

# Feed the Future: Innovation Lab for Integrated Pest Management Trip Report

**Country(s) Visited:** Cambodia

**Dates of Travel: November 27 – December 3**

**Travelers' Names and Affiliations:**

Buyung Hadi (November 27 – December 3)

Nancy Castilla (November 30 – December 3)

Zhang Feng (November 30 – December 3)

Ill Ryong Choi (November 30 – December 3)

Virender Kumar (November 30 – December 3)

Alex Stuart (November 28 – December 3)

Ellena Genil (November 29 – December 5)

**International trip # covered by this report:** Rice-132 and Rice-133

**Purpose of Trip:** Finalizing work plans for EPIC Yr 2 with NARES partners, EPIC annual review and planning meeting with all partners

**Sites Visited:** Phnom Penh (all), Prey Veang (all), Takeo (Alex Stuart)

## Description of Activities/Observations:

### I. Itineraries

#### 1. Buyung Hadi's itinerary

November 27: Arriving in Phnom Penh

November 28:

- Meeting Ngin Chhay and Chou Cheythyrieth (GDA) – discussion on EPIC plan and budget for year 2 for GDA, preparation for annual meeting
- Meeting with Makarady (CEDAC) - EPIC plan and budget for year 2 for CEDAC

November 29:

- Facilitator's forum on disseminating research finding and creating impact in Cambodian rice production – IRRI organized through EPIC (agenda and list of participants, Annex 1)
- Meeting with Dr. Penghuy, Nagoya University representative for graduate school of economics at RUPP – discussing the potential of enrolling a PhD student at Nagoya University's grad school of economics working on innovation systems and project impact supported by EPIC
- Meet Claudius Bredehoeft (GIZ) – discussing EPIC plan for year 2

November 30:

- Meet Seng Vang and Khay Sathya (CARDI) - EPIC plan and budget for year 2 for CARDI, preparation for annual meeting

- Meet Hok Lyda, director of Center of Excellence – Sustainable Agricultural Intensification and Nutrition at RUA

December 1-2: EPIC Annual review and planning meeting (agenda – Annex 2).

December 3: Leaving Phnom Penh

## 2. Alex Stuart' itinerary

November 28: Arriving in Phnom Penh

November 29-30:

- Visit target villages in Takeo together with CARDI and PDA, discussion with farmer groups on the design and activities of community-based rat management trials.

December 1-2: EPIC Annual review and planning meeting (agenda – Annex 2).

December 3: Leaving Phnom Penh

## 3. Ellena Genil's itinerary

November 29: Arriving in Phnom Penh

November 30:

- Logistics and preparation for EPIC annual review and planning meeting, together with Chhay Khry from GDA and Sreyvanna Yath from IRRI-Cambodia

December 1-2: EPIC Annual review and planning meeting (agenda – Annex 2).

December 3: Finalizing financial/liquidation report on meeting expenses with Chhay Khry from GDA and Sreyvanna Yath from IRRI-Cambodia

December 4: Leaving Phnom Penh

## 4. Itinerary for Nancy Castilla, Zhang Feng, Ill Ryong Choi, Virender Kumar

November 30: Arriving in Phnom Penh

December 1-2: EPIC Annual review and planning meeting (agenda – Annex 2).

December 3: Leaving Phnom Penh

## II. Meeting notes

### 1. Yr 2 work plans and budget for GDA, CARDI, CEDAC, PDA, GIZ

Work plan for GDA DS 2016 & WS 2017

- Work with PDA in Battambang, Kampong Thom and Prey Veang to conduct adaptive research platforms (3 experiments per province)
- GDA will act as the main contact in research management and insect identification (to be conducted at CARDI entomology lab)
- Produce training materials and act as resource persons for farmer field days at each province (min once a season).
- Develop and produce rice IPM extension materials – for DS 2016: insects (pests and beneficial), disease, weeds ID posters and cards in collaboration with Harvey Reissig, IRRI, CEDAC and CARDI

- Convene, together with IRRI (Rica Flor), learning alliances in provincial and national levels
- Indicative budget: 57,821

#### Work plan for CEDAC

- Development of insects (pests and beneficial), diseases and weeds ID posters, cards in collaboration with Harvey Reissig, IRRI, GDA and CARDI
- Start the development of an entertainment education (video) on rice IPM
- Indicative budget: USD 22,354

#### Work plan for CARDI

- Adaptive research platform: Work with PDA in Takeo to conduct adaptive research platforms (3 experiments per province)
- CARDI as the main contact in research management for Takeo
- Contribute to the training events/farmer field days in Battambang, Kampong Thom, Prey VEang (limited to one village per province for two cropping seasons).
- Training on field identification and assessment of rice pests, diseases and weeds targeting University faculties, students, government officials and perhaps private sector, IRRI will provide support while CARDI will act as the main organizer and trainers.
- Start collection of bacterial leaf blight and blast strains for use in research and breeding activities at CARDI
- Indicative budget: USD 61,228

#### Work plan for Provincial Directorate of Agriculture (PDA)

- In year 1, PDA's work plan and budget were subsumed under GDA's and CARDI's work plan and budget. This has not been working well. Thus, from year 2 on, PDA will receive a separate amount of funds and work plan from the project.
- Coordinate field visit of leading farmers at least 3 times a season.
- Organize farmers' field days at each village at harvest time.
- Indicative budget: USD 26,400 (USD 6,600 for each PDA, there are 4 PDAs involved: Battambang, Kampong Thom, Prey Veang, Takeo)

#### Work plan with GIZ

- EPIC and GIZ ASEAN-SAS will continue to work together to push for policy change in biocontrol agent registration. EPIC will co-fund the national biocontrol forum in 2017. Additionally, EPIC field experiments will be visited by officials from Department of Agricultural Law as a part of capacity building within the department/ministry of agriculture on the efficacy and safety of biological control options.

## 2. Facilitator’s forum on disseminating research finding and creating impact in Cambodian rice production

This forum was started and hosted by Rica J. Flor (IRRI postdoctoral fellow for EPIC) as a part of our effort to synergize EPIC efforts with other international development organizations’ efforts in Cambodian rice sector. The idea is to start developing a pipeline of information dissemination from EPIC’s research to farming communities outside the target villages/provinces. Each participating organization in the forum works with either farmer groups, private/public partners in Cambodian rice sector. In the future, we expect to invite the organizations’ partner farmers/private/public groups to visit EPIC field experiments and start the process of technology transfer.

## 3. Breakout sessions at the annual review and planning meeting for EPIC

We had two breakout sessions during the meeting: one on additional data to be collected at the adaptive research platform (field experiments) and another on learning alliance

### a. Additional data to be collected at the adaptive research platform

What field data should be collected per village/province?

<b>Pest</b>	<b>Activity</b>	<b>Institute or person responsible</b>	<b>Province</b>
<b>Rice orange leaf phytoplasma</b>	Collection of samples	CARDI GDA	Takeo Battambang, Kampong Thom, Prey Veng
	DNA/RNA extraction	CARDI, IRRI	All provinces
	Molecular analysis	CARDI, Nagoya University	All provinces
<b>Nematode</b>	Collection of soil samples	CARDI GDA/PDA?	Takeo Battambang, Kampong Thom, Prey Veng
	Processing of soil samples	Royal University of Agriculture?	
	Molecular characterization of nematode samples	c/o John Eisenback?	
<b>Bacterial blight</b>	Collection of infected plants	CARDI GDA/PDA	Takeo Battambang, Kampong Thom, Prey Veng
	DNA extraction	CARDI	All provinces
	Molecular analysis	CARDI & IRRI?	All provinces

### b. Learning Alliance

Learning alliance is a multi-stakeholder facilitation method that IRRI use to disseminate technology in a given area. After an orientation on what a learning alliance is and what it could be used for in the project, groups assigned in each of the four EPIC target provinces tackled two questions: 1) Whom to involve in a learning alliance at their province; and 2) key topics of interest.

## A. Takeo

### **Individuals and organizations to involve:**

Mr. Nhep Srorn – Director of PDA-Takeo

Mrs. Mel Chantevy – Chief of Agronomy Office – PDA

Mrs. Koy Sokhom – chief of Agricultural extension office

Mrs. Koy Sokhom – Chief Agricultural Extension Office

Mr. Sok Sitheng – Chief of Agricultural Cooperative Office

10 Chiefs of Agricultural District Office

Mr. Toung Sokhom – Company manager of AQIP Seed company

Chief of Commune agricultural cooperative (about 50 ACs)

Model farmers

Agricultural fertilizer and pesticide company

Mr. Norng Panara – Chief of agri-development center (Bati)

Mr. Touch Sokhom - Chief of agri-development center (Kbal Po)

Rice millers/traders/collectors

Local authorities (province, district, commune and village level)

### **Topics:**

Golden apple snail management	Soil fertility improvement versus chemical fertilizer	Train rat hunter groups for service provision and market rat meat
Disease management in rice	Integrated weed management	Soil fertility management
Rice planting tools (solve high density of direct seeding, broadcast)	Economic advantage of new technologies	Improve agricultural extension activities
Botanic pesticides	Insect pest management in rice	BPH + BLH → prevent before outbreak and control
Testing resistant rice varieties in IPM programs then comparing them with traditional varieties	Explain the effect of pesticide application to human health and the environment	Ecological engineering techniques
Pesticide application techniques and safety of use	IPM training	

## B. Prey Veng

### **Individuals and groups to involve:**

Local authority (Village Chief CCM)

Agricultural Office, PDA (Extension)

Heng Pichheng (Mr. Lao Chanthy, Input supplier 012956003)

Five Star (Ly Soun)

Cambodia Rice Federation (Chhoun Thom)

Agricultural Cooperatives (50 ACs)

CARDI/EQIP Seed

ICC, PNKS, SACRED (NGOs)

Chea Sim Kam Chay Mear University

**Topics:**

- Policy (Market price)
- Economic analysis between rainy & dry season production
- How to involve young generation in agriculture
- Promote organic rice
- Good agriculture Practice on rice production (Standard/Certification)
- Water management
- Seed production selection
- How to maintain agricultural environment (Meaning around the rice field)
- Pesticide campaign
- Snail
- Ecological rodents management
- Pest monitoring & Forecasting, Pest diagnostic
- Training to farmers on IPM

**C. Battambang**

***Groups and individuals to involve:***

Mr. Chhim Vachira (Director of PDA BB)

Mr. Chou Cheythyrih (Head office DRC/GDA)

Mr. Khay Sathya (CARDI)

Mr. Srean Pao (UBB)

Mr. Bob Martin (ACIAR WEEDY Project)

Mr. Ing Sina (Chief of Toul Samroung Rice Seed Production Farm)

Mr. Sok Chenda (Buddism for Development)

Mr. Guillaume Sumel (VIVRE DE SA TERRE)

Retailers

Farmer group

Village chief

Private sector (Involved in pesticides, seeds)

Rice farmer association

Transportation service provider

GI finance

Miller (Baitang)

**Topics**

- Facilitation/ dissemination Methods
- Irrigation system
- IPM
- Farmers field school on pest of rice
- Pesticide safety training
- Market
- Assessing pest severity
- Crop rotation
- Seed system
- Pesticide handling safe application of pesticides (Developing pesticide applicator)
- Information on bio-control agents (Natural Enemies)
- Insect identification (beneficial + Pests)
- Economic loss of weedy rice in rice production
- Training/Awareness Workshop Pesticide Stewardship
- Insect pest & diseases occurred relationship in rice production

**D. Kampong Thom**

***Groups and individuals to involve***

Thiv Vanthy: Director of PDA

Vath Kimcheang: Head of PDA Station

Im Bunthan: Provincial Agronomist

Nav Ra: PDA, Santok District

Hok Shiphana: PDA, Stean Sen District

Dr. Ouk Makara and Dr. Khay Sathya: CARDI

Heng Chbnanhy and Ngin Chhay: GDA

**Topics**

- Pest management (armyworm, bird, rat snail, crab, blast, false smut)
- How to mass produce Trichoderma and biopesticides
- Agricultural inputs (Biopesticide, BCA, Trichoderma)
- Trainings or technology transfer
  - a. Rice production
  - b. Safe pesticides
  - c. Growing of phark randul
  - d. Cultural practices
  - e. Optimum seeding rate

- f. Optimum fertilizer rate
- g. Postharvest
  - Varietal selection
  - Identification of varieties preferred by farmers
  - Consumers' preferences
  - Marketing of harvested grains
  - Quality certification

### **Suggestions, Recommendations, and/or Follow-up Items:**

- Letters of Agreements with all of the NARES partners need to be drafted and agreed upon for EPIC year 2. Note that some of the NARES partners already started the year 2 activity (e.g. CARDI organizing farmer meeting for rat management trials in Takeo) even before receiving funds for year 2.
- It was suggested during the annual meeting that more attention is given on the gender aspect of impact assessment on the project/technologies tested in the project.
- The topic for learning alliances in each province need to be chosen and the alliance' first meeting scheduled.
- Additional data collection protocols need to be finalized and communicated to NARES partners (e.g. nematode collection protocol from Jon Eisenback, rice orange leaf phytoplasma from Il Ryong Choi).
- Trichogramma technology presented by Zheng Fang (CABI) has potential for EPIC activities. However, the high initial investment for the technology lies beyond the project's capacity. One possibility to overcome this obstacle is for IRRI to pursue a separate funding with CABI to bring Trichogramma technology in Cambodia to be implemented within EPIC framework.

### **List of Contacts Made (see annex 1 and 2 for participants)**

<b>Name</b>	<b>Title/Organization</b>	<b>Contact Info (address, phone, email)</b>

## Annex 1. Facilitators' forum

### Meeting objectives:

To get to know people who are working on facilitating processes that involve various stakeholders

To share methods used and experiences

To gather insights about what methods work or not, in what context

### Agenda:

Date/Time	Activities	Focal Person
<b>AM – presentations</b>		
8:00-8:30	Registration	
8.30 – 9.00	Welcome, introduction of participants Objectives of the meeting	
9.00 – 9.30	Methods and experiences for working with farmers, farmers' groups, Self-Help Groups and peer based approaches: MODE/ Louvain Cooperation	Amaury Peeters & Hean Saray
9.30 – 10.00	Methods and insights for working with private sector networks: GIZ	Samorn Channa
10.00 – 10.30 coffee break		
10:30 – 11:00	Methods and experiences for research projects with multiple stakeholders (Cambodia): IRRI	Rica Flor
11:00 – 11:15	(Myanmar): IRRI	Reianne Quilloy
11:00 – 11:30	Methods for multi-stakeholder facilitation (simulation game, farmer-to-farmer videos): GRET	Lucie Reynaud
11:30 – 12:15	Working with farming communities and cooperatives: ADG	Sothet Chhay and Im Sothy
12:15– 13:15	Lunch	
13:30– 14:00	Discussion/workshop: When best to use these methods? What to consider, context? When do they not work?	
14:00– 14:30	Summary Suggestions on next steps for possibly working together	

**Participants:**

Rica Joy Flor (IRRI)

Reianne Quilloy (IRRI)

Buyung Hadi (IRRI)

Amaury Peeters (Louvain Connection)

Hean Saray

Lucie Reynaud (GRET – Alisea)

Sothet Chhay (ADG)

Im Sothy (ADG)

Samorn Channa (GIZ)

Annex 2: EPIC Annual review and planning meeting – December 1 and 2, 2017 (agenda)

<b>Date/Time</b>	<b>Activities</b>	<b>Focal Person/Speakers</b>
<b>December 01, 2016 (open session)</b>		
8:00-8:30	Registration	Chhay Kry
Section 1: Opening Ceremony Chair/MC: Chou Cheythyrit		
8.30 – 9.15	Welcome remarks	Sang Lee, USAID Mission, Seng Vang (CARDI) Ramasamy Muniappan (Virginia Tech) H.E. Hean Vanhan (DG - GDA)
9.15 – 9.20	EPIC annual meeting 2016/2017: Setting the scene	Buyung Hadi (IRRI)
9.20 – 9.30	Group picture	
9.30 – 9.45	Coffee/tea break	
Section 2: EPIC Yr 1: Progress and results Chair: Virender Kumar (IRRI) & Chou Cheythyrit (GDA)		
9:45 – 10:15	Rice Health Survey	Khay Sathya (CARDI) and Nancy Castilla (IRRI)
10:15 – 10:45	Baseline Survey for Impact assessment	Rica J. Flor (IRRI/EPIC)
10:45 – 11:15	Pesticide KAP survey	Harvey Reissig (Cornell University) and Keam Makarady (CEDAC)
11:15 – 11:45	Q&A	
11:45 – 13:00	Lunch	
Section 3: EPIC Yr 2: Potential partnerships Chair: Alex Stuart (IRRI) & Khay Sathya (CARDI)		
13:00 – 13:30	Trichogramma rearing techniques	Zhang Feng, CABI
13:30 – 14:00	SEA Learning alliances	Lucie Reynaud, GRET
14:00 – 14:30	CAVAC	Pieter Ypma, CAVAC (to be confirmed)
14:30 – 15:00	Q&A	
15:00 – 15:15	Coffee/tea break	
Section 4: Planning for Learning alliance activities in Yr 2 Chair: Nancy Castilla (IRRI)		
15:15 – 15:45	EPIC Learning alliances	Rica J. Flor (IRRI)
15:45 – 17:00	Workshop on learning alliances – Breakout sessions per province.	
17:00 – 17:15	Closing remark	Dr. Buyung Hadi (IRRI)
17:30 – 20:00	Welcome dinner	

**December 02, 2016 (Project implementers and partners, by invitation)**

Section 5: Planning for year 2: Adaptive research platforms and development of training programs/extension materials on rice IPM in Cambodia Chair: Rica J. Flor (IRRI) & Keam Makarady		
8:30 – 9:10	Adaptive research platform	Buyung Hadi (IRRI)
9:10 – 9:30	Training programs and extension materials on rice IPM in Cambodia – GDA perspective	Chou Cheythirith (GDA)
9:30 – 9:50	Training programs and extension materials on rice IPM in Cambodia – NGO perspectives	Keam Makarady (CEDAC)
9:50 – 10:20	Q&A	
10:20-10:40	Coffee/tea break	
10:40 – 12:00	Breakout sessions: Session 1 – Adaptive research platform  Session 2 – Information dissemination and capacity enhancement for rice IPM practice/policy in Cambodia	Session 1 - Alex Stuart (IRRI)/Khay Sathya (CARDI)/Chou Cheythirith (GDA) – session 1  Session 2 - Harvey Reissig (Cornell)/Virender Kumar (IRRI)
12:00 – 12:15	Summary and closing remark	Buyung Hadi (IRRI)
12:15 – 13:15	Lunch	
13:30 – 19:00 – Field visit to a graduate research plot in Prey Veang – IRRI, Virginia Tech, Nagoya University (space limited to ~16 people)		

Participants:

**PDAFF Battambang**

1. Chhim Vachira
2. Chhun Sokhunroth
3. Phang Sisophea
4. Im Theara

**PDAFF Prey Veng**

5. Ouk Samnang
6. Choun Saban
7. Khun Kimlun
8. Pin Channa

**PDAFF Takeo**

9. Ngep Sorn
10. Touch Sokhum
11. Ke Rem
12. Chhorn Sarith

**PDAFF Kampong Thom**

13. Thiv Vanthy
14. Vat Kimcheang
15. Long Kimly
16. Hun Kotal

**GDA**

17. Chou Cheythyrieth
18. Chhay Kry
19. Ros Pysoth
20. Neak Thon
21. Keo Makarakpakphea
22. Yos Kimsan
23. Norng Phanara

**CARDI**

24. Khay Sathya
25. Oeurn Samoul
26. Kong Sokvisal
27. Soeur Somany
28. Heng Sovanroth
29. Kong Parameas
30. Pream Rady

**CEDAC**

31. Keam Makarady
32. Srean Pao (GIZ)
33. Claudius Bredehoeft (GIZ)
34. Toshiharu Tanaka (Nagoya University)
35. Sotaro Chiba (Nagoya University)
36. Buyung Hadi (IRRI)
37. Elena Genil (IRRI)
38. Alexander Stuart (IRRI)
39. Nancy Castilla (IRRI)
40. Il-Ryong Choi (IRRI)
41. Virender Kumar (IRRI)
42. Rona Nina Mae Rojas-Azucena (IRRI)
43. Feng Zhang (CABI)
44. William Harvey Reissig (Cornell)
45. Ramasamy Muniappan (Virginia Tech)
46. Elvis A. Heinrichs (Virginia Tech)
47. Jaspreet Sidhu (Virginia Tech)
48. Douglas Pfeiffer (Virginia Tech)
49. Corey Riedel (Virginia Tech)
50. Rica Joy Flor (IRRI)
51. Sang Lee (USAID Mission)
52. Vuthy Theng (USAID Mission)