We have an IDHEA (for Integrated Dynamic Household Economy Analysis)

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Introduction

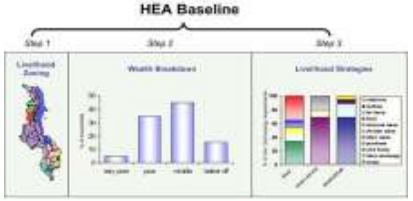
- Recent progress has increased applicability of different types of methods for assessing vulnerability, resilience, and capacity via household and community food, livelihood, and overall socio-economic insecurity assessments.

Type	Uses	Examples	Advantages	Disadvantages
"Snapshot"	Point in time	HIESs; WFP CFSVA	Accurate recent info	No Trends / No Prediction
"Annual Accounting"	Over a period (e.g., year)	HEA; VACs	Trends Predictive	Good info hard (if not RRA)
"Qualitative Livelihoods"	descriptive	PPAs; NGO LAs	Info on patterns & poverty roots	No Baseline / No Prediction

- Household Economy Analysis (HEA) uses participatory tools to gain qualitative, quantitative, inside, and outside information of past baseline and adverse event insecurity of different community vulnerability groups for calculation and prediction of food and livelihood protection deficits.
- Recent adaptations allow HEA to be used alone or with other types for analysis for urban dwellers, pastoralists, rapid needs, sustainable livelihoods, conflict, nutrition, and groups of special interest such as HIV/AIDS-affected households and children.
- But use of only past baseline and adverse event knowledge limits prediction and treatment ability. A dynamic HEA is proposed to allow a community to anticipate and alleviate effects of environment and development trends and the effects of alternative deficit treatment strategies on future deficits.

Current HEA Methodology

Steps 1-3 Baseline: Livelihood Zoning (national level), Access Breakdown (key informant), & Livelihood Strategies Analysis (FGs)

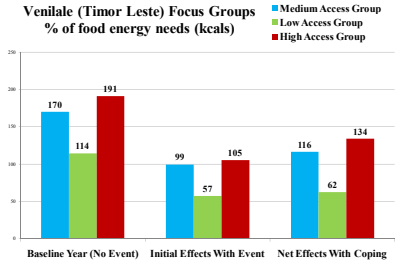


Steps 4-6 Outcome Analysis: Problem Specification (Risk Scenario), Copi ng Capacity Analysis, & Projected Outcome

Source: FEG Consulting and Save the Children (2008)

Initial Results in Timor Leste

- Livelihood zoning, market analysis, and vulnerability group (wealth) breakdown were performed with key informants according to HEA
- Focus groups provided data for Sources of Food (grown, purchased, wild, & FFW), Uses of Food (revealing food income as total kcals consumed – kcals purchased), Sources of Non-Food Income (sell crops, sell livestock, labor, handicrafts, trading, & barter), & Expenditures (food, household goods, education, ceremonies, recreation, transport) for calculation of the baseline of total income (food income [kcals] + non-food income [converted to kcals]) as a % of minimum daily needs (2100 kcals/day)
- From a risk scenario of a direct effect of 40% of crops destroyed, initial deficit effects and net effects after coping mechanisms (savings, borrowing, remittances, sell assets, make & sell items, short crops, & inferior foods) were determined



- High group: a strong baseline level and coping mechanisms allow it to likely remain sustainably above both a survival and livelihood protection threshold even in adverse times
- Middle group: may need livelihood assistance in adverse times
- Low group: is likely barely above the survival threshold in normal times and is in need of significant survival assistance in adverse times

Dynamic Extension

- To anticipate and alleviate effects of environment and development trends and the effects of alternative deficit treatment strategies on future attainment of thresholds, such exogenous and endogenous changes should be incorporated into the scenarios before focus group analysis.

	Steps	Dynamic Modifications
Baseline	Step 1: Livelihood Zoning	· Zoning done the same · Get investments/trends into Development Scenario · Get trends into future Adverse Event Scenario · Get market information on trends & interactions · Assess future Survival and Livelihood Protection thresholds
	Step 2: Access Breakdown	· Get information on access trends · If seems relevant, do access breakdown per trends
	Step 3: Live-lihood Strat-egies Analysis	· Do Baseline discussion without analysis · Add Development Scenario · Do analysis (with future as the Baseline)
Outcome Analysis	Step 4: Problem Specification	· Use future Adverse Events Scenario · Do Analysis for effects of likely future event/s (including likely changes in buffer capacity)
	Step 5: Coping Capacity Analysis	· Discuss likely effects of Development and Adverse Event changes on coping · Do Analysis for effects of likely future coping
	Step 6: Projected Outcome	· Predict effects relative to future Survival & Livelihood Protection thresholds · Treatment/s chosen to cost-effectively optimize attainment of desired future threshold

- By including information regarding potential changes in future access of certain community members and of the potential effects on sources and uses of food and non-food income of development trends and investments and climactic trends, future, rather than current or past, deficits relative to anticipated thresholds can be predicted and, thus, prepared for, adapted to, or mitigated.

Treatment Optimization Simulation Results

Underlying Equations	Explanation	Equations
(1) Total Income	food + non-food	$I_i = F_i + N_i$
(2) Food Income	use-purch. OR grown+wild	$F_i = U_i - P_i = G_i + W_i$
(3) Non-Food Income	crops + l'stock + labor + crafts + trading	$N_i = S_i + L_i + H_i + M_i$
(4) Net Deficit	initial effects - coping (functions of event)	$D_{i1} = D_{i0}(A) - C_i(A)$
(5) Net Income	initial income - net deficit	$I_{i1} = I_{i0} - D_{i1} * I_{i0}$ $= (1 - D_{i1}) * I_{i0}$

Alternatives	(a) Seed/Machine	(b) Mitigation
Initial Effect	10% ↑ staple but ↓ 50% in ten-year event	50% ↓ crop loss in ten-year event
Effect on (2)	↑ 2.5%	N/A
Effect on (3)	↑ 1%	N/A
Effect on (1) |good years|	↑ 1.5%	N/A
Effect on (4) |bad years|	↓ 6.75%	↑ 6.75%
Weighted Effect on (5)	↑ 0.675%	↑ 0.675%

- This over-simplified simulation indicates how treatment optimization could be decided upon if more indicative production functions and damage functions reflecting interactions between variables are obtained by the community
- Assumptions: 25% grown food in food income, 10% sold food in cash income, cash is 2/3 of total income, 40% pre-coping deficit, 10% initial coping

- This example compares adoption of new technology (that will increase future baseline yields by 10% but leave yields susceptible to 50% losses in a ten-year adverse event) to implementation of a mitigation mechanism that will reduce projected crop losses in the 10-year event by 50%
- As both have equal expected gross benefits, choose the less expensive alternative

Conclusions

- While new literature on the use of HEA has greatly expanded the usefulness of the current tools in a manner that is already participatory and vulnerable subgroup focused, the example from Timor Leste shows that baseline results with adverse event outcomes based solely on information of past events and current conditions are useful only as far as predicting deficits relative to thresholds if trends and developments were not underway.
- Integrating HEA analysis into a treatment decision-making framework and extending its predictive capacity to allow dynamic consideration of future endogenous and exogenous trends and developments creates a framework for community stakeholder identification, analysis, assessment, and treatment of unacceptable vulnerability levels.
- Future studies that utilize the dynamic extension and incorporate locally relevant production and damage functions into the alternative treatment evaluation algorithm should be able to predict future vulnerable group deficits and thereby choose appropriate treatments to most cost-effectively meet desired thresholds.

Key literature cited

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For further information

Please contact *bfootbob@hotmail.com*. A PDF of this poster as well as more information on this and related projects is at *http://sites.google.com/site/RuralLivelihoodRiskManagement*.

(aka, Dynamic, participatory, vulnerable sub-group focused and replicable food and livelihood security assessments: toward a sustainable community risk reduction and development system)