of technologies and research findings. Needs assessment data were the basis for the delivery of appropriate technologies and research findings in the countryside. After which, a Memorandum of Agreement (MOA) between the University and the technology adopters was forged. Significant research

findings and technologies generated, disseminated, and utilized and adopted upgraded the living conditions of the people in the countryside of Ilocos Sur and Region I. At the RD&E, 55 programs that served 4,359 people were conducted from 2001 to 2003. Dissemination of present programs of the University on the utilization of matured technologies are immeasurable. Below are samples of matured technologies which were popularized locally and internationally consisting of related technologies duly accepted by scientists, researchers, farmers, and households (Table 6).

Table 6. Dissemination and Utilization Activities

Research Findings	Conference/Adoptors	Place
Kakawate ( <i>Gliricidia</i> )	1. Intl Conf. on Plant Molecular Biology, 1997	Singapore
	2. Asia Pacific Biotechnology Congress 2001	Cebu
	3. BIOTA Natl Convention, 1996 2003	UNP, Vigan City
	4. ILARRDEC Symposium, 1999	CLSU, Nueva Ecija
	5. PSM Scientific Conference, 2000	MMSU, Batac
	6. NAST, 1998	
	7. NRCP, 1998	Baguio City
	8. Cooperacion Espanola-Vigan Masterplan on Herbal Medicine (2005)	DOST, Taguig City Davao City Vigan City
Kakawate Rice Demo & Kakawate Botano-pesticides	1. 60 Farmers (2005) with MOA	Naglaoan, Sto.
	2. 20 Farmers (2006) with MOA	Domingo, Ilocos Sur Rugsuanan, Vigan City
Kakawate Leaves Chopper	1. 150 Farmer -Leaders (2007) Mayor: Hon. Jesus Sagay with MOA	Lidlidda, Ilocos Sur
	2. FITS Center -50 Farmers leaders (with MOA)	Ayusan None, Vigan
Multipurpose Use Kakawate		
Radio Broadcast (DZNS)	Coverage: Ilocandia (2007)	Vigan City
Radio Broadcast (DWRS)	Coverage: Ilocandia (2006)	Vigan City

**Table 6** continued

Research Findings	Conference/Adoptors	Place
Radio Broadcast (DYFB)	Coverage: [Ilocos Norte (2003)	Laoag City
TV Broadcast (OBN)	Coverage: National (2004)	NBN
<b>Upcoming</b>		
Kakawate Traditional Use	Intl Conference on Sustainable Forest Mgt and Poverty Alleviation	Kunming, China Dec. 2007
Kakawate as Antitermitic and Antifungal	ISSAAS Intl Conference :	Malacca, Malays Dec. 2007
Kakawate as a Multipurpose Tree	50 farmer leaders (with MOA)	San Emilio, Ilocos Sur

## Conclusion

Research Capability Building activities created a research climate at the University of Northern Philippines. Institutional initiatives along research functions were geared towards faculty motivation to go into research. Interests and enthusiasm were established in the faculty members that ushered to a sustained performance in R&D indicators putting the University in the local, national and international perspectives. With the scientific generation of information resulting from research findings, the University was able to disseminate, utilize and convince people, particularly the people in the Philippine countryside and even in other countries to use local technologies that surely protected and benefited them.

## Recommendations

State Universities and Colleges must be furnished with the indicators for them to have a guide in the quest for excellence and relevance in research, development and extension. Government agencies must assist and should have deeper interests in SUCs for the realization of the RD&E functions. There must be a monitoring mechanism for assisting SUCs in order to determine the status and extent of RD&E activities they are engaged in.

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