

*FAO Seminar on HPAI
Chulalongkorn University, Bangkok
9 June 2006*

Livestock **D**evelopment **G**oals

Definitions and Measurement

**Joachim Otte
David Roland-Holst**



A Living from Livestock
Pro-Poor Livestock Policy Initiative



Contents

1. Introduction
2. Livestock Development Goals
3. Livestock Development Indicators
4. Definitions
5. Discussion



LDGs

Otte and Roland-Holst

A Living from Livestock
Pro-Poor Livestock Policy Initiative



2

1. Introduction

- As part of its commitments to advance livestock's contribution to poverty alleviation, the FAO's Pro-Poor Livestock Policy Initiative (PPLPI) has created a set of development objectives and metrics to assess progress toward them.
- The Livestock Development Goals (LDGs) are so named to evoke their close relationship with the more general United Nations Millennium Development Goals (MDGs).
- While the LDGs are of independent relevance 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.



LDGs

Otte and Roland-Holst

A Living from Livestock
Pro-Poor Livestock Policy Initiative



Introduction 2

- The LDGs cover not only direct income 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.



Introduction 3

- 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.
- By establishing standards and metrics to support policy dialogue, PPLPI can contribute to more effective development strategy in its own programs and in the larger universe of rural, agricultural, and food-oriented policy.



LDGs

Otte and Roland-Holst

A Living from Livestock
Pro-Poor Livestock Policy Initiative



2. Livestock Development Goals

- ***Goal 1: Eradicate extreme poverty***
- ***Goal 2: Increase smallholder food security and protein sufficiency***
- ***Goal 3: Increase smallholder value-added***
- ***Goal 4: Improve animal health***
- ***Goal 5: Combat epidemic and zoonotic diseases***
- ***Goal 6: Ensure sustainability of livestock keeping***
- ***Goal 7: Conserve indigenous livestock varieties***
- ***Goal 8: Develop a global partnership for pro-poor livestock policy development, market standards and technology sharing***



3. Livestock Development Indicators

- In addition to the LDGs themselves, we set out a series of Livestock Development Indicators (LDIs) to measure the degree of progress toward each of the goals.
- These 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-five types of indicators are proposed, each distilling raw data to better interpret the effectiveness of development policies ex post, concurrently, and even ex ante (using simulation methods).



LDGs

Otte and Roland-Holst

A Living from Livestock
Pro-Poor Livestock Policy Initiative



4. Definitions

- The remainder of this talk 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.



LDGs

Otte and Roland-Holst

A Living from Livestock
Pro-Poor Livestock Policy Initiative



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



LDGs

Otte and Roland-Holst

A Living from Livestock
Pro-Poor Livestock Policy Initiative



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)



LDGs

Otte and Roland-Holst

A Living from Livestock
Pro-Poor Livestock Policy Initiative



10

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 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. Smallholder value added as a percent of total livestock value added.
5. Livestock terms of trade.



Goal 4: Improve animal health

Objective

- Promote higher standards for animal health, 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



LDGs

Otte and Roland-Holst

A Living from Livestock
Pro-Poor Livestock Policy Initiative



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



LDGs

Otte and Roland-Holst

A Living from Livestock
Pro-Poor Livestock Policy Initiative



13

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



LDGs

Otte and Roland-Holst

A Living from Livestock
Pro-Poor Livestock Policy Initiative



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



LDGs

Otte and Roland-Holst

A Living from Livestock
Pro-Poor Livestock Policy Initiative



15

Goal 8: 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.



LDGs

Otte and Roland-Holst

A Living from Livestock
Pro-Poor Livestock Policy Initiative



16

Assessment

Progress toward the LDGs will be assessed from three temporal perspectives:

1. Ex post – Using existing data resources, individual localities, regions, countries, and the world as a whole can be assessed at regular intervals
2. Concurrent – With respect to individual policies and projects, progress can be tracked with a suite of LDIs
3. Ex Ante – By incorporating LDIs into economic simulation methods, alternative livestock strategies can be assessed before implementation.



LDGs

Otte and Roland-Holst

A Living from Livestock
Pro-Poor Livestock Policy Initiative



17

Examples: LDI 4.1 Livestock Health Indicator

- Formally, we define the indicator as follows:

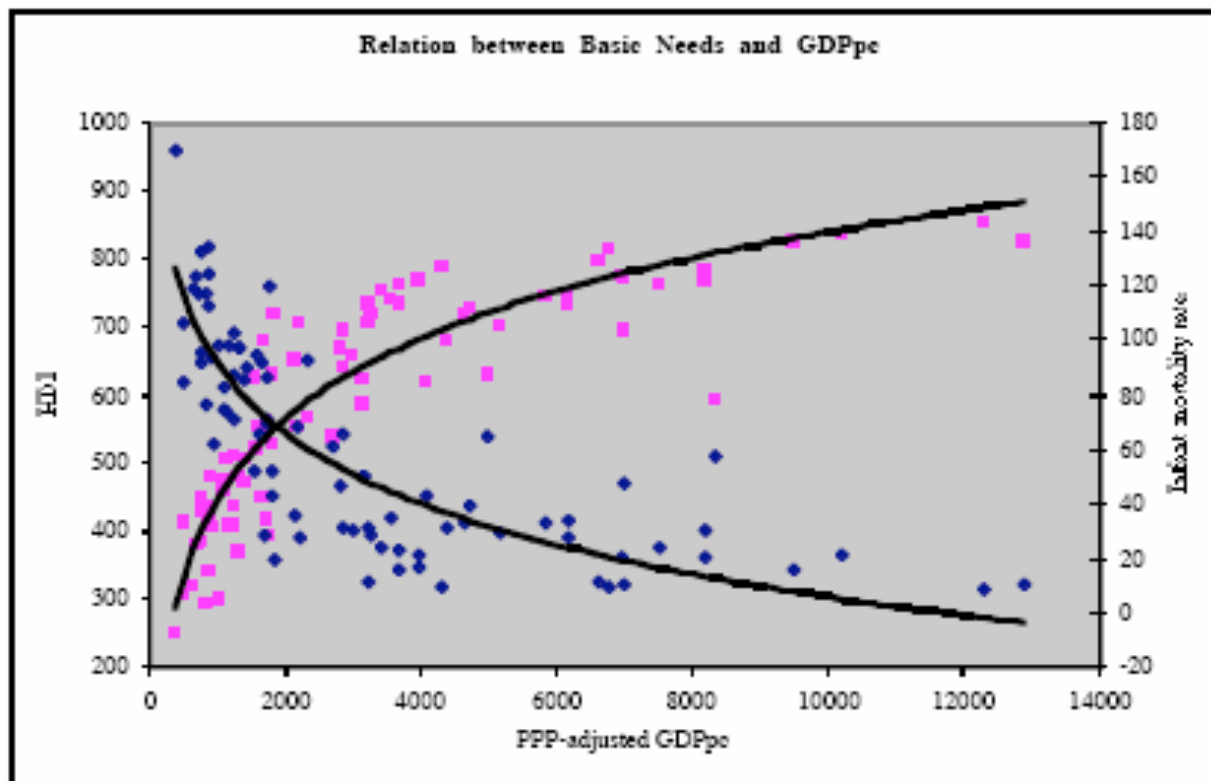
$$LDI\ 4.1(s, k) = 1 - \frac{1}{n} \sum_{i=1}^n \frac{L_{i,s,max} - L_{i,s,k}}{L_{i,s,max} - L_{i,s,min}}$$

- 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.



LDI 4.1 Continued

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



LDGs

Otte and Roland-Holst

A Living from Livestock
Pro-Poor Livestock Policy Initiative

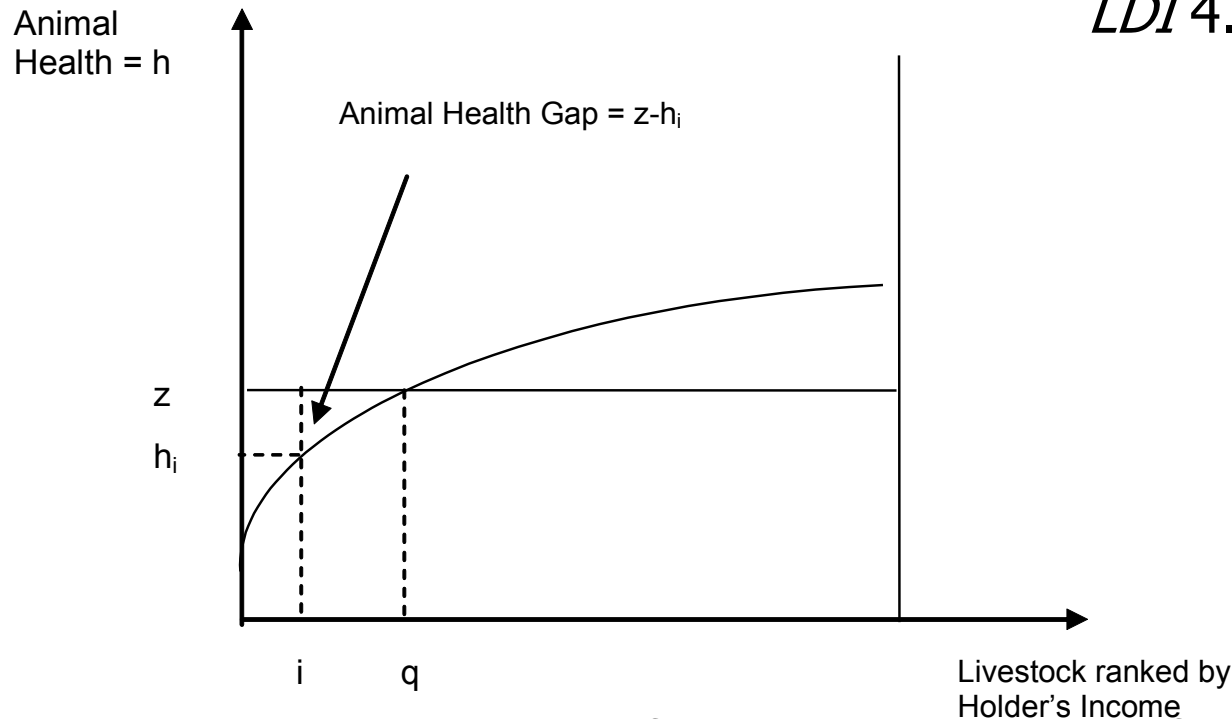


19

LDI 4.3: Animal Health Adversity

Consider this distribution of animal health by livestock holder.
 With respect to a minimum health standard z , we define

$$LDI 4.3(s) = \frac{q_s}{n_s}$$



where n_s denotes the total number of smallholder producers of livestock type s and q_s denotes the number whose stocks are below minimum average health status. This measure indicates the headcount share of animals below the minimum health standard.



LDGs

Otte and Roland-Holst

A Living from Livestock
 Pro-Poor Livestock Policy Initiative



LDI 4.4: Animal Health Gap

The animal health 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, h_i is the health of individual i , q is the number of animals below the minimum health standard in a total population of n .

Note that

$$\sum_1^q (z - h_i)$$

denotes the total animal health deficit of the poor.



LDI 4.5: Animal Health Severity

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

$$LDI4.5 = \frac{1}{n} \sum_1^q \left(\frac{z - h_i}{z} \right)^2$$

This indicator measures inequality of animal health status among the poor.



DISCUSSION



LDGs

Otte and Roland-Holst

A Living from Livestock
Pro-Poor Livestock Policy Initiative

