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Australian Centre for
International Agricultural Research

Final report

Small research and development activity

SRA

Scoping study to investigate the role of women in the safe production, promotion and utilisation of indigenous vegetables

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1 Executive summary

The importance of vegetables to the Vietnamese rural economy is evidenced by the considerable increase in the total area for vegetable production and its important role in improving rural farm income. Gross revenues from vegetables are very much higher than from rice. Many growers involved in the cultivation, harvesting and sale of vegetables are women. Until now there has been little research and development focused on the significant role of women in the traditional vegetable industry, particularly indigenous vegetables in Vietnam.

This scoping study aims to develop a project exploring ways to alleviate rural and peri-urban poverty and enhance the important role of women in the safe production, promotion, and utilisation of indigenous vegetables.

Objectives of the scoping study:

1. To collate and review information on R&D projects conducted on indigenous vegetables in Vietnam.
2. To review the role of women in the production, promotion and utilisation of indigenous vegetables.
3. To identify the indigenous vegetables with greatest potential for further industry development.
4. To identify major constraints to enhanced production, marketing and utilisation of indigenous vegetables.
5. To develop a full 4 year project. This will aim to overcome major constraints to the greater production, promotion and utilisation of indigenous vegetables by women.
6. To identify potential collaborators for the full project.

A one day consultation workshop of 70 participants from research, extension, policy making and mass media from Vietnam, Cambodia, Philippines, Indonesia, Korea and FAO was held to develop plans for next steps. Using SWOT analysis, the following next steps were developed:

1. The “Escape Strategy” lacks robustness and more research efforts to improve knowledge of the ecological bases and monitoring methods and decision protocols are needed.
2. Planthopper outbreaks are due to sudden abnormal explosive increases in populations. An analytical framework had been developed and there is now need to develop a research program to validate the cause-effect relationships between various factors.
3. Biological control services are foundation to sustainable pest management. There is need to develop a research program to assess these ecosystem services, develop strategies to enhance and sustain them through cultural practices, like increasing habitat biodiversity.
4. Insecticide resistance to recently introduced insecticides seems to have appeared in some areas. There is need to establish an insecticide resistance monitoring network and use standard protocols.
5. The increasing importance of another planthopper pest, the white back planthopper (WBPH), especially in the north, due to the growing of popular hybrid rice varieties, raised the need to conduct research to understand ecological and vector-virus relationship.
6. The causal viral agents of “yellowing syndrome” need to be further characterized. A simple diagnostic kit needs to be developed for use in research and extension.

7. Further understanding of the genetic variability of the pest using micro-satellite markers needs to be investigated.
8. Vietnam has a well staffed and widely distributed plant protection network. In addition farmers have wide access to mass media. There is need to develop a strategic communication plan to maximize rapid dissemination of essential and accurate information that will promote sustainable practices which will reduce vulnerability to pest outbreaks.

2 Introduction

The area used for vegetable production in Vietnam has increased by 45% between 1985 and 1995, representing an additional 10,000 ha annually. The Red River Delta (RRD) is currently the largest vegetable growing region with 76,000 ha already cultivated. According to the Vietnam National Plan for 2000-2010, this area will nearly double to 140,000 ha in the next three years. Even larger increases are forecast for the Cuu Long river delta, with the current production area of 66,000 ha expanding to 180,000 ha (MARD, 2000).

A survey of vegetable production and consumption conducted by AVRDC indicated that in northern Vietnam (comprising the Red River Delta and the North Mountain and Midland regions) vegetables generate greater than three times higher gross revenue and fourteen times higher nett revenue than cereals such as rice. In southern Vietnam (comprising the Red River Delta and the North Mountain and Midland regions) gross revenue and nett returns are four times and nine times higher respectively compared to growing cereal crops. This shows that although production costs for vegetables are higher than rice, they are far more profitable to the grower.

Average per capita daily consumption of vegetables is 275g in northern Vietnam and 244g in the south. Although this is higher than the minimum level of 200g recommended by AVRDC, this is still well below other East Asian countries. This suggests that there is considerable scope to increase consumption of vegetables within Vietnam, an increase which could deliver significant social and economic benefits to the country.

Vietnam has a rich biodiversity of indigenous crop plants consumed as vegetables and herbs. This was confirmed by the AVRDC survey; of the 28 vegetable species surveyed in the north and 47 species surveyed in the south around 25% could be considered indigenous vegetables. Numerous indigenous plant species (including those introduced centuries ago and now have become naturalized, Table 1) that occur throughout Vietnam are utilised as traditional vegetables. Many of these indigenous vegetables are rich in micronutrients and vitamins, so increased consumption could benefit public health. Others may have medicinal properties, being already used in traditional medicines. As such indigenous plants are adapted to the local environment, they are likely to be easier to cultivate and less vulnerable to pests and diseases than introduced plants. Many species are currently harvested from the wild - these receive no chemical pesticides at all. The genetic diversity in such wild plants can also provide increased food security at a time of changing climate.

Indigenous vegetables may be cultivated for their pods, fruits, flowers, leaves, roots or tubers. In some cases the whole plant may be used. They range from wild to cultivated species with varying categories of domestication as outlined below:

- wild and harvested in time of food scarcity
- wild but regularly harvested
- semi-wild, partly protected or harvested from fallow land

- cultivated in mixtures (patches) in traditional farming systems
- cultivated in small- scale market gardens

Consumption of some indigenous vegetables remains common in rural and remote communities. There is also a fairly wide range of such vegetables available in limited quantities at small fresh markets or roadside markets in peri-urban and urban communities. Many are seasonal, supplies being least during the dry season. There is evidence that some wild plant species used as vegetables are on the verge of disappearing in some areas owing to:

- changes in the ecology of many areas due to prolonged drought, overgrazing, bush fires, deforestation, etc
- disappearing knowledge of the nutritive values, methods of production, preservation and utilization of traditional vegetables as younger generations move to urban centres. This has broken the systematic transmission of indigenous plant knowledge from the older generations.

Many of these vegetables have the potential for development as niche market crops as fresh and processed commodities in the local, domestic and export markets. This would create income generating business opportunities for women in these communities, especially those in ethnic minority groups. Branding of these indigenous vegetables could exploit regional identities and ensure benefits flow to rural communities.

2.1 Communication and dissemination activities

The scoping study commenced with a project development trip in January 2007 where collaborators from Australia and the International Centre for Under-utilised Crops (ICUC) met with Vietnamese scientist/researchers that worked on various aspects of vegetable production and marketing. The team also held discussions with many production, marketing and product promotion service providers dealing with the food supply chain and visited many vegetable/medicinal herb farms, research stations and government R and D organisations and universities dealing with all aspects of vegetable production, marketing, consumption and conservation. The team visited traditional markets, supermarkets and wholesale markets.

The scoping study culminated in a 2-day workshop on 7-9 May, 2007 in Hanoi followed by farm visits. This workshop forms a pivotal activity of the scoping studies. It provides a forum for researchers working on indigenous vegetables to discuss their findings and select 10-12 indigenous vegetables for the full project CP 2006/112 and to discuss and report on constraints and issues of the selected vegetables for the full project. This forms an important step towards the development of the full proposal for indigenous Vietnamese vegetables.

The workshop was opened by H.E. Mme Truong My Hoa, Vice President of Vietnam. Speeches were delivered by Mme Ha Thi Khiet, President of the Women's Union; His Excellency, Mr Bill Tweddell, Australian Ambassador to Vietnam; Mr Peter Core, Director, Australian Centre for International Agricultural Research and Dr Bui Ba Bong Vice Minister MARD and Dr Nguyen Van Bo President of VAAS.

Close to 80 people attended the workshop. The participants included Heads and senior staff and scientists of the Vietnamese Women's Union (VWU); National Institute of Medicinal Materials (NIMM); Ministry of Planning and Investment; Food Crop Research Institute (FCRI); CASRAD, FAVRI; Fruit and Vegetable Research Institute (FAVRI); Hue Agriculture and Forestry University (HAFU); Nong Lam University HCMC; International Centre for Under Utilised Crops (ICUC); Asian Vegetable Research Institute; CIRAD;

AusAID; Institute of Agriculture Science, HCMC; Xuan Son National Park; Saigon Co-op Mart; Vic DPI; NSW DPI; Sydney University; ACIAR ; ABC and local Vietnamese media and press.

After the workshop the team visited the visited the NIMM Research Centre located in Ngoc Hoi commune, Thanh Tri District, Hanoi, several farms in Tan Minh commune– Thuong Tin district in Hay Tay which is located in the Red River Delta and visited some ethnic farms in Sapa including a planting of cardamom.

2.2 Farmer-level, community or policy impacts (economic, social and/or environmental)

Salient information gleaned from the development trips are:

- There is a wide diversity of indigenous plants that are edible as food and offer a wide range of indigenous crops for diversification
- Some of the indigenous vegetables are endemic or seasonal or unique to a particular area/region, while a large range are produced throughout the year throughout the country
- There seems to be an established domestic market for fresh and processed produce of most of the indigenous species
- Several indigenous species were reported to have export demand as frozen or processed vegetables but suffer from irregular and limited supply
- Safe production, seed supply, quality assurance – post harvest handling and storage, market information and access are raised as major constraints
- Women’s empowerment can be achieved primarily through education and skills training in safe production techniques, marketing and utilization of produce
- Strong and enthusiastic support for the project from the heads and scientists of the government and Non-Government Organisations (NGO) agencies we met.

From the above activities and the workshop, the following cross-cutting issues were identified as priority issues across all vegetable commodities:

- On-farm production and technology systems – location/commodity specific and integrated with socio-economic community framework for higher productivity
- Improvement in seed quality and supply systems, quality assurance systems, GAP production for food safety, product certification and market quality for each commodity
- Improved production and harvesting system help in germplasm conservation
- Subsistence and semi-subsistence production to agribusiness enterprises
- Strengthening linkages – researchers / extension workers / farmers/ traders / industry / consumers
- Value adding – processing, different uses, recipes, promotion of nutraceutical, pharmaceutical and medicinal properties
- Improvement in supply-market value chains including access to market information, better storage and transportation
- Capacity enhancement of women in production, promotion, utilisation and marketing of commodities.

2.3 Intellectual property

All materials produced are considered global public goods and are freely available.

3 Relationship to other activities

The SRA provides a forum for researchers working on indigenous vegetables to discuss their findings and select 10-12 indigenous vegetables for the full project CP 2006/112 and to discuss and report on constraints and issues of the selected vegetables for the full project.

4 Budget

Year 1 (06/07)		Total
Pay1	Pay2	\$86,744
70,938	15,806	
Total		Total

5 Conclusions and recommendations

Project details were discussed including:

- Final list of indigenous vegetables to be included in the project
- Role of women in rural development
- General outline of the project
- Roles of the key partners
- Likely constraints to the project.

As a result of this meeting a proposed list of indigenous vegetables and a list of potential collaborators (Appendix 3) were prepared

6 Appendixes

6.1 Appendix 1: Workshop Report in May 2007

6.1.1 Proceedings of the workshop on the safe production, promotion and utilisation of vegetables by women in Vietnam, 7-9 May 2007 Hanoi, Vietnam

Project CP/2006/113

Virginia Brunton, Project Leader and Michelle Smith, Project Officer
NSW Department of Primary Industries

Preamble

Australian Centre for International Agricultural Research (ACIAR) in collaboration with the Vietnam Women's Union is developing a project on the production and utilisation of indigenous vegetables in Vietnam by Women. This project will specifically target the safe production, promotion and utilisation of indigenous vegetables and the role of women in these activities.

The first phase of this project is a scoping study. One component of the scoping study was a workshop. It is anticipated this study will lead to a larger, 4 year project titled “Increasing the skills of women in the safe production, promotion and utilisation of indigenous vegetables in Vietnam”, to be lead by NSW DPI. This project will lead to improved farming practices and production information on new vegetables for farmers in Australia. The workshop will finalised various details for the full project including selection of the indigenous vegetables with greatest market potential and identification of key collaborators.

Papers will be presented on various aspects of indigenous vegetable research, production, marketing and utilisation, the role of women in farming and related activities, industry development strategies and good agricultural practices. The workshop also included discussion forums and field/farm visits. The workshop will collate and discuss information on as well as finalise nominated indigenous vegetables, confirm collaborative agencies and determine area/field locations. NIMM, FAVRI and FCRI will help to coordinate field visits in conjunction with the workshop. These agencies will also help to coordinate field visits in conjunction with the workshop in Hanoi.

The Workshop

The 2 day workshop began on Monday 7th May. It was formally opened by a panel of dignitaries which included Madame Hoa, Vice President of Vietnam, His Excellency Mr Bill Tweddell, Australian Ambassador to Vietnam, Madam Khiet, President of the Vietnam Womens Union, Dr Peter Core, Chair of ACIAR and Dr Bo, Chair of MARD. Addresses were presented by the dignitaries and Dr Peter Core was presented with an award to thank him for ACIAR’s continuing work in Vietnam. The opening generated a significant amount of media attention and was featured on the Vietnamese news that evening.



At the workshop experts from Australia and Vietnam will present papers on aspects of indigenous vegetable research, production, marketing and utilisation, the role of women in farming and related activities, industry development strategies and good agricultural practices. The workshop will also include discussion forums and field/farm visits. Vietnamese agencies such as VWU, NIMM, FAVRI and FCRI* are helping to coordinate the workshop and associated field visits.

A number of VIPs attended the workshop. These include:

- Madame Truong My Hoa Vice President of Vietnam
- Mme. Ha Thi Khiet President, Vietnam Womens Union
- H.E. Mr. Nguyen Thanh Tan Vietnamese Ambassador to Australia

- H.E. Mr Bill Tweddell Australian Vietnamese Ambassador
- CEOs of each organisation involved in the project.

Objectives of the Workshop:

1. To review information on R&D projects conducted on indigenous vegetables in Vietnam.
2. To identify the indigenous vegetables with greatest potential for further industry development.
3. To identify collaborators to develop a full 4 year project which aims to overcome major constraints to the further production, promotion and utilisation of indigenous vegetables by women.

The following day and a half was taken up with formal presentations and discussion. The purpose of the workshop was to collate the current information on the role of women in the cultivation, promotion, utilisation, marketing and distribution of indigenous vegetables. The workshop brought together professionals from Australia and Vietnam to focus on the key issues required to develop the project further. Delegates represented Vietnamese government research institutes, universities, marketing agents, supermarket chains and extension agencies. The full program is included in the attachments. However, the presentations included:

Dr TK Lim	ACIAR	Project Introduction-commodities, constraints and opportunities
Ms Virginia Brunton	NSW DPI	Project Outline, summary of plant list, objectives of workshop.
Dr Nguyen Huu Dong	National Institute for Medicinal Materials	Medicinal value of selected indigenous vegetables.
Dr Tran Khac Thi	Fruit and Vegetable Research Institute	Production, cultivation, storage practices, consumption patterns of the potential vegetables.
Dr Dao The Anh	Centre for Agronomic systems Research and Development	Extension practices, cooperative development and marketing in the North of Vietnam
Dr Truong Van Tuyen	University of Agriculture & Forestry, Hue	Extension activities in the Central regions, including participatory activities.
Dr Nguyen Van Ke	Nong Lam University	Wild plants of Southern Vietnam
Dr Ngo Quang Vinh	Institute for Agricultural Science for Southern Vietnam	Propagation, grafting potential of some indigenous vegetables
Dr Hannah Jaenicke	International Centre for Underutilised Crops, Sri Lanka	A case study on development of an underutilised crop and report on the ICUC's current activities in Vietnam.
Dr Jenny Ekman	NSW DPI	Marketing indigenous Vietnamese vegetables – a case study from Australia.
Prof. Nguyen Van Luat	Cuu Long Rice Research Institute	Medicinal properties of some plants in Vietnam
Dr Phan Thi Giac Tam	Nong Lam University	Economic potential of indigenous vegetables
Mr Joseph Ekman and Dr Nguyen Quoc Vong	NSW DPI/Centre of Excellence for Horticulture	Quality Assurance and VIETGAP

In total 84 delegates attended the workshop and 20 media organisations were represented.

The last session of the workshop attempted to finalise the shortlist of indigenous vegetables. However after an hour of discussion, in which delegates spoke on behalf of their particular preferences, no consensus could be reached. To finalise the list, a vote was organised and each delegate wrote a list of 6 plants they thought should be prioritised in the final project.

6.1.2 Field Visits

The final half day of the workshop was taken up with field visits. We were given a tour of the NIMM field site, where they were growing a large range of vegetables and herbs with reputed medicinal values. They were also growing larger scale field trials of angelica and wormwood.

The group also visited Tan Minh commune– Thuong Tin district in Hay Tay outside Hanoi which is well known for the range of indigenous vegetables and herbs which they grow. The commune was particularly well kept and the farmers very happy to tell us about the crops they were producing.

Melanie Sim from ABC Rural accompanied the group and was able to conduct a number of interviews with the women farmers. After the tour of the fields, a presentation was given by the commune leaders and met the local representatives of the VWU. The commune appeared very well organised and enthusiastic about the project. We concluded that this could be an ideal commune to work with in the future.



Plantain growing at the NIMM field site



Melanie Sim (R) interviewing (with the help of a translator), a woman farmer



Participants in the workshop field trip

6.1.3 Media and Publicity

A number of media organisations and journalists also attended including:

- Melanie Sim - ABC rural Radio Australia and Radio National outlets
- Ron Corben, - Australian Associated Press, ABC Radio Australia's Connect Asia, Radio 68 (phoned in interviews)
- Vietnamese radio, television and newspapers.

Cathy Reade, Communications Manager, Crawford Foundation had organised Melanie Sim from the ABC rural to attend the workshop and field trip. This resulted in a number of media hits including:

Melanie kept a daily blog on the ABC website which went up each day with photos

<http://www.abc.net.au/goulburnmurray/stories/s1915888.htm>

ABC National Rural News (radio) and Online News on workshop

- Articles printed in the West Australian newspaper, Brisbane Times, Sydney Morning Herald and the Age
- Story featured on the Nine MSN Website and ABC Online features
- Interviews replayed on Radio National Bush Telegraph, ABC Victoria, ABC Shepparton, ABC Gippsland, Radio Australia Connect Asia, ABC Qld Country Hour, ABC Country Hour Tasmania, ABC Country Hour WA, ABC NT Country Hour

Virginia Brunton, TK Lim, Peter Core and Jenny Ekman were interviewed as a part of the presentations.

The links to these stories are below:

- <http://www.thewest.com.au/aapstory.aspx?StoryName=379947>
- <http://news.brisbanetimes.com.au/aussie-projects-in-vietnam-bearing-fruit/20070407-bhe.html>

- <http://news.ninemsn.com.au/article.aspx?id=265575>
- <http://www.smh.com.au/news/World/Aussie-projects-in-Vietnam-bearing-fruit/2007/05/07/1178390220855.html>
- <http://www.theage.com.au/news/World/Aussie-projects-in-Vietnam-bearing-fruit/2007/05/07/1178390220855.html>
- <http://www.abc.net.au/rural/telegraph/content/2006/s1917136.htm>
- <http://www.abc.net.au/goulburnmurray/stories/s1915888.htm>
- <http://www.abc.net.au/rural/vic/gippsland/>
- <http://www.abc.net.au/rural/qld/content/2006/s1918632.htm>
- <http://www.radioaustralia.net.au/connectasia/stories/s1918195.htm>
- <http://www.abc.net.au/rural/tas/content/2006/s1919697.htm>
- <http://www.abc.net.au/rural/qld/content/2006/s1920790.htm>
- <http://www.abc.net.au/rural/vic/content/2006/s1920524.htm>
- <http://www.abc.net.au/rural/nt/today.htm>

6.1.4 Workshop debriefing meeting (8th-9th May)

At the conclusion of the workshop we had planned to hold a series of debriefing meetings with key project participants. The purpose of these was to plan the full project proposal in greater depth, having spent two days learning more about indigenous vegetables in Vietnam. The workshop debriefing meetings were held on 8th – 9th May in Halong Bay, close to Hanoi. In addition to DPI staff the meetings were attended by:

- Mrs. Dang Thi Minh Hoa. – Head Family Services, VWU
- Dr. Thuan -NIMM
- TK Lim – ACIAR
- Liz Clarke – ACIAR
- Ms Nguyen Kim Loan – ACIAR
- Ms Nguyen Phuong Anh – VWU.

Project details were discussed including:

- Final list of indigenous vegetables to be included in the project
- Role of women in rural development
- General outline of the project
- Roles of the key partners
- Likely constraints to the project

As a result of this meeting a proposed list of indigenous vegetables was prepared.

6.1.5 Workshop on the safe production, promotion and utilisation of vegetables by women in Vietnam

7-9 May 2007 Hanoi, Vietnam

Program

Day 1 - Monday May 7 2007

Time	Name	Agency and position	Workshop presentation
8.30	Registration and Refreshments		
9.00	Mr Peter Core. ACIAR (Chair) Key opening addresses from: Mme Truong My Hoa, Vice President of Vietnam His Excellency Mr Bill Tweddell, Australian Ambassador Mme Ha Thi Kiet, President of the Women's Union MARD Vietnamese Agriculture Vice Minister		
10.30	Morning Tea		
11.15	Dr TK Lim	ACIAR	Project Introduction-commodities, constraints and opportunities
11.30	Ms Virginia Brunton	NSW DPI	Project Outline, summary of plant list, objectives of workshop.
12.00	Dr Nguyen HUU Dong	NIMM	Medicinal value of selected indigenous vegetables.
12.30	Lunch		
13.30	Dr Tran Khac Thi	FAVRI	Production, cultivation, storage practices, consumption patterns of the potential vegetables.
14.00	Dr Dao The Anh	CASRAD	Extension practices, cooperative development and marketing in the North of Vietnam
14.30	Dr Truong Van Tuyen	Univ Agric & Forestry, Hue	Extension activities in the Central regions, including participatory activities.
15.00	Afternoon Tea		
15.30	Dr Nguyen Van Ke	Nong Lam University	Some wild plants of South Vietnam
16.00	Dr Ngo Quang Vinh	IAS for southern Vietnam	Propagation, grafting potential of some indigenous vegetables
16.30-16.45	Closing address Planning for the following day		
19.30	Dinner		

Day 2 - Tuesday 8 May

Time	Name	Agency and position	Workshop presentation
8.30	Welcome and day's overview	Virginia Brunton	
8.45	Hannah Jaenicke	Director, Intentional Centre for Underutilised Crops, Sri Lanka	A case study on development of an underutilised crop and report on the ICUC's current activities in Vietnam
9.00	Jenny Ekman	NSW DPI	Marketing indigenous Vietnamese vegetables – a case study from Australia.
9.30	Prof. Nguyen Van Luat	Cuu Long Rice Research Institute	
10.00	Dr Phan Thi Giac Tam	Nong Lam University	Economic potential of indigenous vegetables
10.30	Morning Tea		
11.00	Mr Joseph Ekman and Dr Nguyen Quoc Vong	DPI/CEH	Quality Assurance and VIETGAP
11.30	Discussion Session	<p>Discussion on the role of women in the rural development</p> <p>List of the most important indigenous vegetables that have the potential for further development.</p> <p>Review of likely constraints to enhanced safe production, marketing and use of indigenous vegetables.</p> <p>Report on current situation with regard to indigenous vegetables - how, where and what products are grown and harvested</p>	
12.30	Lunch		
14.00	Field visits	NIMM 2 farms	
18.30	Workshop Dinner		

6.1.6 **Summary Papers Workshop: Scoping Study on Enhancing the Safe production, promotion & utilisation of Indigenous Vegetables by Women in Vietnam. Hanoi 7-8 May, 2007**

Virginia Brunton, Project Leader NSW DPI

Presented outline of project namely to enhance the role of women vegetables by developing and promoting production of indigenous vegetables.

The project aims to develop safe production practices, promotional and marketing skills through participatory action research and technology development with a focus on women farmers.

Cay Rau Lan Thuoc, National Institute of Medicinal Materials: Indigenous Vegetables and their Nutritional Value

This presentation looked at a number of potential indigenous crops of which the criteria for selection included: used by women in cooking, nutritional & medicinal value, majority had a wide climatic range (with the exception of *Amomum aromaticum* & *Melientha suavis* from mountainous regions) & could be used as part of a crop rotation.

All crops discussed had a minimum market value 2-3 times rice.

Amomum aromaticum suggested as having export potential.

Suggested *Ficus auriculata* toxic.

Dr Hannah Jaenicke, Director, Centre for Underutilised Crops, Training Resource Centres for Processing of Underutilised Crops: ICUC experience in Vietnam

This paper discussed the outcomes of an ICUC project developed in 2004. This project established 3 training centres for postharvest processing of fruit crops. They trained 15 staff and 375 beneficiaries (255 women) in processing. After 1 year 20% still active in processing, 57% storing fruits however *none used skills gained from training in commercial use*.

- Outcome; trainees- demonstrations given not sufficient, too distant & not enough courses and access to information
- Methods shown too complicated
- No financial support.

Recommendations: Resource centres need to be integrated into existing structures & easily accessed by beneficiaries.

- Training needs to be ongoing- preferably one –to-one mentoring. All information and methods need to be as simple as possible particularly for marginalised groups
- Business links need to be available with possible use of micro-credits.

All parts of process from plant selection, production, marketing etc. must involve beneficiaries from beginning of project.

Dr Dao The Anh, Centre for Agrarian Systems Research and Development: Working with farmer organisations to improve production & marketing indigenous product

Presented outcomes of 2002-2005 seedless persimmon development project. One outcome of this was the finding that growers Association boards were limited in their

capacities to bring about change. Further findings included a lack of political will to recognise the potential & conservation value of indigenous product. They also found that scattered plantings (geographically) led to increased marketing costs.

They also presented findings on *Erythrolalum scandens*. Small plantings have been established in Bung Lang commune. Farmers have achieved only a 50% establishment rate. 2-3 years before 1st harvest then once per week in season. Erythrolalum considered a speciality dish.

CASRAD claim close collaboration between staff-farmer-market and capacity to consult local organisations (Womens union, Farmer union)

Nguyen Van Ke, Nong Lam University, HCM City: Wild Plants used as vegetables, herbs, spices & medicine in Southern Vietnam

Based on the project "Indigenous plant species used as vegetables, herbs, spices & medicines in some ethnic minorities in Vietnam" funded by Toyota Foundation & AA Foundation.

Report on survey undertaken in 2000- 2003 of 730 households in 19 districts in South Vietnam from Mekong River Delta to the Central Highlands, 1 district Nth Vietnam (Mai Chau, Hoa Binh province).

Survey results indicated consumption of wild vegetable ranges from 17.5% in Trang bang (Tay Ninh) to 10-65% in Lac Duong and 50-60% in Dong Thap, equivalent of 90kg per person per year.

The Kinh & Hoa ethnic group have the highest level of vegetables sourced from cultivation- 70-60% respectively with the Ma & M'Nong collecting 65% from the wild. Suggestion that once vegetables are difficult to find in wild then species are collected & grown in backyards.

Prof Nguyen Van Luat: Indigenous Vegetables & Medicinal Plants in the Mekong Delta

This paper was vague and provided unsubstantiated statements regarding medicinal properties and value of plants, possibly due to translation difficulties. The focus was on medicinal properties of plants with reference to Cantho City and established Medicinal Herb gardens. These can be sources for indigenous vegetable stock.

Dr Phan Thi Giac Tam, Nong Tam University: The Economic Potential of Indigenous Plants: *Centella asiatica*

Most indigenous vegetables are sold in traditional markets- some in supermarkets (500 kg out of 15 tonnes veg/day), some direct to restaurants.

- In Ba chieu market 6 out of 12 retailers selling Centella
- Daily sales - 340-400 kg per day (veg & juice)
- 12-14% sold in liquid form – purity inconsistent.

Farmers receive 30-40% of retail price. Suggest that customers willing to pay extra for quality- 22000 VVD /kg – 5000 VND /kg and preferred the smaller leaf *Centella* to a larger leaf form.

Recommendations: Need to study consumers attitudes to indigenous vegetables including preferred attributes, willingness to pay

Develop clean technologies for farms; approx. 432 ha *Centella* under monoculture. Suggest certification & branding and adoption of marketing method such as “forever living product” company.

Ass. Prof. Dr Tran Khac Thi, Fruit & Vegetable Research Institute: Indigenous Vegetables & the role of Women in Agricultural Activities in Vietnam.

This presentation focused on general vegetable production in Vietnam.

- Vietnam vegetable area 643,970ha
- Average yield (2005) 14.99 tonnes/ha
- Estimated value of production VND 144,000 billion (US \$900 million)
- Average vegetable consumption per capita 116kg/year, ASEAN countries (57 kg/capita/year)
- Identified *Ipomoea aquatica*, *Sechium edule*, *Melientha suavis*, *Erythrolalum scandens* as potential crops.

Dao The Tuan, Gymnema sylvestre – an indigenous vegetable of Vietnam: Association for Rural Development

This paper discussed the medicinal properties of *Gymnema sylvestre* a native herb found in tropical forests in Southern Vietnam and India. The herb has been researched fairly extensively with particular interest in properties that can be used in the treatment of diabetes.

The leaves are used in the coastal area of Thanh hoa in soup made with aquatic molluscs.

Dr Trong Van Tuyen, HUAF- – Hue University of Agriculture & Forestry: Proposed Extension and Capacity Building for Indigenous Vegetable Development in Central Vietnam.

Indicated the importance of indigenous vegetables in particular that they are seen as “safe” vegetables, can have medicinal as well as nutritional value, important vegetables of the poor as drought tolerant and adapted to sandy soils(Dua Huong, Central Vietnam).

Presented problems in development- low productivity, poor post-harvest handling, lack of communication among farmers, market network is weak & small and poor conservation of species leading to a loss of diversity.

The report identified that farmers preferred extension workers at communes and receiving marketing support above other extension services such as price subsidies and information.

Dr Ngo Quang Vinh, Institute of Agricultural Sciences for Southern Vietnam: Technique of Growing Fresh Mint in Tien Giang Province, South Vietnam.

This looked at the cultural practices of growing *Houttuynia* in the south Vietnam region. It has been cultivated for more than 30 years with approx. 100 ha under production.

- The main market is Ho Chi Minh City.
- Farmers yield 15-20 tons/ha/per harvest
- Price: 1,500-3000 VND/kg.
- Labour is mostly women.

Dr Jenny Ekman, NSW DPI: Marketing Vietnamese Indigenous Vegetables

The presentation looked at the challenges and successes marketing Asian vegetables in N.S.W. and how this experience can be applied in Vietnam.

It emphasised the need to identify the target market and their needs and the importance of developing a defined market strategy.

Joseph Ekman, NSW DPI: Good Agricultural Practices & Quality Assurance.

Identified the importance of controlling on-farm risks- eg. pesticide use, worker health & safety, food safety (microbial residues) & environmental impact.

The report outlined the importance in quality control throughout the fresh chain.

Some Food for Thought on Commodities, Constraints & Opportunities. TK Lim, V.Brunton, J.Ekman, M. Errington

This presentation identified 20 potential crops , outlining uses, issues, and R&D interventions and opportunities.

6.1.7 Workshop Outputs

The workshop had two main outputs:

1. Consensus list of potential indigenous vegetables to include in the project
2. List of potential coordinators and participants in the project.

Potential indigenous vegetables

The workshop concluded with a discussion on the vegetable with the most potential for inclusion in the project. A consensus list was developed. Follow-up discussion provided information on the current status of each vegetable.

Centella (Centella asiatica)

- Postharvest processing, document current knowledge, hydroponic production, GAP – reducing pesticide use and heavy metals
- Improve quality – increase consistency, reduce leaf size, promote in northern areas, usage, drinks, soups, frozen - Dalat etc
- Can be grown and produced everywhere.

Meliantha suavis

- Has good image and high price – easy to promote, need more production, critical issue is consistency of supply
- Grow in hedging systems, coppicing
- Only grown in northern areas (Xuan Son National Park)
- Develop propagation techniques
- Stir fried and soup, salad (marinated)
- Endangered species. Nutritional analysis already done, rich in Vit C, calcium, iron.

Bo Khai (Erythralum scandens)

- Grown only in mountainous areas in north, favourite dish in high end restaurants, main issue limited supply, postharvest qualities unknown
- Developed from wild plant, grown as small bush – hedging system

- No analysis of nutritional/medicinal properties
- Stir fry leaves – need to promote use in the south.
- Strong demand in Hanoi – if increase supply can expand into other areas.

Gac (Momordica cochinchinensis)

- Productivity is very low as need male and female plants – need to improve pollination
- Potential for grafting to increase production
- Can grow all over Vietnam, not grown as standard cultivated crop just randomly
- NIMM has done some analysis of gac oil from seed, beta carotene from pulp, potential use as cosmetics, colourant – issue is colour is difficult to maintain, inconsistent quality – NIMM is working on this, need to improve stability of colour.

Lizard tail (Houttounia cordata)

- Grows extensively in the south, grows everywhere, popular, production well understood but quality improvements can be made. Value add may be not possible? (relative). Safe veg issues, grows near waters edge. Postharvest may be issue
- Reduce priority – already widely grown, could be treated similarly to centella.

Go Gee (Lycium chinensis)

- High returns from existing plantations grown for leaves as well as berries – Fruits on second year old wood. Lots of research in China – Goji berry institute. Need to study crop phenology, flushing and fruiting cycle .NIMM has done analysis of goji berries – effect of cultivation method etc on nutritional quality. Postharvest processing – fresh as opposed to dried product
- Grown all over Vietnam – optimum climate not known
- Interest in export product, may offer small scale enterprises for women?

Bengal cardamom (Amomum aromaticum)

- Currently wild harvested, need to develop whole production cultivation system, postharvest processing
- Specific to north-west area, grown by ethnic minority
- Mostly exported to China, Hong Kong, Thailand. Mixed with other spices by spice producer – not sold directly to consumers. Also fermented into wine, included in pho
- NIMM has researched medicinal value – superior to other cardamoms.

Hat doi (Michaelia mediocris)

- grown in various areas of Vietnam (including mountainous areas near Laos, but use of Hat doi as pepper is specific to northern Vietnam. Mainly used as timber tree
- Needs coppicing / dwarfing to make it easier to collect fruit. Currently whack tree to make fruit drop – large losses
- Needs nutritional analysis
- Needs strong promotion in other areas as currently unknown
- Priority on postharvest processing
- Done some grafting work, widely grown as forestry tree.

Va (Ficus auriculata)

- Specific to central area of Vietnam (Hue)

- Can be processed and then used for cooking
- Not produced on large scale, backyard production
- More than 100g may be toxic when eaten fresh.

Star anise (Illicium annisatum)

- Used to extract main ingredient in tami-flu. Vietnam is leading producer of star anise, already export to Middle East and other Asian countries. Productivity is low and supply is inconsistent. Price is high – supply main limitation. Much already known
- Grown in mountainous northern areas.

Potential key collaborators

The following individuals were identified as having a potential role in the project. Most of the researchers will have a local involvement with communes in their region.

Name	Sex (M/F)	Agency and Position	Discipline and Role in Project	
Tran Thi Hoa	F	Deputy Head, Vietnam Women's Union	International Cooperation discipline Department. Assist with organisation of workshops, accessing the communes, organising groups of women participants, administration and communication with authorities.	10%
Administrative Assistant	F	Vietnam Women's Union	International Cooperation Department. discipline Organise and conduct tasks relevant to the workshops, provide translation service, source background information, assist with details.	20%
Nguyen Van Tuat	M	FCRI	Director FCRI Coordinate research activities of Vietnamese research institutes, agencies and in organising field/farm visits. Organise research staff to participate.	10%
Note: These following participants are regionally based and will only have involvement in their region and only if it is appropriate for the needs of the vegetable under investigation in that region.				
Le Thi Khanh	F	Univ Agric & Forestry, HCMC	Head Horticulture Dept. Provide extension activities in the Central regions, including participatory activities.	5%

Nguyen Van Thuan	M	NIMM	Director Coordinate NIMM research and information provision on medicinal value of indigenous plants including scientific publications. Assist in organising field/farm visits.	5%
Dao The Anh	M	CASRAD	Agro-economics Provide extension services and advice on practices, cooperative development and marketing in the North of Vietnam	5%
Ngo Tien Dung	M	PPD	Coordinate participatory extension activities and staff involvement.	5%
Phan Thi Giac Tam	F	Nong Lam University (economist)	Researcher Economics and marketing Coordinate market research in the South, liaise with supermarket chains	10
Ngo Quang Vinh	M	IAS for southern Vietnam	Researcher crop production Research production techniques of vegetables, particularly in the South	10

6.1.8 List of delegates

N o.	Name	Title	Organisation
1.	Madame Truong My Hoa	Vice President of Vietnam	VIP
2.	H.E. Mr. Nguyen Thanh Tan	Vietnamese Ambassador to Australia	
3.	Dr. Bui Ba Bong	Vice Minister	MARD
4.	Dr. Trieu Van Hung	Director General of STD	
5.	Mrs. Hoang Thi Dung	Deputy Director, ICD	
6.	Ms. Nguyen Thi Hang	ICD Expert	
7.	Mr. Chu Van Chuong	Deputy Director, ICD	
8.	Expert Pham Tung Lam	Expert STD	
9.	Mr. Nguyen Quang Minh	Director of Plant Protection Department	
10.	Dr. Tong Van Khiem	Director of National Agri. Extension Center	
11.	Dr Ho Quang Minh	Director General FER	MPI
12.	Ms Nguyen Yen Hai	Expert FER	
13.	Dr. Tran Duc Minh	Vice Minister, Director of Vegetable, Fruit, Flower Project (VFF)	MOT

14.	Mr Nguyen Huu Dao	Deputy D/G, Planning & Investment Dept.	
15.	Prof. Nguyen van Thanh	Trade Research Institute, VFF project	
16.	Mme. Ha Thi Khiết	President	VWU
17.	Mrs. Tran Thi Hoa	ICD Deputy Head	
18.	Mrs. Dang Thi Minh Hoa.	Family and Social Welfare	
19.	Ms. Nguyen Phuong Anh	ICD expert	
20.	Dr. Ha Minh Trung	Vice President	Gardening Association
21.	Representative		Farmer Association
22.	Dr Nguyen Van Bo	VAAS President	VAAS
23.	Dr. Nguyen Manh Hai	VAAS Vice President cum FAVRI Director	
24.	Dr. Ngo Vinh Vien	Director of Plant Protection Institute	
25.	Dr. Luu Ngoc Trinh	Director of Plant Resource Center	
26.	Dr Nguyen Van Tuat Director	Food Crop Research Institute	
27.	Dr. Dao The Anh	Director of CASRAD, FCRI	
28.	Dr. Tran Khac Thi	Vice Director	
29.	Mrs. Pham My Linh	Researcher	
30.	Dr. Nguyen Quoc Vong	CEH – FAVRI	
31.	Dr. Nguyen Hoang Nghia	Director of Forest Science Institute	
32.	Dr. Le Quoc Doanh	Director of Northern Mountainous Agricultural and Forestry Science Institute	
33.	Prof. Dr Nguyen Huu Dong	Director	NIMM
34.	Ms. Le Nguyet Nga	ICD Expert	
35.	Ms. Pham Thanh Huyen	Deputy Head of Dept. of Botany & Med. Plant Resource	
36.	Dr. Nguyen Van Thuan	NIMM Center	
37.	Dr. Le Thi Khanh	Researcher	Hue AFU
38.	Dr. Truong Van Tuyen	Dean, Faculty of Extension & Rural Development	
39.	Dr. Nguyen Hay	Vice Rector	HCMC AFU
40.	Dr. Nguyen Van Ke	Researcher	
41.	Dr. Phan Thi Giac Tam	Researcher	
42.	Prof. Nguyen Van Luat	Author of “Medicinal Garden” book.	SGTT (Sai gon MKT)
43.	Mr. Hoang Tuyen	Head of Mekong Regional Office	
44.	Dr. Ngo Quang Vinh	Researcher	IAS
45.	Mr. Tran Dang Lau	Director, Xuan Son National Park	Xuan Son NP
46.	Dr. Hannah Jaenicke	Director	ICUC
47.	Dr Peter Ooi, Regional	Director	AVRDC

48.	Virginia Brunton	Project Leader	NSW DPI
49.	Jenny Ekman	NSW DPI Researcher	
50.	Joseph Ekman	Researcher NSW DPI	
51.	Peter Core	Executive Director	ACIAR
52.	T K Lim	RPM	
53.	Liz Clark	Communication Manager	
54.	Meredith	Staff	
55.	Lester Burgess	Consultant	
56.	Elske Van De Fliert	University of Queensland	
57.	Len Tesoriero	Researcher NSW DPI	
58.		ACIAR VN Country Manager	
59.	Nguyen Thi Kim Loan	ACIAR VN Dep. Country Manager	
60.	Laurie Dunn	Counsellor	AusAid
61.	Simon Cramp	First Secretary	
62.	Mr. Andrew Speedy	Chief Representative	FAO
63.	Mr. Gabriel de Taffin	Director	CIRAD
64.	Mr. Ayumi Konishi	Country Director	ADP
65.	Mr. Ian Fox	Head of ARD & Natural Resources	
66.	Mr. Severin Kodderitzsch	Rural Development Sector Coordinator	WB
67.	Mr. John Hendra	Resident Representative	UNDP
68.	Dr. Nguyen Ngoc Ly	Manager, Sustainable development program	
69.	Mr. Nguyen Tien Phong	Manager, Poverty & Social Devt Program	
70.	Mr. Daniel Selvanayagam	Country Manager	World Vision
71.	Mrs. Nguyen Thi Oanh	Country Representative	CECI
72.	Dr. Nguyen Van Trieu	Country Director	IUCN
73.	Mr. Chu Shiu-Kee	Head and Representative	UNESCO
74.	Ms. Lynne Racine	Head of Aid/Counsellor (Development)	CIDA
75.	Mr. Dominic Smith	Director	MDI Vietnam
76.	Prof. Tran Duc Vien	Rector, Hanoi Agriculture University	HAU
77.	Prof. Dang Kim Vui	Rector, ThNg University of Agriculture & Forestry	ThNgUAF
78.	Prof. Nguyen Van Mau	Rector, Hanoi College of Science	VNU
79.	Mr. Nguyen Tu Cuong	Director	Metro
80.	Ms. Nguyen Thi Hanh	BOD Member, General Manager – Goods Supply Division	Coop-mart HCMC
	20 persons	Local Media	