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Health Impacts of The Business Process Outsourcing Industry: Condom Use in Call Centers

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ABSTRACT

The business process outsourcing industry is viewed as a major contributor in the Philippine economy although concerns have been raised regarding the health impacts, particularly the sexual behavior of its workers and the increasing number of Human Immunodeficiency Virus and/or Acute Immune Deficiency Syndrome cases, engendered by the culture of these firms. Using a multinomial logistic regression model on data gathered from a survey of call center agents in Metro Manila, this study provides an analysis of the factors that affect condom use in call centers. Results of this study show that risk awareness and social influence positively and significantly affect the choice to use condoms, although condom use among these workers is still at a level that can contribute to increased incidence of infections. Risky sexual behavior is prevalent among call center agents despite high awareness of the associated risks and the social acceptability of condom use.

I. Introduction

Business process outsourcing (BPO) is among the industries that kept gaining momentum around the world despite the global economic slowdown. The BPO industry has continuously contributed to the growth of the services sector in the Philippines since the start of the millennium (SEPO 2010). In the first quarter of 2012, the Philippine economy grew by 6.4%, faster than expected, with significant contributions from tourism and business outsourcing (Landingin, 2012).

Among the activities of the BPO industry, the call center industry has been making the most significant contributions to the Philippine services sector. According to the Contact Center Association of the Philippines, the Philippines is the largest call-center operator in the world as of 2011, employing 350,000 and generating $6.3 billion in revenue in 2010. Mentioned among the factors to explain the attractiveness of the country as an outsourcing destination, particularly for U.S. firms, is the "Philippines' embrace of the American culture" (Yun and Chu, 2011).

The willingness of Filipino call center workers to take on graveyard shifts, to accommodate the working hours of their clients (in the U.S., for example), has isolated them from others who hold regular day jobs, thus allowing them to create their own subculture (Manalastas, 2011). The unconventional work hours, the comfort that the workplace offers, and the non-judgmental atmosphere in these centers have allowed a new social phenomenon, one in which the accepted permissiveness among workers may lead to risky sexual behavior (Mendoza, 2010).

A study by the University of the Philippines Population Institute and the Department of Health found a higher incidence of early penetrative premarital sex, sex with persons of the same sex, and casual sexual experiences among call center workers than among professionals not working in call centers (Baguio, 2010). Although the study authors refuse to attribute this trend to the fact that the employees work in call centers, based on the cross-sectional (one point in time) nature of their study, the number of call center workers in the Philippines engaged in risky sexual behavior remains alarming (Ramos, 2010). Another study of call center workers in Metro Manila by the Ateneo de Manila University shows that casual, unprotected sex is quite widespread among these workers, increasing the risk of sexually transmitted infections (STIs) among these young professionals (Mendoza, 2010).

At a time when many other countries are seeing Human Immunodeficiency Virus (HIV) infection rates leveling off or declining, the Philippines is seeing the number of reported HIV cases increasing (Cuneta, 2012). As of April 2012, there have been a total of 9,163 cases reported in the Philippine HIV and AIDS registry since 1984, with a record-breaking 313 new HIV and/or full-blown Acquired Immune Deficiency Syndrome (AIDS) cases recorded in March (Crisostomo, 2012). The unexpected surge in cases has happened in the past several years, with a more than five-fold increase between 2007 and 2011 (Cuneta, 2012).

On the whole, the registry shows that sexual contact is the leading source of recent infections, with males having sex with other males being predominant among sexual transmission cases (Crisostomo, 2012). Overseas Filipino workers were found to have contributed to these numbers, comprising about one-fifth of the total, again being infected through sexual contact (Cuneta, 2012). In addition, more Filipino youth aged 20-24 are getting infected (Ong, 2011).

The HIV prevalence rate in the Philippines is still considered to be low, which is particularly surprising to experts, given the strong influence of the Catholic Church that discourages condom use (Cuneta, 2012). However, the surge in the number of HIV cases in recent years lends importance to the discussion of low condom use in the country as a contributing factor.

Returning to the interest in call centers, it is concerning that cases of HIV infection among young Filipino professionals in this industry have been on the rise, mainly due to risky sexual behavior arising from the environment and peer pressure (Ong, 2011). This raises the question of whether there really is a downside to the financial benefits that the BPO industry and particularly call centers provide the economy.

With authorities continually providing incentives to foreign firms, particularly companies establishing offshore operations in the country, the further expansion of the BPO industry is almost a foregone conclusion along with the view of the BPO industry as an engine of growth in the Philippine economy, specifically to the services sector. The issue is whether there is a drawback to the growth engendered by the expansion of the BPO industry, principally in terms of the health impacts.

The question of whether the culture engendered by these outsourcing firms is causing the higher prevalence of risky sexual behavior among call center workers is not the concern of this study; although it is still interesting to note the liberal and permissive working

environment of these workplaces in spite of the conservative nature of the predominantly Catholic society in which they exist. Results of previous studies indicating that there is a high incidence of casual sexual encounters in these workplaces is enough reason to assume that there is a high probability of STIs, including HIV and/or AIDS, among their workers.

Prevention is key to combating the spread of HIV/AIDS and other STIs. With most infections arising from sexual transmission, abstinence or monogamy may be the best options. The next best option is the use of condoms, which, when properly handled and used, could reduce the chance of HIV and STI transmission to almost zero (Calica, et al., 2008).

This study thus intends to provide an analysis of the factors that affect condom use, particularly in the call center industry. Increasing hiring rates and higher incomes in the industry should indeed be viewed as significant contributions to the economy. However, these gains should not be achieved at the cost of the health of the working population. Results of this study may provide clues to appropriate government and firm interventions.

II. Methodology

Choice finds its roots in discussions of demand. Based on consumer theory, quantity demanded is affected by the own price of a commodity, prices of related commodities, consumer income, tastes and preferences, consumer expectations, and the number of consumers. In the particular case of the choice to use condoms, the own price and consumer incomes would constitute the monetary considerations. Other factors that could influence the choice include personal aspects related to consumer expectations as well as tastes and preferences such as educational attainment (as it relates to sexual health awareness), gender, parental support (as a mirror of social acceptance/influence), age, religion, marital status, number of sexual partners, and risk perception (Coren, 2003; Meekers and Klein, 2002; Adetunji, 2000; Cuneta, 2012).

To determine whether these factors affect the condom use of call center agents, a survey of 326 agents from 16 call centers in Metro Manila was conducted in late 2010 to early 2011. Given the sensitivity of the study's concerns, questionnaires were provided to respondents based on a non-probability sampling technique.

Summary statistics of the individual characteristics of the respondents are generated. A Multinomial Logistic regression is then implemented to determine the factors affecting the condom use decision of call center agents, based on the following functional form:

$$CU = \alpha + \beta 1\ AGE + \beta 2\ INCOME + \beta 3\ SEX + \beta 4\ PRT + \beta 5\ SCH + \beta 6\ MS + \beta 7\ SOCIAL + \beta 8\ RISK + \beta 9\ REL + \beta 10\ PRICE + \varepsilon$$

where CU is the frequency of condom use variable categorized as 0 – non-use, 1 – occasional use, 2 – practical use, and 3 – consistent use; AGE is the current age of the respondent; INCOME includes all possible sources of income of the respondent; SCH or the educational attainment of the respondent (number of formal schooling years); *PRICE* of the condom; *PRT* or the number of sexual partners of the respondent; *SEX* or the respondent's gender (0 if male, 1 if female); *MS* or marital status (0 if married, 1 if not married); *SOCIAL* or peer influence (0 if condom use is influenced by peer, 1 if otherwise); *RISK* or risk perception about acquiring HIV/AIDS (0 if low or none, 1 if high); and *REL* or effect of their religion on condom use (0 if not affected, 1 if otherwise).

III. Results

Only sexually active call center agents were considered respondents of interest. To be considered sexually active, an agent must have had at least one sexual encounter in the past three months. Based on the

responses, with data censoring prior to the regression analysis, the results discussed here apply to the reduced sample of 130 agents. Table 1 summarizes the distribution of the respondents based on demographic characteristics.

Table 1. Distribution of Responses Based on Demographic Characteristics, n = 130.

Characteristics		Number of Individuals	Percentage (%)
Age	16-20 years	16	12.308
	21-30 years	90	69.231
	31 years and above	24	18.462
	AVERAGE	**26.14 ≈ 26 years old**	
Income	Below PhP 10,000	1	0.7692
	PhP 10,001 - 20,000	63	48.462
	PhP 20,001 - 30,000	50	38.462
	PhP 30,001 - 40,000	10	7.6923
	PhP 40,001 and above	6	4.6154
	AVERAGE	**Php23,088.89**	
Gender	Male	93	71.538
	Female	37	28.462
Marital Status	Married	24	18.462
	Not Married	106	81.538
Years of Schooling	10 – 13 years	21	16.154
	14 – 17 years	80	61.538
	18 – 21 years	9	6.9231
	No Response	20	15.385
	AVERAGE	**14.74 ≈ 15 years**	

A majority of the respondents (69%) as well as the average age of the respondents (about 26 years) fall into the age bracket of the group that has been displaying a high incidence of reported HIV/AIDS cases recently. In terms of income, which accounts for all possible monthly sources including the estimated basic salary and differentials, respondents are earning on the average (PhP 23,089) more than enough to keep themselves above the poverty threshold, which is at PhP 8,945 per month for a family of five in Metro Manila for 2011 (Ordinario 2012). In addition, with the majority falling in the 14–17 years bracket, these respondents can be assumed to be college graduates.

In terms of sexual experiences, most of the respondents (60%) stated that they had their first sexual encounter between the ages of 16 and 20, with the average age at about 18 years. Only three out of the 130 respondents indicated that their honeymoon was the venue for their first sexual encounter while the greatest number of respondents indicated that their first sexual encounter happened at or after a social event. In addition, the number of sexual partners these respondents have had averaged around six (6), with most respondents indicating that they have had three (3) sexual partners from the onset of their sexual activity.

Risky sexual behaviors, as pertained to in this survey, are comprised of participation in casual sex, commercial sex, and sex with same sex. Casual sex refers to engagement in sexual activity with a stranger, an acquaintance or someone with whom the respondent had no romantic relationship, with the act occurring either only once or with regularity. Commercial sex refers to having engaged in sex which involves money, either giving or receiving a payment. Sex with same sex refers to a male engaging in sex with another male or a female engaging in sex with another female.

Based on the results, more (about 68%) rather than less respondents had engaged in casual sex. This should not be surprising if related to the result that most encounters occur after social gatherings such as parties, where inhibitions are probably reduced by alcohol and

other substance use. More hopeful are the results that more respondents do not engage in commercial sex (69%) or have sex with same sex (78%).

In terms of risk awareness or knowledge, respondents were asked questions regarding HIV/AIDS. Integrating the responses for the several questions asked, the risk awareness of the respondents were classified as either high or low. The results show that about 72% of the respondents display a high level of risk awareness, which does not seem to manifest in their sexual behavior. Condom use, through limiting the risks of infection, may provide a probable explanation for the respondents' penchant for multiple partners.

It is encouraging to note that more rather than less respondents (about 65.38% to 34.62%) did use condoms. When asked whether the condom users used a condom in their last sexual encounter, about 80% reported having used condoms. Considering only condom use in the last sexual encounter, more than half of all respondents indicated that they did use condoms.

Since it seems that condom use was consistent, with more respondents using condoms, sexually experienced respondents who have used condoms were also asked how frequently they use condoms. The frequency of their condom use is then used to classify what type of users they were. Those who always use condoms were "consistent" users (27.69% of all respondents); those who use condoms only when available or only when engaging in sex with casual partners were considered "practical" users (16.15%); and, those who use condoms only sometimes, even when condoms are available were considered "occasional" users (21.54%).

With more consistent and practical users among them, condom users were asked to identify reasons for their use of condoms. Non-users were instead asked for the reasons for their failure or refusal to use condoms. For the former group, prevention of HIV/AIDS infection was the most cited reason for condom use. For the latter group, the most cited reason for non-use is the reduced pleasure associated with condom use.

To estimate a measure of whether the respondents could be influenced by their peers, respondents were asked whether they discussed condom use with their friends, whether they would be embarrassed if their friends found out that they were using condoms, and whether they discussed HIV/AIDS with their friends. More respondents (more than 60%) had discussed condom use with friends while a very small proportion of the respondents (about 13%) indicated that they would be embarrassed by having friends know of their condom use. Many respondents had discussed HIV/AIDS with friends, usually in the context of having read or heard news items on HIV/AIDS and/or searching for HIV/AIDS on the internet. Based on an integration of the responses to these questions, social influence seems to have an impact on a majority of respondents.

Before running the regression, variances of the explanatory variables were computed to determine if there was enough variation in the sample points to allow for a reliable regression run. Based on the response rates and the results of the variance analysis, it was decided to drop several variables from the regression analysis, namely: price of condoms, religious affiliation, age, number of schooling years, and marital status. Table 2 summarizes the results of the regression analysis.

The regression results show that the INCOME variable has a significant effect on the use of condoms of the three types of condom users. The negative relationship of income to being a condom user reflects the inferior nature of condoms as a commodity, implying that those who have higher incomes are less likely to use condoms. A possible explanation for this is that, the higher the income of the individual, the more capable he is to support a child or to have a pregnancy terminated. Thus, there might be less compulsion to use condoms among those with higher incomes since they

are better equipped to handle the consequences of not using condoms.

Gender also has a significant effect on the likelihood of condom use among the occasional and practical condom users. The negative coefficient of the SEX variable denotes that females are less likely to use condoms. This seems surprising given claims that females' likelihood to use condoms is higher since there is a reduction of "pleasure" from sex among males using condoms (Meekers and Klein, 2002). In addition, females tend to use condoms because they have a higher risk perception compared to males. However, as a possible explanation for the result here, it must be considered that female condoms are relatively rare in the Philippines and it is the males who are usually expected to bring condoms to encounters.

Table 2. Multinomial Logistic Regression Results

Category	Variable	Coefficient	P>|z|
Non User	(reference category)		
Occasional User	Income**	-0.0000534	0.031
	Number of partners	0.0195573	0.785
	Sex*	-1.0288250	0.054
	Social influence	0.5559319	0.310
	Risk awareness	0.7230200	0.163
	Constant	0.1853162	0.819
Practical User	Income*	-0.0000401	0.058
	Number of partners*	0.0956597	0.093
	Sex*	-1.1735250	0.079
	Social influence	0.5683745	0.370
	Risk awareness	0.2130579	0.705
	Constant	-0.5088893	0.553
Consistent User	Income**	-0.0000552	0.046
	Number of partners	0.0136501	0.835
	Sex	0.2834073	0.600
	Social influence	1.0760700	0.106
	Risk awareness*	1.0657780	0.068
	Constant	-0.9187134	0.308
Log pseudolikelihood = -159.56129		Prob > chi2 = 0.0247	** Significant at 5%
Wald chi2(15) = 27.53		Pseudo R2 = 0.0971	*Significant at 10%

The number of partners has a significant effect only on the likelihood of condom use among practical condom users. The positive relationship of the PRT variable to becoming a condom user implies that, the more sexual partners of the respondents, the more likely he or she would use condoms with casual partners or when condoms are available. The reason for this could be because these types of users could be concerned with the uncertainty surrounding sexual activities with partners with whom they are not in a committed relationship, in terms of infection or other consequences.

Risk awareness has a significant effect only on the likelihood of condom use among consistent condom users. The positive coefficient of the *RISK* variable means that the higher the risk awareness, the higher the likelihood of condom use. This would be a logical turn of events since, if people find the spread of HIV/AIDS alarming, this would be reason for their intention to prevent it from spreading even more or to avoid becoming infected such that they would consistently use condoms.

The results of the analysis of marginal effects for this sample predicts that about one-third (35.59%) of the respondents would fall under the non-user category. Among the condom users, most (24.19%) would belong to the occasional user category.

With the rather surprising result that females in this sample are less likely to use condoms than males, the factors that affect condom use were then tested for the two separate gender groups. A comparison of the characteristics of the two groups shows that there were some considerable differences between the two groups, such as the male respondents (with average income of PhP 23,957.83) earning more than the female respondents (with PhP 22,623.40) and males having more sexual partners (seven against four). Results of the model runs for the separate samples, where the variable for SEX was deleted, are shown in Table 3.

Table 3. Multinomial Logistic Regression Results by Gender

Category	Variable	MALE		FEMALE	
		Coefficient	P>|z|	Coefficient	P>|z|
Non User	(reference category)				
Occasional Users	Income	-0.0000467*	0.080	-0.0000637	0.308
	Number of partners	0.0405119	0.588	-0.1221129	0.466
	Social influence	0.4684941	0.464	15.8732800**	0.000
	Risk awareness	0.7230200	0.725	16.2471900**	0.000
	Constant	0.3182639	0.711	-30.4742200**	0.000
Practical Users	Income	-0.0000343	0.140	-0.0000231	0.602
	Number of partners	0.1094644	0.105	0.0233864	0.872
	Social influence	0.8549844	0.225	-0.4305954	0.769
	Risk awareness	-0.3350257	0.607	16.5264400**	0.000
	Constant	-0.6058102	0.515	-16.7451800**	0.000
Consistent Users	Income	-0.0000133	0.658	-0.0001037*	0.090
	Number of partners	-0.0177286	0.817	0.0017616	0.990
	Social influence	2.3064910*	0.060	0.3300930	0.734
	Risk awareness	1.8585640	0.131	0.5826708	0.450
	Constant	-3.4934290	0.115	1.5347690	0.347
**Significant at 1% *Significant at 10%		Log pseudolikelihood =-101.06 Wald chi2(12) = 13.19 Prob > chi2 = 0.3552 Pseudo R2 = 0.1062		Log pseudolikelihood =-49.38 Wald chi2(12) = 1612.55 Prob > chi2 = 0.0000 Pseudo R2 = 0.1439	

The regression results seem to imply that the model better describes condom use of females rather than males. It is thus not surprising that more variables were shown to be significant for the female sample.

Results show that the INCOME variable has a significant effect on the use of condoms of male occasional users and female consistent users. The negative relationship of INCOME to condom use implies that those with higher incomes are less likely to use condoms. An explanation for this, as previously discussed, is that those with higher income are better equipped to deal with the consequences of non-use.

Social influence has a significant effect on the likelihood of condom use among male consistent users and female occasional users. The positive relationship between the SOCIAL variable and condom use means that social influence heightens the likelihood of condom use. This could be a reasonable circumstance because, if people have friends or peers who consider condom use a normal trend, they would have no excuse to not use condoms out of social embarrassment.

The RISK variable has a significant effect only on the likelihood of condom use among female condom users, specifically occasional and practical users. The positive relationship between risk awareness and becoming a condom user means that awareness of the risks of risky sexual behavior increases the likelihood of condom use. Alarm over the spread of HIV/AIDS may encourage individuals to become more cautious and to practice safe sex and thus use condoms.

Based on the results of the analysis of marginal effects, the model predicts that about one-third (35.15%)

of the male respondents and more than half (52.06%) of the female respondents would fall under the non-user category. Among the condom users, most male users are occasional users (31.36%) and most of the females users are consistent users (47.60%).

The SOCIAL variable is significant only in two categories. Results show that males who are socially influenced are 0.15% more likely to be consistent users rather than non-users. On the other hand, females who are socially influenced are 0.006% more likely to be occasional users rather than non-users. The INCOME variable is significant only in female consistent users. Based on the mean value of female respondents' income, every PhP 22,623.40 additional income would increase females' likelihood of non-use of condoms by 0.003%. More notably, risk awareness was significant in the condom use of female occasional and practical users. Those who are highly aware of the risks of HIV/AIDS are 0.03% and 0.15% more likely to be occasional and practical users rather than non-users, respectively.

IV. Conclusions and Implications

Differing from findings in previous studies, results showed that income, believed to have a positive impact on condom use, seems to have a negative effect on an individual's decision to use a condom. Also, females, who were expected to be more likely to use condoms, were found to have a lower likelihood of using condoms than males. However, consistent with earlier research, this study found that risk awareness, particularly regarding the risks of HIV/AIDS infection, was a significant determinant of condom use. In addition, social influence was shown to have a positive impact on the condom use decision.

Although most of the call center agents in the sample population have high risk awareness, a majority of them still hold to the notion that HIV/AIDS can be cured. For this reason, the government should help raise awareness that HIV/AIDS cannot be cured. In doing this, call center agents or the greater population may think twice before engaging in unprotected sex.

Moreover, the results of this study show that females have a lower likelihood of condom use, making them more susceptible to pregnancy and HIV/AIDS. Since female condoms are relatively rare in the country, knowledge about it is also limited. In this case, the government could seek to introduce people to female condoms and make women aware of its existence through dissemination programs. By doing so, the government addresses the problem of inaccessibility of condoms, which may help control the rapid population growth and the spread of HIV/AIDS. The objectives of the proposed Reproductive Health Bill of the Philippines include possible solutions to the problems that this study seeks to address. Among others, through reproductive health or sex education, the government could raise awareness of the risks that unprotected sex brings.

Considering the BPO industry as a contributor to the economy, it seems that these firms are providing more than fair compensation; however the health situation of the industry's employees in these firms may be cause for concern. Although not specifically investigated in this study, previous reports have suggested that the culture engendered by these working environments lends itself to promiscuity and other risky sexual behavior. This study found that awareness regarding the risks of risky sexual behavior is high but behaviors do not seem to be consistent with the level of knowledge supposedly exhibited by their workers.

Condom use among call center agents is still at a level that can contribute to increased prevalence of infections. Based on the results, social influence and the number of partners are significant determinants of the choice to use condoms. With reports that infections in call centers are on the rise, this implies that interpersonal relationships in the workplace are critical in this discussion. Friendships in the workplace and socialization beyond work hours can only add to worker

satisfaction and thus to productivity. However, should employees be allowed to take these further and involve themselves in romantic and/or sexual relationships?

According to a report, sexual activity can be had in some BPO firms during breaks in the workplace (Mendoza, 2010). On the other hand, some firms in the country discourage romantic/sexual relations among co-workers. Some even explicitly disallow office romances or couples from working in the same department. Apparently, most BPO firms have not adopted these restrictions or, at the least, tolerate romantic/sexual relationships between employees in the office. This is probably a result of the fair labor laws that these foreign firms implement, even in their offshore operations. Despite these legal constraints, it would not hurt for companies to discourage these types of relationships and to provide some modicum of control to reduce the probability that such acts could occur in the workplace. Reminding or educating their workers on safe sex practices may also help to encourage them to think twice about participating in risky behaviors or relationships. At the least, these intensified efforts can foster more widespread and consistent condom use that can only serve to reduce the likelihood of sexually transmitted infections.

Ensuring that the working population is infection-free promotes a healthier workforce. Good health is at the forefront of better productivity of the workforce, which can only be good for the firm as well as the economy in general.

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Development of the Indian Market and Strategies: Focusing on the Middle Income Class

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ABSTRACT

Doing business in India is indeed challenging. The paper describes the challenges as well as the emerging opportunities of doing business in India. In recent years India has been experiencing a process of economic and social transformation, becoming the 2nd fastest growing economy and expected to be the 5th largest consumer market by 2015. Nevertheless, the Japanese presence in India in terms of trade and investment is still limited. Traditionally, Japanese businesses have mainly targeted the upper income class in emerging market countries to date, selling them high-quality and high-price products. Underlying sustained growth in India is the ever-increasing middle income class (Volume Zone). There is no doubt that this group has also become an important target for Japanese businesses now. However, this market segment requires new approaches, or the ways of conducting business that are different from what Japanese firms used to carry out. This study thus polled Japanese and foreign firms operating in India to identify common concrete features of their business strategies and operational practices. Its objective is to put together a proposal of business strategies for the Volume zone market segment in India.

I. Introduction

India's market potential lures foreign companies. For foreign companies, doing business in India can be gut-wrenching. Its demanding consumers can be difficult to read, and local rivals can be surprisingly tough. For most of its postcolonial life, India has shut out the world, adhering to a socialist ideal of self-reliance. Policymakers have been struggling for the past 16 years to attract capital and ignite growth. In 1991, the government dramatically rejected its socialist past and admitted foreign investors. The idea was to enlist foreign companies' aid to turn India into another Asian Tiger where cheap labor, an English-speaking workforce, a vast new middle class, and a democratic government would create a wave of prosperity.

Despite an unprecedented global recession, India remained the second fastest growing economy in the world. Whereas most countries suffered negative growth in at least one quarter over the last two years, India's GDP grew by more than 6% throughout this period. India is the third largest Asian economy after China and Japan. Among the major emerging markets, India ranks second in terms of economic growth with the IMF forecasting a GDP growth rate of 6.9 percent

for 2012. India is the second most populous country in the world; approximately thirty percent of the country's 1.2 billion inhabitants reside in urban areas.

India's industrialized economy encompasses diverse manufacturing sectors (steel production, oil and gas refining, auto, plastics, textiles) while also including traditional village farming, modern agriculture, and handicrafts. Services, especially information technology, are the major source of economic growth, accounting for more than half of India's output with less than one third of its labor force, which is currently estimated to be 457 million workers[1].

Finding new sources for growth is one reason foreign companies are vigorously investing in Indian markets, but it's not the only reason. The Indian economy is beginning to produce their own powerful multinationals—Tata and Mittal in India are just two examples. By entering Indian markets, foreign multinationals are playing both offense and defense. They know they must be on the ground in the Indian economy, investing for the long term, physically close enough to learn the ways of markets that differ from those they're accustomed to. Indian companies now succeeding as global players have thus far been confined mainly to the B2B sector, but the makers of branded, aspirational consumer products are coming up fast. The day when the Indian markets create major brands to compete with the established giants is not far off. The Indian five-star hotel chains Taj and Oberoi are making forays into Western markets. The Taj Group recently bought the Ritz-Carlton in Boston, renaming it the Taj Boston.

Any move into Indian markets will require innovations in products, technology, and services, as well as major changes in operating procedures. No longer can a company simply export a product to a distribution network in the Indian market and expect it to succeed. Indian customers, even the poorest, have become too sophisticated for that. In fact, companies may have to rethink repetitive business models to compete effectively.

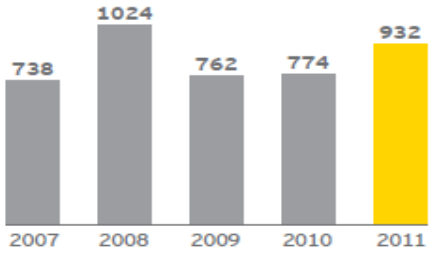
Whilst Korean firms in particular have found success in penetrating the Indian market, Japanese companies remain slow to enter. According to the Japanese embassy in India, as of October 2011, 813 Japanese firms were active in the Indian market through 1422 separate investments; a growing figure, but one that pales in comparison with other economic relationships in the region[2]. The emerging markets that are expected to achieve remarkable growth in the future are geo-graphically far from Japan and are generally unfamiliar or unknown to Japanese companies. These markets are expected to be the places of all-out competition among market participants; achieving success in the Indian market will be an important step as a touchstone for setting strategies for other emerging markets in the future.

Increasing FDI

The number of FDI projects in India increased by 20% in 2011, reaching 932 projects (Figure 1). Companies have started to invest, albeit cautiously; their confidence has been supported by the consumer demand and the easy access to financing and the increased approvals by the Foreign Investment Promotion Board[3]. Mirroring the trend seen in the number of investment projects, investments peaked in value in 2008. This number declined in 2009 and 2010 following the financial crisis, but returned in 2011 (Figure 2).

[1] According to Indian US Export Assistance center (USEAC).
[2] More than 1,000 Japanese companies enrolled in China.
[3] Ministry of Commerce and Industry, Government of India.

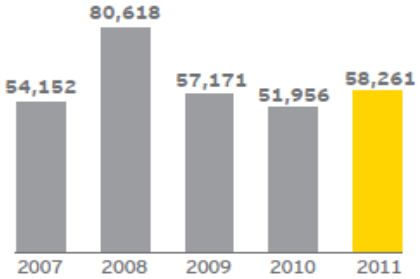
Figure 1. Number of FDI Project in India



Source: FDI Intelligence

Figure 2. FDI by Value in India (US$ million)

Figure 2. FDI Project Trends



Source: FDI Intelligence

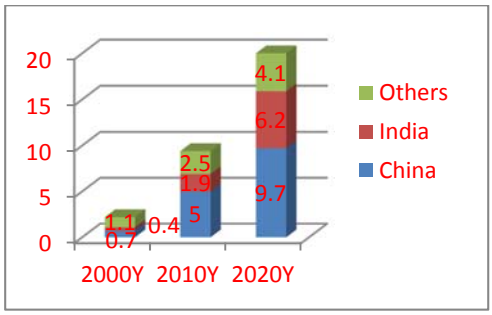
Despite the uncertain global economy and the slight majority of businesses that are putting their investment projects on hold, there was not only an increase in the number of FDI projects in India from 2010 to 2011, but the value also increased by 12% and the number of jobs by 15%. Investors perceive that India presents value and promising growth dynamics in this increasingly unstable global economy. With a rapidly expanding middle class to consume products and the presence of a large, well-trained labor force keeping costs down, India presents opportunities both to investors who want to produce and to investors who want to sell.

Opportunities in the Middle Class

Throughout India's history, the vast majority of its people have lived in desperate poverty. As recently as 1985, more than 90% of Indians lived on less than a dollar a day. Yet India is poised to undergo a remarkable transformation. One of the most striking findings is how dramatically recent growth has reduced the numbers of the poorest Indians. Given all the attention focused on India's middle class in recent years, it is important to keep a proper perspective on its size and potential purchasing power. While there is no official definition of the middle class, household earning between 200,000 to 500,000 Rupee (10 Yen=5 rupee) are called middle class as well as volume zone in this paper[4].

Based on Euro-monitor International's estimating data (Figure 3), the volume zone of India is rising and will reach 6 hundred 20 million customers in 2020.

Figure 3. Estimated Volume Zone of Asia (US$100million)



Source: Euro-monitor International

The volume zone tends to be young colleague graduates to mid-level government officials, traders, business people, senior government officials, managers of large businesses, professionals and rich farmers. They enjoy a lifestyle that most of the world would recognize as middle class and typically own a television, refrigerator, a mobile phone and perhaps even a scooter or a car. Although their budgets are stretched, they scrimp and save for their children's education and their own retirement. Some of them are highly brand conscious, buying the latest foreign-made cars and electronic gadgets. As the seismic wave of income growth rolls across Indian society, the character of consumption will change dramatically over the next 20

[4] Based on HAKUSYO 2010.

years. A huge shift is underway from spending on necessities such as food and clothing to choice based spending on categories such as household appliances and restaurants. Households that can afford discretionary consumption will grow from 8 million today to 94 million by 20255.

Given the tremendous growth potential, an increasing number of products are being geared towards the middle class population. In the transportation industry, which has traditionally been dominated by rail travel, with newer cars like the Tata Nano (which retails for a little over 200,000 Japanese Yen) and low-cost airlines have enabled the middle class to be increasingly mobile.

The growth of the middle class and the economic growth of India are in a virtuous cycle. Rising incomes lead to more consumption, which in turn leads to higher economic growth, then more employment opportunities and subsequently higher wages and the circle starts again.

Thus, as the middle class grows and continues to increase domestic demand, the economy will also continue to grow. In terms of consumption, real private consumption (including both households and private companies) accounts for approximately 55% of GDP. As highlighted in the previous section, the growth of the middle class will continue to increase household consumption in the country. The middle class also demands better healthcare and education. In addition to the benefit of strengthening human capital stocks and thus productivity, this also leads to more private expenditure on healthcare and education and thus improvements in existing infrastructure. The middle class is also increasing its share of financial investments and thus providing new sources of capital for companies. That's how the Volume zone creates significant opportunities for foreign investment in Indian market.

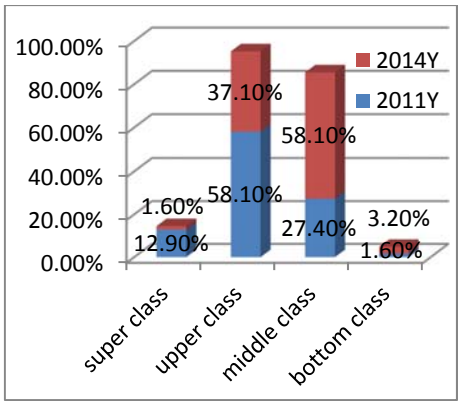
Volume Zone Strategy

Consumers in one of the world's developed economies think that Japan is full of powerhouse exporters. Hitachi, Panasonic, Sony, Toyota—many Japanese multinationals became household names in the second half of the 20th century. Consumers in an emerging market, though, don't view Japanese companies the same way. In fact, it's possible that they have never used a product made by one of those giants. Most Japanese companies moved up from the bottom in developed countries, but they have chosen to enter developing countries at the top to the bottom (Figure 4). Afterward they have struggled to move into the middle and low-end segments, where economies of scale and scope—and profits—can be found. As a result, these companies are at risk of becoming also-rans in the world's fastest-growing markets. That poses a threat to their very existence. After all, growth in developed economies is slowing to a crawl. Goldman Sachs forecasts that these markets will grow at an average annual rate of 2% from 2011 to 2020, while the developing economies, such as Brazil, Russia, India, and China, are expected to grow at an average annual rate of nearly 7% during the same period. Not surprisingly, in January 2012 Japan reported its first annual trade deficit in 31 years. Honda, Sony, and Toyota, companies that generate two-thirds or more of their annual revenues overseas, saw their sales abroad fall or stagnate from 2005 to 2010. This suggests that their emerging market performance wasn't great enough to offset the effects of those sluggish developed economies. The global recession wasn't to blame; during the same period, Volkswagen and Hyundai had double-digit overseas sales growth that was driven largely by progress in emerging markets like India. Clearly, if Japanese companies wish to expand, they must make deeper inroads into those markets. In the Indian market, where Suzuki has led in the automotive industry since the mid-1980s, Japanese manufacturers in other sector are trailing. South Korea's LG is the leader in home appliances in India.

[5] McKinsey Global Institute (2007)page12

A survey held by the Graduate School of Asian and International Business Strategy[6], in October 2011 with the title of "Entry Strategy of the Japanese Firms in India and China" shows that Japanese firms in India are going to change their target from upper (wealthy) class to middle class (Figure 4).

Figure 4. Strategy of Japanese Firms in India



At this time in 2011, 58.1 percent of the Japanese firms replied that they are targeting the upper class in India. Additionally, the survey shows only 27.4 percent of firms were targeting the upper class after 3 years (2014) and more firms in middle class. Thus, we can understand the Japanese strategies are shifting from upper class to the Volume zone.

Distribution and Channels

Suzuki in India invested in ancillary units and worked closely with suppliers to develop products and processes. This collaboration ensures good quality and timely delivery. With assured capabilities from their suppliers, Suzuki is able to plan its product development efforts better and are able to bring products faster to the market. This implies building long-term relationships with suppliers and investing in its development to support the manufacturer's own long-term growth and market expansion plans.

For one Korean giant in India, Samsung's success was also a result of the company's distribution network in India. Samsung India established an extensive network comprising 18 branch offices, over 3,900 dealers and around 400 service centers to reach customers. The company had a two-tier distribution structure wherein national distributors would bill the dealer channel[7]. The channel partners were the actual product champions of Samsung as they were the link with the end customers. The company's expectations also revolved around the channel partners adding value to customer sales, guiding them to the right purchase decision at a fair price. All channel partners were registered in the company's database, and Samsung introduced various schemes to help them earn more through higher sales and incentive programs. Samsung had very strong personal relations with key channel partners. All new schemes revolved around increasing sell-out and rewarding performance. For corporate deals, Samsung actually went out with the channel partners and promoted sales on their behalf. The company provided sales training to the staff, extended support for corporate mailings, classified advertising and made demo samples available to partners. Given the competitive nature of the industry, channels had complaints of inadequate margins and profitability in business. As it concerns the strategy of Suzuki and Samsung in India, channel networks play a big role to give them boost. To make a channel network in India is not a simple thing. The strategy of entering the market by first focusing on major cities is not in itself wrong. For purposes such as covering the Volume zone throughout the India and increasing brand awareness, it is important for a company to increase its presence in the major cities where there is a large flow for the

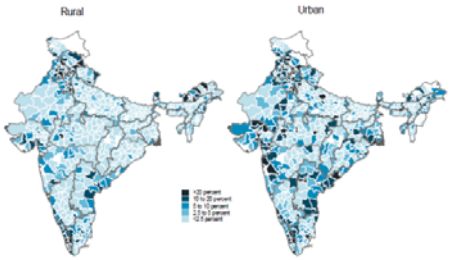
[6] Principle of Asia University, Dr.Ikejima Masahiro leads the survey.

[7] Sonal Anand, Country Product Manager (Display), Samsung India, "The Key Reason for Our Success is the Distribution Network," www.dqchannelsindia.com/content/channelchief/101050701.asp, May 7, 2001.

Volume zone. India has a vast land area with major cities where the Volume zones are dense and scattered throughout the country (Figure 5).

As such, merely creating nationwide sales and service networks will require major investment and even then it can be difficult to compete to rivals. If a company is a latecomer to the market, it will face a situation in which the companies that entered the market much earlier have already created a strong and big channel networks like Suzuki, LG and Samsung in India.

Figure 5. Volume Zone Population Share by District (2009/10)



Source: CGD calculations based on India NSSO Socio-Economic Survey 66/1.0 (2009-2010).

Proposal and Conclusion

Whether appropriate strategies for the Indian market can be created and whether such strategies can be successfully implemented will be a touchstone for succeeding in the markets of other emerging economies in the future. The growth of the middle class and the economic growth of India are in a virtuous cycle. Rising incomes lead to more consumption, which in turn leads to higher economic growth, then more employment opportunities and subsequently higher wages and the circle starts again. The survey (Figure 4) also proved that the Volume zone has become an important target for Japanese businesses. To cover the Volume zone they need to expand their distribution channel networks all over the country because of the scattered of middle class (Figure 5). As such, merely creating nationwide sales and service networks will require major investment.

In the Indian market, "how to make products a cost competitive thing" is of course important. However, more important is "how to sell your products". The Indian market is wide spread from urban to rural villages and delayed infrastructure. If firms ask to sell their best products, there is no ability to convey properly the goodness of the product. Firms in India should educate in the way of sales and need to create a mechanism so manufacturers can inform consumers on their own. In a developed country, the most important thing is to produce a good enough thing and sales network can promote themselves. In the case of India, the sales network is yet underdeveloped. Thus, to sell products with proper information is more important. When firms change the point of view, a strong sales network could give them a boost to allow them to be differentiated from other rivals.

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Transforming Agrarian Reform Beneficiaries into Agricultural Entrepreneurs: The Case of The Abaca Production with Processing in BOAC, Marinduque, Philippines

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abaca, multi-purpose cooperative, agrarian reform beneficiary organization

ABSTRACT

The paper illustrates the transition process faced by a multipurpose cooperative operating in an agrarian reform community as it evolves into an agri-business enterprise. The cooperative is considered an agrarian reform beneficiary organization, having been formed by agrarian reform beneficiaries. The cooperative is proposing to grow abaca and use it in the making of slippers. A needs assessment framework was utilized.

I. Introduction

The Philippines may be considered the "Abaca Capital of the World"; contributing some 87% of the total world abaca fiber production (Panti, 2010). In the last decade, it contributed an average of US$ 77 million annually in export earnings and employed about 1.5 million Filipinos. It is cultivated in about 140,000 hectares in 52 provinces (Panti, 2010).

Abaca is traditionally used for cordage due to its durability, strength and resistance to saltwater decomposition. It is also used to make filter paper, sausage skins, cigarette papers, medical gas masks and currency papers (NARC, 2009 as cited in Panti, 2010). Abaca is likewise fashioned into novelty items known as fiber crafts. These include handbags, footwear, baskets, wall coverings and draperies. The Philippine fiber craft industry exports its produce to the United States, the United Kingdom, Hongkong, Japan, Netherlands and West Germany (Teodoro, 1989 as cited in Bellen, 2009).

Meanwhile, the Department of Agrarian Reform (DAR) is the lead government agency in the implementation of the Comprehensive Agrarian Reform Program (CARP) which is comprised of three components, namely land tenure improvement, agrarian justice, and coordinated delivery of essential support services to farmer-beneficiaries. In line with this, the department is tasked with the mandate to help improve the over-all socio-economic well-being of agrarian reform beneficiaries (ARBs) and other smallholder farmers through the provision of support services to exploit agricultural opportunities and maximize the utilization of their land.

As part of the extension of the appropriate support services, the DAR has continuously implemented special projects in agrarian reform communities (ARCs) nationwide, one of which is the Agrarian Reform Community Connectivity and Economic Support Services (ARCCESS) Project which was conceptualized and designed by the DAR as a government-led initiative to tap an intersectoral (public-social-private) partnership. It aims to provide sustainable livelihoods through the organization of competitive agricultural enterprises, thereby transforming ARBs into viable entrepreneurs by providing support services that will consequently increase their household incomes and improve their farming capabilities. Through ARCCESS, DAR, together with other partner agencies, will teach new agricultural technologies and business development and management to farmer organizations and provide farm equipment and machinery to improve and increase their yields. The ARCCESS is initially designed to be implemented for a maximum period of three (3) years.

II. Objectives

The objectives of this paper are to describe the entrepreneurial project of the Tanikala sa Pagkakaisa Multi-Purpose Cooperative and to evaluate the proposed slipper project using a needs assessment framework. A needs assessment is a systematic approach to identify the nature and scope of the social problem being addressed as well as the reasons that are causing the undesirable outcomes, to define the target population to be served, and to determine the services needed to meet the problem.

The Tanikala ng Pagkakaisa Multi-Purpose Cooperative was organized in 2006 and operates in Kansurok-Tugos, Boac, Marinduque.

III. The Abaca Industry in the Philippines

Abaca production in the Philippines is dominated by three areas: Eastern Visayas, Bicol and Davao. The first contributes some 42% to total abaca output, Bicol produces some 29% while Davao is responsible for about 13% Thus, the three areas account for 84% of abaca production. Table 1 shows the volume of abaca production in the country as well as that of Marinduque and the amount of exports for the period 2005-2010.

Table 1. Abaca Production and Exports, 2005-2010 (in Mtons)

	Philippines	Marinduque	Exports
2005	74,014.00	2.86	14,372
2006	69,801.60	5.94	14,170
2007	66,437.23	5.88	18,674
2008	68,385.77	6.36	13,314
2009	65,825.40	3.27	6,793
2010	66,511.75	3.54	10,803

Source: Bureau of Agricultural Statistics

Abaca production has been hampered by low productivity due to pests and diseases, inconsistent fiber quality, inadequate abaca replanting effort, declining area, non-adoption of recommended package of technologies, limited value-adding and/or value-creating options at the farm level and inclement weather. Thus, Mascarinas, Amano, et al. (2009) have recommended that a continuous training program on the various aspects of abaca production, including post-harvest handling be undertaken as well as the organization and or strengthening of producers

associations among farmers. They have also urged the design and development of a portable abaca stripper.

Abaca is presently made into rope, clothing, and footwear as well as tea bags, meat/sausage casings, cigarette papers, filter papers, currency and bank notes, and surgical masks. It can also be made into bags, hats, rugs, hot pads, placemats and coasters. A Camalig, Albay-based exporter prides itself in producing abaca wall coverings, rugs/tapestries and sunshades. The abaca stalk can be made into decorative accessories like table-top runners and fashion accessories and is also used in sinamay weaving. The abaca seeds can be used as food; it is used to make cosmetics and skin care products while its industrial uses include paints and ink. Indonesia and Ecuador are two of the country's competitors.

IV. Conceptual Framework and Methodology

Figure 1 presents the conceptual framework of the needs assessment of the proposed abaca enterprise project. In order to make these planned business projects thrive and eventually be effective, there is a need to review the proposed projects, including their designs so that the embodied components and activities match the needs and strengths of the target organizations and beneficiaries. The design review will involve identifying the appropriate areas of interventions as well as the priority sequence of these interventions. A work breakdown will underscore the order of interventions to facilitate project implementation.

Corollary to the design review is the assessment of needs that can be done through an environmental scan describing the organizations, the communities and their corresponding resource bases. The characterizations of the organizations is imperative in assessing their strengths and weaknesses in adopting and implementing the proposed projects. This may include the current profile, existing services and capacities as well as the financial standing of these target organizations.

An examination of the resources, both of the community and natural surroundings, will aid in furthering the effectiveness of the projects. This may entail appraising the present institutional arrangements and livelihood opportunities coupled with the types of resources and their conditions, among others. This has the end view of identifying and subsequently providing the complementary and supplementary means to achieve project success.

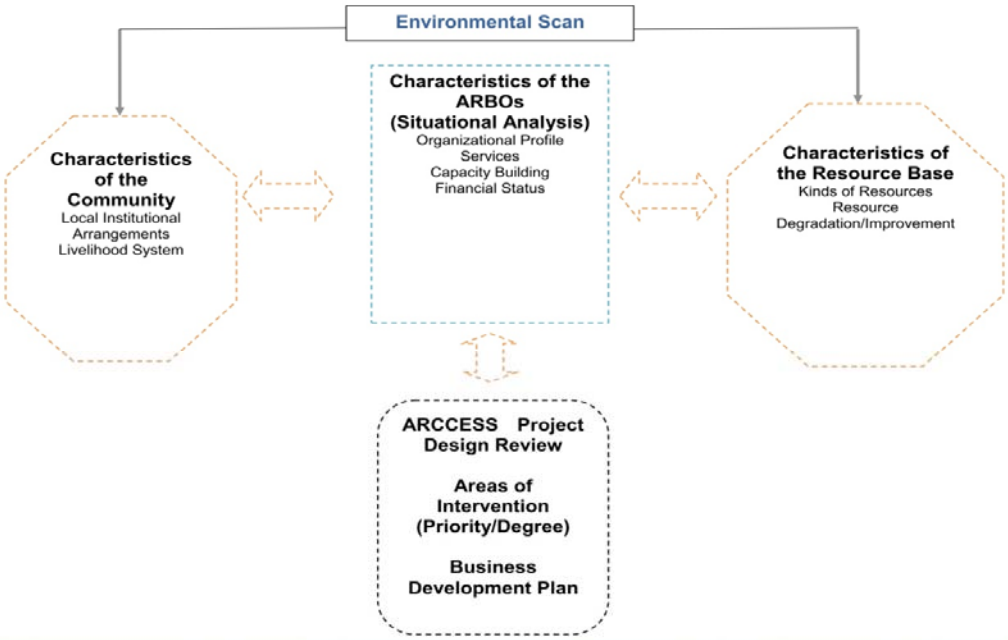

Figure 1. Conceptual Framework of the Project

Primary and secondary data were gathered for this study. For the primary data, two methods were employed and these were the conduct of a household survey and Focus Group Discussions (FGDs).

The FGD was conducted among the officers and members of the Tanikala sa Pagkakaisa Multi-Purpose Cooperative on May 19, 2012 at the Cooperative's Office. A semi-structured FGD guide was used by the FGD team to facilitate the discussion. It was composed of four main parts, namely, 1) Agrarian Reform Beneficiary Organization's (ARBO) profile, 2) community resource analysis focusing on the different types of assets/capital, 3) marketing aspect, and 4) summary matrices.

A total of 60 respondents were interviewed for the household survey which covered the municipality of Boac, Marinduque, Philippines.

V. Findings

A. Existing Situation of ARBO

The Tanikala ng Pagkakaisa Multi-Purpose Cooperative was organized in 2006 with 35 members (share capital of PhP1, 000 each[1]). It was registered in 2007 and its initial activity was copra trading and lending. Additional capital was raised by asking interested and able members to increase their share capital. At present, membership has expanded threefold, with 111 members; 57 males and 54 females. Some 70-80% of the members may be considered active. With the passage of RA 6938 (Cooperative Code of the Philippines), which requires only 25% of the members to be present in order to have a quorum, meetings can be more easily conducted. Lack of interest in the

[1] At the current exchange rate of US$1= PhP 42, PhP 1,000 is equivalent to US$24.

cooperative, little or limited information on what being a cooperative member entails, and low income were among the reasons cited for members being inactive in the cooperative.

The Cooperative's latest profile shows a share capital of over PhP275 thousand and savings of PhP 45.9 thousand. Copra trading and lending (emergency, livelihood and regular) remain to be its activities but it has expanded to also include abaca production, the production of abaca slippers, scrunch and macrame bags, abaca twine, upland rice production (organic) and savings deposits. Agricultural mortgaging has been discontinued.

The Cooperative has allotted some PhP200 thousand for lending. Outstanding loans at present amount to some PhP 150 thousand. Almost all members have availed of loans; loans under PhP 5 thousand must be paid in three months while loans from over PhP5 thousand to PhP10 thousand must be settled within six months. The Cooperative talks and sends a letter to delinquent borrowers.

Monthly dues are PhP20.00; interest and other charges on loans are 4% (2% is interest, 1% is service fee and 1% goes to retained earnings).

Loans and grants availed by the Cooperative included a PhP 50,000 grant from the local government of Boac , a shoe grinder and sander from the Department of Trade and Industry (DTI) and a sewing machine from the Rotary Club.

The Cooperative has been recipient of a number of training projects. These include: silk screening, simple book keeping, cooperative management and governance, abaca production and stripping, and extraction and application of natural dyes to indigenous fibers. It has also been the recipient of workshops on action planning, entrepreneurship and skills training. The cooperating agencies were DAR, the Cooperative Development Authority (CDA), Fiber Industry and Development Authority (FIDA), the DTI, Department of Science and Technology (DOST), Department of Labor and Employment (DOLE) and the provincial government. The Cooperative has been recognized as an outstanding CARP organization and has been cited as having achieved the highest organizational maturity level (level 5) in 2009, 2010 and 2011 among the existing cooperatives.

The Cooperative is governed by a Board of Directors and has the following committees: Credit, Audit and Inventory, Education and Training, Election and Mediation and Conciliation. There are two project committees to oversee copra trading and abaca processing. The Cooperative's Board of Directors meets every first Saturday of the month while the General Assembly is conducted within 90 days after the fiscal year.

Copra trading has not been lucrative in the past year. Some farmers chose to sell their copra to private traders who were willing to pay two pesos more per kilo in order to get a larger volume. The Cooperative sells its copra to a miller in Lucena. Last year, it was able to sell the copra at PhP24 per kilo, netting the farmers PhP12 per kilo. One fourth of the proceeds from the sale are kept by the Cooperative as incentives.

The Cooperative keeps office in a modest structure with a roof, but the floor remains sand. Though the office has no locks and the four sewing machines and the other raw materials are stored here, nothing has been reported missing.

Financial statements for the last three years show that the sales from copra trading ranged from PhP 1.2 million in 2011 to PhP2.4 million in 2010 and PhP 1.8 million in 2009. The drop in sales in 2011 was due to the low volume of copra as well as the low market price. Gross profits from copra trading thus slid to PhP 119 thousand in 2011, down from PhP 363 thousand the year before and PhP 214 thousand in 2009. Other

income contributed a modest amount of PhP 28 thousand in 2011, PhP 46 thousand in 2010 and PhP36 thousand in 2009; expenses ranged from PhP 102 thousand in 2011, PhP 161 thousand in 2010 and PhP 104 thousand in 2009 which translated to a net surplus of PhP 46 thousand in 2011, PhP 248 thousand in 2010 and PhP 146 thousand in 2009

B. Environmental Scan

The Ugnayang Bayan ARC Cluster is located in a hilly and mountainous terrain with limited plains. Lengthy, snake-like earth-gravel roads provide accessibility to the area. However, during rainy seasons, travel is difficult because the rivers can flood and certain sections of the road become muddy due to the lack of drainage structures. The soil is of clay or sandy loam.

Agriculture, in particular coconut farming, is the main livelihood of the households in the community. Seasonal crops like rice, corn and a variety of root crops (ginger) are also grown. Bananas (saba and latundan) are planted, though haphazardly, between coconut trees. Mono-cropping remains to be the usual farming system and no major crop is cultivated on a large scale. Households also engage in backyard livestock-raising. A majority of the households also raise butterflies. Aside from the processed abaca products, other products of the community are turmeric powder, coco vinegar, and instant ginger tea. All four products are marketed domestically.

Program partners of DAR and other development institutions present in the locale are presented in Table 2.

Table 2. Program Partners and Other Development Institutions

Name	Type of Intervention Provided
Department of Trade & Industry	Training, Technical & Marketing Assistance
Department of Agriculture	Technical Assistance, Provision of seeds
Philippine Coconut Authority	Provision of seedlings & fertilizer, Coconut Rehab. / Replanting
Center for Agricultural Development	Financial Assistance
Rotary Club International	Training, Technical, Marketing Assistance, Provision of Basic Social Services
Department of Health (Botika Binhi)	Medical Assistance & Training
MARINDUCARE	Provision of Basic Social Facilities
United Coconut Planters Bank	Technical & Financial Assistance
FIDA	Technical Assistance

Source: Support Services Office, DAR

Training sessions were conducted on abaca scrunch conversion, pricing and costing, stripping, abaca loom weaving, twine making, abaca macramé bag making, pricing and costing of slippers, extraction and application of natural dyes, and dyeing and bleaching of indigenous materials. Aside from these, the partner institutions have also provided training on product development, a writing workshop on project proposals, as well as simple book keeping and accounting. With regards to capability building, the community has undergone seminars on alternative dispute resolution, self-assessment, and attended an investment forum as well as business conferences.

As of 2011, the average annual household income was PhP 143, 497 broken down into: PhP 59,593 on-farm income, PhP 20, 059 off-farm income and PhP 63,845 non-farm income. The average household size is 5 and the number of households is close to 800.

School children walk 4 km (one way) to go to the nearest elementary and high school. The community though has a day-care center and a basketball court.

Boac is 14.25 km away; the municipality of Gasan is 13 km distant while Mogpog is 19.25 km away.

C. The Proposed Project

An Abaca Production with Processing Project in the amount of PhP 1,169,000 is being proposed for funding by the DAR. The proposed beneficiary organization is the Tanikala ng Pagkakaisa Multi-Purpose Cooperative. Equity from the proponent will amount to PhP 264,750 while collaborating agencies will contribute PhP 295,000. Thus, the project's total amount is PhP 1,728,750.

The proposed 10-year project basically involves the production and processing of abaca fiber. Abaca was previously commercially grown in the area, but the introduction of nylon ropes and other synthetic products led to its wane. However, the present global call for environmental preservation and conservation has revived interest in the fibers sourced from natural products.

Abaca is the source of fibrous materials which are made and woven into ropes and other indigenous products like bags, mats, slippers, etc. It is also a raw material in the production of various international currencies like the Japanese yen.

The general objective of the project is to establish an alternative eco-friendly agri-based industry which will utilize a greater number of idle agricultural land resources for the purpose of generating additional employment opportunities for the province of Marinduque. In particular, there are 5 specific objectives; namely:

a. To expand abaca production areas in Barangay Tugos to at least ten hectares by 2012 and to reach 50 hectares by the fifth year of implementation;
b. To provide a fiber production center in Barangay Tugos by 2012;
c. To acquire a one each of a mobile spindle stripping machine, a weighing scale (baskula), a denting machine and a "hilohan" by 2012;
d. To acquire two additional heavy duty industrial sewing machines by 2012; and
e. To generate an initial 30 rural employment opportunities in Barangay Tugos by 2012 and an additional 20 rural employment opportunities by 2013.

The production of slippers made from abaca has been identified and assigned to the Tanikala ng Pagkakaisa Multi-Purpose Cooperative. The cooperative has participated in various trade fairs and its products were well-appreciated by the market. Last year, the Cooperative has recorded PhP 45 thousand from sales of 300 slippers and netted PhP 13,000. One kilo of fiber is enough to make 25 slippers, which can be produced in a day.

D. Constraints

This section summarizes the constraints faced by the cooperative as it embarks on the proposed project.

i. Raw Materials – The Cooperative has received an offer for 6,000 slippers a month, but due to the tight supply of abaca fibers (as well as a lack of improved processing equipment and facilities), the Cooperative had to turn down the offer. The Cooperative's plans might also be hampered by the absence of an "abaca fiber specialist" in the province who can readily be consulted should the need arise. Other raw materials are sourced from Marikina[1] and the Cooperative anticipates no major problems as long as it has the financial capital to buy the inputs. The Cooperative hopes to devise an arrangement with the Marikina supplier so that physical travel to Marikina is minimized.

ii. Power – Adequate power is needed to operate the sewing machines, electric fans, computer and other equipment and to provide ample lighting in the production center and office. A

[1] Marikina is known as the "Shoe Capital" of the Philippines.

more reliable connection is also needed for the use of cell phones.

iii. Equipment - A stainless steel vat suitable for preparing the dye needs to be fabricated. At present, the Cooperative uses "baldes" but they easily get destroyed after just several uses. A dryer is needed because the abaca fibers need to be air dried. Drying them under the sun causes discoloration and affects the quality of the fiber. Likewise, mobile implements like a stripping machine are necessary to eliminate the hauling of abaca stalks for stripping. Other equipment necessary are: a twining/twisting machine, an abaca slicer/shaver, a weighing scale, a "hilohan", sewing machines, a computer, filing cabinets, office tables and chairs. Finally, a vehicle is needed by the cooperative to transport the inputs and finished products. A vehicle is badly needed given the distance and the current state of the roads.

iv. Market and Product Development – More hands are needed in the various stages of production. This is especially true in the actual laying of the woven and dyed fibers onto the rubber soles. Continuous training in product design and innovation is a must for the Cooperative to keep abreast with new trends in the market. A system also must be put into place to look after the inventory position of the different inputs and semi-processed abaca fibers as well as finished abaca products. A target sales objective should also be set.

v. Costs - At present, a pair of slippers cost PhP 120.00. Raw materials cost PhP52.50 while labor amounts to PhP 67.50. Continuous monitoring of the cost structure is necessary. Already, there are comments on the high labor costs, which could potentially limit the market for the slippers.

vi. Organizational Management – Though the Cooperative has been a recipient of several awards, continuous training or seminars for cooperative management to sustain the organization's viability and enable it to better serve its members are vital. Organizational strengthening activities are needed, especially at the start. These activities will not only promote the cooperative and its programs but also attract young and potential members. It has been observed that not many members want to be officers. Likewise, activities that will further improve the financial management skills of the members are necessary. Thus, a computer, office tables, filing cabinets, and other office equipment must be procured. It would also be beneficial if the cooperative members can take the Personal Entrepreneurial Competence (PEC) assessment to establish some baseline data and ascertain their entrepreneurial skills.

vii. Production Center and Cooperative Office – Right now, the Cooperative's office stands on land belonging to the brother of the Chairman. The owner is willing to have the Cooperative use the land as long as the Cooperative exists. A written agreement to this effect must be drafted. The office has no locks. The Cooperative's office also serves as the production area where the semi-finished slippers are completed. However, provisions must be made for a bigger office if the production center will also be housed there. While at the moment some people choose to work at home, this might not be true in the future.

E. Areas of Intervention

The Cooperative is very grateful for the help extended by the following agencies: DAR, the CDA, the Department of Agriculture (DA) - FIDA, DTI, DOST, the provincial government of Marinduque, local government of Boac, the Rotary Club, and the United Coconut Planters Bank (UCPB).

DAR, with the help of the CDA, organized the cooperative. The DA –FDA gave seeds and technical assistance while the DTI conducted seminars and through trade fairs promoted the Cooperative's products. The Municipal government gave PhP 50,000 for the purchase of three sewing machines while the Rotary Club donated a sewing machine and also helped in the butterfly and silk screening projects; the DOST helped in the use of natural dyes while the UCPB lent money for the Cooperative's copra trading activity.

With the proposed project, the Cooperative would appreciate the same assistance from the mentioned

agencies. In particular, the following interventions are noted:

a. DAR – The DAR must oversee the proposed project. It must monitor and evaluate the project from its inception to its operation. It must troubleshoot any problems that may arise. The status of the land (ownership, et al) to be used by the project as well as the Cooperative office must be made clear. The DAR should head the team composed of representatives from the different collaborating agencies.

b. DA-FIDA – In the choice of the production sites, the help of the FIDA is necessary. Soil testing and analysis must be done to determine the suitability of the soil. An abaca specialist must also be deployed in the area. Technology training on the appropriate management of the abaca plants well as potential pests and disease prevention are needed. Help in the processing of the abaca plants is also needed.

c. DOST – Help from the DOST is needed in finding better ways of processing the raw fibers (stripping, dyeing, twining, etc) as well as in the use of indigenous dyes. Assistance in the fabrication of the equipment is sought.

d. DTI – The DTI's assistance is sought in the development of the abaca-based products, in securing the necessary permits and licenses, product pricing, labeling, packaging and marketing. The DTI can also help pinpoint input sources, help make sourcing arrangements as well as identify and create potential markets. Short-term and long-term planning horizons must be adopted. The cost of the inputs and pricing of the output must be continuously monitored. The development of an inventory system as well as production schedule must be taught to the cooperative members.

e. CDA – The CDA may require more capability and skills upgrading seminars from the Cooperative in order to operate and sustain the project.

f. Local and Provincial Governments – Both the local and provincial government's assistance in addressing the power situation are necessary in order for the proposed project to take off and be sustained. Adequate power is needed to operate the sewing machines, electric fans and lighting facilities all at the same time. Likewise, communication facilities must be upgraded so that the cooperative can be in touch with its suppliers and buyers.

g. Marinduque State College – The College can be involved through its research and extension activities in the development of the abaca industry and in mentoring and monitoring the project as it evolves into a business enterprise. The College may administer the Personal Entrepreneurial Competence assessment.

Greater involvement of the private sector is likewise encouraged so that strategic partnerships may be formed.

F. Business Development Agenda

In order to better appreciate the work that the project entails, a business development agenda has been prepared.

Component 1 – Land

Activity 1 – The legal papers regarding the status of the areas proposed for planting as well as the Cooperative's office and production center have to be prepared. Who "owns" the targeted lands? Can the cooperative and its members just go ahead and prepare the areas? Concerned Agencies: DAR, Municipality of Boac

Activity 2 – Soil analysis must be conducted after which the land proposed for planting must be prepared. Planting can then commence. Initially, the area planted with abaca is targeted to reach 10 hectares by 2012, but by the fifth year of implementation, the area planted with abaca will reach 50 hectares. Concerned Agencies: DA-FIDA, DAR

Activity 3 – Coordination with the DA-FIDA regarding technical training on the management of abaca plants as well as pest and disease

prevention. Concerned Agency – DA-FIDA

Activity 4 –Construction of the cooperative's office and production center. Concerned Agencies: DAR, the Cooperative

Activities 1 and 2 will be on-going activities until all targeted areas for abaca production have been covered.

Component 2 – Transport, Power and Telecommunications

Activity 1 – Make arrangements for a reliable source for the needed power and telecommunications. Concerned Agencies: Municipality of Boac

Activity 2 – Purchase a vehicle. Concerned Agencies: DAR, the Cooperative

Component 3 – Product Development and Marketing

Activity 1 – Arrange training on product processing and development, pricing, marketing and other related skills improvement workshops. Concerned Agencies: DTI, Marinduque State College

Activity 2 – Set up a target sales objective.

Activity 3 – Set up a system to procure and make an inventory of the inputs.

Activity 4 – Standardize and document the recipe for the various colors to be used to dye the fibers. Concerned Agencies: DTI, the Cooperative

Activity 5 – Procure the necessary equipment and inputs. Concerned Agency: DAR, the Cooperative

Activity 6 - Make Prototype or Sample Outputs and Quality Control for Output. The Cooperative must also decide on the packaging of the outputs. Concerned Agencies: the Cooperative, DTI

Activity 7 – Set up an inventory system of the finished outputs. Concerned Agencies: The Cooperative, DTI

Activity 8 – A team must be organized for the purpose of looking for markets, new designs, etc. It is safe to assume that the members of the cooperative will need help and information regarding the current status of the abaca industry as well as current and potential markets. Concerned Agencies: the Cooperative, DTI

Activity 9- As a medium-term activity, the cooperative must acquaint itself with the many other possible abaca products that can be produced and marketed. However, it will have to coordinate with the local and provincial governments inasmuch as other organizations are said to have been designated or assigned specific products to produce.

Component 4 – Social Infrastructure and Capability Building

Activity 1 – A series of organizational capability building exercises or activities must be arranged to strengthen the cooperative and prepare for its transition into an agri-business enterprise. The Personal Entrepreneurial Competence assessment may be administered as part of the exercises. Concerned Agencies: DAR, CDA, DTI, the Cooperative

Activity 2 – Procure a business permit and other licenses needed. Concerned Agencies: DTI, the Cooperative

Component 5 – Monitoring and Evaluation

Activity 1 – With DAR as the lead agency, a team composed of representatives from the collaborating agencies must be formed to regularly monitor and assess the project

VI. Conclusions/Recommendations

The proposed project presents an excellent opportunity to enhance the welfare of the residents of the ARC. The project will make use of idle lands, revive the abaca industry in Marinduque, develop as well as promote environmentally-friendly products, create rural employment for both male and female members of the community and generate more farm income. If successful, the project will showcase how a multi-purpose cooperative can manage and run an agri-business enterprise. More importantly, the project will build human capital among the members of the cooperative.

However, in order for the project to be successful, the assistance of various government agencies as well as the private sector is needed. These agencies include the following: DAR, DA-FIDA, DOST, DTI, CDA, the provincial government of Marinduque and the local government of Boac. A firm commitment from these agencies to support the proposed project is vital.

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Strategic Tourism Tools Following the Disaster in Japan – Could it Happen in the U.S.?

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ABSTRACT

Terrifying images from Japan after its triple whammy of earthquake, tsunami, and radioactive meltdowns have left many in the United States wondering: Could something like that happen here? Unfortunately, history's answer is yes. Managers of tourism destinations and hospitality firms in many regions are faced with uncertain environmental events, both man-made and naturally occurring. In a complex and dynamic tourism and hospitality environment, strategic planning tools can be of value in positioning resources to mitigate any negative impact of these environmental events. This paper examines some strategy tools that can be used by hospitality and tourism managers in the future.

I. Introduction

Terrifying images from Japan after its triple whammy of earthquake, tsunami, and radioactive meltdowns have left many in the United States wondering: Could something like that happen here? Unfortunately, history's answer is yes.

Like Japan, the U.S. mainland has itself suffered major calamities – both natural and man-made - that struck with little or no warning to devastating effect. Among them:

- The Great Chicago Fire of 1871. The city burned for two days, over 300 died, and 4 square miles of the city turned to ash.
- In 1900, a Category 4 hurricane struck Galveston, Texas, with little warning, killing at least 6,000 people. It was the deadliest natural disaster ever to hit the United States.
- The San Francisco earthquake of 1906 leveled much of the city. Estimated at magnitude 7.9, it left some 3,000 dead and nearly a quarter-million homeless.

- Hurricane Katrina in 2005 claimed more than 1,800 lives, leaving New Orleans and much of the neighboring Gulf Coast in ruins.
- And, of course, the September 11 attacks killed 2,973, plunged the United States into recession, and forever altered Americans' assumption that their homeland was unassailable.

As those incidents suggest, there is no place of perfect safety. Clearly, some places hold greater danger than others. Japan, for example, is an island that sits in an active earthquake zone. The Kobe earthquake there in 1995 claimed over 6,400 lives (Cetron, DeMicco & Davies, 2010).

II. Scanning the Environment

The destructive power of natural disasters could kill not only local residents but also thousands of tourists. Tourists may recognize that the natural disasters make their travel more risky. According Park & Reisinger (2010), there are several kinds of natural disasters: avalanches, droughts, earthquakes, floods, heat waves, hurricanes, landslides, tornadoes, tsunamis, volcanoes, wildfires, winter storms. Natural disasters cause loss of life and economic damage and cannot be avoided. Tourism destinations are very vulnerable to natural disasters. Natural disaster will seriously impact and damage the destination and could eventually reduce tourist arrivals. Hotel managers must understand natural disasters so they can respond to them positively and lessen their impact on hotel guests. For example, resort hotels on the Pacific shore must have enough facilities to protect guests' safety during a tsunami.

Travelers also perceive the risks from manmade dangers. This paper will focus risks from crime risk and terrorism. Crime risks include the possibility of becoming the victim of robbery, burglary, fraud, rape, or murder. Crimes occurring at tourist destinations will have negative effects on travel areas. Also, the growth of tourist activities may bring an increase in crimes. For example, a destination might have higher crime rates during tourist season, such as we see in places like Miami, Florida. When tourists are concerned about crime, they will choose to book safer alternatives. In certain destinations, such as Washington, DC; Miami, Florida; and New Orleans, Louisiana, guests could be more vulnerable to crime. For hotel managers, it is important to protect hotel guests from being victims of crime. The can train hotel employees never to announce the guest's name and room number, remind guests to protect themselves, make efforts to safeguard guests' personal information, and prepare to offer assistance in case of stolen property, etc.

Park and Reisinger (2010), in "International Tourism", described terrorism risk as the possibility of being involved in acts such as airplane or personal hijacking, bomb explosion, or biochemical attack. Tourists are concerned with traveling and the threats that accompany political disorder. Terrorism therefore may have a more critical influence on the travel industry than on any other industry. Tourism services are highly perishable and cannot be stored or sold at another time; once the moment passes, the opportunity for the sale is lost. Thus, tourism usually suffers in times of crisis. Since there is no sign that the terrorist attacks are coming to an end, terrorism will continuously threaten the tourism industry. Hotels which are high-status and vulnerable to terrorism should combat the threat of terrorism and be prepared for terror attacks. For instance, hotel managers could hire training specialists at major facilities, work with the American Hotel and Motel Association to train employees in how to cope with a terrorist attack, and establish a network of counter-terrorism security guidance for individual locations.

This paper examines how tourism and hospitality managers can apply strategic tools for improving tourism demand in locations challenged by natural disaster or man-made (criminal, terrorism, etc.) phenomenon.

III. Background

What is true in Japan is true here as well: Some places are safer than others. A qualitative study consulting with more than a dozen security experts and

emergency-preparedness specialists throughout the United States revealed a host of factors involved in determining the 18 most dangerous places to live in America.

Among those many considerations: vulnerability to major natural disasters such as earthquakes, hurricanes, tsunamis, floods, and volcanic eruptions; the presence of nuclear reactors, chemical factories, natural gas storage depots and pipelines; the threat of terrorist events; and the frequency of violent crime.

Based on those factors, here are the 18 of the most dangerous places in America, based on our environmental scanning.

18. Honolulu, Hawaii

With perfect weather, a prosperous economy, and violent crime rates well under the national average, Hawaii seems a perfect place to live. Even the Pacific cyclones tend to pass it by, and when they strike they seldom cause much harm.

What could spoil this idyllic picture? Geology.

What you see as the Hawaiian Islands are actually the tops of ancient volcanoes. Most of them seem to be extinct, but not all. On the Big Island, about 165 miles to the southwest, Mauna Loa and Mauna Kea remain active. Hilo and Kauai, at the feet of the volcanoes, face the threat of lava flows and, potentially, scalding clouds of volcanic gas, ash, rock, and steam of the kind that killed Pompeii and Herculaneum.

However, what really puts Honolulu's population of 910,000 at risk is the threat of massive tsunamis that make the 30-foot-high wave that smashed into Japan look minor by comparison. Twice in history, pieces of Mauna Loa have slumped into the sea, pushing up vast waves that roared straight to the Oahu coast – site of Honolulu today. The smaller of those two tsunamis was a towering 256 feet high. Scientists estimate the larger wave reached an almost unimaginable 1,006 feet high – roughly the height of New York's Chrysler Building! Either of those would have destroyed Honolulu more completely than an atomic bomb.

The good news: Tsunamis on this scale reach the island only once every 100,000 years. The not so good news: The most recent one occurred 100,000 years ago; Honolulu may be due for the big one. Japan has already shown the devastation a far smaller tsunami could cause.

17. Boston, Massachusetts

The rate of violent crime here is relatively low, the 113th highest in the country. That's just the beginning.

You might be surprised to learn that New England experiences 40 to 50 earthquakes a year. Most are too small to feel, but there are exceptions. Boston College seismologist John Ebel believes they are centered in nearby New Hampshire, where they can be strong enough to shake the region's largest city. In 1990, scientists predicted that a magnitude 6.2 quake in Boston would cause hundreds of deaths, thousands of injuries, and up to $10 billion in damage. About three-fourths of the city's 100,000 or so structures were put up before 1973, when the building code was amended to protect against earthquake damage. Quakes of 6.2 or greater have occurred in the region at least twice since the city was founded in 1630.

Still, Boston faces an even bigger threat; one that comes from man rather than nature. In nearby Everett, just cross the Mystic River, stands the Distrigas liquefied natural gas depot. Experts estimate that if the gas there were to escape and spread prior to detonation, it would cause an explosion equal to 50 Hiroshima bombs. That would level a substantial piece of Boston and the surrounding communities, and the death toll could run into the hundreds of thousands. This vulnerability has already been noted in several published reports, so you can be sure it is on the radar both of terrorists and homeland security officials determined to stop their nefarious plots. The chance that anything would happen to Distrigas is low, but its consequences are frankly too great to ignore.

16. Salt Lake City, Utah

Earthquakes are surprisingly common in northern Utah. A magnitude 6 tremor struck Salt Lake City in

1934. The Wasatch fault passes directly beneath the city, and geologists estimate that a magnitude 7 quake will occur there on average every 1,300 years. The last one took place 1,300 years ago. If a major quake hits, an estimated 185,000 buildings in the city could collapse.

If the earthquakes don't get you, the pollution might. The Environmental Protection Administration tallied 15 unhealthy air quality days in Salt Lake City in 2009 -- one more than smoggy Los Angeles. (Bakersfield, Calif., had 43!)

Salt Lake City industries release more than 130 million tons of toxic chemicals each year, more than any other major American city.

15. Washington, DC

The nation's capital has the 22nd-highest rate of violent crime in the country; until recently, it also had the second-highest murder rate. But the real risk here is the obvious one -- terrorism. Washington, D.C., is the bulls-eye for anyone with a grudge against the West. Stand in the right neighborhood, turn in place, and you will find inviting targets on all sides -- government offices, monuments, restaurants full of the political elite, crowds of tourists, and the homes of important officials. Forecasting International does not believe a major terrorist attack on the U.S. homeland is likely again anytime soon. However, it is no less probable than an earthquake or a tsunami, and the biggest terror target in the world is Washington, D.C.

14. Richland, Washington

A community of 364,000 people, Richland belongs on this list for only one reason: the Hanford Site, which churned out nuclear material for atomic weapons from World War II through the end of the Cold War. The Columbia River flows past the site. From 1944 to 1971, large quantities of long-lived radioisotopes were flushed into it each day. In the early 1990s, radioactivity was detected some 200 miles away on the Washington and Oregon coast.

Hanford remains home to 53 million gallons of high-level radioactive waste, some two-thirds of all the radioactive waste (rad-waste) in the country. Four separate Superfund clean-up projects at the facility were scheduled to be completed by 2019. So far, the job is less than half finished. Already, there is evidence that at least some of the waste containers may be leaking: contaminated rabbits and mulberry bushes have been reported at the site as recently as 2010.

There is no clear evidence that any human beings have been harmed by Hanford's toxic radioactive stew – yet. The risk of a serious accident, whether by nature or by the hands of man, will remain high until the clean-up is finally complete.

13. Anchorage, Alaska

Although it ranks a surprising 44th on the FBI's list of cities with the most violent crime, it's nature that most threatens the 279,000-odd people who live in America's northernmost major city. No fewer than 13 volcanoes are found along the Cook Inlet that includes Anchorage at the end of a narrow channel. They include Redoubt, currently the most active volcano in the United States. The Redoubt Volcano sits atop a subduction zone, the kind of geological fault that caused the recent tsunami in Japan. This is just one of several important faults in the area. In 1901, this was the site of a magnitude 7.1 earthquake which triggered several tsunamis.

12. Oklahoma City, Oklahoma

Oklahoma City is the biggest city in the heart of Tornado Alley, and tornadoes are an ever-present danger in spring and summer. More than 15 tornadoes per 1,000 square miles have been recorded in the region. Oklahoma City itself has seen more than 100 since 1893, and two dozen since 2000.

One spectacular example occurred during the May 1999 tornado outbreak, which brought twisters to Oklahoma, Texas, Kansas, Arkansas, and Tennessee. Oklahoma alone had 160 confirmed storms. By far the worst was the so-called Bridge Creek-Moore F5, which touched down in nearby Amber and wandered through Oklahoma City and surrounding communities. It was

the deadliest tornado since 1979, with 36 people killed. It became the most expensive in U.S. history, causing $1.1 billion in damages.

Even for Oklahoma City, this was not business as usual. In spring and early summer, tornadoes are an ever-present hazard.

11. Detroit, Michigan

In the Motor City, crime is supercharged. Detroit ranks third on the FBI's list of most violent cities.

If anything major goes amiss in Detroit, the cash-strapped government is ill-equipped to respond. A hint was provided last September, when over 700 power lines were downed during a fierce wind storm. This sparked fires which swept through abandoned, poorly maintained, and dilapidated structures. At least 85 buildings were severely damaged or destroyed.

Critics say budget cuts have hampered the fire department's ability to respond to any emergency. At one point, between eight and 12 of the city's 66 fire companies were deactivated on any given day in order to save the city money. Although no official plan has been announced, more cuts to city services are rumored to be on the way.

10. Memphis, Tennessee

Crime is an issue here, too. With a population of nearly 677,000, Memphis has the twelfth-highest rate of violent crime in America. However, it has far bigger problems that loom beneath its streets.

Memphis lies at one end of the New Madrid fault, the most active earthquake zone east of the Mississippi. Seismologists consider the region about 40 years overdue for a quake measuring 6 to 6.5 on the Richter scale—enough to cause significant damage. Over a six-week period beginning in December 1811, a series of magnitude 7.0 to 8.1 earthquakes just north of Memphis damaged houses as far away as St. Louis, more than 200 miles north of the epicenter. The quakes were so intense they briefly caused parts of the Mississippi River to run backward.

Today, few of the city's buildings would hold up to even one such earthquake. The U.S. Geological Survey projects that highway and rail overpasses and pipelines across the Mississippi could also be lost.

Memphis faces a significant tornado risk as well. Twisters have hit Shelby County, where the city is located, about eight times every ten years in recent decades. However, the most destructive storm touched down in 1909. A Force 4 storm, it killed 29 and injured 100.

9. Houston, Texas

What earns Houston a place on this list is its large population and its proximity to the Gulf of Mexico. With about 2.28 million people, and another 300,000 in the barrier-island suburb of Galveston, Houston is the largest community in the United States that regularly faces hurricanes.

In September 1900, a hurricane and storm surge at Galveston killed more than 6,000 people. Some estimate the death toll at twice that, and it was by any measure the worst U.S. natural disaster ever.

Rampant pollution is another problem. Houston-area manufacturers dumped nearly 59 million pounds of toxic chemicals into the city's air and water in 2009. And according to the Environmental Protection Administration, Houston's water has been contaminated with small quantities of radioactivity ever since the city began keeping records in 1996.

8. Seattle, Washington

The home of high-priced coffee, craft beer, and some 609,000 people (3.4 million, including neighboring Tacoma and Bellevue), Seattle is also the site of the Cascadia subduction zone. This is the fault that scientists say is most likely to produce the most powerful earthquakes in the lower 48 states. Only three serious quakes have occurred in the last century, none larger than magnitude 7.1. Most recently, the magnitude 6.8 Nisqually earthquake in 2001 damaged some buildings, but there were no fatalities. However, an earthquake in 1700 is believed to have reached

magnitude 9 -- as large as the one that caused the recent tsunami in northern Japan.

That is bad news for Seattle, because the Cascadia subduction zone is roughly 100 miles offshore.

Any future tsunami would have plenty of room to build up power. Until recently, scientists believed a tsunami there would be no larger than 30 feet high, about the same as the one in Japan. After seeing the 80-foot wave that struck Indonesia in 2004, they have been wondering whether the threat to Seattle could be much greater than previously recognized. One reason people may be sleepless in Seattle: it faces the worst tsunami hazard in the continental United States.

7. New Orleans, Louisiana

It's chilling to think about, but the 2005 Hurricane Katrina that submerged about 80 percent of the Big Easy and claimed over 1,800 lives was not the worst case scenario for New Orleans.

The storm had weakened from Category 5 to Category 3 before making landfall, and its center arrived east of the city. If Katrina had struck a few miles to the west, the winds and storm surge that hit the city would have been even more powerful.

Today, the city's levees and pumping stations are significantly better than they were six years ago. However, there is no evidence the city could withstand a direct hit by a Category 5 storm. New Orleans is a disaster waiting to happen again, but on an even grander scale.

As with Detroit, there's no assurance city responders would react well in a crisis. A recent poll of security and emergency preparedness professionals warned of corrupt government officials, unreliable law enforcement, lax building codes, and inspectors on the take. The New Orleans Police Department is so out of control that the U.S. Justice Department is suing to have it supervised by a federal court. Twenty current and former officers are being prosecuted for crimes that higher officials chose to ignore, or even covered up.

6. New York City, New York

When it comes to violence, it's the Little Apple. New York doesn't even make the FBI's top 250 cities for crime.

What New York does have is a geological fault line straight across Manhattan at 125th street. A major earthquake there would cut subway lines; water, gas, and electric lines; and probably two of the five bridges to the island. Another fault runs off Brooklyn, where a magnitude 5.3 earthquake in 1884 toppled chimneys and damaged brick buildings.

Aside from natural disasters, New York's status as a target for terror is well known. Because New York is among the world's most active ports of entry, any epidemic entering from another country would likely do so through JFK or LaGuardia.

Earthquakes, terrorism, contagion; there may be an even more ominous threat just up the Hudson in Buchanan, N.Y. That's where the Indian Point reactors sit at the junction of three major fault lines.

The reactors are stressed to withstand a magnitude 6.1 earthquake, which is 10 times more powerful than any recorded in the New York region. Yet, some seismologists argue that the Ramapo fault, which ends only 1 mile from the reactors, is capable of producing a magnitude 7 quake.

In a disaster, Manhattan is almost impossible to evacuate, and there may be no way to get enough food and water to the island to care for millions of homeless survivors. The city's lawyers, stockbrokers, and other predators might be soon reduced to hunting squirrels in Central Park -- or each other.

5. Newark, New Jersey

Take just about every risk that faces New York. Then add the 23rd highest crime rate in the country, more murders per capita than any other large American city, and a chemical plant that many specialists say is the most dangerous in the country. Welcome to Newark.

That chemical plant is the real worry. At its South Kearny facility, just three miles away, Keuhne Chemical routinely stores 2 million pounds of chlorine gas. The company's federally mandated emergency plan says that the release of just one 90-ton rail car --

less than one-tenth of its supply -- would endanger at least 12 million people within a 14-mile radius.

Four miles in the other direction, munitions en route to military units in the New York area flow through the city's port. Major accidents involving military shipments are extremely rare, but not unknown. Detonate a ship full of high explosives, and it would level much of the surrounding area.

4. Miami, Florida

Fifty-first on the FBI's list of most violent cities, Miami is not quite as crime-ridden as the drug-fueled, Miami Vice reputation it received in the 1980s would suggest. When it comes to nature's violence, this is the place to watch.

Although hurricanes have often sideswiped Miami -- Donna in 1960, Betsy in 1965, Andrew in 1992, Irene in 1999, and Katrina in 2005 -- it has not been hit head on since Hurricane King in 1950. The next major storm is long overdue.

Anyone old enough to remember the scenes of devastation shown on television after Hurricane Andrew struck nearby Homestead, FL, knows what to expect -- endless blocks of homes missing windows, roofs, and occasionally walls, despite building codes that now require hurricane-resistant construction.

On the scale of suffering, this will not equal a major earthquake in New York. However, it is much more likely to happen in the near future.

3. Oakland, California

Oakland was hard hit by the magnitude 6.9 Loma Prieta earthquake in 1989. There were over 60 deaths, and a double-decked portion of the Nimitz Freeway collapsed and crushed cars on the lower deck.

The Loma Prieta was caused by a slip on the San Andreas Fault. Oakland has an earthquake risk all its own: the Hayward fault, which runs directly under the city.

Only four significant quakes have been recorded on the fault, all between 1864 and 1889. According to the U.S. Geological survey, a major earthquake in the fault zone is "increasingly likely." It estimates that more than 5 million people would be directly affected, with hundreds or thousands of deaths. Water for San Francisco might also be cut off, affecting another 2.4 million.

Risk of a tsunami is high as well, due to the same Cascadia subduction zone that imperils Anchorage. A tsunami in Alaska would reach Oakland in four to five hours, and the Golden Gate shipping channel would funnel it straight to Oakland and North San Francisco. The wave there would be expected to be about 15 feet high.

Of course, San Francisco is a more high-profile candidate for a natural disaster. Oakland has another problem that adds to its risk factor: The fifth highest rate of violent crime in the country.

2. Los Angeles, California

Population vaults Los Angles to the No. 2 position on our list of most dangerous cities. With 3.8 million people in the city and 9.8 million in the county, anything trouble that strikes the City of Angels will have an outsized effect.

No need to go into many details here. Los Angeles faces much the same earthquake and tsunami hazard as other cities on the California coast. The Northridge earthquake in 1994 ranked only 6.7 in magnitude, but killed 33 people, injured 8,700, and caused an estimated $20 billion in damage. So it goes when a trouble spot is as densely inhabited as America's second-largest city. Suffice to say that any disaster to hit Los Angeles would be potentially devastating in scope.

1. St. Louis, Missouri

This city of some 320,000 people has it all: The iconic Gateway Arch; big-league baseball, football, and hockey teams; the home offices of more than a dozen major companies; two universities with national reputations in biomedical research; and a world-renowned symphony orchestra.

It also has the highest rate of violent crime of any large city in the United States.

Crime, of course, is a danger residents face not just once in a decade or century, but every day.

There is more: St. Louis sits near the north end of the New Madrid fault, and a major earthquake is a clear danger.

Also, the city also is located on the Mississippi River, just south of its junction with the Missouri, where a 500-year flood could overwhelm the extensive levee system much as Hurricane Katrina did in New Orleans.

Then, add a high frequency of major tornadoes in the area and the more than 22 million pounds of toxins released into the environment in 2009 alone. Additionally, there is the presence of significant oil and gas pipelines.

All these factors lead us to St. Louis in the No. 1 slot as the most dangerous city in America.

IV. Application of Strategy Tools

These 18 locations include a number of popular tourist destinations as well as some that are much less prominent in the industry. Some may be handicapped, today or in the future, by the concerns of potential tourists about the natural or man-made dangers they could face during a visit. The following strategic management tools can help tourism and hospitality managers to allay those concerns and lure visitors to their markets.

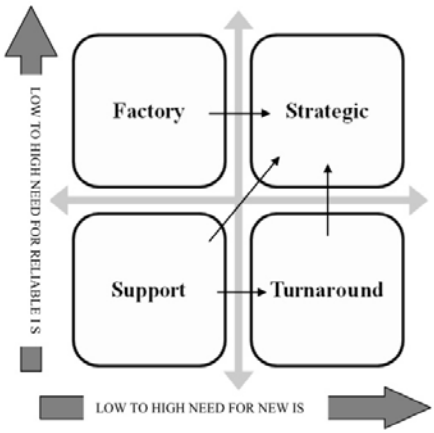
The following section presents how tourism and hospitality managers can apply Strategic Matrix Tools to build tourism demand in locations challenged by natural disasters or the man-made (criminal, terrorism, etc.) phenomena described in the previous section.

A company operating its business in high natural disaster and high man-made problem areas would fall into the upper-right quadrant in Figure 1. For example, New York City is in a high-uncertainty market.

Figure 1. Strategic Matrix for Man-made and Nature Disasters

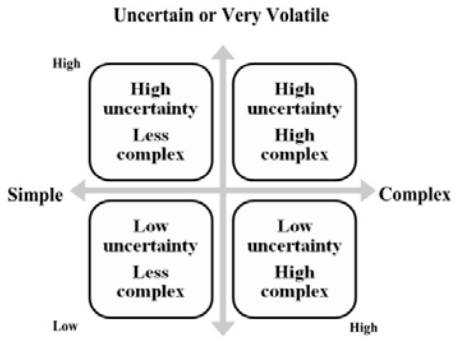
From the co-alignment model, the general manager of the company should keep scanning the environment and build their company strategy based on the results. The co-alignment model, coined by Olsen, West, and Tse (1998), conceptualizes the relationship between four key constructs: the environment, strategy choice, firm structure, and firm performance (P.K. Chathoth, 2002). The third step in the co-alignment model asks the company to build its structure to make it fit the company structure and then to invest in this structure. A hospitality company in an area like New York City should first scan its environment to figure out what uncertainties it faces. A security plan must be in place for a company's strategy, as recommended in Figure 1. To co-align with the information system, the IS strategy, and the company strategy together, the company should invest in security software. In this way, a company can move from a support quadrant to a turnaround or strategic quadrant in the Strategic Impact Matrix (SIM) shown in Figure 2. The Strategic Impact Matrix (Piccoli, 2008) enables simultaneous evaluation of the firm's current and future information system (IS) needs.

Figure 2 Strategic Impact Matrix



For a company located in a region with high risk of man-made problems but low risk of natural disaster, as shown in the upper-left quadrant in Figure 1, it is important to keep customers safe from dangers such as crime and terrorism. Therefore, the company's strategy should be built based on the Uncertainty/Complexity matrix as shown in Figure 3.

Figure 3 Uncertainty/ Complexity Matrix



The uncertainty/complexity matrix in Figure 3 explains the dynamic and complex nature of the business environment. According to the Strategic Impact Matrix, the company may consider an investment in a new security software system to stay in the turnaround or strategic matrix.

For example, for companies located in the bottom right quadrant in Figure 1 of the Strategic Matrix for Man-made and Nature Disaster, their biggest problem is "natural disaster". The authors would recommend those companies adopt an eco-strategy to save electricity and water to prepare for a potential future natural disaster (a Green Strategy).

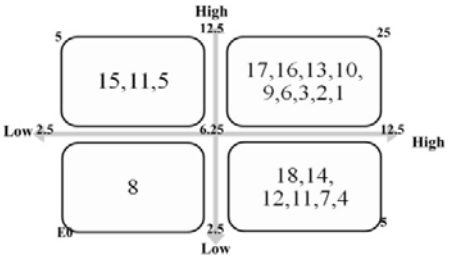
According to the Strategic Matrix for Man-made and Nature Disaster in Figure 1, companies located in the quadrant with low risk of natural disaster and low risk of man-made problems have a low uncertainty risk. Hospitality companies like Marriott and IHG may consider moving their highly used data base and systems like their central reservation system, MARSHA, to one of these areas to keep their systems safe. This is the strategy recommended in Figure 1.

Figure 4, below, labels all the cities introduced earlier to the Tourism Environmental Man-Made Problem Matrix.

Figure 4 Tourism Environmental Man-Made Problem Matrix (the TEMMP Matrix, DeMicco, 2011)

Another way of measuring the man-made and natural disaster potential is based on all of the discussion above. Each of the man-made and natural disasters was estimated on a scale of 1 to 5, according to their danger and risk. Then, each of the scores was multiplied and arranged on the Man-made × Natural danger scoring Matrix.

Figure 5 MAN-MADE × NATURAL DANGER SCORING MATRIX *



* Total Score = Natural Disaster score (scale: 1-5) × Man-made score (1-5)

City	Score	City	Score
1	5×5=25	10	4×4=16
2	5×5=25	11	2.5×5=12.5
3	4×5=20	12	5×1=5
4	4×2=8	13	3×4=12
5	1.5×5=7.5	14	3×1.5=4.5
6	4×5=20	15	1×5=5
7	4×1.5=6	16	4×4=16
8	2.5×1=2.5	17	3×3=9
9	4×4=16	18	5×1=5

V. Conclusion

In conclusion, managers of tourism destinations and hospitality firms in many destinations are faced with uncertain environmental events, both man-made and naturally occurring. In a complex and dynamic tourism and hospitality environment, strategic planning tools described in this paper can be of value in positioning resources to counteract any potential negative impact of these environmental factors. This paper examines some strategic tools that can be used by hospitality and tourism managers in the future. A strategic tool like the TEMMP Matrix allows tourism and hospitality planners to take the "temperature" of their destination. This will enable marketers to mitigate any possible negative perceptions of their destination.

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Technology and Competitiveness: Assessing The Influence of Transaction Costs in The Adoption of Technology and Recommended Farm Practices for Rice

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ABSTRACT

Modern rice technology plays an important role in enhancing agricultural productivity and improving competitiveness that translates to higher household farm income. However, despite the benefits that these technologies and recommended farming practices bring, the adoption rate by farmers has been low. Adoption literature identifies a variety of factors ranging from farm characteristics and farm household attributes to varietal characteristics and technology attributes. One particular stream of adoption studies explores the role that transaction cost plays in technology adoption. The paper explored the influence of transaction costs on the adoption of technology and recommended farm practices by rice farmers. The study suggests that aside from farm and household characteristics, transaction costs affect farmers' decisions to adopt recommended rice technologies and farm practices. Reduction of transaction costs makes adopting recommended practices more attractive as it assures the farmer that the eventual increases in yield will result to higher level of market participation and therefore higher value of net surplus.

I. Introduction

Significant increases in crop yield experienced during last several decades due to the Green Revolution have highlighted the important role that modern rice technology plays in enhancing agricultural productivity and improving competitiveness that translate to increased household farm income. In the Philippines, a noteworthy increase in rice yield growth in the last ten years of 30%, from 2.93 tons per hectare in 1997 to 3.80 tons per hectare in 2007, notwithstanding the lack of new "revolutionary" rice technology, has been partly attributed to farmers' adoption of certified seeds and government recommended farming practices (Matala et al., 2008). This has resulted in an improvement in farmers' living standards with more than 60% now living above the poverty threshold. Indeed, agricultural innovation creates tremendous opportunities to increase production and enhance competitiveness. However, despite the benefits that these technologies and

recommended farming practices bring, the adoption rate by farmers has been low. Household survey data show, for example, that the ratio of farmers who used certified seeds are only 25% (Matala et al.). This is in spite of the established fact that good quality seeds can increase yield by 5% to 20% while decreasing seeding rate.

Adoption literature identifies a variety of factors ranging from farm characteristics and farm household attributes to varietal characteristics and technology attributes. One particular stream of adoption studies explores the role that transaction cost plays in technology adoption. Transaction costs are household specific costs incurred by agents whenever they participate in the market. Market exchange, especially in imperfect markets, entail significant costs to households to the point of altering the effective prices they pay or receive. Transportation costs, costs of acquiring information, searching, negotiation, monitoring, coordination, screening, and enforcement are just some of the costs that farm households incur that create a gap between the selling and buying price of a commodity. The presence of these costs partially explains why some farmers participate in the market and some do not.

Aguirre (1999) found that market participation decisions significantly influence the choice of maize variety to plant. Meng (1997) found that distances to market and road quality influence variety choice. Omamo (1998) observed that transportation costs explained why farmers choose low return food crops instead of high return cash crops. Perrin and Winklemann (1976) identified that transaction costs involved in learning and acquiring new technology are important determinants of the rate of technology adoption.

This paper explores the influence of transaction costs on the adoption of technology and recommended farm practices by rice farmers in the Philippines. The study uses cross section survey data for the wet season of 2006 from 33 major rice-producing provinces in the country. The paper is structured as follows: the next section presents a brief review of technology adoption literature followed by the empirical framework of the study in Section III. Section IV discusses the results. The last section concludes the paper.

II. Review of Related Literature

Adoption literature often starts by citing Feder, Just and Zilberman's state of the art survey in 1985. They define adoption as the degree of use of a new technology in long run equilibrium when the farmer has full information about the new technology and its potential and identify key explanations affecting adoption like farm size, risk and uncertainty, human capital, labor availability, credit constraint, tenure, and supply constraint, among others. Taking a cue from Feder et al., farm-level adoption studies have usually focused on the differences among farmers (or households) in the economic constraints they face, especially with respect to access to productive resources like human and physical resources. Commonly identified constraints to rapid adoption of new agricultural technologies include credit rationing, information asymmetries and/or differential access to information resources, risk aversion, small farm size, human capital differences, disruptions in the market for labor and complementary inputs (such as seed, chemicals and water) and poor infrastructure (Hintze, 2002). At the aggregate level, adoption studies focus on comparisons across different geographic areas or on the sequence of adoption across time (the innovation-diffusion approach) using measures of adoption such as the proportion of farmers employing the new technology in different regions or the area share of a technology at different points in time in a particular region (Hintze, 2002).

The set of determinants has expanded considerably. Konsiega, (unpublished) in examining non-local migration and its impact on food technology adoption, found that migrant households have a significantly higher average adoption rate. Kshirsagar, et al. (2002)

explains low adoption of improved varieties and high degree of varietal diversity using farmers' perceptions regarding traditional and improved rice varieties. Joshi and Pandey (2005), in a study of MV adoption in Nepal, conclude that an econometric model that includes farmers' perception variables is superior in explaining adoption behavior than the ones using only the usual farm and farm related variables. Rosenberg, as early as 1982, stressed the role of learning by using and expectations of future prices of innovation on the take-off and shape of technology diffusion. More recently, Khanna (2001) includes a proxy variable for farmer's innovativeness in a double selectivity model and finds it to have a significant impact on the adoption of variable rate technology in four Midwestern states in the U.S. Fernandez-Cornejo (2007), working on the hypothesis that adoption is driven by "unquantified" advantages, such as simplicity and flexibility, which translate to reduced managerial intensity, concludes that adoption of agricultural innovations that save managerial time is positively associated with higher off-farm income. An earlier study by Dorfman (1996) which investigates adoption decisions by farmers facing multiple technologies which can be adopted in various combinations via a multinomial probit model shows that adoption decisions are most significantly influenced by off-farm labor supply.

Aside from household and technology characteristics, property rights and institutions also play an important role in adoption decisions. Jodha and Mundial (1992), in analyzing the impact of changing property rights regime, found that if a technology requires large adopting farmers to enforce property rights, privatizing resources previously held in common, then small farmers will adversely be affected and make it difficult for them to adopt. Yesuf and Kholin (2008), in investigating the impacts of market and institutional imperfections on technology adoption, learned that limited access to credit, plot size, risk considerations, and rates of time preference, were significant factors in explaining variations in farm technology adoption decisions. Smucker et al. (2000), in their study of agricultural technology adoption in Haiti, suggest that perceived stability of access to land – via stability of personal and social relationships – is a more important determinant of technology adoption than formal land titles. The results of the study by Katungi (2006) on social capital and technology adoption on Ugandan farms indicate that different aspects of social capital shape the decision to use and extent of use of an improved management practice, but the nature of the effect is specific to the practice as well as form of social capital. Isham (2000) finds that tribally-based social affiliations, acting as a form of social capital, influence adoption decisions in Tanzania.

Transaction cost is another important factor that affects technology adoption. Feder, et al. (1985) identifies market access as one of the determinants of the adoption of agricultural innovation. Meng (1997) found that distances to market and road quality influence variety choice. Omamo (1998a) observed that transportation costs explained why farmers choose low return food crops instead of high return cash crops. Perrin and Winklemann (1976) identified that transaction costs involved in learning and acquiring new technology are important determinants of the rate of technology adoption. Khaledi et al. (2010) evaluated the effect of transaction costs on the decision to convert partially or completely from conventional to organic practices. The results highlight the importance of lowering certain transaction costs to encourage the adoption of organic management practices. Significant transaction costs were found to include infrastructure and services, satisfaction with marketer performance, marketing problems, and Internet use. Hintze (2002) found that transaction cost variables, particularly the quality of roads connecting villages to markets, are significant in explaining variety choice of Maize in Honduras. Jayne et al. (1999) studied how the decisions of Zimbabwe's farmers to cultivate cash and food crops can be affected by transaction costs among net buyers of the food crop (without requiring a risk related explanation). Usually, relative profitability calculations for food and cash crop alternatives imply that the cash

crop is the better alternative. However, in the presence of transaction costs, cash crop cultivation may provide lower expected net revenues than food crops for grain-deficit households, depending on the level of food marketing costs and consumer prices in rural areas. For net food purchasers, the opportunity cost of cash crop production is the cost of acquiring food grains (including transaction costs) and not the expected profit of selling grain or other food crops (as cited by Hintze, 2002).

III. Empirical Framework

The technology adoption is defined as farmers' utilization of the Department of Agriculture's recommended technology and farming practices during the 2006 wet season. While the recommended farming practices are being promoted by the government as a package through an integrated crop management system called the PalayCheck System (a full description of which can be found in Castañeda, 2007), independent use of the components can still result in positive benefits, albeit less than the benefits that could accrue to the farmer if the whole package is adopted. The data set provides information on farmers' use of eight recommended technologies/practices, which are core components of five of the seven key checks of the PalayCheck system. The technologies/ practices are: the use of certified seeds, the use of 400 m^2 seedbed, no high and low soil spots, use of recommended seeding rates, use of organic fertilizer, basal fertilizer application, use of the minus-one element technique (MOET), use of the leaf color chart (LCC), and intermittent/controlled irrigation. For parsimony, these technologies/practices are categorized into five management areas: seed quality, land preparation, crop establishment, nutrient management, and water management. Table 1 shows the classification of each technology/practice according to the abovementioned categories. The choice set is therefore comprised of the five categories and the choice of not adopting. A category is considered adopted when at least one of the recommended technologies/practices is utilized by the farmer.

Table 1. Classification of Recommended Technologies/Practices

	Land Preparation	**Crop Establishment**	**Nutrient Management**	**Water Management**
1. Use of certified seeds	1. No high and low soil spots	1. Use of 400 m2 seedbed 2. Use of recommended seeding rates 3. Use of organic fertilizer	1. Basal fertilizer application 2. Use of the minus-one element technique (MOET 3. Use of the leaf color chart (LCC)	1. Intermittent/ controlled irrigation

The study adopts the random utility framework wherein the farmer, *i*, is designated as the decision maker and is faced with *J* choices of technologies to adopt. The farmer will obtain a certain level of utility (or profit) from each alternative. The utility (profit) that farmer *i* obtains from technology *j* is

$$U_{ij} = T_{ij}'\beta + \varepsilon_{ij} \qquad (1)$$

The farmer chooses the alternative the yields the greatest utility (profit). Hence, the behavioral model is: choose alternative k if and only if Uik > Uij, $k \neq j$.

The study implements this through the multinomial logit model. The multinomial logit model is an extension of the binary logit model where the unordered response has more than two outcomes (Woolridge, 2002). Following Long and Freese (2001) the multinomial logit model can be written formally as

$$\ln \Omega_{m|b}(X) = \ln \frac{\Pr(y = j \mid X)}{\Pr(y = b \mid X)} = X\beta_{m|b} \quad \text{for } m=0,\ldots,J \quad (2)$$

where $\ln \Omega$ is the logit (log of the odds ratio) function and b is the base category or the comparison group. These J equations can be solved to compute the predicted probabilities:

$$\Pr(y = j \mid X) = \frac{e^{X\beta_{j|b}}}{\sum_{k=0}^{K} e^{X\beta_{k|b}}} \quad (3).$$

The model regresses the vector of farm and household characteristics and transaction costs against the choice of not adopting, adopting only one management category, and adopting multiple management categories.

One important assumption that the multinomial logit presupposes is independence of irrelevant alternatives or IIA. IIA refers to the fact that the odds of choosing one alternative over another are independent of the presence or absence of additional alternatives in the choice set – that is, the probability ratio is the same no matter what other alternatives are in the choice set (Hintze, 2002). The results of both the suest-based Hausman tests and the Small-Hsiao tests support the assumption of IIA for the model.

The set of covariates used are: farm gate price of rice (PRODUCERPRICE), farm size (APLANT), a dummy variable for irrigated barangays (IRRIGATION), farmer's years of education (YRSSCHOOL), farm experience (YRSFARM), the prevailing wage rate (WAGE), dummy variables for membership in farmers' organizations (ORGMEM) and training attended (TRAINING), ordinal rankings that represent the income class of the municipality (INCOMECLASS), and dummy variables for access to informal credit (INFORMAL), whether the family has a source of off-farm income (NFARM) and land ownership (OWNLAND). In addition, a dummy variable representing road structure/conditions, i.e. whether roads are paved or not (ASPCON1), is also included. The distance from the wholesale market (DISTANCE) and an interaction term for distance and road condition (ASPCON1XDISTANCE) are used as regressors as well. A regional dummy for Central Luzon (CL) is also included as a covariate.

Prices are incentives for suppliers to supply more. It is expected that the higher the farm gate prices, the more incentive the farmers have to increase their yield and the higher the odds of adopting a certain technology.

It is usually assumed that larger farms are more likely to adopt. Farm size may be expected to be more important for technologies that entail a large fixed cost of implementation. Also, farm size may be related to wealth and economies of scale, both of which would have an influence in adoption decisions (Hintze, 2002). Land ownership, on the other hand, affects the kind of technology that is adopted. Unsecure property rights usually discourage farmers from adopting technologies that require larger fixed investments.

Road structure, distance from the wholesale market, and the interaction term for distance and road structure represent transport costs that influence access to both output and input markets. Omamo (1998a) and Meng (1997) have shown that transport costs influence technology choices. The income class of the municipality proxies for physical and market infrastructure and institutions. It is expected that farmers who are situated in higher ranked municipalities (i.e. cities and 1st class towns) are likely to have more access to input and output markets and information than those in lower ranked municipalities (4th and 5th class) because richer municipalities would tend to have better infrastructure, communication facilities and have more commercial establishments which can reduce transaction costs in the input and output markets.

Farmer's years of education, farm experience, membership in organizations and training attended represent household characteristics that determine the farmer's ability to mitigate information costs. Perrin and Winklemann (1976) identified that transaction costs

involved in learning and acquiring new technology are important determinants of the rate of technology adoption.

Access to credit is an important factor that determines technology adoption. Feder, et al. (1985) identified credit constraints as an impediment to technology adoption in developing economies since technologies introduced to increase agricultural productivity are often accompanied by an increase in the cost of some inputs. The availability of informal credit gives the farmer a second best option in lieu of high transaction costs associated with formal credit institutions. Access to sources of nonfarm income is also expected to ease credit constraints.

The type of irrigation affects the choice of technology that the farmer adopts as it determines land quality, reduces uncertainty and defines the kind of water management scheme to implement.

The wage rate represents input costs while the regional dummy for Central Luzon is used to account for the fact that technology diffusion is often limited initially by geography and that adoption is usually high within the geographical bounds of the initial source of the technology because of lower information costs. Since these recommended practices were developed by the Philippine Rice Research Institute (PhilRice) in Central Luzon, it is expected that farmers in this region will have higher adoption rates.

The study uses data from the 2006 Wet Season round of the Rice-Based Farm Household Survey conducted by the Philippine Rice Research Institute (PHILRICE) and the Bureau of Agricultural Statistics (BAS). The RBFHS is conducted every five years to update and monitor changes in the rice farming sector. It covers 33 major rice-growing provinces of the country with 1999 sample households. The RBFHS adopted a two-stage stratified sampling technique where the province is the domain, the barangay is the first stage sampling unit, and the household is the second stage sampling unit. Sample farm households were selected using a random start and application of the "right coverage procedure" (Matala et al., 2008). After dropping observations due to missing data, the regression model uses a total of 1620 observations. Table 2 presents the sample summary statistics of the variables used.

Table 2. Definitions and Full Sample Summary Statistics of Variables Used (N=1620)

Variable Definitions	Mean	Std. Dev.	Min	Max
Farmgate price (PRODUCERPRICE)	9.52	1.46	6	24
Barangay is irrigated (=1 if irrigated, 0 otherwise) (IRRIGATION)	0.68	0.47	0	1
Number of years schooling (YRSSCHOOL)	7.42	3.26	0	18
Number of years farming (YRSFARM)	25.14	13.48	0	72
Farm size (APLANT)	1.07	0.93	0.05	10
Distance from nearest wholesale market (DISTANCE)	6.78	6.96	.1	58
Paved roads (=1 if yes, 0 otherwise) (ASPCON1)	0.64	0.48	0	1
Interaction term for distance and pave roads (ASPCON1XDISTANCE)	4.38	6.51	0	58
Access to informal credit (=1 if yes, 0 otherwise) (INFORMAL)	0.42	0.49	0	1
Income class of the municipality (INCOMECLASS)	3.54	1.47	1	6
Wage rate (WAGE)	151.60	28.44	93.33	206.25
Own land (=1 if yes, 0 otherwise) (OWNLAND)	0.21	0.41	0	1
Attended trainings on rice (=1 if yes, 0 otherwise) (TRAINING)	0.39	0.48	0	1
Has source of nonfarm income (=1 if yes, 0 otherwise) (NFARM)	0.71	0.45	0	1
Membership in farmers' organizations (=1 if yes, 0 otherwise) (ORGMEM)	0.47	0.50	0	1
Regional dummy for Central Luzon (CL)	0.17	0.38	0	2

IV. Results and Discussions

Table 3. Multinomial Logit Results for Single and Multiple Adopters

VARIABLES	Single	Multiple	Multiple (vs. Single)
PRODUCERPRICE	1.051547	1.043934	0.9927608
	(0.0521365)	(0.0496625)	(0.0383037)
IRRIGATION	3.092415***	5.702179***	1.843924***
	(0.4666212)	(0.8421799)	(0.262082)
WAGE	0.9937669**	0.9884008***	0.9946002**
	(0.0025922)	(0.002484)	(0.0022025)
YRSSCHOOL	0.9866649	1.046752*	1.060899***
	(0.0242887)	(0.0247046)	(0.0220192)
YRSFARM	0.9809924***	0.9934664	1.012716***
	(0.0055929)	(0.0053856)	(0.0050381)
ORGMEM	1.369111**	1.205571	0.88055
	(0.214554)	(0.1804212)	(0.1149847)
TRAINING	1.054747	1.510778 ***	1.432361***
	(0.1688727)	(0.2275666)	(0.1884989)
DISTANCE	1.013895	1.009497	0.9956624
	(0.015374)	(0.015143)	(0.0120849)
ASPCON1	1.251136	1.340993**	1.071821
	(0.1904914)	(0.1951995)	(0.1375205)
ASPCON1XDISTANCE	0.9709147*	0.9763283	1.005576
	(0.0156035)	(0.0152268)	(0.0131523)
INFORMAL	1.314161*	1.414811**	1.076589
	(0.1974536)	(0.2030296)	(0.133495)
NFARM	1.157558	0.9984571	0.8625549
	(0.1881048)	(0.1531241)	(0.1166463)
APLANT	1.137927	1.102375	0.9687574
	(0.116251)	(0.1078631)	(0.0695483)
OWNLAND	1.138111	1.171341	1.029197
	(0.2427534)	(0.2380526)	(0.1749751)
INCOMECLASS	0.9717781	0.8603783***	0.885365***
	(0.0488423)	(0.0411268)	(0.0378097)
CL	0.5868605***	0.3412154***	0.5814251***
	(0.1127831)	(0.0641552)	(0.104618)
Observations	1620	1620	1620

*** p<0.01, ** p<0.05, * p<0.1; standard errors in parenthesis

Table 3 presents the results of the multinomial logit model which determines the effects of transaction cost on the farmer's decision to use one technology (i.e. management category) and the decision to use a combination of technologies. The second and third columns give the result of the multinomial logit model with not adopting as the base outcome (i.e. the choice is between adopting one technology and not adopting and adopting multiple technologies and not adopting). The fourth column, on the other hand, presents the result of the logit regression wherein the pairwise comparison is between adopting only one technology and adopting more than one technology (i.e. the base outcome is adopting only one technology). All results are expressed in conditional odds ratios (relative risk ratios).

The conditional odds ratio of IRRIGATION, WAGE, and CL are statistically significant for single and multiple adopters (vis a vis not adopting and single adoption). Since the odds ratios for IRRIGATION are greater than 1, being in an irrigated barangay gives the farmer higher odds of adopting a certain practice than those in barangays that only have rain fed irrigation. Single adopters have 3 times higher odds of adopting while multiple adopters have almost 6 times higher odds if the choice is between adopting and not adopting, and

an 80% higher odd of adopting if the choice is between using one technology and using multiple technologies.

The odds ratio associated with WAGE is less than one, implying that a one peso increase in the wage rate reduces the odds of adopting. For both single and multiple adopters, an increase in the wage rate makes them less likely to adopt by at least an odds ratio of 0.98. This is due to the fact that most of the practices may entail additional labor and thus higher costs as wage rates increase.

Interestingly, the conditional odds ratio associated with the regional dummy for Central Luzon is less than one, implying that those in the region are less likely to adopt than those outside the region, which is opposite of what was expected. Further investigation of the sample population reveals that there are more adopters outside of Central Luzon (77%) than adopters in Central Luzon (65.6%). The two-sample test of proportion affirms that indeed, Central Luzon has proportionately more non-adopters than the rest of the country. One possible explanation may be the fact that the sample from Central Luzon has proportionately less farmers who attended training, 30.11% to 39.76%, indicating that extension efforts may be geared toward farmers who have less access to information geographically. Furthermore, the mean wage in Central Luzon is higher (P162.9182) than in the other regions (P150.0528) indicating that whatever advantage in terms of information costs that proximity to the source of technology may bring is offset by higher input costs associated with technology adoption.

The conditional odds ratios associated with farming experience (YRSFARM) are statistically significant for single adopters and multiple adopters (if the other option is adopting a single technology). The odds ratios indicate that less experienced farmers usually adopt one technology first while more experienced farmers usually adopt multiple practices. An additional year of experience increases the odds of adopting more than one practice/technology by 6%.

Organizational membership (ORGMEM) increases the odds of adopting one technology while attendance in training (TRAINING) and each year of education completed (YRSSCHOOL) increase the odds of adopting more than one technology.

Road conditions/structure significantly influence the adoption of technology. The conditional odds ratio of the interaction term for distance and road structure (ASPCON1XDISTANCE) is less than one and is statistically significant at 10% for single adopters while the odds ratio of the dummy variable for paved roads (ASPCON1) is statistically significant at the 5% level for multiple adopters. For single adopters, the general effect of distance and road structure on the likelihood of adoption are the combined effects of the constituent variables and the interaction term. However, the combined effects of distance and the interaction term as computed are not jointly significant at the 90% confidence interval for single adopters. On the other hand, road conditions matter for multiple adopters. Paved roads increase the odds of adopting multiple technologies 1.34 times. This stresses the importance of transport costs in technology adoption.

Access to informal credit (INFORMAL) is also a significant determinant of technology adoption as the odds of both single and multiple adopters are higher for those with access to informal credit than those who do not have access. Better physical and market infrastructure and institutions as represented by the variable INCOMECLASS also increases the odds of adopting multiple technologies but is not influential for single adopters. Those in lower ranked municipalities have at least 0.86 less odds of adopting than those in the higher ranks.

V. Summary and Conclusions

The paper explored the influence of transaction costs on the adoption of technology and recommended farm practices by rice farmers. The study suggested that aside from farm and household characteristics,

transaction costs affect farmers' decisions to adopt recommended rice technologies and farm practices. Transaction costs affect the decision to adopt multiple practices or not. Significant influences of transaction cost variables like INCOMECLASS, INFORMAL and ASPCON1 emphasize the fact that the full benefits of technology adoption can only be realized if the farmer has adequate access to the market. A reduction of transaction costs makes adopting recommended practices more attractive as it assures the farmer that the eventual increases in yield will result in a higher level of market participation and therefore higher value of net surplus.

Since lower transport costs, better infrastructure and irrigation, and more access to credit have been shown to have positive effects on the adoption of technology, more investments in these areas will further increase productivity and enhance the farmers' competitiveness not only through improved market access but also through increased adoption of technological innovations.

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Technical Efficiency and Profitability Analyses of Tea Production in Phú Tho Province, Vietnam

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ABSTRACT

In an economy where resources are scarce, raising productivity by improving an economic activity's efficiency becomes the more feasible option. This study analyzed the technical efficiency of tea production in Phú Tho province, Vietnam in order to identify the factors which could contribute to greater productivity and profitability. Using a stochastic frontier approach to determine the sources of productive efficiency/inefficiency, data for the year 2010 from 182 tea farmers from six communes in Phú Tho province in Vietnam was analyzed to examine technical efficiency in tea production. Results show that education, experience, and organization membership have significant negative relationships with technical inefficiency. Further, the results reveal that the technical efficiency of tea farms ranged from 43.50% to 99.99% with a mean of 80.09%, which suggests that the tea output of the "average farmer" could still be increased by 19.91% if the technology followed by the "best performers" is adopted. It was found that improved yield can be achieved by increasing labor presently applied and by planting a higher-yielding variety. A cost and return analysis showed that the farmers who planted new varieties (LDP) posted higher income compared to those who planted the old variety (PH).

I. Introduction

The top five tea-exporting countries in the world, as of 2008, are Kenya, Sri Lanka, China, India and Vietnam (FAO, 2008). Although Vietnam is the fifth biggest tea exporter in the world, the local tea industry is facing serious challenges. Though its volume of tea export increased twice from 55,600 tons in 2000 to 114,000 tons in 2007, the export price of Vietnam tea declined from 1.252 USD/kg to 1.148 USD/kg. In contrast, the volume and price of tea in the world increased from 1,464,334 kg with a price of 1.997 USD/kg in year 2000 to 1,701,607 kg with a price of 2.404 USD/kg in 2007. In addition, Vietnamese tea in the international markets is considered of lower quality.

Further, although the yield increased from 0.9943 ton/ha in 2000 to 1.3526 tons/ha in 2008, it is still lower than the average of tea yield of the world, which is 1.6875 tons/ha (FAO, 2008). Lastly, the export price of Vietnam tea is declining and is only 50% of average world tea price.

Tea in Vietnam is grown mainly in hilly and mountainous areas where farmers have very difficult circumstances and have a high poverty rate. In two poor provinces, Thai Nguyen and Phú Tho, tea production is an important source of income (Van der Wal, 2008). Phú Tho province is located in the northeastern part of the country and one of largest tea areas in Vietnam. Tea is the main industrial crop of the province. Phú Tho consists of 11 districts, one city and one town with a total area of 353,247.76 ha. Total area devoted for agriculture in 2009 was 272,179.32 ha (77.05%), and total area devoted for tea was 15,226.6 ha, of which the total tea harvested area was only 13,799.0 ha (Phú Tho Yearbook, 2010).

Tea is an industrial crop which can alleviate poverty among the farmers if only it could be produced efficiently. Thus, productive efficiency can be considered as an important determinant of the future of Phú Tho province's as well as Vietnam's tea industry. Developing and adopting new production technologies could improve efficiency and consequently, productivity. However, in the short-run, the more feasible option is to improve the efficiency of existing operations with a given technology.

Thus, this study analyzed the technical efficiency of tea production in Phú Tho province, Vietnam to be able to identify the factors which could contribute to greater productivity and profitability.

The paper generally attempts to analyze the technical efficiency of tea production in Phú Tho province, Vietnam in order to identify the factors which could contribute to greater productivity and profitability. Its specific objectives are to: 1) describe the input-output relationship in tea production of the farmers in Phú Tho province; 2) determine the technical efficiency of tea production in the province and identify the sources of efficiency/ inefficiency; and 3) formulate recommendations and draw some policy implications toward improving the efficiency of tea production in the Phú Tho province.

II. Technical Efficiency Analysis

Technical efficiency (TE) reflects the ability of a farmer to obtain the highest possible output from a given set of inputs and available technology. Conceptually, TE measures the difference between the yields of the average farmers and the yields of the best farmers exhibiting the potential/maximum output of a given production system. Mathematically, TE is the ratio of the operator's actual output (Y) to the technical maximum possible output (Y*) given a fixed set of resources and technology. In many empirical studies, technical inefficiency (TI), instead of technical efficiency (TE), is often measured and represented simply by the following formula: TI = 1 – TE.

Measuring the technical efficiency or inefficiency of tea farming at the study sites can provide key information in formulating alternative options to improve tea productivity of farmers in a specific locality. Generally, farmers are either efficient or inefficient (at varying degrees) in their production operations. Consequently, these two scenarios require entirely different strategies in improving or increasing productivity. For example, for farmers who are currently inefficient in their production systems, the strategy to improve their productivity is to focus on the factors that can increase efficiency. Hence, factors that contribute directly to inefficiency must be identified in order to address these. On the other hand, if operators are already efficient in their production system, then the way to enhance their productivity is to introduce or shift to a new technology that will increase output level.

The procedure for measuring technical efficiency/inefficiency entails several options in estimating the underlying production function that defines the input-output relationship of the farmer. Among the existing approaches, the stochastic frontier model has been one of the most popular and appropriate models in assessing farm efficiencies in Asian aquaculture (Dey et. al. 2005; Bimbao et al.,2000; Sharma and Leung, 2000a, 2000b; and Irz & McKenzie, 2003 as cited by Tan et. al., 2009).

The technical efficiency model of Tan et al. (2009) (based on the works of Aigner, Lovell and Schmidt (1977) and Meeusen and van den Broeck (1977)), specified the production function as follows:

$$Y_i = f(X_i; \beta) \exp(V_i - U_i)$$

Where:

- Yi is the output of the ith farm (i = 1, 2, 3,…, n);
- Xi is a l x k vector of input quantities applied by the ith farm;
- B is a k x l vector of model parameters to be estimated;
- Ui is a non-negative random error term associated with technical inefficiency in production;
- Vi is a random error term assumed to be normally distributed with mean zero and variance σ2v, i.e., Vi ~N(0, σ2v) and is independent of Ui.

Note that the technical efficiency model includes two types of error terms, i.e., Vi which accounts for the usual random effects in the model while Ui represents the technical inefficiency in production. Tan et al. (2009), following Battese and Coelli (1995), assumed the error term Ui to be independently distributed and has a half-normal distribution with truncation at zero, i.e., Ui ~ |N(μi, σ2u) |.

The farm-specific frontier production function (Y*) representing the maximum possible output can be expressed as:

$$Y^*_i = f(x_i; ß) \exp(U_i)$$

The technical efficiency of the individual farmer can be predicted based on the conditional expectation of exp (-Ui). The level of efficiency depends on the value of Ui and is interpreted as follows: a) if Ui > 0, then production lies below the frontier function and the farm is considered technically inefficient; and b) if Ui = 0, then production lies on the frontier function and the farm is deemed technically efficient. Figure 1 shows the graphical illustration of technical inefficiency given the yield difference between the "best" and "average" farmers as represented by the frontier and mean production functions, respectively. Specifically, technical efficiency (TEi) of the ith farm is derived as follows:

$$TE_i = Y_i / Y_i^* = \exp(-U_i)$$

The variance of the model (σ^2) can be expressed as the sum of the variance parameters σ_v^2, i.e.,

$$\sigma^2 = \sigma_v^2 + \sigma_u^2$$
$$\gamma = \sigma_u^2 / \sigma^2$$

The value of gamma (γ) ranges from 0 to 1, which indicates the possible source of deviation of a given production level from the frontier production function specifically, a value of γ equal to 1 implies that the production deviations from the frontier function are due entirely on technical inefficiency (Coelli et al. (1998) as cited in Tan et. al (2009)).

To investigate the possible sources of technical inefficiency, TE can then be expressed as the function $TE_i = \sigma Z_i$ where Z_i is a l x m vector of farm-specific variables that may help explain the observed technical inefficiency among farmers while σ is a m x l vector of parameters to be estimated.

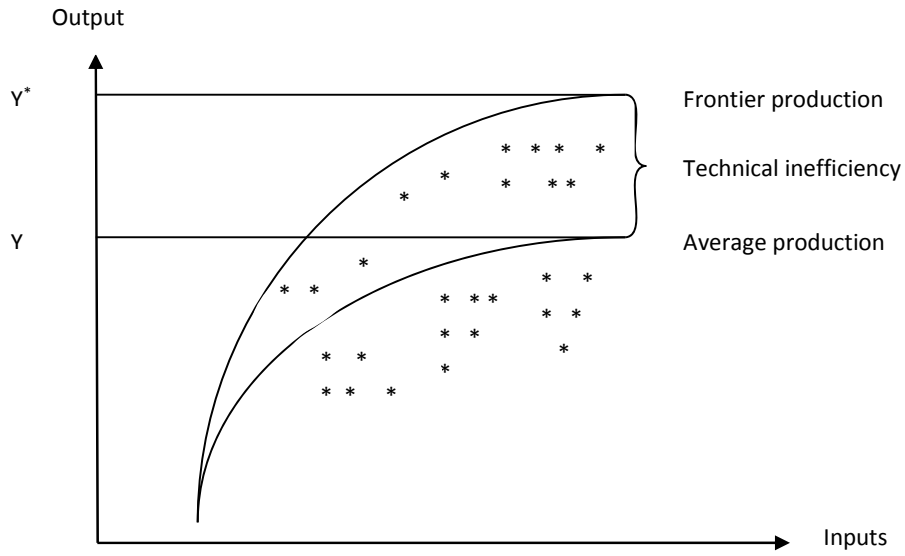

Figure 1. Measure of Technical Inefficiency Based on Frontier and Average Production Functions

(Source: Tan et. al, 2009)

III. Methodology

Sampling Design

For the primary data, a two-stage sampling based on location was applied. From 11 districts, one town and one city in Phú Tho province, the highest production/production areas were found in six districts: Ha Hoa, Thanh Son, Yen Lap, Tan Son, Thanh Ba, and Doan Hung. Each district consists of 15 to 30 communes and one representative commune per district was selected based on the areas where production was highest. The representative communes per district were Yen Ky, Dinh Qua, Hung Long, Tan Phu, Van Linh, and Tay Coc.

A total of 182 farmers served as respondents which can be broken down as follows: 32 farmers from one commune, Tan Phu, and 30 each from the five remaining communes: Yen Ky, Dinh Qua, Hung Long, Van Linh, and Tay Coc.

Methods of Data Collection

Primary Data

Primary data were gathered from February to March, 2011 through personal interviews with the farmers in the selected representative communes in Phú Tho province, Vietnam. The information gathered from them consisted of 2010 data on labor used (man-days/ha/year), tea growing area (ha), tea variety, fertilizers applied ('000 VND/ha/year), chemicals applied per hectare ('000 VND/ha/year), age of the tea stand (years), number of harvests per year, tea farming experience (years), availment of credit, distance of tea field from home (meters), educational level of household head and membership in a cooperative of the farmer.

Secondary Data

Secondary data consisting of technical and statistical data and other relevant information were obtained from the Ministry of Agricultural and Development (MAD), the General Office of Statistics, the Phú Tho Statistic Yearbook, and the Department of Agriculture in Phú Tho province.

Methods of Data Analysis

To establish the specific relationship between output and inputs, an empirical production function must first be specified which commonly takes the form of the Cobb-Douglas (CD) or the transcendental logarithmic (translog) functions. Despite the restrictive nature of the CD function, i.e., constant returns to scale, Dey et al. (2005) as cited in Tan et al. (2009) have shown that there were cases that the CD specification can better capture the production behavior of particular culture systems. Incidentally, the translog production function reduces to CD specification when all the coefficients associated with the second-order relationships of inputs or interaction terms of the function are equal to zero. However, when there are significant interactions among production inputs, the translog function can be more advantageous than CD in capturing the production process.

To determine the factors that explain a farmer's efficiency, either the TE or TI can be expressed as a function of the various farm-specific factors that are hypothesized to affect these, such as the farmer's education, age, experience, membership in organization, type of household by income level, availment of credit, and distance of farm from the house.

Two approaches can be used to estimate this regression model. One is to estimate the TE or TI measure in the first stage and then run the regression model in the second stage. The second approach is to estimate the frontier production function and efficiency regression model simultaneously.

This study employed the second approach as it boasts of generating parameters that are statistically efficient and obtained the maximum-likelihood estimates (MLEs) of the frontier production function and the parameters of the technical inefficiency regression simultaneously using the FRONTIER Version 4.1 software (Coelli, 1994 as cited in Tan et. al 2009).

Both Ordinary Least Square Method (OLS) and Maximum Likelihood Method (MLM) were employed to estimate the production functions. OLS gives information on production function of average practice farmers while MLM gives information on production of the best practices farmers or frontier production function. The estimated frontier production functions were then used to measure technical efficiency.

Empirical Model for Identifying Determinants of Productivity

The Cobb-Douglas frontier production function, which was formulated to measure farm specific and average technical efficiencies for tea production of a whole province, was specified as follows:

$$LnYi = \beta 0 + \beta 1 LnHARVEST + \beta 2 LnFERTILIZER + \beta 3 LnCHEMICAL + \beta\ 4 LnLABOR + \beta 5 LnTEA\ AGE + \beta 6 VARIETY + Vi - Ui$$

Where:

LnYi	=	output of farm i (kg)
LnHARVEST	=	Number of harvest per year
LnFERTILIZER	=	Fertilizer used expenses (VND'000/ha)
LnCHEMICAL	=	Chemicals used expenses (VND'000/ha)

LnLABOR	=	Number of labor in the production (man-days)
LnTEA AGE	=	Tea age (years)
VARIETY	=	Variety dummy taking value of 1 if variety is LPD, and 0 otherwise PH
Vi	=	Two- sided error term representing random error of farm i at time t
Ui	=	One- sided error term, representing technical inefficiency of farm i at time t
$\beta 0, \alpha i, \gamma i$	=	Parameters to be estimated.

Empirical Model for Assessing Determinants of Technical Inefficiency

Farmer-specific technical inefficiency, based on the review of literature, was seen to be influenced by farmer characteristics and socioeconomic and natural factors.

In this study, farm-specific technical inefficiency was assumed to be influenced by education, experience, distance, organization, type of household, credit, and household age, and the TI function was specified as:

$$TI_j = \delta_0 + \delta_1 Edu + \delta_2 Exper_j + \delta_3 Distance_j + \delta_4 Organization_j + \delta_5 Credit_j + \varepsilon_j$$

Where:

TI_j	=	Technical inefficiency of farm j
Education	=	Number of years in school of household head (in years)
Experience	=	Years in cultivation of tea
Distance	=	The distance from farm's house to the tea farm
Organization	=	Organization dummy taking value of 1 if the farmer is member of cooperative, and 0 otherwise
Credit	=	Credit dummy taking value of 1 if farmer borrowed, and 0 otherwise

Cost and Return Analysis

Profitability was first determined based on the cost and return of each farm/farmer and then converted on a per hectare basis (due to farm size differences) for comparison purposes. A comparison was made based tea variety planted (i.e., LDP (new variety) vs. PH (old variety). This comparison was done to determine the better tea variety in terms of profitability.

Operational Framework of the Study

Figure 3 presents the operational framework of the study where the relationships between and among inputs and outputs of the study are shown.

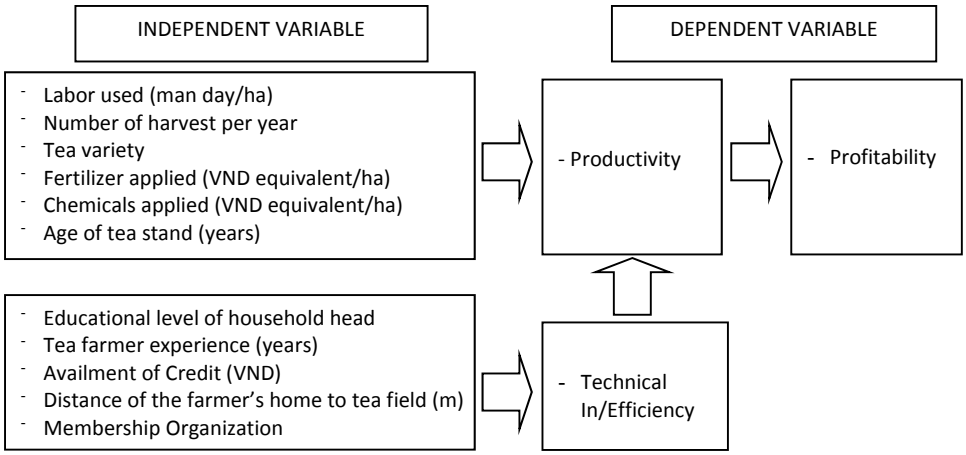

Figure 3. Operational framework of the Study

IV. Results and Discussion

Description of Variables in the Model

Table 1 shows the general characteristics of the sample farm and tea farmers at the survey sites.

The average yield per hectare was 8.385.22 kg per hectare, which is higher than the average tea yield in the province of 7,863.74 kg per hectare. The average labor usage was 416.62 man-days; fertilizer expense, VND 5,686.626 per hectare; and chemical expense, VND 2,3310,791 per hectare.

The average tea farmer area in Phú Tho was 0.655 hectare with a maximum and minimum area of 2 and 0.108 hectares, respectively. The average number of harvest was 6.676 times per year while the average tea age was 11.52 years.

On the average, the tea farmers had 8.055 years of schooling, which is equivalent to second year high school education. On the other hand, the farmers had an average of 19.401 years of tea farming experience. The average distance from farmers' house to the tea farm was 525.495 meters. There were a relatively higher number of organization members of the tea farmers (111 or 61%) among the 182 tea farmers. Lastly, the number of tea farmers who borrowed money was only 52 (or 28.57%) farmers out of 182.

Table 1. Summary of Tea Production Data in Phú Tho Province, Vietnam, 2010.

Variable		N	Mean	Min	Max
Yield (kg)		182	8,385.220	4,472.000	10,982.000
Variety	LDP	115			
	PH	67			
Area (ha)		182	0.655	.108	2.000
No. of harvest (Number)		182	6.676	4.000	12.000
Age of tea (year)		182	11.522	6.000	22.000
Chemicals ('000 VND)		182	2,310.791	375.000	5,224.000
Fertilizer ('000 VND)		182	5,686.626	1,794.000	10,067.000
Labor (man/day)		182	416.621	310.000	530.000
Education (years)		182	8.055	2	12
Experience (years)		182	19.401	7	37

Distance (meters)		182	525.495	0	1,800
Organization	Member	111			
	Non-member	71			
Credit	With borrowing	52			
	None	130			

Estimation Results of Stochastic Frontier Model

The Cobb-Douglas stochastic frontier functional form was proven to be more appropriate than the translog functional form. The estimated results of both models showed that the translog functional form had some problems. The first one was the high multicollinearity in the translog stochastic production function as was reflected in correlation matrix between the various explanatory variables in the model. There were many explanatory variables in the translog model which had highly correlated coefficients, with some variables having perfect collinearity (such as the relationship between variety and fertilizer*variety and variety and organization*variety). Further, the sign of the coefficients of some variables were not expected or not consistent with economic theory. For example, the coefficient of the labor variable in the translog was negative and not statistically significant which was not expected. Also, the coefficient of the time variable in the translog model was significant at the 1 percent level, but had a negative sign of coefficient (α = -2.716). Hence, the Cobb-Douglas functional form was chosen for analysis.

On the other hand, the maximum-likelihood estimates (MLE), rather than the ordinary least squares (OLS), also emerged as the more adequate estimation procedure to describe the parameters in the model. Table 2 below contains the Maximum-Likelihood Estimates (MLE) of the stochastic Cobb-Douglas production frontier production function and technical inefficiency model for the 182 tea farmers in Phú Tho, Vietnam.

The results show that most coefficients in the frontier production model had positive signs, except the variables fertilizer and chemical. The coefficients of labor, tea age, and variety were found to be statistically significant with positive effects on output at a 1% level of significance.

The coefficient of the variety dummy variable (i.e., 1 = LDP, 0 = PH) had a positive sign and was statistically significant at the 1% level. As expected, the new hybrid tea variety (LDP) farms posted higher yields than the old hybrid tea variety (PH). The tea farms which planted the new hybrid tea were more efficient than the tea farms which planted the old hybrid tea variety.

Contrary to expectation, the coefficient of chemical was not significant. This could be attributed to the high pest infestation in the study areas. The study also found that fertilizer had a negative coefficient but was not statistically significant. This is probably because of the improper combination of N, P, and K nutrients. Another possible reason is that the fertilizer in the plant was washed away by surface water due to rains.

Table 2. Maximum-Likelihood Estimates (MLE) of the Stochastic Cobb-Douglas Production Frontier Production Function and Technical Inefficiency Model, 182 Tea Farmers, Phú Tho , Vietnam.

Variable	Parameter	Estimates[a]	Standard Error
Frontier Production Function			
Constant	β_0	8.503***	0.306
Ln (No. of Harvest)	β_1	0.053ns	0.054
Ln (Fertilizer)	β_2	-0.025ns	0.025
Ln (Chemical)	β_3	-0.007ns	0.025

Ln (Labor)	β_4	0.112***	0.039
Ln (Tea age)	β_5	0.109***	0.025
Ln (Variety)	β_6	0.084***	0.007
Technical Inefficiency Function			
Constant	δ_0	0.852***	0.125
Education	δ_1	-0.046***	0.011
Experience	δ_2	-0.013**	0.005
Distance	δ_3	0.00007ns	0.000
Organization	δ_4	-0.191***	0.066
Credit	δ_5	-0.020ns	0.050
Variance parameters			
σ^2	σ^2	0.029***	0.006
γ	γ	0.9999***	0.000
Log-likelihood value		141.280	
Mean technical efficiency index		0.809	

[a] significant at *** = 0.01; ** = 0.05, * = 0.10
Note: Calculations derived using FRONTIER 4.1c.

Determinants of Technical Inefficiency

Under a given technology, farmers' yields differ based on their efficiency levels. In turn, their efficiency depends on farmer characteristics such as number of years in school, farming experience of the household head as well as socio-economic and natural conditions.

In this study, farm-specific technical inefficiency was assumed to be influenced by education, years of experience, distance, organization, type of household, credit, and specified as:

$$TI_j = \delta_0 + \delta_1 Edu + \delta_2 Exper_j + \delta_3 Distance_j + \delta_4 Organization_j + \delta_5 Credit_j + \varepsilon_j$$

Table 2 shows that the variance parameters σ^2 and γ were found to be highly significant. In particular, the value of γ was 0.9999 which implies that the production deviations from the frontier functions were practically due to technical inefficiency. The mean technical efficiency index in Phú Tho was relatively high, 80.09%, implying a relatively low technical inefficiency of 19.91%. Thus, the strategy that should be taken to improve productivity in Phú Tho is to determine the factors that contribute directly to inefficiency and to address these.

The coefficient estimates from the technical inefficiency model revealed that only distance had a positive sign (Table 2). Meanwhile, the coefficients of education, experience, organization and credit had negative signs. Among the variables which had negative signs, only education, experience and organization were significant. Both the education and organization variables were significant at the 1 % of significance, while the experience variable was also significant, but only at the 5% percent. The negative signs of the coefficient estimates for education, experience, and organization imply their inverse effect on technical inefficiency.

In relation to education, the education coefficient was negative and significant, suggesting that educated farmers are more efficient than others. This is probably because educated farmers have access to information and have the capability to comprehend and adopt new techniques more easily than less educated farmers.

Meanwhile, the coefficient of organization variable also has a negative sign as expected and was significant at the 1 percent level of significance. The study revealed that the farmers who were members of the cooperative were more efficient than others. The result indicates that farmers who are members of a cooperative received

support from the cooperative. The cooperative can supply all input materials that they need for tea production and buy all the harvested tea. Moreover, farmers are also given more opportunities to gain access to new technology, credit, training programs, etc. Further, membership in an organization/cooperative affords the farmers the opportunity to exchange information on modern tea practices with the other members.

As for experience, the more experienced farmers were found to have attained higher technical efficiency than farmers with less experience. It appears that farm experience can significantly cause a farmer to attain higher levels of efficiency, probably because his longer experience enables him to know when he has to rearrange his inputs to obtain higher output yields with the given technology.

Distance from the farmers' house to the tea area had a positive sign, as expected, but it was not significant. This indicates that the distance does not seem to have an effect on tea productivity. This may be because the distances of the respondents' homes to their tea farms were not that far as well different from each other to significantly affect efficiency.

The coefficient of credit has a negative sign as expected, but it was also not significant. This indicates that availment of credit is not enough to significantly cause a farmer to attain higher levels of efficiency for as long as he can allocate his inputs to obtain higher output levels under a given technology.

Technical Efficiency of Phú Tho Province Tea Farmers

The technical efficiencies of the tea farmers in the sample, obtained by using the Cobb-Douglas model is summarized in Table 3. These TE values ranged from 43.50% to 99.99%, with the mean technical efficiency being 80.90%. This implies that, on the average, the tea farmers in the study sites were producing tea at about an 80.9% efficiency level of the potential (stochastic) frontier production function, given the levels of their inputs and the technology currently being used. Ninety-five of the sample tea farmers (52.2%) have technical efficiencies of 81% and above. The remaining 87 tea farmers (47.8%) have technical efficiencies below 81%.

Table 3. Range of Technical Efficiency of Tea Farmers in Phú Tho Province, 2010.

RANGE OF TECHNICAL EFFICIENCY (%)	Frequency	Percent (%)
41 – 50	3	1.65
51 – 60	11	6.04
61 – 70	26	14.29
71 – 80	47	25.82
81 – 90	52	28.57
91 – 100	43	23.63
Total respondents	182	100.00
Mean TE	80.9%	
Standard deviation	12.5%	
Minimum TE	43.5%	
Maximum TE	99.9%	

Technical efficiencies of individual tea farms clustered within the range of 81% –100%. This implies that most of the conventional tea farms were operating efficiently, perhaps because most of the farmers were members of an organization and around 50% of the farmers utilized the new hybrid variety (LDP).

However, the figure indicates that although there were relatively high frequencies of technical efficiencies above 80%, there were some tea farmers who rated low in terms of their technical efficiency performance, with 14 tea farmers (7.69%) having less

than 61% efficiency. This may be most probably because some of the farmers were not members of an organization, do not plant the new variety (LDP), and had an average age of tea plant of 15 years which is higher than the average (11.52 years). As a result, they achieved lower technical efficiency.

Cost and Return Analysis for Tea Production in Phú Tho Province in Vietnam

Net income is always the most important goal of any business activity, including tea production. A cost and return analysis done showed that the utilization of new varieties by tea growers resulted in higher profitability. Although the total expenses for the LDP variety was higher than the PH, the farmers who planted new varieties (LDP) posted higher income per hectare (VND 3,593,937) compared to the old variety (PH) growers (- VND 1,569,603). This finding is reflected in Table 4 below.

Table 4. Cost and Return Analysis per Hectare for Tea Production in Phú Tho Province, Vietnam

Items	Amount (VND)		
	LDP	PH	Difference
A. Gross Income/ Sales	33,033,966	26,580,483	6,453,483
B. Operating Expenses			
Labor			
Land preparation	847,006	849,537	- 2,531
Fertilizer application	2,904,019	3,034,060	- 130,041
Spraying	2,621,684	2,831,789	- 210,105
Thinning	1,452,010	1,213,624	238,386
Weeding	484,003	647,266	- 163,263
Harvesting	10,164,068	9,547,174	616,894
Total Labor Cost (a)	**18,472,790**	**18,123,450**	**349,340**
Cost of Material Inputs			
Tools and Equipment			
Tea basket, etc.	230,317	191,034	39,283
Laborers' gear (e.g., shoes, masks, etc.)	147,853	116,591	31,262
Fertilizer			
NPK	2,719,828	2,051,843	667,985
Urea	1,501,748	1,310,900	190,848
Phosphorus	1,970,000	1,453,389	516,611
Potassium	780,000	883,433	- 103,433
Total Fertilizer	**6,971,576**	**5,699,565**	**1,272,011**
Chemicals	**1,645,395**	**1,485,303**	**160,092**
Other Expenses	**81,871**	**57,640**	**24,231**
Total Cost of Material Inputs (b)	**9,077,012**	**7,550,133**	**1,526,879**
Total Operating Expenses (a+b)	**27,549,802**	**25,673,583**	**1,876,219**
Overhead Cost			
Depreciation	1,238,163	1,305,216	- 67,053
Loan interest expenses	652,064	1,171,287	- 519,223
Total Overhead Cost (c)	**1,890,227**	**2,476,503**	**- 586,276**
C. Total Expenses (a+b+c)	**29,440,029**	**28,150,086**	**1,289,943**
D. Net Income (A-C)	**3,593,937**	**-1,569,603**	**5,163, 540**

Note: Weighted average method was used to calculate the cost and return analysis.

V. Conclusion

The study revealed that there is still room for improving the productivity of tea farms in Phú Tho Province through the elimination of the causes of inefficiency. In particular, tea production in the study areas can be increased with the current levels of inputs and technology if less efficient farms are encouraged to follow the resource utilization pattern of the most efficient farms. This includes increasing the labor presently being used and planting a new variety. In addition, tea farming in the province can also become

more efficient if farmers are encouraged to join and/or form organizations and are able to counter their lack of education and experience with other means of acquiring knowledge.

Based on the findings of this study, it is suggested that: 1) more means of acquiring knowledge (i.e., training) on tea production should be provided to farmers with less experience and a low level of education. The government as well as international assistance programs should launch initiatives which would enable tea farmers to receive improved access to information on various technologies.; 2) government policies and programs which promote more effective delivery of extension services and more equitable access to technical support and inputs should be implemented.; 3) the government should also invest in research and development (R & D) that will improve as well as develop new tea varieties which can improve the tea farms' productivity and quality of output; and 4) the government should help facilitate the formation and strengthening of farmers groups and organizations and formulate and implement policies that will grant incentives to farmer organizations to enable them to expand their tea production operations, such as the granting of additional tax exemptions and lower land rental rates.

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A Strategy for Technical Innovation in Large-Scale Enterprises

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ABSTRACT

This paper analyzed related articles to find effective an strategy to promote technical innovation in large-scale enterprises. Technical innovation is the key means to make all enterprises be able to grow. In other words, enterprises must devote themselves to technical innovation for sustainable development. Although most enterprises, large-scale enterprises in particular, realize how important technical innovation is, a large organization, which large-scale enterprises have, is suitable for sustaining innovation, while it is also a large impediment for disruptive innovation. (Christensen,2001:p.11)In this paper, we made an analysis of research related to the problems impeding disruptive technical innovations in large-scale enterprises and tried to propose an efficient strategy to stimulate disruptive technical innovation in large-scale enterprises.

I. Classification of Technical Innovation

Technical innovation can be classified into sustaining technical innovation and disruptive technical innovation. (Christensen, 2001:p.9)

Sustaining technical innovation is to enhance quality by improving current products and services aimed at existing market and high-end demand. Compared with sustaining technical innovation, disruptive technical innovation is to accept changes by starting from scratch by breaking an existing concept and aiming at a new market with low-end demand and new customers without original intention to purchase. (Christensen, Raynor 2003: p.55)

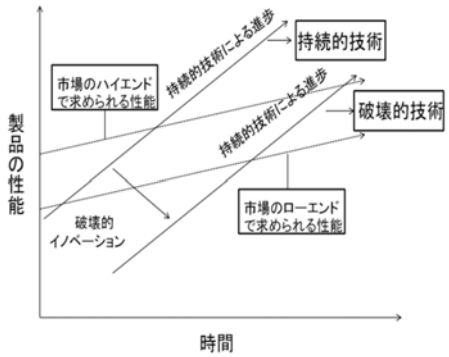
In order to keep and enlarge existing customers, large-scale enterprises use abundant business resources and the ability of higher technical development to pursue existing interests in the current market. At the same time, this makes large-scale enterprises less sensitive to disruptive technical innovations and harder to implement innovations than small and medium scale businesses. Too much attention on sustaining innovation in large-scale enterprises slows down the rise of disruptive innovation from themselves and causes the following problems.

Dilemma between Large-scale Enterprises and Technical Innovation

In large-scale enterprises, most of the profits are from existing customers. In order to satisfy existing customers' demand maximally, they continuously improve current products and services. However, the function provided by products and services will deviate from customers' actual needs with excessive continuous innovation of current products. For instance, the price will increase and accessibility of operation will decrease while adding more functions and performance to the product. Then, customers will not be able to afford it. Therefore, a product with high performance and a high price tag will be beyond the purchasing power of ordinary general customers.

If products of large-scale enterprises are upgraded excessively, they will be beyond customers' purchasing power. This situation enables a market for products with less quality and lower price. This is called the dilemma of disruptive technical innovation in large-scale enterprises. (Christensen, 2001: p282.)

The relationship between continuous and disruptive technical innovation is shown in Figure 1, which is also called the dilemma of innovation. Companies spend huge amounts time and money on developing products. If products can't be sold, all research resources will be wasted and the development team will be disbanded. Even though large-scale enterprises realize the risk of sustaining technical innovation, it will still be there. Christensen proposed that shifting from continuous technical innovation to disruptive technical innovation could solve this dilemma. However, the larger the scale of the enterprise, the harder it is for the shift to be undertaken.



(Figure 1: Christensen, 2001: p.10)

Reason for Large-scale Enterprises Impeding Disruptive Technical Innovation

On the basis of the current organizational system impeding disruptive innovation in large-scale enterprises, (Wi,2004,p:11) an analysis as to why it's hard for large-scale enterprises to promote disruptive innovation from the aspects of product developing, business strategy, and business organizational strategy was performed.

First, there is an obvious weakness for functions and costs of new products developed through disruptive innovation. Compared with existing products, this weakness will be more obvious when initially released. It also conflicts with the concept of large-scale enterprises, which are pursuing product perfection and aiming at existing customers. All this frustration results in reduced disruptive innovation in large-scale enterprises. Therefore, product development strategy becomes vital for avoiding disruptive innovation. If there is corresponding management, even if products are not perfect initially, enterprises can realize more potential of the products and make more investments in the development of those products and then release those products to market.

Second, one of the features of disruptive innovation is that it's difficult for disruptive innovation to attract major customers and gain a high profit quickly. These imperfections, initially, will only be accepted by low-

end customers. It's hard to success in the short term. This also causes a reduction in the research grant for new products from enterprises. In order to address this problem, all fields of Japanese manufacturing firms were investigated from 2002 to 2008. The results show that the ratio of research and development in every field almost keeps reducing during this time, as shown in Table 1.

Table 1. The Ratio of Research and Development to Sales in Japanese Manufacturing Firms from 2002 to 2008

	2002	2003	2004	2005	2006	2007	2008	Ration (2008/2002)
Food	6.00	5.85	5.54	5.07	4.62	4.75	5.05	-16%
Chemistry	2.77	3.94	3.29	3.41	2.95	2.47	2.33	-16%
Ceramic industry	3.61	4.55	5.98	7.07	6.26	4.46	3.44	-5%
Nonferrous mental	5.82	7.88	8.32	8.09	5.37	2.73	1.91	-67%
Fiber	4.77	5.07	5.26	5.36	4.80	4.27	4.10	-14%
Pharmaceuticals industry	1.69	1.71	1.78	1.84	1.72	1.65	1.63	-4%
Rubber	2.41	2.61	2.61	2.57	1.90	1.60	1.53	-37%
Machinery	3.01	4.02	5.19	5.88	5.08	3.32	2.26	-25%
Bubble coated paper	11.38	11.56	10.32	8.63	8.10	9.21	10.49	-8%
Oil	7.84	13.04	15.47	17.53	8.24	3.16	1.45	-82%
Steel industry	27.36	50.69	83.81	74.85	46.23	25.33	16.72	-39%
Electronics	3.08	3.84	17.51	15.64	10.83	2.93	1.74	-44%
Precision instrument	2.92	3.18	3.30	3.03	2.30	1.73	1.51	-48%
Automobile	4.82	5.56	6.98	8.11	7.10	4.87	4.02	-17%
Other transportation	4.28	4.87	4.63	4.05	3.33	2.52	2.59	-39%
Other manufacturing	6.82	7.37	7.70	6.84	6.53	3.94	2.57	-62%

The table shows that the cost of R&D is disproportionate to the profit. It makes it even harder for these enterprises to make disruptive innovations. As mentioned above, the large organizational system in large-scale enterprises will be less likely to pass a proposal in which initial profit and cost of products may not be balanced (Langdon, 2009, p:38). However, if large-scale enterprises are able to make an active and efficient business strategy, this problem can be avoided by setting long-term goals. Therefore, in order to stimulate disruptive innovation, it's very important for large-scale enterprises to have an appropriate business strategy, especially a departmental business strategy.

Third, the internal system of organizations in large-scale enterprises plays a key role in impeding disruptive innovation. Innovation is not a random phenomenon, but a managed activity for achieving certain value. Innovation is realized by efforts made by in enterprises' internal organizations and though a series of coherent processes. (Langdon, 2009:p.4) It's hard for enterprises to have disruptive innovation without adding more interesting ideas and new knowledge. However, large-scale enterprises' internal organizations overdose on past success and only pursuing stable developing. Then, the larger the internal organizations are, the lower the ability for innovation and adaption to an environment. This will make enterprises less sensitive and aware of external changes and cause the decay of enterprises. Hence, the problem of the internal system is one of the important reasons impeding disruptive innovation.

Even though there are so many factors to impede disruptive innovation in large-scale enterprises, it's still necessary to have disruptive innovation. Therefore, it's very important to have disruptive innovation while keeping current profit by sustaining innovation.

Dual Innovation Theory

Suzuki (2007) proposed Dual Innovation Theory which suggested implementing sustained innovation and disruptive innovation simultaneously. He analyzed existing research papers related to "Dual Innovation Theory". According to his critical analysis, we can know that existing research is lacking specificity on managerial behavior for dual innovation. Suzuki (2007) examined Smith, Paap & Katzh, and March. Smith proposed a theory of implementing sustained innovation and disruptive innovation simultaneously, but at the same time he did not point out how to manage these two concepts in conflict. After analyzing many corporate cases, Paap and Katzh pointed out the necessity for large-scale enterprises to insist on dual innovation; however, there were still no details about operations in practice. Although March described a flexible usage of current techniques and the development of new techniques and their necessity, he didn't give any details about management. On the basis of this research, Suzuki (2007) summarized the details of a management system for dual innovation which can be divided into three phases. Phase One is the idea phase. In this phase, there should be the building of an exchange site for convenient communication among departments in the firm. Phase Two is the research and development phase in which the CTO (Chief Technology Officer) will play a very important role. The last phase is the production phase in which it should be considered whether the organization systems are suitable for the external environment. Suzuki (2007) indicated that disruptive innovation can be implemented simultaneously while sustaining innovation if there is such a three phase management system.

Summary

This paper analyzed research papers related to the classification of innovation and the relationship between large-scale enterprises and disruptive innovation. Suzuki (2007) pointed out that disruptive innovation and sustaining innovation could be implemented simultaneously. Schumpeter (1943, p.192) pointed out several problems about large-scale enterprises in creating innovation: 1) because large-scale enterprises emphasize the impact of the founders, large-scale enterprises will be harder on innovation than the other business, and 2) large-scale enterprises are more likely to lead development of innovation and these two conflict concepts. Due to large organizational systems, large-scale enterprises lack sensitivity to innovation. The concept of innovation in Schumpeter (1943) has the same meaning as disruptive innovation mentioned above. We can conclude that it's hard for large-scale enterprises to create disruptive innovation.

At the same time, large-scale enterprises are more likely to promote innovation because of the abundant resources that large-scale enterprises have. This kind of concept of innovation can be considered sustained innovation. This is to say that Schumpeter believes that large-scale enterprises are suitable for sustaining innovation, but impeding disruptive innovation.

This shows that Schumpeter pointed out the necessity of dual innovation and difficulties of actual practice at the beginning of innovation concepts beggining in Economics almost a century ago. However, the essence of a series of recent research into innovation is about discover the answer to this old question.

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Opportunities and Challenges in The Emerging Global Herbal Medicine Industry

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ABSTRACT

Herbal medicine plays a major role in the health and wellbeing of consumers. Global Industry Analysts, Inc. (GIA) reported that the herbal supplements and remedies market will reach an estimated US $107 billion in 2017. Rapid market growth is caused by an aging population and consumers' inclinations toward a healthier lifestyle. Some intrinsic benefits from using natural herbs and botanical derivatives such as efficacy, little or no side effects and economy are realized. However, evidence of product safety founded on scientific research and clinical trials will remain a crucial factor to ensure long-run industry success. With the growing interest in herbal medicine, a country's entrepreneurs manufacture herbal products to obtain a fair market share through licensing. Consequently, they must address the limited supply of quality raw materials at competitive costs. Hence, this paper determines the vision and mission of the industry and enterprises; identifies key opportunities and threats as well as key strengths and weaknesses; and formulates effective strategies through SWOT analysis. Concrete measures must be undertaken: a) pursue an effective strategic alliance between pharmaceutical companies and farmers; b) determine quality standards for raw materials and finished products; c) utilize appropriate technologies; d) enhance the role of consolidators; and e) engage new product development.

I. Introduction

Herbal medicine plays a major role in consumer health and wellbeing. Global Industry Analysts, Inc. (GIA 2012) reported that the herbal supplements and remedies market will reach an estimated US $107 billion by the year 2017, attributed to the rapid market growth caused by the aging population and consumers' inclination toward healthier lifestyles. Some intrinsic benefits realized from natural herbs and botanical derivatives are efficacy, little or no side effects and economy. However, scientific research and clinical trials as evidence of the safety of herbal products will contribute immensely to the success of the industry.

With the growing interest in herbal medicine, local companies have ventured into the manufacture of herbal medicine and, consequently, must address the limited supply of raw materials for herbal production. Guided by the vision and mission of the industry, researchers discussed various opportunities and challenges faced by the Philippine herbal medicine industry as a whole; identified key strengths and key weaknesses of the enterprises; and determined strategic issues and formulated effective strategies using a Strength-Weakness-Opportunity-Threat (SWOT) analysis. The research findings of this paper provide concrete guides to decision-making by the investors and entrepreneurs.

II. Review of Literature

Opportunity analysis has provided a sound framework for identifying, monitoring and evaluating key economic, socio-cultural, demographic, environmental, political, governmental, legal, technological and competitive factors. The process enables enterprises to anticipate emerging opportunities and threats in times of increasing turbulence in industries and markets (David 2003). Consequently, they may pursue effective strategies to avail of opportunities and to minimize threats and thus, ensure its long-run success.

In industry and competitive analysis, key success factors (KSFs) are considered prerequisites for industry success. These are strategy elements, product attributes, competitive capabilities and business outcomes that indicate enterprises are generating profits or incurring losses, leading to competitive success or failure (Strickland 2003). Briefly, key variables may affect favorably or adversely the overall competitive positions of the enterprises within any particular industry. Usually, these are determined by the economic and technological characteristics of the industry and by the competitive moves undertaken by the competitors or rivals (Wheelen and Hunger 2004).

China, which is the world's major exporter of mainly Chinese natural herbal medicine at a lower price, consumed quantities equivalent to the annual export volume of almost 20 % of its total production (Beijing Zeefer Consulting Ltd. 2008). Known for its traditional Chinese medicine, China had about 50% of people adopting traditional Chinese medicine to treat ailments (Figure 1).

In India, there have been efforts to develop public and private sector research and a development capability intended to boost quality of plant derived medicines (Wakdikar 2004). The country heavily invested in agricultural studies on medicinal plants with a higher priority for commercial cultivation. Simultaneously, it carried out research in support of industrial development, covering crucial activities from the development of superior propagation materials, agro-technology, low cost and efficient processing technologies to improve quality and yield, new formulations for new products and the marketing of the finished products. In most recent years, India aggressively pursued capability building for R & D of medicinal formulations involving plants and its compounds both in the private/industry sector as well government funded research (Figure 1).

III. Methodology and Data

Using a strategic management process, this paper identified and analyzed the different components necessary to help formulate effective strategies for the Philippine herbal medicine industry and enterprises, from vision and mission, various key opportunities, challenges and threats, key strengths and weaknesses to the matching process using SWOT analysis (Figure 2).

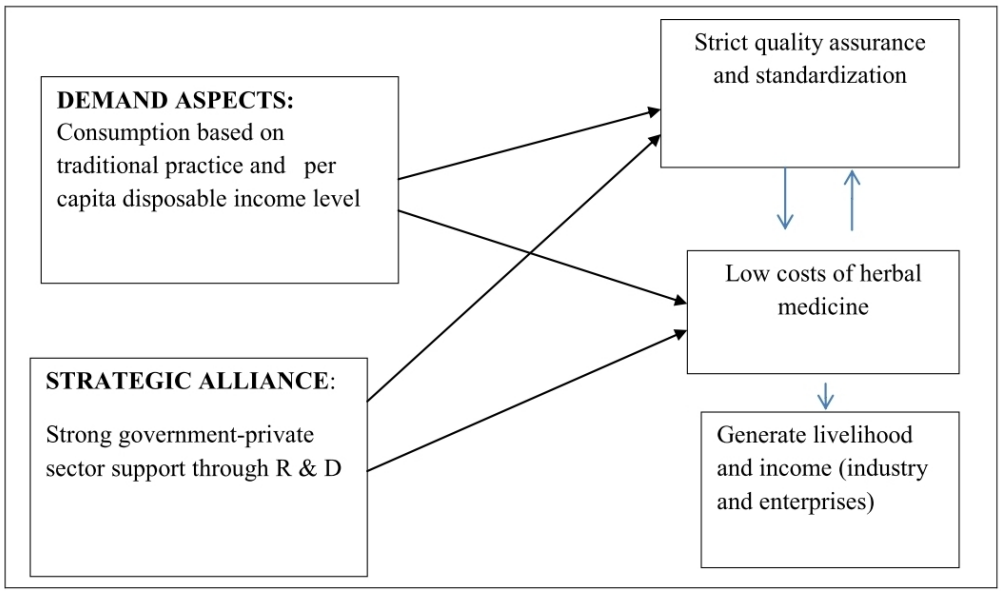

Figure 1. KSFs in the Herbal Medicine Industry Based on the Experiences of China and India.

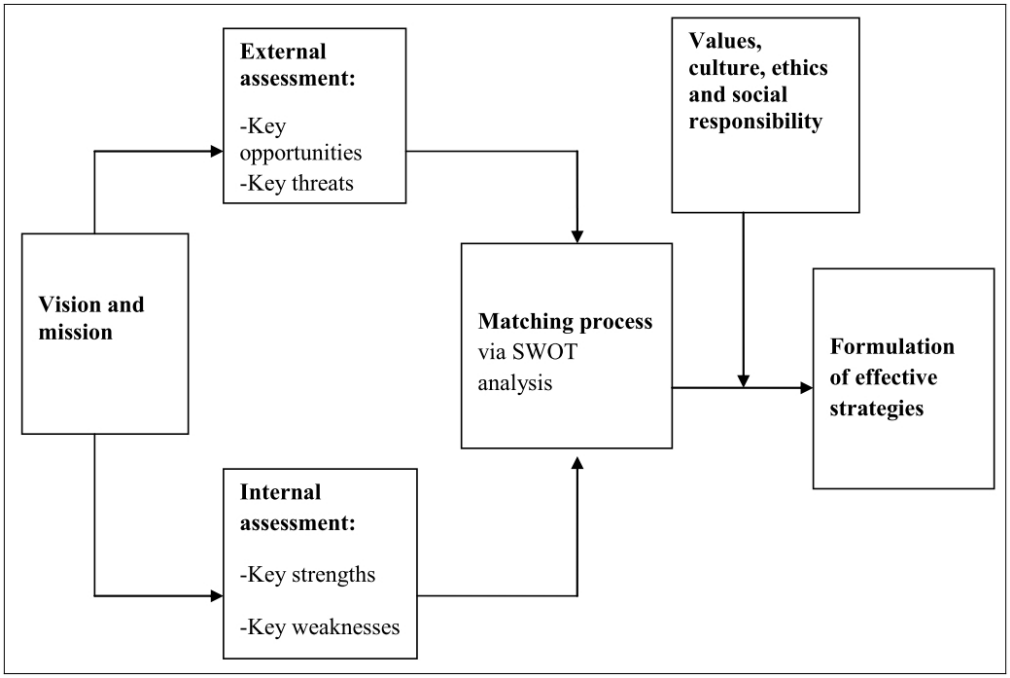

Figure 2. The Strategic Management Process

Relevant data/information were collected from various international and local institutions such as the World Health Organization (WHO), the Food and Agriculture Organization (FAO), the Department of Health- Bureau of Food and Drugs (DOH-BFAD), the Chamber of Herbal Industries of the Philippines (CHIPI), the Department of Environment and Natural Resources-Ecosystems Research and Development Bureau (DENR-ERDB), the Philippine Institute of Traditional and Alternative Health Care Herbal Plant (PITAHCHP) and the National Integrated Research Program on Medicinal Plants (NIRPROMP).

IV. Results and Discussion

A. Global Herbal Supplements and Remedies Market

Traditional herbal medicines are naturally occurring, plant derived substances with minimal or industrial processing that have been used to treat illness within local or regional healing practices. According to the Third Global Summit on HIV-AIDS, Traditional Medicine and Indigenous Knowledge (Williams 2009), about 60 % of the people in Africa and other parts of the world use traditional herbal medicine for their primary healthcare and remedies. The demand and use of traditional herbal medicines is even rising in developed economies such as Europe and America (Table 1). Currently, China and India supply the bulk of the plant drug demand to the global market (Table 2). In Bangladesh, demand for herbal medicine is also increasing.

Table 1: Import Values of Global Herbal Medicine

Countries	Import Values	Share of the Global Market for Herbal Supplements
Europe (Germany, France and United Kingdom)	$ US 7.0 billion (sourced mainly from Africa and Asia)	46.67 %
Japan	$ US 2.4 billion	16.0 %
Rest of Asia	$ US 2.7 billion	18.0 %
North America	$ US 3 billion	20.0 %
Global market for herbal supplement	$ US 15 billion	100.0 %

Source: Wakdikar (2004).

Table 2. Export Values of Global Herbal Medicine

Countries	Export Value	Market Share
China	$ US 6.0 billion	10.0 %
India	$ US 1.0 billion	1.67 %
Global trade in herbal medicinal plants	$ US 60 billion annually	

Source: WHO (2003)

The industry experts estimated that the global market for herbal medicinal plant products to be more than US $60 billion in 2002, an annual growth rate of 7%. Figure 3 shows the annual market sales of herbal medicines from nine member states of six WHO regions with varying levels of economic development from 1999-2001. With such an increase in the annual market sales of herbal medicines globally, all major herbal-based pharmaceutical companies are showing a constant growth rate of 10-15 % per annum, next only to Information Technology industries.

Consequently, China, India, Nigeria, the United States and the WHO invested substantially into traditional herbal medicines. China launched a safety research program focusing on herbal medicine injections from traditional Chinese medicine. South

Africa realized the need for investigating traditional medicines within its national drug policy. The United States spent approximately US $33 million on complementary and alternative herbal medicines in 2005 and a year earlier, committed nearly US $89 million to studying a range of traditional therapies for cancer prevention and treatment (Tilburt and Kaptchuk 2007).

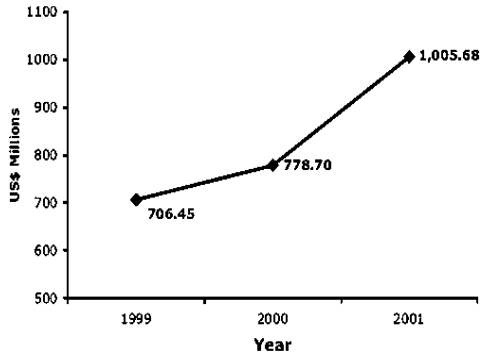

Figure 3. Annual Market Sales of Herbal Medicines

Source: WHO, 2003.

Traditional herbal medicine practitioners may be unregulated and their products lacking in standardization. There are often huge variations in the way in which the medicines are used in herbalist practice, including herb source, preparation, dose and indication. It is indeed important to establish standards for biologically active compounds before conducting large-scale clinical trials evaluating the efficacy of herbal medicines (Tilburt and Kaptchuk 2007). The perceived need for such research may be to protect the consumers.

In the developing countries, the market share of herbal products remains comparatively low due to a lack of R & D and the huge investments needed for making standardized products (Wakdikar 2004). In the Philippines, companies form organizations to address the needs of the industry, such as the Chamber of Herbal Industries of the Philippines Inc. (2012a), which is in manufacturing, R & D, distribution and trading of herbal products, from just 12 companies to over 50 of the leading companies of the country's natural & herbal industry.

B. Analysis of Key Opportunities and Threats

1. Key Opportunities

a. Market Share

The Department of Trade and Industry estimated total revenues of US $600 million of herbal medicines (including exports) in 2007 and this value was expected to grow further through the years. On the other hand, the entire herbal industry has garnered a market share of P2.0 billion, just 5% of the total spending of Filipinos on synthetic drugs of US $1 billion or roughly P40 billion annually. The industry's target is an estimated 10 to 15% of the total market in 2007 (International Federation of Organic Agriculture Movement (IFOAM) 2001). In 2009, many Filipinos continued to favor standard pharmaceutical products. Yet, the demand for traditional, herbal products also grew steadily as the health and wellness trend shows greater concerns over the potentially negative side effects of some over-the-counter (OTC) drugs. Value of total revenues of herbal/traditional products grew by up to 6% in 2008 despite the economic downturn (Euromonitor International 2010).

Gaining interest and support among health conscious buyers, herb-based medicines and food supplements are being consumed by a greater number of Filipinos. In times of rising costs of medicines, they desire to gain better access to safe, effective, and affordable healthcare products. However, public consumption of these products continued to be adversely affected by the lack of scientific basis to help prove product efficacy. With the emergence of the locally based Clinical Research Organization (CROs), scientific studies will help verify the efficacy of herbal products through clinical trials which use some international standards and ensure the growth of the industry. There are some 100 herbal products in the Philippine market ranging from single herbs, to combination herbs, to herbs with extracts (Table 3).

Table 3. Available Herbal Products in the Philippine Market Based on a Store Check at Generics Pharmacy and Mercury Drugs.*

Manufacturer	Herbal Dietary Supplement	Dosage per capsule	Price
PHARMACARE Products Company	Malunggay Moringa 500	500 mg capsule, 60 capsule per bottle	Php 4.75 per cap $6.80 per bottle (Php 41.91/$)
NORTHFIELD Laboratories Inc.	Vitex negundo L. Lagundi Tea, Anti-cough/Anti-asthma	600 mg tablet, 100 tablets 300-600 mg	Php 4.50 per tablet $10.73 per bottle
	Lagundi Syrup	120 ml per bottle	Php 115.00 per bottle $. 2.74 per bottle
	Ampalaya Plus	550 mg cap	Php 7.50 per cap $ 10.73 per bottle
ATC Health Care International	Ampalaya	350 mg cap or 550 mg cap	Php 5.50 per cap
	Ampalaya Plus		$7.87 per bottle
	Sambong for care of kidney	500 mg cap	Php 6.25 per cap $8.95 per bottle
Lloyd Laboratories	Life Oil Malunggay	Oil in capsule	Php16.50 per cap $23.62 per bottle

*Store check of the GENERICS Pharmacy (prices dated September 2011) and MERCURY (prices dated July, 2012).
Source: Montes (2012)

Some herbs that were proven effective were *Lagundi* (known cure for coughs) and *Sambong* (cure of high uric acid level). Based on the records of the Philippine Council for Health Research and Development (PCHRD) as cited by Manila Bulletin Publishing Corp. (2011), medicines derived from *Lagundi* and *Sambong* garnered sales of 3.3 million units as of end of 2009, equivalent to P430 million in gross sales revenues. The passage of the "Traditional Alternative Medicine Act" of 1997 (Republic Act No 8423) helped this number.

Manufactured synthetic drugs commanded a high price in the local market which most Filipinos oftentimes cannot afford to buy. According to DOH (2008) statistics, the Philippines now imports about US$350 million worth of drugs. Hence, through R. A. 8423, people's current needs on health care are to be met or satisfied by providing and delivering traditional and alternative health care products, services and technologies that have been safe, effective, affordable and accessible for Filipinos. Thus, a government program aggressively seeks to promote indigenous herbs with medicinal properties as an alternative medicine for the Filipinos.

b. Financial Viability of Herbal Farming

The market for herbal medicine has expanded tremendously in the past years. Its contribution to the economy cannot be underestimated. "The global market for herbal medicines currently stands at over US$60 billion. The sale of herbal medicines is expected to get higher at 6.4% an average annual growth" (Sharma et.al. 2008). According to Ahmad (2011), "one out of 125 species studied at the Herb Research Foundation in Boulder, Colorado, produced a major drug with an annual market of at least US$200 million in the United States." The possibilities are limitless given the fact that only 1,000 of the 365,000 known species of plants have been studied for their medicinal properties. However, the danger from bio-piracy is very real with the stealing of genetic material and knowledge from biodiversity-rich developing countries.

Herbal farming is a profitable business undertaken with the pharmaceutical industry's growing demand for needed raw materials. Medicinal plant farming is indeed viable and profitable (Jose, 2008). A farmer could obtained a net income of about Php 106,000 per ha in the first year of operation (Table 4). The harvest can be sold in dried and powdered forms in order to obtain higher price and profit.

Table 4. Projected Income Return per Hectare of Scientifically Validated Medicinal Plants: *Ampalaya, Sambong, Lagundi and Akapulco leaves*.

Year 1: Per hectare	***Ampalaya* (Makiling variety) leaves**	***Sambong* leaves**	***Lagundi* leaves**	***Akapulko* leaves**
Estimated net income on fresh leaves	Php 525,000.00 $11,805.71 (Php 44.47/dollar)	Php 143,000.00 $ 3,215.65	Php163,000.00 $3,665.39	Php 233,000.00 $ 5,239.48
Estimated net income on dried leaves	Php 1,141,800.00 $ 25,675.74	Php 633,000.00 $ 14,234.32	Php 553,000.00 $12,435.35	Php 323,000.00 $7,263.32

Source: DENR- ERDB as cited by Jose (2008).

c. Product Innovation

Herbal medicinal products are under the strict regulation and control of the DOH-BFAD. Two administrative orders were issued in 1982 and 1984, requiring that all traditional drugs both local and imported comply with registration and quality control requirements (WHO 1998). Among the quality control requirements are tests for the presence of synthetic drugs (especially analgesics, anabolics, corticosteroids, hormones), heavy metals, alcohol content and impurities. Tests for galenical forms are required as well as microbial tests and stability data.

The current herbal medicinal products are conveniently displayed, marketed and sold in drugstores and health shops in different product forms such as capsules, tablets, teas, syrups, and salves (Table 5).

Table 5. Commercial Herbal Medicinal Products and Their Uses and Other Herbs Used as Drugs.

Commercial herbal medicinal products	**Scientific names**	**Common name**	**Purpose**
• Lagundi	Vitex negundo L.	Five-leaved chaste tree or chasteberry	Primarily used to treat such ailments as coughs and asthma
• Sambong	Blumea balsamifera	Blumea camphora	A diuretic herb for treating urine stones and edema
• Akapulko	Cassia alata Senna alta L.	Ringworm bush	Used for treatment of fungal infection, ringworm and other skin diseases such as anti-fungal and skin rushes
• Ampalaya	Momordica charantia L. var. Makiling	Bitter gourd or bitter lemon	Commonly used to boost immune system and for treating cough, diabetes mellitus or Type 1 diabetes
• Ulasimong bato	Peperomia pellucida	Pansit-pansitan	Leaves are used to treat gout and arthritis (anti-hyperrurecemic)
• Tsaang gubat	Ehretia microphylla Lam	Forest tea	Used for gastroenteritis, stomach pains, diarrhea as well as an antidote bleeding and poisonous snakebites. Its leaves are rich source of fluoride and can be used as mouthwash.
• Mutha	Cyperus pudica	-	relief for malaria
• Makahiya	Mimosa pudica	-	relief of diarrhea
• Yerba Buena	Clinopodium douglasii	Peppermint	Used for relieving pain and body aches (analgesic)
• Bawang	*Allium sativum*	Garlic	An antioxidant and can be used for reducing cholesterol level and regulating blood pressure.

Source: Sandhyarani (2011)

d. Licensing Agreements: A New Investment Source for R & D for Herbal Drug Development

The licensing agreement will be the first license between an R & D agency, the University of the

Philippines, and a private firm for *Lagundi* cough syrup, under a new regime of the Technology Transfer Act (TTA). By virtue of the law, the royalty should go to the investigator and research institution where the investigator belongs, not to the national government (Dr. Jaime C. Montoya, PCHRD executive director, personal communication). Hence, the drug development sector expects a substantially gain better funds, from the former P2 million to P3 million yearly from the royalty from drug licensing that used to entirely go to the national treasury. The more technology adopters, the bigger the royalty will be.

1. Threats

a. Weakest Link: Lack of Technology Adoption and Commercialization

The local scientists published their research findings/results in reputable national and international journals, benefitting the global scientific community. However, such research output needs to be transformed into a "practical" technology that can be adapted by the pharmaceutical industry.

b. Lack of Supply of High Quality Raw Materials for Herbal Production and Manufacture

The Philippine herbal industry is not yet well developed when compared with China, Japan, Korea and Vietnam despite the country's sustainable indigenous medicinal plants like *ampalaya* (Makiling variety), *sambong, lagundi, akapulko* and more.

c. Associated Health and Medical Risks

Independent tests and research have proven the efficacy of many herbs, but the standard dosages need to be established yet. Many of the commercially available herbal medicines are not regulated by the government as these are listed only as supplements (meaning no approved therapeutic claims) and have not passed stringent government testing as required by the DOH-BFAD. There is also a high prevalence of counterfeit or faked generic/herbal drugs being sold and marketed locally. Substandard herbal products which are of low quality and ineffective may cause treatment failure. The public has shown growing concern for inaccurate, misleading and false claims on the efficacy of the herbal medicines

d. Keen Competition among Herbal Medicine Enterprises

RiteMed's newly launched lagundi and sambong herbal medicines fiercely compete with Pascual Laboratory's well known herbal products, quality and price-wise. On top of this, the government issued regulations allowing the importation of affordable branded and generic medicines (including herbal medicines) to make all drugs readily available and affordable to the Filipino masses. The House Bill 2844: Cheaper Medicine Act provides safe and cheaper medicine at affordable costs for chronic and life threatening diseases such as dengue fever, diabetes, hypertension, HIV/AIDS, among others, and Executive Order 821 enforces voluntary price reduction and the creation of village drugstores such as Botika ng Bayan and Botika ng Baranggay.

e. Climate Change, Pests, and Pestilence

Climate change, as well as pests and diseases, adversely affect availability, quality and prices of raw materials for herbal medicine.

El Niño and La Niña brought on severe fluctuations in weather conditions, resulting in either a lack of water for irrigation or flooding which destroyed crops and animals extensively. Also, herbal medicinal plants raised on a commercial scale were far susceptible to pests and diseases.

C. Analysis of Key Strengths and Weaknesses

1. Key Strengths

a. Distribution and Marketing for Herbal Medicines and Herbal Supplements

Selected enterprises engaging in the manufacture and marketing of herbal medicines and herbal supplements have a wide distribution system for their products which include multi-level marketing,

mainstream markets (major drug stores) and on-line retail stores. The rise of local generic drugs pharmacies such as the *Generics Pharmacy* and *Generica* through franchising are also alternative channels for affordable, safe and effective herbal products. Also, the prospects of strategic alliances and networks with distributors which supply generic and herbal drugs to government hospitals, *Botikang Bayan and Botika ng Baranggay* (Town Pharmacy and Local Pharmacy) can be leveraged

b. Uni-branding that Enhances Product Image

Uni-branding focuses on the company's GMP and ISO certified production facilities and quality assurance capabilities. Also, it indicates having forged valuable working relationships with reputable institutions to conduct clinical trials on herbal medicines to ensure their safety and efficacy.

2. Key Weaknesses

a. Economies of Scale and Capacity

Pharmaceutical companies in the Philippines engaging in the manufacturing and marketing of herbal medicine products were unable to deal with farmer-suppliers directly for their raw material needs for some reasons: lack of economies of scale or production capacity, quality of raw materials (possible soil and air contamination) and logistics/transports (farmers are scattered and segmented in far areas). They often dealt with farmers' cooperatives and consolidators who can effectively address the above concerns, problems and/or issues. They also preferred dried herbal products rather than fresh ones to minimize or reduce contamination.

b. No Established Product Efficacy and Safety Measures

Among the micro and small-scale herbal medicine enterprises, they lacked the expertise, skills and resources to help establish product efficacy and to undertake safety measures. It will be very expensive for them to outsource valuable services related to clinical trials and the like. At most, they should link effectively with the government's R&D institutions in the universities/colleges and selected line agencies (DOST, DOH, NIRPROMP and others).

c. Lack of Production, Post-harvest and Value Adding Technologies

The Philippine herbal medicine industry ought to develop, grow and sustain science and technology-based enterprises to be far more competitive in the local and global markets, effectively utilizing good agricultural practices (GAPs) to produce and supply their raw material needs as well as good manufacturing practices (GMPs) to deliver high quality herbal-based products. They also must follow stringent international and national quality control standards. However, some enterprises lacked the knowledge, skills and resources to be able to adopt the appropriate production, post-harvest and value adding techniques and technologies available locally.

D. SWOT Analysis and Evaluation of Strategic Options

There are two major strategic issues identified herein: a) how to increase market share and b) how to pursue necessary improvements in the supply chain, particularly the sourcing of the desired volume and quality of raw materials at competitive costs. The paper addresses the strategic issues by presenting the results/outcome of the SWOT analysis. The following strategies were formulated:

1. Market Penetration
2. New Product Development
3. Market Development
4. Strategic Alliance, Partnership or Joint Venture/ Supply Chain Collaboration

In an effort to increase market share, three (3) strategic options are seriously considered: a) Market Penetration; b) New Product Development; and c) Market Development. Pertaining to the pursuit of realistic and practical changes and/or improvements in the supply chain, particularly on the sourcing of raw materials, consider the following strategic options: a)

Strategic Alliance (informal); b) Partnership (formal) and c) Joint Venture (with financial equities involved).

V. Conclusions and Recommendations

A. Pursuing an Effective Strategic Alliance between Pharmaceutical Companies among the SMEs and Farmer-Suppliers.

Let us prioritize supply chain related problems and issues and offer business solutions to address these issues. Strategic alliance (informal) or partnership (formal) with farmer-suppliers is deemed a practical, realistic solution. As Ochave (2012) defines such arrangements, this is "A cooperative venture between public-private sectors built on the expertise of each partners that best meets clearly defined public needs through public allocation of resources, risks and rewards". It involves both economic parameters (e.g. sustainability and profitability) as well social parameters (e.g. livelihood and income to the community). Every key stakeholder has their "own" specialization which they can share. Farmer-suppliers invest resources, time and efforts, adopting GAPs from propagation, growing and harvesting. Meanwhile, the pharmaceutical companies have ample financial resources; manufacturing expertise applying GMPs, HACCP and ISO as they engaged in encapsulation, primary and secondary packaging; and marketing skills including branding and distribution.

B. Determining Quality Assurance Standards and Parameters at the Farm Enterprise Level.

Likewise, various challenges confront the industry in these hard times. The questions and issues are mainly on: How do we develop the quality assurance standards and parameters? How can we ensure quality of raw materials and herbal products? How can we avoid contamination in the soil, water and air? How and where do we source raw materials (traceability)? How do we conduct clinical trials? This requires effective networking and links with public and private R & D institutions to acquire the needed knowledge, skills and behaviors that will help ensure the quality of herbal plants and products.

C. Utilizing Appropriate Technologies and Processes

It is also highly recommended that on-site, village type of drying and pulverizing equipment (low costs) be established so that contamination along the supply chain can be avoided from sources of raw materials to processing into herbal medicine products. More so, testing for microbial and moisture content and other testing to accurately detect heavy metals and toxic elements must be carried out at the level of the farmers, with the able support of the agricultural technicians (ATs) and the local government units (LGUs). For all the positive efforts done to guarantee product quality, pharmaceutical companies must adopt "fair" marketing practices with third party evaluation and continue the conduct of effective technology transfer in cooperation with the LGUs and the farmer-suppliers in order to sustain high quality standards at the farmer's level.

D. Enhancing the Role of Consolidators.

In areas where farmers' cooperatives have not existed yet and valuable resources are needed to build one, it can be most advisable that companies deal with the so-called "consolidators" who are most professional and with good sense of social responsibility to transact normal business with farmer-suppliers. The said consolidators are also leaf processors engaged in leaf buying and pick-up, washing, oven drying, pulverizing and packaging. They are also expected to practice "fair" marketing practices, particularly in setting prices.

E. Engaging into New Product Development Strategy of the Pharmaceutical Companies among the SMEs.

Marketing costs can be very high among pharmaceutical companies based on certain considerations such as business model, market niches, availability of raw materials, manufacturing practices,

few/limited products and actual marketing costs. With respect to few products, companies can engage in a new product development strategy as an offshoot of the desired changes and/or improvement in the supply chain. In the case of UNILAB, they have begun manufacturing and marketing *Lagundi* to treat coughs, and colds and later on, *Sambong* for the care of the kidney was given a second priority next to *Lagundi.*

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The Influence of the Selection of Fall Season Tourist Sites on Satisfaction, Intention of Recommendation and Revisitation

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Keywords: Destination Attributes, Revisit Intention, Tourist Satisfaction, Selection of Tourist Destination, Intention of Recommendation, Fall Season Tourist Site

ABSTRACT

In this study, we tried to figure out the influence of fall season tourist site selection on satisfaction, intention of recommendation and revisitation by designing a study model. On the authority of much advanced research, we created selected attribute questions and classified them into 5 factors.(Service & Resource Exploration, Rest & Relief, Sports & Leisure activities, History Cultural Experience and Sightseeing in Surroundings). According to the 5 factors drawn and the result of multiple regression analysis on overall satisfaction, positive effects were shown in 2 factors including Rest & Relief and History Cultural Experience, but not in Service & Resource Exploration, Sports & Leisure and Sightseeing in Surroundings.

Moreover, the higher the satisfaction shown in multiple regression analysis, a higher chance of Revisitation and Intention to Recommend is shown.

Upon the result of this study, we drew the following conclusions. For the invigoration of fall season tourist sites, the development of trails, mountain climbing oriented marketing strategies bringing rest & relief and a policy for distribution or pricing that can promote an extended stay or fall season mountain climbing in the country side are recommended.

I. Introduction

Many Korean tourists like to travel in the autumn. Trips to mountains are very popular as high satisfaction is shown from a trip to a site of natural landscape.

Moreover, the growth potential of fall season tourist sites is high as those satisfied tourists show a high tendency for revisits.

The tourists believe that they would get the greatest satisfaction when the image they imagined of the site matches the actual view. They choose sites that can give such satisfaction. As you can see from this fact, the fall season tourists select the site for a trip based upon the properties and preferences toward certain types of sites that have already been positioned in their minds.

Therefore, if we can set our marketing strategies based upon these preferred priorities of tourists, we would be able to boost the chances of their revisitation as well as secure new tourists. This study will focus on the establishment of a study model regarding what

influences the fall season tourist selection attributes may have on satisfaction, intention of recommendation and revisitation and its verification.

We will also suggest the proper marketing strategies based on the results. The purpose of this study is designated below.

First, the selection attributes will be defined through the advanced study of fall season tourist sites and the results of the advanced study on satisfaction, chances of revisitation and intention to recommend will be used as the standard for the analysis.

Second, the selection attributes of tourists visiting fall season tourist sites will be classified into factors and the hypothesis on influences of those factors on the satisfaction, revisitation and intention of recommendation will be setup so its study model can be verified.

Third, based upon the selection attributes of the tourists visiting fall season tourist sites, a strategic marketing plan for increased demand will be suggested.

II. Theoretical Background & Advanced Research

1. Selection of Tourist Sites

Attribute importance refers to not only the elements effecting customers' satisfaction (Cadott & Turgeon, 1988) and the properties that customers place emphasis on (Filiatrault & Ritchie, 1998) but also the factors determining customers' attitudes.

In this regards, a tourist site refers to a certain place in which all attractions and facilities are combined for the satisfaction of tourists. Its value can achieve recognition only when it is perceived and consistently preferred and used by tourists. Therefore, tourist sites are comprised of many attributes that can attract and satisfy the desires and motivations of tourists.

In the study by Haahti (1986) into the factors of determination for tourist sites and recognition and preferences of tourists on tourist site attributes, the 10 attribute variables of the tourists sites are defined as: monetary value, accessibility, sports facilities, night recreational facilities, peaceful and quiet vacation, kind people, natural park and camping, cultural experiences, beautiful scenery and new destinations. Goodrich (1997) classified the variables as follows: scenery, the attitude of local people, adequate accommodations, rest and relaxation, interest in culture, food, water sports, shopping facilities, recreation and golf and tennis.

Ferraio (1996) had tourists leaving South Africa after travel evaluate the relative importance of the attribute factors of 21 tourist sites in order to measure the preferences of the tourists. In this research he found that natural landscape, safari tours, tropical plants, shopping facilities and regional events act as the major attractions in South Africa. Inskeep (1991) classified tourist sites into natural attraction, cultural attraction and special attraction, and suggested a categorization that can be operated in terms of a sightseeing plan.

As you can see from the result of the advanced study on tourist site selection attributes, the properties of tourist attractions are diversifying, and they have a large impact on action inducement of those tourists.

2. Satisfaction

The concept of satisfaction has been defined by many scholars. Oliver (1981) defined satisfaction as the feeling induced by the mismatch between the customer expectation and the actual experience. Dann (1996) explained it as the complex psychological condition in which feelings are mismatched between the expectation and the actual experience, and any feelings on consuming the experience built in advance are mixed together.

On the other hand, tourist satisfaction refers to the consequences of the interaction between the expectation and the actual experience that a tourist had at a tourist site. (Pizam & Reichel, 1978). It also refers to the degree of concurrence between the existing conviction and selected alternatives.

Geva & Goldman (1991) insist that satisfaction of tourists can be attained when the existing conviction and the selected alternatives match.

Moreover, Lounsbury & Polik (1992) defined it as a means of assessing the image of a tourism experience, a kind of attitude on the overall experience.

Noe (1987) stated that physical properties, sociocultural features, rest, transportation, commercial service and safety facilities, convictions, situations regarding leisure activities and intangible products have an impact on tourist satisfaction.

Therefore, tourists make decisions for their behavior in the buying at a defined stage based upon the attraction and overall circumstances, including charges and conditions, which lead to the actual visit to the site. It is the pre-stage of the actual consumption in which the tourist develops the expectation on the tourism consumption activity. After the site is selected, the tourist moves to the actual destination and makes the consumption there. This is how tourist satisfaction is built.

3. Intention of Revisitation

The intention of revisitation is completed in connection with the post purchase evaluation. The post purchase evaluation is one of the stages in post purchase behavior of the consumer's decision making process and it is defined as the assessment process of post purchase satisfaction or dissatisfaction. Therefore, the intention of revisitation and word of mouth can be regarded as variables of a consumer satisfaction result in the study of consumer behavior regarding customer satisfaction.

There is less chance of revisitation for dissatisfied consumers (Newman & Webel 1973) and dissatisfied consumers will never show an active repurchase behavior. It is not possible to deny the effect of post purchase satisfaction on repurchase behavior. Moscardo (1986) studied the psychological distinction between people who made a revisitation and those who did not. The result showed that experiences from the features of tourist sites have a great impact on both satisfaction and revisitation. Mazurskey (1989) proved in his study that the expectation of the tourist site, other experiences in the past, social norms and satisfaction have a significant effect on revisitation. Even in these studies, it is fully proven that there is an insignificant chance of dissatisfied consumers to making a return to the site.

4. Intention to Recommend

Higher satisfaction of tourists will lead to more positive influence on the selection of tourist sites in the future and a higher intention of revisitation. Tourists tend to recommend sites where they were satisfied with the experience there by sharing these positive feelings and impressions regarding the site. (Yu-Jae Lee, 1997).

Gye-sup Kim and Na-ri Choi (2005) stated in their study that the intention of revisitation is formed only when there is a possibility of tourists making a revisitation to the same spot and when they are willing to recommend the place to others.

Geva & Goldman (1991) verified the influence of tourists' satisfaction on revisitation and word of mouth in their study of tourist behavior targeting package tour participants. Kozak & Rimminton (2000) stated in their study targeting tourists that visited Mallorca that higher satisfaction for the site brought a higher chance of revisitation and the intention of recommendation.

Until now we have taken a look at various cases of advanced studies on tourism satisfaction influencing revisitation. The results proved that there is a close correlation between the two and those satisfactory experiences are often handed down through word of mouth.

In this study we will carry out research targeting the visitors of fall season tourists sites in view of the proven facts that the tourist site selection attributes will have an impact on satisfaction and tourist satisfaction is proportional to the chances of revisitation and the intention to recommend.

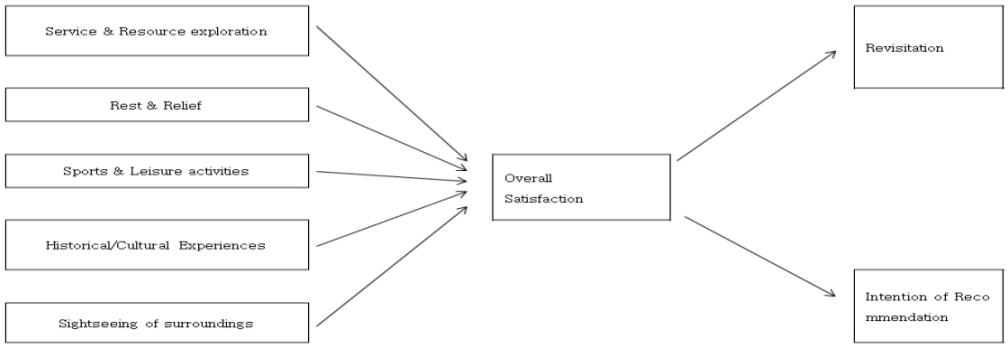
III. Study Model & Analysis Method

1. Study Model

In this study, we have classified factors into 17 different selection attributes based on the study of

Haahti (1986), Goodrich (197) and Ferraio (1986). We have defined the following five factors as the operant variables: Rest/Relief, Personal Development/Leisure Activities, Historical/Cultural Experiences, Festival/ Service (neighborliness)/Shopping/Food, and Sightseeing in Surroundings. All five factors have impact on the overall satisfaction and to verify the significance of influence on tourist satisfaction on revisitation and intention to recommend, we have set up a study model shown in Figure 3-1.

<Figure 3-1> Study Model



The following are research hypotheses for the verification of the study model

Hypothesis 1: Service & Resource Exploration, Rest&Relief, Sports&Leisure Activities, Historical/Cultural Experiences, and Sightseeing in Surroundings will have a positive impact on the overall satisfaction of tourists

Hypothesis 2: Greater tourist satisfaction from their experience will have a positive impact on the chances of revisitation

Hypothesis 3: Greater tourist satisfaction from their experience will have a positive impact on the intention to recommend

2. Analysis Method

The sample of this study is targeting those who have visited fall season tourist sites. 262 valid samples are applied in the actual analysis.

The survey was carried out for 17 days from October 20 to November 5, 2011, and the statistical treatment of the collected data was implemented using SPSS18 for Windows after the data coding process.

Frequency Analysis, Reliability Analysis, Factor Analysis for the actual analysis, Multiple Regression Analysis for the hypothesis testing on the fall season tourist site selection factor and Simple Regression Analysis for the hypothesis testing on the intention of recommendation were carried out.

IV. Actual Analysis

1. General Properties of the Sample and Preferences for Fall Season Tourist Sites

The general demographic characteristics of respondents are shown in Table 4-1. According to gender, among the total 390 respondents who participated in a fall season tourist activity, the proportion of males to females is shown to be 41.7% to 58.3%. According to age, people in their 20's showed the most active participation followed by people in their 40's, 30's 50's and 10's. Based upon the academic ability, the highest percentage was college graduates, followed by high school graduates, Mater's/Ph.D degree holders and middle school graduates. Regarding the vacation period, 43.5% (114 people) responded that they are

taking 2 day/1 night trips followed by 38.5% (101 people) with 3 day/2 night trips, 11.8% (31 people) for 4 day/3 night trips and 3.1% (8 people) for 5 day/4 night and 6 day/5 night trips respectively.

<Table 4-1> Demographic Characteristics of the Sample Unit: Person %

Classification		Frequency	Vaild Percent
Gender	Male	121	46.2
	Female	141	53.8
Age	Below 19	25	9.5
	20～29 yr	108	41.2
	30～39 yr	47	17.9
	40～49 yr	48	18.3
	More than 50	34	13.0
Academic ability	Middle School graduate	13	5.0
	High School graduate	48	18.3
	College graduate	171	65.3
	Master's or Ph.d degrees	30	11.5
Vacation period	2 days and 1 night	114	43.5
	3 days and 2 nights	101	38.5
	4 days and 3 nights	31	11.8
	5 days and 4 nights	8	3.1
	6 days and 5 nights	8	3.1
	Total	262	100.0

The preferred fall season tourist sites, actual visited sites and the information on trips are defined in the following table, Table 4-2.

<Table 4-2> Preferred Fall Season Tourist Sites

	Preferred Fall Season Tourist Site	Frequency	%	Actual Visited Site	Frequency	%	Information on Trip	Frequency	%
1	Jeju Island	61	23.3	Mt. Jiri	50	19.1	Internet	81	30.9
2	Uleung-do	35	13.4	Jeongdongjin	42	16.0	Collegues or friends	74	28.2
3	Samyang Daegwanryung ranch	28	10.7	Jeju Island	38	14.5	Friends or relatives	40	15.3
4	Mt.Seolak	27	10.3	Mt.Seolak	33	12.6	T.V, Mass communication	29	11.1
5	Jeongdongjin	24	9.2	Samyang Daegwanryung ranch	27	10.3	Newspaper & Magazine	27	10.3
6	Mt. Jiri	21	8.0	National park of Mt.Deokyu and Mt.Mindung in Jungseon	17	6.5	Travel Agency	11	4.2
7	Hyunchungsa Eunhaengnamu-gil,	21	8.0	Mt. Naejang	15	5.7			
8	Mt. Naejang	18	6.9	Hyunchungsa Eunhaengnamu-gil,	15	5.7			
9	Recreational forests of Mt. Waryong	14	5.3	Uleung-do	12	4.6			
10	National park of Mt.Deokyu	10	3.8	Mt.Mindung in Jungseon	9	3.4			
11	Mt.Mindung in Jungseon	3	1.1	Recreational forests of Mt. Waryong	4	1.5			

The results, ranked in descending order of preferred tourist sites for fall season are as follows: Jeju Island, Uleung-do, Samyang Daegwanryung Ranch, Mt.Seolak, Jeongdongjin, Mt. Jiri, Hyunchungsa

Eunhaengnamu-gil, Mt. Naejang, Recreational Forests of Mt. Waryong, The National Park of Mt.Deokyu and Mt.Mindung in Jungseon. However, the results on actual visited sites are quite different from preferred ones and their ranks in decending order are as follows: Mt. Jiri, Jeongdongjin, Jeju Island, Mt.Seolak. The largest information sources proved to be the internet, followed by peers and friends, family and relatives, TV and mass communication, newspaper and magazines and travel agencies.

2. Factor Analysis with Varimax Rotation & Reliability Analysis

In this study, we have verified both validity and degree of confidence regarding the definition of survey questionnaire selection and measurement concepts. The result is shown in Table 4-3. As the value of KMO appears to be .805 and 1407.156 for Barlett's Test of sphericity indicating the suitability of factorial analysis, a factorial analysis with a significance level .000 should be applied. Moreover, for the relational analysis, the principle component analysis and Varimax rotation that would condense the number of factors into the minimum level were used for confidence verification, and Cronbach Alpha values were suggested as the result. The result of the Cronbach Alpha coefficient, showing the reliability of the data, turned out as follows: .808 for Service & Exploration of resources, .695 for Rest & Relief, .689 for Sports & Leisure activities, .820 for Historical Cultural Experiences and .659 for Sightseeing in Surroundings. If its value is higher than .65, it is regarded as significant and, as all values in this study appear to be above .659, they are all regarded as having high reliabilities.

<Table 4-3> Factorial Analysis

Decision Domains	Items	Factor Loadings	Variance Explained(%)	Eigen Value	Cronbach's α
F1: Service & Exploration of Resources	Kindness of employees in tourist sites	.718	16.267	2.765	.808
	Festival/Event/Cultural event	.850			
	Heritage sites	.797			
	Local dish/Custom/Tradition	.578			
	Visit to Buddhist temple	.590			
F2: Rest & Relief	Getting rid of stresses/Relief	.696	13.732	2.335	.695
	Vacation/Leisure	.764			
	Time with friends/ coworkers	.726			
	Time with family/relatives	.573			
F3: Sports & Leisure Activities	Self-development	.562	12.062	2.051	.689
	Entertainment	.757			
	Fun	.719			
	Sports Activities	.624			
F4: Historical cultural experiences	History/Culture/Geography	.860	11.044	1.877	.820
	Visit cultural heritage sites	.853			
F5: Tourism activities of surrounding areas	Theme park/Mountain climbing	.783	9.893	1.682	.659
	Hot spring/Sea bathing /Woods bathing	.829			
Total variance explained (%)		62.999			
KMO		.805			
Bartlett's Test of sphericity		1407.156(p<.000)			

4. Regression Analysis for the Verification of the Study Model

1) Hypothesis 1: Service & Exploration of Resources, Rest & Relief, Sports & Leisure Activities, Historical Cultural Experiences and Sightseeing in Surroundings will have a positive effect on overall

tourist satisfaction. The result of the multiple regression analysis regarding the influence of Service & Exploration of Resources, Rest & Relief, Sports & Leisure Activities, Historical Cultural Experiences and Sightseeing in Surroundings on satisfaction are shown in Table 4-4. The R2 value of 0.113 represents 11.3% of the impact on satisfaction and this seems quite low. However, this hypothesis has been adopted as F2 (Rest & Relief) and F4 (Historical Cultural Experience) are regarded as independent variables taking overall satisfaction as a dependent variable and they are regarded to have a significant effect on satisfaction when their significance probabilities range between ***p<0.01 and *p<0.1. The result showed that Rest & Relief and Historical & Cultural Experiences are dealt with in depth when making a selection of a tourist site, more so than the factors including Service & Exploration of Resources, Sports & Leisure Activities and Sightseeing in Surroundings.

<Table 4-4> The Influence of Fall Season Tourist Site Selection on Overall Satisfaction (Multiple Regression Analysis)

Independent Variable : Overall Satisfaction					
Dependent variable	B	Std. Error	Beta	t	Sig
F1 Service & Resource Exploration	.038	.076	.034	.493	.622
F2 Rest & Relief	.278	.077	.230	3.588	.000***
F3 Sports & Leisure activity	.050	.069	.051	.733	.464
F4 Historical & Cultural experiences	.107	.057	.127	1.881	.061*
F5 Tourism activiites of surrounding areas	.019	.059	.021	.319	.750
Constant	2.148	.341		6.307	.000
R2 Adjusted R Square	.113 .096				

*p<0.1, **p<0.05, ***p<0.01

2) H.2: The satisfaction of the tourists will have a positive effect on the chances of revisitation. To prove the hypothesis, we have done a simple regression analysis. For the verification of the study model, assuming higher satisfaction from a tourist will bring higher chances of revisitation, we have set up overall satisfaction as an independent variable and the chances of revisitation as a dependent variable and carried out the regression analysis. The result is shown in Table 4-5.

The R^2 value is .354, which means there is 35.4% connectivity between satisfaction and the chances of revisitation, and the overall satisfaction of fall season tourist sites is having a significant effect on the chances of revisitation within the range of ***p<0.01.

<Table 4-5> The Influence of Overall Satisfaction on the Chances of Revisitation (Simple Regression Analysis)

Independent Variable: Revisitation					
Dependent variable	lB	Std. Error	Beta	t	Sig
Overall satisfaction	.627	.053	.595	11.933	.000***
Constant	1.307	.212		6.159	.000
R2 Adjusted R Square	.354 .351				

*p<0.1, **p<0.05, ***p<0.01

3) H.3: The satisfaction of the tourists will have a positive effect on the intention to recommend. To prove the hypothesis, we have done a simple regression analysis. For the verification of the study model assuming that higher satisfaction of tourists will bring higher chances of intention to recommend, we have set up overall satisfaction as an independent variable and the intention to recommend as a dependent variable and carried out the regression analysis. The result is shown in Table 4-6.

The R^2 value is .282, which means there is 28.2% connectivity between satisfaction and the chances of revisitation; the overall satisfaction of fall season tourist sites is having a significant effect on the chances of intention to recommend within the range of ***p<0.01.

<Table 4-6> The Influence of Overall Satisfaction on the Intention to Recommend (Simple Regression Analysis)

Independent variable : Intention of recommendation					
Dependent variable	lB	Std. Error	Beta	t	Sig
Overall satisfaction	.595	.059	.531	10.104	.000***
Constant	1.562	.238		6.573	.000
R2	.282				
Adjusted R Square	.279				

*p<0.1, **p<0.05, ***p<0.01

V. Conclusion

In this study, we have drawn factors regarding the selection attributes of fall season tourist sites via existing advanced studies and have verified those factors through hypotheses assuming that there will be positive effects between the following factors: Factors regarding the selection attributes for overall satisfaction and the impact of overall satisfaction on the chances of revisitation and the intention to recommend.

We have classified the tourist site selection attributes defined in the advanced studies into following 5 categories: Service & Exploration of Resources, Rest & Relief, Sports & Leisure Activities, Historical Cultural Experiences and Sightseeing in Surroundings. The result of factorial analysis shows that all the variables used in this study are consistent as the value of Cronbach α lies between 0.659 ~ 0.820

The result of multiple regression analysis on the 5 drawn factors and overall satisfaction, 2 factors including Rest & Relief and Historical & Cultural Experiences turned out to have a positive effect on overall satisfaction, while the other 3 factors, including Service & Resource Exploration, Sports & Leisure Activities and Sightseeing in Surroundings did not. This is principally because of a special behavioral feature of fall season tourism that relies on preferences for visiting natural sites and mountain climbing.

The result of simple regression analysis regarding the influence of overall satisfaction on the chances of revisitation and the intention to recommend, higher satisfaction correlates to higher chances of revisitation and intention to recommend. As we have seen from the advanced studies, higher satisfaction will draw higher chances of revisitation, and as a positive word of mouth effect occurs, it will eventually lead to higher chances for intention to recommend.

Lastly, in the survey regarding the frequency of preferred fall season tourist sites, the long distance regions such as Jeju Island, Uleung-do, and Samyang Daegwanryung Ranch are the most preferred. It is quite different from the actual visited sites of Mt. Jiri and Mt. Seolak where many people visit for mountain climbing. As the most common source of information, the internet was selected.

Based upon the result of the actual analysis above, we suggest the following marketing strategies.

First, for the invigoration of fall season tourist sites, the implementation of mountain climbing oriented marketing strategies will be needed that maintain the

good images of natural landscapes and provide relax/relief feelings to visitors through the development of natural trails.

Second, the development of tourism products in affiliation with the fall season tourist sites and the region it belongs to will be required. In other words, we should try to find various ways to extend a stay and provide a higher satisfaction. Instead of solely focusing on mountain climbing, we can even consider connecting it to the local festivals held in the nearby towns and perhaps provide unconventional experiences.

Third, tourists showed higher preferences for well-known or long-distance regions. Therefore, we should consider of setting an adequate price policy or marketing strategy in order to disperse the straw effect at certain sites.

This study evaluated the influences of the selection attributes on satisfaction, the chances of revisitation and the intention to recommend. However, it has a limitation as it only focuses on the fall season. Therefore, in the follow-up studies, the selection attributes for other seasons should be examined as well.

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