IDRC - Davos 2008

International Disaster and Risk Conference

Global Food Insecurity: A Rationale for National Grain Reserves in Disaster Contingency Planning

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The Changing Pattern of World Grain Trade

Region	1934-38	1948-52	1960	1970	1976
North America	+5	+23	+39	+56	+94
Latin America	+9	+1	0	+4	-3
Western Europe	-24	-22	-25	-30	-17
Eastern Europe and USSR	+5		0	+1	-25
Africa	+1	0	-2	-5	-10
Asia	+2	-6	-17	-34	-47
Australia and New Zealand	+3	+3	+6	+12	+8

After Schneider (1976:99). Plus sign indicates net grain exports; minus sign indicates net grain imports (in red). Based on data from the U.S. Department of Agriculture, compiled by Lester Brown.

AT PRESENT,

THERE ARE 106 NATIONS THAT DEPEND ON PERMANENT FOOD GRAIN IMORTS

AND ONLY 5 NATIONS THAT PRODUCE A MAJOR FOOD GRAIN SURPLUS FOR SALE ON THE WORLD MARKET

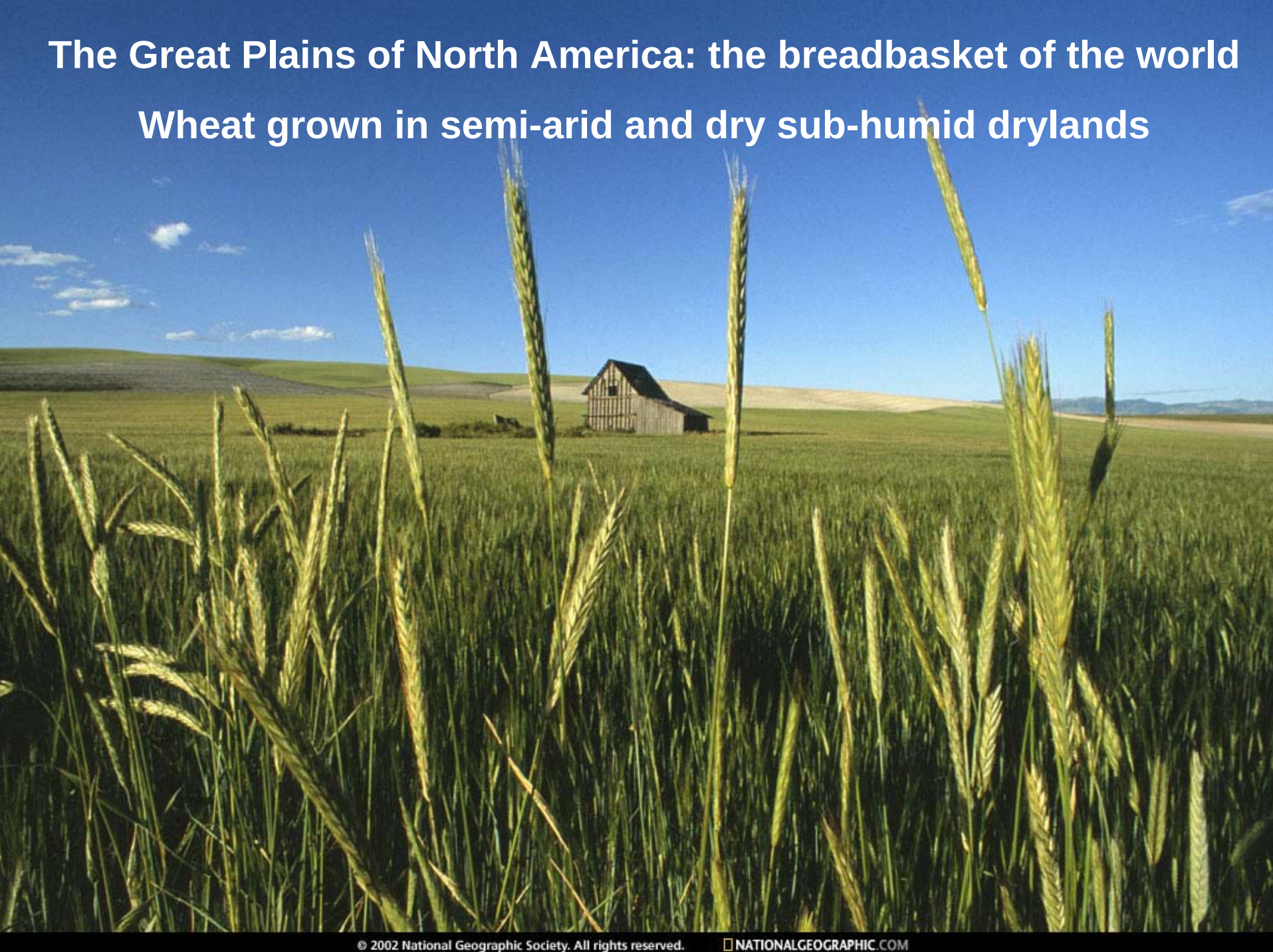
PERMANENT EXPORTERS

- **Only 5** countries produce a major surplus of grains for sale on the world market:

Country	**2001 Cereal Exports (tonnes)**
USA	80,032,968
France	25,783,703
Argentina	22,727,832
Australia	18,411,031
Canada	15,866,721

The Great Plains of North America: the breadbasket of the world

Wheat grown in semi-arid and dry sub-humid drylands



PERMANENT IMPORTERS

- **106** countries require food grain imports

Top Grain Importing Countries (kg/capita)

1	Cyprus	11	South Korea
2	UAE	12	Algeria
3	Israel	13	Kuwait
4	Libya	14	Saudi Arabia
5	Netherlands	15	Jamaica
6	Tunisia	16	Lebanon
7	Portugal	17	Jordan
8	Belgium	18	Spain
9	Iceland	19	Malaysia
10	Djibouti	20	Japan

During the 1950s and 1960s, the United States and Canada established large food grain reserves.

This government policy proved important from a global perspective, as periods of food shortages could be easily buffered, while food prices remained stable.

However, economists advocated that the keeping of financial reserves to buy food is cheaper than the actual keeping of food grains in silos.

Thus the policy of having national grain reserves in North America disappeared in the early 1970s

(Hopkins and Puchala, 1980).

The basic world food structure at present should be diagnosed as unbalanced and risky, as most eggs for sale have to come from a very few baskets, mainly the U.S.A, whilst long-term reserves do not exist.

It all depends on annual production and carry-over stocks without any substantial grain reserves

The question is whether the
average volume of food grains for sale on the world market
is sufficient to buffer catastrophic yield reductions in the world, due to disasters, for example severe multi-annual drought in China or in India ?

The unpleasant answer is no

(Bruins and Bu, 2006, Journal of Contingencies and Crisis Management)

Volume 14, Number 3, September 2006

JOURNAL OF CONTINGENCIES AND CRISIS MANAGEMENT

Food Security in China and Contingency Planning: the Significance of Grain Reserves

Hendrik J. Bruins* and Fengxian Bu**

China is inhabited by *ca* 20 percent of the world population, but has only 7 percent of global arable land and only 6.6 percent of global freshwater resources. These unfavourable relationships between population size and the basic resources for food production – soil and water – require careful food security and contingency planning by the Chinese authorities. The country

The total average volume of world grain trade (wheat, rice, maize) in the period 2001-2005 has been ca 240 million ton per year (USDA, 2006)

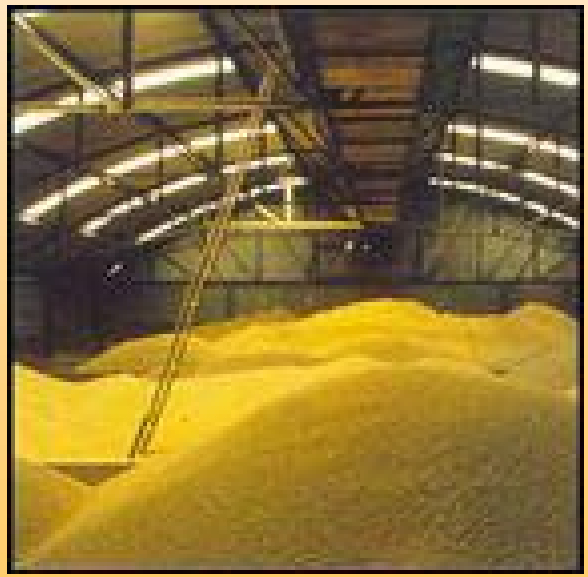
If China or India would be hit by severe drought and would loose about 20-30% of their local production, they would need to purchase 100 to 150 million tons of grains, *ca* 40-60% of total world grain trade.

It is clear that such an amount would not be available and catastrophic price rises would have a global impact, resulting in food shortages and famine

MONEY RESERVES

OR

FOOD GRAIN RESERVES ?



The total annual volume of food grains and carry-over stocks is too small to buffer a major shortfall in world food production, which could result from severe drought or other hazards and disasters.

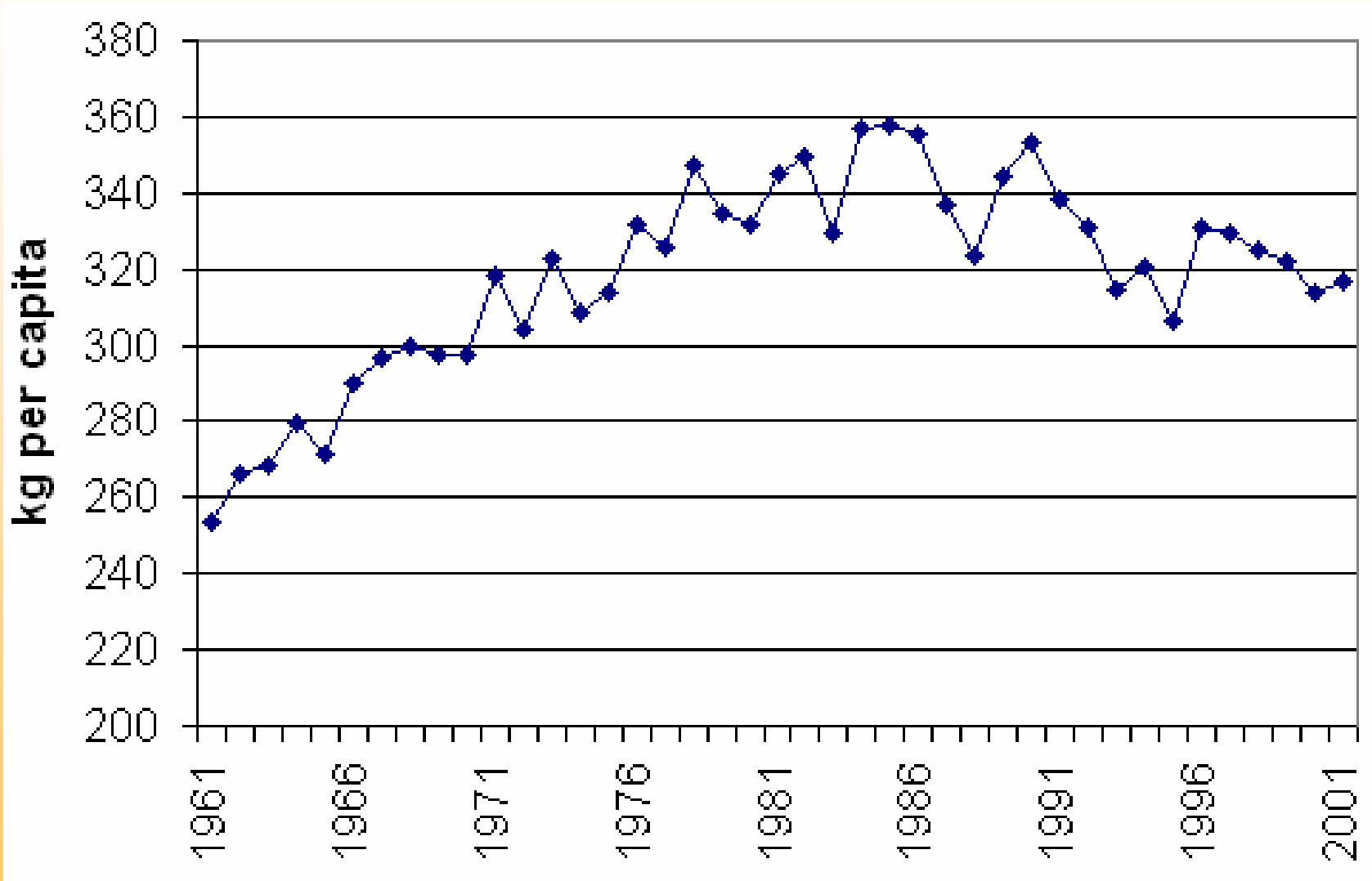
Hence financial reserves do not guarantee secure food grains purchases.

The production of the most essential N-containing fertilizers requires a large amount of energy to convert nitrogen from the air into a chemical structure that is soluble in water and can be taken up by the plant roots.

As fossil fuel prices have risen to high levels, the price of chemical fertilizers is becoming ever more expensive.

A drop in fertilizer use would lead to lower yields, which could incrementally lead to significant drops in global food grain production.

Global production per capita of the six cereal crops (1961-2001)
Based on data from FAOSTAT (2004)



The years 2006, 2007 and 2008 already witnessed drastic price increases of cereal grains, due to yield reductions, higher transport costs and diversion of cereals from food to fuel purposes.

Many food items have become more expensive, including bread and pasta, rice, and also dairy products, meat and eggs, as the animal feeding costs have risen simultaneously.

Global stocks of cereal grains have fallen and food insecurity in the world has become significantly more alarming.

ANCIENT HISTORICAL EXAMPLE IN EGYPT

Reaping Sowing

THE GENESIS STRATEGY (Schneider, 1976)

Genesis 41:25-36 "Then Joseph said to Pharaoh, …

Let Pharaoh do *this,* and let him appoint officers over the land, to collect one-fifth *of the produce* of the land of Egypt in the seven plentiful years.
And let them gather all the food of those good years that are coming, and store up grain under the authority of Pharaoh, and let them keep food in the cities.

Then that food shall be as a reserve for the land for the seven years of famine which shall be in the land of Egypt, that the land may not perish during the famine.

Indeed the only robust contingency planning seems the establishment and maintenance of food-grain reserves on a national level

in order to have at least some means to manage a major global food crisis or emergency.

Contingency planning to mitigate disastrous reductions in food grains availability on the world market requires the establishment of **significant grain reserves on a national and regional scale.**

The government and private sector should cooperate to establish such grain reserves.