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TITLE: Integration of Targeting & Appraisal: Use of Poverty and Access Indicators for Fund Allocation & Project Appraisal for Rural Access Projects in Afghanistan

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Abstract

Targeted labour based rural access projects are often used to address employment and access needs of isolated poverty stricken communities. In the absence of a planning tool, fund allocation models commonly use disaggregated national poverty and accessibility indicators applied as factors to Provincial population data which in turn may be divided by the total population to determine an overall factor to be applied to the available project budget.

Such a fund allocation model was utilised in Afghanistan for the National Emergency Employment Programme (NEEP) and assisted to fulfil in part the obligation of the programme to target labour days at the most needy sections of the population. A further geographical targeting tool utilised by the NEEP for the Rural Access project (NEEPRA) was cost effectiveness analysis incorporating both poverty and access indicators. Within Afghanistan the National Risk and Vulnerability Assessment (NRVA) gathered a large number of indicators, inclusive of poverty and access indicators, from representative samples of survey villages. The NRVAs' findings were verified through project implementation where indicators were often again checked in the field.

The accessibility and poverty indicators taken from the NRVA were utilised under the NEEPRA for cost effectiveness analysis to prioritise communities that were particularly isolated and poverty stricken for higher level investments for labour based paved road construction utilising limited funds specifically for this purpose. Where data was not available for a specific road catchment it was transposed from actual village survey sites through GIS mapping of these villages relative to the villages within the road catchments. Population data was also verified in the field through data collection required for community contracting.

Additional detailed targeting mechanisms were applied on a trial of social targeting based on Participatory Rural Appraisal (PRA) mapping methods. This was facilitated through the application of labour based methods and consultations for community contracting for the works. The maps were used primarily to carry out wealth ranking within the communities. One of the PRA maps collected; the mobility map, yields interesting insights into the most common destinations, travel times and costs for trips taken by the community members. The cost of the social targeting measures was found to be not more than 4% of the works budget for any given subproject and the time required for the process was minimised. At present the social targeting measures are being scaled up slowly to cover a large portion of the national programme throughout the country. Therefore there exists a good opportunity in the future to appraise the success of the programme in addressing access and other needs of the most poverty stricken rural communities through the PRA based methods applied.

In such a case, effective and low cost tiered social targeting could possibly become part of an effective appraisal mechanism for the subprojects and rural access programme itself.

Introduction

Under the National Emergency Employment Programme (NEEP) in Afghanistan a specific effort to target the most vulnerable is being made. In the context of the time when the programme was established – early 2003 – there was a pronounced need for cash transfers to rural communities to assist them through particularly difficult periods. This need was initially addressed through the adoption of self targeting mechanisms whereby the wage rate for work positions was established as the off season agricultural wage rate in the hope that this would attract the poorest of the poor to the work opportunities available. As the NEEP developed, more specific efforts were made to target the poor through fund allocation mechanisms coupled with detailed social targeting measures at household level. At the end of 2004 / early 2005 the programme evolved into purely an access intervention as opposed to a broad multi-sectored labour based programme. Over the initial phase of the NEEP a three tiered targeting mechanism was developed.

Targeting of Fund Allocations at National Level

In the initial phase of implementation, funds were allocated across provinces based on a Provincial Planning Exercise (PPE). This was a bottom-up exercise facilitated by the Government, which solicited development priorities at the village level. Once finalized at the provincial level, these plans were reviewed at the Centre and their technical feasibility assessed. However for subproject selection the Centre retained considerable veto power and what was initiated as a bottom-up exercise had a substantial top-down element to it. Subprojects being implemented for the National Emergency Employment Programme Rural Access (NEEPRA)[1] have been selected based on this exercise[2]. A more equitable method of allocating project funds was required.

The NEEP relied on data collected under the National Risk and Vulnerability Assessment (NRVA) carried out by the Vulnerability Assessment Unit (VAU) of the Ministry of Rural Rehabilitation and Development (MRRD) for development of a fund allocation model. This data was supplemented with data of the Central Statistics Office (CSO) which was collected during the census of the country and with poppy statistics of the United Nations Office for Drugs and Crime (UNODC). The indicators utilised for compiling an overall vulnerability ranking for all 34 Provinces were female headed households' indicator, households supporting a disabled person indicator, households with no access to clean drinking water indicator, road access indicator, access to education indicator, food insecurity indicator (taken from % of population below 2100Kcal / capita), covariate shocks indicator, poppy indicator.

The factor for road access was multiplied by a factor of 6 and that for food insecurity by a factor of 2 reflecting their importance under the programme:

$$WT_{p1} = \frac{X'_{fhh} + X'_{dis} + X'_{water} + (6 \times X'_{road}) + X'_{edu} + X'_{health} + X'_{shock} + (2 \times X'_{food}) + X'_{poppy}}{15}$$

Where WT_{p1} = weighted total of all indicators for Province 1.

In order to consolidate the factors between the Provinces the weighted total indicator for each individual Province was divided by the average total for all 34 Provinces:

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[1] The NEEPRA is an access project which falls under the umbrella of the NEEP as a programme. The UNOPS is the Implementing Consultant for the NEEPRA and the project is being implemented by and through the MRRD.
[2] Source: World Bank (May 2004), *National Emergency Employment Programme: Experiences, Outcomes and Modalities*, Draft Report.

$$VF_{p1} = \frac{WT_{p1}}{\sum(WT_{p1}, WT_{p2}, \ldots\ldots\ldots WT_{p34})/34}$$

In this manner the most isolated and poverty stricken Provinces were allocated larger amounts of funding. Under the programme the initial interventions were for the construction of basic access. This decision was made through consideration of the dire state of the road network following years of war and neglect and the need for cash transfers to rural communities throughout the country. Basic access works undertaken included construction of all cross drainage structures, earthworks and drainage works as well as a limited amount of gravelling and paving works (up to 10% of the total road length was required to be paved for basic access). These works were suited to contracting through communities and open competitive bidding to small scale contractors. Therefore cash transfers could be implemented quickly and the required basic access could be provided for all prioritised roads.

The NEEPRA project sought to further utilise the available indicators for the purposes of cost effectiveness analysis for prioritisation of projects for further intervention for the construction of improved access with specifically ear-marked and limited funds for this purpose.

Targeting of Interventions at Provincial and District Level[3]

In all 846Km of basic access were constructed under the project. A limited budget existed for further intervention for improved access. Despite the fact that many of the prioritised roads had traffic volumes, which would require the application of CBA or even HDM4 in an ideal situation, cost effectiveness was applied to the NEEPRA Roads regardless of their traffic count. Despite the volumes of traffic on rural roads in Afghanistan the cost effectiveness approach that primarily takes account of the social importance of rural infrastructure investments was applied to prioritise investments in rural transport infrastructure. There are three principal justifications for this. CEA is possible due to the reliability of field information collected by the NRVA. This has been supplemented by more reliable population data from the CSO census. Where the provision of basic road access is mainly for social equity reasons, cost-effectiveness analysis can be used to evaluate or highlight the impact of the project, and economic efficiency can be considered implicitly through an emphasis on the least-cost design to achieve the project objectives (Benmaamar 2004). A key difference between cost-benefit analysis and cost effectiveness calculations is that the latter work in a situation where total expenditures for a programme are fixed. In such a case, one only needs to decide how to allocate the budget in the best possible way. There is no need to use a consistent metric of benefits that could be the basis for comparison with other programs or resource use (Van de Walle: 2002).

The application of the CE to evaluate low cost interventions had not previously been done in Afghanistan. The development of the cost effectiveness method required three main inputs:

1. The cost of the intervention for each link
2. The number of poor/non-poor population served by each link
3. Accessibility to social and economic services

Total costs for the roads included earthworks/embankments and structures but minus surfacing costs. Regional Engineers and Provincial Engineers of the NEEPRA were tasked with collection of population data for a 5Km catchment around each of the prioritised roads.

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[3] This section has been sourced largely from: Islamic Republic of Afghanistan, Ministry of Rural Rehabilitation and Development, *Modelling Cost Effectiveness Analysis and Surface Options for Rural Roads in Afghanistan*, Robert Andrew Young

This data had already been collected at the same time as implementing road condition inventory surveys and was utilised for the purposes of community contracting.

All of the NEEPRA roads were mapped using GIS software and overlaid on Russian Topographical maps. This was carried out to determine the communities within the catchment of 5km through examination of terrain to determine if the communities within the catchment would actually use the road. There was also a requirement to examine terrain. For example a road could well run along a mountain terrace and so while a community at the other side of the mountain may only be 2Km from the road they would logically not use the road. In such cases these communities were discounted from the population counts. Using geo-references from NRVA, villages surveyed by the NRVA, which were within five and ten kilometre catchments of the roads, were then overlaid on the topographical maps. The poverty mapping exercise relied on extensive, existing data, expertly collected by the NRVA, and it would not be possible - within the allotted time and budget - to match the existing NRVA data sets.

The percentage of poverty (identified by the NRVA) within each of the villages was then weighted to the mean by relative population of the villages. The *percentage* of sampled village-poverty was then applied to the total population for the road catchment. For roads that did not have selected NRVA villages, a district poverty level was assumed for the roads. For roads that covered more than one District, an average of district totals was taken. To identify poverty, NRVA data used self-selection from communities.[4] Within households and villages, villagers fell into categories of poor, very poor, or medium and better off.

An additional factor that was used in the Afghanistan CE Model was accessibility evaluated at the District level. This included a weighting for the general accessibility (numbers of roads) in the District and accessibility to basic minimum needs including health and education facilities. At the time, it was only possible to rank at a district level due to the existence of NRVA data and the lack of data collected by Regional engineers. As with poverty calculations, when roads covered more than one District the average of two or more District accessibility calculations were used.

The CE formula developed for Afghanistan is based upon the Vietnamese model as applied by the World Bank on the Second Rural Transport Project [5] and modified to the local circumstances in Afghanistan. The Afghanistan Cost Effectiveness Ratio (ACER) includes poverty, the provision of social and economic infrastructure and accessibility.

Equation 1: Afghanistan Cost Effectiveness Ratio (ACER)

$$ACER = \frac{\left(Cost\_of\_rehabilitation\_km^{-1}\right)}{\left(1 + Access\_Indicator\right) * \left(\#\_Poor\_km^{-1} + \left(0.3 * \#\_Non\_Poor\_km^{-1}\right)\right)}$$

By dividing the cost by the beneficiaries and accessibility the results can reflect either a simple priority ranking or the amount of US $ per beneficiaries per kilometre.

Accessibility Formulas
In addition to poverty, accessibility was also calculated as discussed below. In all formulas the value of 1 represents the worst case scenario and 0 the best case.

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[4] Consumption figures were not used as the NRVA survey was undertaken after a particularly good harvest and the number of households used to produce estimates of consumption were considered too small for this study.
[5] Dominique van der Walle: Choosing Rural Road Investments to help reduce Poverty, World Bank, October 2000 and Good Practice Examples of Rural Road Projects, World Bank Group, rural transport group.

Facilities: This includes Primary schools, Secondary schools and High Schools, Health Centres, Hospitals, Dispensaries and drugstores within the Districts where roads are being built.

Equation 2: Health Accessibility Indicator

$$Health\_access\_indicator = \frac{(\text{Health\_access} + \text{Dispensary\_access} + \text{Drugstore\_access})}{3}$$

Equation 3: Education Accessibility Indicator

$$Education\_access\_indicator = \frac{\left(\text{Rural\_school\_access} + \Pr imaryschool\_access + Secondary\_school\_access + High\_school\_access\right)}{4}$$

Accessibility: This reflects the isolation of the area where the road is situated.

Equation 4: Road Access Indicator

$$Road\_access\_indicator = 2*\left(1.333*Road\_access\right)$$

Poverty: This is the population served per kilometre divided into a poor class and a non-poor class based upon NRVA poverty mapping data. The factor 0.3 has been taken from the Vietnam model as suggested by World Bank Experts in Cambodia.

Accessibility to roads, education and health facilities were then calculated and normalised for calculation. The table below indicates the type of facilities included and the relative weighting of each factor. (Note: all facilities were normalised to a total value of 1). Whether an area had road access was given twice as much weighting as access to other facilities.

A cost effectiveness threshold was established for roads that cost more than US$ 20.00 per person per km of road.

The NEEP through application of these fund allocation tool has greatly increased the targeting being applied to ensure the most vulnerable people benefited from the available funding. However at community level there was a need to determine a method for ensuring the poorest of the poor benefited from the available wage earning opportunities. Previous studies had shown that the self targeting mechanism previously applied had benefited a large number of poor able bodied men but the most vulnerable persons in many instances did not have access to the employment opportunities afforded under the Programme[6]. Efforts were therefore made to address this issue and complete a three tiered targeting mechanism – national, Provincial and community level.

Targeting of worker selection at community level[7]

A targeted labour selection trial was implemented under the NEEPRA in close cooperation with the social inclusion advisor of the NEEP Joint Programme Management Unit (JPMU)[8]. A

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[6] Source: World Bank (May 2004), *National Emergency Employment Programme: Experiences, Outcomes and Modalities*, Draft Report

[7] Source for this section is largely: *Pro-poor Labour Based Infrastructure Works; A targeted labour selection trial, Fergus Gleeson (LBAT Specialist UNOPS NEEPRA), Tim Bogaert (Social Inclusion Advisor ILO JPMU), Grant Walton (Action Aid Afghanistan)*, National Emergency Employment Programme (NEEP), Ministry of Rural Rehabilitation and Development (MRRD), Islamic Republic of Afghanistan, 2005.

request for proposals was posted to attract interest to implement the trial. ActionAid, a reputable International NGO with longstanding experienced in participatory community consultations, was awarded a contract to upon acceptance of a proposal apply Participatory Rural Appraisal techniques. They were to identify the poorest persons within the communities and to recruit these persons for the works under community contracts where large numbers of unskilled labourers would be required.

A number of maps were used to extract information from the communities during the application of PRA processes. During the trial the following maps were collected:

- **Social Map** – captures information on how the communities are organised as perceived by the community members drawing the maps.
- **Seasonality map** – captures information in relation to the seasonal variation of wage rates, access to food and access to employment.
- **Resource Map** – captures information in relation to the resources available to the community and their ownership.
- **Mobility Map** – captures information in relation to the areas, facilities and institutions people travel to, how often, by what means as well as travel time to each.
- **Skill Map** – captures information in relation to the skills available in the communities.
- **History Map** – captures information in relation to major events in living memory that affected the community in some way.
- **Problem Analysis** – determines what the main problems of the community are and documents their own suggestions for solution of these problems.
- **Well-being Map** – captures information in relation to the wealth ranking of the households in the community, according to criteria set out by the community members themselves.

The well being map was utilised for labour selection upon initiation of the community contracts. The well being map grouped the community populations into three wealth groups – medium, poor and very poor. The following shows the overall inclusion of each group in the works.

In Figure 1 following, the highest percentage may be seen to be 180% based on the criteria of one worker per household. Further analysis of the maps collected showed more than one worker selected from the poorest households in this case. The lowest percentage may be seen to be 20% of the poorest selected against all poorest. Further analysis of the maps and contracts showed that not enough work positions were available and that the number of positions was less than the number of very poor. Concurrently there existed cases where the persons within the household were not of eligible age, physically able or were women or elderly women and therefore could not work on the site alongside men. Overall up to 90% of the poorest of the poor were selected for the work positions at a cost of less than _4% of the works budget._

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[8] The Joint Programme Management Unit is responsible for the overall NEEP management and policy advice and institutional strengthening of counterpart Ministries under the programme. The JPMU is fielded by the International Labour Organization (ILO).

Figure 1: Targeted labour selection trial results: on site contracts and gabion contracts (gabion contracts employed 170 women under the project)

Targeted Labour Selection Trial Results (including women workers)
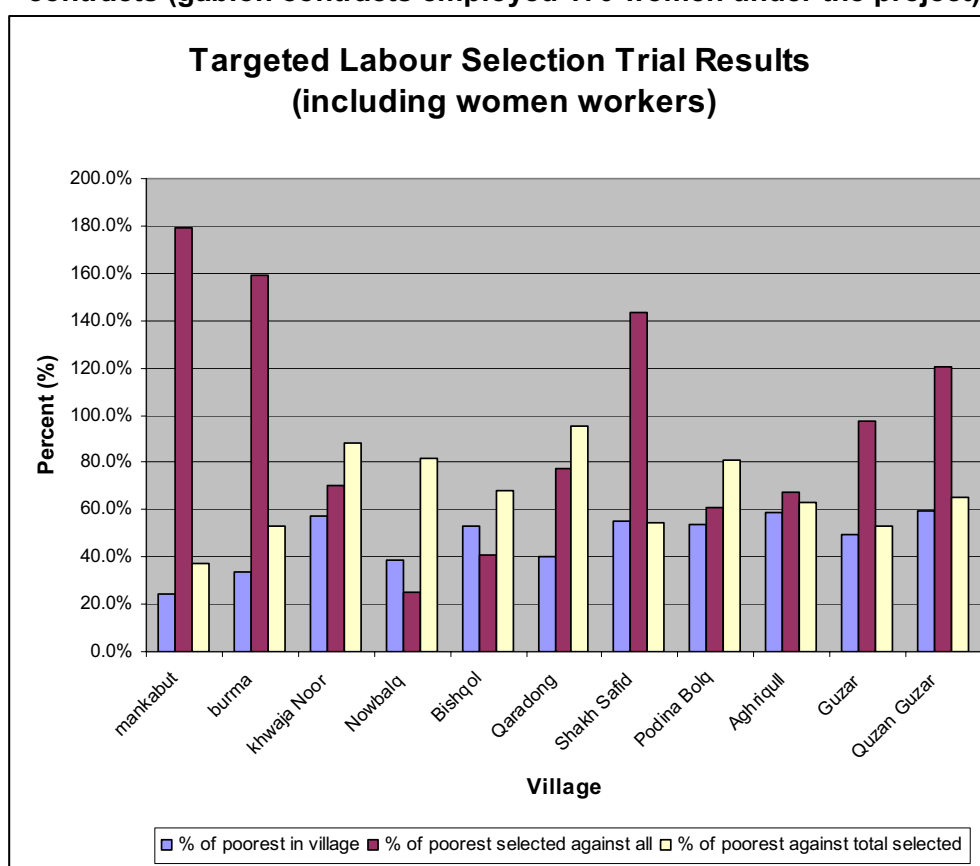
Use of the targeting mechanisms to evaluate the effectiveness of the interventions

The targeting mechanism trialled is currently being mainstreamed in the MRRD Rural Access Programme. The mobility map captures information on the trips most often taken by the community members, the number of times in a given period these trips are undertaken, the cost of travelling these routes and the cost per standard unit of haulage for transporting goods along these routes. Logically any improvement in access of the communities could be identified through repeating the mapping process in a selected representative sample of communities whom are beneficiaries of the rural access programme. Repeating the mapping process would allow examination of the mobility map and seasonality map specifically to determine if:

1. The number of trips to key amenities such as market, schools, health clinics and Government offices has increased.
2. Levels of access decrease at certain times of year – this is particularly important where improved levels of access are desired to be constructed.
3. The cost of travel to amenities reduces.
4. The cost of transport of goods to market reduces.

Given that repeating the mapping process should only have to be carried out in a selected representative sample of communities[9] the cost of appraisal of the degrees of access provided as perceived by the beneficiary communities would be minimal. Upon completion of the mainstreaming of the PRA based targeted labour selection mechanism there exists a national level, Provincial Level and village level targeting mechanism within the NEEP which by its design aids programme and project appraisal at a minimised cost. Application of the household level PRA based targeted labour selection process alone may add benefit to any labour based rural access project in terms of greater degree of accuracy in reaching target beneficiaries and addressing their needs. Concurrently through design of rural access projects to include household level targeting at a minimal cost, an appraisal mechanism may be incorporated into the project or programme from the initial design of the intervention.

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[9] Practitioners in the field of social mobilization and PRA recommend the number of consultations without a physical benefit to the community being consulted be minimized as it consumes working time, often the only asset of the extremely vulnerable, and raises expectations. The purpose of the consultation should be clearly explained to the community before initiation.

Poverty & Access Indicators for Fund Allocation, Afghanistan

Annex-1: Example of a well-being map and seasonality map collected during the PRA based targeted labour selection trial

Annex 2: Example of a mobility map collected during the PRA based targeted labour selection trial