



FOOD SECURITY AND SMALL FARMING IN THE GLOBAL ERA (1990-2008)

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Abstract

This paper discusses the relationship between small farming and food security in low-income economies. Pointing out the relevance of this relationship in the context of global food crises and globalisation of agriculture, the article introduces the problems small farmers face to engage in national food production. With particular emphasis on small developing economies, the paper introduces different agrarian strategies and their impacts on small farming food production in the current context of globalisation.

Keywords: small farming, food security, globalisation, food crisis, agricultural policies, Costa Rica and Cuba.

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1. Introduction

More than 80% of the developing world's three billion rural inhabitants are involved in agrarian activities; three out of every four poor people in poor countries live in rural areas; most of them depend directly or indirectly on agriculture for their livelihoods; and; approximately two thirds live on small farms (with approximately 85% operating with less than 2 hectares) of which there are nearly 500 million (Hazell et al., 2007; IFPRI, 2005; Nagayets, 2005; Narayan y Gulati, 2002)¹.

Although the viability of small farms in less developed countries is threatened today in historically unprecedented ways, there are good reasons to preserve smallholder production (Hazell et al., 2007). Small farmers have a key role in promoting growth and poverty reduction in developing economies. For poorer countries, the relevance of small farmers lies in their economic efficiency relative to larger farmers; the greater amounts of productive employment they can create; their role in reducing rural poverty and food insecurity; the contribution they can make to supporting a more vibrant rural non-farm economy; and, the role they can perform in helping to limit rural-urban migration (Hazell et al., 2007). Small farmers in low-income countries are also less dependent on hired employment, external inputs, agrochemicals and expensive technologies imported from Western countries. Therefore in the event of an external shock (call it the global food crisis or adverse climatic conditions) they can still produce food to feed the national population (Hazell et al., 2007; IFPRI, 2005).

Considering the aforementioned features of small farming production, this paper discusses the following questions: 1) what is the relationship between food security and small farming? And, why is this relation important in the event of global food crises or external shocks?; 2) What have been the impacts of agricultural globalisation on small scale food production?; and, 3) How do different agrarian strategies create opportunities for farming food production in the global era, particularly in small economies?

In order to discuss these issues, the paper is divided into five sections. Section two demonstrates the relevant contribution of smallholders to national food security. Section three summarises the impact of globalisation on food security. Agricultural policies and opportunities for family farmers to improve food security will be discussed in section four. The final section introduces some general conclusions on food security and small farming in the global era.

2. The relationship between small farming and food security: views from the literature

'Food security is achieved when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life' (World Food Summit, 1995: 5). When defining food security this paper focuses on small farmers' skills and spaces to produce food for national consumption and reduce dependency on imports².

¹ Defining smallholders is a challenging task. There is no precise or universally accepted definition. The World Bank's Rural Strategy (2003) defines small farms as having less than 2 hectares of cropland and a low asset-base. As stressed by Nagayets (2005) context matters when defining small farming: a 10-hectare farm in many parts of Latin America would be smaller than the national average, operated largely by family labour, and producing primarily for subsistence, making it a small farm by most criteria. Lipton (2005) defines family farms as those in which most labour and enterprise come from the farm family, which puts much of its working time into the farm.

² This idea is based on food sovereignty. Food sovereignty is the right of peoples to healthy and culturally appropriate food produced through sustainable methods and their right to define their own food and agriculture systems. It develops a model of small scale sustainable production benefiting communities and their environments. It puts the aspirations, needs and livelihoods of those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations (Rosset, 2005; World Food Summit, 1995).



Although small farmers face increasing difficulties to engage in domestic and international markets, compelling evidence shows that they account for a significant share of agricultural production in low-income countries. There are some intrinsic characteristics of small farming that make their role in national production significant (Patel, 2007). This is particularly the case of staple production. While 91% of the planet's 1.5 billion hectares of agricultural land are devoted to agro-export crops, biofuels and transgenic soybean (to feed cars and cattle), millions of small farmers in less developed economies produce the greatest percentage of staple crops needed to feed rural and urban populations worldwide (Altieri, 2008; IFAD, 2011). Of the 960 million hectares of land under cultivation (arable and permanent crops) in Africa, Asia and Latin America, 10-15% is managed by small farmers, accounting for 40-60% of total food output available for national consumption (Altieri, 2008; Hazell et al., 2007). In Latin America, approximately 17 million peasant production units occupy close to 60.5 million hectares and 34.5% of the total cultivated land with average farm sizes between 3.6ha and 1.8ha (Berdegué y Fuentealba, 2011). These peasant units produce 51% of the maize, 77% of the beans, and 61% of the potatoes for domestic consumption in the region (Berdegué y Fuentealba, 2011; see also Kay, 1997). In Brazil alone there are approximately 4.8 million family farmers (about 85% of the total number of farms), covering 30% of the total agricultural land of the country, and producing 84% of the total cassava and 67% of all beans (Altieri, 1999). In Chile, despite the fact that it is one of the most export-oriented countries in Latin America, there are 11 times more farmers engaged in domestic markets than those devoted to the export sector. Of the Chilean farmers engaged in domestic food markets, 89% are commercially-oriented small- and medium-sized family farmers (Berdegué y Fuentealba, 2011; ODEPA, 2002).

In Africa, approximately 33 million small farms account for 80% of total farms in the region. Despite the fact that Africa currently imports huge amounts of basic grains, the majority of African farmers are smallholders with farms below 2ha. They produce a significant amount of staple crops with virtually no or little use of fertilisers and improved seeds (Benneh, 1996). In Sub-Saharan Africa, smallholders account for 90% of all agricultural production (IFPRI, 2005; Narayan y Gulati, 2002; Spencer, 2002). The share of national agricultural production developed by Kenya's smallholders increased from 4% in 1965 to 49% in 1985 (Lele y Agarwal, 1989, Machethe, 2004). Malawian small farms account for 85% of total agricultural production while dairy smallholders in Ethiopia produce 97% of total national milk production and three quarters of commercial milk production (Ahmed et al., 2004; Benneh 1996). In Asia more than 200 million rice producers are small farmers cultivating around 2ha. By developing smallholder agriculture Vietnam went from being a food-deficit country to the second largest rice exporter worldwide (IFAD, 2011). In India small farms (less than 2ha) constitute 78% of the total number of farms and contribute 41% of national grain production (Greenland, 1997). These small farmers grew more than 40% of India's staple food in 1990-91 (compared with only a third of the total in 1980); in the late 1990s they owned the majority of livestock, accounting for most dairy production (Ahmed et al., 2004; Benneh 1996).

Finally, Soto Baquero (2009) points out that small-scale farming not only supports national food production, but also helps to tackle food insecurity and vulnerability for a significant proportion of the poorest rural inhabitants in Latin America, particularly in subsistence agriculture and in backward areas (Rosset, 2005; Soto Baquero, 2009; Soto Baquero et al., 2007). In the event of external shocks or adverse climatic conditions, locally produced foods avoid high transport and marketing costs associated with imported crops and are thereby better placed to feed the national population. Therefore, as argued by Altieri (2008), small increases in yields on small farms that produce most of the world's staple crops will have far more impact on food availability at the local and regional levels, than the doubtful increases



predicted for distant and corporate-controlled large monocultures highly dependent on high-tech solutions and genetically modified seeds.

3. The impact of globalisation

How has the connection between small farming and food security been affected by globalisation of agriculture in developing countries?

Scholars such as Hellinger et al. (2001), Lappé et al. (1998) and Rosset, (2006) argue that neoliberal emphasis on state withdrawal (during the 1980s and 1990s), the excessive weight of export promotion, patenting of crop genetic resources and the bias in agricultural research towards expensive technologies ended up deepening global and local asymmetrical market relations in Latin America's agriculture during the 1990s and early 2000s. These asymmetrical trade relations hinder small farmers' engagement in national food production and result from a twofold reality: 1) the excessive control of transnational corporations (TNCs); 2) the high degree of agriculture protectionism exercised by developed countries.

3.1 The excessive control of TNCs

Throughout the 1980s and 1990s, neoliberal policies (through Structural Adjustment Programs, SAPs) in the majority of Latin American countries fuelled the withdrawal of state intervention in agriculture. By cutting support and subsidies for food producers and dismantling credit, commercialisation and technical assistance available for traditional and basic grains producers essentially disappeared (Conroy et al., 1996). In Central America throughout the period 1995-2008 the percentage of agriculture expenditures from central state expenditures declined from 4.01% to 1.82% (CEPAL, 1995, 2008). Low levels of state support coupled with institutional reforms in many cases implied the weakening of the main agriculture institutions in charge of providing public goods such as technology, technical training, sanitary control, irrigation systems and overall subsidies for small producers of traditional crops and basic grains. By replacing the public sector, the private sector generally assumed these responsibilities. Concentrating services in the more developed regions and commercial agriculture (export-led agribusiness), the private sector generally left behind the requirements of traditional small farmers producing basic grains and traditional crops for domestic markets (Piñeiro, 2005).

Rosset (2006), Conroy et al. (1996) and González (2004) (amongst other scholars) stress that in the late 1990s large farmers and TNCs achieved better access to capital and credit to finance cash crop production for export in developing nations. As cash crop production increased land values, large landowners and TNCs expanded their holdings by purchasing small farms that lacked the capital required to engage in export-led production (Conroy et al., 1996; González, 2004). Today TNCs such as Monsanto, Cargill, Nestlé and Wal-Mart have become so powerful that they dominate supply chains (for food and agricultural goods) from seed to supermarket shelf in developing economies (Rosset, 2006). Farina's (2002) evidence for Brazil shows that only four firms control 75% of the national hybrid maize market and another four run 75% of the coffee market. In Colombia four companies comprise 94% of the market for potatoes, yucca and bananas. In El Salvador, two mills monopolise 97% of the wheat market, and four companies control 87% of the dairy market (Berdegué y Fuentealba, 2011; IFAD, 2011). In Argentina and Brazil, supermarkets currently control from 60% to 70% of food sales while Wal-Mart controls more than 81% of total food sales in Costa Rica (Heffernan, 1999; Reardon y Berdegué, 2002; World Bank, 2008). How does the excessive control of TNCs on agriculture production and commercialisation affect small food producers in low-income regions?



Profound marginalisation of hundreds of millions of small farmers and farm workers has been the result in Asia, Africa and Latin America. Whereas opportunities for many agribusiness companies to monopolise processing, credit, marketing and technical capabilities have been created, smallholders currently face extremely unequal commercial relations (IFAD, 2011; Rosset, 2006; Ziegler, 2004). In the case of Brazil, soy production has shifted from small- and medium-sized farms in the south, to larger farms in the central and north eastern parts of the country. Although soy farms in these regions reach up to 10,000ha in size, they generate limited employment opportunities with one permanent worker per 170-200 ha (Bickel y Maarten Dros, 2003). In the largest soy producing state in Brazil, Matto Grosso, the land held by farms larger than 10,000ha increased from 17.8 to 20.6 million hectares between 1980 and 1996. During the same period, almost 14,000 farms of less than 10ha in size disappeared (Bickel y Maarten Dros, 2003).

3.2 Agriculture protectionism in developed countries

Rosset (2006), TWN and IFAD (2006) consider that neoliberal policies (through structural adjustment programs attached to the WTO Agreement on Agriculture) have institutionalised a double standard of trade worldwide: protectionism in wealthy countries coupled with liberalised trade in poor countries. Trade liberalisation combined with subsidies in developed economies creates three negative shocks for small food farmers living in developing countries.

First, small farmers lose export opportunities and incomes from having their market access blocked in Western countries that apply the subsidies. Data released in 2003 by IFPRI showed that developed country subsidies and protectionism displaced about \$40 billion in net agricultural exports per year from low-income countries and cost developing economies approximately \$24 billion per year in foregone agricultural and agro-industrial income (IFPRI, 2003). Second, small farmers in developing economies lose export opportunities in overseas markets, since the subsidising country is also exporting to these markets at artificially cheap prices and buying raw materials at very low prices from developing economies. While the US and the EU apply zero tariffs on imports of cocoa beans, up to 30.6% of tariffs affect processed products such as cocoa paste and chocolate. Contradictorily, developing countries produce over 90% of all cocoa beans but account for less than 5% of world chocolate production (Guadagni y Kaufmann, 2004; OECD, 2003). Third, they lose their market share in their own domestic market, or even lose their livelihoods, due to the increasing flow of artificially cheap subsidised imports in national markets (IFAD, 2006; Madeley, 2002; TWN y IFAD, 2006). This has been the case in Mexico where subsidised maize imports forced approximately 700,000-800,000 rural households to abandon agriculture. Although Mexico would take 15 years for domestic maize prices to equal international prices, according to the North American Free Trade Agreement (NAFTA), the country took only 30 months. Between 1993 and 2000, Mexican maize imports rose eighteen-fold; in 2006 one quarter of the corn domestically consumed in Mexico was imported from the US. This represented a 15% reduction in the economically active population employed in Mexican agriculture (García Rañó et al., 2007; IFAD, 2006; Rosset, 2006).

In short, the result of trade liberalisation and subsidies in Western countries is an agricultural trading system in which success depends less on comparative advantage than on comparative access to subsidies (González, 2004; Madeley, 2002). Whereas small farmers in developing countries suffer on several counts from rich-country farm policies, Rosset (2006) holds that the real beneficiaries of these practices are corporate livestock operations and the big US and European agro-exporters. They acquire cheap feed, making environmentally destructive factory farming possible, and buy their raw materials so cheaply that they can out-compete any local producer in their domestic market, erasing the advantages of small farming production presented in section 1.



4. Agricultural policies and opportunities for family farmers to improve food security

Approximately 50% of all food consumed in less developed economies throughout the 1980s and late 1990s was imported (FAO, 1994, 2004a; Murphy, 1999). As stressed by Murphy (1999) in the Caribbean, food insecurity is a direct consequence of both the small size of these countries and centuries of colonialism that prioritised sugar production and other traditional export monocultures, neglecting food crops for domestic consumption. These historical patterns have proved to be overwhelming for most Caribbean and Central American countries that in the current context of global production networks and free trade agreements remain as net food importers.

In this context, what have been the opportunities to reduce dependence on imported food created by different agriculture policies? This section introduces two paradigmatic and contradictory cases of agriculture development in recent times. Whereas since the early 1990s Costa Rica applied neoliberal agriculture policies gradually, Cuba developed an inward-looking agriculture approach to face the difficult circumstances of the Special Period³.

4.1 The case of Costa Rica

In Costa Rica the dismantling of basic grains production during the 1980s and early 1990s and the strong emphasis on non-traditional agricultural exports (NTAEs) through agricultural conversion programmes significantly reduced opportunities for small farmers' contribution for national food production. Although Costa Rica's total farming land has not significantly varied in quantitative terms since 1990, the changes experienced in the internal dynamic of the sector have been significant. While the farming area of rice, maize and beans significantly declined, the harvested area of non-traditional crops substantially increased during the period 1990-2008 (Bertsch, 2004, 2006). The problem is that non-traditional crops are generally oriented to industrialised countries and do not cover national food demands. FAO data for basic grains production per capita (Kg/person/year) in Central America demonstrated that Costa Rica experienced the most drastic reduction in the region between 1970 and 2007 (FAO, 2007). Although nutritional and social indicators were better in Costa Rica than in the rest of Central America, the capability of small basic grains producers to feed the population in the country was the lowest in the region.

Despite practising intensive agriculture with better average yields for basic grains than other regions, in the early 1980s Costa Rica opted for exporting non-traditional crops and importing food. By the early 1990s Costa Rican's food requirements had become dependent on a combination of food reserves and imports (FAO, 1999, 2007, 2009). In a little over ten years, between 1995 and 2007, the degree of reliance on imported rice increased from 30.1% to 50%; imported beans grew from 16.7% to 78% and maize rose from 94.6% to 97.8% (SICA, 2009). At the same time, from 1990-92 to 2005-07, the ratio of imported food significantly increased for all groups of products (FAO, 2009). This was the case even amongst those products internally (and significantly) produced in Costa Rica such as milk, meat, vegetables, fruits, sugar or vegetable oils.

³ As the opposite of neoliberal policies, this paper defines inward-looking development as an agriculture strategy based on a threefold pillar: 1. low-input and sustainable technologies based on small farming: less/no reliant on external inputs, machinery and imported technology; 2. food import substitution; and; 3. domestic markets: to promote small farmers' engagement in food production and avoid the vagaries of international market. In the case of Cuba, the literature often calls Cuba's agriculture model the 'Alternative Paradigm' (based on Funes et al., 2002; Funes-Monzote, 2008; Rosset and Benjamin, 1994).



On the eve of the global food crisis, it was paradoxical that the incomes from roots and yucca exports (NTAEs that amounted \$17-28 million in 2006) and other NTAEs like pineapple and African palm were not sufficient to cover 50% of basic grains imported by Costa Rica (that accounted US\$90 million) (Pomareda, 2006; PNA, 2008). In this context, what were the consequences of the global food crisis of 2007-2008 on Costa Rica's food security and small farming? In a small country like Costa Rica, rising international food prices in 2007-2008 showed the high degree of vulnerability and dependency on imported food. If imports ended, the country would be in a highly vulnerable position. The dismantling of basic grains production and producers (during the 1980s and early 1990s), the lack of competitiveness of national food producers (versus NTAEs large producers and TNCs during the 1990s and early 2000s) and the high degree of agriculture intensification strongly dependent on imported inputs and fuel worsened the consequences of the crisis in Costa Rica. The global food crisis of 2007-2008 led state policy to rethink the Costa Rica model of 'food insecurity' (PNA, 2008; Pomareda, 2006). Responding to the need for reactivating basic grains production and producers, the Costa Rican government created The National Food Programme (PLAN) and the Integral Food Programme (PIA) (MAG, 2008; PNA, 2008). These programmes aim to fuel Costa Rica's internal food markets coupled with measures to generate local food nationally, with particular focus on more vulnerable and poor families in rural areas. Providing access to resources, the National Food Programme further aims to recover national producers of basic grains and re-establish the managing role of the National Production Council (CNP) (PNA, 2008).

4.2 The case of Cuba

Cuba, like most small developing economies, had never been able to feed itself since the early 1950s. Until 1989 the special commercial arrangements that Cuba obtained through the Council of Mutual Economic Assistance (CMEA) fuelled high levels of imported food products (Álvarez, 2004; FAO, 1997; Nova, 1993). While in 1980 Cuba imported 70% of the food available for consumption, as the decade progressed, the import dependency ratios slightly dropped from 70% to 60%. In the early 1990s the lack of strategic imports at highly subsidised prices from the Soviet bloc and the difficult circumstances during the Special Period enhanced inward-looking development policies to create ways, less dependent on imports (and based on small farming) to improve and reframe food security in Cuba.

Throughout the 1990s food import ratios experienced a faster and forced reduction, accounting for 42% in 1997 (Alvarez, 2004; FAO, 1997). A more specific analysis on imported ratios per food groups demonstrated that cereals, vegetables, meat, pulses and vegetable oils, key to cover Cubans' food requirements and mainly produced by small farmers, experienced decreasing imported ratios from 1990-92 to 2005-07. These developments can be clearly linked to the contribution of the non-state sector (especially private small farmers) to basic grains, meat, vegetables available for national consumption. In 2000 the non-state sector produced 77.8% of rice, 87.1% of maize, 91.5% of beans (ONE, 2000). In 2008 private small farmers alone produced 82% of maize, 81% of beans and 36% of rice available for national consumption.

Although Cuba's food requirements began to decline in 1989 and 1991, it was not until 1993 and 1994 (during and after the food crisis) when the nutrients intake fell below 2,400kcal/person/day (Álvarez, 2004; FAO, 2004a, 2004b; FAO, 2009; Ferriol, 1996, 1998)⁴. In the worst moment of the Special Period the

⁴ Cuban figures reported to the FAO came from the following sources: the rationing system, food sold at subsidised prices in public institutions such as dining rooms in factories, schools, nurseries, and in cafeterias and stands; food distributed in places such as hospitals and nursing homes; food produced in rural and urban self-provisioning plots sold by workers or farmers and food purchased in other food outlets such as the recently created parallel markets (Álvarez, 2004; FAO, 2009).



daily per capita consumption went down to 1,863400kcal/person/day while that of protein and fats decreased to 46grams and 26grams, both well below the recommended minimum daily requirements (Ferriol, 1998). Despite the severe circumstances of the early 1990s, inhabitants, neighbours and small farmers in urban, suburban and rural areas organised themselves to grow crops within and around cities. Making use of local resources with low transportation costs for either inputs or products and working in their own neighbourhoods, they contributed to counteract Cuba's food crisis throughout the 1990s (Funes et al., 2002; Murphy, 1999). Shortly after the food crisis, in 1996 energy availability (2,335400 kcal/person/day) was 15.8% higher than in 1993. In 1999 per capita availability of vegetables reached the largest yield in 30 years (223.8 grams per person per day), 2.2 times higher than the 1993-levels (102.7grams per person per day) (ONE, 2000; Rodriguez-Ojeda et al., 2001). According to FAO (2009), by 2003-05 food consumption had achieved 3,280Kcal. During the same period the prevalence of undernourishment in Cuba was lower than 5%; below average levels in Latin America and the Caribbean (8% and 23% respectively) (FAO, 2009).

In short, while in other regions similar strategies of inward-looking development are mere pilot projects rarely acknowledged by official policy, in Cuba these initiatives represent official agricultural policy (Pretty, 2002). So far, what Cubans have achieved under conditions of adversity deserves special attention and in-depth understanding. An increasing number of small farmers abandoned the conventional production model, developing avant-garde biotechnology and supplying their members and neighbours with organic alternatives for poisonous pesticides, chemical fertilisers, animal feedstuffs and expensive technologies imported from Western countries (Rosset y Benjamin, 1994). In this context, Cuba's 'positive' performance in food security indicators coupled with decreasing ratios of imported food should be intrinsically linked to the significant contribution that small farmers have made for national food security since the early 1990s.

5. Concluding remarks

It is frequently stressed that small countries cannot feed themselves and they need imports to counteract deficiencies in their local production. The contemporary general opinion is that large-scale corporate (or state farms in the Cuban case) have a pivotal role in efficiently producing enough food in less developed countries. This paper, however, has shown that although small farmers face increasing difficulties to engage in domestic and international markets, they account for a significant share of agricultural production in low-income countries. Considering the relationship between food security and small farming and the rest of developments discussed in the paper, this section summarises the following concluding remarks:

1) The significant role of small farmers to promote food security in the global era. Taking into account international oil prices, increasing prices of basic food, inputs and raw materials and environmental contamination, people should not have to depend on the vagaries of prices in the world economy, long distance transportation, and superpower 'goodwill' for their next meal (Rosset, 2005, 2006). In the current context of globalisation, characterised by asymmetrical trade relations, locally and regionally produced food offers security, as well as synergistic linkages to promote local economic development (Altieri, 2008, Rosset, 2006).

2) In the event of external shocks and national or international crises small farmers can be the only group of producers able to feed the national population in small developing economies. This was the case in Cuba when no other alternatives were possible, during the worst crisis of its history. In other small developing economies without the exceptional circumstances present in Cuba, small basic grains producers



are still an important group with potentialities to feed the national population (e.g. Central America). Despite the significant promotion of agricultural reconversion programmes to shift small farmers from traditional crops to NTAEs promoted in countries like Costa Rica during the later 1980s and early 1990s, these producers still account for a significant share of the employed population in agriculture activities. The problem is that outward-looking development has clearly limited their opportunities to engage in national food production. The food crisis in 2007-2008 opened avenues for further thinking and research regarding other initiatives less dependent on imported food and inputs (local and sustainable small farming) to feed small low-income economies like Costa Rica or Chile.

3) Inward-looking development in Cuba placed small and private farmers at the forefront of the island's recovery from a food crisis. During the 1990s and early 2000s Cuba's ratios of imported food to feed the national population were well reduced by an appropriate ecological strategy and more self-reliant in small farming food production. Today, there seems to be a clear tendency to import non-perishable food, but overall, the island has significantly reduced the imported ratios of pulses, cereals and meat; particularly produced by private small farmers.

4) Costa Rica's experience of outward-looking development throughout the period 1990-2008, represents a contemporary example of the actual spaces and problems that small farmers may find in small developing economies to produce food for national consumption. Economic and agriculture policies have clearly prioritised the supremacy of large farms and TNCs engaged in non-traditional crops. Whereas some opportunities have been created for small-scale producers in rural non-farm activities (RNFA) and NTAEs, production strategies available to family farmers in contemporary Costa Rica seem to be insufficient to ensure the essential role of small farmers to produce food for national consumption.



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