



Green Box Support Measures Under the WTO Agreement on Agriculture and Chinese Agricultural Sustainable Development

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Executive Summary

Introduction

China's accession to the World Trade Organization (WTO) will not only bring about more development opportunities, as the country can now utilize both domestic and international markets and resources, but will also expose it to greater global competition. More significantly, it will accelerate the formulation of laws, regulations and policy frameworks that accord with the principles and rules of a market economy and internationally accepted business practices. Agriculture formed a key area in China's accession talks, and the issues of domestic support policy, followed closely both at home and abroad, featured prominently during China's agricultural negotiations. The impact that WTO accession will have on China is essentially that domestic agricultural policies must be bound by multilateral trade agreements and that China must fulfill all its commitments made during the accession talks. In other words, the impact is not confined to the trade in agricultural products and the contribution of this trade to foreign exchange revenue; it will result in readjustments to the country's agricultural development policies. These readjustments will further commercialize Chinese agriculture, optimize the agricultural structure and raise the efficiency of the sector. In view of the unusual national conditions, however, these readjustments, when inappropriately made, may also produce some negative effects, leading to the contraction and recession of agriculture in China or even undermining the status of the sector as the foundation for China's national economic development.

This paper studies the issue of whether/how "Green Box" policies/measures best suit the needs of structural adjustments in the post-WTO era, enabling China to cope effectively with the challenges arising from the transformation of its economic system/structures and opening up of the market, as faced by its agricultural sector, and to achieve the goal of sustainable development for the sector. Furthermore, it also attempts to provide some thoughts and recommendations for a further reform of the multilateral rules on Green Box from the perspective of China.

WTO disciplines on agro-domestic support and policy trends of major WTO Members

One of the landmark achievements in the Uruguay Round's Agreement on Agriculture (URAA) has been the extension of multi-disciplines from border measures in agriculture into domestic policies. Compared with other sectors, agriculture has long enjoyed rather robust domestic support in the world's economies, especially the developed ones. Moreover, substantial domestic support epitomizes the original source of trade distortion, which will not disappear if border measures continue to be the sole means of balancing trade. For this reason, there is a need for more consolidated reform if China is to reduce the protection of her agricultural sector.

URAA rules on domestic support direct domestic policies that are most trade-distorting towards lesser or minimum distortions. Under the broad WTO umbrella, domestic support policy instruments are usually classified into three categories. Support policies that are the least or minimally trade distorting are placed in the "Green Box" and can be exempted from reduction commitments. Also belonging to this category are certain domestic investments and input subsidies in developing countries that qualify as "Special and Differential," which are equally exempted. Support instruments deemed to be the most trade distorting are classified as "Amber

Box” policies, and are subject to reduction in instalments. Direct payments under production-limiting programs are contained in the “Blue Box,” with distorting effects between those instruments in the Green and Amber Boxes.

Under the framework of the URAA, which has been implemented since 1995, the general trend in WTO Members’ domestic support has been the increased use of Green Box measures and decreased use of Amber Box measures, which have the most distorting effects on production and trade. As many countries decreased Amber Box spending over this period, Green Box became the principal mode for domestic agricultural support. For most developing Members, Green Box was particularly relied upon to carry out their domestic support; for some Members it was the only means. However, with the exception of a few developed Members, Green Box expenditure accounted for a very small proportion of domestic support. Reform was needed, therefore, to transform more agricultural support into Green Box measures.

Agricultural development in China and WTO accession

Agriculture in China has undergone dramatic changes over the past 30 years. China’s traditional agricultural activities are marked by both intensive and meticulous farming on limited soil and the use of relatively rich resources (labour) to substitute for scarce resources (water and land). But as the population grew, this farming mode could barely meet the needs for grains and raw materials for industrial use. In the late 1960s Chinese agriculture entered into a development stage characterized by heavy input, which involved not only the increased use of chemical fertilizers and pesticides but also continued effort to turn marginal lands into farmland.

Although China has achieved great success in feeding its people with its limited resources (China feeds 25 per cent of the world’s population with only seven per cent of the world’s arable land), the sustainability of this model confronts two fundamental problems at present: one is the shortage and degradation of resources associated with inappropriate resource use, under the huge pressure of providing the large population with grain and the long-standing policy of pursuing self-reliance in food supply; the other is a decrease in the growth of farmers’ incomes along with increasing production costs, which have not only reflected the generally low returns of agriculture in the market economy but also highlight the difficult situation of having a great labour surplus in the agricultural economy.

The Action Plan for China’s Agriculture in the 21st Century, adopted by the Ministry of Agriculture in 1998, identifies the following as the goals or requirements for sustainable agriculture in China: maintaining steady production growth, safeguarding food security, developing the rural economy, raising the income of local farmers, putting an end to poverty and backwardness in rural regions, protecting the ecological environment, utilizing natural resources in an effective and sustainable way... To date, only steady production growth and food security have been realized, and the remainder of the goals cannot be readily achieved in the short term, especially those of ecological environmental protection and raising farmers’ incomes.

China’s accession to the WTO adds new complexities and uncertainties to the sustainable development of agriculture in China but also provides new opportunities to address the issue.

Agricultural restructuring after accession to the WTO and its impacts on the sustainable development of agriculture in China

After 15 years of tough negotiations, China finally made its entry into the WTO at the end of 2001. This implies that China will carry out an overhaul of its agricultural policies in the light of the URAA rules and regulations. At the time of China's accession, the WTO Members were debating and framing up the trading norms for agricultural products, the first ever such attempt by the multilateral trading organization. The URAA, concluded at the Uruguay Round, is the result of this endeavour. For the first time ever, the URAA stipulated multilateral disciplines on market access, domestic support and export subsidies, blazing the trail for the liberalization of world trade on agricultural products; however, the agreement was constructed in such a way that it best suited the actual conditions of the developed countries, with little consideration given to the particular needs of agricultural development in the developing countries. Based on a package of agreements, including the URAA, China signed its protocol for WTO accession, which listed, among other things, the commitments in the agricultural sector. These include: removing state-set prices for major agricultural products, reducing tariffs, lifting export subsidies, establishing import tariff quotas to provide minimal market access, permitting non-state-owned trading firms to deal in the grains trade and confining domestic agricultural support to 8.5 per cent. These commitments represent a substantial reform of China's agricultural policies, to an extent that many major WTO Members have still not yet undertaken. Provided that the above-mentioned commitments are fulfilled, China's agricultural trade barriers will be notably lowered compared with those of the United States and the European Union.

While the WTO accession does not critically affect the aggregated balance of China's agricultural sector in the short-term, it will produce multi-dimensional effects on Chinese agriculture, triggering a series of structural changes in the long run. The changes will include, among others, the following:

- A wider gap between agriculture and other sectors and shrinking share of agriculture in the nation's Gross Domestic Product (GDP) as a result of faster growth rates achieved by the manufacturing and service sectors, fuelled by foreign direct investment.
- A decline in the overall acreage for grain production and increase in the production and export of labour-intensive crops, in which China enjoys some comparative advantages.
- Weakening of the regional patterns of agriculture, guided and shaped by self-supply and self-sufficiency, and strengthening of exchanges of the goods best produced by the locally most abundant resources. In the wake of a deregulated import market, the southern regions will be less dependent on grains grown in the north and will instead seek more imports. The major grain-producing northern regions, on the other hand, will seek more export opportunities.
- The decentralized system of owner-peasant, which is under increasing pressure from international competition, will cease to function well and will need to be integrated.
- The rural employment share and composition will change significantly. As market opening and integration intensify, the conflict between the large rural labour force and limited areas of arable land will become increasingly acute. There exists a great need to transfer these surplus labourers to the manufacturing and service sectors, or to any activities that are more profitable than farming.

These structural changes will exert both positive and negative impacts on the sustainability of agricultural development in China. The market opening will help turn local agriculture into a more intensified, industrialized, commercialized, organized and outward-oriented activity, thus greatly improving the efficiency of resource utilization by the sector, but heavily subsidized, cheap imports will further increase the surplus of farm hands, reduce farmers' incomes and aggravate rural poverty. The growth of the poverty-stricken population will, in turn, make it more difficult to enforce ecological protection efforts, leading to further deterioration of the ecological environment of the rural regions.

Whether the WTO accession aggravates the difficulties that China has in striving for sustainable agricultural development will depend to a certain degree on the development of the regional economies and the demand for Chinese, labour-intensive agricultural products by both home and world markets. It will, to a greater extent, depend on the readjustment of China's agricultural policies and the new rules and regulations to be formulated at the next round of multilateral trade negotiations on domestic agricultural support, market access and export subsidies.

China's Green Box Measures

It is recognized that there is a disparity between what the WTO advocates and China's traditional agricultural trading system, which is characterized by state trading operations and quantitative restrictions; however, the country's domestic agricultural support, as categorized by the WTO, falls within the scope of Green Box measures—measures with no or very little trade-distorting effect, and its Amber Box support remains in the negative. This is mainly because, as a developing Member, China has not fully reversed its biases of taxing agriculture and supporting local industry with agricultural surpluses. Unlike some major agricultural countries, China's agriculture is fundamentally domestically-oriented, with poor foreign exchange earning records, and its agricultural exports are not as vigorously encouraged as its manufactured goods are. Although the country's farm products are also subsidized, it is more of a short-term regulatory measure adopted in times of bumper harvests and large agricultural reserves than a long-standing policy.

Recent developments have been identified as follows:

- Green Box expenditure accounted for 14.2 per cent of the government's total budgetary expenditures on an average basis from 1996–98 (the most recent data available) and depicted a steady rising share in the latter.
- China's domestic support aimed basically at food security. Its Green Box support was centred primarily on Infrastructure Construction and domestic food reserves, both under the government's General Services category; these two combined accounted for some 60 per cent of the total Green Box measures, which highlights the priority of the country's agricultural support—raising the supply capability and safeguarding domestic food security.
- A number of measures directly linked with producers' income have not been adopted because of the local financial and administrative constraints. Over a long period of time, the priorities of China's agricultural support were to lift production capacities and guarantee steady supplies, and the issue of ensuring and increasing farmers' income has been taken seriously by the government only in recent years. Under the current system, there are four Green Box measures aimed toward this end, roughly two-thirds of the total. They include Direct Payment to Farmers, Decoupled Income Support, Government Financial Participation in Income Insurance/Safety-Net Programs and Structural Readjustment Aid provided by a

farmers' retirement program. None of these, however, has been adopted in China. With 356 million farmers, or 50 per cent of the total labour force and two-thirds of the gross population in the rural regions, China is still one of the poorest countries in the world. It could hardly afford to extend direct fiscal support to its farmers.

- China is in transition to a market economy; its system and institutional arrangements that fit in with market economy development have yet to be fully set up, especially in the agricultural sector, where the market has not yet completely opened and the government still intervenes in production, purchase and sales, and the prices of farming products. Moreover, China's agriculture still has a rather low rate of commercialization—only 40 per cent—whereas its self-sufficiency in grain for the rural population, some two-thirds of the national population, is around 60 per cent. Hence, Green Box measures such as Marketing and Promotion Services and Government Financial Participation in Income Insurance/Safety-Net Programs have not been included in the country's domestic support programs.
- State support to environmental protection and resources conservation has intensified year by year. Because of the deteriorating ecological environment, the Chinese government has increased spending on ecological environmental protection: total expenditure rose by RMB18.4 billion in 1998, 26 times more than in 1981. In terms of outlay, China's ecological protection measures were divided into five main parts, namely, water and soil conservation, grassland improvement and protection, forestation subsidy and protection, water resource detection and protection, and resources survey. In recent years, state fiscal appropriations for ecological protection went mainly to forestry development. To control worsening soil erosion and depletion and desertification, the government launched six key afforestation projects. Of these, the project of returning grain plots to forestry was targeted at ecological development: it involved a record spectrum of areas, was participated in by a record number of the general public, and was implemented under the most stringent policy guidance. The project is far more complicated than any ordinary afforestation effort in that it is not only concerned with checking the deteriorating ecological environment but also relates to issues such as the geographic readjustment of future agricultural development, the regulation of property-right policy and land ownership in different regions, and the migration of farmers in ecologically fragile areas.

China has continually intensified its Green Box support, especially over recent years. Green Box expenditure represents 9.2 per cent of agricultural production value on an average basis from 1996–98, and this figure has increased year by year, but some major problems persist and have weakened the effects of these measures.

- The constraints of the regime have led to weakened policy enforcement and reduced the effects of the Green Box measures. Under the existing administrative and operational system, payments made in the name of agricultural support are sometimes not used for the purpose, and the amount of money used for such support may even be vastly short of the actual amount provided. As most of the local research institutions are inflated and overstaffed, an overwhelming amount of the research fund has been used as remuneration and benefits packages for staffs or other purposes, with very limited sums left for research.
- Subsidies are not well targeted. The subsidies used to extend to both the production and distribution sectors, covering a wider range of areas and involving various types of subsidy programs. Many of the programs were not well designed and targeted and tended to pursue a short-term effect.

- There is undue emphasis on subsidizing the distribution rather than the production process. Agricultural subsidies had been unduly concentrated in the distribution process; as a result, producers cannot immediately perceive the incentive and support from the government, and the effects of subsidies aimed at stimulating production and raising efficiency have been reduced to the minimum. Furthermore, because of the intermediary links between production and distribution, a significant amount of the funds used as agricultural subsidies has been wasted.
- In the implementation of Green Box measures, other supposedly relevant agricultural support policies are not accommodating and disconnected, therefore weakening or even partially offsetting the effects of these measures. In spite of the fact that agriculture contributes some 16 per cent to the nation's Gross Domestic Product (GDP) and that Green Box support accounts for a huge 14.2 per cent of the state budgetary expenditures (the 1986–89 average), governments at various levels levy a considerable amount of agricultural taxes and fees each year (RMB40 billion from agricultural taxes alone), turning China's overall agricultural support into a negative value.
- The structure of the Green Box support is imperfect, in that neither a marketing and promotion service network for agricultural products nor a system of agricultural structural adjustment has been set up; both are of great importance to sustainable agricultural development, structural readjustments and stable income for farmers.

I. Stronger roles expected for Green Box measures

Chinese agricultural policies had long been formulated against the backdrop of short supplies of products and materials, the basic goal of the policies being to satisfy the demand for food through self-sufficiency. Efforts related to the build-up of the policy framework, technical innovations and resources distribution were all made in pursuit of this basic goal, and a whole set of mutually-supporting agricultural policies was drafted, resulting in quantity-oriented industrial and product structures and corresponding resources distribution setup and technical systems. Meanwhile, some other policy targets, such as enhancement of product quality, streamlining the distribution and trade network, better use of resources, environmental protection, narrowing regional development gaps, poverty relief and income growth for local farmers, were basically ignored. Starting from the late 1990s, the shortage of agricultural products gradually reduced, the general demand for food was met quantitatively, and the closed economic environment in which China's self-sufficient policy used to operate no longer exists since the country's accession to the WTO. As the new situation unfolds, the goal of agro-policy is expected to shift from merely seeking quantity, as in the past, to more diversified and balanced development, taking as priorities environmental protection, steady income growth for local farmers and enhancement of product quality. The strategic mission of the sector should also be shifted from simply relying on domestic markets and resources to making full use of markets and resources both at home and abroad. To achieve these goals under the new environment, the role of Green Box measures will be strengthened and new legal, institutional and fiscal structures and arrangements should be set up to facilitate the adoption of Green Box measures and maximize the supporting effects.

II. Need to reform the Green Box

Green Box measures have no doubt promoted the agricultural reform process. These measures have been of great assistance not only to highly-subsidizing countries, in shifting from price support to mechanisms that are characterized by being more transparent and less trade-

distorting, but also to developed and developing Members in fulfilling a series of social objectives, but the current regime needs to be strengthened and improved, for the following reasons.

Potential distorting effects of Green Box measures on trade

The current Green Box qualifications have provided only a logical and legitimate ranking of policies, rather than one based on economic analysis. For this reason they can hardly ensure that they will have no, or at most minimal, distorting effects on production and trade. Green Box measures tend to be less trade-distorting than those in the Blue Box, which in turn exert a lesser effect than the measures in the Amber Box, but it is still an empirical issue as to what measures with how much less distortion can be put into the Green Box.

Many studies have shown that the support measures that appear least trade-distorting are actually affecting production or trade. The de-coupled income support measures in the Green Box, no matter how meticulously designed and implemented, can affect production through their impact on income, wealth, expectations, risks and other variables. Farmers will possess greater investment capacity with their increased wealth and income while policy payments will offset risks embedded in making production decisions, which will in turn diminish the weight of unfavourable factors in agricultural investment.

Other measures in the Green Box, such as Income Insurance, Relief for Natural Disasters and payments for Structural Adjustment and Agricultural Environmental Programs, exhibit similar tendencies. For Regional Assistance Programs, the Green Box also specifies that “Where related to production factors, payments will be made at a progressively decreasing rate above a threshold level of the factor concerned,” which may have potentially distorting effects on production.

Some of the Green Box measures employed by certain Members are based on highly distorting policies established in the past. Some other Green Box measures are employed parallel to price support, but transparency is missing when the details of their implementation are reported to the WTO, leading to more serious distortions of production and trade in these measures and their supporting regimes.

As can be seen from the above analysis, it is almost impossible for Green Box support measures to stay unrelated to production and trade. However, it is highly possible to strengthen Green Box discipline to ensure the least trade-distorting effects in the reduction exemption policies. For this reason it is of great necessity to design stricter and more operative criteria for Green Box measures while exercising limitation controls on their dimensions.

Green Box support policies and developing countries

Developing countries share a low level of agricultural protection and support. The market distortion caused by agricultural support is almost always imputed to the developed economies. Agriculture is the foundation of economic growth and development for most developing countries and least developed countries, including net food-importing countries. Most developing countries have certain competitive advantages in agriculture, but their proportion of the global agricultural trade has usually been below their due share.

A scrutiny of the implementation of the URAA reveals few benefits for the developing countries from the reduction by the developed economies in their domestic support. The increased Green

Box measures are not neutral for production and trade, resulting in the retention of resources within the agricultural sector. These measures, although having replaced some of the Amber Box measures, are nevertheless continuing to distort production and trade, still keeping the agriculture of developing countries locked in a disadvantaged competitive position.

The Green Box measures currently in force in the URAA are biased in favour of the developing countries. The developing countries do not enjoy as much room for manoeuvre as the developed countries in using domestic support other than that contained in the Green Box, while many of the Green Box measures are far from realistic for most developing countries.

The low level of development has made it impossible for the developing countries to switch to de-coupled support. In most developing countries, the physical conditions required for a direct payment regime, e.g., an income registration system, are still lacking. The majority of the developing countries, therefore, cannot afford to increase Green Box expenditures as the developed countries have been doing.

Meanwhile, the developing countries differ greatly from their developed brothers in their agricultural development concerns. The Green Box reflects more the requirements and policy objectives of the developed countries, and makes few manifestations of the realistic problems typical of the developing countries in promoting their agriculture, such as surplus labour in the rural areas. In fact, developing countries are in greater need of Green Box measures with which to strengthen power and infrastructure development, transform the traditional trade patterns, carry out structural and regime adjustments, and establish an effective market support system, legal framework and management network. Although the Green Box support does not impose any ceilings on these issues, the problem remains that the developing countries cannot afford, or lack the facilities for, the application of most Green Box measures.

Summing up, the reform in the URAA on domestic support has failed to bring with it much of material interest to the developing countries. On the contrary, the number of net importers of grains and food products among the developing countries has been rising. Some WTO Members contend that, unless the developed countries reduce their domestic support, including Green Box support, in real terms, developing countries should be allowed to provide protection to their farmers by retaining a comparatively high tariff barrier or by adjusting their current tariff structure. The ongoing agricultural negotiations should allow developing countries more flexibility in market access, tariff, quota and other taxation controls, granting them the freedom to allocate subsidies for specific purposes. This may allow the developing countries to take action, when fiscal revenues are far from adequate, to protect the sustainable development of their agricultural sectors and to pursue other objectives.

Proposals to improve Green Box support under the WTO

1. The definition of Green Box should be clarified, Green Box discipline should be strengthened, and stricter and more operative criteria should be designed for Green Box support.
2. An important objective of new negotiations should be further substantial reductions in Amber Box, Blue Box and export subsidies. In reducing the Amber Box, attention should also be given to capping the subsidies on specific commodities.

3. WTO arrangements should provide sufficient flexibility for developing countries in market access, export subsidies and domestic support to achieve legitimate domestic policy objectives. It is important that these measures are recognized in the WTO's ongoing negotiations on agriculture.
4. There should be no extension to the "Peace Clause."

Foreword

China is a major agricultural state as well as the most populous country in the world. The development of its agricultural economy is not only of vital importance to the national food security and the livelihood of two-thirds of its farming population but also determines how the macro-economy develops in a sustainable, healthy and coordinated manner. At present, the Chinese agricultural sector is facing various challenges in performing these economic functions. These challenges include: serious shortage and degeneration of agricultural resources, such as land and water; decentralized and small-scale local farming operations that can barely compete with highly-mechanized and commercialized modern agricultural production abroad; the sluggish rate of production structure improvement, which is not in keeping with the ever-increasing domestic demand structure; a redundant and generally ill-educated labour force that cannot adapt to structural adjustment; the long-term, incorrect use of chemicals and pesticides that damages the ecological environment, restricts export growth and increasingly becomes intolerable to consumers; and slow growth in farmers' incomes and extensive poverty in rural areas.

China's accession to the World Trade Organization (WTO) means that the nation's economy will integrate more deeply and widely into the world economy. This integration will also exert a great impact on the sustainability of agriculture in China. To promote the sustainability of agriculture in China, Green Box measures are employed. This paper attempts to analyze the agro-structural changes arising from the WTO accession and the need to expand the use of Green Box measures in the post-WTO era. To this end, efforts also are made to address the need to further reform the Green Box measures under the WTO.

The paper is divided into five sections: the first (Chapters 1 and 2) systematically examines the relevant disciplinary measures for Green Box support under the Uruguay Round's Agreement of Agriculture and the evolution and enforcement of Green Box policies in some major developed Members, especially the European Union, the United States and Japan; the second (Chapters 3 and 4), beginning with general comments on achievements and failures of agricultural methods in China, identifies the major structural changes and the challenges that Chinese agriculture now faces in the post-accession era; the third (Chapters 5) examines and evaluates the implementation of the country's domestic support policies and the need to expand the uses of the Green Box measures under the new circumstances; the fourth (Chapters 6 and 7) addresses the needs to further reform the rules concerning the Green Box measures under the WTO and puts forward some concrete suggestions; and the fifth (Chapter 8) offers some conclusions.

1. Green Box Measures: An Analysis of the WTO Agreement on Agriculture

The Uruguay Round's Agreement on Agriculture (URAA) represents a turning point in the restructuring of agricultural trade regimes. The agricultural industry has been brought under the discipline of the multilateral trade regime, which ensures a continuation of the transformation underway in the farming sector. World Trade Organization (WTO) Members have reached consensus on market access, export subsidy and domestic support, which are now often considered the three major components of the URAA.

One of the landmark achievements in the URAA has been the extension of multi-disciplinary border measures in agriculture into domestic policies. Compared with other sectors, agriculture has long enjoyed rather robust domestic support in the world's economies, especially those of the developed countries. For this reason, more consolidated reform is necessary if the protection of national agricultural sectors is to be reduced.

From another perspective, highly distortive trade policies usually result from strong domestic support. For example, surplus agricultural products propped by government pricing can be sold at suppressed prices on the world market only with the support of export subsidies. Obviously, substantial domestic support epitomizes the original source of trade distortion, which will not disappear if border measures continue to be the sole means of balancing trade.

Judging from the implementation of the URAA, securing domestic support commitments from governments represents a core achievement of the Uruguay Round. Nevertheless, actual reduction in support in the last six years seems to have been quite limited, and various domestic support measures in agriculture still pose serious distortions in agricultural production and trade. Meanwhile, the domestic support discipline under URAA reflects more of the expectations and policy targets of the developed economies than those of the developing ones, whose unfavourable situations in global agricultural trade are yet to demonstrate much, if any, improvement.

1.1 Domestic support commitments

URAA disciplines, rules and restraints on domestic support direct the domestic policies that are most trade-distorting towards lesser or minimum distortions. Under the broad WTO umbrella, domestic support policy instruments are usually classified into three categories, now often known as the "traffic light" system. Support policies that are the least or minimally trade distorting are placed in the "Green Box," and can be exempted from reduction commitments. Also belonging to this category are certain domestic investments and input subsidies in developing countries that qualify as "Special and Differential," which are equally exempted. Support instruments deemed to be the most trade distorting are classified as "Amber Box" policies, and these are subject to reduction in instalments. Direct payments under production-limiting programs are contained in the "Blue Box," with distorting effects between those instruments in the Green and Amber Boxes.

Amber Box

Excluding exemptions, all domestic support measures that are deemed distortive to production and trade are placed in the Amber Box. The total values of non-exempt domestic measures

therein are subject to reduction. Amber Box measures are calculated by adopting the Aggregate Measurement of Support (AMS), which is the cornerstone of domestic support commitments. The calculation basket of a Member's Current Total AMS is supposed to contain domestic support measures that favour agricultural producers but are exempt from reduction commitment, including any modifications and any new measures that do not conform to exemption criteria.

Thirty of the present 144 WTO Members have made commitments to reduce their AMS Total. The majority of AMS support is concentrated in a few developed economies such as the European Union (EU), Japan and the United States (U.S.). Recent URAA implementation history suggests that AMS has not proved effective. Part of the reason for this is that 1986–88 was taken as the base period for reductions in domestic support. This period is hardly representative of the average; rather, at that time the domestic support of most agricultural products in the EU, Japan and U.S. was comparatively high.

For example, the support measures that the EU employed during this period—Blue Box instruments, which were exempt from reduction—seemed to surpass the original AMS. Subsequently, when it placed its shares of measures that should have been reduced into its Blue Box, the EU found it easy to fulfill its reduction commitments. Moreover, these economies have the freedom to create new measures that might prove trade distortive so long as they do not exceed their annual Total AMS limits.

de minimis

Product-specific domestic support that would otherwise be required to be included in a developed economy's calculation of its Current AMS can be exempted if such support does not exceed five per cent of its total value of production of a basic agricultural product during the relevant year. Similarly, it is not deemed necessary to reduce non-product-specific domestic support that would otherwise be required to be included in a Member's calculation of its Current AMS if such support does not exceed five per cent of the total value of its agricultural production. On the other hand, the *de minimis* percentage will be 10 per cent in the case of a developing country. In short, a WTO Member need neither include *de minimis* subsidies in the calculation of its Current Total AMS nor make any reduction. If a Member has not made a Total AMS commitment, it may not provide support to agricultural producers in excess of the relevant *de minimis* level.

Blue Box

Domestic support commitment requires that all subsidies related to production have to be reduced or confined within *de minimis* limits. The Blue Box, however, stands out as an exception to this rule. All Blue Box policies and subsidies are directly related to and based on fixed head numbers of livestock and fixed acreages of arable land. Compensation payments in this category are made based on no more than 85 per cent of the fixed areas and yields in the case of crops and fixed head numbers in the case of livestock, or are based on no more than 85 per cent of the base level of production.

The Blue Box was designed to limit production yields by imposing quotas on and/or by requiring farmers to remove land from marketable agricultural production. Countries employing such subsidies believe that the Blue Box is far less trade-distorting than the Amber Box measures. No countervailing measures were to be taken against the Blue Box measures until the expiry of

the “Peace Clause” (see below) at the end of 2003. Members that notify the WTO of their employment of Blue Box subsidies include the EU, Iceland, Norway, Japan, Slovak Republic and Slovenia. The U.S. used to do so, but now no longer uses the Blue Box instruments.

Peace Clause

Article 13 of the URAA is titled “Due Restraint,” also known as the “Peace Clause.” This article provided protection to the use of subsidies that accorded with the URAA rules from being challenged by other WTO agreements. It was designed to reduce the possibility of creating new trade disputes during the URAA-stipulated implementation. In the absence of the “Peace Clause,” Members would likely take actions against other Members’ subsidies by citing the Agreement on Subsidies and Countervailing Measures and other related clauses in the WTO framework.

The “Peace Clause” classified all Green Box domestic support as “Non-Actionable Subsidies,” which are exempt from actions based on Articles II and XVI of GATT 1994 and the Agreement on Subsidies and Countervailing Measures. Blue Box and *de minimis* subsidies and other domestic subsidies that conform to the URAA were exempt from countervailing duties unless a determination of injury or threat thereof was made in accordance with GATT 1994 and the Agreement on Subsidies and Countervailing Measures. Meanwhile, due restraint was to be shown in initiating any countervailing duty investigations. In addition, support measures as described above to specific commodities were exempt from actions, based on GATT 1994 and other related agreement clauses, provided they were not in excess of those decided during the 1992 marketing year. The “Peace Clause” remained valid until the end of 2003.

1.2 Main rules on Green Box domestic support

Under the URAA, all Green Box support measures must meet the following fundamental requirements: They have no, or at most minimal, trade-distorting effects, nor positive effects on production. Green Box support should be provided through government-planned investments rather than through price hikes on consumer goods; it should not have the effect of providing price support to producers. Green Box measures must adopt the form of government schemes rather than direct support to particular products. According to URAA decisions, no limitations are to be imposed on the use of Green Box subsidies so far as they accord with relative criteria. Green Box measures, which are generally applicable to all Members—both developed and developing countries, include the following:

a. General Government Service Programs

Green Box policies cover expenditures of many government service programs, including General Services a government provides so long as they meet the general criteria and other policy-specific conditions. Such support programs include but are not restricted to the following: (a) Research, including general research and studies in connection with environmental programs and specific products; (b) Pest and Disease Control measures, including general and product-specific Pest and Disease Controls; (c) Training Services to farmers, Extension and Advisory Services, general inspection services, and the inspection of particular products for health, safety, grading or standardization purposes; (d) Marketing and Promotion Services, including market information, consultation and promotion relating to particular products, but excluding expenditure for unspecified purposes that could be used by sellers to reduce their selling prices or vouchsafe a

direct economic benefit to purchasers; and (e) Infrastructure Services including electricity supply, roads and other means of transport, market and port facilities, water supply facilities, dams and drainage schemes, and infrastructural works associated with environmental programs. The expenditure must be directed to the provision or construction of capital works only and must exclude the subsidized provision of on-farm facilities other than for the supply of generally available public utilities. Also excluded are subsidies to inputs or operating costs, or preferential user chargers.

b. Food programs

Usual government service programs such as Public Stockholding for Food Security Purposes, and expenditures from the provision of domestic food aid to sections of the population in need, should continue.

c. Direct Payments to Producers

Green Box policies also allow direct payments (or revenue foregone, including payments in kind) to producers, i.e., “Decoupled Income Support.” Direct payments in this category must have no bearing on production decisions. For instance, although a farmer receives a government subsidy, this support must not be related to, or based on, the type or yields of production undertaken, or prices, or the factors of production employed by the farmer in any given year after the base period. On the other hand, no production will be required in order to receive such payments.

d. Income Insurance and Income Safety-Net Programs

Government Financial Participation in Income Insurance and Income Safety-Net Programs and Payments for Relief From Natural Disasters.

e. Structural adjustment assistance

A series of structural adjustment assistance programs including Producer Retirement Programs, Resource Retirement Programs and Investment Aids.

f. Environmental payments

Payments under government environmental and other protection programs, with the amount of payment limited to the extra costs or loss of income involved in complying with the government programs.

g. Regional Assistance payments

Eligibility for such payments is limited to producers in disadvantaged regions, and the amount of such payments must not be related to, or based on, the type or volume of production or prices undertaken by the producer in any given year after the base period. Payments of this nature are generally available to all producers within such regions, and must be limited to the extra costs or loss of income involved in undertaking agricultural production in the prescribed areas.

2. Analysis of Green Box Policies of Some Major WTO Members

In response to the Uruguay Round's Agreement on Agriculture (URAA)'s call to reduce production and trade-distorting Amber Box policies, many World Trade Organization (WTO) Members have gradually shifted to Green Box measures through domestic policy readjustments in the process of implementing the URAA.

2.1 Green Box expenditures by WTO Members and composition of their Green Box programs

2.1.1 Green Box expenditures in domestic support

Within the framework of the URAA, which has been implemented since 1995, the general trend in WTO Members' domestic support has been the increased use of Green Box measures and decreased use of Amber Box measures, which have the most distorting effects on farm production and trade.

Table 1 shows the share of Green Box expenditures in the annual domestic agricultural support of 55 Members, as reported by these Members to the WTO from 1995 to 1998. On average, this represented 50.4 per cent of domestic support for developed Members and 77.3 per cent for developing Members. Twenty-four Members, including 21 developing countries and three developed countries (43.7 per cent of all the reporting Members), had Green Box expenditures in excess of 80 per cent of their total domestic support; whereas 15 Members, including one developed Member, (27.3 per cent of the total Members), resorted exclusively to Green Box measures. Table 1 shows that Green Box measures comprised 50 to 80 per cent of the total domestic support for 18 Members, 20 to 50 per cent for nine Members and less than four per cent for four Members (32.7 per cent, 16.4 per cent and 7.2 per cent respectively). These figures indicate that 76.4 per cent of WTO Members devoted over 50 per cent of their domestic support to Green Box measures. Between 1995 and 1998, according to the share of Green Box expenditures in their total domestic support, 15 Members, Argentina, Australia, Canada, Costa Rica, Czech Republic, the European Union (EU), Korea, Malaysia, Paraguay, Peru, Slovakia Republic, Slovenia, Switzerland, Tunisia and the United States (U.S.), increased Green Box use. Nine Members substantially reduced their Green Box expenditures: Brazil, Chile, Egypt, Fiji, Namibia, Pakistan, South Africa, Sri Lanka and Norway.

As many countries decreased Amber Box spending over this period, Green Box became the principal mode for domestic agricultural support. For most developing Members, Green Box was particularly relied upon for their domestic support; for some Members it was the only means of support. However, with the exception of a few developed Members, such as New Zealand, the U.S. and Australia, Green Box expenditure accounted for a very small proportion of domestic support. Reform was needed, therefore, to transform a greater proportion of agricultural support into Green Box measures.

Table 1. Share of Green Box Expenditures in Total Domestic Support.

Member	1995	1996	1997	1998	1995-98
Developing countries:	64.7	71.9	76.4	83.6	77.3
Argentina	52.7	73.8	#	#	63.3
Bahrain	#	17.4	#	#	17.4
Botswana	100.0	#	#	#	100.0
Brazil	88.2	80.4	85.5	#	69.5
Chile	97.7	97.3	91.8	87.5	93.6
Colombia	62.6	79.9	79.5	#	74.0
Costa Rica	33.4	66.6	73.9	#	58.0
Cuba	100.0	100.0	100.0	100.0	100.0
Cyprus	60.7	59.4	69.6	#	63.2
Dominican Republic	100.0	100.0	100.0	100.0	100.0
Egypt	90.5	96.9	94.1	35.0	79.1
Fiji	#	99.5	85.8	#	92.7
Gambia	n.a.	#	92.6	#	92.6
Guyana	#	#	100.0	#	100.0
India	26.1	#	#	#	26.1
Indonesia	100.0	100.0	100.0	100.0	100.0
Jamaica	..	100.0	100.0	100.0	100.0
Kenya	100.0	100.0	#	#	100.0
Korea	62.7	68.9	68.8	69.2	67.4
Kyrgyz Republic	n.a.	n.a.	n.a.	100.0	100.0
Malaysia	83.7	89.3	#	#	86.5
Malta	100.0	100.0	100.0	100.0	100.0
Mexico	59.7	#	#	#	59.7
Mongolia	n.a.	n.a.	100.0	100.0	100.0
Morocco	49.7	68.5	65.9	#	61.4
Namibia	95.0	0.0	68.2	#	54.4
Pakistan	97.4	96.2	93.3	#	95.6
Paraguay	72.8	100.0	100.0	100.0	93.2
Peru	27.0	30.4	44.6	#	34.0
Philippines	35.0	76.2	84.1	71.2	66.6
Romania	100.0	100.0	#	#	100.0
South Africa	55.3	44.5	50.1	#	50.0
Sri Lanka	84.8	82.2	73.0	#	80.0
Thailand	61.5	61.0	66.8	66.4	63.9
Trinidad and Tobago	100.0	100.0	100.0	#	100.0
Tunisia	24.2	31.5	33.6	34.1	30.9
Uruguay	64.3	60.5	68.9	74.4	67.0
Venezuela	42.8	62.6	54.1	#	53.2
Zambia	n.a.	100.0	n.a.	100.0	100.0
Zimbabwe	100.0	100.0	100.0	#	100.0

Member	1995	1996	1997	1998	1995-98
Developed countries:	47.5	51.8	55.0	54.9	50.4
Australia	86.0	86.6	90.3	91.2	88.5
Canada	50.8	53.1	#	#	52.0
Czech Republic	75.3	76.0	78.5	86.2	79.0
EC	20.8	23.2	#	#	22.0
Hungary	38.6	#	#	#	38.6
Iceland	12.3	24.2	21.6	10.6	17.2
Israel	35.4	42.5	38.0	#	38.6
Japan	47.2	45.6	45.3	#	46.0
New Zealand	100.0	100.0	100.0	100.0	100.0
Norway	19.5	18.8	17.0	17.2	18.1
Poland	63.2	70.8	74.4	73.8	70.6
Slovak Republic	0.4	0.6	1.4	4.7	1.8
Slovenia	48.1	50.8	57.9	60.8	54.4
Switzerland-Liechtenstein	38.8	44.8	47.3	49.2	45.0
United States	75.6	88.0	87.9	#	83.8

Notes: (1) n.a. – not applicable; “#” – no notification received as of 31 March 2000.

(2) Definition of Member:

Developed Members: North America, EU (15), EFTA (3), Japan, Australia, and New Zealand;

Developing Members: Latin America and the Caribbean including South Africa, Europe less EU (15) and EFTA (3), the Middle East, and Asia less Australia, Japan, and New Zealand, Central and Eastern Europe, the Baltic States and the Commonwealth of Independent States.

Source: *Committee on Agriculture, WTO.*

Table 2. Share of Green Box Expenditures in Total Domestic Support.

Member	% of Green Box in total domestic support
Botswana, Cuba, Dominican Republic, Guyana, Indonesia, Jamaica, Kenya, Kyrgyz Republic, Malta, Mongolia, Romania, Trinidad and Tobago, Zambia, New Zealand, Zimbabwe	100
Australia, Chile, Fiji, Gambia, Malaysia, Pakistan, Paraguay, Sri Lanka, United States	80–100
Argentina, Brazil, Canada, Columbia, Costa Rica, Cyprus, Czech Republic, Egypt, Korea, Mexico, Morocco, Namibia, Philippines, Poland, Slovenia, Thailand, Uruguay, Venezuela	50–80
EC, Hungary, India, Israel, Japan, Peru, South Africa, Switzerland-Liechtenstein, Tunisia	20–50
Bahrain, Iceland, Norway, Slovak Republic	Below 20

Source: *WTO Secretariat.*

2.1.2 Level of Green Box support of some major Members

Although the overwhelming majority of WTO Members have adopted Green Box in their domestic agricultural support, the measures used vary considerably in size. Table 3 lists the measures in use by all the 55 Members. It shows the average annual expenditures from 1995 to 1998 standing at a total of \$128,657.8 million U.S., with the expenditures of the 40 developing Members standing at \$20,378.5 million U.S. and that of the 15 developed Members at \$108,279.3 million U.S., accounting for 15.8 and 84.2 per cent respectively. The U.S. remained

the major user of Green Box measures, spending an average \$49,704.5 million U.S. annually; Japan was in second place, its annual average amounting to \$26,496.8 million U.S.; the EU followed with \$25,384.1 million U.S. The outlays of these 'Big Three' countries on Green Box measures stood at 38.6 per cent, 20.6 per cent and 19.7 per cent respectively of the gross expenditures of all the Members, and their combined shares totalled 78.9 per cent. On the other hand, many developing Members each accounted for less than one per cent of the total expenditures on Green Box support, the only exceptions being Brazil, Korea, India, Mexico and Thailand, whose spending on Green Box was one per cent or more. In fact, most of the developing Members' Green Box support represented less than 0.5 per cent.

Sixteen of the 55 Members registered an increase in Green Box expenditures in absolute value between 1995 and 1998. They were: Argentina, Cuba, Syria, Dominica, Indonesia, Jamaica, Kenya, Kyrgyz Republic, Malaysia, Peru, Romania, Tunisia, Uruguay, Poland, Slovak Republic and Slovenia. Twelve Members, Egypt, Fiji, Korea, Mongolia, Namibia, Pakistan, Paraguay, Thailand, Zimbabwe, Canada, Japan, Norway and the U.S., dramatically reduced their expenditures during the same period.

It can, therefore, be concluded that although most Members increased the use of Green Box measures in their domestic support during this period, the developed Members made most use of such measures. As the Amber Box was subject to reduction, the WTO Members shifted to Green Box measures that had no quantitative restrictions.

Table 3. Total Expenditures on Green Box Measures by Member, 1995–98.

Member	1995		1996		1997		1998		1995–98	
	Amount (US\$ million)	Share in reported green box expenditure (%)	Amount (US\$ million)	Share in reported green box expenditure (%)	Amount (US\$ million)	Share in reported green box expenditure (%)	Amount (US\$ million)	Share in reported green box expenditure (%)	Amount (US\$ million)	Share in reported green box expenditure (%)
Developing countries:	20,702.4	15.9	17,081.6	13.4	15,728.6	16.8	7,294.1	60.0	20,378.5	15.8
Argentina	137.0	0.1	237.4	0.2	#	#	#	#	187.2	0.1
Bahrain	#	#	0.5	0.0	#	#	#	#	0.5	0.0
Botswana	10.6	0.0	#	#	#	#	#	#	10.6	0.0
Brazil	4,883.1	3.8	2,600.3	2.0	3,458.1	3.7	#	#	3,647.2	2.8
Chile	175.8	0.1	168.7	0.1	207.3	0.2	124.9	1.0	169.2	0.1
Colombia	317.8	0.2	577.8	0.5	350.4	0.4	#	#	415.3	0.3
Costa Rica	66.8	0.1	30.2	0.0	40.0	0.0	#	#	45.7	0.0
Cuba	907.5	0.7	1,089.8	0.9	1,200.8	1.3	1,621.3	13.3	1,204.9	0.9
Cyprus	129.6	0.1	128.4	0.1	130.5	0.1	138.5	1.1	131.8	0.1
Dominican Republic	6.6	0.0	9.9	0.0	8.6	0.0	15.1	0.1	10.1	0.0
Egypt	68.3	0.1	75.8	0.1	38.8	0.0	1.3	0.0	46.1	0.0
Fiji	16.1	0.0	10.8	0.0	13.5	0.0
Gambia	n.a	n.a	#	#	3.1	0.0	#	#	3.1	0.0
Guyana	#	#	#	#	16.2	0.0	#	#	16.2	0.0
India	2,195.6	1.7	#	#	#	#	#	#	2,195.6	1.7

Member	1995		1996		1997		1998		1995–98	
	Amount (US\$ million)	Share in reported green box expenditure (%)	Amount (US\$ million)	Share in reported green box expenditure (%)	Amount (US\$ million)	Share in reported green box expenditure (%)	Amount (US\$ million)	Share in reported green box expenditure (%)	Amount (US\$ million)	Share in reported green box expenditure (%)
Indonesia	178.2	0.1	191.9	0.2	212.2	0.2	130.8	1.1	178.3	0.1
Jamaica	#	#	7.2	0.0	7.9	0.0	8.1	0.1	7.7	0.0
Kenya	53.3	0.0	66.4	0.1	#	#	#	#	59.9	0.0
Korea	5,173.5	4.0	6,442.8	5.1	6,093.0	6.5	3,828.1	31.5	5,384.4	4.2
Kyrgyz Republic	n.a	n.a	n.a	n.a	n.a	n.a	2.7	0.0	2.7	0.0
Malaysia	243.8	0.2	299.7	0.2	#	#	#	#	271.8	0.2
Malta	0.5	0.0	0.7	0.0	#	#	0.6	0.0	0.6	0.0
Mexico	1,625.3	1.2	#	#	#	#	#	#	1,625.3	1.3
Mongolia	n.a	n.a	n.a	n.a	5.1	0.0	3.3	0.0	4.2	0.0
Morocco	157.0	0.1	378.2	0.3	317.7	0.3	#	#	284.3	0.2
Namibia	49.6	0.0	n.a	n.a	7.7	0.0	#	#	28.7	0.0
Pakistan	439.9	0.3	392.4	0.3	312.5	0.3	#	#	381.6	0.3
Paraguay	23.0	0.0	8.6	0.0	21.9	0.0	19.2	0.2	18.2	0.0
Peru	79.7	0.1	108.6	0.1	223.4	0.2	#	#	137.2	0.1
Philippines	136.3	0.1	282.2	0.2	515.1	0.5	185.1	1.5	279.7	0.2
Romania	729.9	0.6	756.5	0.6	#	#	#	#	743.2	0.6
South Africa	762.9	0.6	525.0	0.4	544.0	0.6	#	#	610.6	0.5
Sri Lanka	148.7	0.1	159.9	0.1	70.1	0.1	#	#	126.2	0.1
Thailand	1,341.1	1.0	1,614.4	1.3	1170.5	1.2	1,035.5	8.5	1,290.4	1.0
Trinidad and Tobago	60.9	0.0	97.8	0.1	58.4	0.1	#	#	72.4	0.1
Tunisia	29.5	0.0	38.9	0.0	43.1	0.0	54.8	0.5	41.6	0.0
Uruguay	18.3	0.0	32.8	0.0	37.3	0.0	39.1	0.3	31.9	0.0
Venezuela	538.6	0.4	618.4	0.5	612.5	0.7	#	#	589.8	0.5
Zambia	n.a	n.a	111.5	0.1	n.a	n.a	85.7	0.7	98.6	0.1
Zimbabwe	13.7	0.0	12.8	0.0	11.6	0.0	#	#	12.7	0.0
Developed countries:	109,489.3	84.1	110,110.8	86.6	78,013.8	83.2	4,867.5	40.0	108,279.3	84.2
Australia	707.0	0.5	739.8	0.6	855.2	0.9	818.9	6.7	780.2	0.6
Canada	1,539.2	1.2	1,465.8	1.2	#	#	#	#	1,502.5	1.2
Czech Republic	132.2	0.1	197.4	0.2	121.3	0.1	196.3	1.6	161.8	0.1
EC	24,188.5	18.6	26,579.7	20.9	#	#	#	#	25,384.1	19.7
Hungary	104.6	0.1	#	#	#	#	#	#	104.6	0.1
Iceland	29.4	0.0	50.1	0.0	41.7	0.0	40.8	0.3	40.5	0.0
Israel	291.9	0.2	414.2	0.3	338.3	0.4	#	#	348.1	0.3
Japan	32,859.0	25.2	25,019.8	19.7	21,611.7	23.1	#	#	26,496.8	20.6
New Zealand	128.0	0.1	135.7	0.1	151.0	0.2	133.4	1.1	137.0	0.1

Member	1995		1996		1997		1998		1995–98	
	Amount (US\$ million)	Share in reported green box expenditure (%)	Amount (US\$ million)	Share in reported green box expenditure (%)	Amount (US\$ million)	Share in reported green box expenditure (%)	Amount (US\$ million)	Share in reported green box expenditure (%)	Amount (US\$ million)	Share in reported green box expenditure (%)
Norway	647.4	0.5	638.2	0.5	519.5	0.6	515.4	4.2	580.1	0.5
Poland	436.1	0.3	549.3	0.4	890.2	0.9	847.0	7.0	680.7	0.5
Slovak Republic	0.8	0.0	1.4	0.0	3.6	0.0	10.8	0.1	4.2	0.0
Slovenia	84.8	0.1	90.8	0.1	107.8	0.1	114.5	0.9	99.5	0.1
Switzerland-Liechtenstein	2,299.4	1.8	2,403.6	1.9	2,127.5	2.3	2,190.4	18.0	2,255.2	1.8
United States	46,041.0	35.4	51,825.0	40.7	51,246.0	54.7	#	#	49,704.0	38.6
Total (of the above)	130,191.7	100.0	127,192.4	100.0	93,742.4	100.0	12,161.6	100.0	128,657.8	100.0

Note: n.a. – not applicable; “#” – no notification received as of 31 March 2000.

Source: Members' notifications to Committee on Agriculture, WTO.

2.1.3 Green Box categories and policy shifts

Table 4 reveals the fast changing proportions of various types of Green Box spending in the total expenditures. Here it can be seen that, for the 46 Members reporting in 1995, Domestic Food Aid constituted the most frequently-used category, posting 30.6 per cent of the \$133,331.7 million U.S.-worth of gross expenditures on Green Box measures. It was followed by Infrastructure Services, within General Services, which accounted for 21.4 per cent. The situation remained the same for both 1996 and 1997, but Infrastructure Services jumped to first place in 1998, to 26.1 per cent, the largest share of the \$12,161.8 million U.S.-worth of Green Box expenditures by the 26 reporting Members. Investment Aids ran close to Infrastructure Services in that year, with 16.6 per cent, while Domestic Food Aid declined sharply, to a mere 2.9 per cent. Also, as Table 4 indicates, Green Box expenditures by the reporting Members went mostly to General Services items, such as Infrastructure Construction, which represented 40.9 per cent in 1995, 38.2 per cent in 1996, 39.5 per cent in 1997 and 49.9 per cent in 1998. The share of Direct Payments to Producers in total Green Box expenditures increased considerably, from 18.9 per cent in 1995 to 45.1 per cent in 1998.

Table 4. Members' Total Green Box Expenditures by Category, 1995–98 (millions of U.S. dollars).

Green Box category	Total Green Box expenditures							
	1995		1996		1997		1998	
	Amount	%	Amount	%	Amount	%	Amount	%
Research	3,251.50	2.4	3,428.90	2.7	2,660.30	2.8	713.1	5.9
Pest & Disease Control	1,339.70	1.0	2,705.70	2.1	620.1	0.7	368.3	3.0
Training Services	2,330.70	1.7	2,047.40	1.6	623.7	0.7	385.3	3.2
Extension & Advisory Services	2,620.40	2.0	3,264.50	2.6	2,923.80	3.1	597.8	4.9
Inspection Services	326.2	0.2	660.9	0.5	295.6	0.3	140.1	1.2
Marketing & Promotion Services	991.9	0.7	1,008.30	0.8	201.8	0.2	75	0.6

Green Box category	Total Green Box expenditures							
	1995		1996		1997		1998	
	Amount	%	Amount	%	Amount	%	Amount	%
Infrastructural Services	28,507.30	21.4	23,664.40	18.6	18,834.00	20.0	3,179.50	26.1
Other General Services	6,020.10	4.5	4,173.60	3.3	3,514.20	3.7	364.50	3.0
Non-separated General Services	9,396.80	7.0	7,625.50	6.0	7,475.00	8.0	242.60	2.0
Total general service (above 5-13)	54,784.60	40.9	48,579.20	38.2	37,148.50	39.5	6,066.20	49.9
Public stockholding for food security purposes	2,927.30	2.2	1,375.40	1.1	1,202.80	1.3	2,64.50	2.2
Domestic Food Aid	40,771.10	30.6	40,131.20	31.6	37,718.20	40.1	351.50	2.9
Total (14 to 15)	43,698.40	32.8	41,506.60	32.7	38,921.00	41.4	616.00	5.1
Direct Payments to Producers	339.80	0.3	349.40	0.3	0.00	0.0	0.00	0.0
Decoupled Income Support	2,586.50	1.9	7,316.40	5.8	7,254.30	7.7	793.40	6.5
Income Insurance/ Safety Net Programs	39.80	0.0	53.90	0.0	8.30	0.0	0.00	0.0
Natural Disaster Relief	1,766.70	1.3	1,401.00	1.1	1,096.90	1.2	765.80	6.3
Producer Retirement Programs	1,505.50	1.1	2,035.20	1.6	757.30	0.8	7.40	0.1
Resource Retirement Programs	3,167.70	2.4	3,589.50	2.8	1,706.80	1.8	7.90	0.1
Investment Aids	12,065.70	9.0	9,847.20	7.7	3,751.30	4.0	2,019.50	16.6
Environmental Programs	5,237.90	3.9	7,459.40	5.9	2,292.00	2.4	1,056.50	8.7
Regional Assistance Programs	4,205.90	3.2	4,571.70	3.6	685.30	0.7	539.90	4.4
Other Measures	3,916.00	2.9	383.40	0.3	320.00	0.3	289.00	2.4
Total Direct Payments (18–27)	34,831.50	26.0	37,007.10	29.1	17,872.20	18.9	5,479.40	45.1
Total Green Box,	133,331.70	100	127,091.90	100	93,980.90	100	12,161.80	100
Total number of Members covered	46	–	47	–	43	–	26	–

Source: WTO Secretariat.

Policy shifts to Green Box measures were recorded over the period from 1995 to 1998. Increased measures included Research (up from 2.4 per cent in 1995 to 5.9 per cent in 1998), Pest and Disease Control (one per cent to three per cent), Inspection Services (0.2 per cent to 1.2 per cent), Decoupled Income Support (1.9 per cent to 6.5 per cent), Environmental Programs (3.9 per cent to 8.7 per cent) and Investment Aid (9 per cent to 16.6 per cent). Of these, Decoupled Income Support, Investment Aids and Environmental payments registered the largest increases. Between 1995 and 1998, several measures also became less frequently used, such as non-separated and other General Services, Domestic Food Aid, Direct Payments to Producers, And Producer and Resource Retirement Programs. Some other measures, including Marketing and Promotion Services, Total Public Stockholding for Food Security Purposes, Income Insurance and Safety-Net Programs and Regional Assistance Programs, remained relatively unchanged.

The following conclusions may be drawn from the above analysis: while Green Box has been the domestic agricultural support measure most extensively used by the developing Members since 1995, such measures were in the minority compared with those adopted by the developed Members, especially the U.S., Japan and the EU. Infrastructure services constituted the principal form of domestic support, as reflected by the total Green Box expenditures from 1995 to 1998. Spending on Investment Aid and Environmental Programs increased, whereas payments to domestic food aid, always heavily used by some Members in the past, declined sharply in 1998.

2.2 Green Box measures by the United States, Japan and the European Union and assessment

In implementing the URAA, many WTO Members adjusted their domestic farm policies and shifted from price support to direct income support programs and other Green Box measures. The following section examines the Green Box programs of the U.S., Japan and the EU, the WTO Members making most use of such measures.

2.2.1 Green Box support by the United States

The United States' agricultural policy reform

Aiming to secure a steady income for farmers, the U.S. government rendered its domestic support in the 1980s by setting targeted prices and commodity loan rates, which compensated farmers through deficiency payments that balanced the differentials between administrated prices and market prices of the products concerned. The U.S. government also set production-restricting rates to eliminate an oversupply of farm products. As the EU became a net food exporter in the first half the 1980s, mainly through export subsidies across the continent, the U.S. also expanded its export subsidy programs in order to contend for market share. However, like the EU, it soon found itself in the woeful predicament of suffering heavy budgetary restraints. Then, in April 1996, the U.S. government began to execute the Federal Agriculture Improvement and Reform Act (hereinafter referred to as the FAIR Act), which marked the beginning of the implementation of the URAA and the country's massive farm policy reform. The highlights of the FAIR Act included abolishing deficiency payments and production-restricting plans and giving farmers the flexibility to grow their preferred types of crops. Over the seven years since the FAIR Act came into force, the U.S. government has gradually turned domestic price support into direct income support under Production Flexibility Contracts. The FAIR Act covered reforms on both contractual crops (wheat, corn, sorghum, barley, oats and dryland cotton) and other products such as dairy, peanuts and sugar crops. It also restructured programs for trade and food aid and environmental protection. More details of the FAIR Act are as follows:

- a. The FAIR Act has decoupled production decisions from income support and waived targeted prices and deficiency payments, thus eliminating the linkage between income support to farmers and prices. Although the current loan rates are set at a very low level against the market prices, the minimal price guarantee system remains in effect. Along with the cancellation of acreage reduction plans, farmers enjoyed greater flexibility in deciding what to grow, and the role of the market in production decision-making has been further strengthened.
- b. The Act set the annual payments under the Production Flexibility Contract at an accumulated \$35.6 billion U.S. for fiscal 1996–2002. To receive payments and loans for

program commodities, farmers had to sign a Production Flexibility Contract with the government over this period, which required compliance with the conservation plans for the farm, wetland and planting flexibility provisions, and a commitment to keep the land in agricultural use. Payments were usually allocated among contracted commodities at percentages prescribed by the FAIR Act, extrapolated from each commodity's share of projected deficiency payments for fiscal 1996–2002 in the budget baseline set by the Congress Budget Office in February 1995. The amount of payment allocated to each commodity was apportioned to individual farms based on each contracting farm's payment quantity of a contract commodity (yield multiplied by 85 per cent of contract acreage for participating farms). Contracted farms qualified on the basis of their involvement in the production adjustment program for the 1991–95 crop years. That is, they should have had at least one crop acreage base that entered into a production adjustment program for any of the crop years from 1991 through 1995, or that was considered planted under program rules (certified acreage). The per-unit payment rate for each contracted crop (e.g., per bushel, per cwt, etc.) was derived by dividing the crop's total annual contract payments by the total production to be paid by all the contracted farms (please see *Agricultural Outlook Supplement*, April 1996, Economic Research Service, USDA).

- c. The Act drew up a phase-out plan on price support for dairy products, down from \$10.35 U.S. per 100 pounds in 1996 to \$9.9 U.S. in 1999; support was scheduled to end completely on January 1, 2001. At the same time the export promotion plan was extended to cover 2002 in order to promote the export of dairy products.
- d. The Act has replaced the Market Promotion Plan with a Market Access Plan, setting the total trade subsidies for fiscal 1996–2002 at no more than \$9 million U.S.
- e. The Act has expanded the previous wheat-only food reserve to include rice, corn and sorghum; the total reserves have been raised to 4 million tons.
- f. In the field of environmental protection, the Act has introduced a voluntary conservation program, according to which farmers can request a 10 to 15-year fallow period for environmentally sensitive farming areas as large as 14.7 million hectares. Once the registered fallow period exceeds five years, the landowner may withdraw from the program before the expiry date and a new Production Flexibility Contract can be signed for the land withdrawn. New land can also join in such a program to replace land withdrawn or land due to mature. Farmers receive a certain amount of subsidies annually for land left fallow or for other environmental efforts.

Because of its policy shifts in the above-mentioned areas, the U.S. government claims that the FAIR Act has completely decoupled from production and prices and therefore conforms to the Green Box clauses of the URAA. By increasing farmers' reliance on the market, the FAIR Act enables the U.S. government to make most of its payments independent of production and price decisions and helps strengthen the ability of local farmers to compete in the international market. It also helped fulfil the U.S. commitment to the WTO and strengthened its position for the next round of multilateral talks.

Green Box measures by the United States

Table 5 shows the composition of domestic support by the U.S. from 1995 through 1998, which consisted of Green Box, Blue Box and Amber Box, as well as other types of subsidies.

Green Box accounted for 75.8 per cent of the total support spending in 1995. It remained relatively unchanged for both 1996 and 1997, but dropped by 11 percentage points in 1998, when Amber Box expenditure rose significantly, by five percentage points from 1997.

Table 5. Structure of Domestic Support for the United States (millions of U.S. dollars).

UNITED STATES	1995		1996		1997		1998	
	Amount	%	Amount	%	Amount	%	Amount	%
Green Box	46,041.0	75.8	51,840.0	88.0	51,349.0	87.9	499,22.0	76.7
S & D Box	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Blue Box	7,030.0	11.6	0.0	0.0	0.0	0.0	0.0	0.0
Current Total AMS	6,213.9	10.2	5,897.7	10.0	62,38.4	10.7	10,391.9	16.0
Others	1,483.2	2.4	1,155.1	2.0	804.3	1.4	4,742.3	7.3
Total domestic support	60,768.1	100.0	58,892.8	100.0	58,391.7	100.0	65,056.2	100.0

Sources: *GI/AG/N/USA/17, (98-2419), Committee on Agriculture, WTO, 15 June 1998.*

GI/AG/N/USA/36, (01-3172), Committee on Agriculture, WTO, 26 June 2001.

TN/AG/S/4, (02-1442), Committee on Agriculture Special Session, WTO, 20 March 2002.

As shown in Table 6, which cites Green Box expenditure by categories, the U.S. spent an average \$49.788 billion U.S. from 1995 to 1998 annually. Of these expenditures, Domestic Food Aid totalled \$36.188 billion U.S., accounting for 72.7 per cent, and General Services and Decoupled Income Payments ranked in second and third places, reaching \$36.188 billion U.S. and \$4.283 billion U.S., accounting for 13.6 and 8.6 per cent respectively. They were followed by structural readjustment aid under the Resource Retirement Program and Natural Disaster Relief, standing at \$1.721 billion U.S. and \$456.8 million U.S. (3.5 per cent and 0.9 per cent respectively). Research and non-separated General Services under the General Services category accounted for 11.1 per cent of the total Green Box expenditures, while Pest and Disease Control, Inspection Services and Marketing and Promotion services were combined to represent 2.3 per cent over the period.

Although the total Green Box expenditures of the U.S. rose by 12.6 per cent from \$4.6 billion U.S. in 1995 to \$51.8 billion U.S. in 1996, they showed a gradual decline over the next three years, down by 3.7 per cent from 1996 to 1998. Spending on Decoupled Income Support increased most significantly, rising from nothing in 1995 to \$5.187 billion U.S. in 1996 (10 per cent of the Green Box expenditures for that year), and up to \$5.659 billion U.S. in 1998 (11.3 per cent). In its notification to WTO between 1996 and 1998, the U.S. treated Production Flexibility Contracts as Decoupled Income Support. Other payments that increased considerably over the period included those for Natural Disaster Relief, up from \$102 million U.S. in 1995 (0.2 per cent) to \$1.411 billion U.S. in 1998 (2.8 per cent); General Services, up from \$6.419 billion U.S. (13.9 per cent) to \$7.244 billion U.S. (14.5 per cent); and Environmental Protection, up from \$234 million U.S. (0.5 per cent) to \$297 million U.S. (0.6 per cent). Expenditure on Domestic Food Aid decreased the most over this period, down from \$37.47 billion U.S. (81.4 per cent) to \$33.487 billion U.S. (67.1 per cent). Spending on other measures remained relatively unchanged.

It may be seen from the above analyses that the U.S. recorded the biggest spending on Green Box support in 1966. Since then, the country's Green Box expenditures have declined continuously. The structure of its Green Box expenditures is characterized by the gradual cuts of domestic food aid—once the largest shares, and by the simultaneous increase of Decoupled Direct Income Support, General Services and Environmental Programs as well as Natural Disaster Relief Aid.

Table 6. Total Green Box Expenditures by Category, United States, 1995-98 (millions of U.S. dollars).

Measure	1995		1996		1997		1998		1995-98	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
(a) General Services										
Research	2,415.0	5.2	2,413.0	4.7	2,561.0	5.0	2,608.0	5.2	2,499.3	5.0
Pest & Disease Control	495.0	1.1	487.0	0.9	507.0	1.0	526.0	1.1	503.8	1.0
Training Services Extension & Advisory Services										
Inspection Services	550.0	1.2	563.0	1.1	596.0	1.2	623.0	1.2	583.0	1.2
Marketing & Promotion Services	174.0	0.4	158.0	0.3	162.0	0.3	153.0	0.3	161.8	0.3
Infrastructural Services										
Other General Services										
Non-separated General Services	2,785.0	6.0	2,948.0	5.7	3,067.0	6.0	3,334.0	6.7	3,033.5	6.1
Total General Services	6,419.0	13.9	6,569.0	12.7	6,893.0	13.4	7,244.0	14.5	6,781.3	13.6
(b) Public Stockholding for Food Security Purposes										
(c) Domestic Food Aid	37,470.0	81.4	37,834.0	73.0	35,963.0	70.0	33,487.0	67.1	36,188.5	72.7
(d) Decoupled Income Support	0.0	0.0	5,187.0	10.0	6,286.0	12.2	5,659.0	11.3	4,283.0	8.6
(e) Income Insurance/ Safety-Net Programs										
(F) Natural Disaster Relief	102.0	0.2	153.0	0.3	161.0	0.3	1,411.0	2.8	456.8	0.9
(G) Producer Retirement Programs										
(H) Resource Retirement Programs	1,732.0	3.8	1,732.0	3.3	1,691.0	3.3	1,731.0	3.5	1,721.5	3.5

Measure	1995		1996		1997		1998		1995–98	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
(I) Investment Aids	84.0	0.2	86.0	0.2	89.0	0.2	93.0	0.2	88.0	0.2
(J) Environmental Programs	279.0	0.5	266.0	0.5	297.0	0.6	269.0	0.5	234.0	0.5
(K) Regional Programs										
Other measures										
Total Green Box	46,041.0	100.0	51,840.0	100.0	51,349.0	100.0	49,922.0	100.0	49,788.0	100.0

Note: 1. Includes Research and Advisory.

Source: G/AG/N/USA/17, (98-2419), Committee on Agriculture, WTO, 15 June 1998.
G/AG/N/USA/36, (01-3172), Committee on Agriculture, WTO, 26 June 2001.

The newly adopted U.S. Farm Bill and agricultural subsidies

On May 13 2002, U.S. President George W. Bush officially signed a new agricultural law, *The Farm Security and Rural Investment Act of 2002*, which had just been passed by both the House and the Senate. According to the Act, the U.S. government will appropriate \$180 billion U.S.-worth of agricultural subsidies from its 2002–11 federal budget, with an annual allocation of about \$15 billion U.S. to \$20 billion U.S. This Act, to be effective from 2002 to 2007, will boost the U.S. government's agricultural subsidy by nearly 70 per cent from the FAIR of 1996.

The new law will enhance the level of Green Box support expenditures for the nation. The U.S. government will, according to the Act, increase outlays for Environmental Programs and widen the coverage of such programs. These include: The New Conservation Security Program (\$2 billion U.S.), The New Grasslands Reserve Program (\$254 million U.S.), The Environmental Quality Incentive Program (\$9 billion U.S.), The Conservation Reserve Program (\$1.5 billion U.S.), The Wetland Reserve Program (\$1.5 billion U.S.) and The Farmland Reserve Program (\$1 billion U.S.). Since these expenditures are exempt from WTO restrictions, the U.S. may increase its total payments for Green Box measures in the future.

The new Act also authorizes the U.S. to increase Amber Box expenditures, under which the government will provide income support to American farmers engaged in the production of wheat, fodder, dry-land cotton, grains and oil-bearing crops. Concrete measures include the following: (a) *Fixed Decoupled Payments*. The level of support each of the crops receives is fixed and remains unchanged despite the fluctuations in the current production costs and market prices. To an extent, this mode of support is an extension of payments under the Agricultural Market Transfer Act, contained in the FAIR of 1996; (b) *Loans*. These are mainly loans for marketing and loan deficiency payments that have been expanded to cover various beans (dried beans, hyacinth beans, chicken beans); and (c) *New Counter-cyclical Payments*. American farmers will receive such payments when their gross income falls below a target level. This payment has replaced the interim emergency aid granted from 1998 to 2001, making it an annual payment.

The above-mentioned three subsidies all have a wider coverage of application, extended not only to staples like soybeans, corns and wheat, but also to lentils and peanuts. At the same time, they also cover honey, wool and mohair, from which payments had been lifted in the past. Of these subsidies, the payment of loans is the most trade-distorting, while the other two are deemed by the U.S. government as decoupled and thus exempted from being slashed under WTO rules, although both are provided directly to farmers based on the crop acreage and output of the base period. As a matter of fact, these payments are coupled with current production, from which farmers may reasonably anticipate how the current production will affect the future payments, so these base period-based payments are not purely decoupled direct payments. Moreover, since the farmers' income is amply guaranteed for the base period, they tend to grow whatever crop is suitable for this period in order to reduce risks, regardless of the market price signals, thereby stimulating the production and export of some crops and further lowering the prices in the world market. Hence, these subsidies should be put into the category of Amber Box measures.

Abiding by the relevant URAA rules, the WTO Members agreed to keep their Amber Box support at the same level or below the Aggregate Measurement of Support (AMS) of the base period, and developed Members, such as the U.S. and the EU, also undertook to cut 20 per cent of their AMS by 1999. In the case of the U.S. this meant a cut from \$23.9 billion U.S. to \$19.1 billion U.S., which has been achieved in recent years. However, as most of the total payments depend on the actual level of market prices, American farmers received massive emergency aid during the late 1990s, when agricultural produce fell sharply, which boosted the country's overall agricultural support level. For instance, the U.S. government spent a mere \$7 billion U.S. on Amber Box measures in 1996–97, but almost doubled this spending to \$15 billion U.S. in 1998 because of falling agricultural prices and increased marketing loans (loan deficiency payments and interest-subsidizing loans). In the two years that followed, total U.S. expenditures on Amber Box measures actually exceeded \$22 billion U.S. Its support to domestic production of grains was the same as that of the EU and higher than that of all other WTO Members with the exception of Japan, Korea, Switzerland and Norway.

Given this new agricultural act, the subsidizing level of the U.S. government in the sector is likely to increase markedly, although its spending on Amber Box measures was expected to drop below \$19.1 billion U.S. over 2001 and 2002.

If the prices of world agricultural products continue to fall over the next few years, the U.S. will face the risk of exceeding \$19.1 billion U.S., the upper limit for production and trade-distortion, to which it committed during the Uruguay Round of multilateral talks. That will put the country under greater pressure to cut its agricultural support level at the new round of multilateral negotiations on agriculture.

2.2.2 Green Box support by Japan

Japan's agricultural policy reform

Japanese agriculture is well known for its small-scale operation and high labour costs. About 11.3 million people, or nine per cent of the total population, work on farms. Japan is one of the countries with a high level of domestic agricultural support: its gross agricultural budget reached 3,425.1 billion Japanese Yen in 1995. The budget for 1997 and 1998, although somewhat smaller, was still as high as 3,375.6 billion Japanese Yen. Most of Japan's budget was allocated to irrigation facilities, farmland maintenance, the processing of agricultural products and production subsidies. Infrastructure construction enjoyed perhaps the largest share of the country's agricultural budget: it

rose from 28.9 per cent in 1980 to 57 per cent in 1995, and fell slightly to 45.9 per cent in 1997, accounting for roughly six per cent of the nation's gross fiscal expenditures. The largest net importer of agricultural products, the Japanese government launched a series of policy reforms in order to raise its level of self-sufficiency in grain supply and meet its WTO obligations.

To cope with the possible outcome of the Uruguay Round negotiations, in 1992 the Japanese Ministry of Agriculture, Forestry and Fisheries issued a report entitled *New Direction for Food, Agriculture and Rural Policies*, and enacted this as a law in the following year. The Japanese government also enacted the Farming Business Operation Consolidation Act and Rural Area Development Act; these were aimed at consolidating agricultural restructuring policies and developing sound farming practices to adapt to the new situation. With a view to better implementing the URAA, an Emergency Meeting on Agricultural and Rural Strategies, chaired by the Prime Minister, passed An Outline on URAA-related Strategies in October 1994, and decided to launch new legislation to replace The Fundamental Agricultural Law, drafted in 1961. The meeting also called for a nationwide discussion on issues related to foods, agriculture and rural development. In December 1994, the Japanese government annulled The Grain Control Act, the cornerstone of Japan's post-war agricultural protection (passed in 1942, effective mainly through price support and circulation control), and drew up a new law dealing with food demand and supply and price stabilization, The Grain Act. The new act rescinded farmers' obligations to sell grain to the state and confined government purchase to rice reserves only, thus alleviating much of the government's responsibility for direct rice regulation. In September 1996, a research team under the Japanese Ministry of Agriculture, Forestry and Fisheries presented a report reviewing the implementation and significance of the The Fundamental Agricultural Law and recommending revisions for a new law. In June 1996, the Japanese government adopted The Fundamental Law on Foods, Agriculture and Rural Areas, the basic law for the 21st century, which purported "to assess the post-war agricultural policies and form a new policy framework under the four cardinal principles." This law set the goals of increasing food supply, complementing the multi-functionality of agriculture and promoting the sustainable development of agriculture and rural areas, and, to that end, encouraged the full play of market mechanisms to boost the industry's efficiency.

The new law changed the mode of domestic agricultural support, initiating income and income insurance-based measures for specific farming production to replace the old measures based on market price support. The main contents of the Act were achieving self-sufficiency in food supply, focusing on food policies for consumers, setting up effective and stable operations, giving rein to farmers' creativity in farming activities, shifting price support policies to policies for stabilized operation, and providing subsidies for regions in unfavourable conditions, such as mountainous regions.

As far as the price support policy reforms were concerned, the policy featured a separation of price from income, created market-regulated prices and furnished farmers with income-based subsidies. The new rice policy, for example, was typical: when the market price for rice fell below the average market price for the preceding three years, 80 per cent of the difference would be subsidized. The subsidies, which came from the Rice Farming Income Stabilization Fund, were the product of 80 per cent of the differential between the current year's market price and the targeted price for the current year's production. The Fund was established by both the government and participating farmers: the annual government payment to the Fund was six per cent of the price of rice per unit of total domestic production, whereas the individual farmer's payment was two per cent. Owing to Japan's long history of rice surplus and production-restricting and production-switching programs, individual participants were also requested to

join the Rice Demand & Supply Stabilizing Plan, as some of their rice fields could then be converted to the production of alternative crops.

The income subsidies for other commodities were similar to that for rice, but the issue these products faced was production decline rather than surplus. For instance, the 2000 Bean Production Plan, although similar to the Rice Income-stabilizing Plan, did not call for the restriction or conversion of bean production. On the contrary, the government encouraged shifts to bean production by providing subsidies when the market price for beans dropped below the targeted price (the average market price over the previous three years). The subsidies came from the Soybean Farming Income-stabilizing Fund, and the amount was the product of 80 per cent of the differential between the current market prices and targeted prices for the current yield. The Fund was aided financially by both the government and farmers, and their contributions were set at nine and three per cent respectively of the price per soybean unit. Farmers who shifted from rice to soybean production received a direct subsidy payment. Wheat production usually received support from a similar income-support program, the Wheat Farming Income-stabilizing Fund.

In spite of the above-mentioned income-stabilizing plans, participating farmers can be subsidized for only 80 per cent of the differential between the current market price and the targeted price. Since the targeted price is the average of past market prices rather than cost-based prices, farmers have to bear the possible 20 per cent loss incurred as prices fall. The government has also set guideline prices for other agricultural products. Once the prices for these goods fall below the designated level, the government will make intervention purchases to lift the prices.

The concept of “Sustainable Agriculture” came into being based on the so-called new agricultural policies (*New Direction for Food, Agriculture and Rural Policies* of 1992). It has been defined as “making full use of agricultural resource cycling, stressing higher production capacity, and reducing pollution by raising soil fertility and cutting down the use of chemicals and fertilizer.” Besides providing a steady food supply, sustainable agriculture also improves the public welfare function of the land and environment, and revitalizes regional economies through information exchanges between producers and consumers.

In framing its new agricultural policies, Japan pushed vigorously for shifts from Amber Box to Blue and Green Box measures. The government intends to devise policies that will strengthen its support to farmers’ income and other areas such as infrastructure facilities, mechanization, packaging, circulation and processing, thereby raising the productivity and market competitiveness of the country’s agricultural industry.

Green Box measures by Japan

Table 7 presents the composition of Japan’s domestic support expenditures from 1995 to 1998. It shows that the country’s expenditures went to Amber Box, Blue Box and Green Box as well as other subsidies, with the shares for Green Box in total domestic support at an insufficient 45 to 47.2 per cent per annum during the three years. Along with decreased spending on Amber Box measures (down by 34 percentage points in 1998 from 1997), however, the proportion of Green Box spending rose sharply (up by 32 percentage points in 1998 from 1997) and became the principal mode of support measures for Japanese agriculture.

Table 7. Structure of Domestic Support for Japan, 1995–98 (millions of U.S. dollars).

	1995		1996		1997		1998	
	Amount	%	Amount	%	Amount	%	Amount	%
Green Box	32,858.8	47.2	25,018.9	45.6	21,614.0	45.2	23,448.5	77.9
S & D Box	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Blue Box	0.0	0.0	0.0	0.0	0.0	0.0	392.1	1.3
Current Total AMS	36,368.6	52.2	29,561.9	53.8	25,842.3	54.1	5,987.1	19.9
Others	385.7	0.6	331.2	0.6	332.5	0.7	261.7	0.9
Total domestic support	69,613.1	100.0	54,911.9	100.0	47,788.9	100.0	30,089.4	100.0

Exchange rates: Yen/U.S.\$: 1995 – 96.443; 1996 – 112.635; 1997 – 122.698; 1998 – 128.025

Sources: *TN/AG/S/4, (02-1442), Committee on Agriculture Special Session, WTO, 20 March 2002.*

G/AG/N/JPN/61, (01-0995), Committee on Agriculture, WTO, 28 February 2001.

G/AG/N/JPN/72, (02-0853), Committee on Agriculture, WTO, 19 February 2002.

G/AG/N/JPN/47, (00-0639), Committee on Agriculture, WTO, 21 February 2000.

G/AG/N/JPN/34, (99-0800), Committee on Agriculture, WTO, 2 March 1999.

As illustrated in Table 8, Japanese expenditure on Green Box measures between 1996 and 1998 averaged \$25.7 billion U.S., second only to the U.S. Of this total, General Services headed the list with \$19.56 billion U.S., accounting for 83.7 per cent. This was followed by Environmental Programs (\$1.06 billion U.S., 4.5 per cent), Investment Aid (\$764 million U.S., 3.3 per cent), Producer Retirement Programs (\$758.7 million U.S., 3.2 per cent), Natural Disaster Relief Aid and Public Stockholding For Food Security Purposes (\$515.7 million U.S. and \$512.2 million U.S., both at 2.2 per cent) and Domestic Food Aid (\$187.6 million U.S., 0.8 per cent). The General Services centred mainly on Infrastructure Construction, accounting for 61.5 per cent of total outlays on Green Box measures.

As indicated by Table 8, Green Box spending arrived at a maximum \$25.02 billion U.S. in 1996, then fell by 13.6 per cent the following year, but rose again by 8.5 per cent in 1998 to \$23.45 billion U.S. From 1996 to 1998, government General Services, although maintaining an absolute downward trend (from \$20.63 billion U.S. to \$20.26 billion U.S.), witnessed a fast increasing expenditure share from 82.4 per cent to 86.4 per cent. The Infrastructure Service under the General Services category took a similar track. Items for which spending increased in both absolute and relative values were non-separated General Service and Research under General Services (the former up from \$754 million U.S. in 1996 to \$966.2 million U.S. in absolute value, rising from three per cent to four per cent in relative value, the latter up from \$579.8 million U.S. to \$683.5 million U.S. in absolute value, rising from 2.3 per cent to 2.9 per cent in relative value). Items for which expenditures declined in both absolute and relative values over the same period were Investment Aid (down from \$958 million U.S., 3.8 per cent, to \$604.6 million U.S., 2.6 per cent), Environmental Programs (\$1,185.3 million, 4.7 per cent, to \$1,056.5 million, 4.5 per cent), Producer Retirement Programs (\$584.2 million 2.3 per cent, to \$457.7 million, two per cent), Domestic Food Aid (\$239.7 million, one per cent, to \$107.8 million, 0.5 per cent), and Public Stockholding for Food Security Purposes (\$546 million, 2.2 per cent, to \$442.1 million U.S., 1.9 per cent).

Therefore, Japan's Green Box expenditure was focused on government General Services, of which Infrastructure Construction comprised a large proportion. Like the U.S., it saved expenditure on Income Insurance/Safety Programs and Regional Assistance projects.

Table 8. Total Green Box Expenditures by Category, Japan, 1996–98 (millions of U.S. dollars).

Measure	1996		1997		1998		1996–98	
	Amount	%	Amount	%	Amount	%	Amount	%
(A) General Services								
Research	579.8	2.3	537.9	2.5	683.5	2.9	600.4	2.6
Pest and Disease Control	131.4	0.5	123.9	0.6	150.8	0.6	135.3	0.6
Training Services	620.6	2.5	529.8	2.5	553.0	2.4	567.8	2.4
Extension and Advisory Services	857.6	3.4	862.3	4.0	898.3	3.8	872.7	3.7
Inspection Services	70.1	0.3	66.0	0.3	74.2	0.3	70.1	0.3
Marketing and Promotion Services	151.8	0.6	136.9	0.6	155.4	0.7	148.1	0.6
Infrastructural Services	15,355.8	61.4	12,782.6	59.1	14,956.5	63.8	14,365.0	61.5
Other General Services	2,106.8	8.4	1,954.4	9.0	1,825.4	7.8	1,962.2	8.4
Non-Separated General Services	754.7	3.0	791.4	3.7	966.2	4.1	837.4	3.6
Total General Services	20,628.6	82.4	17,785.1	82.3	20,263.2	86.4	19,559.0	83.7
(b)								
Public Stockholding for Food Security Purposes	546.0	2.2	548.5	2.5	442.1	1.9	512.2	2.2
(c)								
Domestic Food Aid	239.7	1.0	215.2	1.0	107.8	0.5	187.6	0.8
(d)								
Decoupled Income Support								
(e)								
Income Insurance/ Safety-Net Programs								
(f)								
Payments for Relief from Natural Disasters	584.2	2.3	505.3	2.3	457.7	2.0	515.7	2.2
(g)								
Structural adjustment assistance provided through Producer Retirement Programs	873.6	3.5	739.2	3.4	663.2	2.8	758.7	3.2
(h)								
Structural adjustment assistance provided through Resource Retirement Programs	6.2	0.0	5.7	0.0	3.9	0.0	5.3	0.0
(i)								
Structural adjustment assistance provided through Investment Aids	958.0	3.8	729.4	3.4	604.6	2.6	764.0	3.3
(j)								
Environmental Programs	1,183.5	4.7	1,083.2	5.0	903.0	3.9	1,056.5	4.5

Measure	1996		1997		1998		1996–98	
	Amount	%	Amount	%	Amount	%	Amount	%
(k) Regional Programs								
Total Green Box	25,019.8	100.0	21,611.6	100.0	23,445.4	100.0	23,358.9	100.0

Exchange rate: Yen/U.S.\$: 1996 – 112.635; 1997 – 122.698; 1998 – 128.025.

Notes: 1. Notified for fiscal year beginning in April. The exchange rates are, respectively, averages of the 2nd quarter of the year indicated to the 1st quarter of the next year.

Sources: *G/AG/N/JPN/61, (01-0995), Committee on Agriculture, WTO, 28 February 2001.*
G/AG/N/JPN/72 (02-0853), Committee on Agriculture, WTO, 19 February 2002.
G/AG/N/JPN/47, (00-0639), Committee on Agriculture, WTO, 21 February 2000.
G/AG/N/JPN/34, (99-0800), Committee on Agriculture, WTO, 2 March 1999.

2.2.3 Green Box support by the European Union

The European Union's agricultural policy reform

The abnormal climatic conditions experienced during the 1970s led to a shortage in world grain supply. Entering the 1980s, the EU raised its agricultural capacity considerably by offering massive price support and subsidies to farmers, which resulted in a large surplus of agricultural produce and larger agricultural budgets and domestic reserves, as well as fiercer international competition. The EU was then forced to dump its products abroad through export subsidies in order to dispose of the surplus. It faced a dilemma during the multilateral trade talks that began in 1986 under the General Agreement on Trade and Tariffs (GATT). The U.S. and many other Members strongly demanded a reduction in production and trade-distorting measures, and there was potential pressure to demolish trade barriers and export subsidies, as well as the swelling stock and budget spending. Under these circumstances, in 1992 the EU began to launch a series of reforms of its Common Agricultural Policy (hereinafter referred to as CAP), featuring administrated price cuts, partially decoupled direct payments, a slash in surpluses and a land fallow system. According to the readjusted policy, farmers suffering from income loss as a result of the administrated price cuts would be compensated by decoupled direct payments, and one of the necessary conditions for receiving such payments was compulsory land set-aside. Enforcing environmental policies was also emphasized in the CAP reform package.

The gist of the EU CAP reforms was reducing the intervention prices for wheat, barley, oats and rye by 36 per cent over a three-year transitional period (1993–95) and covering farmers' income losses with subsidies based on historical production levels. The compensation payment was aimed at making up the loss in farmers' incomes brought about by administrated price cuts, introducing regional restrictions on areas planted with cereals and a mandatory 15 per cent land fallow program.

It can be seen from this account that the 1993–95 CAP reforms reduced administrated prices for local farm products, added direct payments—which were related to production restriction—to producers, and strengthened environmental efforts.

To comply with the implementation requirement of the URAA, concluded in 1994, and adapting to the changing internal and external environment, in 1997 the EU Commission made proposals for further CAP reforms. These proposals, contained in the White Paper Agenda 2000, published in May 1997, called for a reduction in price support and revision of policies on

payment programs for cereal, beef, dairy and other commodities. The following year, the EU, highlighting the internal and external challenges, elaborated in a report the reasons for the new policy reforms. These reasons included: (a) Without cuts in the administrated price, the surplus of farm products would return, making stocks rise and budget spending unaffordable; the market shares of the EU's primary and processed products would also decline; (b) The old CAP would produce the following negative effects: (i) agricultural support would be unfairly apportioned, with the interests of the most disadvantaged producers and regions rarely considered; (ii) The cultivation methods would become more intensive, leaving a detrimental impact on environment and animal health; and (c) The implementation process of the CAP would be too complicated and over-bureaucratic.

The Commission also noted that the above-mentioned challenges would be reinforced by two external factors: the EU's expansion to the east and the start of new agricultural negotiations under the WTO.

In this context, the EU Commission adopted at its Berlin Summit in March 1999 a revised Agenda 2000, which brought the CAP into compliance with the principles of the URAA and the needs for the EU's expansion eastwards. Agenda 2000 represented the EU's basic stand at the new round of WTO agricultural negotiations launched in November 1999.

The goal of Agenda 2000 was to sharpen the competitive edge of EU agriculture in the international market and push forward all-round development of the agricultural industry and rural regions, to be realized through further market opening and structural readjustments. The key to the reform lay in further cuts in price and subsidy support, reducing government intervention, as well as greater application of compensation payments and direct income support. In promoting rural development, the Agenda aimed to regulate the existing policies and measures and push for structural realignment and overall development in rural regions. To improve the rural environment, it allowed Member countries to offer direct payments to environmental programs and provided financial support to environmental-friendly activities such as developing organic farming and protecting semi-natural residential areas, wetlands and traditional orchards.

The specific measures of the reforms can be summed up as the following:

- Cutting support prices, adopting relevant measures to raise competitiveness on both home and foreign markets, and increasing direct payments to ensure farmers' incomes. These would be achieved through the following steps: (a) 20 and 30 per cent cuts in cereal and beef intervention prices respectively, and a 15 per cent cut in the intervention price for basic dairy products (butter and skimmed-milk powder), turning intervention reserves into private stockholding; (b) increasing compensation payments for cereals, raising per-head payments for beef animals and making payments to dairy producers in the form of a dairy cow premium; (c) maintaining supplementary payments for high-protein crops and durum wheat; (d) forsaking demand for "compulsory set-aside in the arable sector" ("compulsory" means being forced to leave land fallow in order to receive compensation); and (e) keeping voluntary set-aside at a minimum rate of 10 per cent, compensation payments for cultivated crops as prescribed by the 1992 CAP remained applicable but were to be related to the acreage and yield of the base period. If the base areas were exceeded, financial penalties would apply, but extraordinary set-aside was to be abolished.

- Enforcing environmental measures, laying the basis for overall rural development policies. These included increasing payments for environmental service programs and intensive farming operations, providing aid for consolidation and structural readjustments for rural regions in unfavourable conditions, and offering support to the forestry industry, farming-related rural regions, and processing and marketing.

To sum up, during this period EU agricultural reform moved in the direction of reducing production and trade-distorting price support, increasing decoupled direct payments and offering support for environmental protection, i.e., to complete the shift from Amber Box to Blue and Green Box policies.

Green Box measures by the EU

As shown in Table 9, the EU's domestic agricultural support from 1995 to 1998 comprised all three types of boxes and other subsidies, just like that of the U.S. and Japan. However, compared with those two, the EU's Green Box represented a relatively small share (20 to 24 per cent), and did not show significant changes year on year.

Table 9. The Structure of Domestic Support for the European Union, 1995–98 (millions of U.S. dollars).

	1995		1996		1997		1998	
	Amount	%	Amount	%	Amount	%	Amount	%
Green Box	24,187.6	20.8	26,578.6	23.3	20,474.0	20.4	20,989.0	22.2
Blue Box	26,849.0	23.1	25,846.5	22.6	23,039.0	22.9	22,451.3	23.7
Current Total AMS	64,438.6	55.5	61,251.0	53.6	56,564.1	56.3	50,895.6	53.7
Others	734.3	0.6	574.0	0.5	379.7	0.4	360.4	0.4
Total domestic support	116,209.5	100.0	114,250.1	100.0	100,456.8	100.0	946,96.3	100.0

Exchange rate: USD/ECU: 1995 – 1.288; 1996 – 1.201; 1997 – 1.127; 1998 – 1.095

Note: Notified for marketing year. The exchange rates are annual averages of two consecutive calendar years beginning 1994.

Sources: *TN/AG/S/4, (02-1442), Committee on Agriculture Special Session, WTO, 20 March 2002.*
G/AG/N/EEC/12/Rev.1, (99-3891), Committee on Agriculture, WTO, 21 September 1999.
G/AG/N/EEC/16/Rev.1, (99-3892), Committee on Agriculture, WTO, 21 September 1999.
G/AG/N/EEC/26, (00-2512), Committee on Agriculture, WTO, 21 June 2000.
G/AG/N/EEC/30, (01-1396), Committee on Agriculture, WTO, 22 March 2001.
G/AG/N/EEC/38, (02-3613), Committee on Agriculture, WTO, 27 June 2002.

As Table 9 shows, the annual expenditures on Green Box measures by the EU from 1995 to 1998 averaged \$23.01 billion U.S., the third highest amount after the U.S. and Japan. General Services drew the most spending, with \$6.5 billion U.S.—a predominant 28.1 per cent. Other items, in order of the amount spent, were Investment Aid at \$6.5 billion U.S. (28.1 per cent), Environmental Programs at \$4.56 billion U.S. (19.8 per cent) and Regional Assistance at \$2.8 billion U.S. (12.3 per cent). The combined payments for Resources and Producers' Retirement Programs, Natural Disaster Relief Aid, Domestic Food Aid, Decoupled Income Support and Public Stockholding for Food Security Purposes totalled \$2.7 billion U.S., accounting for 11.7 per cent. Apart from Inspection and Extension and Advisory services, which recorded relatively small expenditures, spending on other items under the General Services category fared roughly the same, each accounting for three to five per cent of the total for the category.

In terms of the yearly changes in outlay for Green Box measures, the EU spent \$26.58 billion U.S. in 1996, the largest amount over this period and 9.9 per cent up on the previous year, whereas expenditures in 1997 and 1998 fell by 23 and 21 per cent respectively. The biggest variation pertained to public stockholding for food security purposes, up from zero expenditure in 1995 to \$20.9 million U.S. in 1998. Next came Environmental Programs, up from 14.8 per cent (\$3.58 billion U.S.) in 1995 to 25.9 per cent (\$5.4 billion U.S.), and Research under the General Services category, rising by 5.8 per cent to reach \$1.3 billion (6.3 per cent). Pest and Disease Control and Marketing and Promotion Services, also under the General Services category, jumped both by 3.2 percentage points, standing at 5.9 per cent (\$1.2 billion U.S.) and 5.7 per cent (\$1.2 billion U.S.) respectively. Items on which spending decreased included: Structural Adjustment Assistance provided through Investment Aid and other services under the General Services category, both down by seven per cent; Training Service, also under General Services, down by 6.7 per cent; structural adjustment assistance through Resources Retirement Programs, down by 3.25; and Regional Assistance projects, down by 1.5 per cent. Expenditures remained relatively unchanged for Extension And Advisory Services, Inspection Services—both under the General Services Category, Domestic Food Aid, Decoupled Income Support and Income Insurance/Safety-Net Programs as well as Natural Disaster Relief Aid.

Table 10. Total Green Box Expenditures by Category, European Union, 1995–98 (millions of U.S. dollars).

Measure	1995		1996		1997		1998		1995–98	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
(a) General Services										
Research	118.0	0.5	500.7	1.9	756.8	3.7	1,321.6	6.3	674.3	2.9
Pest and Disease Control	641.6	2.7	2,115.3	8.0	2,102.9	10.3	1,235.2	5.9	1,523.8	6.6
Training services ¹	1,731.3	7.2	1,526.0	5.7	754.4	3.7	105.2	0.5	1,029.2	4.5
Extension and Advisory services	-	-	395.0	1.5	314.2	1.5	317.2	1.5	342.1	1.5
Inspection Services	171.2	0.7	224.5	0.8	212.6	1.0	217.7	1.0	206.5	0.9
Marketing and Promotion Services	595.3	2.5	725.4	2.7	858.7	4.2	1198.4	5.7	844.5	3.7
Infrastructural Services	991.6	4.1	1,590.5	6.0	668.0	3.3	651.4	3.1	975.4	4.2
Other General Services	2,200.5	9.1	694.9	2.6	556.4	2.7	447.9	2.1	974.9	4.2
Non-separated General Services										0.0
Total General Services	6,449.5	26.7	7,772.3	29.2	6,223.9	30.4	5,494.5	26.2	6,485.1	28.1

Measure	1995		1996		1997		1998		1995–98	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
(b) Public Stockholding for Food Security Purposes	0.0	0.0	-	-	-	-	20.9	0.1	20.9	0.1
(c) Domestic Food Aid	371.6	1.5	480.6	1.8	332.6	1.6	301.9	1.4	371.7	1.6
(d) Decoupled Income Support	314.9	1.3	265.2	1.0	238.0	1.2	140.8	0.7	239.7	1.0
(e) Income Insurance/ Safety-net Programs	0.0	0.0	-	-	3.9	0.0	0.0	0.0	3.9	0.0
(f) Payments for Relief from Natural Disasters	423.5	1.8	451.0	1.7	369.3	1.8	199.9	1.0	360.9	1.6
(g) Structural adjustment assistance provided through Producer Retirement Programs	270.5	1.1	1,139.0	4.3	699.2	3.4	775.8	3.7	721.1	3.1
(h) Structural adjustment assistance provided through Resource Retirement Programs	1,321.0	5.5	1,835.6	6.9	373.6	1.8	469.0	2.2	999.8	4.3
(i) Structural adjustment assistance provided through Investment Aids	8,504.0	35.2	5,970.8	22.5	5,518.5	27.0	5,914.4	28.2	6,476.9	28.1
(j) Environmental Programs	3,584.9	14.8	5,072.7	19.1	4,155.2	20.3	5,436.8	25.9	4,562.4	19.8

Measure	1995		1996		1997		1998		1995–98	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
(k) Regional Assistance Programs	2,947.7	12.2	3,591.5	13.5	2,559.8	12.5	2,234.9	10.6	2,833.5	12.3
TOTAL GREEN BOX	24,187.6	100.0	26,578.6	100.0	20,474.0	100.0	20,989.0	100.0	23,057.3	100.0

Exchange rate: US\$/Ecu-Euro: 1995 – 1.288; 1996 – 1.201; 1997 – 1.127; 1998 – 1.095

- Notes: 1. Includes costs for research.
2. Notified for marketing year.
3. The exchange rates are annual averages of two consecutive calendar years beginning 1995.

Sources: *G/AG/N/EEC/12/Rev.1, (99-3891), Committee on Agriculture, WTO, 21 September 1999.*
G/AG/N/EEC/16/Rev.1, (99-3892), Committee on Agriculture, WTO, 21 September 1999.
G/AG/N/EEC/26, (00-2512), Committee on Agriculture, WTO, 21 June 2000.
G/AG/N/EEC/30, (01-1396), Committee on Agriculture, WTO, 22 March 2001.
G/AG/N/EEC/38, (02-3613), Committee on Agriculture, WTO, 27 June 2002.

3. Background to China's Agricultural Domestic Support

3.1 Functions and basic features of Chinese agriculture

China is the largest developing country in the world. This is largely because China remains an agricultural country, and agriculture is one of its most important economic sectors. Over 60 per cent of its nearly 1.3 billion people live in the vast rural regions, and employment in the sector accounts for 50 per cent of the national total. In 2000, the added value of agriculture stood at 15.9 per cent of Gross Domestic Product (GDP), the output value of light industry that uses agricultural products as raw material stood at 62 per cent of the total for light industry, and rural consumption accounted for 38.7 per cent of gross consumption. The agricultural sector has a predominant share of the utilization of China's land and water resources. Again in 2000, the use of agricultural land (including arable land and utilizable grassland) and water posted 46 and 70 per cent respectively. The development of China's agricultural economy not only impacts national food security and the livelihood of two thirds of its farming population but also determines the coordinated development of the nation's economy as a whole.

Today, Chinese agriculture remains a sector vulnerable to both natural calamities and market risks, and the sector's development lags noticeably behind that of other industries. Most of the country's poor people live in the countryside. In provinces where agricultural output value accounts for a significant proportion of the economy, the economies remain relatively underdeveloped.

The basic features of China's agriculture include:

1. The sector is constrained, on the whole, by the natural environment. China is a country deficient in agricultural resources: the per-capita possession of resources such as arable land, fresh water, grassland and woodland accounts for only 32.3, 28.1, 32.3 and 14.3 per cent respectively of the world average, far below the world average level. China is also rather weak in coping with natural disasters, which occur frequently. Over the past two decades the areas afflicted by disasters averaged 3.1 million hectares each year, representing 30 per cent of the total area under agriculture nationwide.
2. Subsistence farming constitutes the principal mode of production across the sector. While agricultural production is intensive in nature, it is not highly socialized or commercialized, the merchandising rate of domestic grains remains rather low and the linkage to the market is very weak. Chinese farmers are engaged mostly in family-based, small-scale production activities, and their individual household-based farming acreage tends, on the whole, to be decreasing. With old-fashioned technical equipment and an underdeveloped social services system, rural people—roughly two-thirds of the gross population—are only about 60 per cent self-sufficient in food and sell only 40 per cent of their grain crops.
3. Technological progress contributes only 40.7 per cent to the sector, a relatively low figure compared to the average international level.
4. The gap between the development stages of different areas is becoming increasingly wide, and the discrepancy between the conditions for agricultural development and the structure of market demand and supply is growing daily. In the coastal regions, such conditions are

gradually turning unfavourable, and with the area of arable land there shrinking faster than in the inland provinces the decades-old practice of “supplying grains from the south to the north” is being reversed: the south has steadily increased its dependency on the northern regions for grain supply.

3.2 Challenges to the sustainable development of China’s agriculture

To fully implement Agenda 21, the aim of which is the sustainable development of China’s economy, in 1998 the Ministry of Agriculture of China drafted the Action Plan for China’s Agriculture in the 21st Century, which defines agricultural sustainability in China. According to the Plan, the sustainable development of agriculture has to be achieved by pursuing a wide range of policy goals: maintaining steady production growth, safeguarding food security, developing the rural economy, raising the income of local farmers, putting an end to the poverty and backwardness of rural regions, protecting the ecological environment, utilizing natural resources in an effective and sustainable way.... To date, however, only steady production growth and food security have been realized, and the remainder of the goals cannot be readily achieved in the short term, especially those aimed at ecological environmental protection and the raising of farmers’ incomes.

China’s farming civilization dates back several thousand years. It is marked by both intensive and meticulous farming on limited soil and the use of relatively rich resources (labour) to substitute for scarce resources (water and land). However, as the population grew, this mode of farming could barely meet the demand for grains and raw materials for industrial use. In the late 1960s, Chinese agriculture entered into a development stage characterized by heavy material input. This development mode remains to this day: high yields rely on heavy inputs, and by this means production capacity has risen continuously and has basically satisfied the increasing social demand for food over the past two decades. Between 1950 and 2000, the nation’s population grew at an annual average of 1.67 per cent, compared with the increase of grain output at a much higher 2.5 per cent. From 1980 to 2000, population growth began to slow, averaging a yearly 1.25 per cent, whereas grain output grew by 1.85 per cent over the same period. As the economy develops, however, this development mode has produced some unwanted effects:

Uncontrolled land reclamation leading to an imbalance in hydrological systems

Under the pressure of human subsistence, deforestation has long been practised in China. This method of bartering food for land has had grave consequences: in the ecologically highly sensitive northwestern Gansu Province, for instance, each kilogram of grain is produced at the expense of the loss of 40 kilograms of surface soil. Statistical data suggest that out of 6.0715 million hectares of sloping fields (at an incline of 25 degrees or more) nationwide, 67 per cent are located along the lower and middle reaches of the Yangtze River, where massive deforestation has caused water loss and soil erosion. According to the *Report on National Economic Safety Observation 1999–2000* (Economic Science Press, 2000), China suffers from five billion tons of soil erosion and the loss of 10,000 square kilometres of soil and water each year. The country’s total area of farmland desertification has reached 2.62 million square kilometres, accounting for 27 per cent of the land, and this is expanding at a rate of 2,460 square kilometres per year. The area of grassland has also shrunk: 135 million hectares have been claimed by degeneration, desertification and alkalization, about one-third of the total grassland available, with a further two million hectares being lost annually. The rapid growth in population leads to the ever-

increasing expansion of eroded areas. When heavy erosion occurs, the eroded land is abandoned and new land has to be cultivated. Erosion not only lowers the fertility of farmland but also affects dredging and the water storage capacity of major waterways through river channel sedimentation, aggravating flood damage. During the 1990s, flooding damaged 14.9 million hectares of farmland annually, representing 10 per cent of the total area under agricultural cultivation.

Scarcity of water and soil resources and worsening environment pollution

According to data from a 1996 survey, China had a total of 13,003.92 hectares of farmland, about 0.103 hectares per person and less than half the world average. In the wake of the shrinkage of the area of farmland, caused by population growth and various other factors, this per-capita farmland area could fall to 0.05 hectares by 2030. Not only is farmland scarce but the land is also infertile. Low and medium-yield farmland accounts for 70 per cent of the gross area of farmland; 33 million hectares, or more than 20 per cent of the nation's total agricultural land, suffer from industrial and chemical-fertilizer pollution; the damage caused by land pollution amounts to one per cent of China's annual Gross National Product.

China is among the countries that have limited water resources, its water resources per-capita being only 31 per cent of the global level. Even more alarming is water loss: beginning in the late 1970s some urban areas became water-deficient. By the mid-1990s over half of all towns and cities began to feel the pinch of water shortage. Some metropolitan cities, such as Beijing and Tianjin, had to launch projects to divert water from distant waterways. At present, more than 60 per cent of China's farmland lacks irrigation facilities. As water is in short supply, the per-hectare use of water for irrigation is only 7,950 cubic metres. Moreover, over 50 million people in rural China live without clean drinking water. As a result of underground water extraction, the subterranean water level on the North China Plain falls an average of one metre or more each year. Many rivers and lakes, and even irrigation sources, are polluted, since 80 per cent of the country's industrial effluent cannot be disposed of efficiently.

Mounting production costs and slow growth of farmers' incomes

One of the major problems for Chinese agricultural development is the mounting costs of production and the slow growth in farmer's incomes over recent years. From 1984 to 2000, the costs for grain production rose by a yearly average of 13.6 per cent, due mainly to the heavy use of fertilizer and pesticides aimed at boosting agricultural output. The net application of fertilizer per hectare jumped from 115 kilograms in 1983 to 265 kilograms in 2000, four times the world average level, whereas the net use of pesticides increased from 5.08 kilograms to 8.19 kilograms per hectare, twice the annual quantity used in the United States (U.S.). As the use of fertilizer rises, the marginal effects on output growth decrease significantly, resulting in a sharp fall in the input-output ratio of grain production, from 100:70.56 in 1984 to 100:15.16 in 1994, down by as much as 14.25 per cent annually. The problem of mounting agricultural production costs became even more acute when the state deregulated the prices for capital goods, energy and electrical power. As shown by the combined exchange rate for renminbi (RMB) (combination of official and market-regulated exchange rates) in 1994, the domestic price for grain was already higher than that of the world market.

Meanwhile, the income of Chinese farmers grew at a much more sluggish pace. Growth was even negative for four consecutive years toward the end of the 1990s, leading to an absolute fall of income from agricultural activities. Rising farmers' income is supposed to be an important indicator of sustainable agricultural development. According to an estimate by the State Statistics

Bureau, for every RMB1,000 spent on consumption by rural households in the late 1990s, RMB2,3561.2-worth of demand would be generated for the whole economy. This shows that income growth is not only concerned with the improvement in farmers' living standards and the increase in production inputs but is also related to the healthy cycle of national economic activities. The falling income of Chinese farmers and the contraction of the rural market have been the main causes of the lack of demand in the domestic market since the late 1990s.

3.3 China's WTO commitments and agricultural reforms

China made a wide range of commitments at its accession to the World Trade Organization (WTO). In the field of agricultural market access, it pledged to maintain tariff reductions, cutting the arithmetic average by 4.8 percentage points from 19.9 per cent in 2000 to 15.1 per cent in 2008, one percentage point more than the tariff level of industrial products over the same period. It also undertook to set up tariff quotas for major agricultural goods such as grains, cotton and edible oils that had long been monopolized for state trading and to distribute such quotas proportionately to private trading firms. On export subsidies, while the major agricultural exporters worldwide are still disputing their terms of concessions and refusing to give in, China committed to eliminating its export subsidies. In domestic support, it agreed to cap the trade-distorting Amber Box measures to 8.5 per cent of the gross agricultural output value, 1.5 percentage points below the ratio prescribed by the Uruguay Round's Agreement on Agriculture (URAA) for developing Members. China also promised to abolish government pricing for major agricultural products.

Table 11. China's Tariff Rate Quota Commitments.

	Wheat	Corn	Rice	Cotton	Soy oil	Palm oil	Canola oil	Sugar	Wool
(TRQ level) million metric tons									
2002	8.47	5.85	3.99	0.82	2.52	2.40	0.88	1.8	0.26
2003	9.05	6.525	4.655	0.86	2.82	2.60	1.02	1.8	0.28
2004	9.64	7.20	5.32	0.89	3.12	2.70	1.13	1.9	0.29
2005	-	-	-	-	3.59	3.17	1.24	-	-
(State share of TRQ) percentage									
2002	90	68	50	33	34	34	34	70	0
2003	90	64	50	33	26	26	26	70	0
2004	90	60	50	33	18	18	18	70	0
2005	-	-	-	-	10	10	10	-	-
(In-quota tariff) percentage									
2002	1	1	1	1	9	9	9	20	1
2003	1	1	1	1	9	9	9	20	1
2004	1	1	1	1	9	9	9	15	1
2005	-	-	-	-	9	9	9	-	-
(Above-quota tariff)									
2002	71	60	60	54	48	48	48	50	42
2003	68	50	50	47	35	35	35	50	40
2004	65	40	40	40	22	22	22	50	38
2005	-	-	-	-	9	9	9	-	-

Source: Protocol for WTO Accession.

These commitments mark an overhaul of China's old agricultural policies. Although the country had embarked on market reform in the late 1970s, its major agricultural products, including grains and cotton, were none the less under state control as special commodities. The reform of the national distribution network progressed at a very slow pace, and the restructuring of the agricultural trade system also lagged behind those for manufactured goods. At the time of its WTO accession, China's grains market remained closed, farmers could not make their own decisions, and trading firms that dealt with the purchase of grains were strictly restricted in operation and were largely state-owned grains traders or companies registered with provincial governments. There were then three types of prices for domestic agricultural products: the government purchase price, the government-guided price and the market price. While the first two were government-administered prices, covering less than 20 per cent of the farm goods in distribution, they exerted a major impact on the entire agricultural economy. In general, before 1997 the prices of Chinese grains increased on a yearly basis, the three prices posing an echelon formation, with the government-purchase price at the bottom, the market price at the top and the government-guided price in between. From 1997 and 1998, this trend changed gradually, the prices of various agricultural products began to drop one after another, and the government purchase price emerged on top of the government-guided and market prices. Also in 1998, the state lifted restrictions and adopted the policy of purchasing farmers' grain surplus at a guaranteed price. This shows that the government-administered prices are targeted at counter-cycle market regulation: the pre-1997 purchase and guiding prices aimed at curbing price hikes, whereas the post-1997 guaranteed purchase price aimed at protecting grain prices from drastic falls. This policy achieves its anticipated result only when the market is a relatively closed one, which happens to be the characteristic of grain trading in China.

Self-sufficiency in grains has long been the goal pursued by China, and Chinese agricultural trade policy has also been formulated to serve this purpose. One of the most important factors that affected the trade of goods in the past was the trade right, which, up to the end of the 1980s, was almost exclusively retained by a few specialized state-owned trading companies. It was not until 1992 that the state gradually loosened its grip on this trade right: by the time China joined the WTO, there were altogether 350,000 enterprises authorized with such right. According to its *Protocol for WTO Accession*, China commits to empowering all enterprises within the Chinese customs' territories to engage in import and export trade over a three-year period. However, the government has not given up its monopoly over the trade in agricultural products, especially grains, although this state monopoly has been weakened by the newly introduced system of tariff quotas for agricultural products. The *Protocol for WTO Accession* stipulates a proportionate and annually increasing allocation of such quotas to non-state enterprises. This means a more-open Chinese grain market and greater difficulties for state regulation and control of grain prices. These policy shifts will not only affect the trade balance of local agricultural products but will also deepen the sector's structural readjustments launched in the late 1970s.

3.4 China's WTO accession and the structural changes to the Chinese agricultural sector

3.4.1 Trade structure

Table 12. Import-Export Performance of Chinese Agricultural Trade, Selected Years, 1980–2000 (export = 100).

Years	Ratio of agro-import to total import	Ratio of agro-export to total export	Ratio of agro-import to agro-production value	Ratio of agro-export to agro-production value
1980	32.3	24.0	6.0*	3.5*
1985	10.7	22.9	3.7	5.1
1990	14.2	16.0	4.7	6.2
1995	12.2	10.1	6.6	6.2
2000	8.7	7.0	6.5	5.4

*Data for 1981.

Source: *Chinese Customs Statistical Yearbooks*.

In China, agriculture is by and large an inward-oriented sector, one that is targeted primarily at meeting the domestic demand. For decades, neither agricultural import nor export contributed significantly to the nation's gross domestic product. The import and export of agricultural products developed at a sluggish pace over the last two decades, growing at an annual average of 5.7 per cent and 6.8 per cent from 1980 to 2000, compared with growth rates of 14 per cent and 17.4 per cent respectively of the import and export of manufactured products. With shares in the overall trade volume declining substantially over the period, however, China's trade in agricultural products has maintained a generally favourable balance, beginning with a deficit during the first four years after 1980 and then turning to surplus for the next 11 years until 1994. Since then, four annual deficits for the import and export of agricultural products have been recorded, in 1995, 1996, 2000 and 2001. The traditional agricultural products on which China suffered from trade deficits were textile fibres, timber, grains and sugar. Since the 1990s, surpluses have been recorded continuously for both grains and sugar and the deficit for timber has also dropped significantly, whereas huge deficits remained for textile fibres. Major changes also took place in the trade balance of dairy produce and oilseed and oil-bearing products, which had long enjoyed a surplus. Both of these products began to record deficits in the second half of the 1990s, with the trade in oilseed turning unfavourable year after year to post the biggest deficit among local agricultural products, surpassing textile fibre. A number of products have long been in surplus, including meat and processed meat products, coffee, tea and coca, and, especially, aquatic products and vegetables and fruits, with large and ever-growing surpluses. The trade status for coffee, tea and coca remain favourable, but the surplus for meat and processed meat products is on the decrease. Over the past two decades, China's export of agricultural products has experienced stagnant growth, down from 9.4 to 4.07 per cent, whereas its import has increased vigorously, up from 4.08 to 6.9 per cent, with meat and processed meat products, aquatic products, vegetables and fruits, oilseeds and timber all recorded with two-digit growth.

Many people have placed hopes on a growth in the export of labour-intensive Chinese agricultural products in the post-WTO era, but experience suggests that, apart from comparative advantages, the market access policies adopted by different countries also play an essential part in determining the growth in their international trade. China's market deregulation for all

agricultural products but grains has led to the rapid growth of imports such as vegetables, fruits and aquatic products, as well as meat and processed meat products, for which the domestic demand is also overwhelming. While the export of these products is also growing, it has proved that increasingly stringent foreign regulations on food sanitation and safety quarantine have posed huge barriers to these Chinese exports. Since its accession to the WTO, China expects to conduct its trade in agricultural products in a more equitable and liberalized environment, as this is of vital importance to the restructuring of its agricultural sector and sustaining agricultural development.

Structure of the grains trade

With the capacity of China's grain production further expanded since the 1990s, some changes have taken place in the pattern of trade in agricultural products. First came falling imports: during the 1980s, imported grains totalled 130.46 million tons, 3.3 per cent of gross domestic production. Over the 1990s, imports declined by 2.031 million tons, while domestic production rose by 832.12 million tons to 4.7277 billion tons, with the result that imports as a percentage of domestic production dropped by one percentage point. Second was the rise in exports: during the 1980s Chinese grain exports amounted to 5.371 million tons; during the following decade they leapt by 79 per cent to reach 96.12 million tons. Third, net imports decreased substantially: whereas the country's net import of grains reached 76.75 million tons over the 1980s, 1.97 per cent of the total domestic production, it plummeted by 82 per cent to arrive at 14.03 million tons, a mere 0.3 per cent of the total domestic production.

Table 13. China's Grains Trade Balance, 1981–90 (10,000 tons; production = 100).

Year	Grain net import	Ratio of import to production	Year	Grain net import	Ratio of import to production
1981	1,355	4.6	1991	259	3.1
1982	1,487	4.5	1992	-189	2.7
1983	1,148	3.5	1993	-783	1.6
1984	688	2.6	1994	-462	2.1
1985	-332	1.6	1995	1,867	4.5
1986	-169	2.0	1996	1,056	2.4
1987	891	4.0	1997	-154	1.4
1988	816	3.9	1998	-198	1.4
1989	1,002	4.1	1999	14	1.5
1990	789	3.1	2000	-43	2.9
Sub-total	7,675	3.3	Sub-total	1,403	2.3

Source: *China's Agricultural Development Report, various years.*

The expansion in exports since the 1990s resulted mainly from the growth in rice and corn exports, both increasing by a factor of 1.3, and the fall in imports can be explained by the dramatic fall in wheat imports. During the 1980s, China imported 114.3 million tons of wheat, 13.7 per cent of the domestic production, but this fell to 61.12 million tons over the 1990s, a mere 5.8 per cent of the total domestic production. Throughout the 1980s, rice, corn and beans were net exports while wheat was the net import. The status of the trade balance for rice, corn and wheat remained unchanged over the 1990s, but beans became net imports, at 118.09 million tons, 16.3 per cent of the domestic production, compared with 8.21 million tons of net bean exports during the 1980s.

These structural changes in the grain trade indicate that China liberalized its grain trade once it had enhanced capacity and its imports had dropped significantly. Hence, from the short-term perspective, entry into the WTO will not make a major impact on the general balance of China's grain trade. The tariff quotas for China's grain imports will average 20.23 million tons from 2002 to 2004, some four per cent of the current gross national consumption. This is much higher than the average import level over the 1980s and 1990s (12.186 million and 7.1103 million tons respectively), and also 580,000 tons more than the imports of 1995, the peak year for grain imports over the past two decades.

Along with increased production capacity and falling net imports, a decrease in marginal productivity led to a rise in production factors, leading to a rise in the cost and price of grains, and ultimately higher local prices than those of the world market after the renminbi, the nation's currency, depreciated in 1994. This situation has created more opportunities for import growth. In the long term, as China will remain short of water and land resources, its grain production will naturally be in a disadvantageous position compared to that of the U.S., Canada and Australia. Raising grain imports to an appropriate level is, therefore, a reasonable approach, but, in view of the country's large population and the difficulties faced in its structural readjustments, this increase in imports must be capped. This is why China stated in its *Protocol for WTO Accession* that it based its policies on domestic agricultural supply, especially on balanced supply and demand for grains. Meanwhile China actively sought international resources as a necessary supplement.

3.4.2 Employment structure

Table 14. Shares of Added Value of Chinese Rural Population, Employment and Agriculture in the Economy, Selected Years, 1952–2000 (percent).

Year	Rural population	Rural employment	Value-added
1952	87.50	83.5	50.5
1962	82.70	82.1	39.4
1970	82.60	80.8	35.2
1980	80.61	68.7	30.1
1990	73.59	60.1	27.1
2000	63.78	50.0	15.9

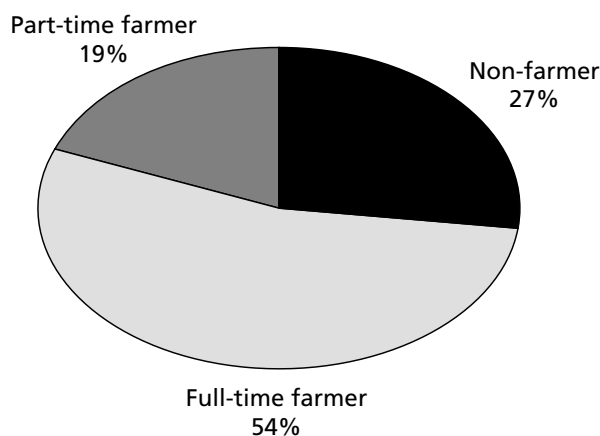
Source: *Chinese Statistical Yearbook*.

Although the agricultural sector's share of added value in the national GDP had fallen remarkably before the 1970s, the agricultural population and agricultural employment situation remained almost unchanged. With labour productivity raised and restrictions lifted on the mobility of the population and labour forces toward the end of the 1970s, the agricultural population and agricultural employment began to drop along with its shrinking share of the added value of the sector. Entering the 1990s, the proportion of people employed in the sector was further reduced as the country's urbanization gathered momentum, and the structure of employment also altered. More importantly, an increased number of rural people became engaged in more diversified economic activities. According to an agricultural survey, by the end of the 1990s the Chinese rural labour force could be divided into farmers (full-time), agricultural workers with combined occupations (part-time) and non-agricultural workers. Of these, the non-agricultural workers included those who worked for state-owned enterprises and institutions, private or individually-run businesses, or local government employees working as education, science and public health officers at the grass-roots level, and managers of township

enterprises. This non-agricultural labour force, although small in proportion, is tending to increase. In spite of this, there remains a large surplus of labour in rural areas.

By the end of the decade, the employment rate for rural labour stood at 76 per cent, compared with 66 per cent for the agricultural labour force—10 percentage points below the average—and 95 per cent for non-agricultural workers, with the employment rate of those working away from home as high as 115 per cent. Assuming that 68.4 per cent of the 479 million rural labourers worked on farms in 2000, the 66 per cent employment rate means there was a surplus of 110 million rural labourers in China.

Structure of Rural Employment by the End of the 1990s.



China's entry into the WTO is likely to draw more foreign investment to various local economic sectors, including the agricultural sector, especially the agricultural products processing industry. This will contribute to the country's agricultural restructuring and speed up the transfer of the surplus labour force to other sectors, but it may also bring about another outcome: heavily subsidized and cheap foreign agricultural products would flood into the local market and further inflate the existing surplus. A report by the U.S. Department of Agriculture Economic Research Service (USDA/ Economic Research Service. *Agricultural Outlook*, April 2001) indicates that, with China's accession to the WTO, the production of a number of agricultural products, including rice, wheat, cotton, wool and vegetable oils, will experience a decline, ranging from 14 to 37 per cent, and, further, some 13.2 million employment opportunities will be cut. According to yet another report, prepared by the Economic Research Centre under the Ministry of Agriculture, China will lose about 12 million jobs as foreign agricultural imports increase in the post-accession era. Furthermore, if the surplus agricultural labour forces cannot be absorbed by other sectors such as the manufacturing, services and construction industries, there could be three consequences: (1) Some farmers would lose their jobs, with the income of some other farmers sharply reduced; (2) The surplus labour would remain in the sector, labour productivity would remain low and so would the income of the farmers; and (3) The surplus labour would transfer from the less competitive land-intensive agricultural production to the more labour-intensive production of vegetables, fruits and fishery products, which may go partly for domestic consumption and partly for the international market. However, this policy may fail to achieve the desired result if the products do not sell well abroad. In summary, all the three consequences could erode Chinese farmers' incomes and tend to aggravate rural poverty, and the increase in poverty-stricken people will, in turn, make it more difficult to enforce ecological protection measures, leading to further deterioration of the ecological environment.

3.4.3 Structure of the agricultural sector

After hitting a record high in the mid-1980s, the per-capita direct consumption of grains began to drop in China. In the late 1990s, the country's major agricultural products reversed the situation of long-standing insufficient supply and realized "a general balance of demand and supply and even surplus in bumper harvest years." This, however, does not mean that China is free from the pressure of inadequate supply of the agricultural products. As the economy develops, the ill match of demand and supply of agricultural products becomes ever more evident. Along with rising income and the rapid drive for urbanization, changes are taking place in the structure of demand. On the one hand, there is greater demand for non-staples, such as chickens and eggs, as well as for the grains needed to produce such foodstuffs; on the other, the need for quality agricultural products and special products meant for food processing is also increasing year by year. The pressure of grain shortage that China used to face has turned into pressure for the structural adjustment of agricultural products.

Table 15. Structural Change in Agriculture, Selected Years, 1980–2000 (per cent).

Year	Farming	Forestry	Animal husbandry	Fishery
1980	75.63	4.23	18.42	1.71
1985	69.25	5.21	22.06	3.43
1990	64.66	4.31	25.67	5.36
1995	58.45	3.49	29.72	8.39
2000	55.68	3.76	29.67	10.89

Source: *China Statistical Yearbook*.

While the share of farming has fallen by 20 percentage points since the 1980s, the shares of the animal husbandry and fishery sectors have increased by 11 and 9 percentage points respectively over the same period. Great changes have taken place within the farming sector since then: from 1980 to 2000 the total area under agricultural crops rose by 6.7 per cent, to 1,563 million hectares, but the area under grain shrank by 87.71 million hectares, and the area under vegetables and fruits increased by factors of 3.9 and 4 respectively.

Table 16. Changes in the Area under Agriculture, by Crop, 1980–2000.

	Change in cultivated area (millions of hectares)	Percentage change
Total cultivated area	99.13	6.70
Grain	-87.71	-7.50
Oil-bearing crops	74.71	94.00
Cotton	-8.79	-17.86
Sugar	5.92	64.00
Vegetables	120.74	389.00
Fruits	71.49	400.00

Source: *China Statistical Yearbook*.

In China, the price of land-intensive products is generally higher than that on the international market, given the country's large population and relatively little arable land. As the nation opens up its market to foreign competitors, it will be very difficult to maintain this high price. For this reason, China will have to proceed with its reduction in grain growing areas and enhance the production and export of labour-intensive economic crops.

The structural change in Chinese agriculture also lies in the development of the agricultural product processing and agricultural tertiary industries. Driven by foreign capital, these industries will be the sector's new areas for growth.

3.4.4 Structure of farmers' income sources

According to a survey report by the State Statistics Bureau, the net income of Chinese labourers averaged RMB2,253 in 2000, up by 1.9 per cent from 1999. Of this amount, RMB1136.1 came from agricultural activities, 50.4 per cent of the total and down by 3.7 per cent compared with a year earlier. RMB702.3 or 31.2 per cent came from wage income, up by 11.4 per cent. This shows that the rising income of Chinese farmers is due more to off-farm activities than to primary agricultural activities. In fact, Chinese farmers' income from agricultural work fell for four consecutive years from 1997. As small-scale farming only ensures farmers' subsistence without raising their living standards, the number of farmers with combined occupations is likely to increase in the future.

Table 17. Income of Rural Labourers from Three Economic Activities, 1995–2000 (in renminbi).

Year	Agricultural production	Manufacturing	Services
1995	996.5	287	195
1996	1192.6	372	248
1997	1267.7	437	281
1998	1237.4	498	303
1999	1180.0	564	334
2000	1136.1	598	395
Growth rate 1995–2000	2.66	15.8	15.1

Source: Agricultural Development Yearbook.

3.4.5 Farming methods

In China, agricultural operations used to be conducted by collectives (production brigades). Since the 1980s, individual households have begun to play a leading role in farming activities; this shift has fuelled the rapid growth of agricultural product supply and sustained China's agricultural economic development for over two decades. However, while intensifying self-sufficient production and contributing to the development of land-intensive agriculture, it has not been conducive to raising the labour productivity of the sector. The experiences of some foreign agricultural economies have suggested that household operation is not incongruous with agricultural modernization; in China, however, the fact is that household farming is based on equal sub-contracting according to the number of people and farm workers in a family. This practice restricts both the size of per-household farming land and the use of machinery in agricultural operations. The primary mode of industrialization is that manual work is being replaced by the use of machinery. This is the guaranteed and essential approach to enhancing labour productivity. In China, however, the rate of mechanization in agriculture remains comparatively low, due to the large labour forces and relatively little farmland available.

At present China maintains a reasonable land utilization rate—its unit-area production level is higher than the world average—but labour productivity remains rather low, at only one-third of the average productivity of social labour. One of the important reasons for this is the existence of large numbers of agricultural labourers, which makes full employment impossible on the limited area of arable land. This not only accounts for the falling income of Chinese farmers over recent

years but also creates tremendous difficulties in fighting foreign competition in a fully open local market. It is expected that in the post-WTO era foreign competition will stimulate and accelerate the changes in the local-household mode of operation. A more centralized use of land will then become inevitable, and land lease and contract farming will become a popular mode of production on the basis of the land contract responsibility system.

China's agricultural reform and development actually hastened the arrival of a completely new mode of operation in the agricultural sector in the late 1980s and early 1990s. After 10 years of experimental efforts, this new market-oriented industrialized operation system was set up, combining cultivation, production, processing, marketing and trading of agricultural products into an integrated whole. It linked individual farm production with major domestic and international markets and enhanced the value-adding capacity of the local agricultural sector. With China's accession to the WTO, market barriers will be slashed both at home and abroad, and competition will also intensify along with enhanced market integration. This offers a new opportunity for industrialization in the agricultural sector, as it is an effective approach to sustainable development in an opened agricultural sector that used to be characterized by small-scale production, semi-self-sufficiency and part-time farmhands.

3.4.6 Structure of regional agricultural development

The conditions for regional agricultural development vary greatly as the distribution of natural resources and the stages of development differ from place to place. The western and central regions boast much larger areas of arable land and grassland, but in the utilization of natural resources the west appears to lag behind the eastern and central regions. Thanks to the reformed and open policies, the economies along the southeastern coast have expanded vigorously, leading to an ever-increasing demand for agricultural products. During the 1980s, the decade-old practice of "supplying the north with food from the south" gradually reversed. Traditionally, the country's regional agricultural policy has pursued the attainment of the highest possible self-sufficiency rate in agricultural products. This has brought about a balanced production structure in various regions, but has failed to bring into play the comparative advantages of each particular area. The WTO accession will, in addition to intensifying market competition, help readjust the old regional agricultural policy on the basis of comparative advantages and formulate new policies aimed at raising both the rate of resources' utilization and labour productivity and the vigour and competitiveness of regional agricultural economies. With market opening and the falling costs of agricultural imports, the coastal regions will more often turn to international markets to balance the regional supply and demand of agricultural products. At the same time, production targeted at the world market will also increase.

Table 18. Structure of Chinese Agriculture by Region.

	West	Central	East
Cultivated area (1,000 hectares)	30,629	36,607	2,773
Grassland area (1,000 hectares)	30,722	542	216
Share of agricultural value-added (%)	24.6	23	15.6
Agricultural population (%)	63.7	53.3	40.3
Rate of mechanization (%)	15.3	36.1	48.6
Irrigated area (%)	20.9	39.7	39.4
Consumption of chemical fertilizer (net) (%)	18.3	39.0	42.7
Fruit production (%)	18.8	19.2	62.0
Cotton production (%)	39.0	38.4	22.6
Oil-bearing crop production (%)	17.0	48.7	34.3
Grain production (%)	20.4	42.4	37.2

Sources: *Agricultural Development Report.*
Guide to Great Western Regional Development.

To sum up, China's agricultural policy will be reformulated in accordance with the relevant WTO rules. In the long term, market integration and enhanced efficiency of resources utilization will be achieved as a result of the agricultural restructuring arising from the policy adjustment. In the short term, because of the inadequacy of market reform and under-development of the market infrastructure and agricultural industrialization, the restructuring will prove to be rather painful as Chinese farmers cannot benefit fully from the opportunities brought about by the expansion of the market but suffer instead from the flood of imports.

4. China's Domestic Agricultural Green Box Policies

4.1 Assessment and analysis of Green Box policy implementation

4.1.1 Support level of China's agricultural Green Box measures

An estimate has been made of the level of support that was required to implement China's agricultural Green Box measures from 1996 to 1998, based on the policy range and computing methodology stipulated by the World Trade Organization (WTO) and the budgetary and expenditure statistics provided by the Chinese Ministry of Finance. *[Note: It is possible to use pre-1998 data only because later statistics are not sufficiently complete to make such an analysis. Nevertheless, the analysis shows the actual scale and structure of China's Green Box policy implementation, as the country's agricultural support policy has remained relatively unchanged since 1998.]* The estimate shows the annual outlay on domestic agricultural Green Box support to have been RMB1,319.99 billion between 1996 and 1998; more precisely, RMB1,014.93 billion in 1996, RMB1,211.09 billion in 1997 and RMB1,733.95 billion in 1998.

Again, due to the lack of complete and accurate data from 1999 onward, the scale of such support is estimated roughly at RMB200 billion in 1999, RMB220 billion in 2000 and RMB240 billion in 2001, averaging RMB220 billion annually.

Table 19. China's Green Box Domestic Support: Outlay.

Item	Year	Amount (million RMB)	Percentage share of total support
(1) General Services	1996	48,455.22	47.74
	1997	55,480.83	45.74
	1998	90,220.69	51.94
	Mean	64,718.91	48.97
a) Research	1996	6,536.23	6.44
	1997	7,511.56	6.20
	1998	9,228.76	5.32
	Mean	7,758.85	5.88
b) Pest & Disease Control	1996	1,107.00	1.09
	1997	1,229.00	1.01
	1998	1,320.00	0.76
	Mean	1,218.67	0.92
c) Training Service	1996	194.00	0.19
	1997	211.00	0.17
	1998	220.00	0.13
	Mean	208.33	0.16
d) Extension/advisory	1996	17,141.00	16.89
	1997	18,961.00	15.66
	1998	22,616.00	12.95
	Mean	19,572.67	14.79

Item	Year	Amount (million RMB)	Percentage share of total support
e) Inspection	1996	878.99	0.87
	1997	1,256.27	0.96
	1998	1,295.93	0.75
	Mean	1,143.73	0.84
f) Marketing/promotion	1996	0.00	0.00
	1997	0.00	0.00
	1998	0.00	0.00
	Mean	0.00	0.00
g) Infrastructural	1996	22,598.00	22.27
	1997	26,312.00	21.73
	1998	55,540.00	32.02
	Mean	34,816.67	26.38
(2) Public Stockholding For Food Security Purposes	1996	27,553.10	27.15
	1997	33,513.00	27.67
	1998	47,597.90	27.45
	Mean	36,221.30	27.44
(3) Domestic Food Aid	1996	956.64	0.82
	1997	955.00	0.69
	1998	798.19	0.39
	Mean	903.28	0.59
(4) Direct Payment To Producer	1996	0.00	0.00
	1997	0.00	0.00
	1998	0.00	0.00
	Mean	0.00	0.00
(5) Decoupled Income Support	1996	0.00	0.00
	1997	0.00	0.00
	1998	0.00	0.00
	Mean	0.00	0.00
(6) Government Financial Participation in Income Insurance Safety	1996	0.00	0.00
	1997	0.00	0.00
	1998	0.00	0.00
	Mean	0.00	0.00
(7) Natural Disaster Relief	1996	3,790.86	3.74
	1997	4,042.27	3.34
	1998	5,453.55	3.15
	Mean	4,428.89	3.76
(8) Structural adjustment assistance provided through Producer Retirement	1996	0.00	0.00
	1997	0.00	0.00
	1998	0.00	0.00
	Mean	0.00	0.00

Item	Year	Amount (million RMB)	Percentage share of total support
(9) Structural adjustment assistance provided through Resource Retirement	1996	0.00	0.00
	1997	0.00	0.00
	1998	0.00	0.00
	Mean	0.00	0.00
(10) Structural adjustment assistance provided through Investment Aids	1996	0.00	0.00
	1997	0.00	0.00
	1998	0.00	0.00
	Mean	0.00	0.00
(11) Payment under Environment Program	1996	15,694.30	13.39
	1997	18,162.93	13.05
	1998	19,106.68	9.25
	Mean	17,654.64	13.44
(12) Payment under Regional Assistance	1996	6,000.00	5.91
	1997	10,000.00	8.26
	1998	11,000.00	6.34
	Mean	9,000.00	6.82
Total	1996	101,493.00	100.00
	1997	121,109.00	100.00
	1998	173,395.00	100.00
	Mean	131,999.00	100.00

Source: Ministry of Finance of the People's Republic of China.

It can be seen from the above that China's Green Box support has maintained a year-on-year growth rate over recent years. In fact, Green Box support represents an ever increasing share of state budgetary expenditure, from 12.79 per cent in 1996, 13.12 per cent in 1997 to 16.06 per cent in 1998, an average of 14.2 per cent over the years.

This incremental growth is due largely to the substantially increased outlays on Agricultural Infrastructure Construction and Food Security. For example, expenditure on Infrastructure Facilities in 1997 was RMB3,714 million higher than in 1996, up by 16.44 per cent and accounting for 17.18 per cent of the total increase in support for that year, and it rocketed by RMB29.228 billion in 1998, jumping 111.08 per cent and accounting for 55.9 per cent of the total increase in support. Similarly, the outlay for Food Security reached RMB33,513 million in 1997, up by 21.63 per cent compared with the year before and accounting for 20.38 per cent of the total increase in support; it jumped by 59.3 per cent to reach RMB29.801 billion in 1998, representing 43.97 per cent of the total increase in support in that year.

There are two special reasons for the substantially heightened level of Green Box support in 1998. First, this unusual increase was a coincidence: the outlay for Agricultural Infrastructure ballooned in that year as the country suffered from exceptionally severe floods; consequently, Disaster Relief also rose by 34.93 per cent to RMB1,412 million. Second, the national economy lacked growth momentum amid the impact of the Asian Financial Crisis. The Chinese government, therefore, adopted active fiscal policies by issuing treasury bonds, part of which went for local agricultural infrastructure facilities and food security programs (e.g., RMB18 billion used for the construction of state grain depots).

Given the above-mentioned reasons as well as the growth in state financial expenditure, China's Green Box support in 1999 remained at much the same level as in 1998, or even lower. The level of support remained relatively unchanged in the following years, without significant growth as in 1998, but as of this writing the growth rate of Green Box expenditures was likely to reach an average annual 20 per cent between 1999 and 2001, a little higher than that of the state budgetary expenditures.

4.1.2 Basic structure of China's Green Box support

Government General Services forms the largest category of Green Box measures adopted in China, similar to the structures of Green Box policies in some developed countries. It accounts for more than 45 per cent of all Green Box measures in use and actually topped 51.94 per cent in 1998. This is followed by Payment to Public Stockholding for Food Security Purposes and Payment under the Environment Program, representing some 27 and 13 per cent respectively. Further down the list are the following: Payment under Regional Assistance (6.8 per cent), Payment for Relief from Natural Calamities (3.4 per cent) and Domestic Food Aid (0.6 per cent). Some of the other Green Box measures are not adopted: these include Direct Payment to Producers, Decoupled Income Support, Government Financial Participation in Income Insurance and Safety-Net Programs, Structural Adjustment Assistance Provided through Producer Retirement, Structural Adjustment Assistance Provided through Resource Retirement and Structural Adjustment Assistance Provided through Investment Assistance.

Some structural changes were made after 1999, resulting in the share of Payment for Food Security Purposes dropping from 27 per cent in 1998 and that of Payment under the Environment Program increasing significantly. For example, the government's annual payment for the Returning Farmland to Forestry (Grassland) Program, a major step in China's Western Development Strategies, now exceeds RMB10 billion, hence the increased proportion of environmental payments, to approximately 15 from 13 per cent before 1998.

Agricultural Infrastructure Service accounts for the largest share under the Government General Services category. It averaged RMB34.817 billion between 1996 and 1998, accounting for 53.8 per cent of the category and 26.38 per cent of total Green Box support, but fell to over 50 per cent (down from 61.56 per cent in 1998) and 20 per cent respectively after 1999. In reality, however, the actual payment to agricultural production should be discounted as a considerable proportion of the agricultural infrastructure payments went to urban flood control projects.

Agricultural Technology Promotion and Consulting Service appears in second place, averaging RMB19.573 billion between 1996 and 1998, accounting for 30.24 per cent of the category and 14.79 per cent of the total Green Box support and maintaining much the same level after 1999. However, these payments were spent mainly as the operating expenses for local technology promotion and consulting service departments; the actual support level for technology promotion may be much lower.

The State Agricultural Technology Support consists of Science and Technology Promotion Funds and operating expenditures for science and education institutions. They stood at an average of RMB7,759 million, posting 11.99 per cent of the category and 5.88 per cent of domestic Green Box support from 1996 to 1998, and remained at roughly the same level after 1999. Again, the actual financial input for research programs was below the stated total sum, as a considerable amount of the money simply covered the operating costs for scientific research institutions and agricultural schools.

The Pest and Disease Control Program averaged RMB1,219 million from 1996 to 1998, accounting for 1.89 and 0.92 per cent respectively of the Government General Services category and local Green Box measures. The Inspection and Quarantine Services averaged RMB1,144 million over the same period, accounting for 1.72 and 0.84 per cent respectively.

In China, the Training Services Program involves mainly specialized training and production-technology training for farmers, farming management personnel and technical staff. It averaged RMB208 million from 1996 to 1998, making up 0.32 and 0.14 per cent respectively. Considering the drawbacks of the current administrative system, a very minor part of the fund has been used for such training programs. The support level of the above-mentioned measures remained generally unchanged after 1999.

No Marketing and Promotion Service Program has so far been adopted in China.

4.1.3 Analysis of China's Green Box expenditures

Payment to Public Stockholding for Food Security Purposes comes second after Government General Services and has also been among the fastest growing measure over recent years. It averaged RMB36.221 billion from 1996 to 1998, representing 27.44 per cent of the overall Green Box measures adopted in China. In 1995, an article entitled *Who Will Feed China?*¹ was published, drawing the attention of Chinese officials and scholars to the issue of domestic food security, and the country reaped bumper harvests for the next five years. As a result, the government redoubled its efforts on food security by providing more investment for the construction of grain depots. In 1998, the state also appropriated RMB18 billion in special funds for the construction of grain reserves depots, leading to a substantially increased expenditure in this regard.

Because of China's serious ecological problems, the government attached great importance to enforcing ecological environment protection and carrying out sustainable development strategies, such as pollution control and ecological environment projects. State support in these areas has intensified every year, and the share of environmental protection and strengthening among domestic Green Box measures also increased, averaging RMB17.714 billion from 1996 to 1998, accounting for 13.42 per cent of the total Green Box support. Since 1999, China has systematically carried out a strategic campaign, Returning Farmland (Grassland) to Forestry, initially in 24 provinces and autonomous regions; an even more extensive campaign was launched in 2002. By the first half of 2002 a total of 35 million hectares of farmland had been given up and more than RMB20 billion-worth of special funds had been utilized for this purpose. Hence, payments to Environmental Programs grew considerably over this period, jumping more than 50 per cent to reach some RMB30 billion in 1999, about 15 per cent of the total domestic Green Box measures. The same level of support for Environmental and Ecological Development Programs was maintained in both 2000 and 2001.

Needless to say, with vast economic and social disparities and unbalanced socio-economic development in different regions, there remain impoverished areas and poverty-stricken people in China. Payments under Regional Development Assistance are made, therefore, to assist people in these areas and alleviate rural poverty. Such payments include a Special Subsidy for Sanxi

¹ Lester Brown. "Who Will Feed China? Wake Up Call for a Small Planet," Washington, D.C.: Worldwatch Institute, 1995.

Agricultural Development (*Note: Sanxi refers to Hexi and Dingxi in Gansu Province and Xihaigu in Ningxia Zhuang Autonomous Region*) payments for rural development under the Underdeveloped Regional Assistance Program, Poverty-Relief Fund, Discount Loans for Poverty Relief and work relief packages in impoverished areas. The total payments averaged RMB9 billion from 1996 to 1998, accounting for 6.82 per cent of overall Green Box support. Expenditures for these programs ranged from RMB12 billion to RMB15 billion after 1999, representing a similar share.

China frequently suffers from natural calamities, so natural disaster relief makes up an important part of the country's Green Box support package. State budgetary outlays for extraordinarily severe natural calamities often cover resettlement of the victims and reconstruction of destroyed production facilities. Between 1996 and 1998, these outlays averaged RMB4,429 million, accounting for 3.36 per cent of the total Green Box measures. This outlay has remained at much the same level since 1999 as no extensive, serious disasters have occurred since then.

Domestic Food Aid is a subsidy targeted at, among other things, stabilizing the price of foodstuffs such as meat and vegetables for urban consumers. It is a comparatively minor outlay and accounts for only a small and year-on-year declining share of the country's Green Box support.

A number of measures linked directly with producers' income are not adopted because of the local financial and administrative restraints. These measures include: Marketing and Promotion Service, Direct Payment to Producers, Decoupled Income Support, Government Financial Participation in Income Insurance and Income Safety-net Program, Structural Adjustment Assistance Provided through Producer Retirement Program and Structural Adjustment Assistance Provided through Resources Retirement Program as well as Structural Adjustment Assistance Provided through Investment Aids.

4.1.4 Major problems with China's Green Box policies

Generally speaking, China has continued to intensify its Green Box support, especially over recent years, but some major problems persist, such as the following:

- The constraints of the regime have led to weakened policy enforcement and reduced the effects of the Green Box measures. Under the existing administrative and operational system, payments in the name of agricultural support are not always used for their intended purpose, and the amount of money used for such support may even be vastly short of the actual amount provided. As most of the local research institutions are inflated and overstaffed, an overwhelming amount of the research fund has been used as remuneration and benefits packages for staffs or other purposes, with very limited sums left for research. For instance, at a state-run agricultural research institute, out of an annual budget of tens of millions of renminbi, less than RMB1 million went for research and the salaries of the research staff at the institute, just one-tenth of the total allocation. In another instance, a state research project, for which the government appropriated RMB2 million-worth of special funds, spent over RMB1.8 million on housing and cars and left less than RMB200,000 for research. To give one more example to illustrate the improper use of agricultural research funds: while the state allocates massive sums of money for water conservancy projects each year, most of the funds are retained by the administrative authorities and project undertakers for the benefits of their own

organizations. In an auditing investigation by the central government held several years ago, the Ministry of Water Conservancy and Power was found to have illegally retained hundreds of millions of RMB-worth of special funds for state water conservancy projects. To varying degrees, this malpractice of making fraudulent application and claims and retaining special funds for other uses is also widespread in other state programs such as disaster relief, food stockholding and even the ongoing campaign of Returning Farmland (Grassland) to Forestry; however, it will be difficult to make an accurate estimate on this kind of behaviour since no relevant statistical data are available. A preliminary estimate is that as much as one-fourth of such funds could be abused or wasted.

- The structure of the Green Box support is imperfect, in that neither a marketing and promotion service network for agricultural products nor a system of agricultural structural adjustment has been set up. Both are of great importance to sustainable agricultural development, structural readjustments and stable incomes for farmers.
- In the implementation of Green Box measures, other supposedly relevant agricultural support policies are not accommodating and disconnected, therefore weakening or even partially offsetting the effects of these measures. In spite of the fact that agriculture contributes some 16 per cent to the nation's Gross Domestic Product (GDP) and that Green Box support accounts for a huge 14.2 per cent of the state budgetary expenditures (the 1986–89 average), government at various levels levies a considerable amount of agricultural taxes and fees each year (RMB40 billion from agricultural tax alone), turning China's overall agricultural support into a negative value. As the Agricultural Research Department under the State Council's Development and Research Centre estimates, the government collects an annual RMB170 billion-worth of taxes and fees from the agricultural sector, almost equivalent to the scale of local Green Box support. From a historical perspective, China's industrialization was sustained to a great extent by local agriculture before 1995: revenues from agricultural production were channelled into industries, and the prices of agricultural products were deliberately reduced, whereas those of manufactured goods were raised artificially to boost faster industrial development. Since 1995, however, both the Chinese economy and the domestic manufacturing sector have made rapid strides and become strong enough to offer some initial assistance back to agriculture, so it is now the time to provide greater support to the agricultural sector, especially through the enforcement of Green Box measures. In this context, the current level of Green Box support is insufficient to help attain the goal of promoting all-round agricultural development in China.

4.2 Comparison of Green Box measures adopted by China and Major WTO Members

It is recognized that there is a disparity between what the WTO advocates and China's traditional agricultural trading system characterized by state trading operations and quantitative restrictions. However, the country's domestic agricultural support, as categorized by the WTO, falls within the scope of Green Box measures, measures with no or very little trade distorting effect, and its Amber Box support remains in the negative. This is mainly because, as a developing Member, China has not fully reversed its biases of taxing agriculture and supporting local industry with agricultural surpluses. Unlike some major agricultural countries, China's agriculture is fundamentally domestically oriented, with a poor foreign exchange earning record, and its agricultural exports are not as vigorously encouraged as manufactured goods are.

Although the country's farm products are also subsidized, this is more of a short-term regulating measure adopted in times of bumper harvests and large agricultural reserves, not a long-term policy.

A comparative analysis of Green Box policies adopted by China and some major WTO Members in terms of support level and outlay structures follows. The United States (U.S.) maintains the largest scale of Green Box support, but both its support level and the shares of Green Box measures in the total domestic agricultural support are declining. The European Union (EU)'s agricultural support is dominated by Amber Box measures, and its Green Box measures stand at just over one-fifth of the total agricultural support. Its Green Box support has also experienced a downward trend, from next only to that of the U.S. in 1996 to below the level of Japan in 1998. Like the EU, Japan witnessed its Green Box support shrinking, in absolute terms, within three years, but the share of Japan's Green Box measures grew substantively in 1998, overtaking the U.S., so that it became a principal enforcer of Green Box measures. Compared with these economies, China not only used exclusively Green Box measures in recent years, but also enhanced its support very rapidly. In 1990, the country's total domestic outlay was \$39 billion short of that of the U.S. and \$10 billion behind those of the EU and Japan. By 1998, China's Green Box expenditures had caught up with up those of the EU.

Table 20. Comparison of Green Box Measures between China and Selected WTO Members (100 million U.S. dollars).

	1996		1997		1998		Average level of three years 1996–98	
	Outlay	Ratio*	Outlay	Ratio*	Outlay	Ratio*	Outlay	Ratio*
U.S.A.	518.40	88.0	513.49	87.0	499.22	76.7	510.37	82.10
EU	265.79	23.3	204.74	20.4	209.89	22.2	226.81	21.68
Japan	250.20	45.6	216.14	45.2	234.48	77.9	233.61	56.20
China	122.07	100.0	146.09	100.0	209.40	100.0	159.10	100.00

* Ratio of Green Box to total domestic support.

Source: WTO Committee on Agriculture.

Differences are even more striking in the Green Box support structures of these four economies. Despite major adjustments, the Green Box support of the U.S. focuses on Domestic Food Aid, its annual payment under this category accounting for 72.7 per cent of the total Green Box expenditures, in marked contrast with the share of less than two per cent for the other three countries. Another noticeable difference is its frequent use of Decoupled Income Support. Japan's Green Box support is heavily biased in favour of Government General Services, which accounts for 83.7 per cent of the country's total Green Box support. Seventy-three per cent of the outlays under this category are for agricultural infrastructure construction. The EU's Green Box expenditures are more balanced, mainly in Government General Services, Investment Aid and the Environment and Regional Assistance Programs; its financial input into Disease and Pesticide Control is also higher than those of the other three. What also deserves attention is the EU's allocation of funds for the payment of Resources and Producers Retirement Programs, which is also the case with the Green Box policies of the U.S. and Japan. Compared with these, China's Green Box support has the following characteristics:

a. Emphasis on agricultural research

China's annual allocation for its agricultural research fund is larger than those of the EU and Japan and second only to that of the U.S.; its share of research funds in the total Green Box expenditures is the largest. Over the past three years, China's agricultural research fund has been growing at an average annual 19 per cent, surpassing the 4 per cent growth rate of the U.S. and 8.5 per cent of Japan, though below the 62 per cent of the EU.

b. More support for Technology Promotion and Consulting Service and less support for Training Program

While the proportion of payments to Technology Promotion and Consulting Service varies year by year, China's annual expenditure in these areas averages \$2,360 million U.S., 2.7 times more than that of the EU and 6.9 times more than that of Japan. However its outlay for Training Service is left far behind those of the EU and Japan, whose expenditures on this are 41 times and 22.7 times respectively more than that of China (the U.S. allocates no capital for these items).

c. Focus on Public Stockholding

China's payment to Public Stockholding for Food Security Purpose accounts for 27.4 per cent of the total Green Box expenditures, unparalleled among the four economies, and this trend is continuing, both in absolute outlays and the proportions of the total expenditures. By comparison, the financial inputs of the EU and Japan are only 0.3 and seven per cent respectively of China's spending under this category. The U.S. government does not put in any funds for this item. China's huge expenditures in this area reflects the government's acute awareness for risk management, but, on the other hand, it also shows that the country is yet to set up a flexible, effective and low-cost safeguard system for food security.

d. Sustained growth of disaster-relief payment

China is frequently beset by natural calamities, its disaster alleviation payment has increased by an annual 20 per cent over the past three years, and the share of this outlay in the total Green Box support is also the largest among the four economies.

e. Heavy spending on Environmental Programs

China's expenditures on Environmental Programs are surpassed only by payments to Public Stockholding for Food Security Purpose, Infrastructure Facilities Projects and Technology Promotion and Consulting Service, totalling \$2,135 million U.S. and accounting for 13.4 per cent of its total Green Box support. This is 7.9 times that of the U.S. and twice that of Japan, and stands at 46.6 per cent that of the EU, ample proof that China as a developing country devotes no less effort to environmental protection and control than do developed economies.

f. China has not made use of some Green Box measures

As Table 21 (below) shows, for the following reasons: some measures are neither affordable nor applicable at present, such as the Decoupled Income Support, Producers Retirement and Resources Retirement Programs; and others, which include Marketing and Promotion Services and the Income Insurance and Safety Net Programs, are not in use because China has not set up the corresponding mechanisms for implementation.

Table 21. Comparison of Structure of Green Box Measures between China and Selected WTO Members (per cent)

Category	China	U.S.	EU	Japan
Research	5.88	5.0	2.9	2.6
Pest Control	0.92	1.0	6.6	0.6
Training	0.16	0.0	4.5	2.4
Extension & Advisory Services	14.79	0.0	1.5	3.7
Inspection Services	0.84	1.2	0.9	0.3
Marketing & Promotion Services	0.00	0.3	3.7	0.6
Infrastructural Services	26.38	0.0	4.2	61.5
Other General Services	0.00	0	4.2	8.4
Non-Separated General Services	0.00	6.1	0.0	3.6
Total General Services	48.97	13.6	28.1	83.7
Public Stockholding for Food Security Purposes	27.44	0.0	0.1	2.2
Domestic Food Aid	0.00	72.7	1.6	0.8
Decoupled Income Support	0.00	8.6	1.0	0.0
Income Insurance/Safety Net Programs	0.00	0.0	0.0	0.0
Natural Disaster Relief	3.38	0.9	1.6	2.2
Producer Retirement Programs	0.00	0.0	3.1	3.2
Resources Retirement Programs	0.00	3.5	4.3	0.0
Investment Aids	0.00	0.2	28.1	3.3
Environmental Programs	13.42	0.5	19.8	4.5
Regional Assistance Programs	6.82	0.0	12.3	0.0
Total Green Box outlay	100.00	100.0	100.0	100.0

Note: The data are averages, 1995–98 for the U.S. and EU but 1996–98 for Japan and China.

Sources: *WTO Committee on Agriculture.*
Ministry of Finance of China.

China has been and will be adhering to Green Box measures, as this is not only what the WTO initiates for and requires of its Members, but also what China can do for the world as a major developing country. While the WTO Green Box policy packages are providing a wide range of choices for its sustainable agricultural development, China still needs to push for further improvement of the disciplines for domestic agricultural support dominated by Green Box measures at the next round of the WTO multilateral agricultural talks. This is due to the consideration that in the process of fulfilling its WTO commitments and opening home markets, the development of the domestic agricultural sector may be increasingly subject to the unfavourable influences of agricultural support policies, including the Green Box policies of other countries.

4.3 Coordination of China's Green and Amber Box Policies

Different provisions have been drawn for Amber Box and Green Box measures in the Uruguay Round's Agreement on Agriculture (URAA) and this has brought about corresponding changes to the agricultural support policies of the WTO Members. Although the WTO has clearly differentiated between Green and Amber Box measures, they are inevitably closely related and have influenced each other. It is imperative, therefore, to examine Green Box measures in the light of the Amber Box policies adopted in China. Only in this way will it be possible to reach a more accurate understanding and judgment and probe deeper into the issue of China's agricultural support policies in the future.

4.3.1 China's Aggregate Measure of Support

Table 22, China's Aggregate Measure of Support 1996–98, is based on data from the State Development and Planning Commission, State Grains Administration, Ministry of Finance as well as *China Customs Statistics* and the *Almanac of Chinese Foreign Economic Relations and Trade*, and has been drawn up using the computerized methodology stipulated by the WTO Secretariat. The Aggregate Measure of Support (AMS) level was in the negative in the three years after 1998 since the agricultural support policies remained largely unchanged during this period.

With its general AMS support in the negative, averaging -RMB29.24 billion between 1996 and 1998, the 8.5 per cent share of AMS in the gross agricultural product, as was allowed for China at its accession talks, appears to be a remote target. Admittedly, the present support level means that there is no need for China to cut its agricultural support since its entry into the WTO, but it also indicates that the circumstances are apparently unfavourable for sustaining local agricultural development and raising the income level for farmers.

Moreover, the tax and fees that local farmers are obliged to pay for their agricultural production should be deducted as negative values in the calculation of domestic agricultural support measures. The taxes and various fees in the country's agricultural sector constitute a heavy load, totalling over seven per cent of the gross agricultural product. When these are taken as negatives, the negative values for domestic agricultural support will become even greater.

Table 22. Aggregate Measurement of Support for China's Specific and Non-specific Farm Products, 1996–98.

Farm crop	Year	Specific product AMS (million RMB)	Output value (million RMB)	Share of AMS in total value
Wheat	1996	-6,075	200,936	0
	1997	-11,230	191,289	0
	1998	-6,541	156,872	0
	average	-7,949	183,032	0
Rice	1996	-26,273	339,449	0
	1997	-16,645	296,334	0
	1998	-9,246	277,817	0
	average	-17,388	304,533	0
Corn	1996	-3,263	174,541	0
	1997	2,398	152,700	1.57%
	1998	6,173	168,391	3.67%
	average	1,769	165,366	1.07%
Cotton	1996	-5,554	70,634	0
	1997	-3,485	69,446	0
	1998	-7,930	61,509	0
	average	-5,656	67,196	0
Specific farm products	1996	-41,166	785,559	0
	1997	-28,963	709,768	0
	1998	-17,543	664,589	0
	average	-29,224	720,128	0

Farm crop	Year	Specific product AMS (million RMB)	Output value (million RMB)	Share of AMS in total value
Non-specific farm products	1996	27,318.0	2,158,015	1.27%
	1997	25,993.0	2,294,624	1.13%
	1998	34,711.0	2,366,541	1.47%
	average	29,340.7	2,273,060	1.29%
Total AMS*	1996	0		
	1997	0		
	1998	0		
	average	0		

Note: *Based on WTO requirements with regard to reporting domestic support data, as the AMS is a negative value, the ratio of output is zero. As the Total AMS is negative, the figure is zero.

4.3.2 AMS for specific agricultural products

After more than two decades of reform and opening-up, most of the local agricultural products are now deregulated; the exceptions are wheat, rice, corn and cotton, which are still priced and purchased by the state at guaranteed prices. The AMS for these specific products are, on the whole, negative in value, with the AMS for rice averaging -RMB17.388 billion from 1996 to 1998, the lowest among the four, and those for wheat, cotton and corn -RMB7,949 million, -RMB5,656 million and RMB1,769 million respectively. Although the AMS for corn was positive in value between 1997 and 1998, it represented only 1.57 and 3.67 per cent respectively of its output value, far below the 8.5 per cent allowance. In other words, cuts in domestic support are not required as far as these specific products are concerned.

Table 23. China's Aggregate Measurement of Support for Specific Farm Products, 1996–98.

Farm crop	Year	Item	Regulated price (RMB/ton)	Reference price (RMB/ton)	Quantity (1,000 tons)	Market price support total (million RMB)
Wheat	1996	Government purchase	1,480	1,885.00	15,000	-6,075.00
	1997	Government purchase	1,480	1,629.77	15,000	-2,246.55
		Protected price purchase	1,340	1,629.77	31,003	-8,983.59
	1998	Government purchase	1,420	1,579.82	15,000	-2,397.30
		Protected price purchase	1,260	1,579.82	12,956	-4,143.59
	average				-7,948.68	
Rice	1996	Government purchase	1,540	3,208.14	22,500	-47,928.15
	1997	Government purchase	1,540	2,251.97	22,500	-26,414.33
		Protected price purchase	1,380	2,251.97	27,651	-35,557.97
	1998	Government purchase	1,480	2,008.18	22,500	-21,874.05
		Protected price purchase	1,340	2,008.18	14,100	-15,089.54
	average				-48,954.68	
Corn	1996	Government purchase	1,120	1,381.07	12,500	-3,263.38
	1997	Government purchase	1,240	1,075.93	12,500	2,050.88
		Protected price purchase	1,100	1,075.93	14,422	347.13
	1998	Government purchase	1,180	939.18	12,500	3,010.25
		Protected price purchase	1,060	939.18	26,174	3,162.34
	average				1,769.07	

Farm crop	Year	Item	Regulated price (RMB/ton)	Reference price (RMB/ton)	Quantity (1,000 tons)	Market price support total (million RMB)
Cotton	1996	Government purchase	14,000	15,321.43	4,203	-55,54.33
	1997	Government purchase	14,000	14,757.25	4,603	-34,85.41
	1998	Government purchase	12,350	14,111.73	4,501	-79,29.60
		average				-56,56.45
Total	1996	Government purchase				-41,166
	1997	Government purchase				-28,963
	1998	Government purchase				-17,543
		average				-29,224

- Notes: 1). The figures for wheat, cotton, maize and rice in 1996 are net imports; their external reference price is the CIF value. The figures for rice and maize in 1997–98 are net exports; their external reference price is the FOB value.
- 2). For wheat, rice and maize, the quantities purchased are government purchases and purchases at the government-supported price; for cotton quantities purchased are the total output.

4.3.3 AMS for non-specific agricultural products

According to the computerized methodology stipulated by the WTO Secretariat, AMS for non-specific products can be calculated from “the value of any measures for non-exempt non-specific products such as accumulated subsidies (e.g., subsidies for fertilizer and transport), loans and other financial assistance.” In China, the AMS for non-specific agricultural products include subsidies for any agriculturally produced goods and agricultural tax exemptions, which averaged RMB29.341 billion from 1996 to 1998.

Table 24. Aggregate Measurement of Support for China’s Non-specific Farm Products, 1996–98.

Item	Year	Non-specific product support (million RMB)
(1) Tax cuts & exemption	1996	759.00
	1997	1,469.00
	1998	1,469.00
	average	1,232.33
(2) Price subsidies for means of production	1996	26,559.00
	1997	24,524.00
	1998	33,242.00
	average	28,108.33
Total	1996	27,318.00
	1997	25,993.00
	1998	34,711.00
	average	29,340.67

Note: Price subsidies for agricultural production materials include: subsidies for fertilizer price difference, insecticide price difference, price difference of power used for agriculture, price difference for PVC membrane for agriculture and other price differences for agricultural production materials.

Source: *China Financial Almanac Editorial Commission (China Financial Almanac), 1999, Ministry of Finance.*

4.3.4 Greater coordination between Green and Amber Box measures

From the assessment and analysis described above, it can be seen that the local Green and Amber Box measures have the following features:

- Most of China's agricultural support policies fall within the category of Green Box measures as classified by the WTO. They are focused mainly on the construction of Infrastructure facilities but clearly not enough income-related measures, such as Direct Payment to Producers, Decoupled Income Support, Income Insurance Program, Structural Adjustments Assistance and Marketing and Promotion Services, are available.
- Price support, government purchase and state control of capital goods are the main measures from the Amber Box adopted by the Chinese government to fulfill the goal of developing Chinese agriculture. Compared with the world's major agricultural economies, the domestic Amber Box measures lack variety and dynamism, and the management of these measures remains outdated.
- The domestic agricultural support policies do not cater to the basic objectives of Chinese agricultural development. Ever since the founding of the People's Republic, agriculture has been regarded as the principal fund-raising channel for industrialization. The distribution of national income was thus biased, under the cover of the product prices, toward urban areas. By 1979, a total of RMB97.8 billion-worth of agricultural tax revenues had been generated, and some RMB450 billion-worth of net capital had flowed from the agricultural sector into the industries. This had created a long-standing shortage of funds for the agricultural sector, a major cause for the sluggish agricultural development over the years, for neither materials nor technical conditions for agricultural production nor the general capacity of local farmers could be improved. Although this situation took a turn for the better after 1979, a serious deficiency in financial inputs persists to this day since no effective mechanism for resources input and accumulation has been set up. Compared with 1979, although the state outlay for agriculture increased in 2000, the proportion of this outlay in the gross budgetary expenditure fell from 13.75 to 8.3 per cent. According to a study by the department concerned, Chinese farmers bore a total of RMB3.4 trillion's worth of losses from 1979 to 2000 because of the price scissors between agricultural and manufactured goods as well as the decline in rural savings and the loss of direct incomes from land cultivation. The severe shortage of funds for rural education and technical innovation will directly affect the strength of Chinese agricultural development.

In summary, China's comprehensive agricultural support is now negative in value, far below the 8.5 per cent level permitted. Theoretically, this means that many more Amber Box measures can be adopted to meet local development needs, but for the following reasons the country's agricultural support will be centred on Green Box measures:

First, the financial resources of the Chinese government are limited so great attention will have to be paid to more effective use of the support funds. In the foreseeable future, China is unlikely to dramatically increase public investment in the agricultural sector; it is therefore all the more necessary to make the best use of the limited capital available in an appropriate way. Undoubtedly, the most direct and effective approach will be gradually to reduce or even abolish agricultural taxes and various fees and reinforce such Green Box measures as Government General Services, Payments through Structural Adjustment and, under the Environment Program, Domestic Food Aid and Poverty Relief Assistance.

Second, economic globalization has prefigured the direction for the nation's reform of its agricultural support policies, i.e., while intensifying domestic agricultural support, trying to improve the Green Box support structure, focusing on perfecting the pricing support system and improving the Amber Box policy system.

Third, the implementation of the Green Box policies conforms to the goal of Chinese agricultural market reform and contributes more to the long-term, steady and sustainable development of China's agricultural sector. Under the current circumstances, Amber Box measures, which China cannot do without, will produce distorting effects on the trade, production and distribution of agricultural products in the long term. This is not only at odds with the concept of the relevant WTO rules, but also constitutes barriers to the reform of the country's agricultural management system and farming operation mechanism and constrains the sector's long-term development. Hence, preference must be given to Green Box measures such as readjusting the national resources allocation pattern by switching the price subsidies previously given to the agricultural product distribution network to measures under Government General Services.

In this more scientific and rational way, the rate at which public resources are utilized will be tremendously enhanced.

5. Goal of Green Box Support and Policy Trend Analysis

5.1 Basic goal of China's future agricultural support

Chinese agricultural policies had long been formulated against the backdrop of short supplies of products and materials, the basic goal of the policies being to satisfy the demand for food through self-sufficiency. Efforts related to the build-up of the policy framework, technical innovations and resources distribution were all made in pursuit this basic goal, and a whole set of mutually-supporting agricultural policies were drafted, resulting in quantity-oriented industrial and product structures and a corresponding resources distribution set-up and technical system. Meanwhile, some other policy targets, such as enhancement of product quality, streamlining the distribution and trade network, better use of resources, environmental protection, narrowing regional development gaps, poverty relief and income growth for local farmers, were basically ignored. Starting from the late 1990s, the shortage of agricultural products gradually lifted and the general demand for food was met quantitatively; the closed economic environment in which China's self-sufficient policy used to operated no longer exists since the country's accession to the World Trade Organization (WTO). As the new situation unfolds, the goal of the domestic policies should be shifted from merely seeking quantity, as in the past, to diversified development in the future. The strategic mission of the sector should also be shifted from simply relying on domestic markets and resources to making full use of markets and resources both at home and abroad.

With the WTO accession and Chinese agriculture entering into a new stage of development, the domestic policy environment has been transformed. Hence the goals and supporting measures of China's agricultural policies must be revised correspondingly.

First, priority targets should be defined.

Diversifying policy targets will inevitably lead to more contradictions and conflicts among them, hence it is of vital importance to strive for a proper balance in the targets and define the priorities, such as the following:

Growth in farmers' incomes and environmental protection, as the top priority

The growth rate of local farmers' incomes is not only concerned with social stability and the effects of the policy of stimulating domestic demand but also impacts on the steady development of the entire economy. In addition, it mirrors how effectively China makes use of its resources, and how well the country brings into play its comparative advantages and optimizes the domestic industrial structures. Environmental protection, on the other hand, is of great significance not only to the livelihood of people today, but also to the rights of subsistence and development for the next generation. From the point of view of comparative advantages, these two targets are mutually supporting rather than in conflict with each other in the post-WTO era. Priority should, therefore, be placed on both of them.

Relaxation of the self-sufficiency target

It is worth deliberating on the rigid 95 per cent food self-sufficiency target. To begin with, if it is stressed unduly the target clashes with the goal of environmental protection, for grains are

typically resource-intensive products in which China does not have any comparative advantage; therefore maintaining such a high self-sufficiency rate, as has been amply proved in the case of the long-standing and widespread practice of deforestation, is detrimental to improving resources utilization and optimizing the domestic industrial structures. Moreover, the goal also coincides with the efforts to raise local farmers' income. Studies have indicated that the income growth of high-income farmers will accelerate with China's entry into the WTO, partly because these farmers are willing to adopt labour-intensive production activities such as horticulture, fishery and livestock and poultry husbandry. They are the biggest winners of any benefits to the domestic agricultural sector brought about by the WTO accession. The income of farmers in remote regions, who are mostly in the low-income category, will be little affected since these people are rarely engaged in market-related activities. The middle-income farmers seem to be the biggest losers, especially after 2004. The bulk of the Chinese agricultural population, these farmers are distributed mainly in the north, northeast and northwest of the country, where the principal crops grown are corn, wheat and beans. Quantitative analysis suggests that, by 2005, the prices of wheat and corn will fall by 20 to 25 per cent from the pre-WTO level. Apparently, an inordinate pursuit of self-sufficiency in food will curb income growth for most of the farmers in these regions.

Between self-sufficiency and farmers' income, preferences should be undoubtedly given to the latter. The United Nations Food and Agricultural Organization has defined food security as the following, "every family member should have the opportunity to acquire sufficient food, and every household should be free from the risk of losing such an opportunity." Raising farmer's income and eliminating poverty are the key to ensuring this food security. But if this security is maintained by relying on international trade, then food embargo will become a major problem. However, our analysis of world economic sanctions shows that since the 1950s only one food embargo has been imposed in the real sense and this was triggered by the Soviet invasion of Afghanistan but ended in failure. In the future, under no foreseeable circumstances will a nation or a coalition of nations impose food embargoes on another country, hence China may readily dispel this concern.

In that event, China may consider relaxing its rigid 95 per cent food self-sufficiency target and the practice of giving priorities to farmers' income and environmental programs. The food security target should be turned to one of grain ration, and corresponding readjustments should also be made in local production and international trade partnerships. These may include giving up poor-quality grain production, returning marginal farmland to forestry and grassland, increasing the production of items on which China has technical or trade superiority, such as rice, and selecting more partners with which to trade in grains.

Second, the mobility of production factors should be enhanced.

The greatest opportunity for China since its accession to the WTO is the use of both domestic and international markets and resources. This will allow China to bring its comparative advantages fully into play by promoting the export-oriented and labour-intensive horticulture, fishery and animal husbandry sectors and freeing up the bottleneck in local agricultural development through the exchange of rich labour resources for scarce land and water resources on the world market. Moreover, rationalizing the operation scale of farmland and transferring agricultural labour to other sectors are of crucial importance to the growth of local farmers' incomes and optimized domestic industrial structures. Consequently, enhancing the mobility of agricultural labour and resources is becoming an increasingly urgent task. In an economy where free trade is practised, effective resources' distribution and optimum industrial structures can be

realized only when production factors are driven by the market. To achieve this goal, corresponding reforms are needed in the local household registration system and the land administration system.

Third, more efforts should be made to remove the income gap between the different regions and strengthen the drive for poverty relief.

WTO entry will not bring any development opportunity to the 30 million farmers who are currently poverty-stricken. Worse still is the potential growth of the proportion of country's population that lives in poverty, bearing in mind that the income level of the middle-income farmers will decline further in the wake of forthcoming industrial structural adjustments. This is an issue that cannot be resolved readily in isolation in a market economy and should be dealt with in earnest by government at all levels. To offset the disadvantages for these farmers, the Chinese government should raise public investment, transfer payments to grain producers and rationalize its policy support system.

5.2 Policy trend analysis of agricultural support policy adjustments

China must completely reform and improve its policies in the face of the new situation and new development opportunities for its agricultural sector.

5.2.1 Focusing on building an effective legal system for the agricultural sector

A thorough and careful revision of the existing agricultural laws and regulations should be made, restructuring those that do not accord with the relevant WTO rules, improving some policies and adding new ones according to the circumstances. At the same time, new laws and regulations should be enacted, and implemented in due course. These will cover technical aspects relating to product quality, sales, transport and processing. In investment-related legislation, provisions for agricultural support in the Uruguay Round's Agreement on Agriculture (URAA) should be referred to in drafting new laws on agricultural investment, loans, price protection and agricultural taxes, with a view to creating an effective legal environment for domestic agricultural production and the agricultural economy as a whole. New laws and regulations focused on local farmers, especially laws related to agricultural cooperative organizations, should provide the conditions to promote and upgrade such organizations and cultivate the ability of local farmers to adapt to market changes.

Both laws and regulations and the procedures for implementing legislation should be made more transparent, as this will be conducive to reaching a common understanding, enhancing efficiency and setting up a more stable and standard legal framework for agriculture as well as promoting the development of the agricultural sector.

5.2.2 Reforming the agricultural management system

The Chinese agricultural management system and its network of policies bear all the hallmarks of the administrative mode of the planned economy and contain many elements that impede the drive to agricultural globalization, as illustrated in the following:

- a. Excessive administrative interventions in local production of major agricultural crops, such as the “responsibility system for provincial leaders in charge of local grain production,” targeted at regional food self-sufficiency, have disrupted effective resources distribution and affected the exploitation of regional comparative advantages.
- b. Restrictions on the distribution of agricultural products in the local market, including those that bar farmers from participating in the distribution of major products such as grains and cotton, as well as both overt and covert restrictions on cross-region distribution, formulated under the influence of local protectionism.
- c. Restrictions on international trade of agricultural products, such as on the monopoly and licensing of bulk products and the administration regime for import and export quotas. Market reform should, therefore, be undertaken within the existing administrative system.

With WTO accession, the role of the government will shift from administration and supervision to providing public products and services to the agricultural sector and rural residents. These products and services may include market information, marketing services, technical promotions, training and consulting services, forecasting of crop diseases and advice on pesticides, natural disaster preparedness and disaster relief, risk management and detection and inspection services and infrastructure construction.

5.2.3 Reinforcing the agricultural market system

The agricultural market system consists of the consumption market, the labour market and the investment market. Within each of the markets, the principal market players, such as farming enterprises, educated farmers, entrepreneurs, investment funds or land development banks, should be duly fostered and supported. The operation of the market system will need information feedback, financial aid, the reduction of operational risks and arbitration. The economic functions of these markets should be improved to international standards, and agricultural cooperative relationships, such as special technical alliances, farmer production cooperatives, agri-business operations or even integrated agri-industrial complexes, should also be established. These agricultural cooperative relationships will not only lower the costs of products and production goods in distribution but also will provide an organizational base from which to implement state policies to transform the agricultural sector. Moreover, these organizations may voice local farmers’ concerns and desires to the government and other parties regarding WTO negotiations. In addition, agricultural science and technical development should be accelerated to popularize new technologies, provide technical services and vigorously promote high-yield quality agricultural crops and breeding stock and poultry with the ability to adapt to adverse conditions.

To meet the objectives for trade liberalization, the monopoly or semi-monopoly of State-owned Enterprises (SOEs) engaged in the grain trade must be removed. The reform of these SOEs is also a pressing issue, as private businesses and other enterprises should be allowed to compete with state grain traders in a fair and reasonable environment. In addition, the government control and regulation of domestic grain market should rely primarily on the maintenance of reserves. Corresponding adjustments will be made with regard to the storage level and the structures of the food reserves along with import growth and changes in the import structures. A series of restructuring measures are called for to promote the sustainable development of the rural regions of China. These include deepening the reform of the agricultural products distribution system, invigorating the circulation of agricultural products and establishing an

open, competitive and orderly market system. Agricultural organizations such as trade guilds, technical alliances and chambers of commerce should be encouraged and supported in order to accelerate the commercialization process of companies dealing in agricultural products and strengthen coordination between domestic and foreign trade. At present, the key task is to further improve the domestic agricultural market system, and this can be done by setting up wholesale markets in product-growing areas, introducing quality standards and certification systems and launching a market information network. Such a network should be established and run by the government for the release of timely, accurate and authoritative information and regular briefings.

5.2.4 Readjusting production and regional structures in the agricultural sector

The restructuring of local production is inevitable following the readjustments of the domestic agricultural structures, as committed to by China at its entry into the WTO. The traditional practice of emphasizing resources-intensive products will be shifted to focusing on labour and capital-intensive products, such as livestock and aquatic products, vegetables, fruits, flowers and processed agricultural products. In cereal production, the total acreage for rice and corn should be expanded whereas that for wheat should be gradually reduced. Stress will be laid not only on the absolute and relative production scales of key export commodities but also on the continuous improvement in the quality of these products.

Also, it is of increasing significance to restructure the regional agricultural systems and give play to the comparative advantages of different regions. China is a country with vast territories, a wide range of resources and varying comparative advantages in agricultural production, which remained largely untapped in the past, especially under the planned economy system. By restructuring local agriculture, China will make better use of its resources and develop specialized regional bases for production. This will help to slash production costs, increase economic benefits, strengthen local production capacity and sharpen the country's competitiveness in the global market. Hence, great importance should be attached to enhancing the decision-making power of individual farmers in their own operations, reducing or removing barriers to regional and international flows of agricultural products, and adapting local agricultural development to market needs and the requirements for globalization.

Appropriate policies and measures should be formulated to ensure a smooth transition of the restructuring processes and guard against major detrimental effects on the interests of local farmers. For instance, structural adjustment funds may be set up, either by government departments or banking institutions, to vigorously assist farmers and local animal husbandry and agricultural-processing industries; a compensation mechanism could also be set up for farmers affected by the processes. They can now be compensated with the deregulation and effective implementation of some policies, such as lifting the restriction on farmers moving into cities, relieving their financial burdens and covering their loss of income caused by the restructuring processes.

5.2.5 Strengthening the government's financial support system

One aspect cannot be ignored in the formulation of China's future agricultural policies: the strengthening of the governmental financial support system. With China's accession into the WTO, government at various levels should continue to abide by the investment rules prescribed by the Agricultural Act and increase investment in the sector. At the same time, as the trade in

agricultural products and subsidies for commodity circulation are subject to international restrictions, the government should restructure its financial support system and gradually relocate its focus on supporting agricultural production rather than providing large quantities of budgetary funds to grain distribution and consumption. Specific measures may include increasing financial assistance to the construction of agricultural infrastructure, agricultural science research, technical transfers and training, giving more direct subsidies to farmers and relieving their financial encumbrances.

Local support to agricultural science and technological development should also be strengthened. Currently, agricultural science and technology in most developed economies contribute some 80 per cent to their agricultural development, compared with only 34 per cent during the period of China's Eighth Five-year Development Plan. Even if this rate had been raised to 40.7 per cent in 2000, as envisioned, it is still far behind that of most developed countries. It is, therefore, imperative for the Chinese government to provide greater assistance and support to the development of agricultural science and technology within its capacity and the WTO policy framework.

5.2.6 Setting up a protective mechanism that conforms to international rules and local conditions

A protective mechanism should be included in the domestic agricultural support policy package so long as the protective measures accord with the relevant WTO rules. Some selectable measures are: an alerting system for major imports that may cause damage to local production or farmers' interests, a government-supported insurance mechanism that can reduce individual farmers' operational risks, and adequate and rational use of relevant WTO provisions such as technical criteria and environmental standards.

6. Need to further Reform the Green Box

6.1 General assessment of domestic support commitments

Few countries have had difficulties in fulfilling their domestic support commitments, and so far no World Trade Organization (WTO) Members have reported failures in fulfilling their commitments to Aggregated Measurement of Support (AMS) reduction. These facts reflect to some extent the weak restraining capacities of the domestic support commitment facility, which has not yet exercised pressure on the agricultural reform of major subsidy economies.

The first reason for the weakened effectiveness of the domestic support discipline is that the base period used for the reduction calculation is not representative. For many commodities in many countries the base period of 1986 was the highest ever recorded, and for this reason the Current Total AMS they reported has been far below the level allowed them, and within the support components of the base period a great deal of Blue Box measures entitled to reduction exemption actually exaggerated the original AMS figures.

Second, quite a proportion of domestic support has been excluded from reduction commitments, with many of the support measures distorting production and trade. Third, policy switches have weakened the effectiveness of the discipline. Since the Total AMS refers to the totality of domestic support in favour of the agricultural producer, some of the support has been switched into the Blue or Green Boxes, thus becoming exempted from reduction. Furthermore, so far as room is available in the annual quota of restraint, new trade-distorting measures can be introduced accordingly.

The effects of commitments to reducing domestic support on major subsidizing countries have seemed hardly noticeable. Average total support to the agricultural sector as a whole (Total Support Estimate (TSE) for the Organization for Economic Cooperation and Development (OECD) area amounted to \$330.6 billion in 1998–2000, accounting for 1.3 per cent of Gross Domestic Product (GDP) (percentage TSE), compared with a nominal \$271.2 billion or 2.2 per cent of GDP in 1986–88.²

Few agricultural policy reform programs were introduced in 2001 and some previously announced reforms were delayed. Total support to agriculture decreased by \$10 billion U.S. from 2000, accounting for 1.3 per cent of the GDP in the OECD area. Support to agricultural producers accounted for 31 per cent of total farm receipts (percentage Producer Subsidy Equivalent) in the OECD area in 2001, compared with 32 per cent in 2000 and 38 per cent in 1986–88. As in 2000, the decrease mainly reflected an increase in world prices, causing a fall in price support. The share of market price support and output payments remain high, at 69 per cent of producer support.³ Further developments are expected with a new U.S. Farm Bill and the mid-term review of the European Union (EU)'s Agenda 2000 program.

² "The URAA in Practice – How Open are OECD Markets?" July 23–24, 2001, OECD.

³ "Agricultural Policies in OECD Countries – Monitoring and Evaluation 2002," OECD (2002).

Overall, the proportion of domestic support to GDP has been lower in the past few years, but the absolute value increased handsomely before 2001. Domestic prices of the major subsidizing countries still remain higher than the world average, and the Nominal Protection Coefficients of a number of agricultural products are also quite high. Nominal Protection Coefficients of rice, sugar and dairy products, for example, were higher than 100 per cent during the 1995–2000 implementation period. In Iceland, the Current Total AMS declined by some 27 per cent between the base period and 1997, while support to milk in nominal terms increased by 240 per cent.⁴ In 2001, prices received by OECD farmers were still on average 31 per cent above world prices, shielding farmers in many countries from world market signals.⁵

According to OECD (2001) reports, the EU, the United States (U.S.) and Japan together account for about 90 per cent of domestic support in OECD countries. Considered from the base period of 1986–88, the AMS takes up the major components of domestic support. With the gradual reduction of AMS, the support measures exempted from reduction increased. From the 1986–88 period to the 1995–98 period, the Green Box support of the OECD countries doubled.⁶ Among these countries, the EU, U.S. and Japan demonstrated the fastest growth in Green Box support expenditures, with domestic food aid becoming one of the most important of the Green Box measures of the U.S., and by 1996 Green Box expenditures had outgrown the current AMS. Half of the domestic support policies notified by OECD countries to the WTO belong to the category subject to reduction exemptions. As seen from the above analysis, AMS commitments, despite their restraint effects, can be switched into Green or Blue Box measures—thus becoming entitled to reduction exemption—and used to heighten the domestic support of a given Member.

However, the analysis as outlined above does not point to the fact that the domestic support discipline has not yet produced any positive effects. Many countries have gradually adjusted the structure of their domestic support by switching from higher consumer prices to taxpayer investment. As a result, the market price support of OECD countries fell from \$226 U.S. billion in the 1991–93 period to \$180 billion U.S. in the 1997–99 period, while direct payments to farmers increased from \$66 billion U.S. to \$86 billion U.S. In 2001, gross farm receipts were on average 45 per cent higher in 2001 than they would have been at world prices without any support, compared with 62 per cent in 1986–88.⁷ More than half of the total OECD domestic support notified to the WTO is exempted from any reduction requirement,⁸ and the policy-makers of many Member countries have come to the realization that future agricultural support policies should be designed in accordance with the Green Box dimensions. These developments have the potential to cause less environmental pressure and to be more effective in transferring income to farmers and in achieving other policy goals.

⁴ “The URAA in Practice – How Open are OECD Markets?” July 23–24, 2001, OECD.

⁵ “Agricultural Policies in OECD Countries – Monitoring and Evaluation 2002,” OECD (2002).

⁶ “The URAA in Practice – How Open are OECD Markets?” July 23–24, 2001, OECD.

⁷ “Agricultural Policies in OECD Countries – Monitoring and Evaluation 2002,” OECD (2002).

⁸ “Towards More Liberal Agricultural Trade,” Policy Brief, OECD, November 2001.

6.2 Potential distorting effects of Green Box measures on trade

The current Green Box provisions have no doubt promoted the agricultural reform process. These measures have been of great assistance not only to highly-subsidizing countries in shifting from price support to mechanisms that are characterized by being more transparent and less trade-distorting but also to developed and developing Members in pursuing a series of social objectives. Moreover, they have provided the basis for further negotiations.

However, from the above analysis of the Green Box measures of the major WTO Members, it can be seen that many Members have shifted their domestic support from restricted Amber Box to non-restricted Green Box measures, so as to avoid further reduction of their agricultural support. Since the implementation of the Uruguay Rounds' Agreement on Agriculture (URAA) in 1995, developed Members have been requested to slash 24 per cent of their AMS. While these expenditures have been reduced, the overall support of some Members has nonetheless been strengthened. The U.S., for instance, increased its 1997 domestic support by 11 per cent. This phenomenon is also disclosed in the production support estimates made by the OECD. Table 25 lists the subsidies offered by the U.S. and the EU from 1995 to 1998, the total subsidy of the EU rose from \$99.61 billion U.S. to \$129.8 billion U.S. over this period, and that of the U.S. climbed from \$41.43 billion U.S. to \$46.96 billion U.S. Apparently, although the reduction of AMS-measured domestic support enabled developed Members to realize their committed 24 per cent AMS support cuts, the support level of some Members has been raised.

Table 25. Producer Subsidies Offered by the United States and the European Union.

	Base period (1986–88)	1995	1996	1997	1998
European Union					
PSE (Million ECU)	90,392	83,442	74,970	96,729	116,075
PSE (Million U.S. dollars)	99,619	94,605	85,000	109,670	129,808
United States					
PSE (Million U.S. dollars)	41,428	15,205	23,500	30,616	46,960

Note: PSE: Producer Subsidy Equivalent

Sources: OECD in *Figures, 1999*.
 WTO, "Domestic Support," AIE/S2/Rev.2, September 23, 1999.
 OECD in *Figures, 1996*.

Many analysts, however, have raised questions about the measures as notified in the Green Box. This is understandable because the current Green Box qualifications have provided only a logical and legitimate ranking of policies, rather than one based on economic analysis. For this reason they can hardly ensure that they will have no or at most minimal distorting effects on production and trade. The Green Box measures tend to be less trade-distorting than those of the Blue Box, which in turn exert a lesser effect than the measures in the Amber Box, but it is still an empirical issue as to what measures with how much less distortion can be placed into the Green Box.

Theoretically speaking, the agricultural policies of a country can scarcely be decoupled from production and trade. In other words, support measures are always tied to the agricultural production process. The total amount of expenditures and the specific design and implementation of every program are the essential factors in determining the effects of Green Box measures on agricultural production and trade. The criteria of the Green Box policies under

the URAA have focused on the type of policies to be implemented, rather than quantitative dimensions and time limits. However, measures that are usually considered least distorting, such as Infrastructure, Extension and Advisory Services, Marketing and Promotion Services, Insurance Subsidies, Environmental Plans and Regional Support, will exercise obvious market distortions if they are not kept under optimal control.

Distorting effects are related not only to the types of subsidies but also to the amount actually provided and the timeframe of implementation. From another perspective, the accumulated totality of many Green Box measures tends to be highly distorting to general production and trade, despite the possibility of each individual measure in the Green Box posing as non-distorting; this is so because these measures may prove beneficial to the raising of productivity in agricultural production and to the lowering of costs and prices.

Many studies have shown that the support measures that appear least trade-distorting are actually affecting production or trade. The Decoupled Income Support measures in the Green Box require that payments be decoupled from production decision, price and factors of production, and that farmers should not satisfy production requirements in order to receive such payments. Decoupled income support of this kind, if properly enforced, may greatly reduce market distortion.

However, decoupled policy measures, no matter how meticulously designed and implemented, can affect production through their impact on income, wealth, expectations, risks and other variables. On the one hand, farmers will possess greater investment capacity with their increased wealth and income while policy payments will offset the risks inherent in making production decisions, which will in turn diminish the weight of unfavourable factors in agricultural investment. On the other hand, farmers will have incentives to respond to expected support rather than market demand if they are convinced that production decisions made now might lead to support payments in the future.

Constant shifts and updates in policies on base-period acreage and yields will also signal to farmers that the government will regularly alter the base period calculations, and that they will receive more support by increasing crop acreage or investment in production factors. Consequently, planting areas will be enlarged and the land will be more intensively utilized. As a result, Decoupled Income Support will nevertheless continue to affect production decisions, provide incentives to farmers to increase investment, improve production methods and introduce new technology.⁹ Farmers in the U.S. are the best example: the American government switched in 1996 from Blue Box support to major crops to decoupled Green Box support, however American producers have shown little response to world market price changes.

The reason may be very simple: they have a great many subsidies including loan rates, marketing loans and cotton competitiveness allowances. When prices on the world market dived in 1998, there was an obvious growth in the decoupled payment made by the U.S. government to its farmers. This payment growth undoubtedly sent a clear signal to the American farmers that future price rises would be offset by increased direct payments. In other words, when increased support points out to American farmers that payments they are to receive in a few years may depend on their own production decisions, the effectiveness of the current decoupled support

⁹ Markus F. Hofreither, "Agri-Environmental Policies and Trade Issues: Selected Problems," WS(98). Preliminary empirical evidence of the treatment of agri-environmental payments received by farmers under the 2,078 programmes in Austria reveals that about 30 per cent of these funds are used for purchases of production goods, (EU Research Project FAIR1/CT95-0709).

policy is certainly weakened. In summary, the so-called decoupled direct payment boosts, in fact, indirectly, the market value of arable land, thus providing incentives to farmers to increase yields by withholding land that might be otherwise used within agricultural production and by retaining farmers who might have been otherwise employed for agricultural purpose.

Other Green Box measures, such as Income Insurance, Relief for Natural Disasters, Payments for Structural Adjustments and Agricultural Environmental Programs, exhibit similar tendencies. Unlike the decoupled payment criteria, the specific policy standards for income insurance and safety-net programs set strict limits on the amount of support allowed, obviously having realized the distorting effects of such support. Income insurance and safety-net plans specify, for example, that the amount of payment should compensate for less than 70 per cent of income loss suffered by producers in the year for which they qualify for the assistance. Meanwhile, incentives of different degrees are provided to production, closely related to production factors. Structural adjustment programs delivered through Investment Aid may have greater effects on production and trade than Producer Retirement and Resource Retirement Programs since the former tend to provide incentives to future production.

Some of the Green Box measures employed by certain Members are based on highly distorting policies established in the past. For instance, payments coupled with storage payments established to maintain the gaps between the administered price and external reference prices of cereals are notified under the Public Stockholding for Food Security Purposes clause in the Green Box.¹⁰ Some other Green Box measures are employed parallel to price support, but transparency is missing when the details of their implementation are reported to the WTO, leading to more serious distortion to production and trade in these measures and their supporting regimes.

As can be seen from the above analysis, it is almost impossible for Green Box support measures to stay unrelated to production and trade. The distorting effects of the Green Box are directly related to the levels of involvement and implementing tactics of support policies in the box. An increase of such measures tends to weaken the basic requirements of the Green Box policies.

Some of the Green Box measures are contained in the PSE calculations of the OECD, and it is worth noting that many of the payments are based on yields, regions, the use of particular factors of production and head of livestock. The compensatory allowances in less favoured areas of the European Union, for example, are based on payments on limited area or animal numbers notified under the regional support clause in the Green Box measures. Japan's payments on irrigation, drainage and land consolidation are based on payments to specific inputs-use listed under the article for General Services. The investment subsidies made through the Agricultural Development Fund of Norway are based on the inputs and application of particular factors notified under the Investment Aid clause in the Green Box, and the acreage support to mountain farmers is based on the use of variables reported in the Environmental Program. Sweden's milk supplement, designed to contain cheese production, is notified under "regional support" in the Green Box. The production flexibility contract payments of the U.S. are based on historical support programs, notified in the Green Box under the "Decoupled Income Support" clause, and the Conservation Reserve Program makes payments based on constraints on fixed inputs use, and notified in the "Resource Retirement" clause. Payments to farm credit, ownership and operating loans are based on variable and fixed inputs-use notified under the "Investment Aid" clause, and payments for emergency conservation are also based on fixed-inputs use, notified in the "Environmental" clause of the Green Box.¹¹

¹⁰ "Agricultural Policies in OECD Countries – Monitoring and Evaluation 2002," OECD (2002).

¹¹ "Agricultural Policies in OECD Countries – Monitoring and Evaluation 2002," OECD (2002).

Naturally, legal definitions may become more critically important than the fulfillment of commitments if trade-distorting measures may easily be switched from non-exempt support commitments to Green Box measures that are entitled to reduction exemption, and if the terms related to the legal obligations of a Member are capable of different interpretations. Although it is theoretically impossible to design an income support policy that will have no effects on resource allocation in terms of income, wealth and risk, it is highly possible to strengthen Green Box discipline to ensure the least trade-distorting effects in the reduction exemption policies. For this reason it is of great necessity to design stricter and more operative criteria for Green Box measures while exercising limitation controls on their dimensions.

6.3 Green Box measures and agricultural multi-functionality

In WTO negotiations on agricultural issues, some highly public topics, such as food security, rural welfare facilities, cultural values, tradition, pastoral landscape, environment protection, rural residential development, diversified agriculture and employment of surplus labour, animal well-being and others, are closely related to Green Box support. Compared with traditional trade topics, these “non-trade concerns” present greater challenges to negotiations on agricultural issues. A discussion of “non-trade concerns” is in reality an analysis of the “agricultural multi-functionality.” Of all factors, Green Box measures tend to be the ones that are most probably related to multi-functionality.

The concept of “multi-functionality” was first raised in a report submitted by Norway to the Trade Environment Committee of the WTO (WTO (1999)). Later, an increasing number of considerations were added into this concept. Simply because of the opaque nature of the concept and its multiple interpretations, research on and discussion of the “multi-functionality” issue have been complicated, with tremendous differences in its policy implications. According to the OECD report, *Multi-functionality – Towards an Analytical Framework* (OECD 2001), “multi-functionality” refers to the characteristics in economic activities that multiple commodities jointly produce, and because of this trait, certain social objectives can be achieved or promoted simultaneously. “Multi-functionality” is an activity-oriented concept referring to some of the features in the production process and its multiple outputs.

Such a definition, however, may lead people to wonder: why was the multi-functionality topic raised in the arena of agricultural policies, and not in other sectors? And for good reason: not all multiple commodities jointly produced happen in agriculture. By its nature, multi-functionality occurs in many different economic sectors and is by no means particular to agriculture, but by function, however, multi-functionality incorporates the multiple functions of the agri-food industry. As a human activity, agriculture has to fulfill many social functions and meet many different social objectives. The term “multi-functionality” has been embodied with various meanings in the agricultural policy debates, but its nucleus should encompass two attributes: (1) multiple commodity and non-commodity outputs in agriculture are jointly produced; and (2) some of the non-commodity outputs display the characteristics of externalities or public goods, for which markets do not exist or function poorly.

According to the published results of the OECD (2001) study,¹² there are huge gaps between the positive and negative non-commodity outputs of agriculture. These gaps or differences include the inter-connections with and the ways of interrelating to agriculture, the degree or degrees by

¹² “Multi-functionality – Towards an Analytical Framework,” OECD 2001.

which a non-commodity output can be separated from commodity production, its dependence on particular regional factors, sectors that may have been involved, and the possibility of securing supply from non-agricultural sources.

In order to achieve simultaneously a set of objectives, according to recognized theory of economic policy, the number of policy instruments has to be equal to or greater than the number of goals (Tinbergen, 1952). The implications of this policy theory is that when a combination of private and public goods is produced, market forces should be in place to freely determine the level of production, consumption and the trade of private products. At the same time, issues of public goods and externalities should be addressed through targeted and decoupled policy measures. Each public good objective or externality should be tackled through a separate policy instrument that may directly influence the target variables. Even when there occur failures in market mechanisms resulting from some of the positive externalities of non-commodity output, government interference may not be the optimal option.

Considerations of different public goods may lead to different policy conclusions. Usually no or at most limited government intervention is required to stimulate the creation of the public goods market. In the absence of government intervention, it is almost impossible to achieve optimization if only a few public goods or open access resources are available. Meanwhile, faux pas in estimating demands for public goods often lead to policy failures. For this reason, prudence and discretion are essential when designing policies in this regard.

Some Members believe that multi-functionality is closely related to production, and because of this connection, domestic support and border policies related to production are very important to improve the multi-functionality features of Member countries and facilitate the success of such objectives. Some prefer to encourage multi-functionality by way of neutral support measures; others have voiced their belief that the multi-functionality objective can be achieved through the least trade-distorting Green Box policies.

It seems that the European Union has been taking every opportunity to protect the multi-functionality of its agriculture. For example, the EU suggested an expansion of the Green Box to include “greener” measures; for that purpose it is necessary to relax the qualification criteria of the Box. The EU believes that the current Green Box provisions are in favour of the success of the social objectives in agricultural multi-functionality. Considering the peculiarities of rural developments, the EU contends that all countries have their own rights to select measures as they see fit to protect and improve economic and social environments in which the rural population can be sustained. People in remote or poorly developed areas have little opportunity for employment other than remaining engaged in agriculture; farming activities tend to stem the flow of people from the countryside, a flow that can be costly for society, economy and environment. In other words, agricultural activities and multi-functionality are promotional to rural economy and social progress and, therefore, to a balanced development of the regions in question. The EU believes that the current Agreement on Agriculture, in particular the Green Box support measures, should be maintained since it has generally provided the right routes for the solution of these problems. The EU further thinks that coverage of new measures relating to increasingly important issues should also be guaranteed adequately. One of these issues is animal welfare. Legislation aimed at protecting animals may increase costs to producers. As producers from other countries are not confronted with similar additional costs, this can lead to unequal conditions of competition, and even drive down welfare standards world-wide. So it is legitimate that compensation for additional costs be exempted from reduction commitments whenever it can be clearly shown that these additional costs stem directly from the higher standards in

question.¹³ However, it is not clear whether for the EU the “multi-functionality” issue is a slogan for quietening internal protectionist forces, a strategy to be employed in international negotiations or an important topic about which it is serious.

Those who are against bringing the multi-functionality concept into agricultural negotiations argue that multi-functionality in agriculture exhibits negative effects as well as positive ones. Negative effects include environmental damage and pollution to water sources by chemical fertilizers and animal wastes. There is indeed extensive evidence that excessive support to agriculture has aggravated the negative effects of agriculture (Mahe and Ortalo-Magne, 1999). From this perspective, the protection of a Member’s agricultural multi-functionality may actually reduce the overall agri-benefits at large, including multi-functionality.¹⁴ A more effective and efficient way, therefore, of securing multi-functionality benefits should be the targeted provisions of multi-functionality products through the use of specific policy tools.

In his analyses of agricultural policies and WTO negotiations, Anderson (Anderson 1998) concludes that the most effective domestic policy measures are often less interference in international trade, which in turn will not add extra burdens to other economies. Topics such as “non-trade concerns” or “multi-functionality” may turn out to be non-topics of little relevance, and the best way out should be to reduce the support and protection to agriculture. Pursuance of multi-functionality benefits through extensive agricultural protection is therefore economically irrational and non-effective. Agricultural exporters will argue that it is simply a mechanism to legitimize protection, and the main objective is protection and avoidance of the domestic political consequences of liberalization;¹⁵ an acceptance of this solution in the agricultural sector will certainly be misleading and a bad start for other sectors.

Many agri-food exporting and developing countries believe that multi-functionality is but a tactic in legalizing state protection, aiming at protecting its agriculture and fending off a liberalized consequence of internal politics. Some governments cram many non-operative issues into the concept of multi-functionality. Perhaps they are not serious about negotiating on this topic, or using it as a bargaining chip. It may not be a mere negotiation trick, for that matter; it could have been a ploy for appealing to domestic groups of interest. It is noteworthy that these governments, by emphasizing the importance of multi-functionality, are actually attempting to obtain certain commitments that might not be directly proposed in negotiations, and therefore cannot hopefully be resolved, in the name of “protection”; but the term “multi-functionality” appears more acceptable. It may have been a signal from the highly-subsidizing countries that they have plenty of reasons to continue to maintain their high levels of domestic support and protection.

Referring again to the “non-trade concerns” or “agricultural multi-functionality” topics: although the developing countries agree that agriculture offers more than the production of food and fibre products, most such countries do not seem to have a liking for this catchword. Indeed, agriculture in most developing countries forms the foundation of the rural areas and their main economic activities, and the sustainable and healthy growth of the agricultural sector presents the basis of social and political stability. The multi-functionality requirements of agriculture in developing economies are greater than those in developed countries, which do not seem to be

¹³ European Communities, “Green Box,” (a non-paper), Special session of the Committee on Agriculture Informal Meeting, 24–26. Brussels, September 25, 2001.

¹⁴ Ivan Roberts, Troy Podbury, Neil Andrews, and Brian S. Fisher, “The Dynamics of Multilateral Agricultural Policy Reform,” World Bank, September 2001.

¹⁵ John Whalley, “Environmental Considerations in a New Multilateral Agricultural Negotiation, and Associated Developing Country Implications,” p. 26, CSGR Working Paper No.46/99, November 1999. <http://www.csgr.org>.

justified in sacrificing the multi-functionality objectives of developing agriculture to obtain their own multi-functionality targets through agricultural protection. The colossal amount of agricultural support in the EU, however, does harm not only to the attainment of its own multi-functionality objectives but also to the multi-functionality efforts of the agricultural sector in the developing countries.¹⁶ Second, it does harm by facilitating the dumping of its food products at lower prices in developing countries, with the immediate effect of phasing out small-scale agricultural production in these economies. Understandably for the EU, this appeals very much to the strong groups of vested interest at home, and helps it to stay self-reliant in food supplies. Meanwhile, it helps to maintain greater political influence on the countries that rely on its food aid and cheap food products.

Furthermore, some Members do not believe multi-functionality to be peculiar to agriculture: other economic activities, such as industry and service, also have their social concerns. For this reason, the WTO should proceed to stage negotiations involving this issue or topic in all other sectors, and not confine it exclusively to agriculture. The EU, Japan, South Korea and other Members do not seem to be justified in stressing the peculiarity of multi-functionality of agriculture as against other sectors for the sake of agricultural protection. Existing studies (of which there seem to be relatively few) seem to suggest that the gains from the internalization of major agricultural-related externalities in developing countries are large relative to the gains to them from lowered agricultural trade barriers.¹⁷

6.4 Green Box support policies and developing countries

Despite the great differences in natural resources, development phases and economic structures, developing countries share a low level of agricultural protection and support. The market distortion caused by agricultural support is almost invariably imputed to the developed economies. Agriculture is the foundation of economic growth and development for most developing countries and least developed countries, including those net food-importing countries. In the low-income countries, for example, more than 70 per cent of the population lives in rural areas and the export of agricultural products has always been the sole source of employment, income and foreign exchange. Most developing countries have certain competitive advantages in agriculture, but their proportion of the global agricultural trade has usually been below their due shares. The sheer size of the developed countries' domestic agricultural support has disadvantaged the developing countries in competition, presenting great impediments to the developing economies in agricultural production, trade development and the introduction of foreign investment and technology.

A scrutiny of the implementation of the URAA reveals few benefits for the developing countries from the reduction by the developed economies in their domestic support. Some increased Green Box measures are not neutral for production and trade, resulting in the retention of resources within the agricultural sector. These measures, although less distorting than the Amber Box measures, are nevertheless continuing to distort production and trade, still keeping the agriculture of developing countries locked in a disadvantaged competitive position.

¹⁶ Stefan Tangermann, "Interests and Options in the WTO 2000 Negotiations on Agriculture: Industrialized Countries," World Bank, September 2001.

¹⁷ John Whalley, "Environmental Considerations in a New Multilateral Agricultural Negotiation, and Associated Developing Country Implications," p. 30, CSGR Working Paper No.46/99, November 1999, <http://www.csgr.org>.

The Green Box measures currently in force in the URAA are biased toward the developing countries. The base period levels of the domestic support for the developing countries are so low that a little growth in absolute support volume would mean a sharp rise in percentage terms, and the developing countries do not enjoy as much room for manoeuvre as the developed countries have in using domestic support other than that contained in the Green Box. Certainly there are no limitations on the use of Green Box measures, but among the 55 Members that notify to the WTO of their Green Box support, the total of Green Box expenditures of the 40 developing Members accounts for a mere 15.8 per cent of the overall total. In contrast, the add-ons of the 15 developed countries amount to 84.2 per cent of the Green Box total (WTO data). The reason lies in the fact that many of the Green Box measures are far from realistic for most developing countries.

First, the low level of development has made it impossible for the developing countries to switch to decoupled support. In most developing countries, the rural population comprises the majority of the national total, which implies tremendous budgetary and management costs if a direct payment system is to be established. Such costs would spell a huge financial and external deficit burden. Second, the physical conditions for a direct payment regime are still absent, e.g., an income registration system. The majority of the developing countries, therefore, cannot afford to increase Green Box expenditures as the developed countries have been doing.

Meanwhile, the developing countries differ greatly from their developed brothers in their concerns in regard to agricultural development. The Green Box reflects more the requirements and policy objectives of the developed countries, and makes few manifestations of the realistic problems typical of the developing countries in promoting their agriculture, such as surplus labour in the rural areas. In fact, developing countries are in greater need of Green Box measures with which to strengthen power and develop infrastructure, transform the traditional trade patterns, carry out structural and regime adjustment, and establish an effective market support system, legal framework and management network. Although Green Box support does not impose any ceilings on these issues, the problem remains that the developing countries cannot afford, or lack the facilities for, the application of most Green Box measures.¹⁸

In summing up, the reform of domestic support in the URAA has failed to bring with it much of material interest to the developing countries. On the contrary, the number of net importers of grains and food products among the developing countries has been on the rise. The Philippines, a Member of the Cairns group, has become a net food-importer since 1996, having been an exporter. Some WTO Members contend that huge support, including Green Box, is being employed by the developed countries at the expense of the agricultural development of the developing countries.

Consequently, unless the developed countries reduce their domestic support, including Green Box, in real terms, developing countries should be allowed to provide protection to their farmers by retaining a comparatively high tariff barrier or by adjusting their current tariff structure. The ongoing agricultural negotiations should allow developing countries more flexibility in market access, tariff, quota and other taxation controls, granting them the freedom to allocate subsidies for specific purposes. This may allow the developing countries to take action, when fiscal revenues are far from adequate, to protect the sustainable development of their agricultural sector and to pursue other objectives. At the same time, further regulation and controls should be imposed on the Green Box measures so as to ensure that developed countries do not use these measures in a protectionist way to benefit their agricultural sectors.

¹⁸Tim Ruffer with Stephen Jones and Stephen Akroyd, *Development Box Proposals and Their Potential Effect on Developing Countries*, Oxford Policy Management, April 2002.

7. Proposals to Improve Green Box Support under the WTO

Green Box measures have no doubt been of great assistance to highly-subsidizing countries in shifting from price support to mechanisms that are characterized by being more transparent and less trade-distorting. Green Box measures have not only promoted the agricultural reform process but also helped developed and developing Members to fulfil a series of social objectives. However, there are many defects in the current Green Box, as evidenced above. On the current negotiations, it is suggested that the Green Box should be reformed and improved in the following ways:

First, the current Green Box qualifications, which have provided only a logical and reasonable ranking of policies, can hardly ensure that there are no or at most minimal distorting effects on production and trade. A variety of explanations could be provided for the confused criteria of the Green Box policies so that the trade-distorting measures may easily be switched from non-exempt support commitments to Green Box measures that are entitled to reduction exemption. Green Box seems to be a way to free some Member governments from awkward situations, therefore it is essential to clarify the definitions, strengthen Green Box discipline, and design stricter and more operative criteria for the Green Box to ensure the least trade-distorting effects in the exempted reduction policies.

Second, the current measures listed in the Green Box should be reviewed. For example, the Green Box should not be the cover for general income support to farmers. It is necessary to regulate the base periods for “Decoupled” Income Support, change threshold levels for Income Insurance and Safety Net Programs, revise notification and evaluation criteria for Relief from Natural Disasters and structural adjustment programs that include the “retirement” factor; and increase transparency in Investment Aid, Environmental Programs, Regional Assistance Programs, Food Security Programs and Food Aid.

Third, an important objective of new negotiations should be further substantial reductions in tariffs, Amber Box, Blue Box and export subsidies. In the meantime, Green Box spending should be limited because the cumulative effect of the large amounts spent distorts for a number of reasons.

Fourth, some Members have proposed an expansion of the Green Box to include “greener” non-trade concerns such as food security, rural welfare facilities, cultural values, tradition, pastoral landscape, rural residential development, diversified agriculture and animal welfare. This could be a form of “special and differential” treatment for rich countries if these measures were accepted in the on-going negotiations.

The current Green Box measures have provided significant scope for governments to pursue important “non-trade” concerns such as food security, the environment, structural adjustment, rural development, poverty alleviation and so on. Nearly all the non-trade objectives can and should be achieved more effectively through the policies that are targeted directly at these objectives.

Fifth, those measures that reflect the real needs of developing countries should be added to Green Box as the existing design of Green Box simply reflects the existing practices of certain countries such as the United States (U.S.), European Union (EU) and Japan and possibly others. They provide means for these countries to accommodate their particular needs.

In fact, many Green Box measures are too expensive and unrealistic for most developing countries to implement, and cannot provide adequate reference and guidance to their agriculture policy reform.

The developing countries' exports still face high tariffs and other barriers in developed countries' markets. Unless the developed countries can cut these barriers substantially, World Trade Organization (WTO) arrangements should provide sufficient flexibility for developing countries in market access, export subsidies and domestic support to achieve legitimate domestic policy objectives. It is important to have these other measures recognized in the WTO's ongoing negotiations on agriculture.

For example, agriculture holds significant importance in China's national economy: it accounts for 16 per cent of added value share in the Gross Domestic Product, and 73.3 per cent of the country's 1.3 billion population, who consume 43 per cent of the social commodities, live in rural areas. Agricultural and rural development are of vital importance not only to the livelihoods of China's large agrarian population, whose farming is quite different from the industrialized, commercialized farming practised in developed countries, but also to social stability, ecological environmental protection and coordinated economic development. At the same time, international trade exerts an ever stronger influence on China's agriculture and the nation's economy is integrating with the world economy on an unprecedented scale. China's increased market exposure will subject its weak agricultural sector to fierce international competition.

The WTO should have special provisions for economies in transition such as China's, allowing them to use special safeguards for some products; the flexibility should be temporary and would not lead to additional distortions in agricultural trade.

In addition, if developing countries or economies in transition can prove that they have provided environmental or other public goods, they should be able to enjoy some special and differential treatment, which would be helpful for those countries in difficult financial straits to promote environmental and other social benefits and sustainable development.

Finally, the "Peace Clause" expired at the end of 2003. Some countries want it to be revived and extended so that they can enjoy some degree of "legal security," ensuring that they will not be challenged so long as they comply with their commitments on export subsidies and domestic support under the Agreement on Agriculture. While this proposal should not be accepted in the on-going negotiation, most developing countries want to see agriculture brought under the general WTO disciplines that deal with governments' ability to take action against subsidies. However, those subsidies that reflect the special and differential treatment of developing countries should be free from the possibility of countervailing duty.

8. Conclusion

1. The Uruguay Round's Agreement on Agriculture disciplines on domestic support direct national domestic policies that are most trade-distorting towards lesser or minimum distortions. While the existing Green Box measures need to be improved, they have undoubtedly promoted the agricultural reform process. These measures have been of great assistance, not only to highly-subsidizing countries in shifting from price support to mechanisms that are characterized by more transparent and are less trade-distorting but also to developed and developing Members alike in pursuing a series of social objectives. Moreover, they have provided the basis for further negotiations.
2. Agriculture remains the foundation and vital source of economic growth and development for China. Its sustainability, however, confronts two fundamental problems: one is the shortage and degradation of resources associated with the inappropriate use of resources under the huge pressure of providing the large population with grain and the long-standing policy of the pursuit of self-reliance in food. The other is a decrease in the growth of farmers' incomes along with a strong supply capacity, which has not only reflected the generally low returns of agriculture in the market economy but also highlights the difficult situations of a great many surplus labourers in the agriculture sector.
3. Accession to the World Trade Organization (WTO) generates a wide range of policy adjustments that give rise to a series of profound restructuring measures for the sector. Among these structural changes, the most significant will be the rural-urban economic structure, which involves changes in population composition and employment structure between rural and urban areas.
4. Structural changes of this kind will exert both positive and negative impacts on the sustainability of agricultural development in China. The opening up of the market will help turn local agriculture into a more intensified, industrialized, commercialized, organized and outward-oriented activity, thus greatly improving the efficiency of resource utilization by the sector. However, the opening of the market to heavily subsidized cheap imports will further increase labourer surplus, reduce farmers' incomes and aggravate rural poverty. The growth of a poverty-stricken population will, in turn, make it more difficult to enforce ecological protection efforts, further damaging the ecological environment of the rural regions.
5. To address the challenges to the sustainable development of agriculture arising from structural changes generated from market opening under the current international framework, the goal of agricultural policy should be diverted from merely seeking quantity, as in the past, to pursuit of the sustainable development of agriculture and rural areas in the future. The role of Green Box measures should be strengthened in the design and construction of China's agricultural policy so as to support the achievement of the goals. New legal, institutional and fiscal structures and arrangements should be set up to facilitate the adoption of Green Box measures and maximize the effects of support. In view of the special characteristics of the structural adjustment of agriculture in China, de-coupled payments, among others, should be provided to help the worst-hit farmers survive the intensified competition and perceived radical structural changes so as to prevent their income from declining and maintain the cohesion of the rural community.

6. WTO disciplines on agricultural support, in particular the Green Box issues addressed in this paper, need to be reformed to incorporate more measures that support the sustainable agriculture of developing countries and minimize the trade-distorting effects that harm the agriculture and rural communities of the developing countries.

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