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Academe-Industry-Government Collaboration Framework for Sustainable Research, Development and Extension (RDE)

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ABSTRACT

When sectors collaborate, they effectively contribute to the economic growth. Hence, a collaborative governance framework is developed for the academe, industry and government to sustain their research, development and extension. To generate dimensions of the collaboration, data from key informant interview and comprehensive desk review were processed through thematic content analysis. Typologies of RDE collaboration were identified including capability-building, management partnership, institutional partnership, and reinforcement. In terms of governance, RDE collaboration can be sustained through personal relation, established rapport, and transparency. Political leadership, micro-leadership, and leadership by character can also sustain RDE collaboration. In prioritizing research agenda, stakeholders must be involved and their thrusts and priorities should be considered. The academe's resources and R & E enabling environment, faculty's motivation can also sustain the collaboration. Conditions that inhibit collaborations were also identified but they can be addressed by the identified strategic actions. The study concluded with the formulation of collaborative governance framework between academe, industry, and government for sustainable research, development, and extension. The framework was developed

based on the models of collaborative governance, collaborative leadership, prioritized R&E agenda, motivation to conduct RDE projects, and strategic actions to address the R & E collaboration issues.

Keywords — Social Science, governance, academe, industry, research development and extension, qualitative research design, Philippines

INTRODUCTION

Collaboration has grown from pure methodology to relevant practice. As a method, collaboration is solely treated as a single intervention to the action process while as a practice, it is considered as a necessary action to complete an intervention. Hence, in the face of globalization, ASEAN Economic Integration, K-12 Program and other trends and challenges, collaboration has become an indispensable component of effective partnership for sustainable economic development.

The same is true in the administration of research, development, and extension among Higher Education Institutions (HEIs). RDE can be sustained when there is collaboration between the academe, the industry, and the government. In this case, the academe mobilizes its resources to conduct relevant researches, development and extension projects which the industry and the government seldom have. The government and the industry also capitalize by commissioning researches and by providing the infrastructure for collaboration.

There is a growing evidence that specific actors increasingly rely on others to carry out research, development and extension. When the academe, the industry, and the government work in tandem, they become effective channels for innovation and economic growth as explained by Edmondson, Valigra, Kenward, Hudson and Belfield (2012). Therefore, RDE collaboration becomes a sharing of resources to sustain continuous production, access, and utilization of knowledge that have a great impact on peoples' lives.

Stories of the academe's collaboration with the industry and government are not new. According to Edmondson et al. (2012), these collaborations improved Europe and Australia's climate for innovation, increased ICT literacy and transformed teaching and learning. Similarly, in the United States, collaboration enabled young and established faculty from various disciplines to become established leaders in a new cross-disciplinary field. According to Nezu (2005), a number of laws were also introduced and amended in Korea, Singapore, India and

Thailand to make way for a broader range of collaboration between universities, industry and the government.

Literatures also confirmed that many countries all over the world have implemented policies to institutionalize and sustain university, industry and government partnership. One perfect example is the highlighting of R & D in Europe 2020 Strategy as a major element in the advancement of technology and world-class innovations in EU Member States. However, in the Philippines, according to Global Competitiveness Report (2008), university and industry interaction is said to be minimal. The country ranked 65th (out of 131) in terms of collaboration between universities and businesses. Although efforts to modernize higher education are already in place like that of CHED's National Higher Education Reform Act, resources have not been fully mobilized, utilized, and maximized to exploit opportunities for potential RDE collaborations (Ansell & Gash, 2007). The academic institutions have yet to revisit their policies and guidelines to advance their resources in crafting relevant, responsive, and sustainable research, development and extension projects.

Therefore, the earnest task of the study to identify strategies that can be culled from the best practices of RDE collaborations and develop a collaborative governance framework that will sustain research, development and extension collaborations between the academe, the industry, and the government.

FRAMEWORK

Anchored on two theories, namely, Theory of Collaborative Advantage by Huxham and Vangen (2005) and Triple-Helix Model founded by Etzkowitz and Leydesdorf (2003), the following analytical framework guided the study:

First, dimensions were culled from the triple helix interactions of the academe, the industry, and the government and analysed them to form the collaborative governance framework for sustainable research, development and extension (see Figure 1).

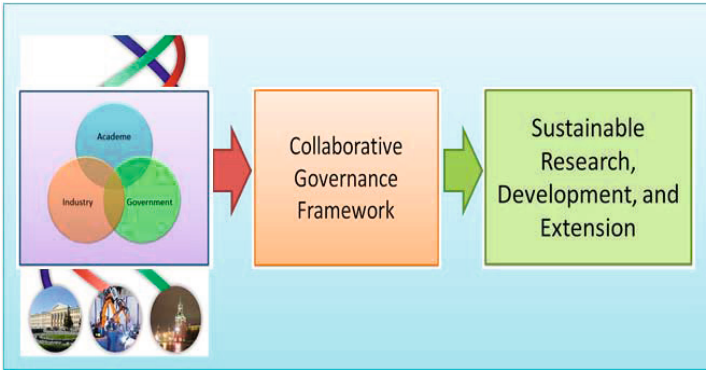

Figure 1. Analytical framework for academe-industry-government collaborative governance framework for sustainable research development and extension

Second, in analyzing the tri-partite relationship between the academe, the industry and the government in terms of R&E collaboration, the study was guided by the identified dimensions that contributed to the sustainability of research, development and extension (see Figure 2).

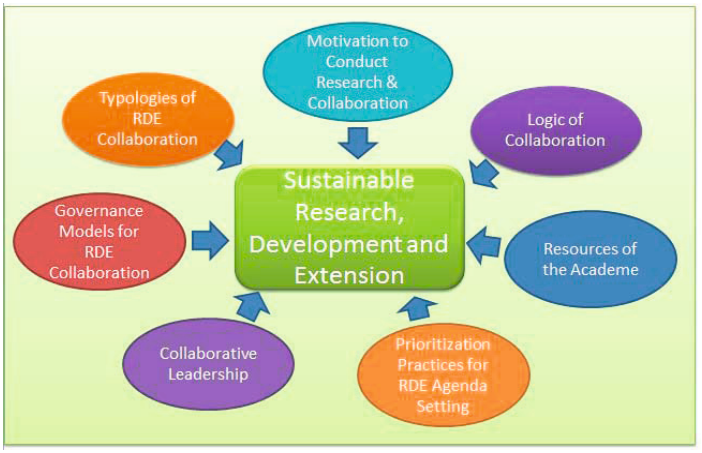

Figure 2. Dimensions of sustainable research, development, and extension

Third, the study was further intellectualized according to the conditions that inhibited the academe, the industry, and the government to engage in R & E collaboration. Solutions were then culled from the responses of the participants to form the strategic actions that will eventually sustain the research, development, and extension through effective RDE collaboration (see Figure 3).

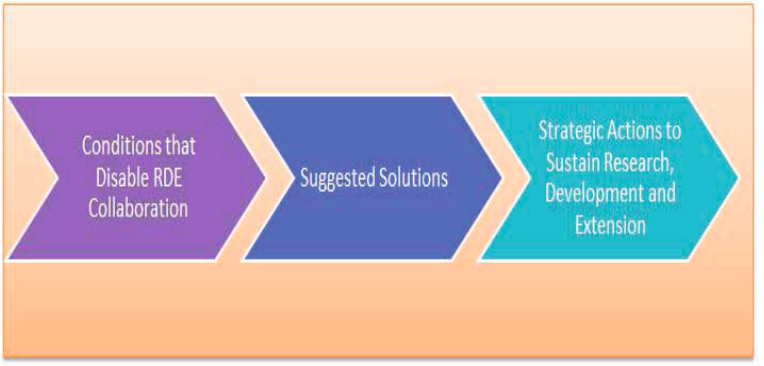

Figure 3. Development of strategic actions to sustain research, development and extension

Finally, provided by the figures above, the dimensions and the formulation of strategic actions for sustainable research, development, and extension were combined to form the basis for designing the academe, industry, and government collaborative governance framework for sustainable research and extension (see Figure 4).

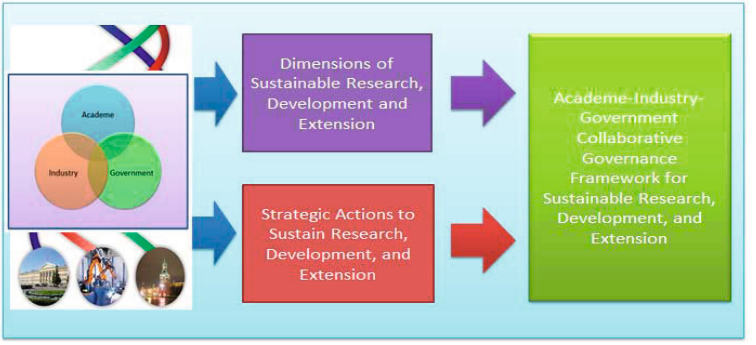

Figure 4. Academe, industry, and government collaborative governance framework for sustainable research, development, and extension

OBJECTIVES OF THE STUDY

The study aimed to generate: 1) dimensions of sustainable research and extension in terms of governance, leadership, motivation, resources, logic of collaboration, and RDE agenda prioritization; 2) conditions that inhibit effective RDE collaboration; 3) strategic actions that can sustain the RDE collaboration between the academe, the industry, and the government; and 4) collaborative governance framework to sustain R&E collaboration between the academe, the industry and the government.

METHODOLOGY

The qualitative study was developed using two research methods, namely, grounded theory and in-depth case study. Conducted in Region XI, Southeastern Philippines, ten (10) participants of the study came from the State Universities and Colleges' key officials and heads particularly, the SUC President, VP-Academics, VP-Administration, VP-RDE, Research and Extension Directors and Coordinators, Deans, and Program Heads. On the other hand, the nine (9) participants who represented the stakeholders included key officials and heads of government line agencies, Regional and Assistant Regional Directors, LGU officials and heads, and heads and/or representatives from Mindanao Business Council and Chambers of Commerce in Region XI.

The study employed key informant interview to collect the data. The researcher sought permission from the respondents in compliance to research ethics protocol. Documentary evidence was taken from existing policies, modules or manuals and other write-ups of SUC's, industry and the government that supports RDE collaboration. To make meaningful interpretation, patterns of themes were synthesized. Thorough extraction of relevant responses and inputs were undertaken and analyzed using the INVIVO to come up with the different constructs of the collaborative governance framework.

RESULTS AND DISCUSSION

Typologies of RDE Collaboration

The following major types of collaboration emerged:

Capability-Building Partnership. This emphasized the need for building the capacities of human resources both in the academe and in the industry and

government through continuous training team up, technical assistance, provision of guidance, support, and direction.

Management Partnership Typology. RDE projects will be more sustainable if the management is being participated by concerned disciplines. Partner relationship management is about relationships. It is about understanding the needs of one's business partners and satisfying those needs to the best of one's ability while building trust between the two parties.

Institutional Partnership. Public-Private Partnership (PPP) is an innovation to extend the resources of both private and public institutions in the conduct of research and extension. Joint ventures can also strengthen the resources of the academe, industry and the government for RDE collaboration. Winner (2011) provided a good insight on this when he explained that clear decision-making guidelines involve all levels of collaboration.

Reinforcement. To strengthen the other partner, dialogue with relevant stakeholders should be reinforced. Sharing of resources has been noted to promote RDE collaboration. At the same time, stakeholders are involved in crafting and executing RDE collaborations. A consortium of government line agencies, the academe and the industry also facilitated the conduct of research that resulted to huge impacts in the communities.

Governance Dimensions for RDE Collaboration

RDE projects need to be governed in a collaborative way using the following modalities:

Personal Relation. Relationships cannot stand strong if they are not personal in the case of RDE collaborations. Collaborative governance is inspired by "Whom-You-Know" kind of personal relationship to start the partnership. It is therefore, easier to engage in a collaborative research and extension projects if one can establish personal knowledge of the other person. Twale (2015) supported this in saying that it is all about trusting who you know and knowing who to trust; to govern collaborative demands investing on social capital and to build enduring personal relationship.

Establishment of Rapport. More than developing a personal relationship to sustain RDE collaboration is its mutation called rapport. In addition to having good relations with partners, the collaborative leader makes efforts to build special relationships among the different actors in the group. This is very true to RDE collaboration for one cannot survive in the process without building rapport with partners through organizational trust. When trust is already built, the collaborators would easily transact with the academe for more RDE

collaboration projects.

Transparency. According to Luke (1997), successful beginnings usually involve a "safe or neutral space for meetings" and a process that is perceived as being legitimate or transparent, not "driven by hidden agendas." This is a very classic exposition of how collaborative governance must be. Transparency means being true to what agreements have been made in the context of collaboration. Aside from trust, organizational confidence must also be built to attract more collaborators and stakeholders to transact research and extension projects.

Collaborative Leadership Dimensions of RDE Collaboration

A special type of leadership needs to be practiced to sustain research, development and extension. This is called collaborative leadership with the following characteristics:

Political Leadership. A political leader is someone that has a voice to command through influence to push through the RDE collaborations. He uses his own strength or resources to ignite more interests and invite more collaboration to sustain the RDE projects. He must also maintain control in the duration of RDE collaboration. He knows how to handle the collaboration from beginning to end. He must be mindful of work and financial plan, ensures bird's eye view, oversees and controls the whole collaboration project. But aside from that, he must be research-oriented.

Micro-Leadership. A micro-leader understands each of the phases of the collaboration process and maintains constant contact with the members of the RDE collaboration project. Hence, he knows every detail for he is hands-on in the operations. A collaborative leader must lead by friendship and trust. Winner (2011) believed that members of the collaborative venture should respect and trust each other and each other's organizations.

Leadership as Practiced to Enter into Stakeholders' Varying Contexts. According to Winner (2011), collaborations are stronger and more sustainable if they do not rely exclusively on one charismatic leader, but rather allow all of the members to have leadership opportunities. This can be done through training members on meeting management and facilitation, and then rotating responsibilities to organize and facilitate meetings and distributing leadership responsibilities for individual goals or projects within the collaboration.

Leadership by Character. The primacy of character of the person to take the lead in RDE collaboration is not a simple adoption of whatever is the trend, but rather a constant practice of the good. A collaborative leader must maintain consistency in making decisions and knows how to keep track of the organization's

mission through systematic planning. This means that a collaborative leader, enlivened by his character, knows system-level planning and thinking, and strategic thinking.

Prioritization Practices for RDE Agenda Setting Dimension for RDE Collaboration.

Stakeholders' Involvement. In the selection of RDE agenda, stakeholders must be involved. This makes sense because RDE projects must be relevant and responsive to the needs of the industry and the government. Hence, from inception to implementation, stakeholders must take part so that the agenda are aligned, matched, and harmonized with that of the stakeholder's thrusts. The stakeholders are involved if the setting of agenda follows a multi-sectoral approach to address multi-sectoral levels of needs, thrusts and priorities of the stakeholders.

RDE Agenda Selection. In selecting the RDE agenda to be prioritized, it is necessary to check the relevance, responsiveness, and viability of the agenda. It is also important to consider if they are matched, aligned, harmonized and anchored on the thrusts and priorities of the stakeholders. According to Wilson (2012), the needs of the business do not align with the mission and strategy of the University. In that case, it is important that the university takes its own step to adjust the responsiveness of its RDE agenda to the thrusts and priorities of various agencies. The agenda should be anchored and matched with national and local agenda to make them relevant to the economy.

Strengths of the Higher Education Institution for RDE Collaboration

The SUCs are privileged to be provided with all the resources that can facilitate RDE collaborations. These provisions can be converted into the academe's strengths to position itself in RDE collaborations.

Resources for Research. The academic institutions are equipped with qualified and highly-trained researchers. The faculty have undergone rigorous exposure to research given the requirement for advanced studies to get a position in the university. These resources can be considered their collaborative advantage due to the nature of their job in the field of research and extension. Also, the SUC is known to have the ability to create neutral decision. They are not easily swayed by the influence of external stakeholders.

Research-Enabling Organization. It is undeniable that the academic institutions have strong research culture given the nature of their business. Salazar and Acosta (2007) pointed out that indicators of research culture include research

agenda, policies and guidelines on research incentives, services and facilities for research, publications, and research capable faculty.

Motivation to Conduct RDE Projects and Collaboration Dimension

Conducting RDE projects and collaborations is inspired internally and externally. When we speak of internal motivation, it is driven by the personal passion and longing of the faculty to engage in a scholarly research and exhaustive extension activities. On the other hand, most motivations would come from external factors which are usually stimulated by rewards and punishment.

Resource Generation Strategy. Most research, development and extension engagements of the SUC personnel are encouraged by the fact that they can generate extra money from them. Monetary incentives can be generated when the faculty can publish his research outputs both in national and international journals and publication. The SUC faculty can also receive honorarium in the conduct of research and extension. But when the engagement is coming from external funders through partnership, the honorarium is even bigger than that of the SUC funded RDE projects. Finder's fee is also found to be one of the good motivations for bringing in external collaborators or funders into the institution.

Institutional Policies. External motivation comes from the mandates stipulated in the policies and guidelines of the SUC. By the year 2017, the impact of the K-12 of the Department of Education to the academe's curricular programming will already be felt. Some faculty would retain their subject loading but most of the faculty from the General Education departments would have fewer subjects. Hence, they have to indulge themselves in research and extension projects. Likewise, the Strategic Performance Management System and Performance-Based Bonus require that the faculty should engage in research and extension to gain higher points for bonus purposes. In terms of career advancement of the faculty, they need to consider the guidelines being stipulated in the National Budget Circular (NBC) for the Promotion of Faculty.

Passion for Research. Some faculty would opt to conduct research and extension activities because it is their passion to do so. This case is very exceptional and continues to gain attention from the level of the SUC. Although very seldom in reality, this type of faculty is motivated by his inclination and love for research and extension.

Compensation and College Support. There are other means of motivating the faculty to be involved. Most of these motivations are stipulated in the manuals

of each SUC. When a faculty receives a Special Order (SO) from the Office of the President, he can be given travel grant for paper presentation and forum participation, provided with R&E personal insurance in conducting research and extension, granted vacation leave granted to researchers or sometimes given load credits or load release (case to case basis). Another best practice of the SUCs is the annual recognition of excellence in the performance of research and extension for the university/ college. This is an individual award given to those who exerted extraordinary performance of duties for Research, Development and Extension of the SUC.

The Logic of Collaboration (Stakeholders Perspective)

This section uncovers the reasons why RDE collaborations happen. The reasons are more on the side of the stakeholders who look at the academic institutions as a channel to materialize their individual needs for research and extension services.

Need for Researchers and Research-based Decision-Making

Most government line agencies and private companies do not have the research arm. If there is, they do not have the expertise to conduct research. Hence, the stakeholders look for manpower subsidy from the SUC. Time management is also a problem since research and extension activities would demand ample time. Finally, financial constraint on the side of the academic institution is still the best reason why the academe needs to collaborate with external stakeholders. To this note, sharing of resources to complement the needs of both the academe and the government agencies and the industry culminates the reason for RDE collaborations.

Inhibiting Conditions that Affect Effective RDE Collaboration

The problems and issues are elaborated below:

Management Issues. When a new leader sits in the position, he has his own wants and priorities and that he may disregard the previous agenda. This is a serious problem because this cripples the consistency of policies. Another data revealed that in the legislative department of the Local Government Units, the priorities would just adhere to the executive agenda. They cannot decide on their own. The executive is the one who sets the tone.

Lack of Focus on RDE Projects. Some researches are not specialized, very generic. If this is the case, the outputs produced cannot address the real needs of the stakeholders due to their irrelevance and irresponsiveness.

Individualistic and Competition-minded Researchers and Extensionists. There are only few who engaged in research compared to the overall population of the SUC. They may still be very engrossed with instruction alone and have not fully integrated the other functions like research and extension into their system. Finally, the SUCs do not work in tandem very well with other SUCs and they are competing with each other.

Non-alignment of Thrusts and Priorities. If the RDE projects are not aligned and matched with the needs of the stakeholders, then it would not make sense at all. KII data confirmed that some extension projects are not felt and have no impact at all.

Budget Constraints. The number one issue with the academe is that they have no budget. Without enough budgets, RDE projects are weak. That's it.

Policy on Faculty Loading. Faculty members are also constricted to go into research because of loading conflicts. More time is spent on instruction and less in research. If only the faculty is given greater liberty, then he can enjoy the research activities.

Strategic Actions to Sustain RDE Collaboration

The academe should strategize actions to address the emerging issues that inhibit effective RDE collaborations with the industry and the government. KII and desk review data revealed some of the actions that the academe should consider. These are the following:

Positioning Technique. The SUC should focus on its expertise and niche to avoid competition and duplication of the same project in the same area. This can be done by clustering the research and extension projects according to the discipline, commodity, or expertise of the SUC.

System Development. To address the overlapping projects of the SUCs, a system with standardized structure of RDE can be developed. This should be universal that every SUC in Region XI should follow. When there is a unified project design for every research, development and extension activity, it can be assured that the SUCs would have harmonious relationship in dealing with development issues of the region.

Complementation. The SUC must be able to attract effective participation among stakeholders so that the need for reinforcing resources can be discussed.

Conceptualization and execution of relevant projects should lead to research and extension projects that are aligned and matched with the agenda of external stakeholders. Hence, for complementation to take place, the SUC must show itself as matching the demands of the stakeholders to sustain RDE collaborations.

Replication of Successful Projects. Mihalic (2004) explained that federal funding agencies have increasingly emphasized the need to implement programs that have been demonstrated effective. When we say effective, that also means having the quality to be replicated or duplicated in other areas.

Effective Communication. Communication is a basis for a strengthened partnership in the field of research infrastructures, leading to economies of scale, encouragement of scientific excellence and higher attractiveness for top researchers from all around the world. Formal communication channels exist so there is a "paper trail" or clear flow of information. At the same time, members establish personal connections so the group is more cohesive and able to function effectively as a team. Thus, RDE collaborations can be sustained when there is constant communication between the partners. It is also important that the research outputs are published to instill transparency and trust.

Resource Mobilization. Molefe (2012) explained that resource mobilization means expansion of relations with the resource providers, and the skills, knowledge and capacity for proper use of resources not only through the use of money, but also through the mobilization of knowledge for human use of skills, equipment, services etc. He also added that resource mobilization includes seeking new sources of resource mobilization as well as correct and maximum use of the available resources.

Development of a Culture of Research. In terms of research and extension, culture originates from the university's founders and thus institutions with a long history of research already have an advantage according to Marchant (2009). For Hill (2002), research culture may develop when at the level of the individual consideration is given to (a) motivation and incentive, (b) developing the institution's endowment of research skills through recruitment and/or education and training and (c) the parallels between the study of research culture and organizational culture per se.

Maintaining External Support. Wilson (2012) added that government support in research and innovation is important to the nation's economic future. But this can also be extended to private sectors and other stakeholders. In developing the journal for publication of SUC's research outputs, multi-sectoral approach should be encouraged. It should be refereed with external stakeholders.

A key influencer plan to identify major stakeholders that can mobilize and speed up RDE collaborations is suggested to be developed. This consists of key people that have the charisma to influence and attract collaboration.

Public Relations. Winner (2011) stressed that it is important to establish external communication methods from the collaboration to the broader community. Ideally, this would involve the development of a public communications plan.

Establishing Track Record. Track record is about gaining merits based on the successful and best practices maintained by an organization. In the words of Typaldos (2001), it is about recognizing and building status based on the organization's actions. As in the case of RDE collaborations, the SUC should present itself as having the track record to invite and attract more partnerships. Maintaining transparency is required to attract external funders. The SUC should also establish high-end research facilities and infrastructure. The SUC should also capitalize on the replication of quality extension projects. When they are replicated, that means they are successful and effective thus establishing track record. Another way of building track record is through consistency with MOA and other agreements with stakeholders. Basic to the understanding of establishing track record includes having the ability to deliver quality research and scholarly outputs, ability to meet deadlines timely, strengthened the program offerings through accreditation, provision of merits and qualifications of the SUC to enter into collaborative activities, and strong research culture.

Impact of Research Outputs. According to Wilson (2012), impact measures will have a material influence on the outcome for each university department and, therefore, for its reputation and funding over the forthcoming years. Thus, SUCs must capitalize on research and extension projects that can create sensible impacts to beneficiary communities.

Relevance of Research Outputs. Research outputs must be responsive to the current trends and challenges, sensitive to the needs of the time and effective in addressing the needs and issues experienced by the stakeholders. By capitalizing on this, research, development and extension of the SUCs will be sustained.

External Funding. According to Winner (2011), collaboration should be fuelled with adequate and stable resources to conduct the activities. Hence, funds coming from external stakeholders contribute to the sustainability of research, development, and extension.

Academe, Industry, Government Collaborative Governance Framework for Sustainable Research, Development, and Extension

After careful analysis of the data collected from key informants, the collaborative governance framework is developed. The framework developed is the product of cross-sectoral juxtaposition of the many elements and dimensions that can contribute to the sustainability of research, development and extension. The participation of key informants from the SUC, the industry, and the government facilitated the formation of models of collaboration in RDE context.

The figure below displays the final framework that is hoped to provide the earnest direction in the framing of policies for sustainable research, development, and extension.

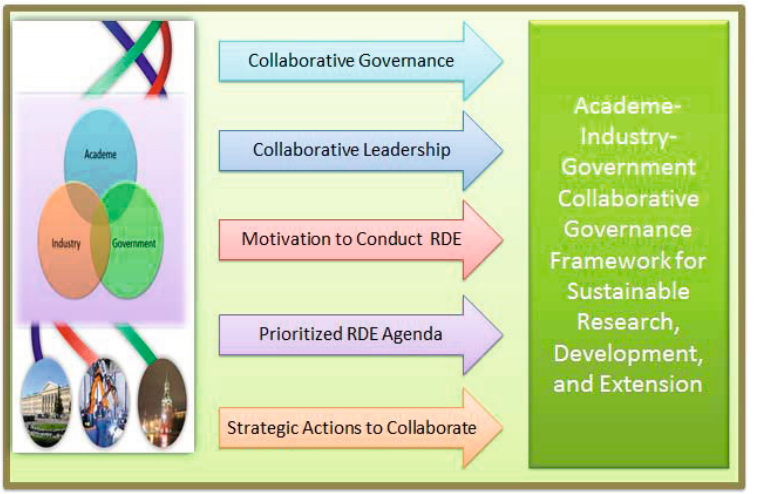

Figure 5. Collaborative governance framework for sustainable research, development, and extension

CONCLUSION

Guided by the principles of Collaborative Advantage and Triple-Helix Model, it is therefore concluded that a tripartite collaborative governance framework between academe, industry, and government can be developed for sustainable research, development, and extension. The framework was formulated based on the dimensions of collaborative governance, collaborative leadership, prioritized

RDE agenda, motivation to conduct RDE projects, and strategic actions to address the RDE collaboration issues.

RECOMMENDATIONS

The result of this study should be presented to: 1) The State Universities and Colleges in Region XI for them to review the findings and come up with a unified action plan that harmonizes their RDE policies and guidelines. The new policy should be directed towards sustainable research, development and extension for these SUCs; 2) The Mindanao Development Authority officials for them to draft development plans that are reflective of the findings of the study. They must provide guidelines on maximizing the RDE collaboration services that the SUCs can provide; 3) Government Line Agencies so that they may be able to identify the possible RDE projects that can be collaborated with the SUC; 4) Local Government Units so that they may be able to tap the SUCs for possible collaboration on capability-building, research for legislation and etc.; 5) Commission on Higher Education so they may be able to review their existing policies on RDE collaborations among higher education institutions, both public and private; and 6) Mindanao Business Council and Chambers of Commerce so they may be able to bid for quality research services that the academic institution can generate for the private institutions and businesses.

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