Improving the resilience of the agriculture sector in Lao PDR to Climate Change impacts

manfredstaab@hotmail.com
IPCC defines adaptation as “…adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, that moderates harm and exploits beneficial opportunities” and “…a process by which individuals, communities, and countries seek to cope with the consequences of climate change, including variability.”
The NAPA follow-up project realizes improved resilience of the agriculture sector to Climate Change impacts through four distinct outcomes, which in itself form a logical sequence of components, envisaging future replication:

- Knowledge Management
- Capacity Building
- Community-based agricultural adaptation practice
- Adaptation learning

Each outcome has a significant stand-alone value, at the same time additional benefits accrue through close integration of the four components.
Financial Resources

- Total resources required: $12,163,998
- Total allocated resources: $12,163,998
- LDCF: $4,445,450
- Co-financing:
  - Government Lao PDR: $378,320
  - In-kind, GoL/NAFRI: $4,764,969
  - GoL, Projects: $2,575,259
  - UNDP: $7,718,548
Global surface warming for the three scenarios A2, A1B and B1, as well as year 2000 constant concentrations. Shading denotes the plus/minus one standard deviation range of the annual averages for the individual models.

Source: IPCC (2007a)
Based on recent data sets from the Climatic Research Unit (CRU) of the University of East Anglia and the Global Precipitation Climatology Centre (GPCC) at the German Weather Service, we present here a new digital Köppen-Geiger world map on climate classification for the second half of the 20th century.
2006, Lao PDR is climatically part of the zones Am (equatorial monsoonal; red), Aw (equatorial, winter-dry; pink), and Cwa (warm-temperate, winter dry, hot summer; light brown), based upon the temperature and precipitation data from 1951 to 2000.
Future situation under selected IPCC scenarios

IPCC Scenario: A1F1

2001-2025

2026-2050

2051-2075

2076-2100

IPCC Scenario: B1

2001-2025

2026-2050

2051-2075

2076-2100
Multiple Climate Hazards and Vulnerability
Food Security and Droughts

FIGURE 9. Households in Lao PDR at risk of becoming food insecure because of droughts (excluding chronically food insecure).

CC and Chain of Evidence

1. There is a consistent chain of evidence at global, regional and local level that indicates that Climate Change takes place in Lao PDR (as in the whole of the Mekong river basin), and will have - gradually or ad-hoc – impacts on the country in general, and the agriculture sector specifically.

2. Most certainly the rainfall pattern will change extensively and pose a specific challenge to water management, agriculture, disaster management.

3. Because of its geographic features the county is exposed to multiple climate hazards.

4. Economic and demographic developments will influence the country’s adaptive capacity and overall resilience of the agricultural sector.

5. Given the level of poverty in the country (especially in rural and remote areas) the ongoing and anticipated changes may strike such poor groups beyond the level of any adaptation option.

6. Some groups of the society, some agricultural production systems, or some geographical areas, may benefit from the anticipated changes of the climate.

7. Balancing the assumptions 6 and 7 is a serious task and mission for political powers, government and administration.

8. All (desk-study) conclusions mentioned above have been qualitatively confirmed by local agriculture and planning professionals, and in direct assessments on the ground, undertaken by the PPG team in April and May 2010.
Climate Change Induced Problem

• Geographic and geophysical features
• Century-old adaptation process
• Changes in frequency, intensity and location of climate events

• Dissolution of traditional local practice and coping skill
• Competing interests on water and land through new economics

➢ Diversification and subsidiary measures
Root Causes

1. Physical Vulnerability
2. Threats from current land use
3. Threats from current development practice
4. Re-orientation from subsistence to market
5. Inappropriate technologies
6. Standard repertoire for farmer not sufficient to cope with changes - vacuum filled by market forces and investment opportunities
4 Factors of Substance for Resilience

1. Resource, data and information base
2. Systematic, institutional and individual capacity
3. Verified agriculture and rural adaptation practice
4. Mainstreaming of agricultural adaptation on community, national and regional level
Barriers to Overcome

- Difficult communication
- Quality technical engagement of institutions in extension process
- Macro economic criteria vs micro economics in village
- Absence of implementation guidelines for national strategies and genuine MAF strategy

Project combines knowledge with policy development, capacity-based and hazards-based methods and strategies, technical know-how and physical improvements in community.
Stakeholder Baseline

- Bilateral consultations from March to August
- Information and consultation session 25th of March, NAFRI
- Regional Consultation Workshop South, Savannakhet 28th-29th of April

- National Planning Workshop, Vientiane, 18th-19th of May
- Regional Consultation North, Xayaboury, 17th - 18th of June

- More than 200 professionals engaged in the consultation process

- Stakeholder Involvement Plan full implementation period
Lao Ownership

Country ownership: strategies and policies
- Strategy for Climate Change March 2010
- Consistency with National Adaptation Programme for Action NAPA and GEF
- National Growth and Poverty Eradication Strategy NGPES
- National Sustainable Development Strategy NSDS
- “4 Goals and 13 Measures” MAF
- Second National Consultation on CC

- Full Framework for climate change resilient agriculture in Lao PDR:
  1. Strengthening of the national knowledge and information base on climate change impacts in Lao PDR and their effects on agricultural production and food security;
  2. Enhancement of the capacity of sector planners and agricultural producers to understand and address climate change – related risks and opportunities for local food production; and
  3. Demonstration and promotion of diversified and adaptive agricultural practices at the community-level;
Design Principles

- Collaboration with NAFRI Projects
- Cooperation with wide range of stakeholders’ projects
- Cross-fertilizing with co-finance projects

- UNDAF Outcome 1 for MDG 1: Livelihoods enhanced
- CPAP: Capacities on sustainable land management, drought and flood preparedness enhanced through participatory adaptation and monitoring activities in selected provinces
- UNDP comparative advantage
- Gender equality and equity
Gender

Assumptions:
• Women have key role in food security
• Cultural role of gender
• Equitable sharing of benefits
• Gender equity

Activities:
• 50% quota among staff
• Gender-segregated data and analyses
• Gender mainstreaming consultancy
• 2 Gender audits
• Gender check-lists for extension packages
• Inclusion of gender equity in all TOR for contracts
• “Economic visibility”
• Specific gender report in meetings
OUTCOME 1: Knowledge base on Climate Change impacts in Lao PDR on agricultural production, food security and vulnerability, and local coping mechanisms strengthened.

Project Objective: Food insecurity resulting from climate change in Lao PDR minimized and vulnerability of farmers to extreme flooding and drought events reduced.

- GoL Co-financing amounts for Outcome 1: $ 1,320,000
- UNDP Co-financing amounts: $ 775,000
- LDCF project grant requested: $ 498,070
Project Objective: Food insecurity resulting from climate change in Lao PDR minimized and vulnerability of farmers to extreme flooding and drought events reduced.

**OUTCOME 2:** Capacities of sectoral planners and agricultural producers strengthened to understand and address climate change – related risks and opportunities for local food production and socio-economic conditions.

- GoL Co-financing amounts for Outcome 2: $1,608,469
- UNDP Co-financing amounts: $850,259
- LDCF project grant requested: $781,770
Project Objective: Food insecurity resulting from climate change in Lao PDR minimized and vulnerability of farmers to extreme flooding and drought events reduced

- **OUTCOME 3:** Community-based adaptive agricultural practices and off-farm opportunities demonstrated and promoted within suitable agro-ecological systems

- GoL Co-financing amounts for Outcome 3: $1,513,000
- UNDP Co-financing amounts: 475,000
- LDCF project grant requested: $2,699,190
Project Objective: Food insecurity resulting from climate change in Lao PDR minimized and vulnerability of farmers to extreme flooding and drought events reduced

- **OUTCOME 4:** Adaptation Monitoring and Learning as a long-term process

- GoL Co-financing amounts for Outcome 4: $323,500
- UNDP Co-financing amounts: $475,000
- LDCF project grant requested: $210,780
### Main Activities

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<th>1.1</th>
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<th>4.1</th>
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<tbody>
<tr>
<td>Existing climate hazard and vulnerability information for Lao PDR compiled and integrated into a agriculture and climate risk information system, coordinated by NAFRI (established under Output 1.4.) leading to a long-term warning system.</td>
<td>Sectoral planners in MAF, WREA, MPI, LMA, target PAFOs, and other relevant GoL agencies trained to understand Climate Change risks for agricultural production and review policy options for enhanced food security (applied training)</td>
<td>Resilient elements in existing farming systems identified and thoroughly strengthened</td>
<td>Project lessons captured in, and periodically disseminated through, the Adaptation Learning Mechanism (ALM)</td>
</tr>
<tr>
<td>Scenarios for agricultural production in Lao PDR assessed on the basis of local expertise, regional and global Climate Change models</td>
<td>Climate resilient land-use planning integrated into Lao PDR’s poverty reduction and agricultural policies &amp; action plans</td>
<td>Supply chains for different climate-resilient crops, livestock, etc., and farming inputs analyzed and economic impacts/market barriers assessed</td>
<td>Project knowledge shared annually with other countries in the Greater Mekong Subregion facing climate-induced drought and flooding hazards to agricultural production through a conference at NAFRI</td>
</tr>
<tr>
<td>Agricultural land-use planning in flood- and drought-prone areas analyzed and alternative land use plans developed, based on climate-risk scenarios and long-term warning indicators</td>
<td>At least 75% of agricultural officers, extension workers and farmer cooperatives in target districts trained in climate change impacts on agricultural production and socio-economic conditions, and potential community-based adaptation options (e.g. agro-forestry, conservation agriculture, replacement of slash and burn practice, etc)</td>
<td>Climate resilient cropping, livestock, fisheries and forestry practices introduced in at least 1 flood-prone and at least 1 drought-prone area</td>
<td>Project knowledge incorporated into national flood and drought prevention and agricultural training programmes in Lao PDR</td>
</tr>
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<td>Climate risk projections integrated into a comprehensive national long-term information system for flooding and drought-related hazards and vulnerabilities, and the effects on agriculture, managed and updated by NAFRI</td>
<td>At least 75% of District Disaster Management Committees in target districts trained in climate risk assessment and potential community-based risk reduction strategies, including periodical ground practice with communities</td>
<td>Diversified agriculture, livestock, fish, vegetables, NTF production demonstrated in at least 40% of target districts where farming communities are dependent on rain-fed crops</td>
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Developing a community model to contribute to the conservation and development of genetic resources of indigenous fruit tree species and varieties and the agricultural ecosystem of low lying delta affected by the annually seasonal flood in Ly Nhan District, Ha Nam Province (GEF/SGP)

Alley cropping in the Philippines. An agricultural crop is grown simultaneously with a long-term tree crop to provide annual income while the tree crop matures.
Savannakhet: Outhumphone and Champhone districts
Saravan: Kongsadon district
Xayaboury: Phieng and Paklai districts
<table>
<thead>
<tr>
<th>Agency/Department/Project</th>
<th>Amount (USD)</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Developing multi-scale climate change adaptation strategies for farming communities in Cambodia, Lao PDR, Bangladesh and India (2010-2014), ACIAR</td>
<td>381,026</td>
<td>C2</td>
</tr>
<tr>
<td>2. Developing improved farming and marketing systems in rain-fed regions of southern Lao PDR (2009-2013), ACIAR</td>
<td>1,227,443</td>
<td>C2</td>
</tr>
<tr>
<td></td>
<td>323,500</td>
<td>C4</td>
</tr>
<tr>
<td>4. Rice Productivity Improvement Project (2009-2011), Worldbank</td>
<td>1,090,000</td>
<td>C3</td>
</tr>
<tr>
<td></td>
<td>1,320,000</td>
<td>C1</td>
</tr>
<tr>
<td>5. Poverty and Environment Initiative (PEI), UNDP</td>
<td>1,900,000</td>
<td>C1-C4</td>
</tr>
<tr>
<td>6. Capacity Development on Disaster Risk Management, NDMO Project, UNDP</td>
<td>675,259</td>
<td>C1,C2</td>
</tr>
<tr>
<td><strong>Total 1-6</strong></td>
<td><strong>7,340,228</strong></td>
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Co-financing
## Risks and Project Objective

<table>
<thead>
<tr>
<th>LFM level</th>
<th>Description of the risk</th>
<th>Potential consequence</th>
<th>Countermeasures / management response</th>
</tr>
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<tbody>
<tr>
<td>PO</td>
<td>CC adaptation process is externally driven (donor driven)</td>
<td>Process will stop when donor funding stops</td>
<td>Donor TWGs to negotiate GoL budget contribution</td>
</tr>
<tr>
<td>PO</td>
<td>CC manifests itself as sudden natural disasters</td>
<td>Emergency situation will eliminate development efforts and targets</td>
<td>Dual strategy for disaster management and agricultural adaptation</td>
</tr>
<tr>
<td>PO</td>
<td>CC appears outside adaptive flexibility for agriculture</td>
<td>Farmer will give up farming and/or leave the area: poverty increase</td>
<td>Land use planning with identification of set-aside areas for agricultural production, housing, rural infrastructure</td>
</tr>
<tr>
<td>PO</td>
<td>Tangible economic benefits from AA are miniscule for agricultural households</td>
<td>Farmer will give up farming and/or leave the area: poverty increase</td>
<td>Livelihood diversification strategies – small enterprise development – vocational training</td>
</tr>
<tr>
<td>PO</td>
<td>Competing economic interests erode base and options for AA to CC</td>
<td>Short-term gains and long-term damages</td>
<td>UN, GoL, international community to articulate political responses</td>
</tr>
<tr>
<td>PO</td>
<td>Reduced access to sufficient land and water</td>
<td>Farmer will give up farming and/or leave the area: poverty increase</td>
<td>PM/PSU to raise the issue and inform policy makers</td>
</tr>
<tr>
<td>PO</td>
<td>Population growth</td>
<td>Constraints on availability of natural resources</td>
<td>PM/PSU to raise the issue and inform policy makers</td>
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</table>
Specific Risks for Management of AA2CC Projects

On management level the highest risks for failing to achieve the “agriculture adaptation to climate change objective” are:

- Fragmentation of project into usual standard operations implemented by different agencies (missing the strategic CC objective and the core problem), and
- Inconsistent management structure caused by too many stakeholders on several levels.

The management arrangements made for the project will reduce these risks.
Organizational Structure

PROJECT BOARD

Senior Beneficiary: NAFRI (DG), NDMO, NLMA, WREA

MAF Project Executive Ministerial Level

Senior Supplier UNDP

National Project Director (NAFRI)

UNDP Project Assurance

Project Manager (NAFRI)

Project Support Unit

Component 1 Lead: NAFRI

Component 2 Lead: NAFRI

Component 3 Lead: NAFES/NAFRI

Component 4 Lead: NAFRI

Component 1 Stakeholders

Component 2 Stakeholders

Component 3 Stakeholders

Component 4 Stakeholders

Local Integration Platforms North/South
Implementation and Contracts

• Implementation supported by contractors “Responsible Parties” for specific tasks through competitive bidding
• Direct contracting in case of other GoL of UN agency in compliance with criteria
<table>
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<tr>
<th>Type of M&amp;E activity</th>
<th>Time frame</th>
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<tbody>
<tr>
<td>Inception Workshop and Report</td>
<td>Within first two months of project start up</td>
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<tr>
<td>Measurement of Means of Verification of project results.</td>
<td>Start, mid and end of project (during evaluation cycle)</td>
</tr>
<tr>
<td>Measurement of Means of Verification for Project Progress on output and implementation</td>
<td>Annually prior to ARR/PIR and to the definition of annual work plans</td>
</tr>
<tr>
<td>APR/PIR</td>
<td>Annually</td>
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<tr>
<td>Periodic status/ progress reports</td>
<td>Quarterly</td>
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<tr>
<td>Mid-term Evaluation</td>
<td>At the mid-point of project implementation.</td>
</tr>
<tr>
<td>Final Evaluation</td>
<td>At least three months before the end of project implementation</td>
</tr>
<tr>
<td>Project Terminal Report</td>
<td>At least three months before the end of the project</td>
</tr>
<tr>
<td>Audit</td>
<td>Yearly</td>
</tr>
<tr>
<td>Visits to field sites</td>
<td>Yearly</td>
</tr>
<tr>
<td><strong>TOTAL indicative COST</strong></td>
<td><strong>120,000 USD</strong></td>
</tr>
<tr>
<td>Excluding project team staff time and UNDP staff and travel expenses</td>
<td></td>
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</tbody>
</table>
Internal M+E System and Quality Control
<table>
<thead>
<tr>
<th>Title</th>
<th>Main Tasks</th>
<th>Duration</th>
</tr>
</thead>
</table>
| STA/Team Leader Resilience of Agriculture Sector to Climate Change (CC) | • Support to maintain strategic direction towards AA2CC  
• Support overall management  
• Technical inputs for all components  
• Management of international TA  
• Support work planning and reporting                                           | 40 person-months over 4 years |
| Land Use Planning for CC                                              | Guide the production of 2 district land use plans through NLMA with focus on AA2CC                                                        | 2 months          |
| Early warning systems for agriculture and CC hazards                  | Streamline existing elements of early warning with NDMO, focus on AA2CC                                                                    | 2 months          |
| CC scenario analysis for Lao PDR                                       | Assist to analyze and develop specific CC scenarios for Lao PDR and train local NAFRI staff on the job                                      | 2x2 months        |
| Training Needs Analysis for Agriculture Adaptation to Climate Change (AA2CC) | Analyze AA2CC training needs of staff in MAF, PAFO, DAFO, TSCs, NLMA, NDMO, etc. and prepare training plan | 2 months          |
| Institutional development for mainstreaming CC within MAF/GoL         | Analyze details for mainstreaming AA2CC issues across institutions and sectors in Lao PDR and initiate support measures through MAF, WREA, others | 2 months          |
| Training in curricula development for AA2CC                          | Assist to develop curricula for AA2CC training with NAFES officers and develop extension plan                                             | 2 months          |
| Community based agricultural extension for AA2CC                      | Guide community based agricultural through NAFES extension process with focus on AA2CC through ToT                                        | 2 months          |
| Farming systems and AA2CC                                             | Analyze existing farming systems and potential for adaptation activities with NAFRI and NAFES, related to CC                              | 2 months          |
| Efficient water management and water harvesting                        | Analyze existing water management and water harvesting practice with MAF and WREA, and initiate technical improvements in the light of CC effects | 2 months          |
| Supply chains for agricultural inputs in support to agriculture adaptation | Analyze existing supply chains for agricultural inputs with MAF/NAFRI, others, and initiate commercial routing                          | 1 month           |
| Effective management of farmer organizations                          | Analyze status of farmer organizations with PAFO/DAFO in target districts and initiate organizational improvements                          | 1 month           |
| Unallocated (available for specific technical matters)                | Pending on unforeseen needs                                                                                                              | 2 months          |
| WWW/ALM products development                                          | Assist NAFRI to produce creative and powerful learning tools                                                                             | 1 months          |
| Internal M+E system                                                  | Establishment and review of internal M+E system                                                                                           | 2x2 months        |
Kop Chey Leilei.
Thank You Very Much.

manfredstaab@hotmail.com
Illustration 1: Climate, Water and Land Use
Illustration 2: Diversity, System Boundaries and Resilience
Illustration 4: Climate and Water Cycle
Illustration 5: Complexity of Farming Inputs/Outputs - the example of Fuel Wood