An Action Plan to improve SPS Capacity in Cambodia (STDF 246)

This paper makes recommendations on immediate and longer term actions to improve the working of Cambodia's management system for Sanitary and Phytosanitary (SPS) issues. It represents the principal deliverable of STDF project #246 "Developing an SPS Action Plan for Cambodia" funded by STDF for which FAO was the implementing agency, prepared over the period from May 2009 to April 2010. It explains the need to resolve mandates of the agencies involved in SPS-related control and certification activities. But it also suggests a way forward in other areas while these mandates are being resolved, most importantly in building technical and operational capacity.

GLOSSARY

3-MCPD	3-monochloropropane-1,2-diol (a contaminant of soy sauce)
ADB	Asian Development Bank
ASEAN	Association of South East Asian Nations
Codex	Codex Alimentarius
DAHP	Department of Animal Health and Production
DTIS	Diagnostic Trade Integration Study
EU	European Union
FAO	Food and Agriculture Organisation
FiA	Fisheries Administration
GAP	Good Agricultural Practice
GC	Gas Chromatography
GDA	General Department of Agronomy
GMS	Greater Mekong SubRegion
HPLC	High Performance Liquid Chromatography
ILCC	Industrial Laboratory Centre of Cambodia
IPPC	International Plant Protection Convention
ISO	International Standards Organisation
MAFF	Minsitry of Agriculture,
MIME	Ministry of Industry, Mines and Energy
MoC	Ministry of Commerce
MoH	Ministry of health
MRL	Maximum Residue Limit
NAL	National Agriculture Laboratory
NAVRI	National Agriculture and Veterinary Research Institute
OIE	Office International des Epizooties (World Organisation for Animal Health)
RGC	Royal Government of Cambodia
SPS	Sanitary and Phytosanitary (relating to the Agreement of the WTO)
STDF	Standards and Trade Development Facility
UNIDO	United Nations Industrial Development Organisation

EXECUTIVE SUMMARY

This report sets out the results of a project to draw up an SPS Action plan for Cambodia.

Originally the project was focused on support to export production and trade. However, following discussions with the nominated national task force, the final report takes a much more holistic view of the whole SPS system including import risk and domestic product and environmental safety alongside export-focused actions. The principle adopted is that export development (production, inspection and testing, and certification) will not be credible with trading partners in the absence of a functioning system of control for the quality of food and agricultural produce on the domestic market.

There are clearly issues of mandate to be resolved between the various ministries involved in food and agriculture in Cambodia. Although it is a fundamental problem, it does not affect all aspects of the SPS system – some mandates are clear and uncontested. ADB and MIME are currently (May 2010) working to resolve outstanding issues and this effort should be strongly supported by all ministries, in the interests of farmers, producers and consumers.

Where mandates are already clear, the responsible inspection services in many cases lack the resources, staff and management to perform systematic observation, sampling and testing. In order to build credible inspection – eventually funded through cost recovery from producers and traders - development assistance is needed over an extended period, to get the inspection services to the point where they can deliver a quality service. The core of the action plan is centred on the building of inspection and testing capacity along the food chain.

Finally, the issue of development of laboratory capacity has been studied in some depth. Despite investment in facilities and equipment, to date laboratory testing is not in a very advanced state in Cambodia.

One of the reasons for this is that inspection and testing has been sporadic and based on specific projects rather than part of a systematic programme of food control. Also the responsibility for carrying out laboratory tests has become associated in the minds of staff and managers with holding a particular mandate. It would be helpful to decouple the responsibility for performing tests (which is essentially a scientific matter of technical competence) from the responsibility for taking action based on test results.

In line with this thinking, clear recommendations were made to concentrate testing where tests require expensive and complex equipment in one laboratory on grounds of economy and scale. Laboratories performing less complex tests should continue to do so, but all such tests must be performed to international standards (ISO 17025). However, the national taskforce preferred to defer this decision, and create a small working group to study ways of sharing capacity, and continuing to invest in multiple laboratories. This approach could also work; in any case, making changes to improve capacity in this area depends critically on the nature of buy-in from the laboratory heads for any change. Principles have been set out for the development of a Laboratory Action Plan.

I INTRODUCTION

1 Following the Aid for Trade review of regional capacity building activities in the Greater Mekong Sub-region (GMS) in 2007, a study was commissioned by the Standards and Trade Development Facility (STDF) to determine the scope of an SPS Action Plan for Cambodia. This resulted in the funding of a project (STDF 246) of which this report is the main output.

2 The project has been led by an FAO team leader, with a full time national coordinator, international consultants (3) on laboratories, fisheries and plant production & protection, supported by national consultants (5) on various related assignments. The team has been supported by a national task force made up of nominated representatives of the Ministries of Commerce, Agriculture, Industry and Health (see Annex for names of task force members, national consultants and international experts)

3 The national task force has met on 7 occasions between July 2009 and March 2010, and has reviewed and commented on various intermediate outputs.

4 The project team has also liaised closely with other international agencies and the development partner community in Cambodia, and has worked closely with separate but related capacity building projects on SPS Management Systems in Cambodia funded by the Asian Development Bank (ADB) under a grant (CAM-0136) and on trade facilitation in the GMS (also funded by ADB).

5 The original project document stressed export facilitation and market access for Cambodian food and agricultural products. It proposed a methodology of examining sectors with potential to export, the value of potential markets (regional and international), the nature of SPS constraints associated with specific products and/or market requirements, and the measures which would be needed to overcome them. Although such an approach – based on "ring-fencing" of export quality production - can be successful, it is usually difficult to enforce dual standards for domestic and export production, when the gap between the two is high.

6 Government representatives made a number of requests at task force meetings not to focus solely on export facilitation through the above methodology but to address broader issues in SPS capacity building. Following consultation with the STDF secretariat, as a result of these requests, the final report includes a more rounded picture of capacity building needs in relation to consumer and production system risks.

7 The types of additional content include consideration of (i) import risks, (ii) the safety of imported produce and processed food to improve domestic consumer protection and (iii) capacity related to upstream product safety (at the primary production and/or processing stages). Overall, the report takes a food chain approach in looking at production (input quality and use), primary and secondary processing, transport and storage, and marketing. Building capacity to test and certify end products is of limited benefit to developing countries like Cambodia if production and processing systems are not geared up to produce quality products. Improved product testing should be backed by programmes to address any problems which are found, and cover the whole food chain.

8 The emphasis of the final report reflects these changes.

9 This report is structured as follows:

I INTRODUCTION

II SPS ISSUES FOR CAMBODIA'S FOOD AND AGRICULTURAL PRODUCTION

III ACTIONS TO STRENGTHEN THE CAMBODIAN SPS MANAGEMENT SYSTEM

IV NEXT STEPS

II SPS ISSUES FOR CAMBODIA'S FOOD AND AGRICULTURAL[1] PRODUCTION

Background

10 Cambodia joined the World Trade Organization (WTO) in 2003, making a commitment to gradually implementing the Sanitary and Phytosanitary (SPS) agreement by January 2008.[2] As a developing country with a significant proportion of the population engaged in agriculture, a number of studies were undertaken in the period 2005-2009 on how Cambodia could comply with, and benefit from the SPS Agreement.[3] Several areas of Cambodian agriculture and food production have been identified as having "potential" for increased export (rice, cashew, cassava, etc).[4] Data shows that these priorities continue to be reflected in recent trade data (Table 1).

Table 1: Cambodian exports ("mirror" statistics) for leading products[5]

HS code product (HS codes)	**2006 ($)**	**2007 ($)**
03 Fish fillet (0304)	5,399,967	4,581,148
Crustaceans (0306)	5,605,454	2,847,731
07 Cassava (0714)	0	1,264,815
08 Cashew (0801)	573,855	212,348
09 Pepper & chillies (0904)	78,975	413,472
Turmeric (0910)	164,489	316,244
10 Maize (1005)	2,788,446	9,175,966
Rice (1006)	3,011,175	2,302,826
11 Starch [cassava] (1108)	948,193	690,515
12 Soybeans (1201)	5,090,524	7,466,958
Oilseeds (1207)	1,091,278	1,155,918
15 Palm oil (1511)	1,698,785	2,080,471
sub-total	26,451,141 (61%)	32,508,412 (83%)
All products	43,543,297 (100%)	39,101,949 (100%)

[1] NB: throughout this paper the term "Agriculture" is assumed to cover crop production, livestock and fisheries
[2] WTO website contains all the necessary background http://www.wto.org/english/tratop_e/sps_e/sps_e.htm
[3] For instance: *Action Plan for Improved SPS handling in GMS cross-border trade*, ADB, 2009; *Review and Recommendations for Cambodia's Inter Ministerial Food Safety Committee*, Larry Copeland (for FAO), 2009; *Strengthening the Sanitary and Phytosanitary Services* (TCP/CMB/3104), FAO, 2009; *Improving Food Safety and its Management in Vietnam, Lao PDR and Cambodia* (GCP/RAS/207/NZE), FAO, 2006; *Revitalising and strengthening import and domestic food inspection programs in Cambodia*, Digby Gascoine (for GTZ), 2006; *Efficient and effective food safety arrangements for Cambodia*, Digby Gascoine (for GTZ), 2006.
[4] Diagnostic Trade Integration Study DTIS (2007)
[5] "mirror" data is derived from Cambodia's trading partners, being the sum of trade with Cambodia reported by neighbouring countries (data derived from the Global Trade Atlas, initially by DAI for USAID, 2009, kindly provided by USAID)

11 It is important to note (i) that these figures only represent formal trade, and (ii) that Cambodia's formal exports (above) are easily exceeded by formal imports which are typically of the order of $400m per year, the main categories being dairy produce, tea/coffee, sugar and alcoholic and other beverages. Imports of fresh produce – such as fruit, vegetables and nuts - comprise less than 3% of the total (around $10m).[6] The figures also highlight some interesting features – for instance, in 2007 in addition to rice exports, Cambodia also *imported* rice to a value of around $10m.

12 Agriculture can make a positive contribution to Cambodia's trade balance, generating foreign exchange earnings (and associated tax revenue), and *regional* trade seems likely to be a major driver of this. The establishment of the China-ASEAN Free Trade Area (signed Jan 2010) is just the latest development likely to boost exports of agricultural products within the region in coming years.

13 Since the onset of the global crisis - of soaring commodity prices followed by financial crisis and worldwide recession, from 2008 onwards - the traditional sources of growth in the Cambodian economy have come under pressure. Sub-sectors such as garment production, tourism and construction have all seen major downturns in demand. However, it seems that Agriculture may be one sub-sector which may beat this trend.[7]

Standards and trade

14 Although some sectors have potential, there are some barriers to realizing this export potential. For instance, international trade in food and agriculture-related products is governed by standards to ensure safety and quality. With some of the listed products, SPS considerations – related to product characteristics affecting quality or safety – could be a limiting factor for export. For instance:

- fisheries (concerns may include microbial or heavy metal contamination; histamine; biotoxins);
- cashew (…mycotoxins);
- fruit and vegetables (…pest infestation; pesticide residues);
- black pepper (…microbial and residue contamination);
- rice (…phytosanitary concerns with unpolished rice; pesticide residues);
- animal feed and/or biofuel feedstocks such as cassava, soybean and maize (… possible storage pests).

Many of the exported products are not particularly "SPS sensitive". However, some product categories are simply not exported – mango would be an example, where fruit fly infestation precludes any significant trade.

[6] this is consistent with the findings of Phan Oun in a study on imported vegetables and the tourist sector from a national consultancy conducted for this project – namely that there was only limited potential for import substitution, and for Cambodian farmers to capture further high value niche markets

[7] for instance, see the UNCT report on the impact of the crisis, November 2009.

15 The highest risks would typically be with fisheries products, and this is borne out by recent market access experience. The main problem areas have been sanitary conditions of fisheries products leading to a ban on Cambodian fisheries exports imposed by the EU in 2005; other trade/SPS issues have included phytosanitary concerns on shipments of rice to China (presence of weed seeds and nematodes); and contamination of residues and growth promoters on spices such as black pepper, again to the EU.

16 The list of potential concerns is quite broad, but these concerns are not new or particularly Cambodia-specific. Exporters world-wide face similar issues with these and other food and/or agricultural products.

17 Trading partners may ask to inspect premises or check local arrangements and systems for monitoring the presence of pests, pathogens and/or other contaminants in food and agricultural products, whether these are intended for domestic consumption or for export. They may offer technical assistance to comply with internationally-recognised standards.

18 In some cases, concerns expressed are scientifically-justified; in others they may be an excuse to protect the importing countries' own domestic producers.

19 The kinds of safety and quality requirements described above are codified in recognized international standards such as those of Codex Alimentarius (on food safety, residue and contamination levels, etc), International Plant Protection Convention (IPPC) or the World Organisation for Animal Health (OIE). Countries often use these standards as the basis for national legislation and implementing regulations.

20 These international standards would normally be considered mandatory for inspection of exports - compliance is a critical condition for market access. They also form the basis for sampling and testing in domestic food control. There is a close connection between domestic control and confidence of trading partners in export safety and quality. Partners recognize effective domestic food control is an indication that exported products are also likely to be safe, as it reduces the risk of lower "domestic grade" produce being included with higher "export grade".

21 A national SPS system needs to meet twin objectives – provision of a service to the private sector for exports, usually in return for a fee, and provision of a public good, namely ensuring that domestic consumers are protected from unsafe food.

22 Ideally what is needed is capacity for inspection, monitoring, testing and certification which can meet both of these objectives.

Inspection and certification

23 Some key definitions from Codex GL/26[8]:

- Inspection is the examination of food or systems for control of food, raw materials, processing and distribution, including in-process and finished product testing, in order to verify that they conform to requirements

[8] www.codexalimentarius.net/download/standards/354/CXG_026e.pdf

- Certification is the procedure by which official certification bodies and officially recognised bodies provide written or equivalent assurance that foods or food control systems conform to requirements. Certification of food may be, as appropriate, based on a range of inspection activities which may include continuous on-line inspection, auditing of quality assurance systems, and examination of finished products.

24 As far as exports are concerned, there is a need for credible certification of compliance with mandatory standards. This would require a transparent scheme of inspection and sampling, testing and documentation of test results. Capacity and resources may be an issue at each stage of the process. However, the key is private sector *demand* for this service.

25 One reason for the lack of export certification capacity in Cambodia may be that much Cambodian agricultural and food production is relatively small scale. Implementing a system of national monitoring and certification in such circumstances is expensive. At the same time, domestic investors may be reluctant to finance modern production or processing facilities to increase scale of operations without a guarantee of the kind of market access which certification could bring. This forms a kind of "certification trap", the result of which is that much of Cambodian export trade – with one or two exceptions – has tended to remain relatively small-scale and based on primary products.

26 Although national data are not always reliable, the current pattern of Cambodian trade in agricultural products seems primarily regional (with Vietnam, Thailand or China). Anecdotally, much passes through informal channels in small lots (such as rice or cashew exports to Vietnam, etc), or in the case of marine capture fisheries in Cambodian waters, is landed directly at ports in neighbouring country ports. One exception is with the US where there remains some limited trade in fisheries products.

27 One result of trade remaining informal is the loss of (tax) revenue to the Royal Government of Cambodia (RGC), but uncertified trade can also cause losses to producers, who are unable to charge a premium price for any good quality fresh produce they can produce in the absence of credible documentation.

28 Leaving aside the wider issue of the need for an effective food control system, there are several potential solutions to the problem of certification of Cambodian production for export:

- **outsource production and certification -** one way around this situation has been for foreign investors to invest directly in production, and apply internal quality (and documentation) standards to meet their own certification requirements. This has applied to fisheries production where one of the main processing facilities is owned by a Hong Kong based firm and supplies direct to the company's other processing plant(s); cashew may become another case, where supervised production on Cambodian land leased to private Vietnamese companies, will be marketed by the Vietnamese.[9]

[9] As reported, Phnom Penh Post, 4 January 2010

- **outsource testing/certification -** other countries within the region have laboratories capable of providing test results to international standards, notably Thailand and Vietnam, which producers could access, at a cost, and which could supply internationally acceptable test results for certain contaminants.

- **develop domestic SPS-related certification -** the third, longer term alternative is to introduce a credible scheme for local export certification of agricultural produce based on inspection, sampling and testing in accredited laboratories in return for fees.

29 All three options may be valid, and have been used to varying degrees. However, the two outsourcing options may reduce Cambodia's scope for domestic investment and growth in the medium term. If it can be implemented, and sustained, the third option - strengthening the Cambodian SPS management system – is the key to growth in exports of agricultural and food products.

30 Implementing a functioning domestic certification scheme would require:

- clear definition of responsibilities for checking compliance of specific standards
- education of producers, processors and traders engaged in export activity
- training and resourcing within the designated inspection services for sample taking and handling
- organisation of accreditation for testing services
- testing
- issuing of certificates (based on test results)
- institutional arrangements for retention of fee income by the testing facility for services rendered (to fund running costs of testing), for motivation and retention of technically-qualified staff and for replacement of large items of equipment

In some countries, such services have partially developed in partnership with the private sector (which can simplify the institutional arrangements, being outside the rules of governing public administration).

31 The potential benefit of a domestic certification scheme is export access for high value products in sectors such as fisheries, or fruit/vegetables. A conservative estimate of the annual value of a boost to exports from improved certification (based on production potential for some of the SPS-sensitive products in the DTIS list) might be of the order of $ 5-10 million per year.

Market access

32 There are a number of reasons why external trading partners may doubt compliance in products coming from Cambodia. Firstly, it must be said that the perception is rooted in empirical evidence of failure in some sectors (notably, but not limited to, fisheries).

33 Which markets could Cambodia realistically access? Many of the nearby (ASEAN) markets could be open to Cambodian exports of many of the above-listed products (table 1). Potentially higher prices, and a favorable tariff regime may also make the EU, Japan or the US markets attractive, for instance for fisheries products, tropical fruit or cashews.

34 Countries with shared land borders often have similar endemic pests and diseases, and so there would usually be little justification for restricting imports on pest or disease grounds. Pest problems with polished rice, animal feed or biofuel feedstocks are usually minimal. However there is currently a ban on Cambodian unpolished rice to be sold to China due to the presence of weed seeds and nematodes in shipments (see Annex 1: Phytosanitary Capacity Development by R. Khetarpal).

35 On the other hand, many of the ASEAN countries as well as the wider international markets have control systems in place for residues and other contaminants. ASEAN is also in the process of defining regional Good Agricultural Practice (GAP) standards.

36 As a result, to access these markets will increasingly need further investment in primary processing and quality assurance to support systematic product testing, likely to be checked by inspection visits to packing or processing plants. This investment can only be justified if the products to be tested are of sufficient value, or are produced in sufficient quantity and in large-scale lots to allow laboratory operating costs to be recovered.

37 In some cases, while ASEAN countries operate a slightly less strict regime for residue and contaminants than other markets (Annex 2), it is important to remember that this does not avoid the need for (sophisticated) testing procedures and equipment (even if the higher thresholds might reduce the number of rejected shipments).

Import risks – biosecurity and consumer protection

38 Under the SPS agreement, the corollary to ensuring that exports are considered safe by trading partners, is that imports should also be considered safe. Import risk assessment primarily involves consideration of potential risks associated with imports which could affect agricultural production/the environment (biosecurity risks), or consumers (principally food safety issues).

Biosecurity

39 In Cambodia, the same departments within the Ministry of Agriculture tend to be involved in import risk management as for export certification of primary produce, namely the Fisheries Administration (FiA), the General Department of Agronomy (GDA) and the Department of Animal Health and Production (DAHP)

40 Safeguarding biosecurity for Cambodia principally involves three main activities:

- monitoring the current pest and/or disease status of Cambodia, relating to imported plant products, live animals or fish, publishing official lists of pest and diseases present;
- understanding the status of the exporting country in order to understand the potential threats and assess the likely risks to Cambodia;
- undertaking inspections of imports of products from specific trading partners of heightened risk, and issuing notices of any non-compliance found

41 Over the past five years, plant pest surveillance has been encouraged through a number of projects, funded bilaterally or through FAO. However, the result is still a rather patchy understanding of the pest situation in Cambodia. The current animal health status of the country is that there are recurring outbreaks of swine fever, FMD and avian influenza suggesting all three are effectively endemic.

42 The history of border control by MAFF officials at Cambodia's main border crossings is rather unusual. In 2001, the government issued instructions to remove border inspectors from the main land borders. Animal health inspection by technical staff was re-instated, partly in response to Highly Pathogenic Avian Influenza in 2005-6, but phytosanitary inspection has not resumed.

43 Although this may appear to be highly unsatisfactory, it is also true that border inspection is not a particularly effective means of intercepting plant pests and diseases unless it is focused on risk and supported by diagnostic capacity. Land borders are notoriously porous, and pests from near-neighbours will almost certainly spread through informal trade or due to environmental factors, whether products are inspected at formal points of entry or not. The incremental risk is relatively low, and might be better managed through monitoring and communication in border districts on both sides of the border.

44 By contrast, major international points of entry for plants and plant products from further afield (other regions or continents) may be considered more likely to present the threat of introduction of an exotic pest or disease, with the potential to seriously damage Cambodian agriculture. This has been seen in other cases where fruit flies were introduced from South Asia to East Africa (*Bactrocera invadens*) or forest pests to North America from China (Asian Long-horned beetle).

45 Regarding prioritization of inspection, the highest risk products are usually considered to be seeds or planting materials such as cuttings, bulbs (garlic), roots and tubers or seeds, rather than traded end-products (such as fruit). This is because they are intended for introduction into the favorable environment of a production system, where they may easily pass on pests or diseases to other plants. One special category of high risk is the movement of exotic germplasm for research or production purposes.

Consumer protection (food safety)

46 The consumer protection risks involve checking that imported products comply with mandatory safety standards for additives, contaminants and are of a sufficient quality to be marketed. This should be the basis of a domestic food control system. Import control cannot, however, be more stringent than domestic control and checking.

47 The domestic food control system in Cambodia has been the subject of several capacity development projects over recent years. Review and reform of the main agency charged with food control, Cambodia Import-Export Inspection and Fraud Repression Directorate-General (CamControl) under the Ministry of Commerce, has been proposed. Technical equipment has been provided and training supported, but overall progress has been slow.

48 Sampling and testing of produce for sale on the domestic market is intermittent. Funds are usually made available in response to specific public concerns (such as 3MCPD contamination of soy sauce; melamine and milk-based products). Inspection seems more concerned with raising revenue in terms of fines and penalties (usually for bureaucratic oversight), than improving product quality.

49 In the absence of a domestic food control system, tightening import checking could be subject to an international challenge as being discriminatory.

50 In summary, from an initial review it seems that export testing and certification, import risk management and domestic food control could all be strengthened in Cambodia.

51 The next section identifies at a high level some of the problems with responsibilities which affect the Cambodian system (and which are being addressed by the ADB project, ADB –CAM 0136). It also proposes some specific areas for support, in the development of capacity for inspection and testing which are urgently needed.

III ACTIONS TO STRENGTHEN THE CAMBODIAN SPS MANAGEMENT SYSTEM

52 This section sets out the substance of the Action Plan for strengthening the Cambodian SPS management system over the next 5 years (to end 2015).

53 As a reminder - two points of definition:

- Action is intended to cover actions for government, in some cases supported by targeted technical assistance from development partners.
- SPS management covers the full range of activities relating to both biosecurity[10] (animal health, plant health) and food safety aspects.

54 Although this plan was commissioned by the Ministry of Commerce (with funding from WTO), actions needed affect functions managed by each of the four main ministries currently involved in SPS issues (Commerce, Industry, Agriculture and Health).

55 The challenge is to address both issues of fundamental reform, and incremental operational improvements to existing arrangements. The aim is to chart a way forward to a modern SPS management system in the interests of Cambodia's farmers, food processing industry, exporters and domestic consumers.

56 This section is divided into two principal parts:

- the first recommends a process by which the government can reach some key strategic decisions on the future of food and agricultural control in Cambodia to improve coverage of the whole food chain; this might include institutional reform, but other options are also possible. It is anticipated that this process will take some time.

- the second part of the section concentrates on strengthening technical functions which will be needed independent of any strategic decisions which are taken. Once technical capacity has been improved – which will require a 3-5 year timescale, it can be deployed to match decisions on responsibilities of particular institutions and on communication and information-sharing.

Part 1: Key strategic decisions

57 The key strategic question to answer is: what type of SPS management system does Cambodia want to move towards over the next five years?

58 First, there is a need to understand the case for change. The *status quo* is characterized by:

- lack of clear vision of desired system, or the pathway to get there

[10] Biosecurity is a strategic and integrated approach to analysing and managing relevant risks to human, animal and plant life and health and associated risks to the environment (FAO, Biosecurity toolkit, 2008). Generally, the term is in much wider use than the environmental impact of GMOs with which it has been largely associated in Cambodia

- problems in the definition of responsibilities - although primary mandates of the various agencies are clear, some of the agencies involved are in disagreement at the margins (where there is the potential for overlap with other ministries)
- lack of systematic inspection or monitoring (incorporating risk management principles) in all key areas of production and processing, with an impact on product quality and safety – most 'inspection' to date has had an objective of raising revenue rather than controlling quality and/or safety
- an absence of systematic laboratory testing to support inspection due to limited human and financial resources (for investment and to provide running costs)
- certification and related costs to the private sector which do not add any value as they are not backed by testing, and are not accepted in export markets

59 Overall, responsibilities are fragmented, between and even within ministries. However, the reality is that the capacity to discharge those responsibilities in practice is extremely limited.

60 Modern systems for SPS management tend to bring together (well trained) specialists in the different aspects of management of the food chain[11] into a limited number of organisations.

61 The concern to take a whole food chain approach has been prompted by the many instances of food safety breakdown that have occurred over the past two or three decades, the most prominent of which recently was contamination of milk and milk products with melamine (2008-9). Analysis of these events indicates that control of food safety is achieved most efficiently and effectively by adoption of a farm-to-table approach.

62 The purpose is to ensure consistency and avoid specialists working in isolation, where taking too narrow a view can prejudice the food chain further downstream. This can be achieved by institutional reform, or by other means of improving communication or information sharing.

63 The aim should be to address the twin objectives of biosecurity and consumer protection (food safety).

64 To illustrate:

biosecurity

65 A few countries have set up national biosecurity agencies to ensure common approaches to inspection, monitoring, testing and regulation, both for imports and exports of fresh produce, livestock and animal products; fish and fisheries products. In some cases, they include all inspectors (plant and animal health together) partly in an attempt to make inspection at borders more efficient, and have developed methods, for instance for imports which are based on pre-border clearance, border clearance and post border checking.

[11] The phrase "food chain" refers to the sequence of activities from production or import of food, through processing to wholesale and retail sale or export and consumption.

66 In other countries, however, protecting agriculture and the environment has remained a dispersed responsibility, but communication mechanisms have been put in place to ensure all those responsible for quality assurance and managing risks to production in the food chain are well-informed, clearly understand their respective roles, and understand changing patterns of risk. These mechanisms may involve meeting on a regular basis; using common information tools; undertaking common training; developing joint procedures and/or better defining handovers of responsibility.

67 Factors to consider when deciding which national approach to biosecurity to adopt may include the number and nature of entry points; the nature of agriculture and food production, and trade flows (with associated risks); the institutions which exist at decentralised (local or provincial level) which could assume biosecurity-related functions; available resources (including development partner support), etc.

food safety

68 To improve consumer protection, some countries have created some form of "stand alone" Food Safety Agency. Such an agency would usually bring together inspection, monitoring, testing and regulatory functions along the food chain from production to food processing, distribution, marketing and consumption.

69 Given the broad scope of food chain risk management, such an Agency may be created as an independent entity. Reporting might be to either an inter-ministerial body or a senior independent minister, perhaps in the prime minister's office. The responsibilities of such an agency would typically regroup the following functions:

- monitoring of food at all stages in the food chain from production to consumption (and including processing, transport and storage, surveillance of foods in domestic markets, including restaurants)
- regulatory powers to issue penalties or take further action in the case of non-compliance (including large scale cases of food chain contamination)
- sensitising all actors in the food chain to potential sources of risk
- the adoption of food standards, the Codex contact point and the secretariat of the National Codex Committee;
- monitoring imported food at the border;
- laboratory testing (either in-house, or as a service provided by other facilities in the public or private sector)
- export certification of foods to meet importing country requirements, in response to requests from the private sector

70 Under this sort of model it is quite common for the Food Safety Agency to share some responsibilities with the Ministry of Agriculture, on the basis of clearly understood agreement.

71 Again, however, this is not the only model which can be adopted and others have managed to improve the management of risk without undertaking major institutional restructuring. This can be achieved through effective inter-ministerial collaboration through committees, use of common information systems, training, staff rotation, etc.

* * * *

72 It is recognised that there have been previous attempts to consolidate responsibilities in Cambodia, such as in the creation of a single food safety agency, which failed. However, the problem of managing risk in the food chain remains. There are many different models in use worldwide – a single agency is not the only option. Therefore it is proposed that it would be helpful for Cambodia to study options in use worldwide, and decide a practical course of action which might be workable for Cambodia.

73 What practical steps are needed to prepare for the future (2010-2015) and move towards an integrated efficient system using contemporary methods and preparing to support enhanced export activity and improved consumer protection? The immediate recommendation is to undertake a small, very high level project to study options and make a recommendation on a strategy to follow. Implementing the recommendations becomes a second larger project.

- A small, very senior group of officials with the confidence of the ministers needs to study options urgently (with outside technical advice and facilitation), and consider which biosecurity and food safety options would be most suited to Cambodia in the medium term.

  External partners (such as FAO) could support this process with an active programme of advocacy (seminars, working papers, information exchange events), to improve general understanding of food chain issues (both technical and socio-economic). This would highlight some of the areas of current concern and identify possible policy options to improve food chain control.

  The senior officials would be expected to make recommendations to an inter-ministerial committee, with final decision being made at the highest level of government.

- Once a strategic direction is decided, an implementation plan will need to be developed which details which institutions will need to change and/or the basis for collaboration to ensure food chain oversight. If this does involve institutional change, this is likely to be a major undertaking.

74 Both the process of deciding strategic direction for Cambodia and the one-off investment needed for planning and supporting the implementation would be likely to attract development partner support. The implementation pathway is likely to take up to 5 years.

75 Throughout it is important not to lose sight of the objective – to strengthen SPS management in the interests of managing import risks, domestic consumer protection and enhancing export market access.

Part 2: Strengthening current functions

76 Although the precise future strategic direction is not yet charted, already some of the elements needed are clear. The most obvious is the need to start work on building technical and managerial capacity. Capacity built at this stage will not be lost; food

chain inspection, monitoring and testing capacity can take years to develop and will be necessary whatever decisions are taken on allocating resources after eventual consolidation. However, for this to be effective, both the strategic direction and the interim capacity building components would need to be managed as one programme.

77 Extensive background documentation from 2005-2009, and the national and international consultant reports commissioned for this action plan, document the main areas for improvement within the current Cambodian SPS management system. Interviews and task force meetings have confirmed the analysis of the problems faced (identified earlier). The basic finding is that there is a widespread need for capacity building across all areas of SPS management in Cambodia, but particularly in inspection, monitoring and testing.

78 The proposed plan of action requires both support from RGC and catalytic technical assistance from development partners and agencies.

79 What is needed is a coordinated programme of capacity building, particularly for public sector inspection, monitoring and testing along the food chain. If administrative arrangements can be resolved, this can be sustained at least in part from income from the private sector for training and certification services provided. However, those services need first to be developed, and demonstrated, in order to be valued.

80 For reasons of eventual sustainability, it is crucial that a strengthened Cambodian SPS management system serves the needs of the private sector, and incorporates private sector-led initiatives and services (dealer and industry associations, laboratory and testing service providers, exporters). Significant development partner support will be needed over a 3-5 year period, while promoting these private sector linkages.

81 Some important principles to keep in mind:

- investment in equipment, buildings or even training is not useful if it is not part of an overall system of checking quality and safety of products
- detecting failures once products reach the market or are ready for export is inefficient; quality assurance should start at primary production sites and apply all along the food chain
- sampling and inspection of products should be part of an overall strategy for control based on an understanding of potential risks
- there is a need for clarity regarding the inspection, testing and regulatory functions. Those being inspected need confidence that testing is independent.

82 The overall *goal* of a programme to strengthen SPS systems in Cambodia in the short-to-medium term should be to develop underlying capacity in inspection and testing in SPS-related fields in such a way as to be unaffected by subsequent institutional reform.

83 Three main outcomes are needed to address the kinds of weaknesses identified above and achieve this goal:

- definition of responsibilities insofar as it is needed to carry out basic inspection and monitoring of sanitary and phytosanitary risks, and food safety and quality
- capacity building for inspection (designing programmes, developing procedures, training, carrying out field inspection or sampling, etc) supported by process improvement activities – all this needs to be in the context of a coherent programme for each agency involved, with proper operational planning
- capacity building for testing (upgrading testing capacity, and linking to inspection programmes). Laboratories should not be upgraded unless there is a clear and priority need to run them linked to operational programmes

Responsibilities clarified (current situation)

84 Although the issue of ministerial mandates is widely assumed to lie behind the weakness of Cambodia's SPS management system, in many areas of food or agricultural production and marketing, there is limited overlap in responsibilities. Basic texts set out that essentially:

- MAFF is responsible for primary production quality (crops, fisheries, livestock);
- MoC (CamControl) for market surveillance within Cambodia, and for food safety in particular;
- MIME for local food processing;
- MoH for prevention of food-borne disease.

85 This situation can be used to define inspection and control responsibilities in many (if not all) cases.

86 However, in some areas, Ministries would like to expand their areas of responsibility to ensure more complete coverage and fully address the problems which occur within areas of their main mandate. To illustrate, some of the possible areas of where ministries may see overlap are:

	MoC	**MIME**	**MAFF**	**MoH**
MoC		food safety in processing	residue monitoring;	food-borne disease, sale of food
MIME	food safety in processing		primary/secondary processing	worker health in processing
MAFF	residue monitoring;	primary/secondary processing		zoonosis; field hygiene
MoH	food-borne disease, sale of food	worker health in processing	zoonosis; field hygiene	

87 Taking the case of residue monitoring – a current cause of concern - as an illustration, both MAFF and MoC can have an *interest* in levels of eg pesticide residues in marketed fresh produce. However, their interest has a different *purpose*.

MAFF's interest in pesticide residues is to check whether farmers' usage of pesticides is consistent with recommendations (form used, frequency, pre-harvest intervals, etc). In the event of problems, MAFF would follow up with farmers to ensure appropriate corrective action.

MoC's interest in pesticide residues is to ensure that products are safe for consumers. MoC has a regulatory function, and can impose sanctions (fines) on vendors if products are not compliant with residue limits. The result should be that vendors have a vested interest in demanding safe product from producers, (reinforcing the agricultural extension messages from MAFF). Consumers also have confidence that produce purchased from periodically-inspected vendors is more likely to be safe (ie with levels of residue or other contamination within expected norms).

[NB: both groups need to get data on pesticide residue levels from a survey of products which have been marketed; clearly it doesn't make sense for two different units to carry out the same tests]

88 Similar arguments apply in the other areas of overlap or common concern such as processed food. In this area MoC is concerned about processed products being offered for sale with contamination, and so will sample (and arrange testing of) processed products on the market. However, MIME has the regulatory responsibility to inspect processing facilities, check process control systematically and withdraw licences to produce processed food in the case of non-compliance. In this way, the market surveillance validates the checks done on processing.

89 Principal food chain responsibilities are set out in the table below. In attempting to resolve current overlaps in the mandates of the ministries involved in food and agricultural production and marketing, work must be carried out jointly. Previous (repeated) unilateral attempts at clarification have not been successful.

90 Table 1 shows a picture of the current allocation of responsibilities based on a study of the legal texts. It is an attempt to state the ACTUAL situation and NOT a recommendation for future allocation of responsibilities.

91 This work has been undertaken by ADB (in 2009-10), hosted by MIME. It is strongly recommended that this work be fully supported by the other line ministries. One result of this work should be a new *Inter-ministerial Prakas* as part of a general process to:

- resolve jointly (with external expert facilitation if necessary) any outstanding issues on mandates of the various government agencies involved in the control of food and agricultural products
- draft and adopt texts on control
- strengthen the basis for inspection in Fisheries as well as the Consumer Sector
- draft the implementing regulations

92 It should be noted that once RGC has resolved the various strategic decisions set out in the first part (paragraphs 56 to 74) , these implementing regulations may need to be updated. The aim at this stage is to strengthen working arrangements for (ii) inspection and monitoring and (iii) testing in the short to medium term, so that when the path is decided for longer term modernization, the "building blocks" for key SPS functions have already been created.

Table 1: CURRENT responsibilities of ministries in food production and distribution (draft, ADB)[12]

	MAFF	MIME	MoC	MoH[13]
Production				
Official Requirements (Residue Limits)			x	
Codes of Practice	x			
Agricultural inputs - Fertilizer /Vet drugs standards/ feed/ seeds	x			
Chemical Controls (registration, quality monitoring import)	x			
On farm Control	x			
Zoonosis, disease and pest surveillance	x			
Traceback, emergency response	x			
LMOs, GMOs	x			
Export Inspection	x			
Food import				
Official requirements (National Food Standards)		(x)	x	
Pre Border Inspection			x	
At border inspection (doc Check, food insp. & testing)			x	
Post Border Registration of importers, traceability			x	
emergency response			x	
registration of food/first time clearance			x	
Primary processing				
Official requirements	?			(x)
Code of Practices	x			(x)
Licensing of premises	x			(x)
Inspection of Premises Export Inspection	x			(x)
Licensing of Business	x			(x)
Traceability	x			(x)
Secondary processing				
Official requirements	F,A[14]	x		(x)
Code of Practices	F,A	x		(x)
Licensing of premises	F,A	x		(x)
Inspection of Premises	F,A	x		(x)
Licensing of Business	F,A	x		(x)
Traceability	F,A	x		(x)
Transport and storage				
Official requirements	P	S		
Code of Practices	P	S		
Licensing of premises	P	S		
Inspection of Premises	P	S		
Licensing of Business	P	S		
Traceability	P	S		
Marketing				
Official requirements	F,A		x	(x)
Code of Practices	F,A		x	(x)
Licensing of establishments	F,A		x	(x)
Licensing of Business (small, large)	F,A		x	(x)
Inspection of Markets (formal, informal) shops	F,A		x	(x)
Food export				
Official requirements of importing Countries	P		S	
Competent Authority Export certification	P	S		
Licensing/certification of premises	P	S		
Traceability	P	S		
Consumer sector				
Labelling Rules			x	
Codes of Practice				(x)
Official Requirements				(x)
Inspection				(x)
Testing				(x)
Traceability				(x)
Emergency response				(x)
Education				(x)
Monitoring foodborne disease				(x)
Tourist food/restaurants				(x)

[12] excludes Ministries of Environment (LMOs/GMOs) or Tourism (consumer sectors) or Customs (border inspections)

[13] MoH does not have a national legal mandate for involvement in food control but is supported by municipal laws in some cases ((x) indicates areas where a mandate is needed)

[14] F: Fisheries product; A: Animal product; P: Primary product; S: Secondary product

P**rogrammes of food chain management, inspection and monitoring implemented**

93 Inspection and monitoring aims to establish the degree of compliance of the food chain with international food safety (and quality) standards. It can serve a twin purpose, as stated above. *Inspection is the basis for regulation ("policing" the sector), but it is also an opportunity for extension – teaching producers or other actors in the food chain practical lessons on risk management.* Formal regulatory intervention (applying penalties) should almost be seen as the last resort. The *preferred* approach should be for official inspectors to improve and facilitate conformity with official requirements. If necessary a formal system of warnings prior to issuing of penalties can be adopted.

94 Considerable work is needed to strengthen the general areas of inspection and monitoring in Cambodia. The aim is to have an effective national food control system which can support efforts to gain market access for Cambodian products elsewhere.

95 It should also be recognised that improving inspection alone cannot guarantee export success. Inspection must stimulate process improvement along the food chain, and so indicative process improvement activities are also included in the action plan. The private sector must be active in seeking to improve safety and quality in order to comply with requirements, and to identify export opportunities.

96 In moving towards a more effective set of arrangements for food safety and biosecurity, there is a concern that increased regulation will increase costs for producers and that these will be passed on to consumers. Private sector involvement in defining the timetable for applying food safety standards is important. Consumer awareness is also a factor; with better knowledge of the risks involved, Cambodian consumers can demand a similar level of protection to that enjoyed by their neighbours in the region. If standards are applied, companies may come to welcome them as a tool to distinguish (their) high quality and safely-produced products from lower quality material in the market.

Stages in food chain inspection

General	0. General management of inspection activities
Production and Primary processing	1. Inspection relating to distribution and use of fertilisers and pesticides
	2. Quality of primary processing through inspection of processing facilities
	3. Phytosanitary inspection
	4. Sanitary inspection of fisheries and fisheries products
	5. Animal Sanitary Inspection (Animal Health and Production)
Secondary processing	6. Quality of processed food through inspection of food processing facilities
Distribution	7. Quality Assurance in food transport, handling and storage
Marketing	8. Quality control of marketed food products
	9. Certification arrangements to support particular sectors with market access issues on food safety grounds
Consumption	10. Inspection relating to food safety in the consumer sector

97 Each item listed below can provide an outline for some form of project activity, including wherever possible the outcomes to be achieved. Not all are the same size or of the same complexity, while in some cases work is already ongoing. The Action Plan aims to set out 'the big picture'.

98 The next stage of work (see Next Steps section below) will involve identification of gaps and development of programmes to be funded. The first need is to strengthen programme management associated with inspection activities system-wide.

0. General management of inspection activities – there is a pressing need to improve planning of risk-based inspection activities in all Cambodian agencies involved. Work is needed to create strategic plans, supported by operational planning (identifying resources, addressing constraints) and individual/work unit planning, for each of the agencies involved in the SPS system.

A second general need is to ensure that technical staff are up-to-date with the latest technical material in their subject areas. Work should include training to strengthen individual technical skills, language ability (much of the latest material is primarily available in English), providing better information access.

A further high priority – in each agency involved – given a commitment to inspection and extension - is to create a cadre of highly trained inspectors who have the capacity to assist and guide the private sector themselves, and to train their peers.

Finally there is a need to heighten public awareness of safety in the food chain, of biosecurity risks and of SPS issues in general. Communications should target all stakeholders. For instance, producers, processing, traders and consumers and focus on specific hygiene/safety issues. For biosecurity risks, producers, inspectors, traders. Effective means could include television, radio, news media, schools, poster campaigns in and around markets, etc.

99 Taking each part of the food production and distribution chain in turn, the kinds of support needed are set out below

1. Inspection relating to distribution and use of fertilisers and pesticides[15] – establishment of/support to an effective programme on inspection relating to agricultural inputs for (1.1) the quality control of the distribution, (1.2) monitoring, and for (1.3) the promotion of their appropriate use.

1.1 Input dealer quality assurance: On the input dealer side, this would usually include:

- ensuring that draft laws are enacted on the regulation of agricultural materials (reference MAFF, Department of Agricultural Legislation)

[15] other production inputs such as seeds (3), feed for aquaculture (4), and animal feed (5) are covered in the sections indicated

- setting quality criteria for the inspection of input dealers, based on eg the agreed International Code of Conduct for the Distribution and Sale of Pesticides (FAO)
- training and outreach regarding quality standards for input dealers (including support to the creation of dealer networks or associations)
- training a limited number of specialist inspectors within MAFF
- providing resources to carry out periodic systematic inspection of input dealers (note inspection should also cover quality of seed and fertiliser)
- testing of samples of inputs
- issuing of certificates to dealers

1.1 The outcome would be to reduce the quantity of poor quality (inactive, contaminated or diluted) pesticide sold, and to ensure the pesticide is only sold for appropriate usage. Farmers would also benefit from improved quality of seed and fertiliser. Over time an indicator would be the number of dealers retaining certified dealer status.

1.2 field monitoring of product safety: regarding appropriate use of inputs, much work has been previously undertaken regarding use of IPM and reduction of pesticide risk. However, anecdotal evidence is that pesticide overuse remains a serious problem. Here, key tasks could include:

- establishing a baseline on pesticide residues through a systematic national survey on pesticide levels in marketed produce (sampling in association between MAFF and MoC, to be periodically repeated; testing by reference laboratories with capability inside/outside Cambodia), with particular reference to GAP
- using baseline to establish priorities for action with producers (products, regions)

1.2 The outcome would be an indicator of pesticide overuse, and help target information and capacity building activities.

1.3 Enhancement of safe crop production: - based on results from field monitoring and market surveillance, inspection should be linked to process improvement:

- extension visits, study tours, and other activities to introduce new or improved farming practices
- undertaking training, education/field schools
- promotion of GAP principles
- communications on impact of pesticide over-use (and misuse), and alternatives for eg pest control
- support to farmer associations

1.3 The outcome would be measured in terms of reduction in pesticide levels in marketed products, through repeated national surveys (MAFF together with MoC, every 2-3 years).

2. Quality of primary processing through inspection of processing facilities –this should include activities to improve monitoring and surveillance of primary processing (excluding meat and fisheries):

- clarify legal basis for inspection of primary processed products
- providing support to the primary processing industry for the implementation of quality assurance systems
- training of inspectors as quality system auditors
- implementing a programme of assistance to businesses to develop requests for investment and/or prepare business cases for upgrading of infrastructure to meet safety and quality standards

2. The overall outcome will be further improvement to the quality of primary processing in Cambodia, measured in terms of quality of processed primary products on the domestic market (as with fresh produce, a baseline survey – periodically repeated, requiring collaboration between the ministries involved - is an important starting point).

3. Phytosanitary inspection[16] – a strengthening programme for phytosanitary inspection and monitoring services will include the following actions:

- Legislative framework – completion of work to adopt a new Phytosanitary Law to provide the basis for inspection
- Import inspection and export certification systems – procedures to support inspections, based on planned, risk-related criteria
- Pest diagnosis – pest identification, equipment/procedures for confirmation and systems to record pest-related information
- Pest surveillance – to draw up and maintain a pest list (which determines action to be taken in case inspection results in an identified pest), requiring collaboration between central government, provincial departments of agriculture and research institutes
- Pest Risk Analysis - human resource development, risk profiling of imported commodities and risk communication, formation of technically competent PRA team(s) in collaboration with CARDI, information management and exchange systems.

3. The outcome should be a reduction in both numbers of cases of restricted market access for Cambodian plants and plant products, and in numbers of invasive plant pests and diseases established in Cambodia, although these are not necessarily all trade-related.

4. Sanitary inspection of fisheries and fisheries products — enhance sanitary inspection system along the whole food chain including:

- Improvement/establishment of legislation to support inspection

[16] These recommendations are drawn from the concluding outputs of FAO TCP CMB /3104 (2009)

- Improve, conduct hygiene inspection on fisheries products and production
- Conduct sampling or testing for residues or contaminants on fisheries feed, fish and fisheries products
- Improve quality of inspection and certification of fish and fisheries products
- Design and deliver capacity building activities on inspection, especially fish and fisheries products inspection for fisheries officials at central and provincial level
- Monitoring and surveillance of fisheries diseases, pests and parasites
- Environmental monitoring (water quality, parasites, invasive aquatic plants, etc)

4. The outcome should be improved quality and safety of domestically-marketed fisheries products – with declining levels of the main contaminants. Production specifically for export should be subject to a separate specific programme (see below).

- Improve import-export inspection procedures

5. Animal Sanitary Inspection (Animal Health and Production) – enhance sanitary inspection system along the whole food chain including:

- Improvement/establishment of legislation to support inspection
- Improve, conduct hygiene inspection on meat, meat products and meat production
- Conduct sampling or testing for residues and contaminants on animal feed, meat and meat products
- Improve quality of inspection and certification of animal and animal products
- Design and deliver capacity building activities on inspection, especially meat and meat products inspection for veterinarian officials, at central and provincial level
- Monitoring and surveillance of animal diseases
- Improve import-export inspection procedures

5. The outcome should be reduced levels of animal disease in the livestock population, particularly connected to imports - provided corrective action is also taken in the case of disease diagnosis (suspected or confirmed) - as well improved quality and safety of marketed meat and livestock products (subject to testing of marketed produce)

6. Quality of processed food through inspection of food processing facilities – activities to improve monitoring and surveillance of secondary food processing are already well in hand in MIME. However, additional strengthening is required as follows:

- clarify legal basis for inspection of secondary processed products
- providing support to the food processing industry for the implementation of quality assurance systems as an adjunct to inspection
- training of inspectors as quality system auditors

- implementing a programme of assistance to businesses (with chambers of commerce, industry associations or other bodies) to develop requests for investment and/or prepare business cases for upgrading of equipment to meet food chain safety and quality standards

6. The overall outcome will be further improvement to the quality of food processing in Cambodia, measured in terms of quality of processed food on the domestic market (as with fresh produce, a baseline survey – periodically repeated, requiring collaboration between the ministries involved - is an important starting point).

7. Quality Assurance in transport, handling and storage – transport, handling and storage is not a major focus of control at present in Cambodia. A study is needed to examine the need for inspection and improved quality assurance in food transport, handling and storage. In this field, regulatory action would not normally be needed. The private sector has ample motivation to minimise spoilage and waste of fresh produce. However, there is a need to focus on inspection of activities with a potential public health impact, such as the safe transport of milk and meat products, or which support export activities (such as cold storage) where guidelines would be needed. Phytosanitary concerns include storage pests, and possible residues or contamination as a result of fumigation and treatment, contamination on vehicles and associated with wood and other packaging materials. Animal health concerns regard risks in transport of live animals (with risk of spread of disease) and animal welfare. Movement of fingerlings and brood stock in fisheries may also carry risks of disease spread.

8. Quality control of marketed food products – requires (8.1) establishment of an effective programme of inspection and testing of both fresh and processed food, (8.2) transparent regulatory action and (8.3) effective collaboration with regulators of primary production, primary processing and secondary processing sectors for traceability purposes. This will require collaboration between MIME, MAFF, MoC, and MoH; the clarification of the respective roles of these partners is the subject of the work being undertaken by ADB, through MIME, referred to in the previous section.

8.1 Effective system of inspection: This will depend on design and implementation of a programme of food control. The elements are:

- design of a risk-based programme of inspection, with a pre-defined plan (covering both imported and domestically-produced food), supported by training in risk assessment.[17]
- training of inspectors in the principles and practice associated with food control
- conduct of inspections (and sample-taking where appropriate) in line with planned activities, following agreed protocols.
- simple testing of products for chemical and microbiological contamination, using methods designed to show presence but not provide a quantitative result. If

[17] There is no particular case for differentiation of imported foods; imported food should meet the same standards as local food. However, improved communication (government agency to government agency) on products which are subject to restrictions (on safety grounds) in neighbouring markets could help target inspections.

possible, these should be field kits, dipsticks, etc using modern detection methods (confirmed, if necessary, using laboratory methods)
- developing capacity to monitor results, manage information, report on the inspection process and undertake trend analysis on local food safety issues

8.1 The outcome should be an ongoing set of indicators of the safety of marketed food to target improvements in production, processing and handling.

8.2 Transparent regulatory action: for transparency, vendors must understand regulations and potential sanctions in case of non-compliance. Associated procedures must be applied consistently. This will take:

- a programme of communication and awareness on the requirements of new food safety laws or regulations
- definition of procedures particularly relating to non-compliance, including information recording
- development of a simple information system to record non-compliance
- inspectors trained in the new procedures, including issuing of penalties
- introduction of a formal system to register any complaints, to investigate and to audit inspection activities to ensure inspectors do not exceed their powers

8.2 The outcome here should be that, as a result of transparent regulatory action, vendors apply pressure to ensure that processed food or fresh produce is not contaminated, and so non-compliance reduces.

8.3 Investigation of non-compliance, traceback and collaboration with other line ministries involved: in cases of non-compliance, there will be a need to investigate causes, particularly if there seems to be a systemic failure for certain products/production systems. In the most extreme situations there may be a need for be some form of measured emergency response (recall or destruction) to re-assert control over the food chain. This will require:

- management of information on non-compliance and identification of any patterns emerging
- joint training with other ministries on practice for carrying out investigations, and risk management in the food chain
- management decision on priority food safety investigations to be carried out
- investigations to be carried out, in collaboration with other agencies to reach joint decisions on regulatory action required, and corrective action to be proposed

8.3 The outcome should be creation of a system which permits rapid elimination of non-compliant food from the market, and through corrective action the subsequent prevention of repeated occurrence.

The control of imports and exports for biosecurity (animal health, plant health, etc) risks is already covered under the relevant sections above. The control of food safety

of imported products is subject to the same conditions as are applied to domestically marketed products (also see above).

9. Certification arrangements to support particular sectors with market access issues on food safety grounds (a possible example being fisheries); certification arrangements are needed, suitable to the main markets which producers will access. A detailed study is needed to propose certification arrangements for fisheries exports in discussion with the private sector, and arrangements for any necessary shared financing (private sector and ministry) put in place.

10. Inspection relating to food safety in the consumer sector: there is a need to study and determine the best arrangements for more systematic health inspection relating to monitoring of food-borne disease in the consumer sector (including tourist hotels, restaurants, etc). A programme is needed to:

- draft and implement a new law on food safety in catering establishments
- expand the current pilot programme of restaurant inspection (which so far covers 70 restaurants in Sihanoukville) to Phnom Penh and Siem Reap
- conduct associated training (and training of trainers) on good hygiene practice for both restaurants and SMEs in the food production sector (the latter in consultation with MIME)
- ensure conformity with the rules on labelling and advertising of milk products (e.g., infant formula)

10. The outcome should be progressive reduction in food-borne disease associated with the catering sector.

* * * *

100 In summary, clearly the different areas along the food chain are quite diverse, and at different stages of advancement. As a result, the capacity development projects which are needed vary significantly in complexity, and so resources devoted to each area will not be equal.

101 Any projects undertaken in these areas should contribute to building capacity in a sustainable manner. Sustainability comes not from repeated external funding (for instance from development partners) but from both a long term government commitment, and supporting interest from the private sector.

102 A number of the actions identified include improving the awareness of the private sector on risks, requirements, good practices, etc. In developing implementation plans associated with this action plan due consideration should be given to the active engagement of the private sector.

103 To attract the interest of the private sector, a significant period of initial investment (by the government, assisted by development partners if necessary) is needed to develop quality inspection, monitoring and testing services. Only once these exist and are fully appreciated would the private sector be expected to pay for these services.

Quality of laboratory testing improved

104 In addition to clarification of responsibilities, and developing inspection capacity along the food chain, a third major area where capacity building work is needed in the short term (to support whatever long term arrangements are made for food control) is national laboratory testing capacity. It is a general point that creating sustainable laboratory testing capacity has been notoriously difficult in developing countries. On many occasions, in developing countries (and in all regions), development partners have funded buildings or provided equipment, but have found that once the project is over the laboratory does not perform as expected.

105 The reasons for this can include:

- lack of technically-skilled and motivated staff
- absence of laboratory management skills (including quality assurance)
- no supply of reagents and other laboratory consumables nationally
- lack of funds for reagents and running costs (power, water)
- no maintenance or spare parts for donated hi-tech equipment available nationally
- no programme for taking samples to be tested

The issue of samples is generally acknowledged to be critical (underlined by both the consultants on this project and on the ADB project CAM-0136). Hence the insistence on an effective inspection programme in the previous section.

106 In 2007, the World Bank and UNIDO hosted a workshop to examine lessons to be learnt. One key learning point which may be relevant to Cambodia was that *in virtually no country has the setting up of a laboratory acted as a stimulus to export growth in food and agricultural products.* Much more common has been the case where exporters have initially relied on checks organised by customers, and only once a volume of trade has been achieved have laboratory arrangements been made, either in the public sector or through private laboratories or third party certification.

107 While this is certainly true, a functioning domestic food control system is also important to reinforce credibility in export markets. If a country's domestic standards are so low that it is seen as a market of last resort for poor quality produce, then it is unlikely to be successful in export of these same or similar products to others. As a result, a certain amount of prior investment in testing capacity *is* needed, to support domestic food control.

108 Following a review of existing laboratories, based principally on considerations of efficiency and effectiveness of current laboratory testing arrangements, a number of observations have been made regarding existing capacity.[18]

[18] From visits by a laboratory expert to the facilities at the Industrial Laboratory Centre of Cambodia (ILCC) at MIME; the National Agricultural Laboratory (NAL) at MAFF; the National Drug Quality Laboratory (NDQL) at MoH; and CamControl at MoC, among others. These visits were followed in October-November 2009 by a data gathering questionnaire, and a national consultancy on laboratory costs.

- most of the public sector laboratories which were reviewed have the capacity for microbiological testing; several have the capacity for quantitative chemical analysis (for instance for heavy metals); there is also some equipment - but not necessarily the capacity - to test for residues using up-to-date methods based on gas chromatography (GC) or liquid chromatography (HPLC)[19]

- only one of the sites visited seemed currently to be physically suitable for a large scale modern laboratory testing facility (ILCC)

- no laboratory has so far achieved the international ISO 17025 standard of certification for any of its testing activities (although ILCC may receive limited recognition for microbiological testing later this year)

- in the absence of a regular routine programme for testing, laboratories spend considerable time working below capacity, if tests are carried out at all. With the possible exception of ILCC, they are dependent on project activity to fund running costs (reagents/consumables) and sample collection

109 The recent vogue for building and equipping laboratory facilities has contributed relatively little to Cambodia's food control system. An over-emphasis on debating who conducts the tests has been particularly unhelpful. Testing should only be seen as a service; there is no benefit to testing if it is not part of an overall system. Regulatory agencies should see test results *as a means to an end* and no longer as *an end in itself.* The design of sampling programmes and the action taken as a result of the test results (and data analysis which is done) are the real point of the exercise.

110 Provided a rapid and accurate result can be obtained, laboratories in other parts of the public sector, in the private sector or even in a neighbouring country could all be options for performing tests. The real need is to be able to interpret results and take action.

111 For reasons of independence and sovereignty, Cambodia should aim to have at least one accredited laboratory capable of performing each major category of food safety analysis (and not simply rely on neighbouring countries, although this may be a valid option in the short term).

112 It is unlikely that the volume of residue tests to be performed in Cambodia would justify more than one laboratory being equipped with the more expensive equipment required to perform GC MS and LC MS tests to the selectivity and sensitivities required by some markets.

113 It is possible to draw a distinction between (i) the types of testing requiring significant capital expenditure, and (ii) testing which does not. This, together with an understanding of the likely demand for the different tests are two elements in proposing an integrated approach to food testing.

114 In drawing up a laboratory capacity development plan for Cambodia, the following principles should be adopted:

#1: Laboratory testing is a means to an end (food control) and *not* an end in itself

[19] see technical annex for definitions

#2: All testing performed in laboratories which are part of the food control system – the inspection and monitoring arrangements set out in the previous section - should be certified to ISO 17025 standard.

#3: Line ministries or departments with the responsibilities to inspect and monitor production (fisheries, animals or plants), supervise markets or inspect processing facilities do not need to each have the capacity to perform all possible tests which may be needed.

#4: Estimated capacity needs should be drawn up based on existing or planned sampling programmes, or existing private sector demand.

#5: In the interests of the quality of results, given the number of samples is low, public sector capacity for particular tests should be concentrated in a limited number of laboratories, particularly where tests require complex (and expensive equipment).

#6: Where necessary, laboratory capacity should be shared across the system based on (i) pooling of samples, (ii) sub-contracting arrangements or even (iii) joint management of particular facilities.[20]

#7: Where laboratories are providing services to others for food control activities, budget needs to be allocated to allow departments to "buy" testing services, and the laboratories performing specific services should be allowed to retain "income" from both internal (inter-ministerial) and external (private sector) clients to cover operating costs.[21]

#8: In all cases laboratories should only be involved in sample testing, and not in other activities associated with control of food or agricultural products run by the ministry in which it is housed.[22]

#9: Laboratory testing should not be subject to external influences (from producers or processing companies) seeking to influence reporting of test results

#10: Laboratories currently with equipment but unable to meet the ISO 17025 standard within the next 3 years, should continue to use the equipment for qualitative programmes; however, any quantitative tests (for the purpose of regulatory action or certification) should be performed by an accredited laboratory.

115 Based on these principles, the ministries with an interest in testing related to food control should draw up, with critical external expert facilitation, a Laboratory Action Plan. This

[20] By joint management is meant agreement over test protocols, including sample preparation, scheduling of tests, format of results, agreed turnaround times, etc.

[21] It is recognised that this will require some degree of administrative reform, and will need to be discussed with the responsible ministries.

[22] These previously might have included standards development, provision of training services, licensing, issuance of certificates, issuing of penalties or fines).

should draw on the various recently conducted studies (FAO, ADB). The plan should set out the following:

- numbers of tests - what are realistic levels of testing required to support domestic food control; what is the current level of demand for tests for export
- which laboratories should perform which tests
- what procedural documentation, training and equipment is needed (particularly to reach ISO 17025 standard)
- what are the capital (investment) and running costs associated with testing
- arrangement for joint training where more than one laboratory is performing a particular type of test, and the creation of laboratory information sharing networks

116 The Laboratory Action Plan should:

- cover the needs for food control related testing currently met by ILCC, CamControl, NAL, NAVRI, Ministry of Health Food and Drug Quality Control; Fisheries requirements should also be taken into account
- be drawn up by staff at senior level (deputy director general or similar), as what is needed is a policy rather than simply a technical decision
- be endorsed by the Ministers involved.

117 In summary, in the absence of the kind of action plan described above, and conforming to principles for rational development of laboratory capacity, further laboratory strengthening with external assistance is not a sound investment.

118 The Laboratory Action Plan will only remain relevant *if* the proposed strengthening of inspection and monitoring takes place – otherwise work remains project funded and sporadic, and the facilities will remain underutilised. Without organised programmes of sample taking, volumes will not permit equipment to run at levels which ensure that equipment is calibrated and working smoothly/producing consistent and comparable results, and that users retain the needed skills.

IV NEXT STEPS

Scale of activities required

119 Some of the items listed in the Action Plan require further work to estimate the cost, timescale and priority attached to each. Others are more finite with very specific end points. The table below provides an initial set of suggestions to allow RGC to set its own priorities.

120 The intention would be that after an initial period of support (of up to 5 years), the annual costs would need to be fully absorbed by RGC, offset by increased revenue from exported food and food products.

Note: priorities and costs are intended to be indicative only.

The table uses the following key

*	= costs in the range $10,000 - 50,000
**	= costs in the range $50,000 - 100,000
***	= costs in the range $100,000 - 250,000
****	= costs in the range $250,000 - 500,000
*****	= costs greater than $500,000

Table: indicative costs for strengthening components of the SPS system in Cambodia

Item	comments	priority	one-off cost	annual recurring
0. General management of inspection activities				
0.1 improved planning of food safety inspections	support to initial facilitated planning workshops	- H	*	
0.2 maintain professional competence of technical staff	training courses, study tours, English language training, etc	- M		*
0.3 create cadre of "technical" food safety inspectors	- hire and train a group of 30 new inspectors (assume salary of $5,000/year) - operational support for inspectors (logistics, costs of testing, etc)	- H - M		*** *
0.4 public awareness of biosecurity risks	publicity and other communications materials	- M		*
1. Inspection of fertilisers and pesticides (and monitoring of residues)				
1.1 Input dealer quality assurance [national programme for the largest 300 input dealers, building on FAO and other programmes ongoing]	- adopt draft legislation - initial training for dealers on codes of conduct, etc - hire and train teams of specialist inspectors (10) - costs of inspection operations - testing (laboratory charges and running costs)	- H - H - H - H - H	* *	** * **
1.2 field monitoring of product safety	- initial baseline survey of pesticide residues in marketed fresh produce by technical food	- H	****	

Item	comments	priority	one-off cost	annual recurring
	safety inspectors (see above) with MAFF - ongoing training and running costs for field inspection and sampling activities by MAFF agricultural extension workers (part time additional payments for 50 for longer term monitoring); - logistics support (sampling kits fuel, etc) - testing for residues and contamination (assume 5,000 samples a year; laboratory charges and running costs)	- H - M - M		*** ** **
1.3 enhancement of safe crop production	- specific field product safety and quality programmes with farmers [extension visits, study tours, to introduce new farming practices; undertake training, education, field schools on GAP, impact of pesticide over-use (and misuse), and alternatives for eg pest control; support to farmer associations]	- M		*****
2. Quality of primary processing through inspection of processing facilities				
2.1 clarify legal basis for inspection of primary processed products	- adopt text of draft parkas	- H	*	
2.2 provide support to the primary processing industry for the implementation of quality assurance systems	- programme for support of processing industry quality systems	- M		***
2.3 train of MAFF inspectors (12) as quality system auditors, study tours, etc	- initial training programme	- H	*	
2.4 implementing a programme of assistance to businesses to develop business case for upgrading of infrastructure to meet safety and quality standards	- support and advise programme	- M		**
3. Phytosanitary inspection				
3.1 Legislative framework – complete adoption of new Phytosanitary Law	- adopt text	- H	*	
3.2 Develop procedures for Import inspection and export certification based on planned, phytosanitary risk-related criteria	- initial procedure development and training inspectors in use of procedures	- H		*

Item	comments	priority	one-off cost	annual recurring
3.3 Pest diagnosis – pest identification, equipment, procedures for confirmation and systems to record pest-related information	- initial training on identification - initial adoption/modification of information systems for recording pest information	- M - M		* *
3.4 Pest surveillance – draw up and maintain a pest list (collaboration between central government, provincial departments of agriculture and research institutes)	- pest surveillance logistics and other costs	- M		**
3.5 Pest Risk Analysis - human resource development, risk profiling , risk communication, formation of technically competent PRA team(s) with CARDI, information management and exchange systems.	- initial training for PRA teams - initial adoption modification of information systems for PRA related information	- M - M	* *	* *
4. Sanitary inspection of fisheries and fisheries product				
4.1 establishment of legislation to support inspection	- adopt text	- H	*	
4.2 improve conduct of hygiene inspection on fisheries products and production	- develop initial procedures - initial training of inspectors (local public health officials) in inspection procedures (30 inspectors) of marketed products - provide logistical support for inspection	- M - M - M	* *	*
4.3 Conduct sampling or testing for residues or contaminants on fisheries feed, and marketed fish and fisheries products	- develop initial procedures - initial training of inspectors (specialists from MAFF) in inspection (12 inspectors) - provide logistical support for inspection - sample testing costs	- M - M - M - M	* *	* *
4.4 Improve quality of inspection and certification of fish and fisheries products			**(see 4.3)**	
4.5 Design and deliver capacity building activities on inspection, especially fish and fisheries products inspection for fisheries officials at central and provincial level	- undertake initial sensitisation and awareness activities (in addition to 4.2 and 4.3)	- M	*	
4.6 Monitoring and surveillance of fisheries diseases, pests and parasites	- logistical support for sampling in production facilities (and in monitoring water quality) by fisheries inspectors	- M	*	
4.7 Environmental monitoring (water quality, parasites, invasive aquatic plants, etc)			**(see 4.6)**	

Item	comments	priority	one-off cost	annual recurring
4.8 Improve import-export inspection procedures			**(see 9 below)**	
5. Animal Sanitary Inspection (Animal Health and Production)				
5.1 Improvement/establishment of legislation to support inspection	- adopt text	- H	*	
5.2 Improve, conduct hygiene inspection on meat, meat products and meat production	- train inspectors for marketed meat products - logistical support to inspection and testing of meat products (microbial and parasite)	- H - H	*	 *
5.3 Conduct sampling or testing for residues and contaminants on animal feed, meat and meat products	- technical (testing) support to inspection programme on food chain residues and contaminants	- H		**
5.4 Improve quality of inspection and certification of animal and animal products	- reinforce (with training) existing livestock certification programme	- M	*	
5.5 Design and deliver capacity building activities on inspection, especially meat and meat products inspection for veterinarian officials, at central and provincial level	- training programme for veterinarians and animal health officers	- M	*	
5.6 Monitoring and surveillance of animal diseases	- develop active livestock surveillance programmes - abattoir testing programme	- M -M		** *
5.7 Improve import-export inspection procedures	- develop procedures - implement procedures	- M - M	* *	
6. Quality of <u>processed</u> food through inspection of food processing facilities				
6.1 clarify legal basis for inspection of secondary processed products	- adopt text	- H	*	
6.2 provide support to the secondary processing industry for the implementation of quality assurance systems	- programme for support of processing industry quality systems	- M		***
6.3 train MIME inspectors (12) as quality system auditors, study tours, etc	- initial training programme	- H	*	
6.4 implementing a programme of assistance to businesses to develop business case for upgrading of infrastructure to meet safety and quality standards	- support and advise programme	- M		**
7. Quality Assurance in food transport, handling and storage				
7.1 study on needs for quality assurance in transport, handling and storage	- consultation, study with industry and other groups	- M	***	
8. Quality control of marketed food products				

Item	comments	priority	one-off cost	annual recurring
8.1 establishment of an effective programme of inspection and testing of both fresh and processed food	- design of risk-based inspection, supported by training in risk assessment	- H	**(see 0.1)**	
	- initial training of technical inspectors in inspections for food control	- H	**	
	- provision of diagnostic kits dipsticks, etc using modern detection methods (confirmed, if necessary, using laboratory methods)	- M	*	
	- create a small unit to monitor results, manage information, report on the inspection process and undertake trend analysis on local food safety issues	- H		**
8.2 transparent regulatory action	- an initial programme of communication and awareness for food production and distribution on the requirements of eg any new food safety laws or regulations	- M	*	
	- definition of procedures particularly relating to non-compliance, including information recording	- M	*	
	- development of a simple information system to record non-compliance	- M	*	
	- inspectors trained in the new procedures, including issuing of penalties	- M	*	
	- creation of a small unit to register any complaints, to investigate and to audit inspection activities to ensure inspectors do not exceed their powers	- L		**
8.3 effective collaboration with regulators of primary production, primary processing and secondary processing sectors for traceability purposes	- management of information on non-compliance and identification of any patterns emerging		**(see 8.1)**	
	- joint training with other ministries on practice for carrying out investigations, and risk management in the food chain	- M	*	
	- management decision on priority food safety investigations to be carried out, in collaboration with other agencies to reach joint decisions on regulatory action required, and corrective action to be proposed	- H	n/a	
9. Certification arrangements to support particular sectors with market access issues on food safety grounds				

Item	comments	priority	one-off cost	annual recurring
9.1 Study of certification needs in fisheries	one-off study	- H	**	
10 Food safety in the consumer sector				
10.1 draft and implement a new law on food safety in catering establishments expand the current pilot programme of restaurant inspection	- draft text and adopt	- H	*	
10.2 conduct associated training (and training of trainers) on good hygiene practice for both restaurants and SMEs in the food production sector (with MIME)	- develop training course on food hygiene	- M	*	*consumer sector pay for subsequent running of course*
10.3 ensure conformity with the rules on labelling and advertising of milk products (e.g., infant formula)	- support to existing inspection programme	- M		*

121 It should be noted that the estimates in this table do not take into account any costs associated with laboratory strengthening, to be proposed by the national laboratory task force in a subsequent study.

122 Generally the highest priorities are accorded to clarification of the legal framework and basis for control, and to developing operational capacity to undertake technical inspections and testing.

Moving forward

123 Once the topics contained in this action plan have been finalised, the next step to putting it into operation will be to develop a number of specific requests for programmes funding. Development Partner funds are currently available within MoC for strengthening SPS systems in a number of the areas identified above.

124 However, the action plan is of necessity very broad. The tasks which would be required to complete all identified changes considerably exceed the available resource. Therefore the first thing needed is an implementation strategy, to prioritise the actions listed. The table above is intended to provide a starting point on priority and scale of activities required.

125 Overall, the approach needs to be adopted, modified and taken forward by RGC. An implementation strategy for SPS capacity building should set out the most important tasks for the next five years, and should be produced together with MoC, in association with the line ministries involved.

126 Once the implementation strategy (and plan) is agreed, specific programmes can be defined. The aim should be for programmes which are broad and thematic given the range of interrelated food chain topics to be covered.

127 Programmes may be chosen based on :

- theme – such as pesticide risk reduction (other examples might be use of control of unpermitted additives; chemical, microbiological contamination, etc)
- food chain segment – reduction of risks in small scale processing (other examples might be packing, bottling, canning, catering, etc)
- taking a product focus – improving safety of fish sauce (others might be mineral water, meat and dairy products)

or a combination of these different axes

128 Once chosen, programmes need to be further developed, building (as appropriate) on existing ongoing work, and with significant input from the ministry(ies) and producers/processors/traders involved. This will require external expert input, and facilitation.

129 Once the final set of programmes is agreed, implementation teams for each should be mobilised including external assistance (supported by a small programme office and a programme manager to ensure that any synergies are captured and that overlaps and duplication are prevented).

List of Annexes:

Maximum Residue Limit (MRL) comparison table
Definition of key terms
Summary consultant report: laboratories
Summary consultant report: phytosanitary
Summary consultant report: fisheries

Annex 2: MRL comparison for Thailand, Vietnam, Codex, USA and EU

Comparison of MRLs in different countries

(figures in mg/kg)

	Thailand					Vietnam					CODEX					USA					EU				
Matrix > / Chemical	rice	cashew	fish	egg	pepper	rice	cashew	fish	egg	pepper	rice	cashew	fish	egg	pepper	rice	cashew	fish	egg	pepper	rice	cashew	fish	egg	pepper
Chlorpyrifos	0,1			0,01	0,5				0,01	--	0,5	n.a.		0,01*	n.a.				0,01	1	0,05	0,05*		0,01*	0,5
2,4 - D	0,1			0,01		0,1	0,2				0,1	0,2		0,01*	n.a.	0,5	0,20				0,05	0,05*		0,01*	0,05*
Carbaryl	1	1			0,5	1	1			--	1	n.a.		n.a.	0,50	15	o,1			5	1	0,05*		0,05*	0,05
Deltamethrin	--	0,02		0,02		2	--		0,02	0,2	2	(a)		0,02*	n.a.	1	o,1		0,02	0,3	2	0,05*		0,05*	0,2
Dithiocarbamates	0,05			0,05							n.a.	n.a.		0,05*	n.a.						0,05*	0,05*		0,05*	5(ft)
Fenitrothion	1			0,05							6	n.a.		0,05*	n.a.						0,5(ft	0,01*			0,01*
DDT	0,1	0,01	1(*)	0,1							0,1	n.a.		0,1	n.a.						0,05*	0,05*		0,05*	0,05*

(*) > in fat content

(a) 0,02 mg/kg in hazelnuts and walnuts

Note: The US database lists only chemicals for which an EPA MRL exists

2,4-D (sum of 2,4-D and its esters expressed as 2,4-D)

(*) indicates lower limit of analytical detection

MRLs for fish are not set in the new regulation although it is the Commission's intention to introduce some at a later stage.

Remarks: *Maximum Residue Levels (MRLs) are normally set for hundreds of chemicals and hundreds of commodities; it is therefore not practical to show all these MRLs in one single table. The above table is thus meant just as an example to demonstrate the principle and the complexity of locating the correct MRL for a certain chemical in a certain commodity and for the certain country or region. Also MRLs may change over time and it is therefore best to consult the respective competent authority of the country to obtain up-to-date and correct figures.* §

Annex: definitions of key terms

The following are some of the key terms used when setting out responsibilities (based on definitions used by the ongoing ADB project – CAM-0136 - and in previous draft legal documents)[23]:

- Food: any substance, whether processed, semi-processed or raw, which is intended for human consumption, and includes drink, chewing gum and any substance which has been used in the production, manufacture, preparation or treatment of food, but does not include cosmetics or tobacco or substances used only as drugs

- Primary production: is the first step of the food chain for all types of products, plant and animal, including fish, meaning cropping, planting, harvesting, livestock, catching, fishing, aquaculture.

- Food import: all types of food products which are crossing the border to enter the country to be consumed or used within the country. Transit goods and food products are excluded.

- Primary processing: basic processing of food products not changing the nature of the product itself, such as cleaning; husking; peeling, cutting and slicing; threshing and winnowing; animal slaughter; gutting, skinning, boning, filleting; preservation by traditional means such as salting, curing, smoking, etc.; sorting and grading; chilling and freezing; and packing of products that have undergone such processes; but primary processing would not include such activities if performed at a wholesale or retail marketplace, or if carried out on imported foods

- Secondary processing: processing or transforming a food product including more advanced changes of nature of the product itself including other activities or further processing beyond the primary stage, such as grinding; purifying; sterilizing; mixing/blending/formulating; cooking; etc.

- Transport and storage: transfer and stocking of food by any means in any place to take it from one point to another such as post harvest, on farm storage, cold chain issues, etc.

- Marketing: to offer, advertise, keep, store, display, transmit, consign, convey or deliver for sale, or to exchange or to dispose of to any person in any manner whether for a consideration or otherwise, such as direct sale, town or city markets, street markets, supermarkets, etc.

- Food export: all types of food products which are crossing the border to exit the country. Transit goods and food products are excluded.

- Consumer sectors: Final consumption by consumers such as restaurants, cafes, schools, hospitals, hotels, etc.

[23] latest version received from ADB (E. Bourgois), March 2010; a full list is provided at Annex 3

- Animal products: animal products only, including meat, bones and offal but excluding i) food products of animal origin such as milk, dairy, honey and other bee products, eggs ii) animal by-products : animal carcasses, parts of carcasses or products of animal origin that are not intended for human consumption such as catering waste, used cooking oil, former foodstuffs, butcher and slaughterhouse waste, blood, feathers, wool, hides and skins, fallen stock, pet animals, zoo and circus animals, hunt trophies, manure, ova, embryos and semen.

- Fishery products: all life stages (including eggs and gametes) of fish, molluscs, crustaceans and amphibians originating from aquaculture establishments or removed from the wild, for farming purposes, for release into the environment, for human consumption or for ornamental purposes.

- Official requirements: Mandatory food technical regulation as prepared by the National Codex Committee.