Identification of poor households for targeting in Nepal

Action Area C.
Integrated statistics for integrated analysis (SC5)

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Central Bureau of Statistics, Nepal
Poverty Measurement Practices in Nepal

• Cost of Basic Needs (CBN) approach of poverty measurement from LSMS methodology developed by the WB (Caloric requirement of food and other non-food components)

• First scientific poverty measurement after NLSS 1995-96 (follow up at 2003-04 and 2010-11)

• Results at National, Urban-Rural, Eco-Belt, Dev. Region, Geographic group

• Poverty Results at District, Ilaka (Sub-district), Municipality & large VDC derived from Small Area Estimation using Census and NLSS (2006 & 2013)
Organization of Poor Households Support Program

- GoN has established Poor Households Support Coordination Board, Secretariat under MoCPA (2012)
  - Carried out Household Survey to identify poor HHs in 25 districts (2013)
  - Used PMT (Proxy Means Test) method for the identification
  - Strong and unique database of socio-economic status, frequently updated
  - Aim is to depart from area targeting to individual targeting
  - Help to streamline targeting programs of line ministries, development partners, INGOs/NGOs/CBOs
  - Provision of central objective monitoring mechanism for the transfer of resources to the focused group (poor)
Functions of Poor Households Support Program

• Identify the poor households and distribute identity cards

• Coordinate and regulate pro-poor programs carried out by various governmental and non-governmental agencies

• Provide policy guidelines for pro-poor programs

• Report monitoring and evaluation of the targeted programs

• Facilitate and develop integrated approach and system to provide benefit packages to the beneficiary groups
Selected District for Poor Household Identification Program-Phase I

(25 districts out of 75 districts)

Legend

District
- Poor Household Identification Districts
- Other Districts
- Regional Boundary

Ministry of Cooperatives and Poverty Alleviation
Poor Household Identification and Identity Card Management and Distribution Coordination Board Secretariat (PHI2CMDCBS)

1 cm = 43 km
Implementation Cycle of Poor Household Identification Process

1. Preparatory Phase
   - Selection of Provinces, Municipalities and cities

2. Data Collection
   - Identification of Data Collection Strategy

3. Data Collection and Analysis Phase
   - Data Entry, Application of PMT & Determination of Poverty Status

4. Report Generation Phase
   - Generation of Profile of Poor HH

5. Validation and Finalization Phase
   - Initial Posting of List of poor & non-poor HH

6. Validation of Initial list of poor HH

7. Finalization of List of poor HH

8. Generation of Profile of Poor HH

9. ID Card Distribution and Sharing of Data to Poor HH

10. Feedback from Stakeholder /Grievance Resolution

Updating
Work Flow of Poor Households Support Program

Plan Data Collection
- Production of Survey Instruments
- Collect information from all the HHs of 25 districts

Collect Data and Develop PMT Models
- Conduct survey (PHIDCC under PHSCBS)
- Develop PMT model for Identification (PHSCBS)

Develop PHIMIS and Poor HHs Identification
- Construct household registry with PMT scores (PHSCBS)
- Analyze Poor Households Characteristics (PHSCBS)

Approval of Identification Method and Models
- Grievance handling (PHIDCC under PHSCBS)

Developing and Facilitating integrated approach to provide benefit packages through the Identity Cards - (PHSCBS)

Extract necessary information for beneficiary lists (PHSCBS)

Coordinate Pro-poor/ targeted programs (MoCPA)

Develop updating system (PHSCBS)
What is Proxy Means Test?

PROXY MEANS TEST (PMT) is a statistical model that estimates the consumption level of households using the *proxy variables* indicated in the Household Questionnaires.

- Country specific
- Not easily manipulated
- Easily observable and verifiable
- Data availability
PHIMIS – A Web-based Software

PHIMIS identifies who and where the poor are in the country

Data entry and updating information
scoring and poor household identification
Grievance Resolution System (GRS)
Photo and Biometric capturing
Criteria Based Search and Report Generation
SMS sending and receiving through mobile

Support Social Protection
Support Evidenced-Based Policy Making
Support Management Convergence Strategy—Who Gets What
Method for Identifying Targeted Beneficiaries

- Completed survey and identification of poor HHs in 25/75 districts in the first phase.
- Census of every household.
- Statistically significant predictor variables using 16 questions.
Indicators for PMT model

- **Household Characteristics**: 18 indicators
- Demographic/Human capital characteristics (4):
  - household size, education of household head, enrolment of children in private school and absentees member at HH (remittance sender)
- Physical housing characteristics (4):
  - type of roof, floor and foundation, household ownership
- Household amenities (4):
  - toilet, lighting fuel, drinking water, cooking fuel
- Household facilities (3): landline phone, cable TV, internet,
- Geographic/Ethnic group (3):
  - 5 dev. regions, 3 ecological belts, 11 caste/ethnic group
Key questions in PMT model

• Which formula to use?
  - Typically linear weighted combination of the variables
  - Weights in the formula derived using regression on HH survey data (NLSS 2010-11)

\[ \ln(Y) = \beta_0 + \beta(X) + \varepsilon \]

• Where \( Y \) is per capita consumption, \( \beta_0 \) is the intercept/constant, \( \beta \) is a vector of coefficients, \( X \) is a vector of predictor variables, and \( \varepsilon \) is the error term.
Consideration on Regression Modelling

• Ensured explanatory variables exist in NLSS 2011 (5988 HHs) PHIS 2013 (1224500 HHs) data.

• Forward stepwise regression with population weight on per capita consumption (logarithmic) is developed on 57 variables of 18 indicators

• Single (national) model was applied after the series of regional models were tested with regression diagnostics.

• The nominal per capita consumption was converted to real one using regional price indices.

• Belt and Region dummies were used to correct regional influences of the variables.
### ANOVA & Regression Results

**Source** | **SS**   | **df** | **MS**  | **Number of obs** | **F(57, 27514309)** | **Prob > F** | **R-squared** | **Adj R-squared** | **Root MSE** |
---|---|---|---|---|---|---|---|---|---|
**Model** | 4231559.32 | 57 | 74237.8828 | 27514367 | >999999 | =0.0000 | =0.5032 | =0.5032 | =0.38968 |
**Residual** | 4178074.24 | 27514309 | 0.15185096 | =0.0000 | =0.5032 | =0.38968 |
**Total** | 8409633.56 | 27514366 | 0.305645188 | =0.0000 | =0.5032 | =0.38968 |

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<th>Variable</th>
<th>lrealpce</th>
<th>Coef.</th>
<th>Std. Err.</th>
<th>t</th>
<th>P&gt;t</th>
<th>[95% Conf. Interval]</th>
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#apstatsweek2020
Tasks Carried Out

- Count households at lowest level of disaggregation (Ward)
- Identification of Missing Wards
- Treatment of the VDCs/Municipal wards where there is *unnatural decline in the HHs (Compared to the households of 2011 Census)*
- Data Editing, Coding and Data Entry to the database for the recently identified unused questionnaires
- Imputation of the variables for the withheld households (ethnicity, housing, amenities, etc.)
- Special Verification of the Households with disputes/recommendation from the VDCs/Municipal wards) : all the relevant indicators reviewed
Problems Encountered/Lessons Learned

- **Lack of unique ID** of the households (Household Serial Number)
- Missing ID of the households / Duplicates Households
- Mismatches of Wards, VDCs/Municipalities, Districts
- Scanned images of filled-in questionnaires do not match with the survey database during verification
- **Missing households** at the ward level
- Verification of the grievance with scanned image is a challenge
- No proper validation/complaints from the public
Grievance Handling

- Grievance handling mechanism on preliminary list of poor HHs (ward)
- Validation by field observation, interview with the HH heads, civil society, knowledgeable persons (technical)
- Review at local level by VDC/Municipal secretaries (local level)
- Further investigation by District Coordination Committees (district)
- Consistency of the variables used for PMT with other characteristics of the households, response on self-reported poor (centre)
<table>
<thead>
<tr>
<th>Welfare status</th>
<th>Households</th>
<th>Household %</th>
<th>Cum. %</th>
<th>Population</th>
<th>Population %</th>
<th>Cum. %</th>
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<tbody>
<tr>
<td>Extreme Poor</td>
<td>188,235</td>
<td>15.4</td>
<td>15.4</td>
<td>1,394,286</td>
<td>20.4</td>
<td>20.4</td>
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<td>Mid Poor</td>
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<td>12.3</td>
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<td>General Poor</td>
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<td>32.0</td>
<td>557,839</td>
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<td>68.0</td>
<td>100</td>
<td>4,040,487</td>
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<td><strong>Total</strong></td>
<td><strong>1,224,417</strong></td>
<td><strong>100</strong></td>
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<td><strong>6,829,231</strong></td>
<td><strong>100</strong></td>
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</table>
Recommendations to Poor HHs Support Program

- Conditional Cash Transfer by type of poor (Extreme, Mid, General)
- Health Insurance premium by type of poor HHs (100, 75, 50 %)
- Scholarship for 2 students of Poor HH based on school record
- Support for extreme poor HHs on Food sufficiency to afford for Cereals, Pulses, Oil, Salt, etc.
- Employment oriented need-based skill development training for identified poor HHs
- Support for improving dwelling, solid cooking fuel
Thank you