

Organic Rice Growing Potentials in Chiang Rai Province

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Abstract— This research was aimed to study the influencing factors in growing organic rice in Chiang Rai province, Thailand and investigate the procedures to find out what specific factors have an important effect on the organic rice growing potentials in the province. The researcher surveyed about 430 respondents who studied at a Buddhistly economic school of agriculture at Chern Ta Wan farm in Chiang Rai. The path analysis was used to test the hypotheses. The result revealed that the communication, the knowledge, the organic markets, the economy, the organic networks helped draw understanding to this research, saying the communication did have the effect towards the knowledge (the communication could convince the farmers to create actions), so as the knowledge towards the organic markets (it helped the farmers to positive actions towards themselves and the families), the organic markets, too, towards the economy. So did the economy towards the organic networks (this would open an opportunity to create a market, which became a good new choice for the farmers and they would feel strongly driven) The organic networks did also have the influence towards the attitudes (it made the farmers believe the organic procedures could make their lives better and happier)

Keywords—Organic Rice, Potential farmer, Sustainability, Buddhist economic farmer school

I. INTRODUCTION

THE land in Chiang Rai province has many advantages : abundant natural resources (soil, water, herbs and organic fertilizer), a lot of human resources (labor) and a great suitability to grow organic rice. To make it better, Thailand is presently a member of World Trade Organization (WTO), the Asean Economic Community (AEC). And, recently Free Trade Policy (FTA) has just be established to several countries, such as China, Australia, etc, which could be said that this is the best time for all the Thai agricultural products, especially rice to be introduced to the Global level. Therefore, the Thai rice growers have to realize this great chance for huge prosperity, and work very hard to improve the quality of the rice to be exported, which appears to be the Organic styles (Cargo Rice) [2] According to the world's current concept to reduce negative impacts on the farmers hoping for the Thai farmers to have sustainable wealthy happy lives, the need to change their rice growing styles have to be seriously addressed. Nowadays, the agriculture is related with such problems as the

environmental pollutions: soil, water and air, the natural resource depletion and degradation as well as the socio-economic problems. These are always regarded as the hottest topics in the agendas of various international conventions. In fact, many communities want to get involved with these problems (including farmers, environmentalists, nature-conservators, scientists, consumers and policy makers). This has gradually and enormously resulted in a new trend or demand for better redesigned rice growing systems as well as a new goal for the farmers to become safer, healthier, richer and more sustainable in lives. However, to succeed this is not easy at all task because agriculture is involved with many activities and bodies. (Goewie, 1997; Vereijken, 1995) [5], [25]. The farmers in Chiang Rai have lived their lives in the traditional farming styles with so much synthetic fertilizer and pesticides. But the best alternate choice will be an organic rice farming method due to no synthetic fertilizers, no harm to health, and low operation cost. The Buddhistly economic school of Agriculture provides courses to help create new attitudes among the farmers through studying the variables that influence the potentials of the farmers to grow organic rice, which is the key to change the rice growing styles to the organic method. This organic rice growing method can contribute to an ecologically sustainable lives of the farmers. But nowadays the farmers in Chiang Rai still do not accept this method. This became the idea for the researcher to make a study to find out the influencing factors towards the farmers to be able to identify the potentials in growing the organic rice.

II. LITERATURE REVIEW

A. Organic Agriculture

IFORM [8] defined that “organic” term as referring to the particular farming system described in its Basic Standards. The “Principle Aims of Organic Agriculture and Processing” that will ensure a farm maintains its sustainable productive capacity. Organic agriculture depend partly on local circumstances in terms of needs and availability of resources.

Gold, Mary [6] defined that Organic agriculture is an ecological production management system that promotes and enhances biodiversity, biological cycles and soil biological activity. It is based on minimal use of off-farm inputs and on management practices that restore, maintain and enhance ecological harmony.

Tari, Cortes, Moliner & Azorin, [23] defined that Organic farming, the social responsibility is regarded as an important component of organizational effectiveness, such as CSR has a valuable contribution to make tourism industries sustainable

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and Henderson [7] mentioned that processes is to move toward a proactive, preventative stance, and reduction in the cost.

B. Knowledge and Skill (Cognitive style)

Umar [24] defined that Cognitive style has to do with how individuals process information and make choices in learning, study strategy refers to a habitual pattern or preferred way I which student engage in learning with hope of yielding good understanding of subject matter. According, Nonye and Nwosu [19] express that learning style are internal traits of learners while strategies are external skills consciously or subconsciously used by learners

Beatie, Colins and Mcinnes [1] defined that it is possible for students to develop study strategies to enable them make the most efficient use of all strengths and limitations of their particular cognitive styles. According to Entwistle and McCune [18] found that a student that adopts a deep approach to learning is identified with intention to understand, intrinsic motivation, use of evidence, critical thinking and relating ideas to already known concepts and principle.

Davis, Kristin [3] defined that Farmer Field Schools (FFS) has development on the effectiveness in fighting poverty and fostering innovation. The specific objectives of the field data collection were to characterize farm households in terms of poverty and well-being, members-and non FFS members, on the basis of socio-economic parameters; analyze farmers' access to agricultural services (markets, credit and extension); and assess household's level of individual and collective empowerment. In addition, the change in the combination may change the effectiveness of certain processes which influence farmer, such as the cycles of water, nutrients, energy and knowledge. Farmers' knowledge of local conditions and of traditional practices are of key importance in the success of organic agriculture.

C. The Innovation Management

Tracey [12] defined that Markets are an important role in rural development to be aware of how to design markets that meet a community's social and economic needs and how to choose a suitable site for a new

Farrington and Faal [11] defined that Market orientation in agricultural advisory services aims to provide for the sustainable enhancement of the capabilities of the rural poor to enable them to benefit from agricultural markets and help them to adapt to factors which impact. Moreover, Market orientation demands a value chain orientation; which in turn implies that advisory services must meet the needs a range of actors

FOAN [4] defined that The Fukushima Organic Agriculture Network (FOAN).The agricultural community faced a great deal of uncertainty about the future and help them better evaluate local agricultural goods.

IFORM [8] defined that Network of supports of the organic mission and movement, sharing common information and common tools across and open-source, practical platform as a real and significant institutional alternative to conventional agriculture organic network farming in Chiang Rai is a prefecture through the collaboration among the farmers, make Facilitating and Value Chains Development.

D. Buddhist and Sustainability

Buddhist economic farmer school is the place to teach and foster empowerment, sustainability and farmer well-being. Laszlo Zsolnai [15] stated that Buddhist Economics proposes alternative principles such as minimizing suffering, simplifying desires, nonviolence, genuine care, and generosity. The overall sustainability of a farming system can best be expressed by the degree of sustainability reached. (Darko and Eric) [26]

Ethical can attributes people for developing, concerns, willingness and new market segments. Additional, the communication of additional 'ethical' attributes needs a common understanding of organic method. Zender, Hamm [14]Found that organic farming is quality of life and sustainability.

Buddhism provides a pint of departure; a theory of knowledge, supported by a central belief system, from which a Buddhism social philosophy would be able to integrate a world-outlook of human nature, its core-values and its cultural dimension. A social philosophy that would be able to unify, in an all-embracing value system, the cognitive 'is' and the normative 'ought to' beliefs. In order words, a world-outlook that makes the manifest reality (facts) comprehensive and meaningful (valuable), and at the same time, it should legitimize social institutions and the rule of governing authority. (Chapela).[16]

E. People potential

Nacy, Fritsche Eagan [17] defined that People potential is facilitate, and develop leaders, organizations, and communities in their work to create essential change.

III. METHODOLOGY

The purposes of this research were to investigate and analyze 10 independent influencing factors: the people, the economy, the society, the communication, the knowledge, the skills, the attitudes, the participation, the organic networks, and the organic markets to find out whether they had effects towards the potentials of the farmers in growing organic rice in the province. The targeted population was 430 students who had taken a course on the organic processes at a Buddhistly economic school of agriculture. Those 430 farmers were given questionnaires, the tool in this research. The questionnaires were consisted of three sections representing the ten independent variables to distinguish the real influencing factors and the demographic factors.

A. Methods of Analysis

The study was a mix-method (qualitative and quantitative) research. It described the general data consisting of uantitative data (done through the frequency, the percentage, Mean and the standard deviation) and qualitative contextual data (done through one: the interview and the focused group session: this allowed the respondents to engage in a guide discussion. This enabled the researcher to question them systematically and simultaneously on a defined area of interest. The findings from the research could give the demographic data (the farmers' situations) consisting of the people, the economy, the society and the communication. The study also followed the

interpretivist paradigm which allowed the researcher to establish the frames of the meanings when looking into the participants' points of views, the perceptions and the interpretations Creswell [10]. Then path analysis method was used to find the influencing factors from the 10 variables factors.

B. Expected Finding

In this study, Content analysis was used to identify the demographic data of the farmers. Path analysis was used to analyze the influencing factors in growing organic rice. The researcher expected the outcome to be described in a model of the 10 factors : the people, the economy, the society, the communication, the knowledge, the skills, the attitudes, the participation, the organic networks, and the organic markets. The hypotheses (H) was that those 10 factors had influence towards the potentials the farmer to growing organic rice in Chiang Rai province.

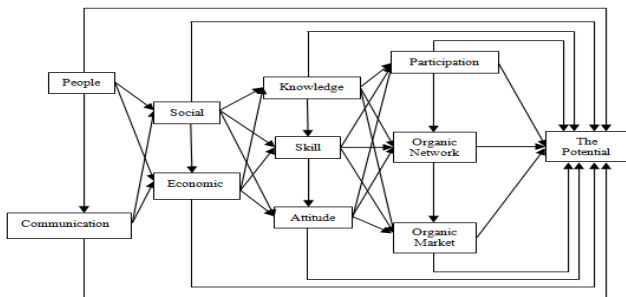


Fig. 1 The 10 Influencing factors effecting the potentials of the farmers in growing organic rice in Chiang Rai province

IV. RESULT AND FINDING

This research followed a mix method approach (qualitative and quantitative). The qualitative research was focused to understand the 4 conditions: the personal data of the farmers, the society of the farmers, the economy and the communication, which went along well with Nieuwenhuis [9] “The data from the basis of many of the farmers’ behaviors and methods of data generation and analysis”. From the interview, it was found that most of them among the 430 respondents were married male farmers with the age between 36 to 55 years old with the elementary education, who were dominant in following the organic processes rather than the female farmers. However, from the focused group it revealed oppositely that the female farmers were more active and more interested in the organic processes. However, both of the female and male farmers had the same desire, which was that they wanted to reduce the production cost, have safer jobs and sustainable lives. That would come to the solution of the change to the organic rice growing style. The quantitative research was focused to understand the 10 factors through the Path analysis. It showed that from Table 1, when testing the hypothesis, there were 3 possible conclusions: Direct Effect, Indirect Effect and Total Effect, those being called null hypothesis were rejected whereas those being significant were calculated to find the influencing factors towards the potentials of the farmers. The results were summarized as (Table II) follow:

I. Direct effect (DE): the finding was that the communication (0.618), the knowledge (0.409), the organic markets (0.216), the economy (0.147), the organic networks (0.113) and the attitude (-0.101) (6 factors) were the direct effect towards the potentials of the farmers.

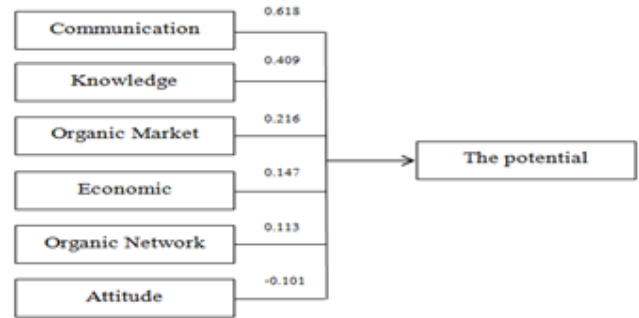


Fig. 2 The direct effect towards the potentials of the farmers in Chiang Rai province

II. Indirect effect (IE): the finding was that the people (-0.275), the knowledge (0.258), the social (0.161), the participation (-0.144), the economic (0.062), the organic network (0.047), the communication (-0.036), the attitude (0.029), the organic market (-0.016) and the skill (0.012) (10 factors) were the indirect effect towards the potentials of the farmers.

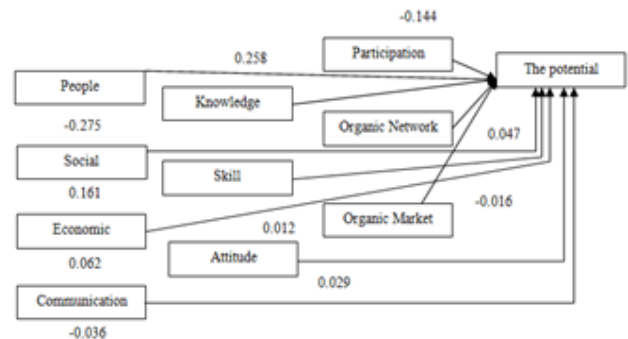


Fig. 3 The indirect effect towards the potentials of the farmers in Chiang Rai province

III. Total effect (TE): the finding was that the knowledge (0.667), the communication (0.582), the people (-0.275) the economic (0.209), the organic market (0.200), the social (0.161), the organic network (0.160) the, participation (-0.144), the attitude (-0.072), the skill (0.012) were the total effect towards the potentials of the farmers.

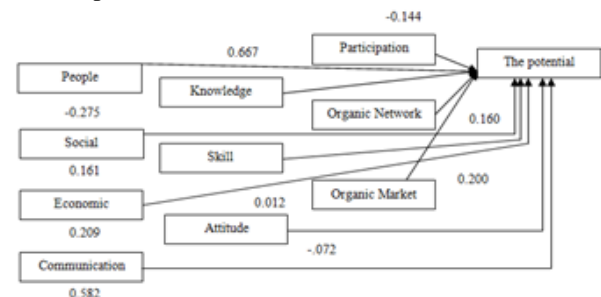


Fig. 4 The total effect towards the potentials of the farmers in Chiang Rai province

TABLE I

THE ANALYSIS OF DIRECT EFFECTS (DE), INDIRECT EFFECTS (ID) AND TOTAL EFFECTS (TE). THE RELATIONSHIP BETWEEN INDEPENDENT VARIABLES AND THE DEPENDENT VARIABLE POTENTIAL TO GROWING ORGANIC RICE FARMERS IN CHIANG RAI IN 2014.

Relationship Type	The relationship between the independent variables and the dependent variable ORP.									
	PER	SOC	ECO	COM	KM	SK	ATT	PAR	ONET	MK
1.Total Variation	-0.371	-0.238	0.120	-0.505	0.660	0.644	0.293	0.579	0.217	-0.586
2. The relationship of cause and effect (sum: TE).	-0.275	0.161	0.209	0.582	0.667	0.012	-0.072	-0.144	0.160	0.200
2.1 The Total direct effects: DE	0.000	0.000	0.147	0.618	0.409	0.000	-0.101	0.000	0.113	0.216
2.2. The Total indirect effects: IE	-0.275	0.161	0.062	-0.036	0.258	0.012	0.029	-0.144	0.047	-0.016
3. relationships, not cause and effect = 1-2.	-0.096	-0.399	-0.089	-1.087	-0.007	0.652	0.101	0.723	0.057	-0.786

TABLE II

THE RESULT OF INFLUENCING FACTORS TO EFFECT TO POTENTIAL FARMER.

Total Effects TE	Direct effects DE	Indirect effects ID
1. Knowledge (0.667)	1. Communication (0.618)	1. People (-0.275)
2. Communication (0.582)	2. Knowledge (0.409)	2. Knowledge (0.258)
3. People (-0.275)	3. Organic Market (0.216)	3. Social (0.161)
4. Economic (0.209)	4. Economic (0.147)	4. Participation (-0.144)
5. Organic Market (0.200)	5. Organic (0.113)	5. Economic (0.062)
6. Social (0.161)	6. Organic Network (0.113)	6. Organic Network (0.047)
7. Organic Network (0.160)	6. Attitude (-0.101)	7. Communication (-0.036)
8. Participation (-0.144)		8. Attitude (0.029)
9. Attitude (-0.072)		9. Organic Market (-0.016)
10. Skill (0.012)		10. Skill (0.012)

V. CONCLUSION

The result also showed that the 6 factors: the communication, Knowledge, Organic Market, Economic, Organic Network and Attitude were the direct effect variables towards the potentials of the farmers in growing organic rice, which was supported by many concepts Zander, Hamm, Freyer, Gossinger, Hametter, Naspetti, Padel, Stolz, Stolze and Zanoli.) [13] “communication makes farmers to understand “Organic” and contributes toward transparency and trust in organic systems”. As a result, when the farmers understood the core concepts in growing organic rice, there would be a stable development in their careers, which was supported by Zander and the others [13] A regular basis to the farm (Organic method) to provide greater financial stability and, thus, lower the risk But the other 4 variables: the people , the social, the skill and the participation with the indirect effect towards the

potentials of the farmers were also important to contribute to the potentials of the farmers.

VI. RECOMMENDATION

1. The process to increase the potentials of farmers in growing organic rice in Chiang Rai will provide a solution to the problems from the Green Revolution. This can be finely blended with the concept to develop from the root to build the understanding (Bottom up), a strategic management development aimed at solving the problems of rural society. Truly, so the learning process is the heart of the people or farmers of rural social sustainability (Prawet Wasi) [20]

2. The enrollment in a Buddhistly economic school of Agriculture with the curriculums aimed to help the farmers work safely in growing rice organically without any chemicals in the processes as well as reducing the production costs so as to have solid sustainable lives and holding the noble eightfold paths will be the best answer for the farmers to continue their lives with happiness and good health. This can be seen in line with EF Schumacher [21], who followed the teachings of Buddha "Living properly" with the 8 fold paths, as guided by the concept of Buddhist Economics. So, he created the theory, "middle way economy" as the answer for a sustainable agriculture. Therefore, if the farmers can follow this concept that each has to have respect to one another, learn to make products in harmless ways through organic methods and they will be able to survive well in their careers with good health and sustainability.

3. The farmers for the most powerful influence in their careers for their survivals have to stick to one another to create a network of farmers so as to create the power in negotiating with the other communities with the support from the government in laying green policies such as the establishment of Green Markets acting both the places to sell the products and the tourist destinations in spreading the green concepts (or the dharma principals). This can be seen as well in the theory

of motivation by Schiffman and Kanuk, [22] saying that the people network would create driving forces in starting organic rice paddies.

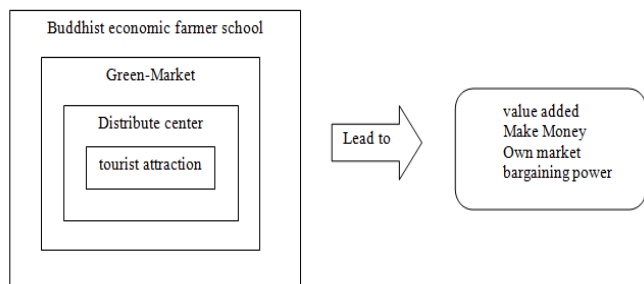


Fig. 5 Farmers and self-management approach to enhance integrated.

4. The integration of the government, the private organizations and the people through the dharma will lead to a systematic development of the potentials of the farmers in growing organic rice with sustainability in the future.

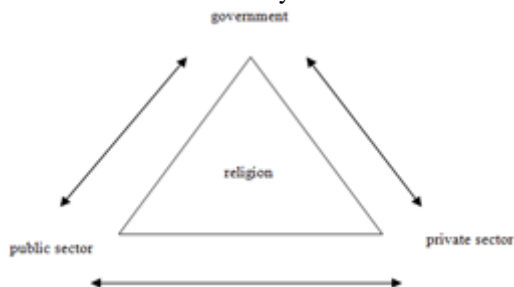


Fig. 6 The integration of cooperation to strengthen farmers

VII. FUTURE RESEARCH

Future research, may use the other scientific instruments and focus on other variables to measure the farmer's potential to cover other variables and different perspectives. In addition, more findings understanding of Thai's farmer indifference other area and expend the research into other factor for better results.

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REFERENCES

- [1] Beattie, Vivien; Collins, Bill; Mcinnes, Bill (1997). Deep and surface learning: a simple or simplistic dichotomy. *Accounting Education*, Volume 6, Number 1, 1 March 1997, pp. 1-12 (12) <http://dx.doi.org/10.1080/096392897331587>.
- [2] Cargo Rice, 2012. Turn the rice under FTA Bangkok office of agricultural economics.
- [3] Davis, Kristin. 2012. Assessing the Potential of Farmer Field Schools (FFS) to Fight Poverty and Foster Innovation in East Africa. Washington, D.C.: International Food Policy Research Institute (IFPRI) (datasets). <http://www.ifpri.org/dataset/assessing-potential-farmer-field-schools-ff>.
- [4] Fukushima Organic Agriculture Network (FOAN). (2014) "Rebuilding Fukushima Ties" Recovery Project. <http://www.jcie.org/311recovery/YuukiNet.html>
- [5] Goewie, E.A. (1997): "Designing methodologies for prototyping ecological production systems" Course reader MSc. Ecological Agriculture (F800-204). Department of Ecological Agriculture, Wageningen Agricultural University, Wageningen.
- [6] Gold, Mary. "What is organic production?". *National Agricultural Library*. USDA. Retrieved 1 March 2014.
- [7] Henderson, J.C. (2007). Corporate social responsibility and tourism: hotel companies in Phuket, Thailand, after the Indian Ocean tsunami *International Journal of Hospitality Management* 26, 228-239. <http://dx.doi.org/10.1016/j.ijhm.2006.02.001>
- [8] IFORM (2014) The Sustainable Organic Agriculture Action Network (SOAAN). <http://www.ifoam.org/pt/sustainable-organic-agriculture-action-network-soaan>.
- [9] J. Nieuwenhuis 2007. Qualitative research designs and data gathering techniques. In: K mare (ed.). *First steps in research*. Pretoria: Van Schaik.
- [10] J. W. Creswell, *Research Design: Qualitative, and mixed methods Approaches* (3rd ed.). Los Angeles: Sage Publications, Inc., 2009.
- [11] John, Farrington and Jojob Faal. (2008). "Agricultural advisory services and the market". Overseas Development Institute. April 2008. <http://www.odi.org/publications/1145-agricultural-advisory-services-market>.
- [12] John, Tracey, (2003) *Planning and Designing Rural Markets*, FAO, Rome. <ftp://ftp.fao.org/docrep/fao/006/y4851E/y4851E00.pdf>
- [13] Katrin Zander, Ulrich Hamm, Bernd Freyer, Katharina Gossinger, Monika Hammetter, Simona Naspetti, Susanne Padel, Hanna Stolz, Matthias Stolze and Raffaele Zanolì. (2010). *Handbook: Farmer Consumer Partnerships-How to successfully communicate the values of organic food*. Department of Agricultural and Food Marketing, University of Kassel, Germany, 2010
- [14] Katrin, Zander and Ulrich, Hamm (2010). *Successful communication of additional 'ethical' attributes of organic food*. Faculty of Organic Agricultural Sciences University of Kassel, Germany. 4 (2010).
- [15] *Laszlo Zsolnai* (2008) *Sustainability and Sufficiency: Economic Development in a Buddhist Perspective*. Social and Economy, Budapest.
- [16] Leonardo, Chapela (1990). *Buddhist Himalaya: A Journal of Nagarjuna Institute of Exact Methods*. Vol. III No. I & II (1990-1991) <http://ccbs.ntu.edu.tw/FULLTEXT/JR-BH/bh117503.htm>.
- [17] Nacy, Fritsche Eagan (2014). *People Potential network*. <http://peoplepotential.org/home>.
- [18] Noel, Entwistle and Velda, McCune (2004). *The Conceptual Bases of Study Strategy Inventories*. December 2004, Volume 16, Issue 4, pp 325-345. <http://link.springer.com/article/10.1007%2Fs10648-004-0003-0>.
- [19] Nonye, A and Nwosu, B.O. (2011) *Effects Of Instructional Scaffolding On The Achievement Of Male And Students in Financial Accounting In Secondary Schools In Abakiliki Urban Of Ebonyi State, Nigeria*. *Journal of Social Science*. 3(2), 309-320.
- [20] Prawet Wasi. 18 May 1992. *The tragic lesson of the reconstruction of the country*. Bangkok.
- [21] Schumacher, E.F. 1973. *Small is beautiful: Economics as if people mattered*. New York: Harper & Row.

- [22] Sherif, Muzafer and Sherif, Carolin. 1968. Reference Group. New york : Harper and Row.
- [23] Tari, J. J., Cortes, E. C., Moliner, J. P. & Azorin, J. F. M. (2010).Levels of quality and environmental management in the hotel industry.:Their joint influence on firm performance. *International Journal of Hospitality Management*,(29), 500-510.
<http://dx.doi.org/10.1016/j.ijhm.2009.10.029>.
- [24] Umar, Rahmat Talatu (2014) Relationship between influence of Cognitive Style and Study Strategies on Academic Perfaormance of Business Education Students in Financial Accounting in Fedral Universities in Nieria.<http://dx.doi.org/10.15242/ICEHM.ED0314519>
- [25] Vereijken, P. (1995): "Designing and testing prototypes: Progress reports of the research network on integrated and ecological arable farming systems for EU and associated countries" (Concerted Action AIR 3-CT920755), DLO Research Institute for Agrobiolgy and Soil Fertility, Wageningen.
- [26] Znaor, Darko and Goewie, Eric (1999) Agro-designing: sustainability-driven, vision-oriented, problem preventing and knowledge-based methodology for improving farming systems sustainability. In: Zanolli, R and Krell, R (Eds.) *Research methodologies in organic farming*, Food and Agriculture Organization of the United Nations, Rome, pp. 173-174.