Gender Issues in Rice and Vegetable Production: The Case of IPM Project in Calamba, Laguna, Philippines*

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Abstract

The participatory research cum extension methodology was used in generating and validating IPM component technologies for rice and vegetable crops under farmer's field condition. Results indicate that farmer's practice in controlling pests are traditionally pesticide dependent and the research methodology offered the opportunity to compare their traditional practice with that of the IPM approach. In addition, the two-year data showed that IPM approach can reduce pesticide use by as much as 50% without adversely affecting yield. This information appealed to sensitivities of cooperators' wives whose primary concern is to reduce costs of farm inputs so they can stretch the family income to the actual needs of the household.

Finally, it was noted that the cooperators' wives have varying levels of participation in farming activities. Wives of rice farmers normally do not have direct on-farm participation but have a significant role in the choice and purchase of pesticides. On the other hand, wives of vegetable cooperators have more direct roles in on-farm activities in that they take care of the crops after planting until harvest. Farm women decide on matters of pesticide use, hired labor and marketing of crops.

Introduction

Integrated pest management, more popularly referred to as IPM is an approach of reducing pest population and subsequent damage using a combination of all possible control tactics that is not

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only effective, economical and socially acceptable, but also sustainable. This approach is in contrast to the traditional chemical-based pest control. In addition, IPM is a people-oriented technology where its success and failure depend on how the clientele group perceives the benefits vis-a-vis their traditional pest control practices and possibly on how change agents relate the technology to the end-users. The idea is not as simple as it may sound because it really means bringing science and technology to the farm and giving the end-user the option to decide when and what control tactic to apply based on perceived pests and the cost and benefits expected from the chosen option.

One important decision tool in IPM is an accurate and practical population measurement that will enable the farmer to decide the need for immediate control. Hence, in the mid-1986 through an FAO grant, a study on the verification and generation of location specific threshold levels for the insect pests attacking rice was conducted in Calamba, Laguna, Philippines using the participatory approach. This methodology encourage the active participation of cooperators in the research activities. As expected, the research methodology increased farmer-researcher's interpersonal communication and subsequently led to more issues and problems expressed by both the men and women cooperators and even their spouses.

Initially, the study focused only on the men rice farmers but was later expanded to include vegetable growers in response to the expressed needs of the project cooperators. This paper, therefore, describes the experiences of the researchers in integrating gender issues in the generation and verification of a crop protection technology (IPM) in rice and vegetables and the processes which led to the integration of women's concern in rice and vegetable production in the project site.

Methodology

A. Site Selection and Identification of Cooperators

The foremost consideration in selecting the study site was accessibility to the university where the researchers are based. Secondly, existing linkage with the community (a research aide of one of the researchers is from the place). Moreover, the village provided the lowland rice environment and appropriate rice-upland crop farming system which was the major consideration in the selection of the site.

The conventional protocol was followed in identifying and final selection of the cooperators. The researchers met with the local staff of the Department of Agriculture who also provided the list of possible cooperators. Selection of cooperators was based on a pre-

set criteria. A rapid rural appraisal (RRA) of the place, people and situation was done after which a benchmark survey to document initial KAP (Knowledge, Attitudes and Practices) was conducted. The initial study (1986-87 with a grant from FAO) involved 20 rice farmer cooperators from just one village and after one crop season, seven vegetable cooperators were included. With the IDRC grant in 1988-90, the study expanded to include at least 10 rice farmers from other four villages, while the number of vegetable farmers increased to 20.

The benchmark survey documented relevant demographic information and current knowledge, attitude and practices related to IPM in particular and rice and vegetable production in general. It may be worth mentioning here that the services of the local school teachers (who happened to be all women intermediate and secondary school teachers in the area) were tapped to conduct the survey as the researchers observed after the initial RRA that farmers were more at ease answering questions and relating experiences with the school teachers in their locality. The results of the rapid rural appraisal and the benchmark survey guided the researchers in modifying treatments and approaches to better relate to the farming villages.

B. The Research Approach

The project aimed to highlight the following interrelated methodological approaches to action-oriented research in rice-based farming systems:

1. *The Team Approach* -- The project is a collaborative undertaking of a multi-disciplinary team consisting of an entomologist, a vertebrate biologist, an economist, a sociologist and a development communication expert.

The value attached to the team approach over the individual approach to action research stems from its pragmatism, i.e., because research objectives can often be more efficiently achieved and research skills more effectively shared through the collective efforts of an interdependent group of scholars (Miller, 1979).

Each member recognizes her obligation to actively share her expertise and experience in the design, implementation and evaluation of the project. In the process, specific issues can be collectively analyzed and in so doing arrive at a wholistic approach to problem solving.

This sharing presupposes certain commonalities among team members, however. These commonalities are in terms of interest, discipline, high self esteem, rapport and commitment to the project, to the team's development and that of the clientele's.

2. *Institutional Collaboration* -- The multi-disciplinary composition of the project team implies collaboration i.e., sharing of expertise, time and resources among the mother units of the members in the UPLB. This intra-system collaboration is further strengthened by an inter-system collaboration involving the UPLB, the Department of Agriculture through the municipal governmment of Calamba, Laguna and the Regional Crop Protection Center and IRRI.

3. *Integration of Women's Roles, Issues and Participation in Farming Systems Research Among Participant Levels*-- The project is a living example of the deliberate and non-deliberate interplay of women's participation in four levels.:

a. the research team at the senior staff level is composed of all women.
b. the research-support staff are predominantly female.
c. the local extension technicians with whom the staff coordinated its activities also happened to be predominantly women.
d. the local school teachers who cooperated in the benchmark survey, organization and evaluation activities were also all women except for one.
e. although the rice IPM cooperators were not predominantly women, the vegetable IPM cooperators were.

The information that will be generated by this project case vis-a-vis women's participation may provide useful methodological tools for future action research and extension projects that tackle women's issues.

4. *Participatory Approaches*-- The project aims to develop and recommend participatory schemes in the generation, verification, communication and adoption of IPM technology among men and women rice farmers and their families.

The project consciously upholds the community-based values attached to participation which are self-reliance, self-help, indication of felt needs, consciousness-raising, community organizing, bottom-up and horizontal patterns of communication, appropriate technology and decentralized or local planning and decision-making.[1]

5. *Involvement of Farmers as Partners in Research*-- The educational dictum, "learning by doing" is fully applied in the technical, social, economic and communication aspects of the project.

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[1] T.H. Stuart, Rural women's communication networks, participation and system performance in a Philippine nutrition project: a comparative study of two barangays. Ph. D. Dissertation, UPLB,1986.

Each farmer cooperator's rice field has been divided into two: one-half for his own practice and the other half for the IPM method. The farmer is responsible for managing both plots except that the IPM plots are being closely supervised by the project staff. Hence, the farmer, his family and co-farmers will be able to compare his/her practice with that of the IPM technique and learn IPM in the process. We hope that his learning process will have a multiplier effect in the farming community.

At the end of the cropping season, the yield and cost of inputs from the farmer's practice plot will be compared with those of the IPM-practice plot. If the profit from the latter is lower than the farmer's plot, he will be reimbursed the difference. This provision is stipulated from the start to assure farmers that they will not be short-changed by the project, and as an assurance that IPM works.

C. Integrating Women Concerns In Integrated Pest Management

The project did not actually plan for a systematic effort to address gender issues. It was primarily designed to validate the current IPM technology as perceived and received by the target clientele. Becuse of the participatory nature of the research methodology and excellent benchmark survey, the roles each member of the household plays in both on-farm and off-farm activities were identified. In addition, the active interpersonal communication facilitated role identification and opened the communication line between researchers and cooperating households to express their information needs vis-a-vis rice and vegetable farming in general and integrated pest management in particular. These expressed needs formed the basis of subsequent action and modification of project treatments and objectives to aptly cater to the actual needs of the farming household.

It was apparent that the involvement of women was not well recognized by the women themselves and their husbands. The women perceived their involvement as a natural thing to do for the family and as such took this for granted. It was only after several regular farm visits and casual interviews with them by the researchers that the farming households recognized the important roles women were contributing to the crop production activities particularly in vegetables. Hence the start of the delicate gender focus in response to the expressed needs of men and women cooperators and their spouses.

Finally, the frequent visits of the project staff with the cooperators established a congenial working relationship. The research staff who were hired to work both with rice and vegetable projects

resided in the village where the study was being conducted. The senior staff visited each cooperator at least once in two weeks. It was during these farm visits that the project staff were engaged in interesting discussions with the farmers. The topics ranged from farm activities/problems in production including crop protection to domestic life. During these visits, seven of the ten wives who were actively involved in vegetable production were frequently seen in the field. Although it is basically and commonly a man's activity, these women went into vegetable production for economic reasons. Apparently, most of them came from families of cooperators and as such they already had a good idea about vegetable farming.

The researchers' regular farm visits which were very critical in the participatory generation/verification of the IPM technology process added a special dimension in getting the women interested to participate in the project. For instance, the researchers' unhurried visits with the farmers assured them of our serious intentions and this in turn led to better rapport and confidence. This procedure is rather expensive and time consuming on the part of the researchers. However, it was felt that investing extra time in this activity could have positive effects towards future adoption of technology being generated and verified with the farmers themselves. For instance, during farm visits (and when harvesting was going on), the researchers usually sat down with the cooperators, hired vegetable harvesters and even middlemen and helped in sorting the produce while casually joining the conversation. It was in these occasions that the researchers led the group to some important discussions such as the social implications of IPM technology in general.

Most of the people who were in this informal forum (as you may call it) were women since majority of the hired labor in this farm activity were women. It was customary that the researchers were offered some of the vegetable harvests during the day to take home. However, on many occasions the researchers graciously turned down the offer wihout further explaining the reasons for rejecting the offer.

Issues on health problems due to the pesticide residues in vegetables that were often sprayed even close to harvest were aptly presented. The women reacted to this and began relating stories about cases of victims of uncured illness in their village, with their subsequent suspicion that these may have been due to pesticides.

Results and Discussion

Description of the Project Site

The study covers five adjoining villages (barangays) in Calamba, Laguna (Fig. 1) namely: Bañadero, Banlic, Looc, Lecheria and San Jose. Calamba is some 53 km south of Manila and is one of the more progressive towns in the country partly because of its proximity to Los Baños, a university town, which gives the advantage of providing employment for many Calamba residents. Except for Banlic and San Jose, there are elementary schools in the villages and a high school in Looc. Barangays San Jose and Bañadero are nearest to the town proper where several private and public high school and collegiate level schools are located. Public health clinics and deep wells are available for the residents except for Banlic and Bañadero which are quite isolated. Roads are cemented in the three other villages, i.e., except Banlic and Bañadero where light vehicles normally are unable to ply the route during rainy days due to bad road conditions.

Majority of the cooperators were at least 40 years old. Some have jobs other than farming. Mean household size was 7.5 and educational level was mainly elementary with some having finished high school and very few finishing college. Most have been farming for the last 10 years. Sixty seven percent of the cooperators were lessees. Share tenants comprised 11 percent under a 50-50 sharing arrangement.

Most farmers in the villages under study were rice and vegetable farmers. Only a small percentage were full time rice farmers. The level of knowledge of farmers in modern rice production does not indicate a trickle-down effect from IRRI and the nearby College of Agriculture of the University of the Philippines --two great technology generating centers in the country.

The Cropping Pattern and Pest Problems Identified

The site is basically an irrigated lowland area with continuous water supply enabling the farmers to raise at least two rice crops a year while low lying areas such as Lecheria even practice five croppings in two years. Those planting two rice crops a year usually plant one short duration legumes such as mungbean, cowpea, and vegetables particularly eggplant and tomato. Along the Laguna lake are the vegetable fields where three to four kinds of vegetables are grown almost year round. For the early planting of vegetables (January or early February), the tomato-upo-(gourd)-in-between-string-beans cropping pattern is most common while the late planting (March-April) usually consists of string beans intercropped with okra.

Farmers claim that these cropping patterns maximize land use without necessarily subjecting the crops to excessive moisture during the rainy months as these crops are claimed to be water-tolerant relative to other species of vegetables grown during the dry months. In areas with good drainage or less prone to submergence, high value cash crops such as eggplants and green corn are usually planted during the rainy season.

In terms of pest problems, rice crop in the project sites was usually attacked by leaf defoliators and stemborers although in a number of instances spraying made by the farmers were actually not necessary as population of these pests were relatively low to cause appreciable yield loss. The two-year data showing that pest population in Calamba rice fields fluctuated below the current threshold for most pests support the initial hypothesis that frequent pesticide application in the area prior to the project was not at all necessary.[2] On the other hand, the vegetable project primarily focused on stringbeans and eggplant as IPM component technologies for vegetable crops were not as advanced as in rice. The first year of the IDRC project concentrated on generating an appropriate economic threshold level for the pod borers and leaf folders in beans and biological data gathering for the shoot borer of eggplants -- two most common and injurious pests of beans and eggplant, respectively. Results indicated that we could reduce the number of spraying in beans by 50 percent and still get the same volume of harvest as the farmer's practice of spraying almost every other day from flowering to the last harvesting or an average of 12.4 sprayings per growing period.

Women's Concern in the Project

As mentioned earlier, the project was initially thought to evaluate the dynamics of IPM adoption by documenting the reaction of the conventional targets of development technologies -- the farmers who were traditionally thought to be the male members of the household only. However, earlier studies indicated that farmers' wives if given IPM training learned the technology faster than their husbands.[3] In addition, actual observation indicated that the wives of the farmer partly decided what and how much pesticide to use

[2] C.B. Adalla, Making modern rice production technology work: Experiences from the Integrated Pest Management Extension and Women Project in the Philippines,1990.

[3] M.M. Hoque, The role of women in the optimization of inputs for vegetable production in a rice based farming community: A case study. In Filipino Women in Rice Farming Systems. PIDS/IRRI/CPDS.,1988.

and the decision was usually affected by the availability of cash, and information from neighbors, friends and the agricultural store owner/ sales lady.[4] This role, however, is not aptly reflected when the husbands were interviewed on the extent of their wives' participation.[5]

Taking this into consideration, the sociologist of the team conducted training in pest and natural enemy identification with the idea of providing the women (farmers' wives) with the technical skills necessary for pest monitoring -- an important component in the insect IPM scheme. One cropping season experience showed an unusually poor attendance among the wives of farmer cooperators except for one who did the actual farm work. It appeared that these women were busy with some other activities that take precedence over rice farming activities. Moreover, based on our benchmark information, the rest of the wives though involved in rice farming, did not really have much on-farm participation except in the care of rice seedlings, seedbed preparation, and treshing (Sumayao, 1985). In this case what was thought to be an activity that might easily be picked up by women such as insect monitoring was actually not what they really were interested in.

This researchers' preconceived need of the farmer's wife was found against the men's cultural view of what the wife should do vis-a-vis on-farm rice production activities. It might be interesting to mention though that the two women rice farmers who actually did on-farm activities (on behalf of their husbands who worked elsewhere) like weeding and supervising the entire farm activities were willing to undergo the training and turned out to be the best IPM converts doing actual insect monitoring.

In the case of vegetable production, the picture is quite different. Actual observation made by Hoque and Saavedra (1988) indicated greater on-farm participation of women in the vegetable production process. As indicated, women are practically major decision makers deciding on what pesticide and seed varieties to buy, and whom to hire to do spraying. In addition, they also provided labor for weeding, harvesting, irrigating the fields and actual marketing of the produce.

Having this participation in mind, the researchers made a demonstration trial on need-based application of pesticide against the

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[4] C.B.Adalla, and T.H. Stuart. 1988. Women in Rice IPM: The Philippine Experience. Paper presented at the Farming System Research/Extension Symposium held at the University of Arkansas, Fayetteville, Arkansas on October 9-12, 1988.

[5] A.C. Rola, and A. Chupungco. Summary of benchmark information for the IPM Extension and Women Project. Center for Policy and Development Studies, UPLB, College, Laguna, 1988.

bean leaf defoliators and pod borers. As mentioned elsewhere, it was shown in this trial that pesticide application could be reduced by 50 percent without significantly lowering the yield. In addition, we were able to show the women cooperators the dangerous consequence of spraying too often as measured in terms of residue left in the crops sprayed a day before harvest. These realities appealed to the women because in the Philippines, the wife is not only the mother who secures the health and well--being of the family but also the keeper of the family purse who is also responsible to see to it that the family income stretches to the actual needs of her family. The promise of IPM as a cost-reducing technology, therefore, becomes an attractive incentive to the farmer's wife.

In addition to actual on-farm demonstration of the technology we regularly met with the women and updated their knowledge on pesticide management which included appropriate selection of pesticides (with due consideration to toxicity hazards), proper application and dosage and safety handling. These efforts appeared to have created an impact on them as some would request assistance from our research staff in establishing whether a spray was needed or not and as to what chemical pesticide was most appropriate without necessarily killing natural population of beneficial fauna.

Our training modules for women, therefore, do not include pest/natural enemy identification only but the whole idea of production to better control approaches and to better and efficient marketing. The latter was the basis for the formation of an all-purpose cooperative which we hope to later on specialize or focus on the marketing of the cooperators' produce to give them better profit margin compared to when the produce was handled by the middlemen as in the present situation.

Women's Role in the Technology Transfer

It is clearly shown in the preceding experiences that farm women particularly the traditionally "taken-for-granted" wife do perform a significant role both in rice and vegetable production. As shoppers of farm inputs and worker/manager particularly of the vegetable crops, the project sees them as a vital conduit for future technology transfer and adoption efforts. In the recently concluded project-institutionalization workshop, it was unanimously agreed to tap the farmer's wives in delivering technology messages from the technology resource centers (local offices of the Department of Agriculture and from research agencies and agricultural colleges/ universities through the DA) to their respective villages. In addition, the workshop participants (composed of men and women farmers, spouses of cooperators, project research staff and local DA staff)

agreed that women-- particularly the farmers' wives-- equally need and deserve access to technical information traditionally given only to men if they (the women) are to perform better in their tasks of being active partners with respect to crop production and income generation. This realization was deemed important for all concerned in their future research and development strategies (for the researchers and DA staff) and their attitude towards similar projects and undertakings in the future (for the cooperators and their spouses and the representatives of the village council).

Did Focus on Women's Concerns Make Any Difference?

Based on experiences presented earlier, these researchers are convinced that integrating women's issues in the project did make a significant difference. From the social perspective, we observed that both husband and wife engaged in an objective discussion on issues related to input use particularly pesticides. In addition, we are confident to have raised the women's consciousness on health implications of pesticide over-use as they now set aside one or two rows of their vegetables unsprayed from where they get food for home consumption. The nagging issue of insect-damage-free vegetables being given premium market price is one single block to the successful adoption of IPM technology that the project has painstakingly introduced into the village. We are still hopeful though that the women's' motherly instinct translates into appropriate social consciousness and responsibility to secure the health and well being of people who will consume the farm produce. The switching to less toxic pesticides indicates an intention to reduce pesticide- residue load of their produce.

In terms of actual transfer of the technology, it appeared that IPM being a cost-reducing technology (compared to the traditional calendar spraying) is something perceived very interesting among women. While the motivation is still highly economic in nature, this may still be an advantageous factor considering that early attempts to train farmers on IPM failed because women-trainees did not immediately see the usefulness of information being disseminated at the moment.

Finally, the most revealing impact of incorporating the gender focus comes from the testimonies of two women farmers who happened to attend the National IPM Workshop held at the National Crop Protection Center at UPLB in March, 1990 as farmer representatives of various university-coordinated projects. A rice farmer, Aling Miring, has the following ideas: "Actually, to practice IPM is not difficult, but what is difficult for a farmer is how to get started. Personally, I thought it would interfere with my household responsi-

bilities because we were requested to attend weekly meetings and training sessions particularly on weekends which of course is a schedule for pressing the school uniforms of my children. Then, I thought of the professional project staff who were likewise mothers and yet spend their Sunday afternoons with us, so I gave it a try and from then on I got adjusted to the situation. A new zeal developed in me as time passed. I found the IPM pest control approach economically and personally rewarding. Although I cannot understand most of the things you scientists are talking about in today's workshop, I am pleased to be here and not ashamed of my ignorance from time to time. Because of my involvement in the IPM project, I am here before you and have the opportunity to interact with scientists. I also had the chance to dust powder on what used to be muddy cheeks. I wish other farmers may experience the opportunities I enjoy now."

Adding to this, a vegetable farmer, Aling Priscing remarked,"I used to spray our crops at the sight of insect pests (although few in number) and my husband always contradicted my practice and argued that I was merely making chemical dealers richer. But now, I no longer spray without consulting the IPM project technician who resides in the village."

While impact asssessment of the project is underway, we are confident that our attempt to elevate the consciousness of the women vis-a-vis pest control practices made an impact in extending an otherwise difficult technology as complex as IPM. In fact, in villages where no women cooperators are actively involved, the men's attitudes and perceptions are much different. Our experiences have shown that when both husband and wife are actively involved in the project, their acceptance and ultimate adoption of IPM was much faster and more meaningful, making us believe that in the Philippine setting, farming is indeed a family enterprise and therefore technology generation and adoption efforts should take into consideration the farming household instead of the traditional focus on the male farmer only.

What about the impact of gender consciousness among the researchers? It is believed that beyond anything else, the sensitization was most critical among the biological scientists who were also victims of the traditional approach by referring to the farmer as the only male member of the household. In addition, the participatory research methodology was truly enlightening in the sense that they now have a better perspective of the whole technology generation to adoption process. Their bias for research-station-generated data was neutralized with the reality that these research outputs need fine tuning that must be taken as a collective effort and responsibility of both the researchers, the extension worker and the beneficiary

(farming household) as well. The experiences gained were very important in our current efforts to develop better extension strategies for a complicated knowledge-based technology.

Summary and Conclusion

The IPM Extension and Women project is a pioneering action research cum extension project conceived and implemented by a team of all-women scientists from the University of the Philippines at Los Banos. Based on data generated and actual observation of on-farm and off-farm activities of cooperating households, rural women, particularly farmers' wives play very significant roles in deciding when, what and how much pesticides to purchase which in turn is affected by several factors such as: information from friends and neighbors; availability of cash when the husband needs the pesticide; advice from store clerk or saleslady; and the price of the brand specified by the husband. There were other minor roles such as care of seedlings/seedbed, and harvesting and threshing.

Women's role in vegetable production is more prominent. They are directly involved in both on-farm (weeding, supervising spraying and harvesting) and off-farm activities (choice and selection of pesticides, hiring of farm labor and decision on whom to sell produce or perform actual marketing of the produce).

In terms of the women's role in technology generation and adoption, the project staff see them as an excellent conduit of information dissemination not only within their household but also within the community as they usually have good communication networks within the village. This role was observed to be complementary to their concern for the health and well-being of their family which they share among their peers.

Finally, for a technology as complex as the knowledge-based IPM, we have considerable experiences indicating that extension efforts should not only focus on male farmers but rather address the entire family household as we are convinced that farming under a Philippine setting is generally a family enterprise. Any technology dissemination effort should therefore be addressed to the farm household to hasten adoption at the farm level.

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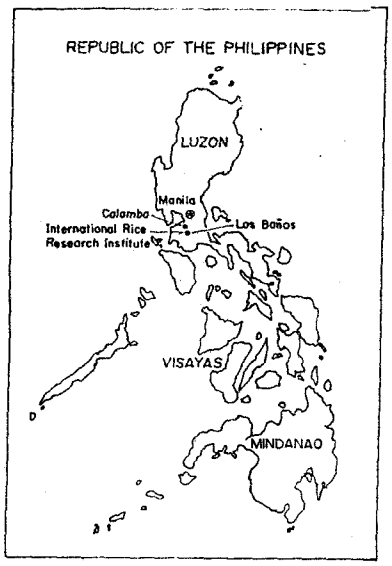

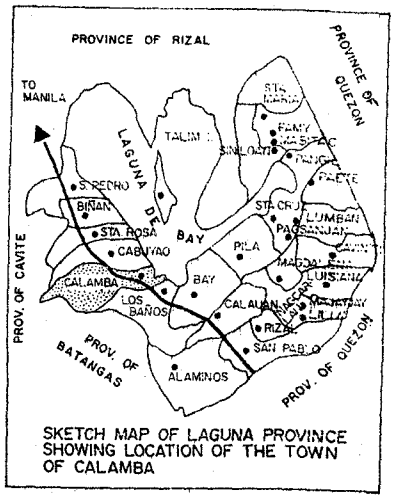

SKETCH MAP OF LAGUNA PROVINCE SHOWING LOCATION OF THE TOWN OF CALAMBA