



Indicators for measuring poverty* in indigenous Andean communities

Juan Carlos Mariscal, Freddy Delgado and Rodrigo Pérez

In this article the authors present a comparison of the different concepts of poverty used by conventional development organisations and rural communities in the Andes. Poverty indicators used by the two groups were compared to measure the effect of endogenous development efforts in an indigenous community in the department of Cochabamba, Bolivia.

The theme of poverty has a long history, and in different periods and places poverty has been interpreted differently. For many centuries poverty was associated with monetary income. In the 20th century poverty became a scientific matter of worldwide interest and many methods for its measurement appeared. Examples are the 'population income approach' (daily income per capita), the 'subsistence approach' (Boltvinik 2002), the 'unsatisfied basic human needs approach' (Sen 2003), the 'relative deprivation approach' (Desai 2003), as well as the 'capabilities and functioning approach' (Townsend 2003). These and other approaches have served as a basis for anti-poverty programmes around the world.

Conventional poverty indicators

Bolivia is classified as one of the poorest countries worldwide. The Bolivian census from 2001 shows that 64.39% or

about 5.2 million Bolivians are poor. It is estimated that 85% of those poor are located in the rural areas. The national institutions generally use the 'population income approach' (daily income per capita) as well as the socio-cultural indicators proposed in the 'unsatisfied basic needs approach': employment, housing, life expectancy, access to education services and health services, access to drinking water and electricity, and illiteracy (see figure 1).

Four additional indicators related to agriculture are also used to measure rural development by the national institutions: daily income per capita, yield main crop, production oriented to market, prices main crop, and access to credit (see figure 2).

Research on impact

In the last decades many governmental and non-governmental efforts have

Majasaya Mujlli in the department of Cochabamba. This area is considered one of the poorest areas in Bolivia: the incidence of poverty here is around 99.2%.

Agruco had been working in this area since 1990, with the objective of contributing to the improvement of agricultural production, stimulating diversity of local crops, revitalising local knowledge, and strengthening local organisations. In order to be able to evaluate the poverty reduction perceived by the community members, it was decided to analyse the situation on the basis of the indicators of the community members themselves. Thus local indicators for success were developed, and poverty reduction was measured on the basis of both the conventional (see figures 1 and 2) and the local indicators.

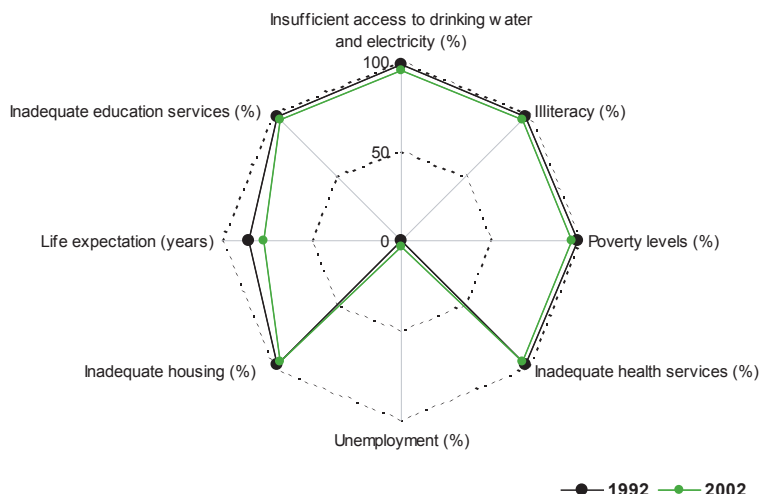
Ayllu Majasaya Mujlli

An Ayllu is a group of socially related indigenous communities in the Andes, with common territories and authorities. The Ayllu Majasaya Mujlli consists of 16 communities with 492 families, and has a total population of 3800 indigenous Aymara inhabitants. The official language is Aymara, but most of the locals speak Quechua and a few speak Spanish. The elevation of the area ranges from 3800 to over 4600 m above sea level.

The climate of this region is cold and dry, and it is occupied by agro-pastoral areas (59%), grasslands (14%), fallow areas (10%), rocks and rivers (8%), arable land with low-intensity agriculture (7%), forests (2%) and wetlands (0.5%) (Agruco 2000).

been made to reduce the poverty in urban and rural areas in Bolivia. In 2002 the Swiss Agency for Cooperation and Development decided to review the impact of their projects on poverty reduction in the rural areas. Agruco was assigned to measure the poverty reduction of the development efforts between 1992 and 2002 in its work area, the community Ayllu

Figure 1: Conventional indicators of unsatisfied basic needs approach



Discussion on poverty-indicators

The local indicators for measuring the poverty reduction were developed in three participatory workshops by AGRUCO extension workers and the inhabitants of the communities. First, the extension workers presented the conventional poverty indicators used by most of the national institutions. Then these indicators were discussed and assessed by the community members. For this they were divided into four groups, according to type of indicator: socio-cultural, economic-productive, environmental and political-organisational. Each indicator was assessed using the information collected by Agruco between 1992-2002 in the form of thesis, booklets and reports, as well as national statistics.

The groups then came up with the indicators they were using in their own assessment of poverty and wealth: the local poverty indicators of socio-cultural aspects (see figure 3). They include reciprocity practices, language knowledge, housing accommodation, traditional celebrations and fairs, collective prestige, access to education, access to medical assistance, and parentesco, or family ties. Local indicators of economic productive aspects (see figure 4) include number of animals, yield, number of local markets, percentage of produce destined for own consumption, products exchange, product diversity, conservation of local knowledge and production possibilities of different agro-ecological regions.

Analysis of indicators

One of the first things that became clear was that the conventional indicators are exclusively quantitative, while the local indicators are mostly qualitative. Both sets of indicators cover the classic areas: education, health and infrastructure, but they tend to emphasise different aspects. For example, while the conventional indicators focus on written language (illiteracy), the local indicators emphasise the oral knowledge of different languages (language knowledge). The ability to speak the language Quechua allows the locals to communicate with other communities, traders and local authorities whereas Spanish enables them to speak to members of governmental and non governmental institutions.

The local indicators do not include 'life expectancy' because age is not a major issue for the community members, and many don't even know how old they are. Even though the locals didn't include the indicator 'access to drinking water', experience shows that

the availability of drinking water is an important aspect for them. This indicator was probably forgotten. However, the 'access to electricity' is effectively not very important for the community members because their daily life and agricultural activities don't depend on electricity. Some of the study communities have electricity installations, but they are hardly used because the locals don't have enough money in cash to pay the bills.

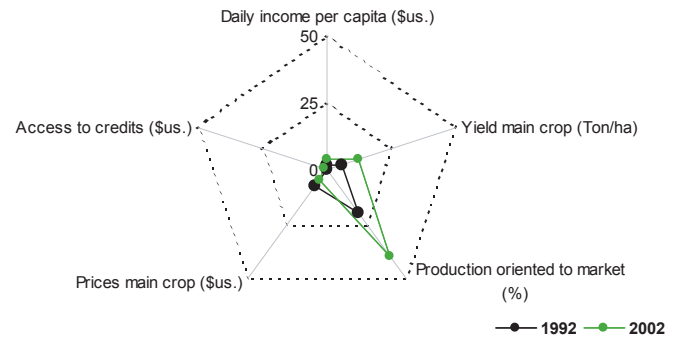
Labour and social indicators

Although the subject of labour is covered by both sets of indicators, the approaches used are completely different. The indicator 'unemployment' is not at all significant for the community members, because their labour system is not governed by employment practices but by 'reciprocity practices'. Therefore this indicator was chosen by the local inhabitants. This result is in accordance with Serrano (2003), who found that more than 55% of the labour in the Andean communities comes from reciprocity practices. In fact, three reciprocity practices are used in the study area: *Ayni* (labour in exchange for labour), *Mink'a* (labour in exchange for products) and *Humaraq'a* (labour in exchange for food).

The aspects related to social relations and culture were absent in the conventional indicators, while these turned out to be extremely significant in the local indicators. For the community members the connections, or *parentesco*, with their relatives and numerous godparents (for first haircut, baptism, marriage and other rituals) are very important. These connections not only guarantee support in their daily life and agriculture production, but also allow them to have contact with other regions for crop-exchange, land use and accommodation. According to Serrano (2003) the *parentesco* allows the Andean families to increase their labour force by up to 40%.

The indicator 'collective prestige' expresses the community's well-being and influence, which is very important for their progress. The indicator is measured by, for

Figure 2: Conventional indicators of economic-productive aspects



example, the number of local members in the government and the number of development agencies working in the area. The community's well-being is also expressed in the indicator 'performance of traditional celebrations and fairs'. According to Delgado (2002) the traditional celebrations and local fairs are closely related to the agricultural activities, and play an important role in accessing new territories, for example to find a suitable match for marriage.

Economic-productive indicators

In contrast to the conventional indicators, none of the local indicators are measured in US dollars. This is because the economic activities in the communities are not based on money, but primarily on 'reciprocity' and on 'product exchange' practices, which are therefore considered important indicators. The local indicators thus reflect a different perspective of labour and economy than the conventional indicators, which are based on employment and money. Therefore the conventional indicators 'unemployment' and 'daily income per capita' are not directly applicable for the communities of the Ayllu Majasaya Mujlli.

The conventional indicators focus on monoculture (yield main crop), while the local indicators emphasise 'diversi-

Figure 3: Local indicators of socio-cultural aspects

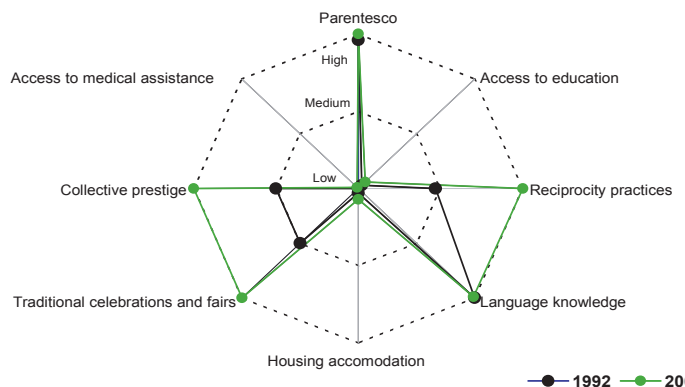
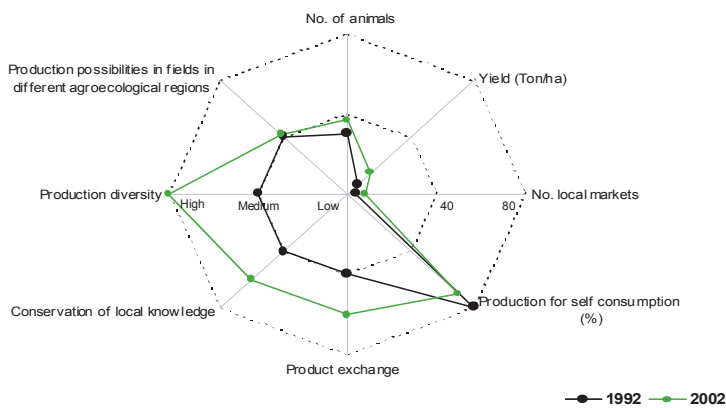


Figure 4: Local indicators of economic-productive aspects



ty'. It is important for the communities to cultivate a variety of crops and to raise various animals, as most of their production is for self-consumption. This is also expressed in the local indicators 'production diversity', 'yield', 'production possibilities in fields in different agro-ecological regions', and 'number of animals' (figure 4).

Both sets of economic-productive indicators consider the percentage of products that are not for own consumption: 'production orientated to self consumption' and 'production orientated to market'. The local indicator 'number of local markets' also reflects the amount of products that are sold or exchanged. As Delgado (2002) indicates, apart from being an economic indicator, the local markets also play an important role as religious areas and meeting spaces. Here the parentesco and the reciprocity practices are strengthened.

Political organisational indicators

There are no conventional indicators related to the political and organisational aspects of the community. However the six local indicators shown in figure 5 are extremely important to the community members for managing their human, agricultural, economic, cultural and natural resources efficiently. They reflect the organisational aspect at community level in the indicators 'existence of traditional authorities', and 'political conflict management'. The organisational knowledge aspect is reflected in the indicator 'political knowledge'.

Coordination with and influence at municipal level is also considered very important, and expressed in the indicators 'local and municipal coordination', 'local participation at municipal levels', and 'social control at municipal level'.

The local indicator 'conservation of local knowledge' shows that the communities consider their knowledge to be important for their agricultural production. For example, local knowledge on climate prediction allows the local inhabitants to create the calendar for their various agricultural activities.

Environmental indicators

There are no conventional indicators concerning environmental aspects. However the conservation and management of their natural resources is extremely important, as the communities depend directly on them for their livelihood. Therefore 'plant biodiversity', 'animal biodiversity', and 'soil conservation and management', 'water conservation and management' and 'land conservation and management' are indispensable local indicators (figure 6). According to Delgado (2002) the degradation of the natural resources (soil erosion, deforestation, among others) is one of the causes of the extreme poverty in this region.

Assessment of activities

Agruco was assigned to measure the poverty reduction as a result of the development efforts between 1992 and 2002 in its work area, the community of Ayllu Majasaya Mujlli in the department of Cochabamba. First the indicators generally used by the national institutions were selected as conventional indicators. Then the local indicators were formulated in participatory workshops with the indigenous inhabitants of the study area. Finally the contribution of Agruco on the poverty reduction was assessed for both sets of indicators.

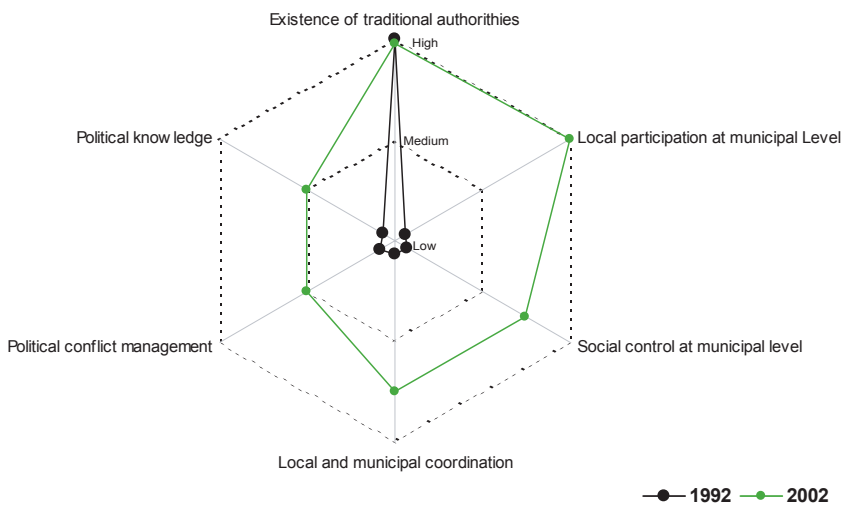
Both the conventional and local indicators showed that the activities carried out by Agruco between 1992 and 2002 contributed positively to the reduction of poverty in the communities. The local indicators, however, showed a far better performance than the conventional indicators. It seems that in this case the indigenous communities are more satisfied than they would be according to the conventional indicators.

This is not very surprising, as Agruco has been working in a participatory way, based on local knowledge systems, values and practices right from the start. The goal is to support sustainable rural development through a reevaluation of local knowledge, culture, and agro-ecology. Local research was stimulated, Andean crops improved, traditional leaders supported, and traditional fairs and local markets, such as the Seventh Friday Fair in Sipe Sipe enhanced. Moreover, the rural communities were supported in their efforts to submit their problems and requests to the appropriate local authority, especially the local municipality. Therefore, the local indicators of poverty reduction were the explicit basis of the endogenous development efforts.



Workshop to identify local indicators, and to evaluate endogenous development efforts according to these indicators, in the Ayllu Majasaya Mujlli (department of Cochabamba, Bolivia).

Figure 5: Local indicators of political-organisational aspects



Conclusions

Based on the results of the present study, we suggest that it is important not only to consider conventional indicators for measuring poverty reduction, but also the locally developed indicators, which are adapted to the particular area, time and context. The use of the local poverty indicators allows a more realistic measurement of the poverty reduction, as perceived by the indigenous inhabitants themselves, than the mere use of conventional indicators.

The conventional indicators are quantitative-based and cover socio-cultural and economic-productive aspects. The local indicators are quantitative as well as qualitative-based, and include not only socio-cultural and economic-productive aspects, but also imply environmental and political-organisational elements. Especially since 1994, when the 'law of popular participation' was introduced in Bolivia, political knowledge and organisation have become important issues in the communities. In this way they can administrate their

share of national resources appropriately and enhance their endogenous development process. Therefore political and organisational indicators should be included in the evaluation of poverty reduction in rural communities in Bolivia.

Some of conventional indicators on socio-cultural and economic-productive aspects coincide with the local indicators. Others, such as 'unemployment' and 'daily income per capita' are not suitable, due to the reciprocity and product exchange based labour and economy system in the communities. For the community members the social relationships and cultural activities are determinant for the quality of their daily life, and the success of their agricultural production, and contribute to the reduction of poverty. These important aspects are not considered by the conventional indicators.

We are convinced that local indicators of poverty reduction, as perceived by the people themselves, can stand at the basis of planning the endogenous development efforts, especially in the

more marginalised areas of the world. When analysed in early stages of project planning, these local indicators can give clear insight in the needs and wants of the local population. This can greatly enhance the effect of development efforts in the marginalised rural areas.

***Study performed by Agruco, commissioned by Swiss Agency for Cooperation and Development (CDE)**

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AGRUCO

Av. Petrolera km 4½
Casilla 3392, Cochabamba
BOLIVIA
agruco@agruco.org
www.agruco.org

Figure 6: Local indicators of environmental aspects

