Addressing the Legacy of Underinvestment in Agriculture

“In the 21st century agriculture remains fundamental for poverty reduction, economic growth and environmental sustainability” (World Development Report 2008)

John E. Lamb, Agribusiness Team Leader
Agriculture and Rural Development Department
World Bank, Washington, DC
Agriculture fulfills multiple functions in development

- Trigger of growth
- Source of livelihoods
- Provider and user of environmental services
Agriculture matters because poverty and hunger are still rural.

N.B. Global extreme poverty (2002)=<$1.08 a day

- 2.5 billion people depend directly on agriculture
- 800 m smallholders
- 75% of poor are rural and the majority will be rural to about 2040
Agriculture remains the best means of impacting rural poverty & hunger

GDP growth from agriculture benefits the income of the poor 2-4 times more than GDP growth from non-agriculture (43 country study)

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Why is agriculture so powerful?
Multiplier effects in the rural economy

- Increased Agricultural Growth
  - Increased Net Farm Income
  - Payment of Rent, Labor, etc
  - Intermediate Consumption Outlays
  - Sale of Goods and Services (esp. rural)

- Decreased Poverty & Hunger
  - Payment of Rent, Labor, etc
  - Intermediate Consumption Outlays
  - Income from Rural Non-farm Enterprises
Direct and indirect impacts from sale of "tradables" + induced effects from "non-tradables" = 1.8 or more

Type 1: Direct Employment Impact
- Increased Agricultural Growth
- Increased Net Farm Income

Type 2: Indirect Employment Impacts
- Sale of Goods and Services (esp. rural)
- Intermediate Consumption Outlays
- Payment of Rent, Labor, etc

Type 3: Induced Income Impacts
- Income from Rural Non-farm Enterprises
- Decreased Poverty & Hunger

Direct and indirect impacts from sale of “tradables” + induced effects from “non-tradables” = 1.8 or more
Unfortunately governments in agriculture-based countries have not been investing enough...

..and sometimes the quality of public investment has been an issue
Meanwhile donors reduced their annual agricultural investment in the Nineties....

ODA in agriculture: value and share of total ODA, 1970-2007

Source: UNCTAD, based on OECD, OECD.Stat Extracts (accessed on 6 May 2009).
Note: Data from 1970 to 1994 include forestry and fishing, which account for roughly one quarter of total agriculture, forestry and fishing.
...more quickly than the decline in rural poverty, which meant slower progress on the MDGs.
Technological advances and area expansion together fed public sector complacency...
...understandable perhaps for maize, which experienced great increases in output...

<table>
<thead>
<tr>
<th>Country</th>
<th>Corn Area (Millions of Has.)</th>
<th>Metric Tons per Hectare</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S.</td>
<td>28.7</td>
<td>8.93</td>
</tr>
<tr>
<td>Egypt</td>
<td>0.7</td>
<td>8.54</td>
</tr>
<tr>
<td>Canada</td>
<td>1.2</td>
<td>7.80</td>
</tr>
<tr>
<td>France</td>
<td>1.7</td>
<td>7.24</td>
</tr>
<tr>
<td>Italy</td>
<td>1.2</td>
<td>6.96</td>
</tr>
<tr>
<td>Argentina</td>
<td>2.3</td>
<td>6.52</td>
</tr>
<tr>
<td>Poland</td>
<td>0.4</td>
<td>5.29</td>
</tr>
<tr>
<td>China</td>
<td>24.1</td>
<td>4.81</td>
</tr>
<tr>
<td>Hungary</td>
<td>1.1</td>
<td>4.18</td>
</tr>
<tr>
<td>Thailand</td>
<td>1.1</td>
<td>3.69</td>
</tr>
</tbody>
</table>

Source: Ganesh Kishore, Meeting the Ag Science and Technology Challenges of the 21st Century, Singapore, 2009
..yet we all should have paid more attention to declining rates of yield gain for other cereals...

**Global Rice Yield Gains**
- 1980s: 3.1% per year
- 1990s: 1.4% per year
- 2000s: 0.8% per year

**Global Wheat Yield Gains**
- 1980s: 2.9% per year
- 1990s: 0.9% per year
- 2000s: 0.4% per year
...especially the declining rates of productivity gains for cereals in developing countries
The WBG did recognize the need to revive agriculture, and urged others to do so as well.

Agriculture Action Plan (2010-12) from $4.1 B to $6.2-8.3 B in lending operations to:

1. Reduce risk and vulnerability
2. Raise agricultural productivity
3. Link farmers to markets and strengthen value chains
4. Facilitate rural non-farm income and diversification/exit
5. Render environmental services
WBG also contributes indirectly to (export-oriented) agriculture through its trade portfolio.
Aid-for-Trade includes technical support to governments & knowledge management

- **Technical Assistance**
  - 36 per year in 2008–2009
  - e.g., streamlining border crossing and customs administration in Greater Mekong Sub-region

- **Policy Analysis and Advice**
  - 73 policy notes, country studies, regional studies per year in 2008–2009
  - e.g., policy note on agriculture trade in a Ukraine-EU FTA

- **Data, Indicators and Research**
  - Datasets: *Logistics Performance Index, World Trade Indicators, new Doing Business in Agriculture*
  - e.g., seven-volume series of research on agriculture incentives and Agriculture Investment Sourcebook
Aid-for-Trade also includes financing that contributes to agricultural development

- Guarantees to leverage private finance
  - Global Trade Finance Program US$ 5.5B since 2005 in revolving fund to stimulate trade financial flows to developing countries, involving 174 banks in 77 developing countries

- Seed financing for external programs
  - Standards and Trade Development Facility
  - Trade Standards Practitioners Network

- IBRD lending and IDA credits
  - Jilin Province Agricultural Product and Safety ($142 M)
  - Ukraine Agricultural Competitiveness and Food Safety ($75 M)

- AHIF Avian and Human Influenza Facility ($500 M)
Although cross-sectoral, the Trade Facilitation Facility is especially relevant to agricultural trade.

- Multi-donor trust fund
- Managed by the World Bank
- Support concrete improvements in TF systems
- Help reduce developing countries’ trade costs
- Emphasis on Africa/low-income countries
TFF focus areas

- **Border management**: Improvement in border management in a broad sense: integration of customs, product standards, tax, rules of origin, etc.
- **Trade Infrastructure**: Improvement in the management of key trade related infrastructure, especially gateways and multimodal facilities.
- **Logistics services**: Improvement of the quality/professionalism of private logistics services, through technical/economic regulation and capacity.
- **Regional**: Regional trade facilitation including transit systems.
- **Indicators**: Performance monitoring and indicators: e.g., data on time, cost, and reliability along corridors.
- **Action plan**: Implementation of comprehensive action plan addressing all of the above.
WB Aid-for-Trade includes considerable work in the area of SPS capacity-building

- **Country-level SPS assessments**:
  - 5 countries (Zambia, Kenya, Niger, Uganda, Pakistan)
  - 1 region (Commonwealth of Independent States)

- **SPS Country Action Plans**
  - 5 countries (Vietnam, Laos, Armenia, Moldova, Tanzania)

- **Regional SPS Action Plans**
  - CIS countries

- **Guide to Assessing Investment Needs for National Agricultural Labs**
Despite our collective efforts, the overall funding gap to meet MDG goals is still substantial.

ANNUAL Investment Needs (All Developing Countries) to 2025
Baseline and "Zero Hunger" Scenario

Source: Global Perspectives Study Unit, FAO, 1 October 2009
SSA especially needs more investment in agriculture and infrastructure

- An additional $7-9 billion annually in ag R&D beyond current government allocations
- Another $0.7 billion annually for irrigation
- Perhaps $10 billion annually for transport
What about private investment flows?

FDI did rise sharply from 2003-2007, and the share for developing countries increased gradually.
..yet the distribution across regions and even within them varied widely...

Figure 2: Foreign Direct Investment in Africa and Select Regions
Source: UNCTAD FDI-Online Database
FDI in agriculture and in food and beverages: rising; the latter is larger

1990–2007, billions of dollars

In some developing and transition economies, the share of agriculture in FDI inflows is relatively high.

% of 2005–2007 inflows

Since 2003 commodity price increases sparked renewed interest in agro-investment...

Crude oil - IMF 2007, all as quoted by Rosegrant, 2008
US used 80 million tons of corn (24%) for ethanol in 2007 and around 100 million in 2008 (31%)

In effect, 75% of increase in global corn production from 2004-07 went for ethanol in US

Biodiesel used about 9 million tons of vegetable oils in 2008 (7% of global supplies)

Brazil used about 55% of sugar cane for ethanol, but sugar exports remained adequate to prevent major price increases...
...but also reflected more recognition of natural constraints in terms of growing conditions,

40% too dry         21% too wet          21% too cold
6% too rough terrain               2% unsuitable soils

Source Robert L. Thompson, presentation at Global Harvest Initiative, 2009
...man-made problems like soil degradation,...
...and excessive water consumption...

Projected Global Water Scarcity, 2025

- **Physical water scarcity:** More than 75% of river flows are allocated to agriculture, industries, or domestic purposes. This definition of scarcity — relating water availability to water demand — implies that dry areas are not necessarily water-scarce.
- **Approaching physical water scarcity:** More than 60% of river flows are allocated. These basins will experience physical water scarcity in the near future.
- **Economic water scarcity:** Water resources are abundant relative to water use, with less than 25% of water from rivers withdrawn for human purposes, but malnutrition exists.
- **Little or no water scarcity:** Abundant water resources relative to use. Less than 25% of water from rivers is withdrawn for human purposes.
- **Not estimated**

Source: International Water Management Institute
Agricultural uses account for almost 70% of global water withdrawals.

Irrigation is the largest use within agriculture.

Water withdrawals for agriculture to grow 11% by 2050.

The top 5 geographic units account for 60% of the total irrigated land area of 2.77 million km²:

- India 558,080
- China 545,960
- USA 223,850
- Pakistan 182,300
- EU 168,050
There is also rising awareness of climate change impacts and the need for adaptation

- Greater weather variability with more extreme events
- Less precipitation and more groundwater depletion in some areas, with longer droughts
- Excess rainfall in other areas, that often lack catchment facilities
- Increased flooding and loss of coastal areas
- Reduction in crop yields and agriculture productivity in some producing areas
- Increased spread/longer cycles of pests/diseases
- Lower livestock productivity due to stress, and higher costs as feed and energy prices rise
- Lower labor productivity as daytime temperatures rise and water becomes scarce
Some argue that the planet may be facing a long-term, perhaps chronic problem...

- By 2050 food demand will rise 70% to feed 9.3 B people (versus 6.7 B)
- We will need to double global cereal output as dietary upgrading occurs
- Yet paradoxically, most hungry people live in countries that already have surplus food production

Source: various FAO publications, 2009
...the solution to which is not clear

- About 10% of cereal production growth may come from area expansion (from the current level of 3.75 billion hectares)
- Maybe 20% from intensification based on irrigation, cultural practices, multiple cropping, etc
- So the remaining 70% must come from innovation

Source: FAO, 2009
One key to the future of agriculture is biotechnology, which has become a major driver of growth. Biotechnology offers several advantages:

- **Breeding**
  - \( \uparrow \) productivity (complex)
  - \( \uparrow \) reliability
  - \( \uparrow \) quality
  - Integration of native and biotech traits

- **Biotech**
  - Pest protection
  - Stress alleviation
  - Superior nutrient use
  - Enhanced nutrient density
  - Elevated safety
  - Processor friendly

- **Chemistry**
  - Pest control
  - Nutrition
  - Growth regulators

Nearly 150 M acres not in corn cultivation!
...another key is agro-enterprise investment, which can bring many benefits if done right...

- Capital deepening and broadening
- Better production, post-harvest handling, processing technology
- Better product quality
- BOP value propositions including food fortification
- Creation or stimulation of a local market
- Modern management know-how
- Investment in collateral businesses
- Cross-cutting productive infrastructure
...and export-oriented agro-investment can bring still more benefits...

✓ Introduction of scale and other economies
✓ Better quality assurance systems
✓ Adherence to WTO SPS commitments
✓ Compliance with private food safety, environmental and social requirements
✓ Linkages to larger, more diverse markets, coupled with traceability
✓ Value –addition through innovation in products and processes as well as branding
✓ Improved social services in rural areas not easily served by government
Yet the recent upsurge in agro-investment in developing countries has been controversial...

Le « Néocolonialisme Agraire »
Gagne du Terrain dans le Monde

Le Monde.fr
23 September 2008

“Farmland Scramble”
19 November 2009

“Is There Such a Thing as Agro-Imperialism?”
The New York Times
16 November 2009

“Conflicts over Natural Resources will Grow”

The Economist
13 November 2009


“Global Warming is Real” blog
13 November 2009
...so it is critical that agro-enterprise stay faithful to its Mission, which is...

To **responsibly** and **sustainably** grow, pack, process, and deliver consistently to consumers and other users...

...food, feed, fiber, and biomass in sufficient quantity

...that is safe to consume, compliant with applicable regulations, and in conformity with buyer needs and expectations...

...at prices that are viable over time for both seller and buyer
International agencies are framing an appropriate response to pressures on land....

Government of Japan

UNCTAD

Promoting Responsible International Investment in Agriculture
Roundtable concurrent with the 64th United Nations General Assembly

Chair’s Summary
...so far seven key principles for Responsible Agro-investment have emerged, centering on ...

1. Land and Resource Rights
2. Food Security
3. Transparency, Good Governance and Enabling Environment
4. Consultation and Participation
5. Economic Viability and Responsible Investor Behavior
6. Social Sustainability
7. Environmental Sustainability
...yet to operationalize these principles a broader consensus is needed...
...that reflects better empirical evidence, so a WB study is underway in 21 countries

- To identify key drivers and aggregate trends
  - Global demand, agro-ecological potential, land values
  - Aggregate investment determinants

- To assess country level evidence in 2 ways
  - I: Quantification & Context
    • Inventory based on official data
    • Policy, legal, institutional framework
  - II (subset): Actual implementation
    • Social, environmental impact assessments

- To help address the phenomenon
  - Country level: Link to Bank analytical & operational work
  - Global community: Feed into voluntary guidelines on tenure of land and guidelines on responsible agroinvestment

...the results of which will be presented in late April at the WBG Annual Land Conference
Also in April a Knowledge Exchange platform for RAI will be introduced that will serve as:

- A joint repository for research, analytical work, principles, guidance, etc
- A one-stop shop for information that practitioners and stakeholders may need
- A source of practical tools on all relevant topics
- A virtual meeting place for practitioners
- A forum for exchanging views on hot topics, lessons learned, and best practices
- A conduit for e-learning
- A gateway to other resources
All part of joint process by the development community to promote and facilitate RAI

- Action Research
- Shared Principles
  - Analytical Matrix
  - Definition of Issues Arising
  - Characterization of Actors & Deals
  - Identification of Sample Frame
- Guidelines
  - Guidelines for Land and RAI for WBG Staff
  - RAI Guideposts for Investors and Policy-makers
- Tools for Practitioners
  - Guidelines for Governance of Tenure of Land and other Natural Resources*
  - Industry-led Codes of Practice, by Investor Type**
- Voluntary Codes
  - Existing and new tools on all aspects of this field
- Performance Standards
- Conformity Assessment
- Monitoring System

*process led by FAO & IFAD
**process led by WB and UNCTAD
Annex 1:
Detailed slides for each RAI Principle
Principle 1: Land Rights

*Existing rights to land and natural resources are recognized and respected.*

This depends on:

(i) Proper identification of all rights holders  
(ii) Legal recognition demarcation and registration/recording  
(iii) Direct and informed negotiation with land holders/users  
(iv) Fair and prompt payment for all acquired rights  
(v) Independent avenues for resolving disputes or grievances
Principle 2: Food Security

*Investments do not jeopardize food security, but rather strengthen it.*

Protecting food security requires that governments and investors:

(i) Ensure at least equivalent access to food by affected populations
(ii) Expand opportunities for outgrower/off-farm employment
(iii) Adopt strategies to prevent food shortages/reduce risks
(iv) Consider impacts on national food security in design/approval
Principle 3: Transparency

Processes for accessing land and making associated investments are transparent, monitored, and ensure accountability by all stakeholders.

Public and private sector policies, rules, and practices should ensure that:

(i) All relevant information is publicly available
(ii) Institutions have capacity to operate efficiently and transparently, practice good governance, & are audited
(iii) An independent system to monitor progress towards a better investment climate is in place
Principle 4: Consultation

All those materially affected are consulted and agreements from consultations are recorded and enforced.

This requires clarity on:

(i) Procedural requirements
(ii) The character of agreements reached in such consultations
(iii) How the agreements can be enforced
Principle 5: Responsible Investing

Projects are viable economically, respect the rule of law, reflect industry best practice, and result in durable shared value.

All investors (whether private or government-linked) should:

(i) Comply with laws, international treaties, best practices
(ii) Adhere to global best practices
(iii) Aim to increase shareholder value & benefit host area

Governments must also assess economic viability in a cost-effective way and integrate major projects into broader development strategies.
**Principle 6: Social Sustainability**

*Investments generate desirable social and distributional impacts and do not increase vulnerability.*

Social sustainability can be enhanced if governments and investors:

1. Identify social issues/risks—and strategies to mitigate these and increase social benefits—during preparation
2. Consider interests of vulnerable groups & women
3. Include provision of local public goods in project design
Principle 7: Environmental Sustainability

*Environmental impacts due to a project are quantified and measures taken to encourage sustainable resource use, while minimizing the risk/magnitude of negative impacts and mitigating them.*

It is crucial that investors and government collaborate to:

(i) Conduct independent environmental impact analysis prior to approval

(ii) Promote increasing productivity on already used areas

(iii) Use production systems that enhances resource efficiency

(iv) Ensure that good practices are followed

(v) Encourage beneficial ecosystem services

(vi) Address negative impacts via env. management plans.