Reviving Indigenous Species towards a Sustainable Environmental-Economic Enterprise

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ABSTRACT

Culture is an influential tool for survival. It is a fragile phenomenon that can vanish if not appropriately transmitted. Person and the cultural orientation is considerably important in the likelihood of behavior. Every person carries along some sort of a mental set up to show more or less similar behavior in related situations. Similar cultural consequence transpired in a semi-rural town in the eastern part of the Philippines. Conducted research reveals that in earlier times, the place enjoyed the benefits of "sabutan culture" that can be attributed to sabutan plant. Due to shift in land use, Sabutan plants were ripped off that led to the death of community based weaving industry. The initiated project directly addressed the need of the community to regain its lost identity.

Plant propagation signaled the birth of regained town's identity. Partner scouting strategy sustained the program. Developed instructional materials served as the bridge to fill in the gap of forgotten culture. Employed schemes created a giant leap in reviving Sabutan and created a huge opportunity in generating a sustainable environmental-economic enterprise.

KEY WORDS

environmental enterprise, indigenous species, revival of *Sabotan pandanus*, Philippines

INTRODUCTION

Culture is an influential tool for survival. It is a fragile phenomenon that can vanish if not appropriately transmitted. Hofstede (1980) cites that social systems can exist only because human behavior is not random, but to some extent predictable. Person and situation is considerably important in the likelihood of behavior. Every person carries along some sort of a mental set up to show more or less similar behavior in related situations. As capsulated in the studies of Pirisi, and Trocsanyi, (2008), economy helps in the development of culture, henceforward, "cultural

economy" was coined. The "cultural economy" plays a giant role in the revival of community's dynamism, and the nature of production is a predictor of change. Culture dictates the way a community survive amidst the influence of modern technology, hence the accountability of its transmission is in the hands of the older generation. If the transmission is not properly diffused, culture can eventually disremembered or forgotten.

The exact scenario happened in one of rural community in the Philippines. The community was remembered to be blessed with *Sabutan pandanus, a* plant that is indigenous of the place and talented weavers that create exquisite woven designs that even foreigners admire. Every backyard was planted with *Sabutan* to ensure that another leaf will be harvested the following day to answer for subsequent weaving work. Entrepreneurs from other places always considered this community as the prime source of their commodity. As a result, every home was a weaving place, every backyard a garden, every member of the family was a weaver. The scenario gave an opportunity for every parent to send their children to school, and greater prospect to finish tertiary education.

The place was not spared of the effects of technological advancements and geographical alterations. Due to shift in land use, *Sabutan* plants were ripped off that led to the death of the weaving industry and the loss of community's identity. What transpired in this town somewhat conceptualizes the idea as claimed by Harrison and Carrol (1991) that culture is stronger during decline than growth. Accordingly, some alleged behavioral effects of culture might be explained by demographic processes rather than by psychological reactions to cultural content.

Since the main stem of the community's challenge is the loss of its identity, and it's the community's clamor to bring back the glorious past of the place, the researcher conducted needs assessment and the result gave rise to a very promising university extension project that is sustained through the years. Relative to this, the study started in bringing to life the long vanished *Sabotan* species in the place.

As cited by Thomson, Englbeger, Guarino, Thaman and Elevitch (2006), *Pandanus (P. tectorius*) is a large shrub or small tree of immense cultural, health, and economic importance in the Pacific, second only to coconut on atolls. The species grows wild mainly in semi-natural vegetation in where it can withstand inclement weather. It can be propagated through sucker cuttings and seeds from matured species. The plant grows fast and all parts can be fully utilized as construction materials and leaves for weaving. According to studies, the plant is prominent in specific cultures and is known by their local names and in the setting of the study, the plant is known as "sabutan". As asserted by the same study, there is evidence that this diversity is declining, with certain varieties becoming difficult to find.

FRAMEWORK

The study is anchored on theory of sustainability specifically the economic model authored by Robert Solow (1993) as cited in Berkshire Encyclopedia. The theory proposes that in order to sustain opportunity, usually in the form of capital, one should think of sustainability as an investment problem, in which the use of returns from the use of natural resources is a factor to create new opportunities of equal or greater value.

Figure 3
Frame Showing Project Framework

The study followed a practical approach of attaching its objectives to the needs of the community. The clamor of the respondents is to revive the culture that they once experienced for the younger generation to be benefitted. The first bullet represents the exerted efforts to propagate the long vanished species; in likewise it also stands for the effort to revive the species that serves as an input in educating the community leading to the process of sustaining the revitalization of the culture. The second bullet stands for the creation of awareness among community folks, an important activity to create a deep sense of accountability among the respondents. The last bullet speaks of bracing the species, to pave the way to cultural restoration and sustainability in the long run.

OBJECTIVES OF THE STUDY

The project aimed to revive an indigenous plant that is near to extinction .Specifically, the venture aimed to conduct an assessment on the status of Sabutan in the Municipality of Pililla, locate, verify and propagate s*abutan plants,* document the best sabutan propagation procedures, develop instructional materials such as flip charts, handbook and video presentations to educate the community on the importance of the species, and make initial steps in reviving sabutan industry in the municipality thus paving the way to a sustainable environmental-economic enterprise.

METHODOLOGY

The research employed the Survey – Descriptive approach using Likert Scale to establish town's perception in regaining its lost identity. Guide questions and triangulation were used to validate the written responses. Frequency, percentage, weighted mean and T-test were utilized to statistically treat the data while samples were taken purposively among community stakeholders in the Municipality of Pililla, Province of Rizal, Philippines for the school year 2007-2013 considering the young and matured population. All utilized tools demonstrated statistical validity and reliability as demonstrated by the Cronbach apha result.

Since the endeavor is a research based extension endeavor, the following phases of development were applied and documented;

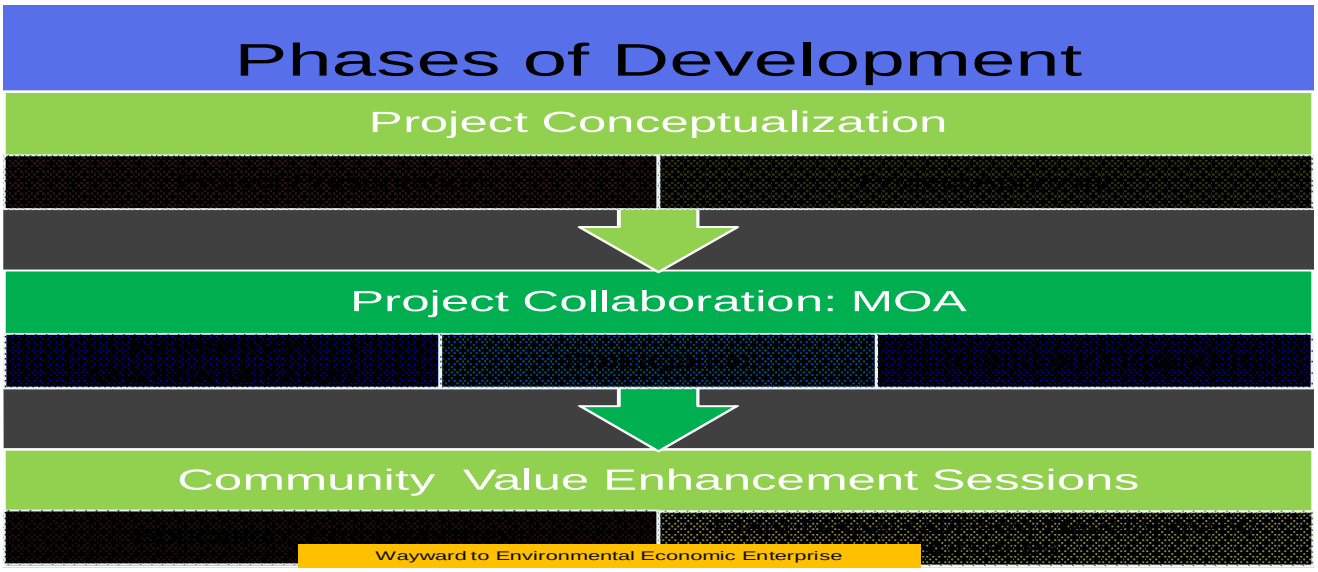

Figure I
Frame showing the Various Stages of Project Development

The project was conceptualized thru the result of the conducted needs assessment in the community. The proposal was initiated and presented in one of the University In House Review of Extension proposals in the year 2008. The project developed a strong collaboration with St. Mary Magdalene Parish, Pililla River Council and Rotary Club of Pililla-Central. The proponents being science teachers exerted efforts in looking for the species under study. Collected plants were propagated. Best propagation practices were culled. Instructional materials were developed out of the process to fully document the plant's importance, propagation methods and indigenous practices in terms of weaving materials production. The process eventually led to the development and use of Instructional materials to achieve the projects purpose.

Program Strategies

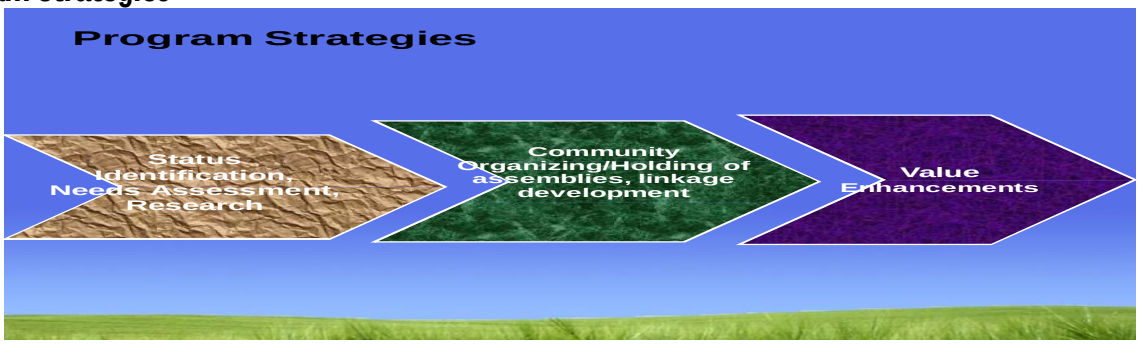

Figure 2
Frame Showing the Summary of Program Strategies

RESULTS AND DISCUSSION

The study was conducted to evaluate the awareness of the availability, sustainability of Sabutan as a source of raw materials for the weaving industry. The result of the conducted survey

gave a very favorable response which is an indication that the project succeeded in reviving the species in the Municipality of Pililla.

Table 1
Status of Sabutan Culture as Perceived by the Youth of the Municipality

		Year	N	Mean	T Value	P Value	Ho	VI
Public High School Students	Recognition	2008	150	1.00	47.02	0.00	R	S
		2012	150	3.85				
	Availability	2008	150	1.00	63.46	0.00	R	S
		2012	150	4.32				
	Knowledge	2008	150	1.00	45.12	0.00	R	S
		2012	150	3.63				
Private High School Students								
	Recognition	2008	45	1.00	56.02	0.00	R	S
		2012	45	4.18				
	Availability	2008	45	1.00	61.46	0.00	R	S
		2012	45	4.23				
	Knowledge	2008	150	1.00	37.18	0.00	R	S
		2012	150	3.61				

Data of table 1 asserts that there is significant increase in terms of the respondents' level recognition of the sabutan plant, knowledge on the availability of the sabutan species and knowledge on the use of the sabutan plant from year 2008 to 2012. "Recognition" of Sabutan includes the capacity of the respondent to describe the plant along with its biological and physical attributes. "Availability" of the plant speaks of identified places where the species grow. It further speaks of the actual availability of the plant in the locality. The area on "knowledge" is about the various uses of the plant. It likewise stresses how the plant is propagated along with the production of weaving material out of sabutan fiber and related by products such as mats, hats and bags. Results indicate that along the process, the perception of young people of Pililla, a semi-rural town, improved in terms of the areas assessed.

Table 2
Status of Sabutan Culture as Perceived by the Matured Population of the Municipality

		Year	N	Mean	T Value	P Value	Ho	VI
Government Sector	Recognition	2008	20	3.05	27.61	0.00	R	S
		2012	20	5.00				
	Availability	2008	20	1.00	31.42	0.00	R	S
		2012	20	3.81				
	Knowledge	2008	20	2.55	18.98	0.00	R	S
		2012	20	3.72				
		Year	N	Mean	T Value	P Value	Ho	VI
Private Sector	Recognition	2008	10	3.27	17.41	0.00	R	S
		2012	10	4.80				
	Availability	2008	10	1.00	65.42	0.00	R	S
		2012	10	4.42				
	Knowledge	2008	10	3.00	9.76	0.00	R	S
		2012	10	3.80				

The second table contains the result of the survey among the matured community folks of the locality. Data reveals that from the year 2008 up to 2012, the capacity of the respondents to recognize the plant, availability of the species in the locality and knowledge on the use of the sabutan plant increased. “Recognition” of Sabutan includes the capacity of the respondent to describe the plant. “Availability” of the plant speaks of identified places where the species grow. It further speaks of the actual availability of the plant in their locality. The area on “knowledge” dealt with the various uses of the plant along with the method on how it being processed.

Results indicate that along the process, the perception of both young and old people of Pililla improved in terms of the areas assessed. Data of table 1 and 2 assert that there is significant increase in terms of the respondents’ level recognition of the sabutan plant, knowledge on the availability of the sabutan species and knowledge on the use of the sabutan plant.

Further, series of focus group discussions (FGD) were done to evaluate the community’s perception on Sabutan industry’s chance to be revived. The results of the conducted FGD were put into action since residents agreed that with the revival of Sabutan plants, Sabutan Industry will again flourish. They were made to understand that the reason why the industry died was the absence of the raw materials. The exact scenario is corroborated with the real essence of Solow’s Sustainability Theory.

The study gave rise to the following documented frames;

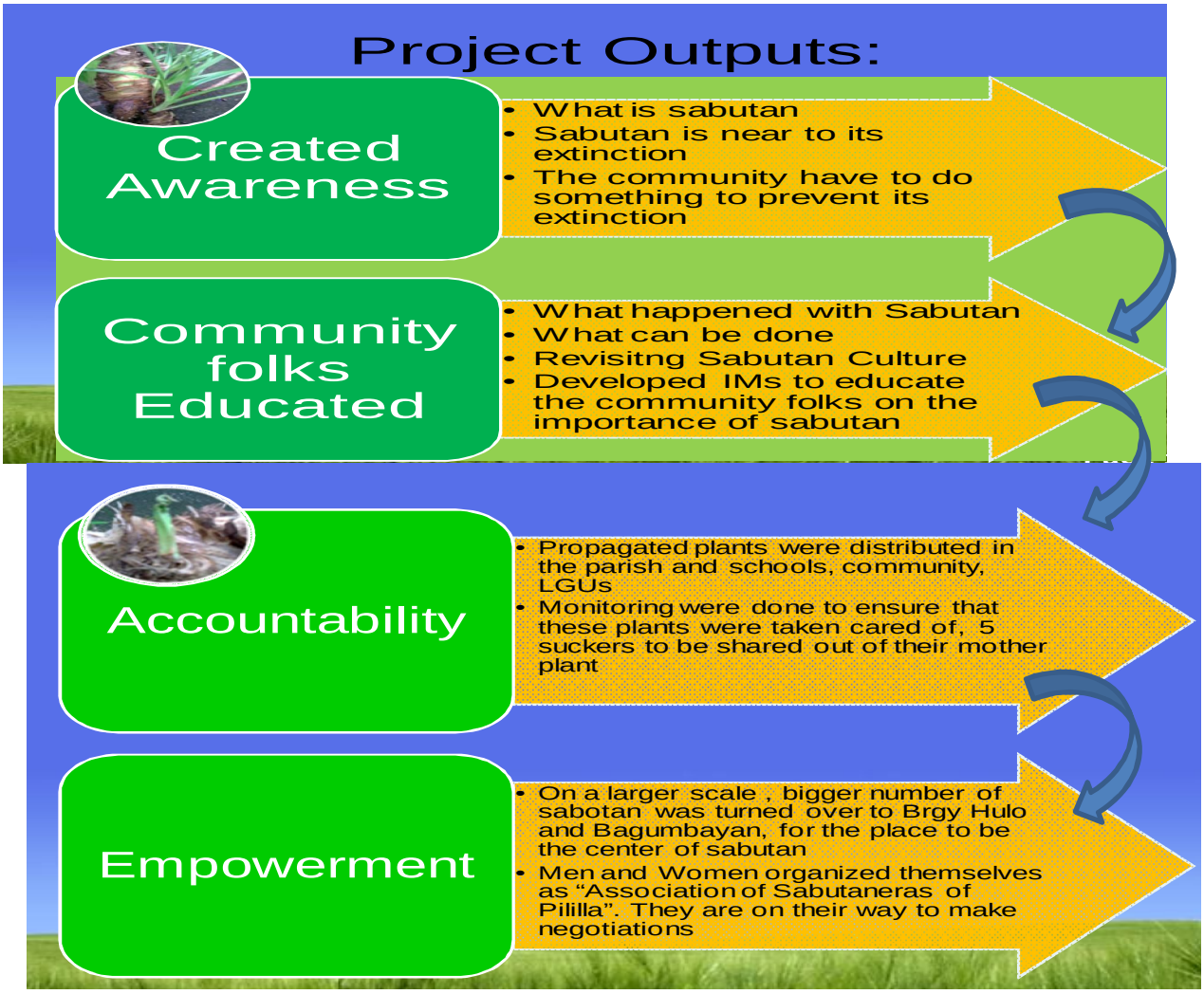

Figure 4

Frame Showing the Project Outputs

The project created awareness and great sense of empowerment among community residents of Pililla. Along the process, the proponents developed Instructional Videos, and flip chart to ensure that the knowledge in sabutan propagation, harvesting and processing were understood and appreciated by Pililla folks especially the young generation. The developed materials were used in conducting orientation in series of assemblies.

Sabutan plants were distributed to schools in Pililla, for the students to be aware of the nature of the plant. A sabutan farm was developed along the process. This farm is to be expanded since there are already bulk orders of convention kits. On a larger scale, a turnover of full grown sabutan was done in the Barangay Hulo. The barangay already allocated a lot for the purpose of Sabutan Propagation. Men and women who are interested on sabutan weaving organized themselves as Sabutaneras of the Municipality of Pililla.

Figure 5

Frame showing the Cycle of Reviving Sabutan Culture

The value of accountability and the spirit of empowerment were developed along the process. Accountability in a sense that, each recipient shelled out 5 suckers to give opportunity for others to benefit from the project. Accountability in a sense, that within and among themselves, they get organized because they are fully aware that the project is for their own benefit. To date, sabutan weavers were already trained in conducting negotiations on product selling. With the revival of the sabutan and with the availability of the raw materials for weaving, the interest of the community folks to fully revive the sabutan weaving industry is near to its realization.

Results of the Conducted Needs Assessment:

Conducted needs assessment reveals that the rural community under study is in search of their missing identity. This missing identity is embedded in the culture that is already forgotten by the matured generation due to non-availability of the raw material and non-practice of the craft due to shifting of land use and nature of work. In like manner, the younger generations, like the high school and elementary students have zero knowledge on the nature of the "Sabutan" species and the culture that is attached to the plant that actually existed and practiced twenty years ago. According to the result of the assessment, the last "Sabutan Cottage Industry" closed more than twenty years ago due to non-availability of raw materials. These raw materials started to become extinct due to change in the nature of land use and absence of attention in sustaining the availability of the plant. The conducted appraisal discloses that the community is clamoring for the revival of Sabutan species and in putting back to life the "Sabutan Weaving Industry".

Mode of Locating, Verifying and Propagating Sabutan Species

The researchers interviewed senior citizens of the community to extract information on the physical characteristics of the extinct sabutan species. The process enabled the researchers to have some pictures of the plant, pieces of woven sabutan products and some indigenous tools used in weaving sabutan. The result of the interview was complemented with some readings to verify and validate the plant's scientific name. After the establishment of the plant's scientific name (Pandanus sabotan), the proponents searched all possible places of the town wherein the plant can be located. After three weeks of serious efforts, a piece of dying sabutan stem was

located at one side of the municipal's cemetery. The stem was placed in a moist place to ensure the growth of suckers. Thirty days after, the first sucker appeared, giving the researchers a positive sign that sabutan can be revived. A sucker was submitted to an institution in Manila for possible application of the "tissue culture", however, the procedure was not that successful, so sucker propagation was adopted to ensure the species reproduction. The reproduction took the researchers six months to say they are ready to distribute sabutan plants to interested parties.

Best Sabutan Propagation Procedures

To ensure Sabutan's growth on a fast rate, the plant has to be exposed in a moist place; dry environment will bring about thin and short leaves. Old stems can be cut for suckers to appear. Cut stems can be a good source of suckers when placed on a flat moist ground. Twenty day old suckers can be manually chipped off for rooting procedure. Black bags, empty cans can be used for the purpose. Once roots are stabilized, the plant is ready for actual soil planting. Since the plant can grow as high as 5m, it is advisable to have them planted 3-4m apart.

Developed Instructional Materials

As a result of conducted interviews, the proponents were able to come up with a flip chart on the profile of the plant and indigenous procedure of weaving sabutan. To make the output more accessible, CD version was also made available to schools. Below is a sample flipchart on flat format;

Figure 6
Frame Showing the Developed Instructional Material

Steps Taken in Reviving Sabutan Industry in the Municipality

The project has empowered the community by forging partnership with various sectors devoted to the revival of sabutan industry**.** A greenhouse was developed by the proponents. Sabutan farms were erected along the process. A nursery of Sabutan was adopted and maintained by Pililla River Council. Two barangays allotted their lot just for the purpose of sabutan propagation. Commercial plant growers of Pililla considered the plant as one of their prime commodity. Further, a round table discussion was conducted for the integration of Sabutan in Science and Health, HEKASI subjects with school heads. Sabutan propagation formed part of curriculum enhancements of some schools of the community.

In like manner, the Sanggunian Bayan Education, Culture and Tourism chair, is bound to create a TWG to consider the possible addition of Sabutan products in "One Town, One Product"(OTOP) concept of the municipal government. This will perhaps pave the way to sustainable environmental-economic enterprise of the cooperators.

CONCLUSIONS

The community folks believed in the potentials of "sabutan" for the community to prosper. The revival of the plant opens wide opportunity for community folks to earn a living while attending to their family's needs. The process of sustaining the culture is not only the job of an organization. It is a collaborative endeavor that is to be sustained through times. The creation of awareness is a very significant component for people to realize that there is an existing dilemma in their culture. The process of education and empowerment is an important ingredient to generate the spirit of accountability and ownership.

RECOMMENDATIONS

The outcome of the study suggests firm suggestions in the instructional and curricular infusion of the species from the propagation practice to its full utilization giving emphasis on its processing up to the final products. Since the revival of the species gives a strong signal in the revival of the industry, local government units may adopt a scheme of training the community on a wider scale to address the future need. Local initiatives maybe authored to allot larger parcel of lands to develop larger plantation to ensure the availability of the raw materials. The project may pave the way to series of intertwining researches in Instruction, Coastal management, Organic Dye Production and Industry Enhancements.

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LITERATURE CITED

Daly, Martin

1982 *Human Ecology: Some Caveats About Cultural Transmission Models*: Plenum Publishing Corp. Retrieved on December 5, 2012 from http://link.springer.com/article/10.1007%2FBF01531193?LI=true#page-1.

Harrison, R., and Carrol, G.,

1991 *Keeping Faith: A Model of Cultural transmission in Formal Organization*. Administrative Science Quarterly, Vol. 36, No. 4, Dec. 1991. Retrieved December 13, 2012 at http://dx.doi.org/10.2307/2393274

Henrich, Joseph

2001 *Cultural Transmission and the Diffusion of Innovations: Adoption Dynamics Indicate That Biased Cultural Transmission Is the Predominate Force in Behavioral Change*. Anthropologist, Volume 103, Issue 4. Retrieved December 11, 2014 from http ://onlinelibrary.wiley.com/doi/10.1525/ httpaa.2001.103.4.992/abstract

Henrich, J. & Gil-Whiteb , F.

2001 *The Evolution of Prestige: Freely Conferred Deference as a Mechanism for Enhancing the Benefits of Cultural Transmission, Evolution and Human Behavior* , Elsevier Science ,Volume 22, Issue 3 : Retrieved December 13, 2012 from http://www.sciencedirect.com/science/article/pii/ S1090513800000714.

Hofstede, G.

1980

Culture and organizations. *International Studies of Management & Organization*, 15-41 retrieved on December 18, 2014 from http://www.jstor.org/discover/10.2307/40396875?sid=21104886853

Lim, T. K.

2012 Pandanus tectorius. In *Edible Medicinal And Non-Medicinal Plants* (pp. 136-146). Springer Netherlands.

Muller, Theodore

1913 Industrial *Fiber Plants of the Philippine.* Bulletin No.19-1913. Retrieved December 18, 2012 from http://philippineculture.ph/filer/1913-industrialfiberplants-PHIL.pdf.

O'Neil, Dennis

2006 *Human Culture: An Introduction to the Characteristics of Culture and the Methods used by Anthropologists to Study It*, Behavioral Sciences Department, Palomar College, San Marcos, California . Retrieved on December 12, 2012 from http://anthro.palomar.edu/culture/Default.htm.

Pirisi, G, Stefan, F., & Trocsanyi, A.

2008 The role of cultural Economy in the revival of cities–endowments and chances of the city of Pécs.*Progress in geography in the European capital of culture. Imedias Publisher, Pécs*, 11-23.Retrieved December 18, 2014 from http://www.moderngeografia.hu/tarsadalom/otka/pdf/cultural_economy.pdf

Sustainability Theory, Bershire Encyclopedia of Sustainability: The Spirit of Sustainability.

2006 Berkshire Publishing Group, p.383. Retrieved December 18, 2014 from TheoryTheoryhttp://berkshirepublishing.com/assets_news/sustainability/Spirit_SustainabilityTheory.pd

Thomson, L. A., Englberger, L., Guarino, L., Thaman, R. R., & Elevitch, C. R.

2006 Pandanus tectorius (pandanus). *Species profiles for Pacific island agroforestry. Permanent Agriculture Resources (PAR)*. Retrieved December 18, 2014 from http://blog.ub.ac.id/beenkogoya/files/2012/01/P.tectorius-pandanus1.pdf