

European Health Regulations and Brazil Nuts: Implications for Biodiversity Conservation and Sustainable Rural Livelihoods in the Amazon

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Abstract

The Brazil nut industry comports with the principal objectives of European policy on development co-operation (poverty reduction linked with environmental protection) and forest conservation (maintaining forest cover). However, European Regulation 1525-98 EC, which decreases acceptable levels of aflatoxins in Brazil nuts to 4 parts per billion, may cause a crash in the Brazil nut trade. Thus, European policies on food quality, development co-operation and forest conservation are likely to operate a cross-purposes. Brazil nut producer countries have questioned the legal basis of the Regulation in terms of scientific justification for the stricter limits on aflatoxin content and lack of conformity with international standards set by Codex Alimentarius. The EC has countered by invoking the precautionary principle. This article documents the debate in the context of the World Trade Organisation's Sanitary and Phytosanitary Agreement and discusses the implications for the relationship between agendas of trade, environment and sustainable development.

Keywords

Brazil nuts; Codex Alimentarius; World Trade Organization Sanitary and Phytosanitary Agreement; European Community.

1. Introduction

Brazil nuts have been widely promoted since the late 1980s as a product that meets the twin goals of forest conservation and poverty reduction, and are marketed

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under both Fair Trade and eco-friendly labels.² The Brazil nut industry fits well with the objectives of European development co-operation, which since the 1992 Maastricht Treaty³ have been based increasingly on poverty reduction⁴. Furthermore, it is well established that poverty is inimical to environment protection.⁵ Brazil nuts are probably the most economically important plant product that is harvested sustainably from the natural Amazonian forest, and Brazil nut harvesters include the poorest sectors of society in a region with some of the highest levels of biodiversity in the world. As a result, the European Union and its member nations have given considerable support to the Brazil nut industry and related extractive systems.⁶ However, the industry currently faces a threat from an apparently unrelated area of EU policy that has also grown in part from environmental concerns, in the form of increasing food quality control. In 1998, the EC passed a Regulation to reduce the maximum acceptable level of aflatoxins - carcinogenic chemicals produced by moulds that grow on protein-rich foods such as nuts - from 20 ppb to 4 ppb.⁷ Thus, three areas of European policy, each in itself laudable, are set to

² NGOs that have supported the Brazil nut industry through Fair Trade and eco-friendly labelling include development organisations such as Oxfam UK and conservation organisations such as WWF and Conservation International. For a discussion of ethical trade issues, see W. ASSIES, BRAZIL NUT EXTRACTION AND SUSTAINABLE DEVELOPMENT IN AMAZONIA 65 (1997); Tropenbos newsletter 14/15: 8-9; A. Hall, Sustaining Amazonia: Grassroots Action for Productive Conservation (1997), Ch. 3.

³ Treaty of the European Union, Maastricht, art. 130u (1992).

⁴ For example, a recent European Council press release defined the fight against poverty as the “overarching objective of Community development co-operation” and emphasised the linkages between poverty and the environment. Council Press Release 156 - 8571/00 on 2263rd Council Meeting, Brussels, 18 May 2000.

⁵ Treaty of the European Union, *supra* note 3, at art. 130r2.

⁶ According to Annex 3 of the Communication from the Commission to the Council and the European Parliament: Forests and Development: The EC Approach COM (1999) 554, the EU has so far contributed 93% of the \$250 million phase 1 of the G7 “Pilot Programme to Conserve the Brazilian Rainforest” (PPG7), which included over \$9 million for extractive reserves in Brazilian Amazonia. In Bolivia, export promotion of Brazil nuts has been supported with financial aid from the World Bank and the Dutch and Swiss governments.

⁷ Regulation 1525-98 EC.

work in opposition in producer countries, who have made formal complaints to the World Trade Organisation challenging the legal basis for the new Regulation.

Producer countries fear that the aflatoxin Regulation could close the European market for some time to come and cause a slump in global Brazil nut markets. If so, the probable results would include extensive financial losses in the poorest sectors of society in producer regions and a dramatic increase in deforestation across a large area of southwestern Amazonia, which contains some of the highest levels of biodiversity anywhere in the world.

This paper will begin with an examination of the merits of the Brazil nut industry for rural development and rain forest conservation. Next, international food quality control mechanisms will be described, together with the debate about scientific justification for the new Regulation. The core of the paper will document reactions to the EC Regulation within the framework of the World Trade Organisation's Agreement on the Application of Sanitary and Phytosanitary Measures (the SPS Agreement). Finally, the implications will be discussed in terms of globalisation of standards, the role of the WTO and the need for integration of international policy on trade, environment and development.

2. The Brazil Nut Industry, Forest Conservation and Development

Although global trade in Brazil nuts is not large, the patchy distribution of Brazil nut trees (*Bertholletia excelsa* Humb. & Bonpl.: Lecythidaceae) means that production is

concentrated in southeastern Amazonia,⁸ where nuts are a major export product. The main production region comprises the state of Acre in Brazil, the department of Madre de Dios in Peru and lowland Amazonian Bolivia.

Brazil nuts are Bolivia's second largest agro-industrial export product and are produced in a remote area of 100,000 km² in the Amazon Basin, or 10% of the national territory. 80% of households in the region are below the poverty line and the region has possibly the poorest infrastructure in the country. It is estimated that more than 50% of the economically active population is directly involved in Brazil nut production, which provides about 4,500 jobs in processing and involves an additional 7,500 families in harvesting.⁹ In Madre de Dios in Peru, the Brazil nut industry is estimated to provide income for 30% of the rural population.¹⁰ In Acre in Brazil, the Brazil nut trade has contracted over the past ten years due to competition from Bolivia but is still a significant economic activity, involving about 2,000 people.

Brazil nuts are viewed as an environmentally friendly product because they are probably the only Amazonian product with a sizeable world market supplied almost entirely from the wild.¹¹ Unlike rubber, Brazil nuts have never been produced very successfully in plantations, probably because of the complex ecological chain necessary

⁸ Formerly, the Brazilian states of Para and Amapa in eastern Amazonia were also important but production has declined because of deforestation.

⁹ Statement Made by Bolivia at 12th Meeting of SPS Committee, 15-16 September 1998 G/SPS/GEN/93.

¹⁰ Comision Multisectorial para la Promocion y Desarrollo de la Actividad Castañera en Madre de Dios (1999), Plan Estrategico de la Castaña (*Bertholletia excelsa* H.B.K.). Unpublished working document, Puerto Maldonado, Peru.

¹¹ Many other products are marketed locally but are too perishable to reach world markets. Thus, in Peters et al.'s 1989 benchmark study assessing the economic value of non-destructively harvested products from a hectare of Amazonian forest, 95% of the value calculated for non-timber products was from the sale of forest fruits, which was only possible because the study site was just 30 kilometers from one of the largest markets in the Amazon. For most of the Amazon region, the most suitable forest products for extractivism are those that are high-value and easy to transport (low-bulk and relatively non-perishable). J-P. Lescure, F. Pinton & L. Empeaire, *People and Forest Products in Central Amazonia: The Multidisciplinary*

for their pollination.¹² From a natural resource management perspective, harvesting of Brazil nuts presents few problems in terms of sustainability; there are some concerns about the effects of overharvesting on regeneration¹³ but these should be amenable to technical assistance. Brazil nut trees yield a high quality timber, but felling has been prohibited in Peru and Brazil in recognition of the greater medium-term value of the nuts.

Social and economic issues are more complex, and must be placed in the wider discourse on extractivism. Brazil nuts have been an important local food since pre-Colombian times and have been traded globally on a small scale for at least four centuries,¹⁴ but became primarily a commercial product only after the end of the rubber boom.¹⁵ The story of rubber exploitation is well-known. After seeds were smuggled out of Brazil to Kew Gardens in the UK by Henry Wickham, rubber from Malayan plantations supplanted wild-harvested rubber from most of the world market. As the demand for wild rubber contracted, many rubber estates survived by developing commercialising Brazil nuts as a complementary product and increasing small-scale agriculture. The three activities were carried out in different seasons, and the result was a mixed economy based on an agro-extractive seasonal cycle - Brazil nuts were collected in the rainy season from mid-December until March; rubber was tapped from April to June

Approach of Extractivism, in Clusener-Godt & Sachs, *Extractivism in the Brazilian Amazon: Perspectives on Regional Development*, 18 MAB DIGEST (1994), at 14-33.

¹² S.A. Mori & G.T. Prance, *Taxonomy, ecology and economic botany of the Brazil nut (Bertholletia excelsa)*, 8 ADVANCES IN ECONOMIC BOTANY 130-150 (1990).

¹³ For an update on current research on regeneration see G.P. Myers, A.C. Newton & O. Melgarejo, *The influence of canopy gap size on natural regeneration of Brazil nut (Bertholletia excelsa) in Bolivia*, 127 (1-3) FOREST ECO. & MGT. 119-128 (2000).

¹⁴ C.P. Almeida, *Castanha do Para. Sua exportacao e importancia na economia amazonica*, 19 Estudos Brasileiros (1963), quoted in E.G. Ortiz, A. Forsyth & F. Rubio, F., *Conserving Castanales: A cross-Boundary science and policy program to sustain the world's most biodiverse ecosystem*. Unpublished report, Proyecto Castanales, Puerto Maldonado, Peru (1997)

¹⁵ W. Dijkman, et al, *Temporal and spatial dynamics in the extraction of non-timber forest products in the northern Bolivian Amazon*, in *Research in Tropical Rain Forests: Its Challenges for the Future*. Seminar

and again from October to mid-December, and new fields were prepared from July to September.¹⁶ This cycle still exists and changing markets for the two commercial products are accommodated in part by a change in the balance between the three activities. Thus, the further contractions of the rubber trade in Bolivia in the late '80s caused a rise in the Brazil nut extraction activities together with increased urban migration.¹⁷ In both Bolivia and Peru, Brazil nuts are now the more important product, and since the market for wild-harvested rubber is currently very poor, a sudden contraction of the Brazil nut industry would almost certainly result in a massive increase in slash-and-burn agriculture.

Extractivism caught the global public eye in the late 1980s with the increasingly powerful and well-publicised political movement formed by the rubber-tappers or *seringueiros* in Brazil. The rubber tappers' movement was formed in the 1970s to defend their land rights and forest-based livelihoods,¹⁸ and they campaigned successfully for the creation of extractive "settlements" in Brazil within the 1987 National Program for Agrarian Reform.¹⁹ Extractive settlements were based on "notions of collective land-use and of issuing of usufruct rights, rather than individualised land titles."²⁰ As the rubber tappers' movement became aligned with international rain forest campaigning groups the

proceedings, 25-26 November 1997, the Tropenbos Foundation, Wageningen, The Netherlands (1998), at 149-158.

¹⁶ Assies, *supra* note 2, at 8-10.

¹⁷ For Bolivia, see W. Dijkman, et al., *Temporal and spatial dynamics in the extraction of non-timber forest products in the northern Bolivian Amazon*, in *Research in Tropical Rain forests: Its Challenges for the Future*, *supra* note 15, at pp. 149 - 158. For Brazil, see Clusener-Godt & Sachs, *supra* note 11.

¹⁸ A study in the Cachoeira estate near Xapuri, Acre concluded that mixed market extraction (rubber, Brazil nuts) and subsistence activities (agriculture, hunting, gathering, fishing) provide an average family cash income USD 960 / year; if subsistence goods are given a monetary value, equivalent cash income would be USD 1500 - or twice the minimum wage. Many in the region earn less than the minimum wage. Thus, extractivism in a mixed economy was concluded to be viable. See S. Schwartzmann, *Extractive Reserves: The Rubber Tappers' Strategy for Sustainable Use of the Amazon Rainforest*, in *FRAGILE LANDS OF LATIN AMERICA: STRATEGIES FOR SUSTAINABLE DEVELOPMENT* (D. Browder, ed. 1989), at 150-165.

¹⁹ Extractive Settlement Project in Policy 627, 30/07/1987: INCRA

discourse gradually changed from one of land rights to one of sustainability and preservation of traditional forest lifestyles,²¹ and the change was reflected in 1989 when extractive “reserves” became part of the National Program for the Environment.²² Extractive reserves were defined as “territorial spaces designated for the self-sustaining use and conservation of renewable natural resources by extractivist populations,” and were the first productive conservation category to be formalised under Brazilian federal law.²³

The assassination of Chico Mendes, a political leader of the rubber tappers, caused international outcry and a flood of support for extractivists. One result was a rush of international aid to Brazil for extractive reserves, most notably the G7 “Pilot Program to Conserve the Brazilian Rainforest,” which has been funded mainly by Europe. By 1991 extractive reserves and settlements covered a total of 2,992,537 hectares²⁴ or about 0.8% of the Brazilian Amazon. This compared to 17,412,700 hectares or 4.7% in protected areas.²⁵ Mendes’ assassination also undoubtedly had a significant influence on the location and agenda of the United Nations Conference on Environment and Development (The Earth Summit) held in Rio de Janeiro in 1992.

For Brazil nut producing countries, the threat posed by the new EC Regulation is that the new quality regulations will exceed their capabilities, at least for several years to

²⁰ Hall, *supra* note 2, at 100.

²¹ See A.K. Homma, *Plant Extractivism in the Amazon: Limitations and Possibilities*, in Clusener-Godt & Sachs, *supra* note 11, at 34-57.

²² Regulated on 30/01/90 by Decree 98.897 - just over a month after Chico Mendes’s assassination.

²³ Whereas settlements focused on land tenure, and were dependent on formal titling for their legal creation, extractive reserves were first created as areas for restricted use, and then subjected to the titling process; thus prior expropriation of lands was unnecessary. See p. 92 in Hall, A. (1997), *Sustaining Amazonia: Grassroots action for productive conservation*. Manchester University Press; and Allegretti, M H, (1994), *Policies for the use of renewable natural resource: The Amazon Region and Extractive Activities*. pp. 14 - 33 Clusener-Godt & Sachs, *supra* note 11.

come. All three producer countries have brought the EC Regulation to the attention of the World Trade Organisation, questioning its justification and demanding mitigating measures. Food quality issues will be summarized in the next section, before turning to the international debate on the EC Regulation.

3. Food Quality Issues

3.1 Aflatoxins and health

The harmful effects of mycotoxins – toxins produced by fungi – have been known for thousands of years, but it was only in 1960 that the aflatoxins were specifically identified following the death of 100,000 turkeys, ducklings and chicks in England after eating contaminated peanuts from Brazil. Aflatoxins are a group of chemicals produced by the moulds *Aspergillus flavus*, *A. parasiticus* and *A. nomius*. The moulds grow on protein-rich foods including seeds of several cereals, many vegetables, and nuts; dietary intake derives principally from contamination of maize and peanuts. Aflatoxins B1, B2, G1 and G2 are produced directly by the moulds, while M1 and M2 are metabolites of B1 and B2 and are found in milk from livestock that has eaten contaminated feed. Intensive research soon established that acute toxicity of aflatoxins was a global problem, and this was underlined by mass deaths of humans in Taiwan in 1967 and Kenya in 1982. Aflatoxin B1 is the most frequent in foodstuffs and is reported to be the most potent of the aflatoxins.

In addition to acute effects from high doses, constant exposure to low doses of aflatoxins are now known to have chronic effects on health. Aflatoxins are among the

²⁴ M.H. Allegretti, *Policies for the Use of Renewable Natural Resource: The Amazon Region and Extractive Activities*, in Clusener-Godt, M. and Sachs, *supra* note 11, at 14-33.

most powerful mutagenic and carcinogenic substances known, and both lab tests and epidemiological studies link aflatoxin intake to increased incidence of liver cancer.²⁶ It was this finding that stimulated a re-examination of international standards for aflatoxin levels in food.

3.2 European Regulation

The European Community is the world's largest importer and exporter of food products, and therefore its regulations on food quality have a major effect on global trade. In addition to progressive international regulation of food quality control, which has grown partly from concerns of the environmental lobby about contamination with agrochemicals, several recent food scares in Europe have added momentum to tougher control measures in Europe.²⁷ The foundation of European policy on imported foodstuffs, expressed in a new White Paper on food quality released in January 2000, is "that they must meet health requirements at least equivalent to those set by the Community for its own production."²⁸

3.2.1 European Regulation on Aflatoxins

Following consideration of aflatoxin toxicity in 1997 by the EC's Scientific Committee for Food,²⁹ on July 16, 1998 the EC adopted Commission Regulation 1525/98 reducing maximum residue limits (MRLs) for aflatoxins in food, and Commission Directive 98/53/EC detailing sampling procedures and methods for sample analysis. The limits for Brazil nuts "intended for direct human consumption or as ingredients of foodstuffs" were set at 4 parts per billion (ppb) in total, and 2 ppb for aflatoxin B1. This

²⁵ J-P. Lescure, F. Pinton & L. Empeaire, *supra* note 11, at 58-88.

²⁶ Report on 49th meeting, JECFA

²⁷ Specifically, bovine spongiform encephalitis (BSE), dioxins, and GMOs.

²⁸ EC White Paper on Food Safety COM 1999 719, 12 Jan 2000, Chapter 8.

compares with a current limit in the USA of 20 ppb and international standards defined by Codex Alimentarius of 20 ppb.

The extremely low MRLs introduced by Europe were justified on the basis that aflatoxins are highly carcinogenic and any dose, however low, would involve a risk.³⁰ However, the new standard have been challenged by Brazil nut producer countries as without scientific justification and thus contrary to the WTO's regulations on Sanitary and Phytosanitary measures.

3.3 International regulations on food safety

The main vehicles for international regulation of food safety are Codex Alimentarius (the Food Code), and the World Trade Organisation's (WTO) Agreement on the Application of Sanitary and Phytosanitary Measures (the SPS Agreement).

Codex Alimentarius comprises "a set of technical standards, evaluations and recommendations for food quality, including food standards for commodities; codes of hygienic or technological practice; pesticide evaluations and limits for pesticide residues; guidelines for contaminants; and evaluations of food additives and veterinary drugs."³¹ Established in the early 1960s, it is run jointly by the World Health Organisation (WHO) and the Food and Agriculture Organisation (FAO) through the Codex Alimentarius Commission. Codex standards are set according to recommendations of technical committees.

²⁹ Minutes of 108th meeting of Scientific Committee for Food, held on 18 – 19 September 1997 in Brussels.

³⁰ "Aflatoxins are genotoxic carcinogens. For this type of carcinogen, it is generally felt that there is no threshold dose below which no tumour formation would occur. In other words, only a zero level of exposure will result in no risk". Report of the Scientific Committee for Food, 35th Series, 23 September 1994.

Where international trade restrictions based on technical barriers are put in place by WTO members, the essential requirement by the WTO, epitomised in the Agreement on Technical Barriers to Trade,³² is that those international measures either conform with international standards issued by an official standardisation body or, if no such standards are in place, through an appropriate consensus seeking approach. As Campbell states:

Following the Uruguay round, the general agreement on tariffs and trade shows a strong preference for the use of international standards, particularly in areas concerning health and the environment, to avoid the possibility of national standards creating non-tariff trade barriers.³³

The barriers to trade that form the basis of the European aflatoxin measure in relation to aflatoxins concern standards of protection of human health in relation to food. Therefore, the WTO's Agreement on the Application of Sanitary and Phytosanitary Measures³⁴ ("SPS") is germane.³⁵

3.3.1 Codex standards on aflatoxin levels

In 1997, the Joint FAO/WHO Expert Committee on Food Additives (JECFA)³⁶ reviewed a broad range of studies on both animals and humans of the hepatocarcinogenicity of aflatoxins, and found widespread evidence for a link between aflatoxin intake and liver cancer. However, an interaction between aflatoxins and

³¹ FAO website, <http://www.fao.org/docrep/w9114c/W9114e01.htm>.

³² See Marrakech Declaration of 15 April 1994 in *The Results of the Uruguay Round of Multilateral Negotiations- The Legal Texts* GATT Secretariat, Geneva 1992.

³³ L. B. Campbell, *International Environmental Standards: Their Role in Mutual Recognition of Ecolabelling Schemes*, UNEP (1994).

³⁴ *The Results of the Uruguay Round of Multilateral Negotiations- The Legal Texts*, supra note 32.

³⁵ See Article 1.1 and Annex A of the SPS and Article 1.1.5 of the TBT.

³⁶ Report on 49th meeting, Joint FAO/WHO Expert Committee on Food Additives (JECFA). The Codex Committee on Food Additives and Contaminants (CCFAC) and the Codex Committee on Residues of Veterinary Drugs in Foods (CCVDF) identify priority chemicals for evaluation, and refer them to JECFA for assessment before incorporating them into Codex standards. JECFA carries out toxicological

hepatitis made it difficult to assess the effects of aflatoxins alone on mortality. Based on epidemiological and lab studies, a risk assessment was carried out for the incidence of cancer in different populations at different hypothetical aflatoxin limits. Daily intake of aflatoxins was estimated from data on national diets in different countries together with data on contaminant levels for different foodstuffs. Some studies suggested that there is an effect in humans only if they are already suffering from other risk factors, most notably hepatitis B infection, and based on available evidence, potency values were used of 0.01 and 0.3 cancers / year / 100,000 population / ng aflatoxin/kg body weight per day, for hepatitis B-free and infected populations respectively. Data on incidence of hepatitis B in different countries was also incorporated into the calculations.³⁷ The Committee calculated that in countries with high levels of contamination and high levels of hepatitis, application of a maximum residue limit (MRL) for aflatoxins would greatly reduce average daily intakes by removing extremely contaminated samples from human consumption. However, in countries with low levels of contamination and low levels of hepatitis B infection, death rates following a change in the MRL from 20 ppb or 10 ppb in food would be “unlikely to exhibit detectable differences.” The implication is that a reduction in MRL would be inconsequential in reducing health risks for European consumers. It would have some effect in producer countries and other developing countries, although it is unlikely that the aflatoxin problem would rank as a health priority in these countries. The Committee failed to reach a recommendation for a standard, but suggested that aflatoxin intake should be reduced to “levels as low as

evaluations, which are published. It also provides scientific advice directly to FAO and WHO member countries.

³⁷ Initial studies of the effects of hepatitis C have been inconclusive. 50 to 100% of liver cancer cases were estimated to be associated with persistent infection with hepatitis B and /or C.

reasonably achievable.” The actual level to be recommended was still under discussion in late 1998, in the 30th Session of the Codex Committee on Food Additives and Contaminants (CCFAC).

3.3.2 The SPS and Standardisation

Essential principles within the SPS relevant to the present case are paraphrased as follows.

1. Sanitary and phytosanitary measures are permitted to the extent necessary for the protection of human, animal or plant life or health, to the extent that the measures are based on scientific principles. (Article 2.1 and 2.2);
2. The need for scientific evidence to sustain such measures may be curtailed only when relevant scientific evidence is insufficient. Under such circumstances, a WTO member may then adopt such measures; however, they must seek to obtain further information and review the measures within a reasonable time. (Article 5.7);
3. Measures should not unjustifiably discriminate between WTO members, nor should they be applied in a manner that constitutes a disguised restriction on international trade. (Article 2.3);
4. Existing international standards should form the basis for technical regulations (Article 3.1);
5. Higher standards may be implemented :
 - If there is a scientific justification (Article 3.3) or
 - Where a member determines, through an objective assessment of the risks in accordance with Article 5, (which includes a requirement that trade effects are minimised), that a different level of protection is appropriate (Article 3.3, Article 5 and Annex A.4)
6. The relevant international standards are those established by the Codex Alimentarius where they relate to, *inter alia*, food contaminants etc.(Annex A.3(a))

4. Reactions in SPS

Reactions have focussed on the level of scientific evidence needed in order to justify the lowering of permissible aflatoxin levels, and on excessive sampling requirements that could prove prohibitively expensive.

There are two aspects to the dispute on scientific evidence. On the one hand, producer countries have questioned whether there is scientific evidence that a lowering of aflatoxin levels to 4 ppb will result in a significant reduction in consumer health risks. On the other hand, the EC has argued that strong evidence is unnecessary, invoking the use of the precautionary principle within the terms of the SPS Agreement.

Both Brazil and Bolivia submitted written statements to the SPS about EC Regulation 1525/98, and Peru made a verbal statement. Brazil's communication contended that "the EC measure ... seems based on insufficient scientific evidence." It stressed "the lack of sufficient data to justify the alleged benefit to the consumer" and "the inadequacy of the statistical data utilized by the European Communities concerning the potential cancer hazard of aflatoxin... although the EC interest in combating cancer may be legitimate, aflatoxins cannot be singled out as the only source of cancer, a disease with multiple origins."³⁸ Bolivia argued that "there is no scientific evidence that a decrease in aflatoxin levels in foodstuffs from 20 ppb to 4 ppb has a clear positive impact [in] the reduction of such effects as the incidence of cancer."³⁹ In its verbal statement, Peru asserted that the EC had failed to demonstrate the scientific basis for the measure, and have failed to provide a risk analysis. Therefore, it argued that the EC measure constituted an unjustified barrier to trade and a violation of the SPS Agreement.⁴⁰ The United States stressed that setting maximum aflatoxin levels at such low levels "would likely result in trade disruption while providing little additional protection for consumers," and encouraged the EC to continue to take on board the recommendations contained in FAO/WHO risk assessments establishing maximum aflatoxin levels in

³⁸ G/SPS/GEN/58 DRAFT EC Regulation, received from Brazil on 18/02/98.

³⁹ G/SPS/GEN/93: Statement Made by Bolivia at 12th Meeting of SPS Committee, 15-16 September 1998.

consumer-ready products.⁴¹ The 30th Session of the Codex Committee on Food Additives and Contaminants (CCFAC) was also considering the matter at the time and it was felt that the EC should wait for the Codex to set international standards before implementing the proposed decrease in acceptable levels.

4.1 Sampling

The proposed sampling⁴² was criticised by both Brazil and Bolivia as “statistically unjustified and technologically and economically inappropriaten” requiring sampling of a massive 15% of crates. Since nuts are air-sealed before export, all sampled packages would have to be discarded. Brazil reviews aflatoxin levels “when the case so warrants.” It contended that “the sampling methods proposed by the European Commission do not represent a favourable alternative to the consumer compared with the methods adopted by FAO.” Bolivian Brazil nut exports are inspected by international trade surveillance firms SGS and Inspectorate, which operate under government mandate to “conduct detailed quality controls of the product through laboratory analysis, including aflatoxin contamination tests.” It maintained that the insistence by the EC on additional sampling at the place of import “amounts to a refusal to recognize the validity of specialised quality certification firms, produces insecurity in the marketing of the product both for sellers and buyers and affects the normal development of the Brazil nut market.” Both countries also criticised the EC stipulation that every single sample must meet the required standard, since variance is very high. They recommended that the mean

⁴⁰ 14th Meeting of SPS, 10-11 March 1999.

⁴¹ G/SPS/R/12, 29 Oct 1998.

⁴² Sampling procedures are laid out in detail in Commission Directive 98/53/EC of 16 July 1998.

aflatoxin content for samples from a single crate should be used instead, and that the EC should recognise testing in the country of origin, to avoid further costs.

4.2 The EC Response

The EC argued to the SPS that “there was a justification for governments to be prudent and take a precautionary approach especially in situations where the scientific evidence was incomplete.”⁴³ There was solid evidence that aflatoxins were carcinogenic, and therefore in the absence of specific scientific data, only a zero level of exposure would entail no risk. In September 1997, the EC Scientific Committee for Food, “although recognising the significant work of JECFA, had also noted several limitations and assumptions inherent in the approach and had concluded that it was premature to draw definitive conclusions on this issue.”⁴⁴

The EC’s position on this issue reflects its effort to promote the precautionary principle in the WTO. This is clearly expressed in the recent White Paper on Food Quality:

The Community plays an active role in the SPS Committee and in other WTO Committees, to ensure that the international framework encourages and defends the rights of countries to maintain high public health standards for food safety. The Community has the objective to clarify and strengthen the existing WTO framework for the use of the precautionary principle in the area of food safety.⁴⁵

As a concession to Brazil nut exporting countries, the EC accepted that only the average of all sub-samples would be required to comply with the established Maximum

⁴³ Summary of SPS Committee of 12-13 March 1998, G/SPS/R/10

⁴⁴ Voting privileges in Codex are limited to national governments. Thus, the EC can attend meetings only in an observer capacity. However EC directives frequently refer to Codex, and the EC White Paper on Food Quality identifies a need “work on the accession of the European Community to the Codex Alimentarius,” (Ch. 8: 111).

⁴⁵ EC White Paper on Food Safety COM 1999 719, 12 Jan 2000.

Residue Limit (MRL), and confirmed the “due recognition would be given to transitional arrangements”; as a result, the new measures would not enter into force before January 1, 1999.

Bolivia has been the most strategic in its response to the EC Regulation. Its original statement also made use of environmental and aid agendas by emphasising the value of the Brazil nut trade for forest conservation and rural livelihoods, as follows:

As a result of intense Brazil nut production activity over the past five years, in spite of the high cost of transport, the inhabitants of the area now have access to food, provisions and supplies for everyday existence which have given them a more dignified standard of living.” Thus, ‘given the current commercial value of harvesting Brazil nuts in the shell, the inhabitants of the area have in interest in preserving the forest... the maintenance of this activity is fundamental to the prevention of deforestation of the Amazon forest.’

5. Discussion

5.1 The WTO and Standardisation

Where international trade restrictions based on technical barriers are put in place by WTO members the essential requirement by the WTO, epitomised in the Agreement on Technical Barriers to Trade,⁴⁶ is that those international measures either conform with international standards issued by an official standardization body or, where no such standards are in place, they are determined through an appropriate consensus-seeking process. As Campbell put it:

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⁴⁶ See Marrakech Declaration of 15 April 1994 in *The Results of the Uruguay Round of Multilateral Negotiations- The Legal Texts*, *supra* note 32.

in areas concerning health and the environment, to avoid the possibility of national standards creating non-tariff trade barriers.⁴⁷

However, it may be that when different states are represented at the negotiating table (with their widely differing interests and the concomitant need to compromise) the rigorous nature of reasonable standards may be lost or at best diluted in the negotiators' attempts to reach common ground. The result may be the lowest common denominator rather than a suitably rigorous standard.

This proposition is illustrated in the history of the development of standards for humane mammal trapping. In this case, as with the current case involving aflatoxins, the European Union purported to unilaterally ban the import of mammal pelts from animals caught by the leghold trap method. There were a number of derogations to the ban, including permission to derogate where an exporting country had ensured that its trapping methods operated within international standards. Unfortunately, at the original time of imposition of the ban, no relevant international standards were in place to allow this derogation to be effectuated. Intense efforts had been undertaken to develop standards under the auspices of the International Standards Organisation which had involved all relevant, interested countries in addition to non-governmental organisations representing animal welfare and trapping interests. However, given the wide array of views, a compromise was difficult to achieve, and the efforts failed to produce appropriate standards. Therefore, under the threat of a WTO attack on the European unilateral ban, a working group was set up with a much-restricted membership but which still consisted of many of the original States remaining at the negotiation table. This approach finally produced standards that could operate as the basis for derogation from the unilateral

⁴⁷ Campbell, *supra* note 33.

action. However, even these standards are not considered particularly strong from an animal welfare perspective.⁴⁸

In the case of standards designed for the humane trapping of mammals now in two international agreements, there is substantial evidence that the standards were only arrived at after the negotiators were reduced in number.⁴⁹ On the basis of this case study one must conclude that the WTO's aspiration establish trade regulations based entirely on international consensus may prove chimerical.

However, in the present case the European approach is not based on the minimum level of international consensus, but rather on a higher standard derived from the EC's own scientific opinion, coupled with a precautionary margin of error to ensure that the quantity of aflatoxins in imported products conform with a no-risk approach. It is to be expected that those with trade and other interests would hardly agree to such an extreme no-risk approach if it is practically unachievable for them. It is also understandable, therefore, that the internationally agreed standard is much lower than the European approach given the constraints on international negotiation and the need ultimately to provide a compromise between the various negotiating interests.

5.2 The precautionary principle and the WTO

⁴⁸ See S.R. Harrop, *The Agreements on International Humane Trapping Standards- Background, Critique and the Texts*, 1(3) J. INT'L WILDLIFE L. & POL'Y 387-394 (1998).

⁴⁹ For a full history of the case study referred to see S.R. Harrop & D. Bowles, *Wildlife Management, the Multilateral Trade Regime, Morals and the Welfare of Animals*, 1(1) J. INT'L WILDLIFE L. & POL'Y 64-94 (1998).

Although the precautionary principle may be evolving into a norm of international environmental law⁵⁰ (as evinced by its incorporation into a wide array of international and regional instruments, such as the constitutional documents of the European Community, as well as major multilateral environmental agreements, including the Convention on Biological Diversity, CITES listing criteria and the United Nations Framework Convention on Climate Change) it is not expressly set forth in the multilateral trade agreements of the WTO. Article 5 of the SPS addresses the system of risk assessment and the determination of levels of protection, but does not provide a justification for precautionary measures. While Article 5.4 required measures to minimize negative trade effects; however, Article 5.7 sanctions a precautionary approach, primarily in the adoption of provisional standards where scientific evidence is insufficient. However, in the present case it might be argued that sound scientific evidence is available, as embodied in the standards produced under the auspices of the Codex Alimentarius. To counter such a view, the EU would need to discredit the scientific basis for those standards, demonstrating that the standards merely represent a lowest common denominator developed through a flawed international consensus approach. Thus, the EU may have to abandon invocation of the precautionary principle and rely on its own scientific evidence to support its position. In so doing, the EU may also have to dispute the scientific basis for the Codex Alimentarius standards.

The invocation of the precautionary principle in this context creates an interesting dilemma for environmental and human rights movements, who have fought hard for acceptance of the precautionary principle in pressing for increased control over

⁵⁰ See O. McIntyre O. & T. Mosedale, *The precautionary principle as a norm of customary international law*, 9(2) J. ENV'T L. 221-241 (1997).

agrochemicals,⁵¹ GMOs⁵² and new pharmaceutical products. Invoking the precautionary principle, while desirable from the point of view of food quality, could also open the door to new trade barriers with little need for scientific justification. In the case of aflatoxins, it may undercut the economic rationale for the conservation of Amazon rain forests and increase rural poverty by damaging the Brazil nut industry. On the other hand, environmental groups have also lobbied for legislative adoption of Codex by national governments.⁵³ In the case of aflatoxins, this would result either in an increase in acceptable MRLs in Europe, or adoption by Codex of the stricter measures.

5.3 Environmental considerations

The WTO dispute panel decisions dealing with environmental issues generally involve parties who have introduced allegedly trade-distorting restrictions, arguing that those restrictions are justified on environmental grounds. In so doing, those parties argue that the restrictions were sanctioned by one or more of the various “defences” in Article XX of the GATT 1947, an instrument is incorporated in the WTO regime.⁵⁴ In this case, however, the boot is on the other foot: the parties seeking to demonstrate that the European action is trade distorting do not need to resort to Article XX. Rather, they may restrict their approach to demonstrating that the EU measure is trade distorting because it does more than is necessary to achieve its objects. Therefore, the environmental considerations, although very real, need not be raised in detail if this issue proceeds to a full-blown trade dispute

⁵¹ For example see B. Dinham, *The Pesticide Hazard: A Global Health and Environmental Audit*. The Pesticides Trust (1993).

⁵² For example, see FoE at <<http://www.foei.org/campaigns/Biotechnology/indexbiotechnology.html>>.

⁵³ Dinham, *supra* note 51, at 186.

⁵⁴ See *The Results of the Uruguay Round of Multilateral Negotiations- The Legal Texts*, *supra* note 32; and also the way in which these “defences” have been applied in, by example, the *two tuna – dolphin* decisions (Report of the Panel – *United States- Restrictions on imports of tuna* (DS21/R and DS/29/R) and the decision of the Appellate Body entitled *United States – import prohibition of certain shrimp and shrimp products* (See document WT/DS58/AB/R dated 12 October 1998).

before the WTO dispute panel. Of course, it is entirely conceivable that detrimental environmental effects could substantiate an argument that the EU's measures would distort trade, especially if the effects are so wide ranging that they result in a party no longer being able to compete in an appropriate market.

6. Conclusions

The European Union's approach to aflatoxins may place the spotlight on the key, controversial issues that pervade the work of the WTO. This is not simply a question of the extent to which unilateral measures may be taken in line with the importing WTO member's view of the risks of a product. Instead, the issue of how global standards are reached is highly relevant. The role of the precautionary principle in the regulatory approach taken by the WTO is also crucial to the issue. Finally, the extent to which environmental considerations are to be taken into account is also part of the debate. As has been pointed out, the latter point is somewhat unusual in the contexts of a WTO dispute in that, on this occasion, it is not the party who is acting unilaterally who is invoking an environmental justification for its policies, but rather those members of the WTO who are affected by the restriction.

The major issue that arises out of this dispute is the simple fact that trade regulation is still not properly integrated with other international regulatory systems (at either the European or the global level) which are designed to preserve biodiversity, protect key global ecosystems from fundamental environmental degradation, or relieve global poverty. A mechanism needs to be developed whereby deleterious trade effects can be balanced against detrimental environmental and social effects. The European

Union has recognised this need,⁵⁵ and is negotiating technical assistance to the Brazil nut industry in Bolivia. However, production in Peru and Brazil, which is less vertically integrated (and arguably therefore has greater benefits for poverty reduction) is likely to be hit hard.

At the very least, this case confirms the extent to which all aspects of legislation affecting trade issues must take full account of the social and environmental implications of global trade if sustainable development is to be ultimately attained.

⁵⁵ The European Council has recently stressed the need for “taking full consideration of the interlinkages between environment and poverty” and to “address systematically the environmental and social implications of rapid globalisation, including trade and private capital flows.” European Council Press Release 160 – 8435/99, Council Meeting 2180, Brussels, 21/05/99.