

International Training Workshop
**Modern Approaches in Systems Analysis of Resource Poor Farming Systems
with a Focus on Value Chains for Market-led Innovation**

**Organized by ICRISAT, CSIRO and CRP for Dryland Systems
9-11 May 2016**

**Venue: C Fred Bentley Conference Hall, 212 Building
ICRISAT, Patancheru, Telangana, India**

Day 1: Monday, 9 May 2016

08:30 to 09:00 Registration

Welcome

09:00 to 09:15 Welcome, introductions and objectives of the workshop –
Anthony Whitbread, Research Program Director, Innovation Systems for
the Drylands, ICRISAT

09:15 to 09:20 Welcome on behalf of the CRP on Dryland Systems, Quang Bao Le,
CRP on Dryland Systems, ICARDA

09:20 to 09:30 Opening Remarks/Inaugural Address – David Bergvinson,
Director General, ICRISAT

09:30 to 10:30 A review of CSIRO's farm modelling toolkit: exploring options for
sustainable development – Ben Henderson, CSIRO

10:30 to 11:00 Booster Break and Group Photograph

Session I – Systems modelling tools - Examples of its application in the real world

Facilitator: Sabine Homann

11:00 to 11:30 Modelling to guide crop improvement and agronomic management
targets - Vincent Vadez, ICRISAT

11:30 to 12:00 Transitioning smallholder farm systems in the semi-arid to cope with
climate variability and more frequent extreme events –
Anthony Whitbread, ICRISAT

12.00 to 12.30 Modelling application to evaluate peanut intercrop systems options for sustainable diversification in Ananthapuram region, India – V Nageswara Rao, ICRISAT

12:30 to 13:30 Lunch – 204 Banquet Hall

Session II – Systems Modelling Tools - Examples of its Application in the Real World

Facilitator: Shalander Kumar

13:30 to 14:00 Foresight Analysis and *Ex-ante* Assessment of Promising Technologies: To Inform Decision Making – S Nedumaran, ICRISAT

14:00 to 14:30 AgMIP – Climate change adaptation strategies for agriculture in Southern Africa and South Asia
Case study 1: Co-designing smallholder farming futures for reduced vulnerability to changing climate in semi-arid southern Africa – Sabine Homann, ICRISAT

Case Study 2: Resilient smallholder Households through Adaptation to Climate Change - A case study in South India – K Dakshina Murthy, ICRISAT

14:30 to 14:45 Tool for supporting stakeholders' assessment and planning of SLM at landscape level - Quang Bao Le, CRP on Dryland Systems, ICARDA

14:45 to 15:00 Smallholder systems' technical-economic efficiency, productivity-soil fertility tradeoffs and implication for sustainable intensification – Quang Bao Le, CRP on Dryland Systems, ICARDA

15:00 to 15:30 Booster Break

Session III – System modelling tools and preparation for next two days training

Facilitator: K Dakshina Murthy

15:30 to 16:45 Modelling technical improvements for smallholder crop-livestock farming systems and the impacts of value chain improvements at the household scale (IAT) and some illustrative examples from crop-livestock systems in Zimbabwe - Neil MacLeod, CSIRO and Andre van Rooyen, ICRISAT

16:45 to 17:00 Introduction to value chain models and the continuing program for days 2 and 3 - Ben Henderson, CSIRO

18:30 to 21:00 Welcome Dinner – IMOD Plaza

Day 2 : Tuesday, 10 May 2016

Resource Person: Ben Henderson and Kanar Dizyee, CSIRO

08:30 to 10:00	Introduction to System Dynamics Covering the central concepts of system dynamics: <ul style="list-style-type: none">• Stocks, flows, delays, non-linearities and feedback loops• Common real life system behaviors
10:00 to 10:30	Booster Break
10:30 to 11:30	Representative causal loop diagram and stock and flow diagram of common behaviors Modeling process and model validation Model communication
11:30 to 12:30	Use of iThink software to illustrate SD concepts in a modeling context
12:30 to 13:30	Lunch
13:30 to 14:15	System dynamics and value chains: Motivating the need for systems thinking in value chains
14:15 to 15:15	Overview of quantitative value chain modeling in livestock and its application in Botswana (case study)
15:15 to 15:45	Booster Break
15:45 to 16:15	Practical exercise – in class model building – cattle production model
16:30 to 17:00	Discussion of value chain assessment measures

Day 3 : Wednesday, 11 May 2016

Resource Person: Ben Henderson and Kanar Dizyee, CSIRO

08:30 to 10:00	Technical exercise #1: A generic SD model of herd population aging and marketing channels
10:00 to 10:30	Booster Break
10:30 to 12:15	Continue working on technical exercise #1
12:15 to 12:30	Technical exercise #1 discussion
12:30 to 13:30	Lunch

- 13:30 to 15:00 Technical exercise #2: Market extension of SD model of herd population
- 15:00 to 15:15 Technical exercise #2 discussion
- 15:15 to 15:45 Booster Break
- 15:45 to 16:15 Continue working on technical exercise 1 and 2 (if needed)
- 16:15 to 17:00 Technical exercise # 3: Discussing environmental extension of the model
and session wrap-up.