Pro-Poor
Livestock
Policy
Initiative

The Livestock Development Goals –

Definitions and Measurement

D. Roland-Holst and J. Otte

June 2006

Introduction

As part of its commitments to advancing livestock's contribution to poverty alleviation, the FAO's Pro-Poor Livestock Policy Initiative (PPLPI) is developing a set of overall development objectives and metrics to assess progress toward them. These objectives have been named the Livestock Development Goals (LDGs) to evoke their close relationship with the more general Millennium Development Goals (MDGs) promulgated by UN institutions to assess progress in global living standards. While the livestock development goals and indicators are of independent relevance and interest to PPLPI and livestock policy makers, their conformity with the MDGs recognizes the usefulness of the latter in the international development dialogue and is also intended to emphasize the integral contribution of livestock to improving the livelihoods of the majority of the world's poor who live in rural areas.

This note sets forth eight Livestock Development Goals that will be used to measure progress and performance of livestock oriented policies in poor countries, particularly those policies associated with the FAO's own PPLPI. The goals cover not only direct economic contributions from livestock production, but a variety of other welfare criteria associated with this economic activity, nutrition, including hygiene and disease risk, and sustainable agricultural practices. In addition to the LDGs themselves, we set out a series of indicators to measure the degree of progress toward each of the goals. These indicators offer a means to draw upon the immense and diverse reserve of household survey and other data that has been assembled in developing countries. Over twenty types of indicators are proposed, each distilling raw data to better interpret the effectiveness of development policies ex post, concurrently, and even (using simulation methods) ex ante.

By establishing standards and metrics as well as supporting policy dialogue, it is hoped that PPLPI can contribute to more effective development strategy in its own programs and in the larger universe of rural, agricultural, and food oriented policy.

The following eight Livestock Development Goals are proposed for use in program evaluation.

Livestock Development Goals

***Goal 1: Eradicate extreme poverty**: Halve between 1990 and 2015 the proportion of livestock dependent people whose income is less than 1$/day.*

***Goal 2: Increase smallholder food security and protein sufficiency**: Promote gender-balanced policies to enhance the role livestock as a source of income and protein. Reduce by 2/3 malnutrition among smallholders by 2015.*

***Goal 3: Increase smallholder value-added**: Double budgets for public investment enhancing smallholder access to extension services and markets by 2015, with emphasis on public actions that raise productivity and reduce livestock market distortions.*

***Goal 4: Improve animal health (and welfare?)**: Promote higher standards for animal health, husbandry, including hygienic and humane production and processing practices.*

***Goal 5: Combat epidemic and zoonotic diseases**: Avert major epidemics and reduce the incidence of transboundary animal diseases and zoonoses by 1/2 by 2015.*

***Goal 6: Ensure sustainability of livestock keeping**: Integrate the principles of sustainable development into livestock policies and programs. Avoid overstocking and promote sustainable patterns of land and water use, agrochemical and pharmaceutical application.*

***Goal 7: Conserve indigenous livestock varieties**: Each country shall maintain a complete inventory of domestic livestock varieties, including detailed scientific and economic descriptions, and promote conservation of legacy genetic material.*

***Goal 8: Develop a global partnership for pro-poor livestock policy development, market standards and technology sharing**: Establish a clearing house for dissemination and sharing of intellectual property, genetic material, and technologies related to livestock production, processing and marketing.*

The remainder of this note is devoted to the definition and estimation of indicators that measure progress toward the LDGs. Detailed metrics are proposed for progress toward each of the eight LDGs.

Goal 1: Eradicate extreme poverty

Objective

Halve between 1990 and 2015 the proportion of livestock dependent (LD) people whose income is less than 1$/day.

Indicators

1. Proportion of LD population below $1 (PPP) a day
2. Poverty headcount ratio (percent of LD population below national poverty line)
3. Poverty gap ratio (incidence x depth of poverty)
4. Share of poorest quintile in national consumption

1.1 Proportion of LD population below $1 (PPP)/day

Definition[1]

Proportion of LD population below $1 per day is the percentage of the population living on less than $1.08 a day at 1993 international prices, with each income unit of the population weighted by the share of livestock income in total income. The $1 a day poverty line is compared to consumption or income per person and includes consumption from own production and income in kind. Because this poverty line has fixed purchasing power across countries or areas, the $1 a day poverty line is often called an absolute poverty line. The indicator allows for comparing and aggregating progress across countries in reducing the number of people living under extreme poverty and for monitoring trends at the global level.

Method of computation

The basic formula for this indicator is a headcount poverty measure, defined with respect to some exogenously specified poverty line and formally expressed as follows:

$$LDI1.1 = \frac{q_{LD}}{n_{LD}}$$

[1] The specification of several LDGs draws heavily upon the precedence of MDG work by other UN/CGIAR institutions, the World Bank in particular.

where

$q_{LD} = \sum_{i=1}^{q} \lambda_i$ = cumulative livestock dependence among the poor

$n_{LD} = \sum_{i=1}^{n} \lambda_i$ = cumulative livestock dependence in the population

λ_i = share of livestock income in total income of household i

International poverty is regularly based on a $1 a day poverty line. Estimates are based on incomes or consumption levels derived from household surveys. Whenever possible, consumption is preferred to income for measuring poverty. When consumption data are not available, income is used.

Consumption, which includes consumption for own production, or income per person, and its distribution are estimated from household surveys. Household consumption or income is divided by the number of people in the household to establish the income per person.

The distribution of consumption or income is estimated using empirical Lorenz (distribution) curves weighted by household size. In all cases measures of poverty to obtain Lorenz curves are calculated from primary data resources rather than existing estimates.

Poverty in a country is estimated by converting the $1 a day poverty line to local currency using the latest purchasing power parity (PPP) exchange rates for consumption taken from World Bank estimates. Local consumer price indices are then used to adjust the international poverty line in local currency to prices prevailing around the time of the surveys. This international poverty line is used to identify how many people are below the $1 a day threshold.

The PPP-based international poverty line is required only to allow comparisons across countries and to produce estimates of poverty at the aggregate level. Most countries also set their own poverty lines (see indicator 1b).

Data resources

Data on household income, consumption and expenditure, including income in kind, are generally collected through household budget surveys or other surveys covering income and expenditure.

When available, household consumption data are preferred to income data. National statistical offices, sometimes in conjunction with other national or international agencies, usually undertake such surveys.

Only surveys that meet the following criteria are used: they are nationally representative, include a sufficiently comprehensive consumption or income aggregate (including consumption or income

from own production), and allow for the construction of a correctly weighted distribution of consumption or income per person.

The most recent estimates of PPP for developing countries are based on data collected between 1993 and 1996, standardized to 1993 international prices. Global price comparisons are carried out by the International Comparisons Program of the World Bank and others. New estimates of PPPs are expected in 2006.

1.2 Poverty headcount ratio (% of population below the national poverty line)

Definition

The poverty headcount ratio is the proportion of the national population whose incomes are below the official threshold (or thresholds) set by the national government. National poverty lines are usually set for households of various compositions to allow for different family sizes. Where there are no official poverty lines, they may be defined as the level of income required to have only sufficient food or food plus other necessities for survival. This indicator allows for monitoring the proportion of the national population that is considered poor by a national standard. Most poverty analysis work for countries is based on national poverty lines. National poverty lines tend to increase in purchasing power with the average level of income of a country.

Method of computation

Household income (or consumption) and its distribution are estimated from household surveys (see indicator 3). The incomes of various household types, by composition, may then be compared with the poverty lines for those types of household. If the poverty lines are expressed in terms of income per adult equivalent or some similar measure, the incomes of the households must be measured on a similar basis. Household income may be converted to income per adult equivalent by using the modified equivalence scale of the Organisation for Economic Co-operation and Development (OECD)—in which the first household member over 16 equals 1, all others over 16 equal 0.5, all under 16 equal 0.3—or some other equivalence scale. Household incomes are then divided by the 'equivalized' number of people in the household (two adults would equal 1.5 according to the OECD scale) to establish income per person.

Once the number of households that are below the poverty line has been estimated, the number of people in those households is aggregated with livestock dependency weights to estimate the percentage of the LD population below the line.

Data resources

Data on household income, consumption and expenditure, including income in kind, are generally collected through household budget surveys or other surveys covering income and expenditure.

National statistical offices, sometimes in conjunction with other national or international agencies, usually undertake such surveys.

1.3 Poverty gap ratio (incidence x depth of poverty)

Definition

Poverty gap ratio is the mean distance separating the population from the poverty line (with the non-poor being given a distance of zero), expressed as a percentage of the poverty line. This indicator measures the "poverty deficit" of the entire population, where the poverty deficit is the per capita amount of resources that would be needed to bring all poor people above the poverty line through perfectly targeted cash transfers.

Method of computation

The poverty gap ratio is the sum of the income gap ratios for the population below the poverty line, divided by the total population, which can be expressed as follows:

$$LDI1.3 = \frac{1}{n}\sum_{1}^{q}\left(\frac{z - y_i}{z}\right)$$

where z is the poverty line, yi is the income of individual i, q is the number of poor people and n is the size of the population. The poverty gap can also be expressed (and thus calculated) as the product of the average income gap ratio of poor people and the headcount ratio, or LDI 1.1 above. Note that

$\sum_{1}^{q}(z - y_i)$ = total income deficit of the poor = minimum cost to eliminate poverty with perfect targeting

$$LDI1.3 = \frac{1}{n}\frac{\sum_{1}^{q}(z - y_i)}{nz} = \frac{\text{Targeted welfare budget}}{\text{Untargeted welfare budget}}$$

1- LDI1.3 = Gain from targeting = % of untargeted budget saved.

All these formulas are calculated based on data on individuals (y_i as individual income or consumption). If household-level data are used, the formulas have to be adjusted by the weight W_i, which is the household size times the share of livestock income in total income and a sampling expansion factor for every household i.

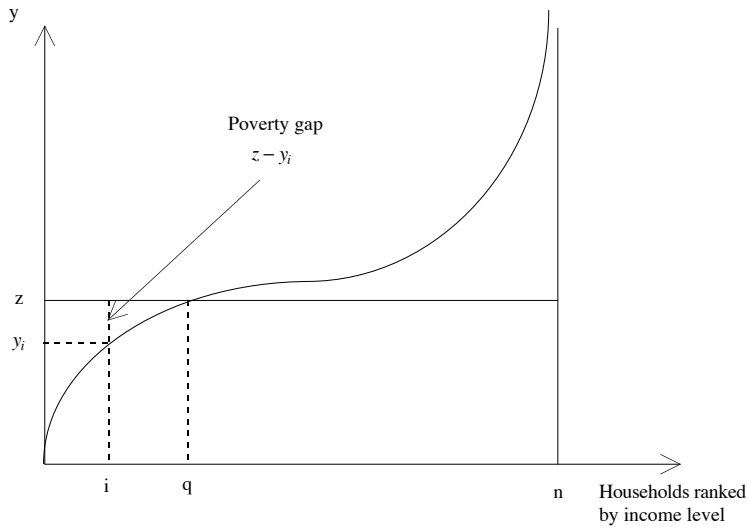


Figure 1. Poverty profile

Data resources

When based on the $1 a day poverty line, this indicator is calculated by the World Bank. When based on national poverty lines, the indicator is commonly calculated by national agencies. The data required are the same as those for indicator 1.1.

1.4 Share of poorest LD quintile in national consumption

Definition

Share of the poorest LD quintile in national consumption is the income that accrues to the poorest fifth of the population. This indicator provides information about the distribution of consumption or income of the poorest fifth of the population. Because the consumption of the poorest fifth is expressed as a percentage of total household consumption (or income), this indicator is a 'relative inequality' measure. Therefore, while the absolute consumption of the poorest fifth may increase, its share of total consumption may remain the same (if the total goes up by the same proportion), decline (if the total goes up by a larger proportion) or increase (if the total goes up by a smaller proportion).

Method of computation

Household income and its distributions are estimated from household surveys. Household income is adjusted for household size to provide a more consistent measure of per capita income for consumption. Household income is divided by the number of people in the household to establish income per person. The population is then ranked by income. The income of the bottom fifth is expressed as a percentage of aggregate household income. The calculations are made in local currency, without adjustment for price changes or exchange rates or for spatial differences in cost of living within countries, because the data needed for such calculations are generally unavailable.

Data resources

For international purposes, this indicator is calculated by the World Bank, but it may also be calculated by national agencies. The World Bank Group's Development Research Group produces the indicator based on primary household survey data obtained from government statistical agencies and World Bank country departments.

Data on household income or consumption come from household surveys. Because underlying household surveys differ across countries in methods and type of data collected, the World Bank tries to produce comparable data for international comparisons and for analysis at the aggregated level (regional or global). Survey data provide either per capita income or consumption. Whenever possible, consumption data are used rather than income data. Where the original household survey data are not available, shares are estimated from the best available grouped data.

Goal 2: Increase smallholder food security and protein sufficiency

Objective

Promote gender-balanced policies to enhance the role livestock as a source of income and protein. Reduce by 2/3 malnutrition among smallholders by 2015.

Indicators

1. Proportion of LD population below minimum level of dietary energy consumption
2. Prevalence of underweight in LD children (under five years of age)

2.1 Proportion of LD population below minimum level of dietary energy consumption

Definition

The proportion of the population below the minimum level of dietary energy consumption is the percentage of the population whose food intake falls below the minimum level of dietary energy requirements. This is also referred to as the prevalence of under-nourishment, which is the percentage of the population that is undernourished.

This indicator measures an important aspect of the food insecurity of a population. Sustainable development demands a concerted effort to reduce poverty, including finding solutions to hunger and malnutrition. Alleviating hunger is a prerequisite for sustainable poverty reduction since under-nourishment seriously affects labour productivity and earning capacity. Malnutrition can be the outcome of a range of circumstances. In order to work, poverty reduction strategies must address food access, availability (physical and economical) and safety.

Method of computation

Estimation of the proportion of people with insufficient food (under-nourishment) involves specification of the distribution of dietary energy consumption, considering the total food availability (from national global statistics) and inequality in access to food (from national household surveys). The distribution is assumed to be uni-modal and skewed. The log-normal function is used in estimating the proportion of the population below a minimum energy requirement level or cut-off point. The cut-off point is estimated as a population per capita average value, based on dietary energy needed by different age and gender groups and the proportion of the population represented by each age group.

The estimates are not normally available in countries. The Food and Agriculture Organization of the United Nations (FAO) prepares these estimates at the national level. These are then aggregated to obtain regional and global estimates.

Data resources

The main data resources are country statistics on local food production, trade, stocks and non-food uses; food consumption data from national household surveys; country anthropometric data by gender and age and UN country population estimates, total and by gender and age.

2.2 Prevalence of underweight in LD children (under five years of age)

Definition

Prevalence of (moderately or severely) underweight children is the percentage of children under five years old whose weight for age is less than minus two standard deviations from the median for the international reference population ages 0–59 months. The international reference population was formulated by the National Center for Health Statistics as a reference for the United States and later adopted by the World Health Organization (WHO) for international use (often referred to as the NCHS/WHO reference population).

Child malnutrition, as reflected in body weight, is selected as an indicator for several reasons. Child malnutrition is linked to poverty, low levels of education, and poor access to health services. Malnourishment in children, even moderate, increases their risk of death, inhibits their cognitive development, and affects health status later in life. Sufficient and good quality nutrition is the cornerstone for development, health and survival of current and succeeding generations. Healthy nutrition is particularly important for women during pregnancy and lactation, so that their children set off on sound developmental paths, both physically and mentally. Only when optimal child growth is ensured for the majority of their people will governments be successful in their efforts to accelerate economic development in a sustained way.

The under-five underweight prevalence is an internationally recognized public health indicator for monitoring nutritional status and health in populations. Child malnutrition is also monitored more closely than adult malnutrition.

Method of computation

The weights of the under-five child population in a country are compared with the weights given in the NCHS/WHO table of child weights for each age group. The percentages of children in each age group whose weights are more than two standard deviations less than the median are then aggregated with their housedhold livestock dependency rates to form the LD-weighted percentage of children under five who are underweight.

Data resources

At the national level, data are generally available from national household surveys, including Demographic and Health Surveys, Multiple Indicator Cluster Surveys and national nutrition surveys.

For international comparisons and global or regional monitoring, the United Nation's Children's Fund (UNICEF) and WHO compile international data series and estimate regional and global figures based on data from national surveys.

Goal 3: Increase smallholder value-added

Objective

Double budgets for public investment enhancing smallholder access to extension services and markets by 2015, with emphasis on public actions that raise productivity and reduce livestock market distortions.

Indicators

1. Total public outlays on smallholder extension services, as a percent of smallholder income.
2. Total factor productivity growth in smallholder production.
3. Smallholder value added as a percent of own livestock value added.
4. Livestock Income Gini Coefficient.
5. Livestock terms of trade.

3.1 Total outlays on smallholder extension services, as a percent of smallholder income

Definition

Method of computation

Data resource

3.2 Total factor productivity growth in smallholder production

Definition

Method of computation

Data resources

3.3 Smallholder value added as a percent of own livestock value added.

Definition

This indicator measures the proportion of value smallholders capture from the entire value chain extending from their own enterprise to final retail consumption of products derived from their own livestock.

Method of computation

Data resources

3.4 Livestock income Gini Coefficient

Definition

This indicator measures disparity between the observed distribution of livestock income from a uniform income distribution.

Method of computation

This is a standard Gini formulation, restricted to the livestock component of household income.

Data resources

Household and rural enterprise surveys can generally be relied upon for this kind of data.

3.5 Livestock terms of trade

Definition

Livestock terms of trade is an index reflecting the price component of a livestock producer's balance sheets. This ratio contains revenue elements in the numerator and cost elements in the denominator, and thus as a positive correlation with the financial health of the livestock enterprise. It can be conveniently referred to as the "purchasing power of livestock" as a commodity in a market economy.

Method of computation

Data resources

Goal 4: Improve animal health (and welfare?)

Objective

Promote higher standards for animal health (and welfare?), including hygienic and humane production and processing practices.

Indicators

1. Livestock health indicator
2. Smallholder livestock health indicator
3. Smallholder animal health adversity
4. Smallholder animal health gap
5. Smallholder animal health severity

4.1 Livestock health indicator

Definition

This index is an overall measure of animal health and represents a composite of standard indicators from animal husbandry and veterinary practice. This indicator resembles the family of human development indices promulgated by UNDP.

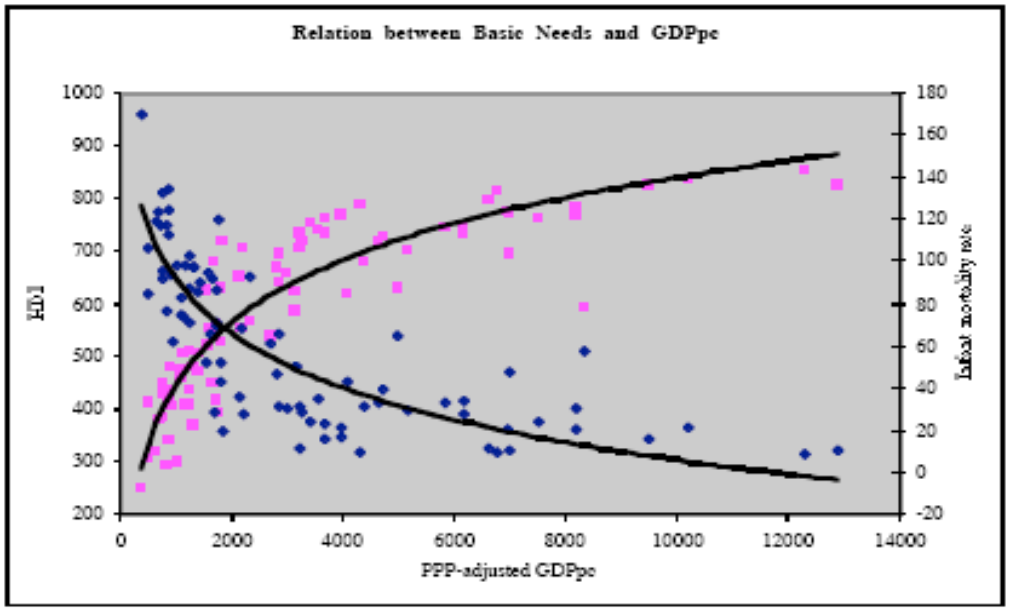
Method of computation

Formally, we define the indicator as follows:

$$LDI\,4.1(s,k) = 1 - \frac{1}{n}\sum_{i=1}^{n}\frac{L_{i,s,\max} - L_{i,s,k}}{L_{i,s,\max} - L_{i,s.\min}}$$

for livestock variety s and a given village, region, or country k. In this formula, L_i denotes one of n animal health indicators. The universe of comparison (i.e. for determining max and min values) depends on the application at hand. Where k denotes villages or regions, the universe is national, but where k is an entire country the universe is a global or regional (i.e. West Africa) grouping.

Generically, we expect to see a relationship between this indicator and living standards as depicted in the following figure.



Data resources

4.2 Smallholder livestock health indicator

Definition

This indicator is completely analogous to LDI 4.1, but its sampling is confined to smallholder livestock producers.

Method of computation

Data resources

4.3 Animal health adversity

Definition

Beginning with a minimum standard for the animal health indicator LDI 4.1, smallholder animal health adversity measures the smallholder livestock headcount for those producers whose stocks fall below the minimum standard. In addition to measuring national, regional, or local prevalence of animal health challenges, this indicator is of special relevance to targeting of extension services and other smallholder assistance.

Method of Computation

Using the notation above, we define

$$LDI4.3(s) = \frac{q_s}{n_s}$$

where n_s denotes the total headcount of livestock holdings for producers of livestock type s_s denotes the number whose stocks are below minimum average health status.

Data resources

4.4 Smallholder animal health gap

Definition

The smallholder animal health gap is the mean distance separating the smallholder livestock population from the minimum health standard (with healthy stocks being given a distance of zero), expressed as a percentage of the minimum standard line. The indicator measures the "animal health deficit" of the entire population, where the poverty deficit is the per capita amount of resources that would be needed to bring all poor people above the poverty line through perfectly targeted cash transfers?????.

Method of computation

The gap ratio is the sum of the health gap ratios for the population below the minimum health line, divided by the total population, which can be expressed as follows:

$$LDI4.4 = \frac{1}{n}\sum_{1}^{q}\left(\frac{z - h_i}{z}\right)$$

where z is the minimum health line, y_i is the income of individual i, q is the number of animals below the minimum health standard in a total population of n. The animal health gap can also be expressed (and thus calculated) as the product of the average health gap ratio below z and the headcount ratio, that is,

$$HR = \frac{q}{n}$$

where

q = number of animals below minimum health status line

n = total animal population size

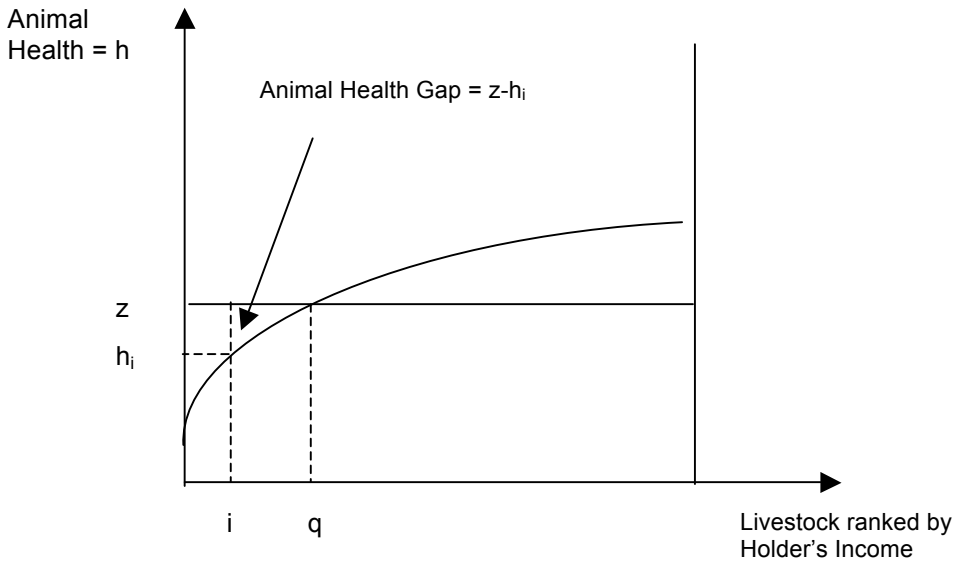
Note that

$$\sum_{1}^{q}(z - h_i)$$

denotes total animal health deficit of the poor

All these formulas are calculated based on data on individuals (y_i as individual income or consumption). If household-level data are used, the formulas have to be adjusted by the weight w_i,

which is the household size times the share of livestock income in total income and a sampling expansion factor for every household i.



Data resources

4.5 Smallholder animal health severity

Definition

This indicator measures the extent to which animal health status varies within smallholder livestock populations. For example smallholders in the urban periphery might have relatively high animal health indicators, while subsistence farmers in the hinterlands contend with high rates of animal health problems and their many attendant costs. High severity rates pose a significant barrier to extending market access and increasing livestock net income across national poor constituencies.

Method of Computation

Using the previous notation, smallholder animal health severity is measured as follows

$$LDI4.5 = \frac{1}{n}\sum_{1}^{q}\left(\frac{z - h_i}{z}\right)^2$$

which measures inequality of animal health status among the poor.

Data resources

Goal 5: Combat epidemic and zoonotic diseases

Objective

Avert major epidemics and reduce the incidence of transboundary animal diseases and zoonoses by 1/2 by 2015.

Indicators

1. Epidemic and zoonotic animal disease prevalence indicator
2. Animal disease outbreak indicator
3. Veterinary extension indicator

5.1 Animal disease prevalence indicator

Definition

Prevalence of animal disease, by disease and animal type, is the number of cases as a percent of the stock under consideration (national, regional, or local). Stock mortality rates are also of interest.

The indicator allows highly endemic countries to monitor disease and death from malaria, which have been increasing over the last two decades due to deteriorating health systems, growing drug and insecticide resistance, periodic changes in weather patterns, civil unrest, human migration and population displacement.

Method of computation

Prevalence is expressed as infected and/or lost animals measured in proportion to a reference population. At the national level, this could be per 100,000 animals, while at the local level it would be an average percent of household or village stocks.

Data resources

Data come from administrative sources, household surveys, and animal health statistics registrations.

5.2 Animal disease outbreak indicator

Definition

The scope of animal disease outbreaks is an important indicator of contagion risk and the efficacy of monitoring/reporting systems. This indicator measures the relative headcount radius of disease outbreaks in a given time period. The larger is the value of the indicator, the greater the risk of widespread contagion. In the case of epizootic diseases, this risk extended automatically from the animal to human populations. In the case of potential epizootic diseases (e.g. HPAI), higher values of LDI 5.2 indicate higher risk from mutagenic incubation, i.e. increased risk for mutation to homo-contagious disease varieties.

Method of computation

Formally, we define the indicator as follows:

$$LDI5.2(d,s,k) = \frac{1}{n}\sum_{i=1}^{n} H_{i,d,s,k}$$

for livestock variety s and a given village, region, or country k. In this formula, H_i denotes the infected livestock headcount for household, commune, or village i in a sample universe k of n such reporting episodes. The universe of comparison.

Data resources

5.3 Veterinary extension indicator / Vaccination coverage ??

Definition

This indicator measures total domestic and foreign spending on veterinary services for livestock production and maintenance.

Method of computation

Expenditures on livestock veterinary extension services, expressed as a percent of livestock GDP and/or livestock value of output, at the national, regional, or local level. Expenditures include public and private outlays to initiate, deliver, and sustain fee-based and free services.

Data resources

Goal 6: Ensure sustainability of livestock keeping

Objective

Integrate the principles of sustainable development into livestock policies and programs. Avoid overstocking and promote sustainable patterns of land and water use, agrochemical and pharmaceutical application.

Indicators

1. Average nutrient balances.
2. Proportion of smallholders with access to secure land tenure.

6.1 Proportion of feed based livestock development

Definition

This indicator measures the share of livestock production that is sustained by marketable feed and fodder, as opposed to free range and foraged sources of livestock nutrition. This measure is thought to indicate the degree to which livestock production is profitable independently of local natural resource constraints.

Method of computation

Data resources

6.2 Proportion of households with access to secure land tenure

Definition

Method of computation

Data resources

Data come mainly from household surveys such as Demographic and Health Surveys, Multiple Indicator Cluster Surveys and Joint Monitoring Programme questionnaires. In countries without such data from surveys, data can be derived from population and housing censuses, which usually include questions about housing tenure ?????????????.

Goal 7: Conserve indigenous livestock varieties

Objective

Each country shall maintain a complete inventory of domestic livestock varieties, including detailed scientific and economic descriptions, and promote conservation of legacy genetic material.

Indicators

1. Index of indigenous livestock registration
2. Indigenous livestock viability
3. Indigenous livestock radiation

7.1 Index of indigenous livestock registration

Definition

Livestock inventory registration consists of three components: identification, isolation, and certified reproduction. Identification is the first stage, consisting of DNA registration of a unique animal variety. Isolation entails registration of live, ongoing husbandry for a given variety in a private or publicly supported setting. Finally, certified reproduction entails registered double matching of the same species over at least three generations, with capacity to sustain this breeding.

Method of computation

Given these three criteria, the corresponding index measures the number of such instances, with weights corresponding to the significance of each, as follows

$$LDI7.1(s) = \sum_{i-1}^{3} w_i L_{si}$$

where L_{si} denotes producer headcounts for each of the three components and w_i are weights assigned for the case at hand.

Data resources

7.2 Indigenous livestock viability

Definition

A measure of the modern persistence of indigenous varieties, this index compares indigenous livestock to imported varieties in the domestic animal population.

Method of Computation

Headcount of all indigenous varieties as a percent of total national, regional, or local livestock headcount. Can also be calculated in value terms.

Data resources

7.3 Indigenous livestock radiation

Definition

A measure of the degree to which indigenous genetic material has infiltrated the domestic livestock gene pool, this is a measure of the localization of domestic animal populations.

Method of computation

This indicator is a headcount of all livestock with indigenous genetic markers, weighted by the proportion of their indigenous ancestry, divided by domestic livestock headcount, but species and locality (national, regional, or local).

Data resources

Goal 8: Develop a global partnership for pro-poor livestock policy development, market standards and technology sharing.

Objective

Establish a clearing house for dissemination and sharing of intellectual property, genetic material, and technologies related to livestock production, processing and marketing.

Indicators

1. Net ODA directed to smallholder agriculture or rural poverty, as a percentage of OECD/DAC donors' gross national income.
2. Proportion of bilateral, sector-allocable ODA of OECD/DAC donors for livestock and livestock related development.
3. Proportion of livestock product trade covered by administrative measures.
4. Proportion of total developed country imports (by value and excluding arms) of livestock products from developing countries and from least developed countries, admitted free of duty.

8.1 Net ODA directed to smallholder agriculture or rural poverty, as a percentage of OECD/DAC donors' gross national income

Definition

Official development assistance (ODA) comprises grants or loans to developing countries and territories on the Organisation for Economic Co-operation and Development/Development Assistance Committee (OECD/DAC) list of aid recipients that are undertaken by the official sector with promotion of economic development and welfare as the main objective and at concessional financial terms (if a loan, having a grant element of at least 25 percent). Technical cooperation is included. Grants, loans and credits for military purposes are excluded. Also excluded are aid to more advanced developing and transition countries as determined by the DAC.

Donors' gross national income (GNI) at market prices is the sum of gross primary incomes receivable by resident institutional units and sectors. GNI at market prices was called gross national product (GNP) in the 1953 System of National Accounts. In contrast to gross domestic product (GDP), GNI is a concept of income (primary income) rather than value added.

Method of computation

GNI is equal to GDP (GDP at market prices represents the final result of the production activity of resident producer units) less primary incomes payable to non-resident units plus primary incomes receivable from non-resident units. In other words, GNI is equal to GDP less taxes (less subsidies) on

production and imports, compensation of employees and property income payable to the rest of the world plus the corresponding items receivable from the rest of the world.

Data resources

Data are compiled by OECD/DAC.

8.2 Proportion of bilateral, sector-allocable ODA of OECD/DAC donors for livestock and livestock related development

Definition

Official development assistance (ODA) comprises grants or loans to developing countries and territories on the Organisation for Economic Co-operation and Development/Development Assistance Committee (OECD/DAC) list of aid recipients that are undertaken by the official sector with promotion of economic development and welfare as the main objective and at concessional financial terms (if a loan, having a grant element of at least 25 percent). Technical cooperation is included. Grants, loans and credits for military purposes are excluded. Also excluded are aid to more advanced developing and transition countries as determined by the DAC. Bilateral official development assistance is from one country to another.

Data resources

Compiled by OECD/DAC.

8.3 Proportion of agricultural trade covered by administrative measures that distort trade

Definition

The percent of total agricultural imports and exports that are covered by export taxes, import tariffs and quantity restrictions, as well as other measures that distort trade flows. Of particular relevance in the present context are livestock products and animal feeds.

Method of computation

Data resources

8.4 Proportion of total developed country imports (by value and excluding arms) of livestock products from developing countries and from least developed countries, admitted free of duty

Definition

Imports and imported value of goods (merchandise) are goods that add to the stock of material resources of a country by entering its economic territory. Goods simply being transported through a country (goods in transit) or temporarily admitted (except for goods for inward processing) do not add to the stock of material resources of a country and are not included in the international merchandise trade statistics. In many cases, a country's economic territory largely coincides with its customs territory, which is the territory in which the customs laws of a country apply in full. Goods admitted free of duties are exports of goods (excluding arms) received from developing countries and admitted without tariffs to developed countries.

There is no established convention for the designation of developed and developing countries or areas in the United Nations system. In common practice, Japan in Asia, Canada and the United States in North America, Australia and New Zealand in Oceania and Europe are considered 'developed' regions or areas. In international trade statistics, the Southern African Customs Union is also treated as a developed region and Israel as a developed country; countries emerging from the former Yugoslavia are treated as developing countries; and countries of Eastern Europe and European countries of the former Soviet Union are not included under either developed or developing regions.

The indicator monitors the international effort made to remove barriers to trade for developing countries, to encourage the achievement of the Millennium Development Goals. Poor people in developing countries work primarily in agriculture and labor-intensive manufactures, sectors that confront the greatest trade barriers. Removing barriers to merchandise trade, therefore, could increase growth in these countries by a significant amount.

Method of computation

To value their exports, countries can choose free-on-board (f.o.b.) values, which include only the transaction value of the goods and the value of services performed to deliver goods to the border of the exporting country, or cost, insurance and freight (c.i.f.) values, which add to this the value of the services performed to deliver the goods from the border of the exporting country to the border of the importing country. It is recommended that imported goods be valued at c.i.f. prices for statistical purposes. Specific duties "not expressed as a proportion of the declared value" may or may not be included in calculations of goods admitted free of duties.

Data resource

This indicator is calculated by the United Nations Conference on Trade and Development in collaboration with the World Bank and the World Trade Organization, from the Trade Analysis and Information System (TRAINS) CD-ROM, version 8 (2002).

References

"The State of Food Insecurity in the World", annual, Food and Agriculture Organization.

Country or Area Codes for Statistical Use, United Nations Statistics Division, series M, no. 49, rev. 4 (United Nations publication sales no. M.98.XVII.9).

Development Cooperation Report, annual, Organisation for Economic Co-operation and Development/Development Assistance Committee (www.oecd.org/dac).

Development Cooperation Report, annual, Organisation for Economic Co-operation and Development/Development Assistance Committee (www.oecd.org/dac).

Global Database on Child Growth, World Health Organization (www.who.org).

Indicators of Sustainable Development: Guidelines and Methodologies, 2001, United Nations Division for Sustainable Development (www.un.org/esa/sustdev/natlinfo/indicators/isd.htm).

International Development Statistics (CD-ROM), (technical notes, glossary and table of aid recipients), annual, Organisation for Economic Co-operation and Development/Development Assistance Committee (www.oecd.org/dac).

International Development Statistics (CD-ROM), (technical notes, glossary and table of aid recipients), annual, Organisation for Economic Co-operation and Development/Development Assistance Committee (www.oecd.org/dac).

International Merchandise Trade Statistics—Concepts and Definitions, series F, no. 52, rev. 2, United Nations (United Nations publication sales no. E.98.XVII.16, paras. 14 and 115-116), for import goods.

Lydia Zepeda (ed.) (2001) Agricultural Investment and Productivity in Developing Countries, FAO Economic and Social Development Paper 148, Rome. http://www.fao.org/documents/show_cdr.asp?url_file=/DOCREP/003/X9447E/x9447e09.htm

Lydia Zepeda (ed.) (2001) Agricultural Investment and Productivity in Developing Countries, FAO Economic and Social Development Paper 148, Rome. http://www.fao.org/documents/show_cdr.asp?url_file=/DOCREP/003/X9447E/x9447e09.htm

Proceedings of the International Scientific Symposium on Measurement and Assessment of Food Deprivation and Undernutrition, "FAO Methodology for Estimating the Prevalence of Undernourishment", 2002, Food Insecurity and Vulnerability Information and Mapping Systems, Food and Agriculture Organization.

System of National Accounts, 1993, United Nations, Commission of the European Communities, International Monetary Fund, Organisation for Economic Co-operation and Development and

World Bank, series F, no. 2, rev. 4 (United Nations publication sales no. E.94.XVII.4, para. 7.66), for import duties.

The Growth Chart: A Tool for Use in Infant and Child Health Care, 1986, World Health Organization.

The State of the World's Children, annual, United Nations Children's Fund (www.unicef.org/publications).

Trade Analysis and Information System (CD-ROM), United Nations Conference on Trade and Development.

United Nations Children's Fund, www.childinfo.org and www.unicef.org.

World Development Indicators, annual, World Bank (www.worldbank.org/data).

World Health Report, annual, World Health Organization, Nutrition Unit (www.who.org).

World Trade Organization Database, Integrated Database