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COMMITTEE ON AGRICULTURE

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FAO's Strategy for a Food Chain Approach to Food Safety and Quality: *A framework document for the development of future strategic direction*

Item 5 of the Provisional Agenda

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I. Introduction

1. The 28th Session of the Committee on World Food Security (CFS) discussed, *inter alia*, the issue of food safety and quality. The CFS recommended that FAO submit a draft framework document to COAG, COFI and CFS in 2003 which would function as a point of reference for the future strategic development of a food chain approach to food safety and those aspects of food safety related to quality[1].

2. FAO defines the food chain approach as recognition that the responsibility for the supply of food that is safe, healthy and nutritious is shared along the entire food chain - by all involved with the production, processing, trade and consumption of food. This approach encompasses the whole food chain from primary production to final consumption. Stakeholders include farmers, fishermen, slaughterhouse operators, food processors, transport operators, distributors (wholesale and retail) and consumers, as well as governments obliged to protect public health. The holistic approach to food safety along the food chain differs from previous models in which responsibility for safe food tended to concentrate on the food processing sector. Its implementation requires both an enabling policy and regulatory environment at national and international level with clearly defined rules, and the establishment of food control systems and programmes at national and local levels throughout the food chain.

3. Adopting a food chain framework goes beyond ensuring the safety of food. It facilitates more generally a consumer-driven approach to agriculture and food safety systems, implying potential future shifts in the agricultural sectors in many countries. For example, production systems may be challenged by opportunities to integrate nutritional considerations in food at-source. Farmers may also need to make new farming and technology choices to meet demands for a safe and healthy diet in response to new regulations and standards, changing global consumption patterns, improved market access and value-added opportunities[2], as well as respond to increasing concerns over the sustainability of existing agricultural systems.

4. Shifts in food production and processing systems within a food chain approach will increasingly respond to consumer demand and become more environmentally, economically and nutritionally viable - the foundation of a more integrated, preventive food chain strategy to food safety. The framework document broadly outlines the most important issues in the development of a food chain approach to food safety, while the broader implications of a food chain approach on production and post-production systems, biosecurity and nutrition are addressed in other COAG documents[3]. FAO recognises the need to more fully incorporate a food chain approach in its food safety strategy and acknowledges that this revised strategic direction will require an integrated and preventive approach to the management of food safety throughout the entire food chain, meeting sustainability concerns and building on aspects of the implementation of international commitments such as Agenda 21.

5. FAO has a large food safety programme. The Food and Nutrition Division (ESN) hosts the Joint Secretariat of the Codex Alimentarius Commission (CAC), which has implemented the Joint FAO/World Health Organization (WHO) Food Standards Programme for more than forty years. This programme has two primary objectives: to protect food consumer health, and to ensure fair practices in food trade. As part of this food safety programme, FAO provides scientific advice

[1] Report of the 28th session of the Committee on Food Security, 6-9 June 2002, Rome, CL 123/10.

[2] This issue and its practical applications are further discussed in the related COAG paper COAG/2003/6 'Framework for Good Agricultural Practices'.

[3] Please refer to COAG/2003/6 - Good Agricultural Practices; COAG/2003/9 – Biosecurity in Food and Agriculture; and information paper COAG/2003/Inf.3 – Summary Report of the FAO/WHO Expert Consultation on Diet, Nutrition and the Prevention of Chronic Diseases.

for standard setting through joint FAO/WHO expert committees or meetings, such as the Joint Expert Committee on Food Additives and Contaminants (JECFA), the Joint Expert Meeting on Pesticide Residues (JMPR) and the Joint Expert Meetings on Microbiological Risk Assessment (JEMRA). There are other examples of ad-hoc joint expert consultations on new or emerging problems, such as the Joint FAO/WHO Expert Consultation on Acrylamide or the ad-hoc Committee on Foods derived from Biotechnology. In addition, many of the normative and field programmes of FAO's technical departments, including its Economic and Social, Agriculture and Fisheries Departments, directly or indirectly contribute to improving the capacity of food safety and safety-related quality control systems.

6. Food safety has traditionally focused on enforcement mechanisms to remove unsafe food from the market after the fact, instead of a more pronounced mandate for the prevention of food safety problems. Generally, the orientation of many food safety systems tends to be reactive and defined by enforcement criteria instead of preventive and holistic in the approach to risk assessment and reduction[4]. Integrated strategies for reducing the most significant risks throughout the entire food chain should be incorporated into any revised strategic direction in food safety systems. Such systems in both developed and developing countries are under unprecedented challenges, arising from demographic change, shifts in food consumption patterns, increased urbanisation, more intensified food production techniques and the need to adapt new technologies. The globalisation of international trade in food, as well as food safety standards, is an additional and overriding challenge to these systems.

7. FAO, in response to the CFS request, must first redefine its own food chain approach in regard to food safety and quality issues related to safety in order to effectively assist its Members to respond to the challenges outlined above. A revised strategic direction that incorporates a food chain approach would assist Members to establish or improve comprehensive food systems, from primary producer to consumer – *from farm or sea to the plate* - as the food chain approach is sometimes described. Responsibility for providing safe food is shared by all players in a system adopting a food chain approach and this responsibility is placed unambiguously within the agricultural and food sector, broadly defined to include production of food of plant and animal origin (including seafood), post-harvest treatment, processing and handling of food at wholesale, retail and household levels.

8. A food chain approach will build on FAO's on-going work to support standards-settings on food safety as part of the FAO/WHO Codex Alimentarius Commission[5] – together with the related provision of scientific advice (risk assessment, capacity-building and technical assistance). However, integrating FAO's existing programmes within a more comprehensive and integrated food safety framework may require some additional resources in terms of the Medium-Term Plan 2004-2009 (MTP).[6]

9. The first section of this document will discuss food safety and safety-related quality issues and challenges within a dynamic and evolving global context. The second part of the document proposes a strategic direction to build on FAO's existing normative work related to food standards and the related provision of scientific and technical advice. The evolving views of key FAO partners in this field, such as WHO, as well as those that are increasingly articulated by national and international authorities are incorporated. The mechanisms to develop and implement a revised strategic food chain approach within the framework of the MTP are discussed. The document concludes by identifying those issues suggested for review and endorsement by COAG

[4] Food Chain 2001 – "Food Safety – a Worldwide Challenge" Dr. Gro Harlem Brundtland, Director-General, WHO, Uppsala, Sweden, March 2001.

[5] These activities will need to take into account the evaluation of the Codex Alimentarius and other FAO and WHO food standards work under the leadership of Professor Bruce Traill, which reported in September 2002.

[6] CL 123/7

and FAO governing bodies. For this framework document, discussions in regard to quality of food are limited to those quality aspects related to safety.

II. Evolving Global Context for Food Safety

10. The strategic development of a food chain approach to food safety must be considered within a global context that is constantly evolving and dynamic. Globalisation of food trade requires the development of a more integrated and preventive approach within food safety systems. As international trade in food and farm products increases, it will become increasingly difficult to resolve food safety problems of any one country without collaborative international efforts to develop integrated, preventive strategies. Increased trade also implies potentially increased costs, as food scares become increasingly global. The economic consequences of contaminated food and farm products can be potentially devastating, with the estimated US$6 billion in costs incurred by the United Kingdom in response to the Bovine Spongiform Encephalopathy (BSE) crisis but one recent example[7]. Failure to attain international food safety standards can result in significant financial losses for food exporting countries (for example, exporters of groundnuts with aflatoxin problems – a food quality issue related to safety).

11. The close relationship between health and economic development must also be considered in terms of more globalised food safety systems. Food (and the water used for its production, processing and preparation) is a likely vector of many microbiological, chemical and physical hazards (*see Annex I*). Food-borne disease or illness caused by these hazards pose major and growing public health and economic problems in both developed and developing countries. Recent examples include the emergence of BSE in Europe as a disease transmittable through food, and the dioxin contamination of animal feed in 1999 (from a single source) that was identified on every continent within weeks. Food and waterborne diarrhoeal diseases are estimated to kill more than 2 million people a year, most of whom are children, in developing countries - comparable to the number of deaths attributable to malaria every year.

12. The discussion above demonstrates just how important the integrative and preventive aspects of a food chain approach are for the evolving needs of food safety systems. Within these systems, governments are obliged to set, impose and control food safety standards while other food quality standards (such as taste, appearance) may be privately established. Public interventions are also necessary to protect consumers from fraud. Furthermore, the Rome Declaration on World Food Security (1996) clearly stated that all people have the right to safe food whatever the level of their effective demand for it. Public authorities of low income countries in which poor people are the majority often do not have the capacity to establish and/or control food safety standards. Governments of these countries may recognise the right to safe food but cannot fulfil this right, particularly as the reduction of food-borne hazards incurs costs in terms of financial and institutional resources that developing countries often cannot provide. However, it is also important to note that very significant and costly food-borne illnesses and diseases have occurred and will continue to occur in developed countries – despite food and farm systems generally recognised as safe.

13. Food safety must be considered within a global context that is dynamic and evolving as part of the ***globalisation*** process. Globalisation is generally characterised by increased international trade, more integrated markets, more rapid adoption of new technologies, increased market concentration and information transfer. All of these aspects have important implications, both positive and negative, for food safety and the development of a food chain approach to food safety strategy. Increasingly open trade in food and farm products can potentially benefit both consumers and producers through greater variety of foods/products or new export income earning opportunities. However, the potentially negative impacts of this trend include the possibility that

[7] Food Chain 2001 – "Food Safety – a Worldwide Challenge" Dr. Gro Harlem Brundtland, Director-General, WHO, Uppsala, Sweden, March 2001.

food-borne diseases are more easily transmitted among countries even more rapidly - posing health risks to consumers and financial risks to food producers/processors who fail to attain rigorous and increasingly *globalised* food safety standards.

14. Globalisation is also changing how food and farm products are processed and traded. Fresh produce and processed products are increasingly marketed globally, with greater concentration of market power in a few dominant food multinationals. These companies generally have the financial and technological capacity to ensure that their fresh produce and food products are safe and that any sources of food contamination may be more easily traced. However, given the more integrated and global nature of these firms, once unsafe and/or contaminated food enters the food chain, it is very likely to be more rapidly distributed and thus expose a greater number of people to increased risk.

15. The increasing role of new and more innovative technology in food production, post-harvest treatment, processing, packaging and sanitary treatment is also significant in the context of food safety and more globalised food trade. The use of recombinant DNA in plant and animal production, and food irradiation, are important examples of new technologies that - while potentially of great benefit – may pose risks to food safety due to their recent introduction or the relative lack of experience in their application to a wide variety of environments. New technologies may not always be correctly applied, and they may have unsuspected and harmful side effects over the longer term.

16. Increasing public awareness of food safety hazards, concern over threats to health attributable to food hazards and reduced confidence in the ability of current food supply systems to manage food safety risks are additional factors to be considered in the development of a food chain strategy. Information is rapidly disseminated and the media quickly spreads news of food safety emergencies. Consumer organizations concerned with food safety issues continue to increase their political influence and this trend is of great benefit to the consumer. However, food-safety concerns and food scares that are not scientifically substantiated may create unnecessary obstacles and potentially hinder development of potentially useful new technology. Consumers are now equally concerned about the quality of their diet with relation to health and risk of chronic diseases. The need to address their concerns with regard to the nutritional quality of the diet can be easily and closely interwoven with food safety during the development of the food chain strategy.

17. There are other widespread changes in the global food economy that impact on a food chain approach to food safety, ranging from the farm through to the consumer. For example, the increased intensification of food production (plant, livestock and fishery) practices may increase the risk of chemical contamination through pesticide and veterinary residues or microbiological pathogens, such as Salmonella. An increasing tendency to eat away from home in commercial settings, coupled with increased consumption of convenience and semi-cooked foods that require refrigeration (short shelf life), as well as the consumption of larger quantities of raw fruits and vegetables, may also directly increase the health risk from microbiological pathogens to consumers, particularly the emergence of new ones such as *E. coli* 0157.H7.

18. Intensified farm practices, integrated and increased trade through globalisation and changes in consumer eating patterns have implications for how FAO can strategically react to the challenges posed by food safety and food safety-related quality issues. The development of a food chain approach in a future food safety strategy for FAO must incorporate not only the generalised elements of a more globalised, dynamic environment but also those broad characteristics of the differing food safety situations in developed and developing countries, noting that the countries in transition share certain elements from both country groups.

III. Food Safety Systems in Developed and Developing Countries

19. The food systems of **developed countries** have evolved over time, having incorporated many diverse scientific, technological, legal and societal advances. The food safety systems in these countries usually involve inter-related activities of various groups, guided by national food laws and regulations that include food control systems and activities that mostly address enforcement criteria such as monitoring, surveillance, inspection, hazard containment, outbreak management, education and information – essentially the primary attributes of comprehensive and effective food safety systems. However, there are still serious shortcomings. WHO reports indicate that one person in three in developed countries may be affected by food-borne illness each year. There is high consumer awareness of the potential threats to health posed by food-borne hazards and recent food safety emergencies have undermined consumer confidence in the effectiveness and integrity of food safety systems.

20. Three main shortcomings can be identified in the food safety systems of developed countries. Firstly, the source systems of primary production (including concentrate feed used for animal production) are vulnerable to hazards such as the recent BSE and dioxin crises. This situation is mainly due to an overemphasis on intense, lower cost production practices and is to the detriment of environmental and food safety concerns. Secondly, food safety and food control systems are under enormous and increasing pressure to rapidly identify, analyse and respond to emerging hazards - as well as monitor and control the increasing volume and diversity of food produced, consumed in the fresh state, processed and traded. Finally, despite recent efforts to expand the use of risk analysis, more efforts are necessary to share information, communicate more effectively and ensure that all components and actors in the food chain fully participate in food safety. Overall, the traditional approach to food safety in addressing all the issues of a food chain may be defective, and this has contributed to a lowered sense of consumer confidence in these systems. There are recent examples of efforts to develop a preventive and integrated food chain approach to address the shortcomings mentioned above, notably with the creation of the Canadian Food Inspection Agency (CFIA) and the European Food Authority (EFA).

21. Food systems in **developing countries** are extremely diverse and tend to be less organised, comprehensive and effective than those of developed countries. The food safety systems in these countries are challenged by problems of rapidly growing populations, urbanisation and natural environments that expose consumers to a wide range of potential food safety risks. The informal sector is often a significant producer and distributor of fresh and processed food products (including seafood and *'street'* foods) for direct consumption. Self-provisioning occurs in rural and urban areas and is correspondingly important in terms of food supply. All of these factors make effective food safety regulation and control much more difficult to achieve.

22. Food safety standards in developing countries may actually attain those of international standards, but the lack of technical and institutional capacity to control and ensure compliance essentially makes the standards less effective. Inadequate technical infrastructure - in terms of food laboratories, human and financial resources, national legislative and regulatory frameworks, enforcement capacity, management and coordination - weakens the ability to confront these challenges. Such systemic weaknesses may not only threaten public health but may also result in reduced trade access to global food markets. Consumers in developing countries, who are generally more preoccupied with the access side of food security, are generally ill informed and unaware of food safety matters, partially due to the few, if any, organized consumer groups. Thus, public sector intervention must commit resources to ensure adequate but low cost consumer protection against food safety hazards: food markets alone will not provide the necessary incentive – and this is also true for developed countries.

23. The perceived weaknesses in the food safety situations of developing countries can be summarised as follows. Production systems tend to be extremely diverse, and often have many small-scale, unorganized producers and informal markets. The food sector is rapidly evolving in

these countries, with little technical support for the introduction of new, more intensive production technologies by small and medium-scale enterprises. The food processing industrial sector is often under-financed and fragmented and there is often too little purchasing power in terms of consumer demand for food considered *safe*. Rapid rates of urbanisation, changing food production systems and consumption habits have all contributed to increased environmental risks. Furthermore, the regulatory frameworks for food safety are often either incomplete or outdated and the systems tend to suffer from inadequate technical, institutional and managerial food control capacity. Despite these weaknesses, it is important to note that over the past 10 years, many of the major food scares in developed countries (particularly in the European Union) have originated in those countries.

IV. Framework for the Development of a Food Chain Approach to Food Safety

24. FAO defines the food chain approach as recognition that the responsibility for the supply of food that is safe, healthy and nutritious is shared along the entire food chain - by all involved with the production, processing and trade of food. As such, the implications of a food chain approach are much broader than those aspects limited to food safety systems. The broader implications of a food chain approach for production and post-production systems, biosecurity and nutrition are addressed in other COAG documents[8]. This framework document, however, specifically outlines the most important issues in the development of a food chain approach to food safety.

25. Widespread changes in the global food economy and the dynamic environment in which food safety issues must be considered have led to a more profound appreciation of just how inter-related the needs of both developing and developed countries are in terms of the strategic development of a food chain approach to food safety. There are five broadly defined inter-related needs on which to base future strategic direction in support of a food chain approach to food safety:

- Food safety from a food chain perspective should incorporate the three fundamental components of **risk analysis** - *assessment, management and communication* – and, within this analysis process, there should be an **institutional separation** of science-based risk assessment from risk management – which is the regulation and control of risk. A prudent approach to risk assessment and management should also be adopted.
- **Tracing techniques** *(traceability)* from the primary producer (including food products and animal feed used in the production of animal products), through post-harvest treatment, food processing and distribution to the consumer must be improved.
- **Harmonisation of food safety standards**, implying increased development and wider use of internationally agreed, scientifically-based standards is necessary.
- **Equivalence in food safety systems** – achieving similar levels of protection against food-borne hazards whatever means of control are used – must be further developed, particularly as required by the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS) of the WTO.
- Increased emphasis on **ex-ante risk avoidance or prevention at source** within the whole food chain – *from farm or sea to plate* – is necessary to complement the conventional ex-post approach to food safety management based on regulation and control.

26. The development of a framework for a food chain approach to food safety should be based on a strategic response to the complex set of challenges and needs areas described

[8] Please refer to COAG/2003/6 - Good Agricultural Practices; COAG/2003/9 – Biosecurity in Food and Agriculture; and information paper COAG/2003/Inf.3 – Summary Report of the FAO/WHO Expert Consultation on Diet, Nutrition and the Prevention of Chronic Diseases.

previously in this document. As such, a framework for the future development of a food chain approach to food safety should be broadly based on three key elements:

- Universally adopting a risk-based approach to food safety.
- Complementing the current, traditional emphasis on regulation and control of end products in food safety systems with a **more pronounced and comparable emphasis on prevention of food contamination at source** - including development and dissemination of good practices/safety assurance systems (i.e. Hazard Analysis and Critical Control Point/HACCP).
- Adopting a **holistic approach to food safety that encompasses the whole food chain** – *from farm or sea to plate* – and adheres to the FAO definition of a food chain approach in which responsibility for the production of safe food is shared along the entire food chain.

27. The key elements described above are based on ideas that have received increasingly widespread support among national and international institutions concerned with food safety. These concepts are timely, relevant and critically important to the successful future development of food safety strategy within FAO. The inter-related nature of these key action areas implies that enhanced collaboration with international and national partners in food safety matters (potentially beyond the remit of FAO) would be necessary.

28. FAO's work in support of these broad strategic elements (and within the framework of developing a new food safety strategy) would involve the appropriate balance of normative and field activities based on risk assessment, scientific advice, technology transfer, consumer education and capacity-building. Most importantly, FAO would continue to provide a valuable and significant forum for further discussion and information exchange in the area of food chain analysis and food safety systems. A more detailed discussion of the key elements outlined above provides further support for the inclusion of these concepts in a food chain approach to food safety.

29. **Universal adoption of a risk-based approach to food safety** is a relatively recent innovation that received additional impetus from the WTO SPS Agreement. A risk-based approach to the management of food safety hazards by definition implies risk analysis. Food control resources are thus directed to those hazards posing the greatest threat to public health and where the potential gains from risk reduction are large relative to resource use. Establishing risk-based priorities requires sound scientific knowledge and effective systems for reporting the incidence of food-borne diseases. Risk strategies also demand rigorous follow-up and improved international cooperation through information exchange and risk communication. However, while independent scientific research and knowledge are the foundation of sound risk assessment, it is important to note that risk management very often involves a political process. The political nature of governmental regulation and control of food safety (risk management), may partially explain why consumers are increasingly insistent that risk assessment and management are separate functions, despite the need for the responsible government authorities to interact to manage risk effectively. Food safety systems utilising a food chain approach would also benefit from cross-sectoral analyses that incorporate other risk domains and assessments related to plant and animal life and health and related topics, such as biosecurity.

30. Complementing the current emphasis on regulation and control of food safety systems with **preventive measures to control the introduction of food contamination** *at-source* is a critically important element in the development of a revised strategy. This necessitates the adoption of practices in food production, post-harvest treatment, processing and handling that reduce the risk of microbiological, chemical and physical hazards from entering the food chain (or controlling at source, if feasible). There are some cases in which the hazard simply cannot be removed from foodstuffs, for example, those hazards involving chemical contaminants. The adoption of sound practices along the food chain – based on the principles defined in Good Agricultural Practices (GAP) and Good Manufacturing Practices (GMP) – are the keys to discharging this responsibility along the food chain. In-plant controls of food processing operations should also be based on HACCP analysis - to the extent that capacity, experience and

resources permit. The core components of food safety systems, however, will remain the application (and compliance) of food product regulations developed through internationally agreed, science-based food standards.

31. **Adopting a holistic, food chain approach to food safety** recognises that primary responsibility for supplying safe and palatable food lies with all those involved in food production, post-harvest treatment, processing and trade. This *'at-source'* responsibility encompasses all stakeholders throughout the food chain. Stakeholders may include farmers and the suppliers of farm inputs (especially animal feed and veterinary supplies), fisherfolk, slaughterhouse and packing-house operators, fish processing plants, food manufacturers, transport operators, wholesale and retail traders, caterers, food service establishment operators, street food vendors and others. This responsibility also extends to the end consumer who must be educated to ensure that food is properly stored, hygienically prepared and food shelf lives are respected. A holistic, integrated food chain approach should further engender the need for close contact and collaboration between, for example, food control authorities and those responsible for environmental protection and water quality. Furthermore, this approach should permit greater *traceability* of food products and facilitate - not only the withdrawal from markets of hazardous or contaminated foods - but also the identification of weak hazard-promoting links in the chain.

32. The three **strategic elements** discussed in this section recognise that the responsibility for ensuring food safety (as well as adequate quality related to safety) is shared by the food, agriculture and fishery sectors and all involved with the production, post-harvest treatment, processing and trade of food. Diverse government ministries, such as public health, industry, consumer affairs, environment, agriculture and fisheries, are often jointly responsible for the development of official standards, technical regulations and enforcement of food safety. However, often it is the private sector that must make daily, practical decisions on investment, management and costs to ensure that food production, post-harvest treatment, processing and distribution comply with food safety standards. Food safety systems that incorporate the key elements described above will ensure a food chain approach and the continued and improved collaboration between public and private sector bodies throughout the entire food chain.

V. Developing and Implementing the Proposed Strategy

33. A revised food safety strategy incorporating a food chain approach would broaden the traditional focus to include relevant components of Good Agricultural Practices (GAP) and Good Manufacturing Practices (GMP) particularly related to food safety[9] and the food chain – *the farm or sea to plate* approach. A revised strategy would involve additional work for prevention at-source, such as the development and dissemination of practices to prevent food-borne hazards from entering the food chain. This may be very useful in animal production (feeding and processing) as these products are particularly prone to food-borne hazards. Additional work on preventive pre- and post-harvest practices for crops could prevent safety problems and loss due to contamination and deterioration in storage and processing.

34. Generally, a revised food chain approach to food safety within FAO would enhance the capacity of Member Nations, particularly those in developing countries, to analyse food safety risk, apply and ensure compliance with international standards and participate fully in standard-setting. The development and application of good farming and manufacturing practices appropriate to the unique ecological, economic and societal conditions of developing countries is also necessary. Implementing a revised food safety strategy would require enhanced collaboration with international partners, particularly WHO[10] and the United Nations Industrial Development Organization (UNIDO) and continued focus on information exchange.

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[9] Please refer to COAG/2003/6 Good Agricultural Practices, which discusses those aspects of good agricultural practices not explored in this document.

[10] WHO also is currently (late 2002) developing a strengthened food safety strategy.

35. FAO's normative work in food safety and quality-related to safety is focused on food standards, related capacity-building linked to the Codex Alimentarius, and developed in close collaboration with WHO. Codex Alimentarius includes standards for all principle foods (whether processed, semi-processed or raw) for distribution to the consumer, with provisions related to food hygiene, food additives, pesticide residues, contaminants, labelling, presentation, methods of analysis and sampling. The Codex Secretariat is housed in the FAO Food and Nutrition Division (ESN), which has primary responsibility for normative work in food safety (activities include technical advisory services, capacity-building, training and institutional development).

36. FAO, in collaboration with WHO, provides expert scientific advice for standards setting through Codex expert committees and/or meetings (JECFA, JMPR and JEMRA). Contributions are interdisciplinary and involve programmes related to veterinary drug residues with the Animal Production and Health Division (AGA) and pesticide residues with the Plant Production and Protection Division (AGP). Food safety programmes related to agricultural processing and post-harvest management are managed by the Agricultural Support Systems Division (AGS). The FAO Fisheries Department is directly involved in fish product safety, including risk analysis and safety control methods (HACCP) for fish processing plants.

37. A brief review of the FAO Medium Term Plan (MTP) for 2004-2009 provides an indication of resource allocation (by amount and programme area) to those food safety issues relevant to a food chain approach[11]. Four strategic objectives particularly relevant to a future development of food safety strategy are listed below (followed by the percent resource allocation for 2002-2007).

- **A2** - Access of vulnerable and disadvantaged groups to sufficient, **safe and nutritionally adequate food** (3.0%).
- **B1** - **International instruments** concerning food, agriculture, fisheries and forestry, and the production, **safe use and fair exchange** of agricultural, fishery and forestry goods (7.9%).
- **B2** - National policies, legal instruments, supporting mechanisms that respond to **domestic requirements and are consistent with international policy/**regulatory framework (7.9%).
- **C1** - **Policy options and institutional measures** to improve efficiency and adaptability in production, processing and marketing systems and meet the changing needs of producers and consumers (13.6%).

38. These strategic objectives account for approximately 30% of FAO's planned programme resources in the MTP 2002-2007. However, only a relatively small fraction of the resources will actually address food safety and quality aspects related to safety issues despite the potential adoption of a food chain approach to food safety strategy. A more detailed listing of those FAO programmes that may significantly contribute to the four objectives discussed above is attached in Annex II.

39. The current MTP programme areas related to food safety continue to focus on Codex normative work, although several work areas incorporate a broader food chain approach with technical, food hazard-preventive measures based on good agricultural practices. There are also instances in which work areas are usefully inter-related - such as Programmes 214A9 *'Enhancing food quality and safety by strengthening handling, processing and marketing in the food chain'* and 221P8 *'Food quality and safety throughout the food chain'*. If the proposed framework to develop a broadened strategy based on a food chain approach is supported by COAG, identification of similar linkages in the MTP would be necessary, as well as additional resources particularly for the regional or sub-regional offices.

[11] CL 123/7

40. Food safety work in FAO is also interdisciplinary. The Priority Areas for Interdisciplinary Action address two important sub-topics related to food safety issues: Biosecurity for Agriculture and Food Production; and WTO Multi-lateral Trade Negotiations (MTNs) on Agriculture, Fisheries and Forestry[12]. The Biosecurity PAIA priorities are *inter alia* to monitor, assess and evaluate international policies and instruments relevant to food safety, including guidelines to support risk analysis related to biosecurity and develop and strengthen national biosecurity strategies and infrastructure. The Interdepartmental Working Group of this PAIA could also provide a useful forum for discussion and an additional mechanism to ensure the alignment of FAO's normative (and field) work in food safety and quality related to safety with a food chain *'farm or sea to plate'* approach. This PAIA is also expected to provide the institutional location for developing the proposed International Portal for Food Safety, Animal and Plant Health, a new global platform for the exchange of sanitary and phytosanitary information.[13]

VI. Views and Recommendations from COAG

41. COAG is invited to consider this document as a framework for the future development and reinforcement of a food chain approach to food safety in FAO. This draft framework embraces a holistic, preventive approach to address the complex challenges of improving food safety systems in Member Nations. It builds on the important existing food standards work of FAO, Codex Alimentarius Commission and WHO and associated risk assessment, scientific advice and capacity-building activities and considers how the adoption of a food chain approach is important for future strategic direction. Fundamentally, a regulatory framework (including standardised international methodology) should be in place to form *at-source* evaluations – in addition to *ad hoc* monitoring and enforcement after food products have entered the food chain.

42. Recommendations are welcome on the proposal to develop a revised food safety strategy, particularly how a revised strategy should best account for the varying needs of FAO Members, the work and responsibilities of other interested organizations and institutions, as well as the overall mandate of FAO. COAG may wish to recommend further action to Council and inform the CFS of discussions related to this document. *(This document also will be shared with COFI, the next session of which precedes that of COAG, as an information document).*

43. COAG may also wish to provide guidance as to the broader implications and opportunities of a food chain approach for FAO's programmes beyond food safety, in particular on issues such as production and post-production systems (including finance and marketing), biosecurity and nutrition[14].

[12] Note the following definition: "Biosecurity is composed of three sectors, namely food safety, plant life and health, and animal life and health. These sectors include food production in relation to food safety, the introduction of plant pests, animal pests and diseases, and zoonoses, the introduction of genetically modified organisms (GMOs) and their products, and the introduction and safe management of invasive alien species and genotypes." Source COAG/01/8.

[13] A document entitled 'Concept paper for the Development of the International Portal for Food Safety, Animal and Plant Health (IPFSAPH)' is available.

[14] Some of these issues are discussed in COAG/2003/6 - Good Agricultural Practices; COAG/2003/9 – Biosecurity in Food and Agriculture; and information paper COAG/2003/Inf.3 – Summary Report of the FAO/WHO Expert Consultation on Diet, Nutrition and the Prevention of Chronic Diseases.

Annex I: ***Examples of food-borne hazards***

Biological hazards

- Zoonotic agents that may enter the food chain (e.g. *Brucella, Salmonella sp,* prions),
- Pathogens predominantly foodborne (e.g. *Listeria monocytogenes, Trichinella, Toxoplasma, Campylobacter jejuni, Yersinia enterocolitica),*
- Established pathogens emerging in new vehicles or new situations (e.g. *Salmonella enteritidis* in eggs, hepatitis A viruses in vegetables, Norwalk/Norwalk-like viruses in seafoods),
- Pathogens newly associated with food-borne transmission (e.g. *E. coli* O157:H7, *Vibrio vulnificus),*
- Antimicrobial resistant pathogens (e.g. *Salmonella typhimurium* DT 104).

Chemical hazards

- Naturally occurring toxicants (e.g. marine biotoxins, mycotoxins),
- Environmental or industrial contaminants (e.g. mercury, lead, PCBs, dioxin, radionucleides),
- Residues of agricultural chemicals such as pesticides, of veterinary drugs and of surface sanitizers,
- Toxic substances migrant from packaging or other materials in contact with food,
- New issues in toxicology (e.g. allergenicity, endocrine disruption from pesticide residues).

Physical hazards

- Foreign matter (e.g. pieces of glass or wood),
- Inedible parts of the food (e.g. pieces of bone, fruit stones).

Source: Adapted from FAO, Safe Food and Nutritious Diet for the Consumer, Box 1, p.4.

Annex II: ***List of FAO Programme Entities relating to food safety and quality: MTP 2004-09***

The programme entities have been grouped on the basis of their objectives or major output(s) as to their contribution to FAO's work on food safety and safety-related quality in either food standards (Codex) and related technical advice and capacity-building or good agricultural practices (GAP) and comprehensive food chain approaches.[15] A third group comprises borderline cases relating mainly to GAP that do not refer directly to food safety issues but which could do so in practice. The lead implementing divisions are identified. As these programmes are generally quite broad, it is not possible to estimate the allocation of resources within them to food safety and quality.

Group 1: Work relating mainly to Codex and food standards

221P2 Joint FAO/WHO Food standards programme (Codex Alimentarius) - ESN

221P5 Food quality control and consumer protection - ESN

221P6 Food safety assessment and rapid alert system - ESN

221P7 Public information about nutrition, food quality and safety - ESN

212P2 Pesticide management - AGP

233A4 Consumption, safety and quality of fish - FII

215P1 Capacity building and risk analysis methodologies for compliance with food safety standards and pesticide control and strengthened sanitary and phytosanitary measures through irradiation of food and agricultural commodities - AGE.

213A6 Veterinary public health management and food and feed safety - AGA.

Group 2: Work relating mainly to good agricultural practices (GAP)/ food chain approach

221P8 Food quality and safety throughout the food chain – ESN

[15] For further details, see the Medium Term Plan, 2004-2009, CL123/7

214A9 Enhancing food quality and safety by strengthening handling, processing and marketing in the food chain - AGS.

213A8 Technologies and systems for efficient natural resource use in livestock production - AGA

Group 3 Work related to GAP which does not specifically address food safety but could do so

210A1 Sustainable intensification of integrated production systems – AGD

214A4 Agribusiness development targeted to small and medium post-production enterprises - AGS