



## INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

*sustainable solutions for ending hunger and poverty*

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### **The Food Crisis and its Implications for Agricultural Development**

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Testimony presented to the

Subcommittee on Specialty Crops, Rural Development, and Foreign Agriculture

House Agriculture Committee

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### **Background**

Since January 2006, the prices of corn, wheat, and soybeans on world markets have more than doubled, and rice prices have tripled. These price increases have contributed to 5.1% food inflation in the United States<sup>1</sup>, but the impact on consumers in developing countries is much greater. This is because food represents a much larger proportion of consumer spending in developing countries (40-60%) than in the United States (14%) and other industrialized countries. In addition, staple foods like rice, corn, and wheat account for a larger share of the food budget in developing countries than in the industrialized countries. The result is that many families in developing countries face serious hardships. While farmers with net grain sales in developing countries benefit from the higher prices, the urban poor and many farm households are net buyers, so the overall impact is to increase poverty and hunger in most countries<sup>2</sup>. The food riots that have broken out in more than a dozen countries are just one manifestation of the food crisis.

### **Causes of the food crisis**

These price hikes have been catalyzed by various factors including the rising cost of oil, biofuel subsidies in the US and Europe, the depreciation of the US dollar, export restrictions by some countries, and the imbalance between rapid growth in global income and slow yield growth. Speculation on futures markets is also blamed for the increases. The relative importance of each factor is still debated among economists, but we can draw some preliminary conclusions.

*High cost of oil:* The price of oil has risen from around US\$ 30/barrel in 2003 to over US\$ 140/barrel this month. This increases food prices by raising the cost of agricultural inputs (particularly fertilizer), irrigation, mechanized operations, and transportation. The impact is greater where agriculture is heavily mechanized, such as the industrialized countries, and where fertilizers are used intensively, including parts of Asia. In addition to increasing the cost of crop production, high oil prices make biofuels more profitable, diverting corn and oilseeds from food and feed markets. Currently, almost 30% of U.S. corn area is used to supply ethanol processors. Studies by the Council of Economic Advisors and by IFPRI estimate that the growth of biofuel production explains about 33-39% of the rise in corn prices<sup>3</sup>. By displacing acreage in wheat and

<sup>1</sup> This refers to food inflation over the period May 2007 to May 2008. Bureau of Labor Statistics. 2008. "CPI Fact Sheet" (<http://www.bls.gov/news.release/pdf/cpi.pdf>).

<sup>2</sup> Ivanic, M. and W. Martin. 2008. "Implications of higher global food prices for poverty in low-income countries." Working Paper Series No. 4594. The World Bank. Washington, DC.

<sup>3</sup> Lazear, E. 2008. "Response to the Global Food Crisis." Testimony for the Senate Foreign Relations Committee on May 14, 2008 (<http://www.whitehouse.gov/cea/lazear20080514.html>). Rosegrant, M. 2008.

soybeans, the growth in corn production for ethanol has also contributed to tight supplies and price increases in those markets as well.

*Biofuels subsidies:* Ethanol production in the U.S. is supported by biofuel mandates, a tax on imported ethanol, and a direct subsidy<sup>4</sup>. Although some ethanol production would be profitable at current oil prices without these policies, the import tariff and subsidies raise ethanol prices and production above what they would otherwise be, thus further increasing corn prices. One study estimates that ethanol support policies alone account for one-quarter of the increase in corn prices<sup>5</sup>.

*Depreciation of the US dollar:* The dollar has fallen against the euro and other major currencies, causing the dollar-denominated price of good to rise. If commodity prices had remained constant in euro terms since January 2006, the dollar prices would have increased 31%. This implies that depreciation of the US dollar explains 15-27% of the increase in dollar-denominated food prices over this period.

*Export restrictions:* In late 2007 and early 2008, a number of exporters responded to rising food prices by restricting grain exports to keep prices low within their countries. Rice exports have been restricted by Vietnam, India, and Egypt, among others, while wheat exports have been limited by Argentina, Russia, Kazakhstan, and the Ukraine (although the Ukraine has since lifted its ban). By further limiting traded supplies, these restrictions have played a major role in the high price of rice and, to a lesser degree, wheat<sup>6</sup>.

*Long-term supply-demand imbalance:* However, these short-term “headline” causes would not have had the same dramatic effect on world markets if we had not experienced a 5-10 year period of disequilibrium, in which the growth in cereal demand outpaced the growth in cereal production. Cereal demand has been growing at 2% per year, thanks to rapid income growth in China, India, and, more recently, sub-Saharan Africa. As incomes rise, people diversify their diet and consume more meat and other animal products, increasing the demand for feed, particularly corn. Meanwhile, yield growth in these cereals has declined from 2-5% in the 1970s and 1980s to 1-2% since the mid-1990s<sup>7</sup>. This decline can be attributed to the declining public investment in agricultural research and development, particularly in staple grains. This imbalance between grain supply and demand has been reflected in declining global stocks since 2000. The stock-to-use ratio for grains is 13%, which is the lowest ratio since 1960<sup>8</sup>.

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“Biofuels and Grain Prices: Impacts and Policy Responses.” Testimony for the U.S. Senate Committee on Homeland Security and Governmental Affairs. May 7, 2008.

<sup>4</sup> The biofuels mandate establishes a minimum level of biofuel production each year, set at 9 billion gallons in 2008. The tariff on imported ethanol is 54¢/gallon plus 2.5%. The subsidy is in the form of a tax credit worth 51¢/gallon.

<sup>5</sup> Babcock, B. 2008. “Statement before the U.S. Senate Committee on Homeland Security and Governmental Affairs. Hearing on Fuel Subsidies and Impact on Food Prices, May 7, 2008. Babcock estimates that removing all ethanol subsidies would reduce corn prices 13% from their current level. This represents roughly one-quarter of the increase over the past year.

<sup>6</sup> Von Braun, J. 2008. “High Food Prices: The What, Who, and How of Proposed Policy Actions.” Policy Brief. International Food Policy Research Institute. Washington, DC.

(<http://www.ifpri.org/PUBS/ib/foodprices.asp>).

<sup>7</sup> World Bank. 2008. *World Development Report 2008: Agriculture for Development*. The World Bank. Washington, DC (p 67).

<sup>8</sup> Schnepf, R. 2008. “High Agricultural Commodity Prices: What Are the Issues?” Report RL34474. Congressional Research Service. Washington, DC.

([http://assets.opencrs.com/rpts/RL34474\\_20080529.pdf](http://assets.opencrs.com/rpts/RL34474_20080529.pdf)).

*Speculation:* Investors, looking for high returns, have poured money into commodities futures markets in expectation of continued price increases, leading many observers to blame them for contributing to the price increases. Some economists are skeptical, however, arguing that these transactions involve offsetting purchases and sales, representing a “bet” on the future price without directly affecting the supply or demand of the commodity<sup>9</sup>. Rising futures prices could *indirectly* affect the price if they persuade farmers and processors that the price will rise, inducing them to increase stocks. However, as discussed above, grain stocks have been declining in recent years, not growing. Furthermore, prices have increased just as rapidly in commodities for which speculators do not have easy access, such as edible beans, durum wheat, rice, and fluid milk<sup>10</sup>. To date, the evidence that speculation contributes to higher prices is weak.

### **Implications for agricultural development**

Development assistance needs to respond to the food crisis, taking into account both the opportunities and challenges presented by the high food prices. The most obvious implication of the food crisis is for more investment in agricultural development. In real terms, donor support for agriculture is less than half of what it was in 1982 in real terms. The United States Agency for International Development needs to boost its aid to agriculture, but it currently has difficulty doing so due to the large number of earmarks in the foreign assistance budget.

In addition, the food crisis has implications for the types of agricultural development assistance that are needed. I focus on four areas which are believed to present opportunities for high returns in the context of the food crisis: 1) emergency assistance and social protection, 2) investment in agricultural research and development, 3) improvement of agricultural marketing systems, and 4) capacity development.

*Emergency assistance and social protection:* The food crisis calls for a revised strategy for emergency assistance. First, there is an urgent need to expand the resources available for food aid and other forms of emergency assistance. The food crisis is increasing the number of people in need of this assistance: according to the USDA, the number of hungry people increased by 122 million (14%) in 2007<sup>11</sup>. At the same time, the crisis has dramatically eroded the purchasing power of the budget of the World Food Programme (WFP). A large contribution from Saudi Arabia has helped WFP meet its target for 2008, but a more institutionalized system for funding emergency assistance is needed rather than the case-by-case allocations that are currently used<sup>12</sup>.

Second, there is a need to make better use of existing food aid budgets. While the European Union, Canada, and other countries have taken steps to untie their food aid, US food aid is still required to consist of food grown in the United States and transported on US ships. This policy

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<sup>9</sup> Sanders, D., S. Irwin, and R. Merrin. 2008. “The Adequacy of Speculation in Agricultural Futures Markets: Too Much of a Good Thing?” Marketing and Outlook Research Report 2008-02, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign ([http://www.farmdoc.uiuc.edu/marketing/morr/morr\\_archive.html](http://www.farmdoc.uiuc.edu/marketing/morr/morr_archive.html)). Paul Krugman makes similar points about the role of speculation on oil markets (<http://krugman.blogs.nytimes.com/2008/06/24/various-notes-on-speculation/>).

<sup>10</sup> Edible beans and durum wheat do not have futures markets. Rice and fluid milk have futures markets, but it is more difficult to speculate in these commodities because they are not included in the main commodity indexes.

<sup>11</sup> U.S. Department of Agriculture. 2008. *Food Security Assessment 2007*. Outlook Report GFA-17. USDA. Washington, DC (<http://www.ers.usda.gov/Publications/GFA19/>).

<sup>12</sup> Hoddinott, J., M. Cohen, and C. Barrett. 2008 "Renegotiating the food aid convention." *Global Governance* 14(3): 283-304

raises the cost of shipping food aid by \$70/ton, according to the GAO, as well as delaying the arrival of emergency assistance<sup>13</sup>.

Third, food aid and other emergency assistance must be more closely integrated with agricultural programs to increase productive capacity in developing countries and nutrition programs that protect poor families from hunger. One promising approach is conditional cash transfer programs that provide cash transfers to poor households on the condition that children are kept in school and that family members participate in health or nutrition programs. The idea is to combine short-term financial assistance with long-term investments in the human capital of the next generation. These programs have been shown to have high social and economic returns when well targeted<sup>14</sup>.

*Investment in agricultural research and development:* The most effective long-term strategy for addressing the food crisis is to accelerate yield growth, particularly in the staple-food crops. This is necessary for cereal supply to keep pace with growing demand, thus maintaining downward pressure on cereal prices. Although private-sector investment in agricultural research is rising, it cannot fill this gap because private firms are not interested in seed that is easy to recycle from one season to the next. And yet, numerous economic studies (over one hundred to date) confirm that investments in agricultural research in developing countries offer high rates of return, generally more than 30% per year<sup>15</sup>. National agricultural research institutes in developing countries have experienced declining budgets since around 1990, partly as a result of ill-advised reductions in government spending associated with structural adjustment programs. Similarly, international agricultural research centers have suffered budget cuts because the international community interpreted falling food prices as a sign that food shortages were a thing of the past. Renewed support for agricultural research and development should include short- and long-term training for agricultural scientists, competitive grants for research, funding to evaluate impact, and assistance with management and organization of research institutes.

In addition, the institutions that deliver technology from the researcher to the farmer need to be strengthened. Agricultural extension services must broaden their mandate from technical information about new varieties and fertilizer application rates to include more information on prices and markets in response to the growing commercialization of agriculture in developing countries. In addition, efforts to make extension services more responsive to the needs and constraints of farmers should be supported and scaled up.

Finally, access to modern agricultural inputs, such as fertilizer and improved seed, can best be assured by developing private distribution networks. One approach is to work with agro-input dealers to improve coordination and reduce costs. Large-scale fertilizer subsidy programs are not a long-term solution, but subsidies may be justified to demonstrate the benefits of new technologies (if temporary) or for poverty reduction (if targeted to poor households). Programs

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<sup>13</sup> Barrett, C. and D. Maxwell. 2005. *Food aid after 50 years: Recasting its role*. Routledge Press. New York, NY. General Accountability Office. 2007. *Foreign Assistance: Various Challenges Impede the Efficiency and Effectiveness of U.S. Food Aid*. Washington, DC.

<sup>14</sup> Skoufias, E. 2005. *PROGRESA and Its Impacts on the Welfare of Rural Households in Mexico*. IFPRI Research Report No. 139. International Food Policy Research Institute, Washington, D.C. (<http://www.ifpri.org/pubs/abstract/139/rr139.pdf>).

<sup>15</sup> See Alston, J., C. Chan-Kang, M. Marra, P. Pardey, and T. Wyatt. 2000. *A Meta-Analysis of Rates of Return to Agricultural R&D: Ex Pede Herculem*. Research Report No. 113. International Food Policy Research Institute. Washington, DC (<http://www.ifpri.org/pubs/abstract/113/rr113.pdf>). This report reviews 292 publications with more than 1,800 estimates of rates of return to agricultural research in developing countries.



that distribute vouchers redeemable at agro-input dealers help strengthen the private distribution system. This approach shows promise in some situations, but needs to be tested more widely.

*Improvement of agricultural marketing systems:* Higher productivity may cause local gluts and price collapses if the marketing system is not able to efficiently distribute the surpluses to consumers throughout the region and from the harvest season to the off-season. For this reason, investments in agricultural research and development must be coupled with efforts to reduce the cost of marketing and storage in developing countries. Progress is needed in the following five areas:

- a) Public investment in marketing infrastructure. This includes the construction and maintenance of ports, bridges, roads, and market places. Too often infrastructure spending is biased toward urban areas, reflecting the greater political power of urban residents, but it is the “invisible” investments in rural roads that often has a higher payoff. The use of labor-intensive food-for-work programs to maintain rural roads can serve both infrastructure and poverty-reduction goals.
- b) A policy environment that is conducive to agricultural marketing. This involves the establishment of a clear set of guidelines regarding the roles of the private and public sector. Private traders can assemble, transport, store, and distribute food at a lower cost than government agencies. Yet, policies in many developing countries make food marketing more risky than it needs to be. Occasional export bans, unpredictable intervention in buying and selling staple crops, vague declarations against “hoarding” or “price gouging”, and impediments to cross-border trade contribute to a climate of uncertainty, which discourages investment and raises the cost of marketing at the expense of both farmer and consumer.
- c) Reduction in internal and external barriers to trade. Reducing the cost of agricultural marketing within a country helps distribute surpluses to consumers, raising prices for farmers and reducing prices for consumers. The same logic applies to agricultural trade that crosses international borders, whether it is formal overseas trade or regional cross-border trade. The current food crisis provides several examples of the adverse impact of export restrictions in raising the prices paid by importers and making global food markets more volatile. Less widely appreciated is the fact that high tariffs have similar effects, raising domestic prices and exacerbating world price volatility. Industrialized countries must provide better access to their markets and eliminate tariff escalation, which more heavily protects processed goods. However, most of the potential gains from trade liberalization in developing countries depend on those countries reducing their own import barriers. Completing the Doha Round of trade liberalization would make the global agricultural system more resilient to shocks. Additional discipline on export restrictions is also needed, either as part of the Doha Round or a separate agreement.
- d) Efforts to promote transparency in agricultural markets. Too often food marketing is hampered by limited access to information, little or no formal credit, and a wide range of local units of measure which prevent farmers and traders from comparing prices. Market information systems that collect and disseminate information about prices and market conditions exist but must be improved and expanded. New approaches to providing credit to farmers and traders on a sustainable basis are needed. And efforts to standardize weights and measures would promote competition.
- e) Improved instruments to manage risk. Many of the government interventions that make markets unpredictable in developing countries are tied to efforts to reduce price volatility. The food crisis, by making markets more volatile, is exacerbating this tendency. Although some fluctuation in agricultural prices is inevitable, there are methods of reducing the risk

associated with this volatility. Greater attention should be given to 1) efforts to facilitate storage by traders and farmers, 2) the development of insurance based on weather indexes, and 3) the use of futures markets to hedge, thus "locking in" the price of politically-sensitive import or export commodities.

*Capacity development:* It is a mistake to think that one can design in advance the optimal long-term agricultural development strategy. Agricultural policy and public investments must adapt in response to evolving conditions, including those brought about by climate change, the rising demand for bio-fuels, changing diets, and urbanization. This is particularly true in the context of the food crisis because of the rapid changes in prices and market conditions. Analysis provided by international organizations may not be accepted, particularly if it concerns politically sensitive topics such as food prices. Thus, it is essential that developing countries improve their own capacity to collect information, analyze data, diagnose problems, and identify policy solutions. In particular, there is a need for more systematic and regular evaluation of policies and programs to assess their effectiveness.

### **Summary**

The food crisis is the cumulative result of many factors, both short- and long-term in nature. Structural imbalances between grain supply and demand and declining stocks over the last 5-10 years set the stage for more recent catalysts. These include rising oil prices and depreciation of the dollar (affecting all markets), ethanol subsidies (particularly in corn markets), and export restrictions (particularly in rice and wheat markets). In response to this crisis, agricultural development strategy should give greater weight in four areas: more flexible food aid, social protection that combines short-term assistance and long-term investment in human capital, revitalized agricultural research and development systems, the improvement of agricultural marketing systems, and capacity development.

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Dr. Minot has a doctorate in agricultural economics and more than 20 years of experience studying food policy and agricultural markets in developing countries. He has conducted research in 15 countries in Latin America, sub-Saharan Africa, and Asia. Since 1997, he has worked at the International Food Policy Research Institute, a non-profit institute based in Washington D.C. His areas of research include agricultural markets, the distributional effect of policy, agricultural input markets, income diversification, and poverty.

### EDUCATION

#### **Ph.D. Agricultural Economics. 1992.**

Michigan State University, East Lansing, Michigan.

Dissertation: "Distributional Effects of Currency Devaluation on Households in Rwanda"

#### **M.S. Agricultural Economics. 1985.**

Michigan State University, East Lansing, Michigan.

Thesis: "Wheat Seed Marketing in the Lowlands of Bolivia"

#### **B.A. International Development. 1979.**

Brown University, Providence, Rhode Island.

### EXPERIENCE

#### **Post-doctoral Fellow**

1997 – 1998

#### **Research Fellow**

1998 - 2004

#### **Senior Research Fellow**

2004 - present

International Food Policy Research Institute (Washington, D.C.)

As Post-doctoral Fellow, analyzed the impact of rice marketing policy on poverty in Vietnam using a spatial equilibrium multi-sector model and carried out a study of four food processing/export subsectors in Viet Nam. As Research Fellow, co-authored a report on Vietnamese horticulture, co-authored a review of horticultural exports from Africa, designed and analyzed surveys of farmers and communities as part of a study of the effects of market reform on small farmers in Benin, prepared a report summarizing the impact of fertilizer market reform in sub-Saharan Africa, and led studies of spatial patterns in poverty in Vietnam, income diversification in Vietnam, and changes in poverty and inequality in Tanzania since 1991. As Senior Research Fellow, led studies of the impact of trade liberalization in North Africa and the Middle East, contract farming in three Asian countries, seed programs in sub-Saharan Africa, and staple crop marketing in sub-Saharan Africa. Carried out training courses on agricultural policy analysis, price analysis, policy modeling, analysis of survey data, and poverty mapping.

#### **Visiting Assistant Professor**

August 1994 - June 1995

University of Illinois (Urbana-Champaign, Illinois)

#### **Social Dimensions of Adjustment Advisor, Zimbabwe**

August 1992 - July 1994

Centre for International Economics (Canberra, Australia)

#### **Survey Analyst, Rwanda**

April 1986 - August 1988

Michigan State University (East Lansing, Michigan)

#### **Agricultural Economist, Bolivia**

March - August 1984

Chemonics International (Washington, D.C.)

#### **Business Development Assistant**

Sept. 1981 - August 1982

Chemonics International (Washington, D.C.)

Teacher of English-as-a-Foreign-Language  
Centro Colombo-Americano (Bogotá, Colombia)

Sept. 1978 - June 1979

#### EXPERIENCE (short-term)

- Design and analysis of surveys on the impact of fertilizer reform in Cameroon
- Design and analysis of a national survey of small and medium enterprises in Lao PDR.
- Assistance in analysis of urban household budget survey in Rwanda.
- Technical assistance in supply-chain analysis of four agricultural commodities in Peru.
- Preparation of a poverty profile for Rwanda.

#### ADDITIONAL INFORMATION

Languages: Good knowledge of Spanish and French.  
Software: Stata, GAMS, GAUSS, Access, Excel, and others.  
Personal: Born 28 November 1956 in Maine. U.S. citizen.

#### SELECTED PUBLICATIONS

- Minot, N. 2008. "Are poor, remote areas left behind in agricultural development: The case of Tanzania." *Journal of African Economies* 17 (2) (March): 239-276.
- Minot, N., B. Baulch, and M. Epprecht. 2006. *Poverty and inequality in Vietnam: Spatial patterns and geographic determinants*. Research Report No. 148. IFPRI. Washington, DC
- Minot, N., M. Epprecht, Tran Thi Tram Anh and Le Quang Trung. 2006. *Income diversification and poverty in the northern uplands of Vietnam*. Research Report No. 145. IFPRI. Washington, DC.
- Bullock, D. and N. Minot. 2006. "Valuing nonmarket goods using market data." *American Journal of Agricultural Economics* 88 (4): 961-973.
- Minot, N. and B. Baulch. 2005. "Spatial patterns of poverty in Vietnam and their implications for policy." *Food Policy* 30: 461-475.
- Minot, N. and B. Baulch. 2005. "Poverty mapping with aggregate census data: What is the loss in precision?" *Review of Development Economics*. 9 (1) (February): 5-24.
- Minot, N. and L. Daniels. 2005. "Impact of declining global cotton prices on rural poverty in Benin." *Agricultural Economics* 33 (supplement): 453-466..
- Delgado, C., N. Minot, and M. Tiongco. 2005. "Evidence and implications of non-tradability in food staples in Tanzania." *Journal of Development Studies* 41 (3) (April): 376-393.
- Kherallah, M, C. Delgado, E. Gabre-Madhin, N. Minot, and M. Johnson. 2002. *Reforming Agricultural Markets in Africa: Achievements and Challenges*. Johns Hopkins University Press. Baltimore.
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- Minot, N. and F. Goletti. 1998. "Export liberalization and household welfare: The case of rice in Viet Nam." *American Journal of Agricultural Economics* 80 (November): 738-749.
- Minot, N. 1998. "Distributional and nutritional impact of devaluation in Rwanda." *Economic Development and Cultural Change*. 46 (2): 379-402.



Committee on Agriculture  
U.S. House of Representatives  
Required Witness Disclosure Form

House Rules\* require nongovernmental witnesses to disclose the amount and source of Federal grants received since October 1, 2004.

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Organization you represent (if any): **International Food Policy Research Institute (IFPRI)**

1. Please list any federal grants or contracts (including subgrants and subcontracts) you have received since October 1, 2004, as well as the source and the amount of each grant or contract. House Rules do NOT require disclosure of federal payments to individuals, such as Social security or Medicare benefits, farm program payments, or assistance to agricultural producers:

Source: **None**

Amount: **None**

Source: **None**

Amount: **None**

2. If you are appearing on behalf of an organization, please list any federal grants or contracts (including subgrants and subcontracts) the organization has received since October 1, 2004, as well as the source and the amount of each grant or contract:

Source: **USAID**

Year: **2006**

Amount: **\$ 8,101,000**

Source: **USAID**

Year: **2007**

Amount: **\$ 8,698,000**

Please check here if ~~this form~~ is NOT applicable to you:

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*• Rule XI, clause 2(g) (4) of the U.S. House of Representatives provides; Each committee shall, to the greatest extent practicable, require witnesses who appear before it to submit in advance written statements of proposed testimony and to limit their initial presentations to the committee to brief summaries thereof. In the case of a witness appearing in a nongovernmental capacity, a written statement of proposed testimony shall include a curriculum vitae and a disclosure of the amount and source (by agency and program) of each Federal grant (or subgrant thereof) or contract (or subcontract thereof) received during the current fiscal year or either of the two previous fiscal years by the witness or by any entity represented by the witness.*

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