Climate Change Adaptation
Poverty
Climate Smart Agriculture
Training Workshop 31st July 2012

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General CCA Strategies Agriculture

- Natural Resources Management
  - Efficient and equitable water management, protection watershed
  - Forest protection and regenerative rehabilitation
  - Strategic use of land resource: use, access, ownership
  - Soil fertility improvement
- Farming systems: “Eggs in many baskets”, agro-biodiversity
- Innovative Production Systems
- Climate smart varieties and species
- Supply chain management - reworking value chain
- Conservative application of credit and finance systems
- Matching on- with off-farm opportunities: local production and processing, marketing
- Renewable resources and energy
Water Management

CCA Goal: manage availability, quantity and quality of water under unpredictable CC conditions

1. Minimizing water runoff in the farms: contour planting, soil erosion control, diversion, gully checks
2. Construction and improvement of village and farm ponds
3. Efficient use of water from irrigation systems and ground water, micro irrigation, trip irrigation
4. Improving soil water holding capacity
5. Adapted farming during floods
6. Protection of watersheds and groundwater
Soil Fertility Improvement

CCA Goal: minimize losses from dry or wet conditions through healthy plants on fertile soils

1. Enhancing role of legumes through multiple cropping: peanut, mung bean, rice bean, cow pea etc.
2. Enhancing role of trees: water infiltration, build up organic matter, protect micro-organism, pump up nutrients, leaf biomass
3. Integrating livestock production: natural fertilizer, on-farm forage/fodder production
4. Bio-fertilizers: composting, bio-extract liquids from fermentation of vegetables and fruits
5. Mulching: protective cover, straw for improving soil
Innovative Production Systems

CCA Goal: improve access to nutrients, conserve moisture, avoid chemicals – adapt to natural processes

1. System for Rice Intensification SRI
2. Direct Seeded Mulch-based Cropping Systems (SVC): conservation agriculture
3. Organic agriculture: small scale vegetable production
# Climate Smart Rice Varieties

**CCA Goal:** adapt rice varieties that are somewhat resilient to extreme weather events

<table>
<thead>
<tr>
<th>Problem area / specific target characters</th>
<th>Recommended Varieties</th>
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<tbody>
<tr>
<td>Drought-prone</td>
<td>TDK, TDK1, TDK12</td>
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<td></td>
<td>PNG1, PNG3</td>
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<td>Flood prone</td>
<td>TDK1 sub1</td>
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<td>Low temperature</td>
<td>TDK5, TDK6, TDK8, TDK11</td>
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<td>Salinity areas</td>
<td>KTDL105</td>
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<td>Fe toxicity areas</td>
<td>TDK9, TDK10, TDK11</td>
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<td>TSN1, RD10</td>
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<td>GM problem</td>
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<td>Aroma G</td>
<td>RD6</td>
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<td>Aroma NG</td>
<td>KDML105, HTDK1 VTE-450-1, Homsavanh Homchampa</td>
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## Crop Diversification

**CCA Goal: increase diversity to compensate low yields of main crop affected by climatic variations, flood and drought**

1. Legumes and vegetables with 1-3 month harvesting period  
2. Multiple cropping – the right crop combination  
3. Planning for intercropping  
4. Community production of vegetable seeds and planting materials
Vegetable Gardens and Nurseries

CCA Goal: promote knowledge on CCA, diversification, income generation, nutrition, health, enhanced food security – household resilience

1. Market production
2. Home gardens
3. School gardens
4. Seed production and nurseries,
5. Community-managed or commercially organized
Fruit Trees and other Trees

CCA Goal: promote knowledge on CCA, diversification, income generation, nutrition, health, enhanced food security – household resilience

1. Fruit production for markets
2. Industrial tree crops: coffee, cacao, rubber
3. Integrated with annual crops and livestock
4. Home and school gardens
5. Seed production and nurseries,
6. Community-managed or commercially organized
Integrated Pest Management IPM

CCA Goal: resilience of crops, livestock, farm family against new or modified pests and diseases appearing with changes in temperature and water regime

1. Successful as part of Farmer Field Schools FFS
2. Ecosystem approach
3. Healthy soil – multiple cropping – knowledge on harm and helpful biology – hygiene – botanical pesticides – use and disposal of pesticides
Post-harvest Handling

CCA Goal: minimize loss of production associated to changes in water regime, flood, drought, temperature, singular climate events, wind, new pests and diseases

1. Optimize harvesting practice and timing
2. Cleaning – Drying
3. Sorting
4. Packaging
5. Cooling
6. Storage
7. Processing
Review Extension Materials

CCA Goal: consult and document local knowledge and existing extension materials on adaptive technologies

1. Documentation local practice
2. Leaflets
3. Brochures
4. Manuals
5. Handbooks
6. Research Centres
7. Internet
8. Build up a CCA knowledge base in IRAS project offices and NAFRI
THANK YOU VERY MUCH

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