

A photograph of a lush cornfield with tall, green stalks and leaves reaching towards a clear blue sky. The plants are densely packed, and the lighting is bright, suggesting a sunny day. The text is overlaid on the top half of the image.

A New Green Revolution?

or

African Agroecological Alternatives

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The Green Revolution: An industrial approach to hunger

- Initiated by Ford & Rockefeller Foundations
- Expansion of industrial agriculture into the Global South
- 1960-90 “high-yielding” hybrid varieties of rice, wheat and corn
- Package of inputs: high input hybrid seeds, fertilizer, pesticide, herbicides, irrigation
- Government programs: Credit, research & extension

Hunger is not due to a lack of food, but rather because the hungry are too poor to buy the food that is available.

1970-1990:

16 percent
drop in
hungry
people-from
42 million to
786 million,

But, eliminate China (where # of hungry dropped from 406 million to 189 million) :

	Increase in Food Per Capita	Increase in # Hungry People
World (minus China)	11%	>11% (536 to 597 million)
South America	8%	19%
South Asia	9%	9%

India, home of the GR, went from food importer to exporter but 200 million went hungry in 1995 (while country exported \$625 million in grain. Current 26-million ton grain surplus cold feed 320 million hungry but does not. (Sharma 2000)

The Green Revolution's Global Winners

- \$10.2 billion annually to U.S. maize & soy production
- Foreign germplasm is 58% U.S. Wheat crop
- \$3.4 billion cash contribution to U.S. farmers from 1970-1996
- \$13.4 billion to U.S. processors
- 1/3 annual flow of tropical seeds from CIMMYT ends up with transnationals like Cargill & Pioneer

(Ecologist, RAFI, IFPRI, 1996)

The Losers

- Soil eroding 2/3 agricultural land worldwide
- Commercial agriculture draws 70% world's water
- Salinification on 70 million acres
- “Dead Zone” in Gulf of Mexico (size of Israel) +150 more
- Pesticide poisoning harms 3 million farmers & laborers yearly
- From being self-sufficient in food, Mexico now imports 42% of its corn, 78% rice, 56% wheat
- 500,000 Mexican farmers/yr migrate to the United States
- 150,000 farmer suicides in India since 1993
- 15,000 farms fold in U.S. each year

The Green Revolution in Mesoamérica

S. México

Belize

Guatemala

Honduras

El Salvador

Nicaragua

Costa Rica

Panamá

64 million (36% earn < US\$1/day)

43-57% rural

40% active work force in Agriculture

(17% de GNP)

A Successful Green Revolution?:

- **Fertilizer use increases from 80 to 120/kg-ha. (1979-97)**
(CIECA, 2001)
- **Grain production increases by 45million t/yr**
(CIMMYT, 1992)
- **Average yields dropped 50% (1980-96)**
(CIECA, 2001)
- **Per capita production constant (expansion of the agricultural frontier)**
(CIMMYT, 1992)
- **1/2 tropical forests lost; 2-3%/yr, CO2 emmissions increase X 1.4**
(Utting,1996;Kaimowitz, 1996)

AGRA—the Alliance for a Green Revolution in Africa has set out to bring the Green Revolution that “bypassed” Africa



Biotech lab, National Agricultural Research Organization, Uganda.

\$150 million from Bill and Melinda Gates, Rockefeller Foundations

Did the Green Revolution “bypass” Africa?

- Over last 25 years CGIAR spent 40-45% of its \$350-million/yr budget in Africa (World Bank 2004)
- Half the wheat planted in Africa new GR varieties (Oram & Hojjati 1995)
- Fertilizer increased only from 20kg to 22kg/ha in Africa; 8kg to 9g in Sub-Sahara
- Low adoption rates hybrids
- Dropping rate of production per capita

Or did it Fail?

The Green Revolution's Contradictory Paradigm of Scarcity

Problem: people in Africa go hungry because they lack:

- Fertile soils
- Modern technology
- Quality seeds
- Irrigation
- Roads
- Markets
- Information & know-how

Solution:

Import industrial countries' economic and technological model, i.e. "the technologies of addition" (seeds & external inputs, expertise)

- But...
 - Mexico, Punjab, Philippines were dynamic, high-producing regions
 - 11 Sub-Saharan Countries have reduced hunger to less than 20%
 - Ghana reduced # undernourished by $\frac{1}{2}$ (surpassing WFS goals for 2015)
 - Africa home to 1/3 world's mineral reserves & top 5 exporters of agricultural products

Why AGRA will not solve the problems of Poverty and Hunger in Africa

1. The Green Revolution deepens the divide between rich and poor farmers:
 1. Review of all research reports on GR (300) over 30 years 80% found inequity *increased* (Freebairn 1995).
2. Over time GR technologies degrade tropical agro-ecosystems and expose already vulnerable farmers to increased environmental risk:
 - GR “high feeding varieties” mine fragile soils of natural fertility resulting in lower yields over time (Gliessman1998).
 - In Punjab 80% groundwater depleted or critical (Sengupta 2006).
3. The GR leads to loss of agro-biodiversity, the basis for smallholder livelihood security and regional environmental sustainability.
 1. Loss of 7,000 traditional rice varieties in Bangladesh, 300 traditional varieties in Philippines

- 5. Without addressing structural inequities in the market and political systems, approaches relying on high input technologies fail:**
 - Rural Africa has been devastated by 25 years of structural adjustment and corporate globalization**

- 6. The private sector alone will not solve the problems of production, marketing and distribution**

- 7. Introduction of genetic engineering—the driving force behind the AGRA initiative—and the “one pest, one gene” approach will make smallholder systems more environmentally vulnerable in Sub-Saharan Africa.**
 - spread of transgenes lead to herbicide-resistant weeds**
 - reduction of fitness of non-target organisms (especially local varieties)**
 - rapid evolution of resistance of insect pests to Bt**
 - accumulation of Bt toxin in soil**
 - contamination of non-GE varieties**

AGRA—Campaign for the international agricultural industry



(Adapted from Daño, 2007)

The projects behind AGRA

- 1. Syngenta Foundation:** \$12 million to Kenyan Agricultural Research Institute for GE maize;
- 2. Jeffrey Sachs' Earth Institute:** \$18 million 12 model "Millennium villages" (10% for agriculture);
- 3. The CGIAR:** \$11.4 million, WARDA—African Rice Center (rice); \$46.3 million IITA—The International Institute of Tropical Agriculture (cassava, maize, plantains, root crops);
- 4. World Bank: Africa Action Plan** \$300 million to \$3.0 billion in partnership with other donors by 2010
- 5. African Development Bank-** US\$ 333.2 million for agriculture in 2006;
- 6. USAID:** Agricultural Biotechnology Support Project (ABSP) II; Program for Biosafety Systems (PBS); Biofortified Crops to Combat Micronutrient Deficiency: Biosafety: Technology Development: (private sector)
- 7. African Agricultural Technology Foundation** (Kenya) Rockefeller and USAID, brokers royalty free transfers of proprietary technologies to African public and private institutions.
- 8. International Service Acquisition of Agri-biotech Applications** (Nairobi). a broker for private northern GE companies funded by Rockefeller, northern corporations and bilateral development agencies.

AGRA ignores the many successful agroecological and non-corporate approaches to agricultural development that have grown in the wake of the Green revolution's failures.

- Thousands agroecological examples of yield increases, resource conservation and improved livelihoods are at work throughout the developing world.
 - Survey of 45 sustainable agriculture projects in 17 African countries covering 730,000 households showed improvements in food production and household food security
 - In 95% of cases cereal yields improved by 50-100%
- (Pretty 2005)

SUSTAINABLE AGRICULTURE AND RESISTANCE



Transforming Food Production in Cuba

FERNANDO FUMES ■
LUIS GARCÍA ■
MARTIN BORGUE ■
NILDA PÉREZ ■
PETER ROBERT ■

CUBA

- Doubled food production & halved industrial inputs
- Guaranteed market for all producers
- Transition to chemical-free agriculture 1991
- 100,000 farmer-to-farmer promoters in 8 years

(Living Planet 2006, WWF & Global Footprint Network)

CAMPESINO & CAMPESINO

Voces from Latin America's
FARMER TO FARMER MOVEMENT
for Sustainable Agriculture



Eric Holt-Giménez

Farmer to Farmer

Mesoamerica's farmer-led movement
for sustainable agriculture

- **Peasant response to the Green Revolution**
- **30 years in Mesoamérica**
- **CSO/NGOs support**
- **Over 10,000 promotores**
- **500,000 families**
- **Velvet bean, cover crops, agrobiodiversity, native seed improvement, soil and water conservation, watershed management, reforestation, IPM, organic agriculture, direct marketing**

African Agroecological Alternatives

- 100 Projects 9 million farmers, 29 million hectares: Uganda (20); Kenya (17) Tanzania (1); Malawi (6); Burkina Faso & Ethiopia (5)
- 93% average increase in per hectare food production (mostly associated with agro-biodiversity)
- **PELUM**--Participatory Ecological land Use Management: 160 CSOs in Botswana, Kenya, Lesotho, Malawi, Rwanda, South Africa, Tanzania, Uganda, Zambia and Zimbabwe.

African Agroecological Alternatives

- In situ conservation sorghum biodiversity (Ethiopia)
- Soil & water management in Sahel (Burkina Faso)
- Bio-control of gramineous stem borer (Kenya)
- Short-term improved fallows (Kenya)
- Tithonia weed & rock phosphate (Kenya)
- Parklands agroforestry system (Sahel)
- 3 million has. Farmer-managed natural regeneration (Burkina Faso & Niger)
- Push-pull habitat management of Striga

Organic Agriculture



COUNTRY	YEAR	AREA	%	# FARMS
Ghana	2005	17,2611	0.1 2%	2,000
Kenya	2005	182,586	0.70 %	15,815
Uganda	2004	182,000	1.5 %	40,000

The AGRA Campaign prevents peasant farmers from determining their own agricultural development

There is an urgent need for:

- **Information-** Collection and distribution of information regarding the new Green Revolution and AGRA in the U.S. and Africa;
- **Public Debate-** Africa, U.S., Europe between AGRA/GR and African Agroecological Alternatives;
- **Transparency, Monitoring & Accountability-** of AGRA/GR

Campaign for African Agroecological Alternatives



- Food Sovereignty
- Farmer-driven alternatives
- Socially-driven policies
- Transnational Solidarity