



**SCOPE OPTIONS FOR EU ACTION
ON INVASIVE ALIEN SPECIES (IAS)
ENV.B.2/SER/2005/0078r**

FINAL REPORT

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LIST OF ABBREVIATIONS

6EAP	Sixth Environmental Action Programme
ACP	African, Caribbean and Pacific countries
AEWA	Agreement on the Conservation of African-Eurasian Migratory Waterbirds
ALARM	Assessing Large-scale environmental Risks for biodiversity with tested Methods
BAP	biodiversity action plan(s)
BFIS	Belgian Forum on Invasive Alien Species
CBD	Convention on Biological Diversity
CIEMS	Mediterranean Science Commission
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
CMS	Convention on the Conservation of Migratory Species of Wild Animals
CNCSIS	National University Research Council in Romania
COP	Conference of Parties
CRNFB	Invasive species in the Walloon watercourses – project
CWSS	Common Wadden Sea Secretariat
DAISIE	Delivering Alien Invasive Species Inventories for Europe
EAP	Environmental Action Programme
EC	European Community
ECJ	European Court of Justice
EEA	European Environment Agency
EIA	environmental impact assessment
EIFAC	European Inland Fisheries Advisory Commission
EPIDEMIE	Exotic Plant Invasions: Deleterious Effects on Mediterranean Island Ecosystems
EPPO	European and Mediterranean Plant Protection Organisation
EU	European Union
European IAS Strategy	European Strategy on Invasive Alien Species adopted under the Bern Convention
FAO	Food and Agriculture Organisation of the United Nations
GEF	Global Environment Facility
GISIN	Global Invasive Species Information Network
GISP	Global Invasive Species Programme
GLEWS	Global Early Warning System for Animal Diseases including zoonoses
GMO	genetically modified organism
GP	guiding principle
HELCOM	Convention on the Protection of the Marine Environment of the Baltic
HOS	Hellenic Ornithological Society
HPAI	Highly Pathogenic Avian Influenza
IAS	invasive alien species
ICAO	International Civil Aviation Organization

ICES.....	International Council for the Exploration of the Sea
ICPM.....	Interim Commission on Phytosanitary Measures
ISSG.....	Invasive Species Specialist Group (of IUCN)
IUCN.....	the World Conservation Union
IHR.....	International Health Regulations
IMO.....	International Maritime Organisation
INPLANBEL	Invasive plants in Belgium: patterns, processes and monitoring project
INVADER.....	Invasion and Ecosystem Restoration – project
IPPC	International Plant Protection Convention
ISPM	International Standard for Phytosanitary Measures
IUCN.....	World Conservation Union
JLG.....	Joint Liaison Group
LIFE	Financial Instrument for the Environment
LMO.....	living modified organism
LMO-FFP.....	living modified organisms for food, feed or processing
MBP-NIB.....	Marine Biological Station (Piran, Slovenia)
MEA.....	Multilateral Environmental Agreement
MEPC.....	IMO Marine Environment Protection Committee
MOP.....	Meeting of the parties to the Cartagena Protocol on Biosafety
MS.....	Member State(s)
MSD.....	proposed marine strategy Directive
MTK.....	Finnish Central Union of Agricultural Producers and Forest Owners
NEOBIOTA	European Platform on Biological Invasions
NOBANIS.....	North European and Baltic Network on Invasive Alien Species
NPBD.....	Latvian National Programme on Biological Diversity
OCT.....	Overseas Countries and Territories
OIE.....	World Organisation for Animal Health
OSPAR.....	Convention for the Protection of the Marine Environment of the North-East Atlantic
PAS	Polish Institute of Botany
PEBLDS.....	Pan-European Biological and Landscape Diversity Strategy
RBINS-MUMM.....	Alien crustaceans and molluscs in Belgium - project
SBSTTA.....	Subsidiary Body on Scientific, Technical and Technological Advice
SEA.....	Strategic environmental assessment
SEBI.....	Streamlining European 2010 Biodiversity Indicators
SIA	Sustainability impact assessment
SIDS.....	Small Island Developing States
SPS Agreement.....	WTO Agreement on the Application of Sanitary and Phytosanitary Measures
STDF.....	Standards and Trade Development Facility
UNCCD.....	United Nations Convention to Combat Desertification
UNCED.....	United Nations Conference on Environment and Development
UNEP	United Nations Environment Programme
UNFCCC.....	United Nations Framework Convention on Climate Change
WFD.....	water framework Directive

WHOWorld Health Organisation
WTOWorld Trade Organisation

1 INTRODUCTION

Invasive alien species (IAS) are non-native species that are introduced deliberately or unintentionally outside their natural habitats where they become established, proliferate and spread in ways that cause damage to biological diversity (see definitions, Box 1). They can include species from all groups of taxa, from mammals and birds, to insects, plants, viruses, and bacteria. For this reason, IAS are now recognised as one of the greatest biological threats to the environment and to the social and economic welfare of the planet: their harmful impact on biodiversity is considered second only to that caused by habitat loss. IAS are a serious impediment to conservation and sustainable use of global, regional and local biodiversity, with significant undesirable impacts on the goods and services provided by ecosystems.

Europeans today are more mobile than ever before. Increased numbers of flights carry tourists in and out of the EU and within its borders. Shipping routes span the globe, and due to increasing global trade we are able to access an increasing range of the world's biological resources without leaving home. Enlargements of the European Community have expanded the Single Market and facilitated translocation of organisms to new areas.

Increased mobility for people and goods means increased mobility for other species, some of which have or may go on to have negative effects on ecosystems and the habitats and species of which they are composed. The European Union is now faced with the challenge of ensuring that its policy framework supports continuing economic development while not compromising the integrity of its species and ecosystems.

Article 8(h) of the Convention on Biological Diversity (CBD) obliges Parties to the Convention to 'prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species'. The European Community (EC) is a party to the Convention and must therefore take actions to ensure its policies comply with that Article as far as possible. All of the EU-25 Member States (MS) are also parties to the CBD in their own right, as are Bulgaria and Romania, the current EU Accession Countries.

In March 2002, the Council (meeting as the Environment Council) recognised that IAS are one of the main recorded causes of biodiversity loss and is a cause of serious damage to economy and health. It supported the use, as appropriate, of national, transboundary and international action. These include, as a matter of priority, measures to prevent such introductions occurring, and measures to control or eradicate those species following an invasion.

Box 1: Definitions of terms

The definitions used in this report correspond to those used in the CBD Guiding Principles (CBD Decision VI/23) and the European Strategy on IAS, with an exception in relation to the term 'introduction' – see discussion below and in section 6.3):

'invasive alien species' means an alien species whose introduction and/or spread threaten biological diversity;

'alien species' refers to a species, subspecies or lower taxon, introduced outside its natural past or present distribution; includes any part, gametes, seeds, eggs, or propagules of such species that might survive and subsequently reproduce. NB: some international/regional/national instruments (eg Conventions) use the terms *'exotic species'*, *'non-indigenous species'* or *'non-native species'* when referring to *'alien species'*. In the report the term *'alien species'* has been used throughout the text, but where applicable the references used in the original texts have been maintained;

'introduction' refers to the movement by human agency, indirect or direct, of an alien species outside of its natural range (past or present). This movement can be either within a country or between countries or areas beyond national jurisdiction. NB: in this report, movements between countries are referred to as *'exports'* or *'imports'*. Introduction is used to mean introduction into the wild.

'intentional introduction' refers to the deliberate movement and/or release by humans of an alien species outside its natural range;

'unintentional introduction' refers to all other introductions which are not intentional;

'establishment' refers to the process of an alien species in a new habitat successfully producing viable offspring with the likelihood of continued survival.

See <http://www.biodiv.org/decisions/default.aspx?dec=VI/23>

2 OBJECTIVE AND SCOPE OF THE REPORT

Since the Council formally acknowledged the scale of the IAS problem in 2002, there has not been any major specific reform of Community policy or legislation to address IAS-related issues. The need for reform was identified by the reviewers of the Natural Resources Biodiversity Action Plan who noted in 2004 that the Plan's actions and targets did not 'fully reflect the need for a comprehensive response to the problem of invasive alien species and need to be adjusted accordingly'¹. The Message from Malahide Stakeholder Conference (see Duke 2005) set out some specific targets in relation to IAS, which are now reflected in the Action Plan attached to the recent Communication from the Commission on 'Halting the Loss of Biodiversity by 2010 – and Beyond' (COM(2006)216 final).

For the EC to fulfil its obligations under Article 8(h) of the CBD, there is a need for a thorough assessment of the Community's current legal and policy framework related to IAS to identify any changes needed. The existing framework may already provide tools that are not currently being utilised to address IAS issues and impacts but could be more

¹ See papers for Malahide Conference: MALAHIDE/WGP/Audit/1, Background Paper for Working Group 1, available at:
http://ec.europa.eu/environment/nature/biodiversity/develop_biodiversity_policy/malahide_conference/pdf/malahide_wgp_audit_1.pdf

effectively implemented. Some matters related to IAS are likely to concern individual MS only and would not be appropriately addressed at the Community level. In some cases, however, Community policies may inhibit MS in taking action against IAS within their own borders.

The aim of this report is to provide advice to the European Commission on determining and prioritising future areas of Community action with respect to IAS. The advice should assist the work of the Biodiversity Expert Group and contribute to the development of future EC policies in this field. For this purpose, the report provides a review of the existing legal and policy framework for IAS at international, EU and Member State level. It identifies areas of relevance to Community competence (totally or partially) in the CBD's Guiding Principles on IAS and the European Strategy on Invasive Alien Species developed under the Bern Convention. Based on the information on the existing international, EU and national legal/policy frameworks, the report identifies gaps in the existing EU IAS framework and makes recommendations for filling such gaps.

3 CONTENT OF THE REPORT AND METHODOLOGY USED

The report:

- summarises the current international legal and policy framework for IAS, particularly covering developments from 2000-2006 worldwide with specific reference to developments applicable to the European region (Chapter 4) and the CBD Guiding Principles and the European Strategy on IAS (Chapter 5);
- reviews existing and proposed Community legal instruments, policies and research projects dealing with issues related to IAS (Chapter 6);
- provides information on existing Member State actions and policies in relation to IAS (Chapter 7 and Annex 3) and highlights innovative policy developments in New Zealand and Australia (see section 7.7), focusing on lessons learnt that could be relevant to the European context;
- carries out a detailed assessment of the fifteen CBD Guiding Principles and the European Strategy on IAS, highlighting points of complementarity to provide a checklist of internationally-recommended actions and to identify the specific areas for which the Community (as opposed to MS) has clear competence (Chapter 8);
- identifies gaps in the existing Community framework of IAS-related measures and policies when compared to the provisions of the CBD Guiding Principles and the European Strategy on IAS, building on the analysis in the previous chapters (Chapter 9); and
- sets out recommendations and proposals for the Community to move forward on IAS issues (Chapter 10).

The report was produced based on desk-based research, with additional inputs from:

- the Directorates-General of the European Commission that are represented on the Commission's Informal Inter-DG Working Group on IAS;
- expert contact points located through the DAISIE database;

- contacts at the Council of Europe; and
- representatives from the Commission's Biodiversity Expert Group.

Further details on methodology in relation to Member State information are given in section 7.1.

4 A REVIEW OF RECENT INTERNATIONAL DEVELOPMENTS IN RELATION TO IAS

Invasive alien species policy is evolving globally and regionally at a rapid pace. The global legal and institutional framework was comprehensively reviewed in 2000 (Shine et al 2000) but there have been many changes and developments since then, including the adoption of the CBD Guiding Principles and the European Strategy on IAS and progress towards closer institutional cooperation.

This Chapter outlines the main international and European developments in the legal and policy framework for IAS during the period 2000-2006. The current international and regional framework for IAS as applicable to Europe, including both binding and non-binding instruments, is set out in Annexes 1 and 2. The analysis focuses on those international and regional developments with direct implications for the EU. It also summarises existing gaps in the international framework, as identified by the CBD Ad Hoc Technical Expert Group². Developments within the CBD

4.1 Developments within the CBD

4.1.1 Adoption of the CBD Guiding Principles and other actions

Within the CBD framework³ (binding instrument), the key development in relation to IAS during the last five years was the adoption of fifteen *Guiding Principles for the prevention, introduction and mitigation of impacts of alien species that threaten ecosystems, habitats or species*. The Guiding Principles were agreed at the sixth meeting of the CBD Conference of the Parties (COP) in 2002 (The Hague, the Netherlands) and annexed to COP Decision VII/23 (Alien species that threaten ecosystems, habitats or species). The Principles provide an international framework for governments and other organisations to develop effective strategies to prevent the introduction of, and promote control and eradication of IAS (See Chapters 5 and 8).

Another CBD decision addressing IAS problem was taken at COP 7 in 2004 (Kuala Lumpur, Malaysia). This decision established an Ad Hoc Technical Expert Group to address gaps in the international regulatory frameworks on IAS. The objective of the Expert Group was to provide the CBD Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) with recommendations prior to COP 9 in 2008 where IAS will be addressed as an issue for in-depth consideration (see 4.7 below).

² CBD Ad Hoc Technical Expert Group on Gaps and Inconsistencies in the International Regulatory Frameworks on Invasive Alien Species, established in COP7 in 2004 (Decision VII/13).

³ Convention on Biological Diversity: www.biodiv.org

At the most recent COP meeting (COP 8) in Brazil in 2006, the Contracting Parties focused on further consideration of gaps and inconsistencies in the international regulatory framework on IAS. Amongst its general provisions, Decision VIII/27:

- notes that actions to address IAS need to be taken at regional as well as other levels and the importance of consistency among actions and efforts at the various levels;
- emphasises the appropriateness of regional and sub-regional approaches in particular;
- encourages the development, as appropriate, of regional guidance under appropriate regional bodies or institutions to address particular gaps in the international regulatory framework; and
- encourages Parties, other Governments, and regional bodies to develop procedures and/or controls to ensure that cross-border impacts of potential IAS are considered as part of national and regional decision-making processes, taking into account already existing procedures and controls for IAS that are pests of plants under the International Plant Protection Convention (see 4.2 below).

The Decision sets out detailed recommendations to address pathway gaps identified in the current regulatory framework (see 4.7 below). The Decision also highlights the need for risk analyses and assessments on potential IAS that are subject to export and further emphasises the importance of capacity building, adequate funding and exchange of information and experience.

IAS have been formally designated as a cross cutting issue within the CBD's programme of work, which means that issues related to IAS must be addressed where appropriate through the CBD's other programmes and activities. Since 2000, provisions related to IAS have been included as an integral part of CBD thematic work programmes on dry and sub-humid lands (COP Decision VII/2), marine and coastal biological diversity (COP Decision VII/5), inland water ecosystems (COP Decision VII/4) and mountain biological diversity (COP Decision VII/27). In addition, IAS have been addressed in several CBD cross-cutting programmes, such as protected areas (COP Decision VII/28) and climate change and biological diversity.

IAS are also formally addressed through the Global Strategy on Plant Conservation adopted at COP 6 in 2002 (COP Decision VI/9). The Strategy's ultimate and long-term objective is to halt the current and continuing loss of plant diversity. It sets targets for invasive plant eradication stating that by 2010 management plans for at least 100 major IAS that threaten plants, plant communities and associated habitats and ecosystems should be in place (Target 10).

At the most recent COP meeting (COP 8) in Brazil in 2006 the Contracting Parties focused on discussing the gaps and inconsistencies in the international regulatory framework on IAS. The recommendations of the COP 8 Decision on IAS (Decision VIII/27) address the gaps identified in the current regulatory framework (eg gaps related to aquaculture/marine culture, ballast water and biofouling (particularly hull fouling), civil air transport, tourism, international development assistance and emergency relief). The Decision highlighted also the need for risk analyses and assessments on potentially

invasive alien species that are subject to export. In addition, the Decision further emphasised the importance of capacity building, adequate funding and exchange of information and experience.

4.1.2 Adoption of the Cartagena Protocol on Biosafety

The CBD Cartagena Protocol on Biosafety⁴ (binding instrument) was adopted by COP 5 in 2000 and entered into force in September 2003. Its objective is to contribute to ensuring an adequate level of protection in the field of safe transfer, handling and use of living modified organisms (LMOs) that may have adverse effects on the conservation and sustainable use of biological diversity.

The Protocol is relevant to IAS in that it introduces an advance informed agreement procedure for the first intentional transboundary movement of LMOs for intentional introduction into the environment (Article 7). The Protocol also deals with the issue of handling, transport, packaging and identification of all LMOs (Article 18), and addresses liability and redress for damage resulting from the transboundary movements of LMOs. In addition, the Protocol obliges Contracting Parties to undertake risk assessments as a part of their LMO-related decision-making. It also requires the Parties to establish and maintain appropriate mechanisms, measures and strategies to regulate, manage and control risks identified in the risk assessments.

Detailed provisions in relation to some of these issues still need to be established. For example, the Contracting Parties have agreed to adopt rules and procedure for liability and redress within four years of the first meeting of the Parties to the Protocol in 2004, but no consensus on the liability regime has been reached (Abu Amara & Kettunen 2006). In 2004 an Open-ended Ad Hoc Working Group of Legal and Technical Experts on Liability and Redress has been established (Decision BS-I/8 and BS-II/11) with a mandate to develop rules and procedures for damage resulting from the transboundary movement of LMOs under the Protocol. It is due to conclude its work in 2008.

With regard to risk assessment, an Ad Hoc Technical Expert Group on Risk Assessment was established in 2005 (Decision BS-II/9). The objective of the Expert Group is to further consider the nature and scope of existing approaches to risk assessment, evaluate such approaches and identify any gaps, and identify capacity-building needs. The Group has compiled and analysed national, regional and international guidance on risk assessment that was made available for the meeting of the Parties in March 2006. Capacity building workshops are planned on this issue during the next two years.

The third meeting of the Parties took place in Brazil in March 2006. The most significant outcome of the meeting was the agreement on detailed documentation requirements for living modified organisms for food, feed or processing (LMO-FFPs), as specified in Article 18.2(a) (Decision BS-III/10). The agreed package, known as the 'Curitiba Rules':

- requests parties to take measures to ensure that documentation accompanying LMO-FFPs in commercial production clearly states that the shipment contains

⁴ Cartagena Protocol for Biosafety: <http://www.biodiv.org/biosafety/default.asp>

- LMO-FFPs in cases where the identity of the LMO is known through means such as identity preservation systems;
- provides that in cases where the identity of the LMO is not known through such measures, the documentation should state that the shipment may contain one or more LMO-FFPs and list names, the transformation events and/or the unique identifiers of the LMOs that may be contained in the shipment;
 - provides for reviewing experience gained with these documentation requirements at the fifth meeting of the Parties in 2010 with a view to considering a phaseout of 'may contain' documentation at the sixth meeting of the Parties in 2012; and
 - includes special provisions for capacity building, especially relating to using and developing simple, rapid, reliable and cost-effective sampling and detection techniques for LMOs.

4.2 Developments regarding sanitary and phytosanitary measures

4.2.1 *Pests of plants*

Regulatory measures related to pests and diseases of plants form an integral part of the international IAS framework. Alien pests and diseases of plants can have significant negative impacts on both individual plant species and entire ecosystems. Where native plants do not have resistance towards alien pests or diseases, the effects of these invaders can often be very severe. For example, European elms have been drastically affected since the 1910s by Dutch elm disease caused by the alien fungus *Ophiostoma ulmi* thought to be native to Asia (GISP database, undated).

The International Plant Protection Convention (IPPC)⁵ (binding instrument), adopted in 1951 and revised in 1997, provides a framework for international cooperation to prevent the spread of pests of plants and plant products between countries and to promote appropriate measures for their control within countries. It defines 'pest' as 'any species, strain or biotype of plant, animal or pathogenic agent injurious to plants or plant products' and covers direct and indirect damage by pests to both wild and cultivated plants. IAS are covered by the IPPC to the extent that they qualify as pests of plants or plant products.

The World Trade Organisation's Agreement on the Application of Sanitary and Phytosanitary Measures (the SPS Agreement), which was signed by the European Commission on behalf of the EU in 1994, mandates the use of international standards to promote harmonisation of national phytosanitary and sanitary measures that affect trade and to avoid disguised barriers to trade (in this context see also Burgiel et al 2006). WTO Members may only apply measures that differ from international standards where this is technically justified by risk assessment. The SPS Agreement identifies the IPPC as the reference body for international standards in relation to pests of plants and plant health.

An important development is the adoption of guidance under the revised IPPC with regard to pests that affect unmanaged ecosystems. In 2003, the Fifth Session of the IPPC Interim Commission on Phytosanitary Measures (ICPM) adopted two supplements to the

⁵ International Plant Protection Convention (IPPC): <http://www.ippc.int/IPPC/En/default.jsp>

existing International Standards for Phytosanitary Measures (ISPMs) that are directly relevant to IAS.

The IPPC Supplement on 'Analysis of environmental risks' to ISPM No.11 (Pest risk analysis for quarantine pests) focuses on plants that are potential weeds, even where they do not directly impact on agricultural systems. According to the Supplement, a species that is allowed entry based on available information but subsequently moves from the intended environment to an unintended environment and becomes problematic may be treated as if it had just arrived and is a new pest. The IPPC provisions regulating the entry of a pest can thus be applied to the domestic movement of an organism years after its introduction. The Supplement also provides for control of pests that can cause indirect impacts on biodiversity and ecosystem function as well as direct impacts to plants.

The IPPC Supplement on 'Guidelines on the understanding of *potential economic importance* and related terms including reference to environmental considerations' to ISPM 5 (Glossary of Phytosanitary Terms) clarifies that pest risk analysis can account for environmental concerns in economic terms by using monetary or non-monetary values and that market impacts are not the sole indicator of pest consequences. Accordingly, Contracting Parties have the right to adopt phytosanitary measures with respect to pests for which the economic damage caused to plants, plant products or ecosystems within an area cannot be easily quantified.

The first ISPM for packaging was approved in 2002. ISPM 15 on 'Guidelines for regulating wood packaging material in international trade' describes measures to reduce the risk of introduction and/or spread of quarantine pests associated with wood packaging material in use in international trade. According to these Guidelines, National Plant Protection Organisations should accept wood packaging material that has been subjected to an approved measure without further requirements. Countries can, however, use other measures if these can be justified on technical grounds. Exporting and importing countries should put procedures in place to verify that an approved measure has been applied, including the use of a new globally recognized wood packaging mark.

The developments described above provide guidance on the application of the IPPC to address certain risks posed by IAS. However, they do not extend the IPPC definition of 'pest' to include organisms that are not pests of plants (eg hitchhiker organisms such as spiders in table grapes, ants in taro). Moreover, given that the supplements have only recently been adopted, it is too early to assess how they are being applied.

At the pan-European level, the European and Mediterranean Plant Protection Organisation⁶ has established an Ad Hoc Panel on Invasive Alien Species and appointed a scientific officer for IAS issues in 2005. The Panel has developed a list of plants considered to pose an important threat to plant health, environment and biodiversity in the EPPO region. EPPO recommends that countries in which biodiversity is endangered by these species take measures to prevent their further introduction and spread or manage unwanted populations (eg publicity, restriction on sale and planting, control).

⁶ NB, the EU is not a member of EPPO.

4.2.2 *Animal diseases*

Introductions of exotic animal diseases and parasites are often considered primarily a threat to agricultural production and human health. However, such introductions can also have severe effects on susceptible native species and ecosystems. For example, in Hawaii, avian malaria and avian pox have been implicated in the decline and changed distribution of several forest bird species (see, eg, Atkinson et al, 2000). In the European context, the parasite *Gyrodactylus salaris* has had impacts in the fisheries sector in Norway⁷.

As for plant pests, measures taken in relation to animal pathogens by WTO Members (including the EU) need to be consistent with the provisions of the SPS Agreement. The World Organisation for Animal Health (Office International des Epizooties or OIE) is identified in the SPS Agreement as the reference body for international standards on animal health. WTO Members may apply national sanitary measures different from those in OIE standards only where this is scientifically justified. OIE standards relate to international trade in animals and animal products, and do not refer to the risks relating to invasiveness of potential 'carrier' animals in their own right. Animal diseases which do not present a threat to food-producing animals or humans but which could threaten native animals (eg avian malaria) also fall outside the scope of these standards.

A number of outbreaks of harmful diseases took place during the period 2000-2005, including foot and mouth disease in 2001 and avian influenza in 2005. Consequently, many major developments in the international and regional frameworks relating to animal diseases have been driven by these events.

The Global Strategy for the Progressive Control of Highly Pathogenic Avian Influenza (HPAI, non-binding instrument) was published in 2005 by the Food and Agriculture Organisation of the United Nations (FAO), OIE and World Health Organisation (WHO) (FAO/OIE/WHO, 2005). The Strategy provides approaches and implementation plans for the global control of the influenza. The approaches will be implemented over 3 time frames: immediate to short (1-3 years), short to medium (4-6 years) and medium- to long-term (7-10 years). The strategy outlines a general global response rather than a local one, highlighting the importance of capacity building, collaboration, and creation of information systems in times of health emergency.

In addition to this joint response by OIE, FAO and WHO, three biodiversity-related international organisations have also addressed the outbreak and implications of avian influenza (the Ramsar Convention (Resolution IX.23), the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) (Resolution 3.18) and the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention/CMS) (Resolution 8.27)) (binding instruments)).

In 2003, the FAO, OIE and WHO agreed to jointly implement a Global Early Warning System for Animal Diseases including Zoonoses (GLEWS, non-binding instrument). Through sharing of information on animal disease outbreaks and epidemiological

⁷ For more information, see <http://www.bellona.no/imaker?id=12780&sub=1>.

analysis, the GLEWS initiative aims at improving global early warning as well as transparency among countries. The response component of the GLEWS has yet to be established. It will complement the existing response systems of FAO, OIE and WHO in order to deliver a rapid coordinated international response to animal disease emergencies. The three organisations are also developing a joint strategy to strengthen regional activities for animal disease control.

4.3 Developments regarding maritime and aviation pathways for IAS

International shipping provides pathways for transmission of alien species via exchange of ballast water and hull-fouling. Both of these pathways are known to have led to the spread of marine IAS of high ecological significance. In addition, air travel has facilitated the spread of alien species rapidly, and over greater distances than ever before. International organisations involved in the regulation of these pathways have been active in developing measures to address risks from IAS, and the activities underway are discussed below.

The International Maritime Organisation (IMO) began developing a mandatory instrument for the control of ships' ballast water in 1997 and the International Convention for the Control and Management of Ships' Ballast Water and Sediments was finally adopted in February 2004 (BWM Convention, binding instrument). The aim of the Convention is to prevent, minimize and ultimately eliminate the transfer of harmful aquatic organisms and pathogens through the control and management of ships' ballast water and sediments.

The Convention will require all ships to implement a Ballast Water and Sediments Management Plan. All ships will have to carry a Ballast Water Record Book and will be required to carry out ballast water management procedures to a given standard. Existing ships will be required to do the same, but after a phase-in period. Parties to the Convention are also given the option to take additional measures, which are subject to criteria set out in the Convention and to IMO Guidelines. Parties should also ensure that ballast water management practices do not cause greater harm than they prevent to their own environment, human health, property or resources or to those of other States.

In July 2005, the IMO's Marine Environment Protection Committee (MEPC) adopted 'Guidelines for uniform implementation of the International Convention for the Control and Management of Ships' Ballast Water and Sediments'. The Guidelines cover ballast water management equivalent compliance; approval of ballast water management systems; ballast water management and development of ballast water management plans; ballast water exchange and procedures for approval of ballast water management systems that make use of Active Substances.

The BWM Convention is to enter into force 12 months after ratification by 30 States with 35 per cent of the world's fleet tonnage. In April 2006, there were only six Contracting States to the Convention⁸.

⁸ For most recent information, see the IMO's Summary of Conventions at http://www.imo.org/Conventions/mainframe.asp?topic_id=247.

In addition, the IMO is currently implementing Phase 2 of the Global Ballast Water Management Programme (Globalballast) that aims to build awareness, regional cooperation and developing country capacity to implement the IMO Guidelines and prepare for the BWM Convention ratification and implementation.

CBD COP (Decision VIII/27) urges Parties and other Governments to ratify and implement the BWM Convention as soon as possible and to address, in their national legislation, the issue of domestic translocation of ballast water by vessels requiring equivalent compliance with but not covered by that Convention (see guideline for equivalent compliance for small craft currently under consideration by the IMO Marine Environmental Protection Committee).

There is currently no binding convention to address marine hull fouling as an IAS pathway. Through Decision VIII/27, the CBD COP calls on the IMO to address this and encourages Parties and other Governments to implement controls at national level, for example through appropriate measures (regulations and standards) on marine biofouling as a pathway for introduction and spread of IAS, including for recreational vessels. The Decision also encourages Parties to ratify and implement the 2001 IMO Convention on the Control of Harmful Antifouling Systems on Ships (AFS Convention), whose main objective is to prohibit the use of harmful organotins (eg TBT) in anti-fouling paints used on ships and establish a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems. Although the Convention's purpose is to reduce unwanted impacts on the receiving environment, this may indirectly affect potential IAS that are moved in hull fouling.

With regard to the spread of IAS through air transport pathways, the International Civil Aviation Organization (ICAO) first addressed the issue of introductions via civil air transportation in 1998 (ICAO Resolution A32-9 on Preventing the introduction of invasive alien species, non-binding instrument). During 2000-2005, this Resolution has been updated on two occasions by stronger recommendations (Resolutions A33-18 in 2001 and A35 –19 in 2004). The Resolutions urge Contracting States to support one another's efforts to reduce the risk of introducing, through civil air transportation, potentially invasive alien species to areas outside their natural range. The Secretariat has also conducted a survey of member nations to assess IAS risks associated with civil aviation pathways. CBD Decision VIII/27 encourages Parties and other Governments to promote collaboration at the national level among relevant agencies responsible for matters of IAS and/or civil air transport (eg, civil aviation, transport, customs, trade, plant protection, and the environment) so that all relevant issues are raised through national participation in the ICAO

4.4 Building synergies between different agreements

In recent years increasing attention has been paid to enhancing synergies between different international Multilateral Environmental Agreements (MEAs) and other biodiversity-related conventions with the aim of improving coherent and effective implementation of MEAs and avoid duplicated and contradicting of work.

In 2001, a Joint Liaison Group (JLG) between the three Rio Conventions (CBD, UN Framework Convention on Climate Change (UNFCCC, binding instrument) and UN Convention to Combat Desertification (UNCCD, binding instrument) was established as an informal forum for exchanging information, exploring opportunities for synergistic activities and increasing coordination. As a result, several collaborative activities between these conventions have been undertaken, including a joint programme of work on Biodiversity of Dry and Sub-Humid Lands (CBD and UNCCD) and a cross-cutting initiative on climate change and biodiversity (CBD and UNFCCC).

In 2004, a liaison group between the five biodiversity-related conventions (CBD, the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES), the Bonn Convention, the Ramsar Convention and the World Heritage Convention) was set up (CBD Decision VII/26, also CITES Resolution 13.10). Cooperation between these conventions has led to several shared activities, including establishment of joint work plans. Cooperation agreements also exist between other conventions that support the CBD's objectives. One of the joint initiatives included a workshop: 'Invasive Alien Species and the International Plant Protection Convention: An expert consultation of phytosanitary services and environmental protection agencies' that was held in Braunschweig, Germany, in 2003. The workshop was co-organised by the IPPC Secretariat, with the objective of helping phytosanitary experts, environmentalists, and regulators exchange ideas and learn how the IPPC and related tools may help in the management of IAS⁹.

Systematic cooperation between different conventions and agreements provides an opportunity to address issues related to IAS. These are now routinely included in the list of options for enhanced cooperation between conventions (eg UNEP/CBD/WG-RI/1/7/Add.2). A number of joint work programmes, notably the third Ramsar-CBD Joint Work Plan (2002-2006), specifically address issues related to IAS (UNEP/CBD/COP/7/INF/27). Additionally, the African-Eurasian Waterbird Agreement, Bonn Convention, and Ramsar Convention Work Programme (2002-2003) also identified pilot projects for IAS.

An important development is the growth in inter-sectoral cooperation on IAS issues between different institutions. By way of example, a memorandum of cooperation between IPPC, CBD and Cartagena Protocol on Biosafety was signed in 2004. This memorandum formalised the cooperation between the three conventions and initiated the development of a joint work plan as well as regular tripartite meetings which address IAS issues as they affect plant health in the broadest sense.

CBD COP (Decision VIII/27) supports extension of such inter-sectoral cooperation arrangements, eg to include closer linkages with the OIE.

⁹ Workshop on Invasive Alien Species and the IPPC (Braunschweig, Germany, 22-26 September 2003): documents available at <https://www.ippc.int>.

4.5 Other relevant international developments

Issues related to IAS have also been addressed in the broader context of sustainable development. Agenda 21, adopted by the United Nations Conference on Environment and Development (UNCED) in 1992, includes several Recommendations (non-binding instrument) that are relevant to the introduction of IAS (see Annex 2).

During 2000-2005, problems related to IAS were also addressed at the UNCED Johannesburg Summit in 2002. Regarding the marine environment, the Summit urged the international community to accelerate the development of measures to address IAS in ballast water (Johannesburg Plan of Implementation Chapter 34(b)). In relation to the conservation and sustainable use of biodiversity, it supported the strengthening of national, regional and international efforts for IAS control and encouraged the development of effective work programmes on IAS at all levels (*ibid*, Chapter 44(i)). The most recent UNCED Summit (New York, 2005) did not produce specific recommendation on IAS, but reiterated its support for the implementation of the CBD's provisions as well as the Johannesburg commitment for a significant reduction in the rate of loss of biodiversity by 2010.

In relation to the conservation of migratory waterbirds, the African-Eurasian Migratory Waterbird Agreement (AEWA) adopted 'Guidelines on Prevention of Introduction of Alien Migratory Waterbird Species and their Control' in 2002 (Resolution 2.3, binding instrument). The AEWA Guidelines urge countries to put monitoring systems in place to regularly assess the status of alien species, including in waterbird collections, provide essential data for risk evaluation and include alien species in regular waterbird inventories. Appendix I of the Guidelines provides guidance on assessment of risks posed to biodiversity by alien waterbird species within the AEWA region and includes a provisional classification of each species as high, medium or low risk.

IAS in wetland ecosystems are addressed by the Ramsar Convention on Wetlands' Resolution VIII.18 on Invasive Species and Wetlands, adopted in 2002 (binding instrument). The Resolution urges Parties to:

- address wetland IAS issues in a decisive and holistic manner, making use of tools and guidance developed by various institutions and under other conventions (eg CBD Guiding Principles);
- identify the presence of IAS in Ramsar sites and other wetlands, the threats they pose to these sites' ecological character and the actions underway or planned for prevention/mitigation; and
- undertake a risk analysis of alien species that may pose a threat to the ecological character of wetlands.

The 13th meeting of the CITES Conference of Parties in 2004 addressed trade in IAS. Resolution 13.10 on trade in alien invasive species (binding instrument) recommends that the Parties of CITES should consider the problems of invasive species when developing national legislation and regulations that deal with trade in live animals or plants. It is recommended that the exporting Party should consult with the Management Authority of a proposed country of import, when possible and when applicable, when considering

exports of potentially invasive species, to determine whether there are domestic measures regulating such imports.

In 1994 the Programme of Action for the Sustainable Development of Small Island Developing States (SIDS) (Barbados Programme of Action¹⁰, non-binding instrument) set out several actions addressing IAS on islands. IAS pose a particular threat to the biodiversity of island states, which is often both rich and vulnerable for reasons of geographic and evolutionary isolation. An International Meeting for the 10-year Review of the Barbados Programme of Action took place in 2005 in Mauritius and adopted the Mauritius Strategy for further implementation of the Barbados Programme of Action. The Mauritius Strategy reiterates the recommendation to control major pathways for potential IAS in Small Island Developing States.

4.6 Developments at the pan-European level

At the pan-European level, the main development during the 2000-2005 period was the adoption in 2003 of the 'European Strategy on Invasive Alien Species' (the Strategy) developed under the Bern Convention (binding instrument) with input from a wide range of stakeholder and non-governmental organisations (See Chapter 5).

The Strategy offers advice to the Contracting Parties to the Bern Convention on measures to prevent unwanted introductions and tackle IAS. The Convention's Standing Committee has recommended that Contracting Parties draw up and implement national strategies on IAS, taking the Strategy into account, and cooperate, as appropriate, with other Contracting Parties and Observer States in the prevention of IAS introduction, the mitigation of their impacts on native flora and fauna and natural habitats, and their eradication or containment where feasible and practical (Recommendation No. 99).

The Bern Convention IAS Expert Group has continued to hold meetings bringing together IAS experts from a range of Convention's Member States. The Council of Europe has co-hosted two policy and technical IAS workshops to support the development of national IAS strategies in Moldova and Croatia. A third will be held in Ukraine in October 2006.

In 2003, the 5th Environment for Europe Ministerial Conference adopted the Kyiv Resolution on Biodiversity (non-binding instrument), which extended the EU target of halting the loss of biodiversity by 2010 to the pan-European region. The Resolution includes a specific action point related to IAS stating that by 2008, the European Strategy on Invasive Alien Species developed under the Bern Convention should be implemented by at least half of the countries of the pan-European region through their respective Biodiversity Strategies and Action Plans.

At the same Conference, the Framework Convention on the Protection and Sustainable Development of the Carpathians (Carpathian Convention, binding instrument) was developed. Article 4.3 on Conservation and Sustainable Use of Biological and Landscape Diversity requires Parties to pursue policies aiming at the prevention of introduction of

¹⁰ Barbados Programme of Action and Mauritius Strategy: <http://www.sidsnet.org/>.

IAS and release of genetically modified organisms threatening ecosystems, habitats or species, their control or eradication. The Convention was signed by authorities from the Czech Republic, Hungary, Poland, Romania, Serbia and Montenegro, Slovakia, and Ukraine, and entered into force on 4 January 2006.

4.7 Gaps within the international IAS framework

As noted (4.1.1 above), in 2004 the CBD established an Ad Hoc Technical Expert Group to address gaps and inconsistencies in the international regulatory framework in relation to IAS with the objective of providing SBSTTA (Subsidiary Body on Scientific, Technical and Technological Advice) with recommendations prior to COP 9 in 2008.

The Expert Group concluded that several of the remaining problems related to control of IAS do not result from gaps in the international regulatory framework, but are caused by inadequate implementation of existing international provisions at national level. For most pathways for the introduction and spread of IAS, the underlying factor influencing and hindering the implementation of CBD Article 8(h) is inadequate national capacity.

The Expert Group also identified a lack of formal standards set at international level to deal with some IAS pathways. In many cases, this is because there is no standard-setting body recognised under the SPS Agreement with a mandate to develop standards to address certain risks. For example, there is a significant general gap relating to the lack of international standards to address organisms that are invasive but do not qualify as pests of plants as defined by the IPPC (eg 'hitchhiker' organisms such as ants and spiders).

Other major gaps identified in the **binding** international regulatory framework relate not only to hull fouling and civil air transport but also to IAS pathways such as conveyances; aquaculture/mariculture; military activities; emergency relief, aid and response; international development assistance; scientific research; tourism; pets, aquarium and garden pond species, live bait and live food and plant seeds; biocontrol agents; ex-situ animal breeding programmes; incentive schemes linked to reforestation (eg carbon credits); and inter-basin water transfer and canals. Inconsistencies identified in existing frameworks include unintended protection of IAS as a part of national nature conservation legislation and international conventions and other agreements; and inconsistency in terminology and lack of clear guidelines on the interpretation of relevant legislation (UNEP/CBD/AHTEG/IAS/1/2, UNEP/CBD/SBSTTA/11/16, see also Murphy and Cheeseman 2006).

The Expert Group proposes several specific actions to address these gaps and inconsistencies (UNEP/CBD/SBSTTA/11/INF/4). These involve improved implementation of existing international agreements and regional approaches or action by national government agencies. Collaboration amongst government agencies and international bodies/instruments is of high importance. Sharing of best practice, development of codes of practice and increasing education and public awareness are also recognised as crucial factors in addressing IAS problems.

In order to address animals that are IAS but are not pests of plants under IPPC, options proposed include the expansion of the mandate of the World Organisation for Animal

Health (OIE) beyond a limited number of animal diseases, the development of a new instrument, the development of binding requirements under an existing agreement or agreements or the development of non-binding guidance.

In order to address the problem of limited financial and technical resources hindering national implementation of biodiversity-related Multilateral Environmental Agreements (MEAs) the United Nations Environment Programme (UNEP) is currently developing practical tools to assist countries to improve the implementation of their MEA obligations. The UNEP project on Issues-Based Modules for Coherent Implementation of Biodiversity-related Conventions¹¹ aims to provide structured information on concerns that are dealt with by a number of MEAs. IAS constitute one of the project modules. The project will identify IAS-related implementation requirements under different international and regional agreements and cluster these obligations according to the various activities required to prevent and manage IAS. This project will provide an important tool to assist countries address gaps in IAS frameworks and streamline implementation at the national level.

5 INTRODUCTION TO THE CBD GUIDING PRINCIPLES AND THE EUROPEAN STRATEGY ON INVASIVE ALIEN SPECIES

5.1 CBD Guiding Principles

The CBD Guiding Principles (GPs) for the prevention, introduction and mitigation of impacts of alien species that threaten ecosystems, habitats and species were adopted by the Parties to the CBD in 2002. The fifteen GPs provide general guidance to governments and organisations for developing effective strategies to prevent the introduction of, and promote control and/or eradication of IAS (see Box 2). The Principles cover groups of organisms, including GMOs and LMOs where these are IAS, but do not include taxon/functional group-specific guidance. They address both intentional and unintentional pathways of introduction and support decision-making based on the precautionary and ecosystem approaches.

The GPs affirm that prevention is generally more cost-effective and environmentally desirable than measures taken following the introduction and establishment of an IAS and recommend that priority should be given to preventing introduction of IAS between and within States (eg through border control and quarantine measures). However, if an IAS has been introduced, early detection and rapid eradication should take place to prevent its establishment. In the event that eradication is not feasible or resources are not available for eradication, containment and long-term control measures should be implemented.

Box 2: CBD Guiding Principles

General principles

Guiding principle 1. Application of precautionary approach;

¹¹ Project website at: www.svs-unespibmdb.net (still under construction).

Guiding principle 2. Application of three-stage hierarchical approach, ie prevention, eradication and control;

Guiding principle 3. Application of ecosystem approach as described in COP Decision VI/6;

Guiding principle 4. The role of States in recognising the risk that activities within their jurisdiction or control may pose to other States as a potential source of IAS and taking appropriate actions to minimise that risk.

Guiding principle 5. Undertaking research and monitoring activities

Guiding principle 6. Increasing education and public awareness

Prevention

Guiding principle 7. Implementing border control and quarantine measures

Guiding principle 8. Exchanging of information on IAS

Guiding principle 9. Increasing cooperation, including capacity-building

Introduction of species

Guiding principle 10. Guidelines regarding intentional introduction

Guiding principle 11. Guidelines regarding unintentional introductions

Mitigation of impacts

Guiding principle 12. Taking appropriate steps to mitigate impacts of IAS

Guiding principle 13. Eradication when feasible

Guiding principle 14. Containment when eradication of not appropriate

Guiding principle 15. Implementing effective control measures

See CBD Guiding Principles on IAS: <http://www.biodiv.org/programmes/cross-cutting/alien/decision-v8.shtml?dec=VI/23&menu=cross-cutting&filter=alien>

5.2 European Strategy for Invasive Alien Species

The Bern Convention initiative for a European Strategy on Invasive Alien Species, developed in collaboration with the European Section of the IUCN Invasive Species Specialist Group, started in 2000. The Strategy, approved by the Bern Convention Standing Committee in 2003, promotes the development and implementation of coordinated measures and cooperative efforts throughout Europe to prevent or minimise adverse impacts of IAS on Europe's biodiversity, as well as their consequences for the economy and human health and well-being.

The Strategy covers terrestrial, freshwater and marine environments under the sovereignty or jurisdiction of Bern Convention Parties. It also provides guidance for activities carried out in areas beyond national jurisdiction (eg shipping). The Strategy

also covers alien species (as defined by CBD, see Box 1) in all taxonomic groups¹² but does not apply to GMOs and LMOs.

The Strategy provides guidance to help Bern Convention Parties in their efforts to:

- increase awareness and information on IAS issues and ways to tackle them;
- strengthen national and regional capacity and cooperation to deal with IAS;
- prevent the introduction of new IAS into and within Europe and support rapid response to detected incursions;
- reduce the adverse impact of existing invasive alien species;
- recover species and restore natural habitats and ecosystems that have been adversely affected by biological invasions, where feasible and desirable; and
- identify and prioritise key actions implemented at the national/regional level.

The European Strategy for IAS is closely aligned with the CBD Guiding Principles and aims to promote regional consistency and best practice in their implementation. However, the Strategy also provides guidance to some issues that are not addressed within the Guiding Principles framework, eg recovery and restoration of species and habitats affected by invasions.

More detailed information on the CBD Guiding Principles and the European Strategy for IAS is included in Chapter 8 below.

6 REVIEW OF EUROPEAN COMMUNITY LEGAL AND POLICY INSTRUMENTS WITH REGARD TO IAS

In order to establish the adequacy of the current European framework for IAS with regard to internationally-agreed rules and guidelines, an examination of policies, projects, legislative instruments, and other relevant documents was carried out. The details of this analysis are contained in Annex 4.

The section below summarises European Community legislation in place in relation to:

- import and export of IAS into and out of the European Community;
- possession and trade in IAS within the European Community;
- introduction of IAS within and outside the European Community; and
- control and eradication of IAS within and outside the European Community.

It then addresses relevant Community policies and ongoing research activities that contribute to the European framework on IAS, and provides a short summary of Community provisions.

A short description of the European framework in relation to animal health policy is set out in Box 3. This area of policy is well established in the EU, and there is a large body of legislation in place in this area, some of which has relevance to IAS.

¹² Including viruses, prions, bacteria mycorrhiza and feral animals of domestic species.

Box 3: European Framework on Animal Health – Relationship with IAS

Animal Health policy in the EU is coordinated by DG-Health and Consumer Protection (DG-SANCO). The objective of this policy area is to protect and raise the health status and condition of animals in the Community, in particular food-producing animals, whilst permitting intra-Community trade and imports of animals and animal products in accordance with appropriate health standards and international obligations. The policy and legal framework includes instruments that apply to both intra-community trade (between EU Member States) and to importation (the introduction into the Member States from third Countries outside the European Union) of live animals and products of animal origin.

The current framework is based on the WTO's Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) and standards produced by the Office International des Epizooties (OIE). It includes preventive health measures on intra-community trade and imports of: live animals; semen, ova and embryos; and animal products. There is also Community legislation on animal diseases, including control measures (to be taken as soon as the presence of a disease is suspected); eradication and monitoring programmes (for diseases that are already within the Community); and in relation to the EU's financial contribution to managing animal diseases in the EU. A new Animal Health Strategy is under development, to improve the prevention and control of animal disease in the EU. Other activities include identification measures, to guarantee the traceability of animals.

The CBD definition of IAS is clearly broad enough to include animal diseases and pathogenic organisms, and in some countries, animal diseases are believed to threaten native biodiversity (eg avian malaria in Hawaii). Therefore, the approach taken in this report is that animal health and IAS policy are areas which overlap in some cases. However, in many cases, the diseases that are managed for animal health purposes will present no direct threat to biodiversity, and would therefore not be considered IAS under the CBD definition. It should also be mentioned that some animal diseases which do not present a threat to food-producing animals (but could threaten native animals, eg, avian malaria) may not be considered by the OIE, and hence may not be covered by current Community legislation relating to animal health.

It should also be noted that the DG-SANCO framework on animal health does not consider the risks of invasiveness connected with 'carrier' organisms. For example, the disease risk in relation to squirrels may be the same for all species, although some species may carry more risk in terms of potential to be invasive. The current European legislative framework (based on OIE standards) is not able to 'ban' imports of certain species on the basis of risk of invasiveness.

For more information and detail on the legislative and policy instruments in place, see DG-SANCO's website: http://ec.europa.eu/comm/dgs/health_consumer/index_en.htm

6.1 Community legislation regarding import and export of IAS

Key legislation related to import and export of IAS is summarised in Table 1. At present, systems for control of imports and exports of potential IAS into and out of the European Community appear to be well-established and implemented with regard to:

- pests of plants (those organisms falling within the 'harmful organism' definition in the plant health Directive 2000/29/EC);
- animal pathogens, including those affecting aquaculture organisms (see Box 3); and
- genetically modified organisms.

In addition, the wildlife trade Regulations (Regulations 338/97/EC and 1808/2001/EC) list four animal species¹³ that are banned from **import** into the EC but not banned for export to third countries.

It is apparent that there are significant gaps in this framework. There are no European-level import controls for certain categories of organisms, including:

- non-genetically modified plant species, including highly invasive aquatic plants¹⁴;
- non-genetically modified animals (aside from the four species listed under the wildlife trade Regulations); and
- invertebrates that fall outside the 'harmful organism' definition in the plant health Directive 2000/29/EC, eg hitchhiker organisms such as invasive ants.

The framework for export controls in relation to IAS is weak. As a general rule, there are no quantitative or qualitative restrictions to exports from the European Community. However, some export restrictions based on health and/or environmental protection considerations have been introduced for specific, well-defined products, eg banned or severely restricted chemicals, ozone-depleting substances and persistent organic pollutants, mostly pursuant to international agreements to which the EC is a Party. Very few existing instruments can be used to address possible risks related to the export of IAS from the EU to third countries. Two examples are:

- the Regulation on transboundary movements of genetically modified organisms (EC 1946/2003) which establishes a system to control movements of GMOs to third countries (both intentional and unintentional); and
- the Regulation on export control of dual use items (EC 1334/2000, amended and updated by Regulation EC 2006/394) which can be used to prevent the export of micro-organisms (including some GMOs) that could be used for military purposes after their exportation.

In the context of EU external assistance and development cooperation, the EU external action Regulations for the instruments for external assistance in 2007-2013 (COM(2004)627, COM(2004)628, COM(2004)629, COM(2004)630 (proposals), and

¹³ Species listed are the red-eared slider (*Trachemys scripta elegans*); the American bullfrog (*Rana catesbeiana*); the painted turtle (*Chrysemys picta*); and the American ruddy duck (*Oxyura jamaicensis*).

¹⁴ Some agricultural weeds may be covered by the legislation on pests of plants, but most potentially invasive plants are not covered.

Regulation 1257/96/EC) do not refer to the negative effects that development actions (eg humanitarian aid) may have with regard to intentional or unintentional spread of IAS. For example, in the context of aiming to improve food security in developing countries, introduction of species alien to the region might lead to problems with IAS (see section 6.3 below).

IAS-related issues are not mentioned in the Regulation on the association of overseas countries and territories with the European Community (2304/2002/EC). This is significant as overseas countries and territories, along with developing countries where EU aid is focused, are often rich in biodiversity and are vulnerable to the impacts of IAS due to their geographic isolation¹⁵.

¹⁵ NB: EU activities in third countries do have to comply with existing legal restrictions in relation to IAS, eg domestic legislation or regional agreements that do not include the EU and therefore have not been included in the analysis in this report.

Table 1: Key European legislation (and relevant Commission legislative proposals) in relation to import and export of IAS.

Instrument	Area of Application	Key implications for IAS	Key actors
wildlife trade Regulations (338/97/EC and 1808/2001/EC)	limits imports of certain alien species presenting an ecological threat	Currently restricts import of 4 alien species into the EC, all of which are already established in Europe. Provisions under the Regulations to restrict holding or movement of alien species (could restrict import and export between MS) within the EC have not been utilised for these or any other species.	Member States
plant health Directive (2000/29/EC)	'harmful organisms' as defined	Establishes a system to restrict import, prevent spread, and ensure control of pests of plants within the EC.	Member States.
species-specific and general Directives containing precautions against animal disease introductions (many and various, see Box 3)	animal diseases and parasites (including in aquaculture)	Establishes a system to restrict import, prevent spread, and ensure control and early notification of animal diseases and parasites within the EC.	Member States, with centralised notification system and some programmes financed centrally.
Directives on contained use of genetically modified micro-organisms and release of genetically modified organisms (90/219/EC and 2001/18/EC)	GMOs	Establishes systems for control of holding, release, classification and assessment, public consultation etc. in relation to GMOs.	Member States
Regulation on transboundary movements of genetically modified organisms (1946/2003/EC)	GMOs	Establishes a system to control the transboundary movements of GMOs (intentional and unintentional)	Member States
Regulation setting up a Community regime for the control of exports of dual-use items and technology (EC 1334/2000/EC, amended and updated by 2006/394/EC)	micro-organisms, GMOs	Establishes a system to prevent the exportation of micro-organisms/GMOs that could be used for military purposes	Member States

6.2 Community legislation regarding possession and trade of IAS within the EC

Key legislation related to possession and trade of IAS within the EC is summarised in Table 2. As with controls on import and export, systems for control of possession and trade in IAS within EC territory appear to be well-established and implemented with regard to:

- pests of plants: those organisms falling within the 'harmful organism' definition in the plant health Directive (2000/29/EC);
- animal pathogens, including those affecting aquaculture organisms (see Box 3); and
- genetically modified organisms.

In addition, a proposed Regulation has been developed to address the risks from the use of alien or locally absent species in aquaculture (COM(2006)154), and this is expected to come into force in 2006.

The wildlife trade Regulations (338/97/EC and 1808/2001/EC) contain provisions that could be used to restrict holding and movement of listed animal species (reg 9(6)), but these provisions have not been applied to any species to date.

As with controls on imports and exports, it is apparent that there are significant gaps in the European framework related to possession and trade in IAS. Even in the case of species that are known to be invasive in one MS, there are no European-level restrictions on further sale or distribution within the Community. This is even the case with the four species that are banned from import into Community territory under the wildlife trade Regulations: no measures are applied to restrict movement or trade of specimens already within the Community, which means that further spread of these known IAS may continue unchecked.

Certain categories of organisms are not covered by the framework at all, while in contrast, others are quite strictly controlled. This selective coverage may relate to risk perception at European level. However, the system is certainly not targeting all organisms that have significant economic, agricultural or biodiversity impacts in Europe. These gaps are revealed when the measures at MS level for control and/or eradication of IAS are examined – the species being controlled include many that are not included in the European framework (see Annex 3 for detail of Member State measures, and discussion in Chapter 7).

Table 2: Key European legislation (and relevant Commission legislative proposals) in relation to possession and trade of IAS.

Instrument	Area of Application	Key implications for IAS	Key actors
wildlife trade Regulations (338/97/EC and 1808/2001/EC)	could limit holding and movement of certain species presenting an ecological threat	Provide legal basis to restrict holding or movement of alien species within the EC but have not been used to date (even the four alien species whose import into the EC currently prohibited under this Regulation).	Member States
plant health Directive (2000/29/EC)	'harmful organisms' as defined	Establishes a system to restrict import, prevent spread, and ensure control of pests of plants within the EC.	Member States.
species-specific and general Directives containing precautions against animal disease introductions (many and various)	animal diseases and parasites (including in aquaculture)	Establishes a system to restrict import, prevent spread, and ensure control and early notification of animal diseases within the EC; can include controls on possession and trade in potential disease/parasite hosts where necessary.	Member States, with centralised notification system and some programmes financed centrally.
Directives on contained use of genetically modified micro-organisms and release of genetically modified organisms (90/219/EC, 2001/18/EC)	GMOs	Establish systems for control of holding, release, classification and assessment, public consultation etc. in relation to GMOs.	Member States
Regulation on transboundary movements of genetically modified organisms (EC 1946/2003)	GMOs	Establishes a system to control the transboundary movements of GMOs (intentional and unintentional)	Member States
Proposed Regulation regarding use of alien and locally absent species in aquaculture (COM(2006)154)	aquaculture species	Aims to establish systems to reduce risk from the use of alien and locally absent species in aquaculture.	Member States

6.3 Community legislation regarding introduction of IAS

As noted (see Box 1), 'introduction' is defined in the CBD Guiding Principles to refer to 'the movement by human agency, indirect or direct, of an alien species outside of its natural range (past or present). This movement can be either within a country or between countries or areas beyond national jurisdiction'. Introductions may be intentional (deliberate movement and/or release by humans of an alien species outside its natural range) or unintentional (all other introductions). In this report, the term 'introduction' is used to refer to release of IAS into the natural environment. Export and import (ie intentional movements of IAS between countries, but not necessarily into the wild) are considered separately.

Key legislation related to the introduction of IAS is summarised in Table 3. As with import/export and possession and trade, controls on introduction of IAS are best established and implemented with regard to:

- pests of plants: those organisms falling within the 'harmful organism' definition in the plant health Directive (2000/29/EC);
- animal pathogens, including those affecting aquaculture organisms (see Box 3); and
- genetically modified organisms.

The birds and habitats Directives (79/409/EEC and 92/43/EEC) contain general provisions related to intentional introductions of potential IAS to the wild. These are not restricted in scope to possible impacts on protected sites or species. For birds, Member States must ensure that any introduction of species of bird which do not occur naturally in the wild state in the European territory of the Member States does not prejudice the local flora and fauna (article 11). Under the habitats Directive, Member States must ensure that the deliberate introduction into the wild of any species which is alien to their territory is regulated so as not to prejudice natural habitats within their natural range or wild native fauna and flora and, if they consider it necessary, prohibit such introduction (article 22). No guidance has been developed to assist in the implementation of these provisions.

The wildlife trade Regulations contain provisions that could be used to restrict holding and movement of listed species, including introductions of such species, but these provisions have not been applied to any species to date (reg 9(6)).

A proposed Regulation has been developed to address the risks from the use of alien or locally absent species in aquaculture and this is expected to come into force in 2006 (COM(2006)154). This Regulation will contain provisions for risk analysis in association with the introduction of any alien species to be used in aquaculture.

Along with these 'core' instruments, the environmental impact assessment (EIA) Directive (85/337/EEC as amended), strategic environmental assessment (SEA) Directive (2001/42/EC), and environmental liability Directive (2004/35/CE) may have some relevance to introductions of IAS. The EIA Directive covers 'the direct and indirect effects of a project on human beings, fauna and flora and on soil, water and landscape' (Article 3). This could include impacts from IAS if caused or exacerbated by a project,

and these potential impacts should therefore be considered in EIAs. For example, tourism developments (with accompanying landscaping using exotic plants) are known to have been the cause for the introduction of alien invasive plant species in the past.

The SEA Directive requires an environmental assessment for all 'plans and programmes for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use [...] or (b) which, in view of the likely effect on sites, have been determined to require an assessment pursuant to Article 6 or 7 of Directive 92/43/EEC'. The assessment should consider significant environmental effects and in particular, effects on sites designated under the habitats and birds Directives, or transboundary effects: these could include the impacts of IAS. Plans and programmes for transport could include development of transport corridors (which could represent potential routes for spread of IAS); forestry plans could include planting of potentially invasive exotic species; and plans for water management have, in some areas, included introduction of potentially invasive alien molluscs for water filtration. The potential impacts of IAS should, therefore, be considered in the SEA process. Despite their possible application, the research undertaken for this project did not find any evidence that either the EIA or SEA Directives have been applied to the IAS issue.

The Commission's recent Biodiversity Communication (COM(2006)216) includes an action related to the application of EIAs and SEAs to IAS: (Action 4.6.4): *to take stock of effectiveness of EIA and SEA in preventing and minimising negative impacts and improving positive impacts of developments on biodiversity and consider necessary measures to improve EIA and SEA performance in this respect (by 2008)*. This assessment should include analysis of the performance of these assessments in relation to the affects of IAS.

The environmental liability Directive could be used to apply the polluter pays principle to those who introduce IAS into the natural environment. Environmental damage as defined must be caused/threatened by an occupational activity listed in Annex III (which covers activities involving GMOs) or any other occupational activity whenever the operator has been at fault or negligent. However, under the Directive there need to be one or more identifiable polluters, the damage must be concrete and quantifiable and a causal link should be established between the damage and the identified polluter(s). This will probably make it difficult to bring successful proceedings as it will often be impossible to link negative environmental effects from IAS with the actions or omissions of identifiable individuals or companies.

As with the other areas assessed, there are gaps and inconsistencies in the Community framework in relation to the introduction of IAS. While some types of organisms are covered in detail, others are completely absent from the framework. For example, when the proposed Regulation on the use of alien and locally absent aquaculture organisms (COM(2006)154) comes into force, such organisms will be subject to far stricter controls and risk assessments than non-aquaculture fish species that may be introduced for recreational fishing purposes or through use as bait fish.

Introduction of IAS into the environment of third countries is not covered in the legislation related to development cooperation, external assistance, trade or overseas territories (eg Regulations for the instruments for external assistance in 2007-2013, Overseas Association Decision 2001/822/EC, Commission Regulation on implementing the Overseas Association Decision (2304/2002/EC))¹⁶. In this context, the issues related to IAS need to be addressed through the strategic environmental assessments that the Community has committed to carry out on a systematic basis as part of its development policy ('European Consensus on Development' (2006/C 46/01)). On the positive side, control of IAS may also be a legitimate aid activity to assist with human development as well as environmental goals.

The omission of IAS related issues from the Community legislative framework for development cooperation and external assistance is an important gap, as IAS may be promoted through development programmes (eg planting of some invasive alien plants has been promoted by aid agencies; use of *Gambusia* (mosquito fish) has been promoted by health agencies). The overseas territories of some European countries (eg the sub-Antarctic islands owned by the UK and France) are also especially vulnerable to the impacts of invasive alien species due to their isolation and their unique assemblages of flora and fauna. Significantly, not all Community legislation applies in the overseas territories (eg the birds and habitats Directives are not applicable).

¹⁶ NB: EU activities in third countries do have to comply with existing legal restrictions in relation to IAS, eg domestic legislation or regional agreements that do not include the EU and therefore have not been included in the analysis in this report.

Table 3: Key European legislation (and relevant Commission legislative proposals) in relation to introduction of IAS.

Instrument	Area of Application	Key implications for IAS	Key actors
birds and habitats Directives (79/409/EEC and 92/43/EEC)	throughout MS territories, with particular requirements in protected areas (Natura 2000)	Require regulation of deliberate introductions that may threaten native species; require site management including avoiding deterioration of sites which may mean control of IAS is required.	Member States
plant health Directive (2000/29/EC)	'harmful organisms' as defined	Establishes a system to restrict import, prevent spread, and ensure control of pests of plants within the EC.	Member States.
Directive 1999/22/EC relating to the keeping of wild animals in zoos	animal species kept in zoos, animal diseases	Requires Member States to prevent unintentional introductions of alien animal species (eg animal diseases and pests) to wild from zoos.	Member States
species-specific and general Directives containing precautions against animal disease introductions (many and various)	animal diseases and parasites (including in aquaculture)	Establishes a system to restrict import, prevent spread, and ensure control and early notification of animal diseases within the EC.	Member States, with centralised notification system and some programmes financed centrally.
Directives on contained use of genetically modified micro-organisms and release of genetically modified organisms (90/219/EC, 2001/18/EC)	GMOs	Establish systems for control of holding, release, classification and assessment, public consultation etc. in relation to GMOs.	Member States
Regulation on transboundary movements of genetically modified organisms (EC 1946/2003)	GMOs	Establishes a system to control the transboundary movements of GMOs (intentional and unintentional).	Member States
EIA Directive (85/337/EEC)	environmental effects of public and private projects	Includes afforestation, some agricultural applications which could lead to IAS introductions.	Member States
SEA Directive (2001/42/EC)	environmental effects of plans and programmes	Covers plans and programmes related to sectoral activities that could result in IAS introductions	Member States
environmental liability Directive	liability for damage resulting	Could result in a polluter-pays	Member States

(2004/35/EC)	from release of IAS	framework in relation to IAS releases that are negligent or intentional. However, quite restricted in application.	
proposed Regulation regarding use of alien and locally absent species in aquaculture (COM(2006)154)	aquaculture species	Aims to establish systems to reduce risk from the use of alien and locally absent species in aquaculture.	Member States

6.4 Community legislation regarding control and eradication of IAS

Key legislation related to control and eradication of IAS is summarised in Table 4. As in the other policy areas examined, provisions in relation to control and eradication are well established for the same three categories of organisms ('harmful organisms' under the plant health Directive, animal pathogens and GMOs) that have been mentioned in relation to the other areas of Community legislation assessed.

Other categories of organisms are not explicitly included in these systems for control and eradication. However, Member States have implied obligations relating to control of IAS in some parts of their territories, namely:

- in waters subject to classification under the WFD (2000/60/EC); and
- at Natura 2000 sites, and sites related to species protected under the habitats and birds Directives, where they must take necessary steps to prevent disturbance to species or deterioration of site status.

The proposal for a MSD may also oblige Member States to address IAS in marine waters in order to achieve good environmental status (as under the WFD).

This suite of obligations should already oblige Member States to undertake control of IAS in many of the places where they are likely to present a threat to European biodiversity. However, due to the highly mobile nature of many IAS, limiting control measures to selected sites can be only a partial solution if new introductions and wider spread of the species concerned are not also addressed. Member States would need to commit to ongoing expenditure in specific sites for an indefinite time period, but might find their investments in control measures undermined by the lack of a more comprehensive approach to IAS control.

In this context, it should be emphasised that:

- there is currently no Community-backed mechanism to support early detection and rapid response to newly-arrived IAS in Member States, outside the established frameworks for control of plant pests ('harmful organisms' as defined in the plant health Directive and animal pathogens; and
- there are currently no requirements for neighbouring Member States to consult each other or coordinate control and eradication programmes relevant to European biodiversity.

Resources for IAS control appear to be available under the major European Funds for the 2007-2013 funding period (eg Regulation on support for rural development by the European Agricultural Fund for Rural Development No 1698/2005/EC) and proposed Regulations for European Regional Development Fund (COM(2004)495) and Cohesion Fund, COM(2004)494). However, they are not specifically mentioned in any of the Regulations.

The habitats, birds and water framework Directives do not apply in many of the overseas territories, so the existing requirements for control of invasive alien species at specific

sites are not applicable there. However, the Commission's recent Biodiversity Communication (COM(2006)216) contains a specific recommendation on applying a *nature directives-type approach for valued sites and species in those EU Outermost Regions not covered by nature directives (2006 onwards)*. However, this recommendation is directed specifically at France, and will not cover the overseas territories of all Member States.

Table 4: Key European legislation (and relevant Commission legislative proposals) in relation to control and eradication of IAS.

Instrument	Area of Application	Key implications for IAS	Key actors
water framework Directive (2000/60/EC)	freshwater/coastal waters	Requires MS to achieve good ecological status in waters concerned – may include control of IAS.	Member States
birds and habitats Directives (79/409/EEC and 92/43/EEC)	throughout MS territories, with particular requirements in protected areas (Natura 2000)	Require regulation of deliberate introductions that may threaten native species; require site management including avoiding deterioration of sites which may mean control of IAS is required.	Member States
plant health Directive (2000/29/EC)	'harmful organisms' as defined	Establishes a system to restrict import, prevent spread, and ensure control of pests of plants within the EC.	Member States.
species-specific and general Directives containing precautions against animal disease introductions (many and various)	animal diseases and parasites (including in aquaculture)	Establishes a system to restrict import, prevent spread, and ensure control and early notification of animal diseases within the EC.	Member States, with centralised notification system and some programmes financed centrally.
Directives on contained use of genetically modified micro-organisms and release of genetically modified organisms (90/219/EC, 2001/18/EC)	GMOs	Establish systems for control of holding, release, classification and assessment, public consultation etc. in relation to genetically modified organisms.	Member States
Proposed marine strategy Directive (COM(2005)505)	marine environment	Aims to establish systems to achieve good environmental status in marine waters – as with the water framework Directive this may include the need to control IAS.	Member States
Proposed Regulation regarding use of alien and locally absent species in aquaculture (COM(2006)154)	aquaculture species	Aims to establish systems to reduce risk from the use of alien and locally absent species in aquaculture.	Member States

6.5 Policies and Research

6.5.1 Community Policies

In addition to the legislative instruments in place, there are a number of non-binding Community instruments in place with relevance to IAS (see Table 5) and some ongoing research projects that will also contribute to understanding and provide platforms for possible future action in respect of the issue (Table 6).

Table 5: Key European Policy Documents Related to IAS

Policy	Area of Application	Key implications for IAS	Key actors
Communication from the Commission on the Precautionary Principle (COM 2000(1))	Outlines approach to using the precautionary principle	Application of the precautionary principle is one of the CBD guiding principles for IAS	European institutions and Member States
Sixth Environmental Action Programme (2001-2010) (Decision 1600/2002/EC of the EP and the Council of 22 July 2002)	Establishes programme of Community action on the environment.	Sets a key objective 'prevention and mitigation of impacts of IAS and genotypes'; and 'developing measures aimed at the prevention and control of invasive alien species including alien genotypes'	European institutions
European Community Biodiversity Strategy (COM(98)42)	Sets out framework for developing Community policies to comply with the CBD	Includes IAS as a key pressure. States that the Community should take measures to reduce the risks posed by IAS.	European institutions
European Community Biodiversity Action Plans (COM(2001)162 final)	Sectoral BAPS set out actions for biodiversity	IAS included in BAP for Natural Resources and Fisheries. Actions have included the development of regulations for Aquaculture organisms (underway). Progress was assessed in 2004 and found to be insufficient, but many of the actions will be picked up in the upcoming Communication on Biodiversity (see Box 4).	European institutions
Communication on Biodiversity: Halting the Loss of Biodiversity by 2010 – and Beyond (COM(2006)216)	Identifies areas for action to 2010 and sets out objectives in relation to each area.	Includes a priority objective and actions in relation to IAS.	European institutions and Member States

Table 6: Key Ongoing or recent EU-level/European Research and Networking Activities Related to IAS

Research	Area of Application
DAISIE (Delivering Alien Invasive Species Inventories for Europe) (2005-2008)	Inventories of all IAS in Europe including terrestrial, marine and freshwater species, inventory of experts in IAS-related issues, basis for an early warning system for IAS, assess and summary of ecological, economical and health impacts of the most widespread and / or noxious invasive species.
ALARM (Assessing Large-scale Risks for biodiversity with tested Methods) (2004-2008)	Large scale risk assessment in relation to IAS and other threats to biodiversity. Risk analysis will aim at developing protocols to help prevent the introduction and spread of IAS to European ecosystems.
EPIDEMIE (Exotic Plant Invasions: Deleterious Effects on Mediterranean Island Ecosystems) (2001-2004)	EPIDEMIE delivered insights into plant invasions, original approaches to management of vulnerable ecosystems, and new perspectives in local and regional policy
NOBANIS (North European and Baltic Network on Invasive Alien Species)	NOBANIS is developing a distributed, integrated network of regional invasive species databases and promoting information exchange among the thirteen member countries, contributing to implementation of recent CBD and Bern Convention recommendations
SEBI2010 (Streamlining European 2010 Biodiversity Indicators), funded by European Environment Agency (2004-2009)	Developing an indicator related to IAS (and other indicators) in order to monitor progress towards the 2010 goal of halting biodiversity loss.

The main Community Policy documents relating to biodiversity - the Sixth Environmental Action Programme (6EAP) (Decision 1600/2002/EC of the EP and the Council of 22 July 2002), the Community Biodiversity Strategy (COM(98)42), and two of the four Biodiversity Action Plans (COM(2001)162) highlight the importance of IAS as an issue with negative effects on biodiversity. The Biodiversity Strategy states that 'applying the precautionary principle, the Community should take measures pursuing to prevent that alien species cause detrimental effects on ecosystems, priority species or the habitats they depend on and establish measures to control, manage and, wherever possible remove the risks that they pose'.

However, despite this recognition, the actions that were set out under the 6EAP, Strategy and Action Plans have not been completed. The Commission Biodiversity Communication (COM(2006)216) reiterates and expands on some of the same actions (see Box 4). Other proposed actions are currently being addressed (eg development of a Regulation for the use of alien species in aquaculture).

Box 4: Actions in the Biodiversity Communication (COM(2006)216) directed at IAS

Objective 5: To substantially reduce the impact on EU biodiversity of invasive alien species (IAS) and alien genotypes

Headline target: Negative impacts on EU biodiversity of IAS and alien genotypes prevented or minimised from 2010 onwards.

A5.1 TARGET: Impact of IAS on biodiversity in the EU substantially reduced by 2010 and again by 2013.

A5.1.1: Action: Assess at EU level, gaps in the current legal, policy and economic framework to prevent, control and eradicate IAS and mitigate their impacts on biodiversity and develop a community strategy to address IAS including, where necessary and appropriate, measures to fill gaps (by 2007).

Community level action: Make assessment, propose measures to fill gaps.

MS action: Participate in assessment, adopt any necessary measures to fill gaps in Council.

A5.1.2: Action: Encourage MS to develop national strategies on IAS (by 2007) and to implement them fully (by 2010).

Community level action: Encourage MS.

MS action: Develop national strategy.

A5.1.3: Action: Encourage ratification and implementation by MS of the international Convention for the Control and Management of Ship's Ballast Water and Sediments under the International Maritime Organisation (2006 onwards).

Community level action: Encourage ratification.

MS action: Ratify and implement.

A5.1.4: Action: Establish early warning system for the prompt exchange of information between neighbouring countries on the emergence of IAS and cooperation on control measures across national boundaries (by 2008).

Community level action: Propose early warning system, coordinate implementation at Community level.

MS action: Adopt system in Council, implement system at national level.

A5.2 TARGET: Impact of alien genotypes on biodiversity in the EU significantly reduced by 2010 and again by 2013.

A5.2.1: Action: Fully apply the Cartagena Protocol on Biosafety to ensure an adequate level of protection of biodiversity (and human health) in the field of safe handling use and transfer of genetically modified organisms (2006 onwards).

Community level action: Apply as appropriate at Community level.

MS action: Apply as appropriate at MS level.

A5.2.2: Ensure protection of biodiversity as part of measures to protect human health and environment in relation to the deliberate release into the environment of genetically modified organisms (2006 onwards).

Community level action: Ensure in GMO authorisation procedure.

MS action: Ensure at national level in line with requirements of the authorisation.

Full text of the Biodiversity Communication is available at:
http://ec.europa.eu/environment/nature/biodiversity/current_biodiversity_policy/biodiversity_com_2006/index_en.htm

References to IAS remain missing from some other key Community policies that may have substantial impact on the spread of IAS both within and outside Community territory. For example, the issue is not mentioned in the Strategy on renewable energy (COM(97)599) (within the broader framework on climate change policy), or in the EU's biomass action plan (COM(2005)628 proposal). This is relevant in the context of IAS, as some alien biomass/biofuel crops (eg, eucalyptus and *Pennisetum purpureum* (elephant grass)) that are being promoted for fuel production, may have the potential to become invasive. The Council Resolution for a forestry strategy

(1999/C 56/01) also lacks reference to IAS, though forest management can also contribute to introductions and the spread of IAS.

With regard to external assistance and development cooperation, the EU Development Policy Statement (2006/C 46/01) and the proposed Thematic Strategy on Environment and Sustainable Management of Natural Resources (COM(2006)20, proposal) provide a basis for addressing IAS as a part of EU development cooperation activities (under the biodiversity related provisions). Issues related to IAS could also be addressed within the geographical frameworks for cooperation between the EU and third countries (eg Cotonou Agreement, European Neighbourhood Policy (COM(2004)373), EU Strategy for Africa (COM(2005)489), Strategy for the EU-Latin America partnership (COM(2005)636), EU-Caribbean partnership (COM(2006)86), Strategic Framework for the EU and Asia and South-East Asia (COM(2001)469 and COM(2003)399)). However, only the EU Strategy for Africa provides a specific reference to supporting work related to IAS.

The programming of EU development cooperation and external assistance is carried out within a framework of Country and Regional Strategy Papers (CSPs/RSPs) and National or Regional Indicative Programmes (NIPs/RIPs) that define objectives and priority areas for cooperation between the EU and third countries. In this context, Country Environmental Profiles (CEPs) are used to provide an analysis of the environmental, social and economic situation within a given country/region. Environment is addressed as a crosscutting issue within CSPs/RSPs and several strategy papers also include specific references to aspects of biodiversity.

Although IAS fall within the scope of several current strategy papers, they are not explicitly or systematically addressed. Additionally, although CEPs could be a useful tool for considering issues related to IAS, conducting them is only 'recommended' rather than being a legal obligation within the CSPs/RSPs framework¹⁷.

6.5.2 Ongoing Research

The DAISIE (Delivering Alien Invasive Species Inventories for Europe) project, funded through the Sixth Framework Programme (2005-2008) aims to provide European inventories of IAS and establish the basis for an early warning system. At present, except for the regional NOBANIS portal covering 13 countries, there is no central source of information on IAS in Europe. The DAISIE database could contribute to Europe's ability to detect IAS at an early stage and avoid severe impacts later on. Apart from the IAS inventories, DAISIE is also developing a database of experts in different fields related to biological invasions and attempting to assess and summarise the ecological, economical and health impacts of the most widespread and/or noxious invasive species. The countries taking part on this project are: Austria, the Czech Republic, France, Lithuania, Germany, Greece, Ireland, Italy, Slovenia, Spain, Sweden, Switzerland and the United Kingdom (also Russia and Israel). (See: <http://www.daisie.se>).

¹⁷ The Commission's Strategy on Integrating the Environment into EC Economic and Development Cooperation suggested that CEPs were an important tool for the inclusion of environmental aspects in programming economic and development cooperation (SEC(2001)609). This Strategy was endorsed by the Council on May 2001. CEPs are also included in the Commission's Environmental Integration Manual (http://www.environment-integration.org/EN/D122_CEP.htm).

The ALARM (Assessing LArge-scale Risks for biodiversity with tested Methods) project is also funded through the 6th Framework Programme (2004-2008). Biological invasions are one of four primary risks being addressed by this project. Among other tasks, the project will develop and test robust tools to address the introduction, spread and impact of aquatic and terrestrial non-native species within Europe. If the results of this project are applied, they could form the basis to predict whether restricting imports of more species into the European Community is possible or cost effective. However, changes to current legislation would be needed to bring such a system into force. The countries taking part in the invasion studies in this project are: the Czech Republic, France, Germany, Ireland, Lithuania, Poland, Spain, Slovenia, Switzerland and the United Kingdom (also Russia, Chile, Argentina). (See: <http://www.alarmproject.net>).

DAISIE and ALARM do not carry funding beyond the term of the research contracts involved, so if they are to continue, additional funding would be necessary, either with Community support or from Member States.

SEBI2010 (Streamlining European 2010 Biodiversity Indicators), funded by European Environment Agency) for the period 2004-2009 is developing a set of indicators to measure progress towards the 2010 goal of halting biodiversity loss. One indicator will relate directly to IAS. This should assist in raising awareness of the issue within and between Member States, and also in encouraging collection of data on IAS.

The EPIDEMIE project (Exotic Plant Invasions: Deleterious Effects on Mediterranean Island Ecosystems) (2001-2004) was a research project supported by the European Commission under the 5th Framework Programme, contributing to the implementation of Key Action 2.2.1 (Ecosystem Vulnerability) within the Energy, Environment and Sustainable Development thematic programme. The countries that took part in this project were France, Greece, Italy, Spain, Sweden, and the United Kingdom. (See <http://science.ceh.ac.uk/epidemie>).

The North European and Baltic Network on Invasive Alien Species (NOBANIS), funded by the Nordic Council of Ministers, is a network for cooperation between competent authorities of the North European and Baltic region and it contributes to implementation of recent CBD and Bern Convention recommendations. The participating countries are Denmark, Estonia, Finland, the Faroe Islands, Germany, Greenland, Iceland, Latvia, Lithuania, Norway, Poland, the Russian Federation and Sweden. One of the goals of NOBANIS is to provide administrative tools for making the precautionary approach operational in preventing the unintentional dispersal of IAS. NOBANIS also establishes regional cooperation to assist participating countries in prevention, early detection, eradication, control and mitigation of the ecological impacts of IAS. This goal is achieved, through a publicly accessible internet portal with a searchable database holding information on c5000 alien species recorded within the region, with data on their introduction, distribution, invasiveness, and control. Detailed fact sheets are available for around 60 of the most invasive alien species. (See www.nobanis.org).

6.6 Summary: Community Framework

The existing Community legal and policy framework related to IAS appears to be well established and implemented in relation to certain categories of potential IAS, but is totally lacking for other categories.

Robust and well-established legislation and operational systems are in place for:

- animal pathogens;
- pests of plants: 'harmful organisms' as defined in the plant health Directive; and
- genetically modified organisms.

For aquaculture organisms, specific legislation and systems in relation to diseases of aquaculture species is already in place but these do not address IAS issues directly. However, a new Regulation on the use of alien and locally absent species in aquaculture has been proposed (COM(2006)154).

Regarding wildlife, four invasive alien animal species are currently listed under the wildlife trade Regulations as prohibited for import into EC territory¹⁸. No invasive plants have been listed under these Regulations.

In contrast, organisms that fall into other categories are generally not subject to Community-backed controls on import or export into or out of EC territory. The following categories of potentially invasive alien species therefore fall outside existing Community legislation:

- non-genetically modified plants;
- animals or invertebrates that are not 'harmful organisms' as defined in the plant health Directive; and
- plants and animals that have not been designated as ecological threat species under the wildlife trade Regulations.

Community-level restrictions on intra-EC trade, possession, or introduction of IAS are currently limited to pests of plants and animal pathogens (or vectors for these organisms). They may also be mandated for 'ecological threat species' listed under the wildlife trade Regulations. However, as noted above (see section 6.2), no such restrictions are in place for the four invasive IAS whose import into the EC is currently prohibited.

The habitats and birds Directives contain non-species-specific restrictions on deliberate introductions of alien species to the wild, but Member States retain total discretion with regard to their implementation (variation amongst MS is discussed in the next Chapter). There are no legal requirements for risk assessment prior to introductions of alien species.

With regard to requirements for control and eradication of IAS within the EC, the habitats, birds and water framework Directives impose implicit obligations only on

¹⁸ Species listed are the red-eared slider (*Trachemys scripta elegans*); the American bullfrog (*Rana catesbeiana*); the painted turtle (*Chrysemys picta*); and the American ruddy duck (*Oxyura jamaicensis*).

Member States. These relate to maintaining favourable conservation status and avoiding deterioration of site condition in relation to Natura 2000 sites, avoiding disturbance of species under both the birds and habitats Directives, and reaching or maintaining good environmental status under the water framework Directive (where Member States include IAS as an indicator of good environmental status). It appears that the proposed marine strategy Directive may impose similar obligations for marine waters when it comes into force.

Although the key European policy documents related to biodiversity have recognised IAS as a driver of biodiversity loss and a significant issue for the Community, the actions that have been suggested are very general and most have not been completed in a timely manner.

IAS and the multiple pathways for their introductions are not mentioned in many relevant policies. This indicates that the cross-cutting nature of the issue and the need to manage IAS risks at the regional and pathway level has not been recognised, notwithstanding the recommendations adopted within the CBD framework to this effect (see 4.1 above).

By way of example, IAS risks are not prominent in policies related to development cooperation, external assistance, Community trade, and overseas territories. This is a significant omission, as it is important to recognise the potential for Community actions to introduce IAS to third countries, many of which are rich in native biodiversity and particularly vulnerable to impacts of IAS.

7 REVIEW OF MEMBER STATES'¹⁹ LEGAL FRAMEWORKS WITH REGARD TO IAS

7.1 Introduction

As all EU Member States are parties to the CBD, they all have individual obligations to implement Article 8(h) and to put provisions in place to protect their indigenous biodiversity from the impacts of IAS. Nevertheless, the approach of individual countries to prevention and management of the risks to biodiversity from IAS varies substantially, and individual MS/regional definitions of IAS may also vary (eg the definition of IAS in some countries is limited to species that have arrived after a certain date).

A review of legal provisions in the 'old' EU Member States was carried out in 2002 (de Groot and Gerrits, section in Adrados and Griggs (2002)). This Chapter expands the information in that review to include the 'new' Member States that joined the EU in 2004 and the two Accession Countries (Bulgaria and Romania) and to cover other national developments since 2002. Details of the provisions in place in the countries examined can be found in Annex 3. Internet links to Member State legal provisions are included in the Annex where possible.

¹⁹ Countries reviewed include the 25 EU Member States, together with Bulgaria and Romania, the current Accession Countries.

Information was obtained from published sources such as country reports to the CBD and the Council of Europe. In addition, information was sought from individuals registered on the DAISIE database of experts as well as CBD/Bern Convention contact points in relation to specific countries. Despite this, for some countries, very little information was found. The review does not include analysis of specific MS legislation relating to GMOs, as this was outside the core subject matter of this report. In addition, it is likely that some MS legislation relating to sanitary and phytosanitary arrangements and CITES has not been identified due to the tendency of analysts to treat this legislation as separate from legislation dealing with IAS affecting biodiversity.

Table 7 sets out a summary of the results of the analysis of MS legal and policy provisions in relation to:

- import/export of IAS;
- domestic possession/trade of IAS;
- introduction of IAS to the wild; and
- control/eradication of IAS (categories after de Groot and Gerrits 2002).

In addition, where a Member State has adopted or is developing a specific strategy for IAS, this is noted.

Table 7: Summary of Member States' existing legal and policy provisions relating to IAS

Country	Import/export	Possession/trade	Introduction	Control/eradication	IAS Strategy
Austria	Not found	Not found	Yes	Not found	Action Plan
Belgium	Yes	Not found	Yes	Yes	In Plan for Sustainable Development
Bulgaria	Yes	Not found	Yes	Not found	Under development
Cyprus	Yes	Yes	Yes	Not found	Not found
Czech Republic	Yes	Not found	Yes	Yes	In Biodiversity Strategy
Denmark	Not found	Not found	Yes	Yes	Not found
Estonia	Yes	Not found	Yes	Not found	Not found
Finland	Yes	Not found	Yes	Yes	Not found
France	Yes	Yes	Yes	Yes	Not found
Germany	Not found	Yes	Yes	Yes	In Biodiversity Strategy/ Under development
Greece	Yes	Yes	Not found	Yes	Not found
Hungary	Not found ²⁰	Not found	Yes	Yes	Not found
Ireland	Yes	Yes	Yes	Not found	Not found
Italy	Yes	Yes	Yes	Not found	Not found
Latvia	Yes	Not found	Yes	Yes	In Biodiversity Strategy
Lithuania	Yes	Yes	Yes	Yes	Action Plan
Luxembourg	Not found	Yes	Yes	Being	Being developed

²⁰ Were in place prior to EU membership.

				developed	
Malta	Yes	Yes	Yes	Yes	Being developed
The Netherlands	Yes	Yes	Yes	Yes	Not found
Poland	Yes	Not found	Yes	Yes	Partly developed
Portugal	Yes ²¹	Yes	Yes	Yes	In Biodiversity Strategy
Romania	Yes	Not found	Yes	Yes	Not found
Slovakia	Yes	Yes	Yes	Yes	In Biodiversity Strategy
Slovenia	Not found ²²	Yes	Yes	Not found	To be developed
Spain	Yes	Yes	Yes	Yes	Yes
Sweden	Yes	Yes	Yes	Yes	In Environmental Objectives
UK	Not found	Yes	Yes	Not found	National Strategy now at draft stage

7.2 Import/export of IAS and compatibility of national measures with the EC Treaty

Of the 27 countries examined, seven do not have legal provisions in place to regulate the import or export of IAS except under legislation related to plant and animal health or GMOs. However, twenty countries were found to have some provisions in place to restrict import of at least some alien species. The only country where restrictions on *export* of potential IAS were found was Belgium, which has restrictions related to the export of exotic bird species. Three of the new Member States (Malta, Hungary and Slovenia) noted that they had had comprehensive systems in place for restricting IAS imports prior to EU membership, but had stopped or limited their border control operations after becoming EU members in 2004.

Import restrictions in place in MS are usually limited to specific groups of organisms (eg only aquatic organisms, birds etc). Malta apparently limits its import restrictions to third countries (non-EU Member States). Italy has specific phytosanitary restrictions in place in relation to imports of some plants from Japan. In Portugal, the island territory of Madeira has specific laws in place to control imports of alien species. In Spain, specific restrictions exist in relation to the Canary Islands. These island restrictions are also considered in the section on possession/trade below.

Further details of the Member State provisions in place are set out in Table 8.

Table 8: Member State provisions in relation to import/export of potential IAS

<i>Belgium</i>	Restrictions are in place in relation to import, export and transit of non-indigenous wild bird species.
<i>Bulgaria</i>	Import of alien plant and animal species for the purpose of breeding and raising shall not be permitted if this is detrimental to habitats and species.
<i>Cyprus</i>	Import of aquatic species is prohibited without a written permit.

²¹ Specific restrictions in relation to Madeira.

²² Were in place prior to EU membership.

<i>Czech Republic</i>	Game species have special controls on import, and the phytosanitary list includes some agricultural weed species that are prohibited imports.
<i>Estonia</i>	19 animal species and two plant species are listed as prohibited imports. This is an open list that is regularly updated, and new species are added according to new data.
<i>Finland</i>	Import of wild birds or mammals is prohibited without permission from the Minister of Agriculture and Forestry.
<i>France</i>	Import of game birds is prohibited without permit, with six species excepted.
<i>Greece</i>	Import of all alien species to be farmed/used as baits is prohibited.
<i>Ireland</i>	The importation of wild animals and birds is subject to licence.
<i>Italy</i>	Specific phytosanitary conditions are in place for the import of certain plant species from Japan.
<i>Latvia</i>	The plant protection law states regulations for the import/export of plants (likely to be only for commercial pests of plants, but not clear).
<i>Lithuania</i>	Imported species should be put under quarantine to make sure there are no accidental invasives among them. Potential IAS that are known to cause harm elsewhere should be treated as dangerous (import prohibited, etc). A permit is required for the import of live alien animals into the country.
<i>Malta</i>	The Competent Authority can prohibit the importation of any species of flora and fauna that may endanger native biodiversity (applies only to imports from non-EU countries). Certain listed plant species are prohibited for import.
<i>The Netherlands</i>	The import of two species into the Netherlands is prohibited (<i>Muntingia calabura</i> and <i>Hydrocotyle ranunculoides</i>).
<i>Poland</i>	Obtaining consent from the Minister for the Environment is necessary for importing alien species whose introduction into the environment could pose a threat to native biodiversity. However, the criteria for recognizing alien species as a threat have not yet been specified.
<i>Portugal</i>	Imports and dissemination of new exotic fauna into Madeira are controlled.
<i>Romania</i>	Import of alien animal and plant species can be done only with the approval of the Romanian government and the Romanian Academy of Sciences.
<i>Slovakia</i>	Import of seven listed invasive plants is prohibited.
<i>Spain</i>	Import of game (hunting and fishing) species requires authorisation. In addition, some specific phytosanitary requirements apply to imports into the Canary Islands.
<i>Sweden</i>	Import of animals requires authorisation to prevent the introduction of diseases and the introduction of alien animal species that may harm indigenous fauna. Import and spread of plants and plant material is regulated in order to prevent the spread of plant pests and diseases.

It is unclear whether all of the Member State provisions that restrict imports or exports of potential IAS are in compliance with the EC Treaty's requirements for the Single Market, as Articles 28 and 29 of the Treaty prohibit quantitative restrictions on imports and exports. Article 30 allows for some exceptions, but only if restrictions are justified on grounds such as public security and protection of human, animal or plant health. Any determination of compliance would therefore depend on a case-by-case analysis of the basis for which the restrictions have been adopted.

Article 30 has been examined by the European Court of Justice in two cases with relevance to IAS. The first, in 1994, concerned **imports of live freshwater crayfish to Germany (case C-131/93)**. In that case, the European Commission sued the Federal Republic of Germany for initiating a ban on live crayfish imports. The ban was a response to the fungal disease (*Aphanomyces astaci*), the crayfish plague, which

was being spread mainly by the introduction of alien species of crayfish. The German law required an import licence to be obtained for the import of live crayfish into Germany. Even with such a licence, crayfish could be imported only for research and teaching purposes. This ban affected around ten German firms that were engaged in the import and distribution of live crayfish. A conditional exemption was provided to allow the import of crayfish for a limited time. The exemption required that the precise quantity, the country of origin and species name be specified. The Commission argued that such restrictions were in violation of the EC Treaty because they established import bans against Member States.

The ECJ found in favour of the Commission, as it considered that the reduction in risks from the crayfish plague could have been achieved through measures that were less restrictive on intra-Community trade. Alternatives to a ban could have included requirements for health certification for the crayfish, or by regulating the marketing and management of crayfish within Germany.

The second case was the '**Danish bees case**' (case C-67/97). Danish law prohibited the keeping of any non-indigenous species of nectar-gathering bee on the island of Læsø, the only species permitted being the brown bee indigenous to that island. When the Danish government pursued a prosecution against an individual who was breaching this rule, he claimed that the law constituted a quantitative restriction on imports and was therefore contrary to Article 28 of the EC Treaty. The Court found that the law was indeed a restriction, but that it was justified under Article 30 of the Treaty, for the protection of the health and life of animals.

This limited amount of jurisprudence in relation to Article 30 has left some degree of uncertainty as to the exact types of restrictions they may put in place to protect their biodiversity without breaching provisions of the Treaty.

In summary:

- import/export restrictions for known or potential IAS do not exist in all Member States;
- restrictions vary widely in terms of scope and purpose, eg groups of organisms covered, countries of origin from which imports may be regulated, scientific and procedural safeguards applicable etc;
- there are no mechanisms to support harmonisation or basic consistency of approach between neighbouring countries or countries in the same sub-region;
- fragmented measures of this kind are unlikely to make a substantial contribution to lowering the risks posed by IAS to European ecosystems;
- the limited ECJ case law to date does not provide individual MS with full legal certainty about the kinds of IAS import/export restrictions that are compatible with European law; and
- measures already in place in some MS are not sufficient in their current form to provide a foundation for wider application as part of a future EU framework on IAS.

7.3 Possession /trade

More than half of the countries included in the analysis (16 of the 27) have some legal restrictions in place applying to possession and/or domestic trade in invasive alien

species. These restrictions are usually limited to certain listed species. Lists vary between the countries examined which means that regulatory efforts in neighbouring countries may focus on different species without regard to risks of transboundary spread (an example is given below).

In some countries, although enabling legislation provides for controls on possession or trade in certain species, it is unclear if these controls are actually being adopted by regulations and applied on the ground.

Detail of the provisions found to be in place are set out in Table 9 below.

Table 9: Member State provisions in relation to possession and/or trade of potential IAS

<i>Cyprus</i>	Only Mediterranean species may be used for aquaculture.
<i>France</i>	There are particular statutes restricting trade in two species (<i>Trachemys scripta elegans</i> , and <i>Rana catesbeiana</i>).
<i>Germany</i>	Possession and trade in four species is banned at Federal level (<i>Castor canadensis</i> , <i>Chelydra serpentina</i> , <i>Macrolemys temminckii</i> , and <i>Sciurus carolinensis</i>).
<i>Greece</i>	Trade in some alien species is controlled through CITES regulations.
<i>Ireland</i>	The Minister may issue regulations prohibiting possession of any species of wild bird, animal or flora.
<i>Italy</i>	There are rules applicable to keeping, breeding, marketing and trade in exotic animals (listed species), however these are mainly on a regional level, and are generally targeted at only 'dangerous' IAS.
<i>Lithuania</i>	Legislation contains provisions to control trade in IAS.
<i>Luxembourg</i>	Legislation contains provisions to control the trade and possession of IAS.
<i>Malta</i>	The propagation, sowing, and sale of certain listed plant species is prohibited.
<i>The Netherlands</i>	Commercial activities are currently prohibited in relation to two species: (<i>Muntingia reevesi</i> and <i>Hydrocotyle ranunculoides</i>).
<i>Portugal</i>	Sale, cultivation, possession, or detention of certain named species is prohibited. Use as ornamentals or pets is prohibited. There are specific restrictions in place relating to the imports and dissemination of exotic fauna in Madeira.
<i>Slovakia</i>	Legislation includes regulations dealing with trade in IAS, though it is unclear how these are being implemented.
<i>Slovenia</i>	Legislation includes measures relating to captive breeding of alien species, but it is unclear how these are being applied.
<i>Spain</i>	There are specific procedures in place relating to exports to the Canary Islands.
<i>Sweden</i>	Import of living crayfish is not allowed in order to protect the indigenous Noble crayfish <i>Astacus astacus</i>
<i>United Kingdom</i>	Keeping of certain fish species is prohibited, and a permit system operates for some other species.

Two MS have recorded specific restrictions in relation to internal movement of potential IAS into some parts of their territory (Spain and Portugal). The Danish bees case showed that domestic restrictions of this type may constitute quantitative restrictions on trade, *prima facie* in breach of the EC Treaty, although such restrictions, when genuinely aimed at the protection of biodiversity, may be perfectly justifiable in the absence of any harmonised Community rules on the matter. It is

unclear whether the restrictions currently in place in Spain and Portugal would constitute quantitative restrictions or not, and if so, whether they would be justifiable under Article 30 of the EC Treaty.

It should be noted that existing national restrictions on possession/trade of potential IAS are not consistent between MS. For example, the Netherlands has restrictions in place in relation to *Muntiacus reevesi* and *Hydrocotyle ranunculoides*, Germany has restrictions in relation to four different species (*Castor canadensis*, *Chelydra serpentina*, *Macrolemmys temminckii*, and *Sciurus carolinensis*), and Belgium which borders both countries was not found to have any restrictions in place. This kind of inconsistency reflects the lack of sub-regional and regional coordination (eg with regard to risk assessment) and is likely to limit the utility of such measures where trans-border spread can occur.

An example of good practice in relation to restrictions on possession and trade in potential IAS is available from the UK. A scientific risk analysis of ornamental fish species was undertaken, following which a comprehensive permit system was implemented requiring authorisation to hold and trade in the most high-risk species. This system is thought to have reduced the risk of invasive fish being released in UK waters (G. Copp, pers. comm.; Copp et al 2005).

In summary:

- restrictions on possession and trade in known or potential IAS do not exist in all Member States;
- where restrictions do exist, they vary widely in terms of scope and purpose, eg taxonomic groups affected, scientific analysis undertaken, scale of implementation etc;
- there are no mechanisms in place to support harmonisation or basic consistency of approach between neighbouring countries or countries in the same sub-region;
- fragmented measures of this kind are unlikely to make a substantial contribution to lowering the risks posed by IAS to European ecosystems;
- the limited ECJ case law so far does not provide individual MS with full legal certainty about the kinds of IAS possession/domestic trade/internal movement restrictions that are compatible with European law; and
- the measures that are already in place in some MS are not sufficient in their current form to provide a foundation for wider application as part of a future EU framework on IAS, although there is some good practice occurring.

7.4 Introduction of IAS into the wild

The vast majority of countries examined have some legal restrictions in place with regard to introduction of alien species into the wild. The habitats and birds Directives contain a very general Community-wide requirement for such restrictions (see discussion in Chapter 6), but it appears that the transposition of the relevant Articles of the Directives varies widely between MS.

The provisions in place are summarised in Table 10. The only country where no restrictions on introductions were found was Greece.

Table 10: Summary of Member State Provisions Relating to Introduction of Potential IAS

Country	Prohibition Order	Introduction of:
Austria	At federal state (Länder) level	Alien plants and animals
Belgium	Federal, also Regional (Flanders, Wallonia, Brussels)	Varies between regions: marine organisms, fish, plants, animals, birds, all alien species
Bulgaria	Biological Diversity Act (2002)	Exotic species
Cyprus	Aquaculture Law	Exotic aquaculture organisms
Czech Republic	Act No. 114/1992 Coll. on the Nature and Landscape Protection (partly Act No. 326/2004 Coll. "on plant health", Act No. 254/2001 Coll. "the Water act", Act No 449/2001. Coll. "on game-keeping")	Alien animals and plants (incl. plant pathogens and weeds, aquatic organisms, game species)
Denmark	Protection of Nature Act; Fishing Act	Exotic animals; exotic plants
Estonia	Nature Conservation Act	Alien species
Finland	Nature Conservation Act	Alien species
France	Code Rural, Loi Barrier	Alien species
Germany	Federal Nature Conservation Act	Alien species (only newly imported species)
Greece	Not found	
Hungary	Nature Conservation Act	New organisms
Ireland	Wildlife Act, Wildlife (Amendment) Act	Animals and plants
Italy	Decree of the President of the Republic DPR 357/1997	Alien species
Latvia	Law 'on Protection of Species and Habitats'	Wild species not native to the territory of Latvia
Lithuania	Various	Plants and animals
Luxembourg	Act on the Protection of Nature and Natural Resources	Alien species
Malta	Environmental Protection Act; Trees and Woodland Protection Regulations	Listed species
The Netherlands	Flora and Fauna Act	Animals and plants
Poland	Nature Conservation Act, Inland Fisheries Act, Fisheries Act	Alien species
Portugal	Decree-Law nr 565/99	Listed species
Romania	Various – see Annex	Alien species, with specific provisions for fish and hunting species
Slovakia	Act on Nature and Landscape Protection	Alien species
Slovenia	Nature Conservation Act	Alien species
Spain	Law 4/1989	Alien species
Sweden	Ordinance on Hunting; Ordinance on Fishing, Aquaculture and Fishing Industry	Mammals, birds, fish

UK	Various (Scotland, England, Wales, Northern Ireland)	Alien species
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The level of restriction varies between countries, but often consists of a ban on introductions without a permit. The main areas of variation between countries are:

- existence of exceptions to the permit requirements for introductions related to agriculture, fisheries and forestry;
- differing levels of restriction for aquatic and terrestrial species;
- scope of restrictions limited to certain groups of organisms;
- 'blanket' restriction on introduction of all alien species or only restriction for introduction of listed species; and
- existence of restrictions on introductions to the marine environment.

The national legislation surveyed relates mainly to restrictions on intentional introductions rather than introductions through negligence or accident. Accidental and negligent introductions still remain largely unregulated, though some countries include the possibility of penalties for such introductions (eg UK, Portugal, Ireland; see: Adrados and Griggs 2002).

In some countries (eg UK, Belgium, Portugal, France) educational campaigns have been undertaken in order to reduce the risks from members of the public introducing invasive plants and animals into the wild. In the UK, the competent ministry (Defra) has worked with the horticulture industry to develop a Code of Practice for invasive plants, and a similar Code for companion animals is now in development.

In summary:

- there is no coordination/consultation between MS with regard to what species introductions are actually regulated (ie one country may undermine a neighbour's efforts if no equivalent measures are in place);
- although MS are required to control introductions of potential IAS where these may affect habitats and species (under the birds and habitats Directives), in some cases there are broad exceptions for commercial introductions of species which could in practice be harmful and/or invasive;
- in some countries with Federal systems, there are no measures at the national level to promote consistency in control of introductions by sub-national authorities and authority to introduce national measures may be lacking;
- translocations of species out of their native range within one country are rarely regarded as introductions for regulatory purposes; and
- accidental and negligent introductions remain largely unregulated.

No information was obtained on the enforcement and monitoring of MS provisions related to introduction of IAS. In some cases, reports to CBD or other information analysed for this report noted that the penalties available for illegal introductions were low, and that the issue of IAS remained a low political priority.

7.5 Control/eradication

Statutory measures in relation to control and eradication of IAS were found in the majority of the countries surveyed (18 of the 27), and are being developed in one

other (Luxembourg). As with the other areas assessed, there is wide variation in the measures in place in different countries. Some of the measures require control of certain listed species, while others equip relevant authorities with powers to carry out compulsory controls on private land or to nominate species for control as and when necessary. In some cases, as in the other areas, although necessary legislative provisions are in place, it is unclear whether implementing regulations have been adopted and applied.

Further details of the control/eradication provisions are set out in Table 11.

Table 11: Summary of Member State Provisions Relating to Control/Eradication of Potential IAS

<i>Belgium</i>	Population control is underway for muskrats and coypus. The Flemish region has specific legal provisions to enable measures to control and eradicate alien species.
<i>Czech Republic</i>	Legislation contains specific provision for management of IAS in protected areas.
<i>Denmark</i>	Hunting of some (specified) animal species is allowed year-round for control purposes. Authorities may require the eradication of plants on private land if an official eradication plan has been adopted in the area.
<i>Finland</i>	Regulations may be made to prevent the spread of alien species. Some animal species are controlled through regulated hunting.
<i>France</i>	The regional authorities must make an annual list of animal species for which hunting is allowed year-round for control.
<i>Greece</i>	Under Greek law, the Sanitary Committee may decide to control introduced animal species.
<i>Germany</i>	In Germany the plant protection act contains mandatory control of those IAS that are declared pests of plants and grants authorities right of access to private land for this purpose.
<i>Hungary</i>	There are measures to control alien animal species through hunting. An inter-ministerial committee has been established to deal with legal and financial aspects of the control of <i>Ambrosia artemisiifolia</i> .
<i>Latvia</i>	There are specific controls in place in relation to <i>Heracleum sosnowskyi</i> .
<i>Lithuania</i>	Lithuania has a specific Order on 'Control and Eradication of Invasive Species Organisms'. However, there are currently no management plans for control of invasive alien species in Lithuania.
<i>Luxembourg</i>	Hunting legislation is being developed to enable control of alien animal species by hunting if necessary.
<i>Malta</i>	Legislation states that 'any species known to be invasive should be declared and rules should be established for its control.'
<i>The Netherlands</i>	Regulations enable control of specific alien mammal and bird species.
<i>Poland</i>	The numbers of alien game species is controlled following the Ordinance of the Minister of the Environment on the list of game species and close seasons for those animals. Two alien species of crayfish and three alien species of fish are subject to control according to the Ordinance of the Ministry of Agriculture and Rural Development of 2001 on fishing and conditions for raising, breeding and catching other organisms living in water.
<i>Portugal</i>	Portuguese legislation foresees the development of a national action plan for IAS where control or eradication efforts are necessary. This plan is yet to be elaborated. The Azores regional government has published a plan for

	eradication of some invasive plant species in sensitive areas.
<i>Romania</i>	There is provision in Romanian law for control of IAS, but no indication that the provisions are being used.
<i>Slovakia</i>	A compulsory order for eradication is in place in relation to seven plant species.
<i>Spain</i>	Statutory measures are in place for eradication and control of <i>Rhynchophorus ferrugineus</i> . Law relating to national parks encourages eradication of IAS.
<i>Sweden</i>	Statutory measures are in place for the eradication of Giant Hogweed <i>Heracleum mantegazzianum</i> . Hunting legislature include measures for year-round hunting of invasive alien animal species.

In several MS, the legal basis for control of invasive animal species is contained in hunting-related laws, which simply declare an open season for year-round hunting of designated 'pest' species (eg Poland (restricted areas only), Luxembourg and France (no area restrictions)).

Hunting-type measures are usually developed unilaterally but one sub-region provides an example of good practice for coordination. The three Benelux countries (Belgium, Luxembourg, the Netherlands) consult with regard to which species should be hunted (this consultation is provided for in a Treaty between the three countries).

There have been some MS attempts to coordinate control of IAS and share information, eg the Giant Aliens project²³, but these are uncommon. Existing initiatives tend to be species-specific and reactive ie a delayed response to IAS that are already very widely established.

Most MS with statutory control requirements also have non-statutory programmes underway to control certain problematic species (eg Estonia for *Heracleum sp.*). Some MS without any statutory control measures in place are nevertheless undertaking widespread control of a variety of IAS, sometimes with support from European funds such as LIFE (eg the UK). For further information on the control programmes underway, see the details of country provisions in Annex 3.

In summary:

- arrangements for early detection and rapid response, if they even exist at MS level, are unilateral and rarely coordinated between countries;
- species subject to control vary between countries and there is little or no coordination/consultation between MS with regard to the species being controlled or subject to eradication efforts;
- control measures that stop at political and administrative borders may prove ineffective and costly, particularly for highly invasive species. One country's investment in eradication efforts may be undermined if its neighbour has no equivalent measures in place;
- few MS have achieved successful eradications of IAS; and
- examples of European best practice and case studies for eradication/control are not efficiently disseminated.

²³ See http://www.giant-alien.dk/project_summary.html.

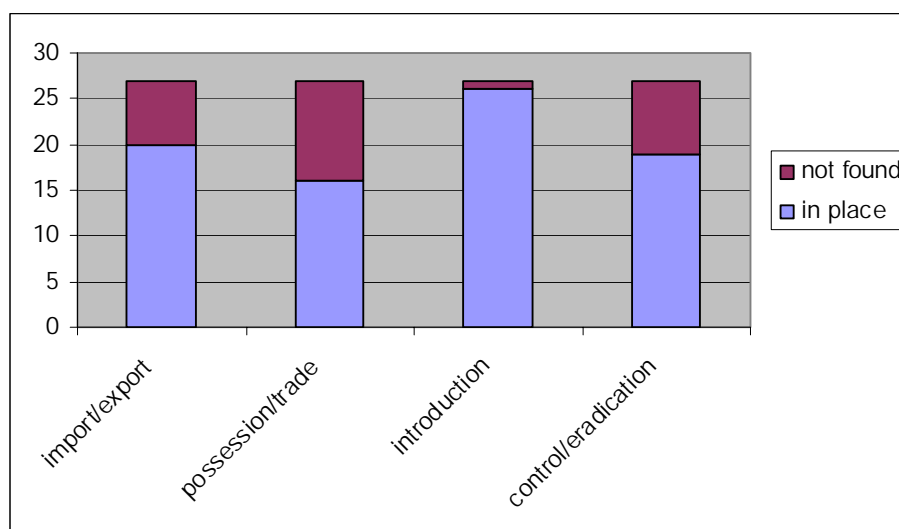
7.6 Member State provisions: summary

Of the 27 countries assessed:

- twenty have some provisions in place in relation to import/export of IAS;
- sixteen have some provisions in relation to possession/trade of IAS;
- twenty-six control introduction to the wild of some IAS within their borders; and
- nineteen have some provisions for statutory control and/or eradication of IAS.

This information is summarised in Figure 1.

Figure 1: Chart summarising Member States provisions in relation to IAS



The major findings of this analysis of Member State IAS provisions are as follows (based on the summaries of the preceding sections 7.2-7.5):

- none of the policy areas is well-regulated in all MS, although most MS have some regulations in place relating to IAS;
- MS provisions in all areas vary widely in terms of scope and purpose, eg groups of organisms covered, countries of origin from which imports may be regulated, scientific and procedural safeguards applicable etc;
- there are no mechanisms to support harmonisation or basic consistency of approach between neighbouring countries or countries in the same sub-region (one country may undermine another's efforts if no equivalent measures are in place) ;
- the fragmented measures in place are unlikely to make a substantial contribution to lowering the risks posed by IAS to European ecosystems;
- limited ECJ case law does not provide individual MS with full legal certainty about the kinds of IAS import/export restrictions that are compatible with European law;
- good practice is in relation to policies and legislation relating to IAS is occurring in some areas, but is scattered;
- although MS are required to control introductions of potential IAS where these may affect native habitats and species (under the birds and habitats

Directives), in some cases MS legislation contains exceptions to permit requirements in the case of introductions for commercial purposes (eg for agriculture and forestry) of species which could still be invasive;

- in some countries with Federal systems, there is no consistency in regulation related to IAS at the national level and authority to introduce consistent measures may be lacking;
- translocations of species outside of their native range within one country are rarely regarded as introductions for regulatory purposes; and
- accidental and negligent introductions remain largely unregulated at MS level.

7.7 Best practice elsewhere: IAS frameworks in Australia and New Zealand

Although the political and environmental conditions in New Zealand and Australia and the level of awareness of IAS-related risks are very different from those in Europe, there are some features of their systems related to IAS that are potentially applicable within the European Union. These are set out below.

Single agency approach

Both New Zealand and Australia have established agencies with clear lead responsibility for most IAS issues (Biosecurity Australia and Biosecurity New Zealand). The existence of these agencies creates a single clearing point for media enquiries and publicity in relation to IAS, and also enables a more coordinated 'cross-cutting' approach to the issues across the affected sectors (eg health, agriculture, marine environment). The single agency approach appears to have improved effectiveness and understanding, streamlined risk assessment and permit procedures and reduced conflict.

Strong and clear strategy

The New Zealand government published a 'Biosecurity Strategy' in 2003 (New Zealand Biosecurity Council, 2003). This was the result of a broad review of systems, and an open consultation process that brought together participants from industry, non-governmental groups, and various government departments. This Strategy is now the foundation for the development of new systems and processes in New Zealand, and lays out the country's priorities in a transparent manner.

Scope of national frameworks

The frameworks in place in New Zealand and Australia are designed to cover both intentional and unintentional introductions of IAS. They take both pathway approaches (eg New Zealand has developed an Import Health Standard for used tyres which may carry mosquito larvae), and include comprehensive risk analyses in relation to proposed intentional introductions. The frameworks cover all groups of organisms, including GMOs, microorganisms, and higher plants and animals. Marine IAS are still somewhat unmanaged, especially in relation to the hull fouling pathway, although there is a Code of Practice in relation to removal of fouling organisms in Australian and New Zealand waters. In general, the frameworks are comprehensive.

Robust external border control and public awareness about IAS issues

Both New Zealand and Australia allocate a high level of resources to policing their external borders, and encourage media interest in relation to new incursions of exotic species and the way these are dealt with. The public (and media) appear to be generally better informed about the potential risks of alien species introductions.

Extra protection for fragile habitats and species

For some fragile areas (eg offshore islands), strict controls have been established with regard to the passage of goods. Certain species are banned from import or for possession on some islands due to the risk they present to native species (eg Lord Howe Island in Australia where domestic cats are being 'phased out').

Capacity for rapid response, control, eradication

Due to a history of activities to deal with incursions of IAS, and to manage existing IAS issues, there is a significant reserve of technical expertise in relation to control and eradication of IAS in New Zealand and Australia. Systems are in place to facilitate rapid dissemination of information to relevant bodies, including relevant parts of government, local authorities etc. Although 'contingency funds' have not been established in either country, new funding has been able to be obtained at short notice through new allocations from governments (eg in Australia for the response to red imported fire ant (*Solenopsis invicta*) in Queensland and in New Zealand for the response to painted apple moth (*Teia anartoides*) in Auckland). Sufficient funds are available for initial response activities (ie delimiting surveys, initial small-scale control).

For more information on the frameworks in place in New Zealand and Australia, see:

Biosecurity Australia: <http://www.affa.gov.au/biosecurityaustralia>

Biosecurity New Zealand: <http://www.biosecurity.govt.nz/>

8 IDENTIFYING AREAS OF RELEVANCE TO COMMUNITY COMPETENCE IN THE CBD'S GUIDING PRINCIPLES ON IAS AND THE EUROPEAN STRATEGY ON INVASIVE ALIEN SPECIES ADOPTED BY THE PARTIES TO THE BERN CONVENTION

8.1 Introduction

The CBD Guiding Principles (GPs) and European Strategy on Invasive Alien Species (European IAS Strategy) are introduced in Chapter 5 of this Report. The full text of each GP is set out in the corresponding section below.

Due to the cross-cutting nature of IAS issues, the GPs and the European IAS Strategy need to be addressed through policies and legislation in numerous areas of the European Community's operations (eg trade, environment, fisheries, agriculture, impact analysis, etc). This need is mirrored in Member States.

The establishing the European Community is based on the principle of subsidiarity²⁴. Exclusive competence is assigned to the Community in some specific areas of operation (eg fisheries policy, common commercial policy). In other areas (such as development policy) competence is shared between the Community and the Member States. For some others (eg landuse planning), Member States effectively have sole competence²⁵, though Community environmental protection measures affecting land use may be adopted under art. 175(2) of the Treaty by a unanimous decision of the Council. The question of the level at which competence is held is important in determining who has responsibility and jurisdiction to act.

The discussion below considers where competence lies in relation to each of the Guiding Principles and touches on key activities that have already been carried out at Community and Member State level in relation to each of the GPs. As noted earlier (Chapter 5), the European IAS Strategy is closely aligned with the GPs and thus raises similar questions as regards Community competence. For ease of reference, Table 12 sets out the sections of the European IAS Strategy that correspond to each of the GPs (also discussed in the text below).

Table 12: Structure of the CBD GPs on IAS and corresponding provisions of the European IAS Strategy

CBD Guiding Principle	European IAS Strategy reference
1. Precautionary approach	Parts 3, 5, 7
2. Three-stage hierarchical approach	Parts 3, 5, 6, 7
3. Ecosystem approach	Parts 3, 4, 5, 8
4. The role of States	Part 2, 4
5. Research and monitoring	Part 2
6. Education and public awareness	Parts 1, 7
7. Border control and quarantine measures	Part 5
8. Exchange of information	Parts 2, 4
9. Cooperation, including capacity-building	Parts 2, 4, 5
10. Intentional introduction	Part 5
11. Unintentional introductions	Part 5
12. Mitigation of impacts	Parts 6, 7
13. Eradication	Part 7
14. Containment	Part 7
15. Control	Part 7

²⁴ Subsidiarity is based on the idea that, in democracy, the problems must be treated closest to the citizens. In practice, it means that every problem must be treated at the most efficient or appropriate level (EU, national, regional or local level). According to the principle of subsidiarity, action should only be taken at Community level if this is justified: the Union should not treat an issue (except in the areas which fall within its exclusive competence) unless it is more effective at treating this problem than the national, regional or local level. The basic principles underlying subsidiarity were laid down in the Edinburgh European Council (December 1992) which enshrines subsidiarity in the EU Treaty. The Treaty of Amsterdam followed by adopting a Protocol on the application of subsidiarity. (Definition from www.euroactiv.com.)

²⁵ In these areas there may be some limited Community competence, eg for landuse planning the Community has some jurisdiction in relation to protected areas as a result of Community legislation.

8.2 Consideration of competence in relation to the Guiding Principles

8.2.1 GP1: Precautionary approach

Given the unpredictability of the pathways and impacts on biological diversity of invasive alien species, efforts to identify and prevent unintentional introductions as well as decisions concerning intentional introductions should be based on the precautionary approach, in particular with reference to risk analysis, in accordance with the guiding principles below. The precautionary approach is that set forth in principle 15 of the 1992 Rio Declaration on Environment and Development and in the preamble of the Convention on Biological Diversity.

The precautionary approach should also be applied when considering eradication, containment and control measures in relation to alien species that have become established. Lack of scientific certainty about the various implications of an invasion should not be used as a reason for postponing or failing to take appropriate eradication, containment and control measures.

The precautionary approach is considered in the European IAS Strategy in the context of Strengthening national policy, legal and institutional frameworks (Part 3); Prevention (Part 5); and Mitigation of impacts (Part 7).

The Community has competence in relation to the free movement of goods within Community territory (Treaty establishing the European Community). MS may not impose quantitative restrictions on imports or exports (between MS) (Articles 28 and 29), although Article 30 does provide grounds for potential exceptions:

'The provisions of Articles 28 and 29 shall not preclude prohibitions or restrictions on imports, exports or goods in transit justified on grounds of public morality, public policy or public security; the protection of health and life of humans, animals or plants; the protection of national treasures possessing artistic, historic or archaeological value; or the protection of industrial and commercial property. Such prohibitions or restrictions shall not, however, constitute a means of arbitrary discrimination or a disguised restriction on trade between Member States.'

The precautionary approach is not mentioned in Article 30. In the absence of robust scientific evidence that strongly justifies national measures, MS may therefore be concerned that any IAS-related restrictions they impose will be treated as 'disguised restrictions on trade' and will be challenged in the European Court of Justice.

Article 174 of the Treaty of Europe specifically states that

'Community policy on the environment shall [...] be based on the precautionary principle [...].'

However, it does not appear that this provision has been explicitly interpreted to extend to MS having the ability to restrict imports of potential IAS from other MS. There is no evidence that any MS currently applies IAS trade-related restrictions based on this provision, although some MS do have legislation to restrict the imports of certain potential IAS (eg the Netherlands).

The EIA and SEA Directives require the consideration of environmental consequences that could include the impacts of IAS. However, there is no indication that any MS provides for systematic consideration of such impacts. It would also be possible to include IAS in the Sustainability Impact Assessments connected with international development activities, but again there is no evidence of any existing practice in this area.

In line with the GPs, MS are also required to apply the precautionary principle in relation to domestic decisions on introduction, eradication, containment and control of IAS. In the current state of the law, such decisions are within MS, rather than EC, competence. This means that giving effect to GP1 will require commitment and actions from both the EC and MS.

NB: The European Commission has released a Communication on the Precautionary Principle (COM(2000)1) which aimed to establish Commission guidelines for use of the principle. The Communication does not explicitly discuss the use of the precautionary principle in relation to IAS, but does discuss its use in the context of the World Trade Organisation (WTO) and the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement).

8.2.2 GP2: Three-stage hierarchical approach

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| <ol style="list-style-type: none">1. Prevention is generally far more cost-effective and environmentally desirable than measures taken following introduction and establishment of an invasive alien species.2. Priority should be given to preventing the introduction of invasive alien species, between and within States. If an invasive alien species has been introduced, early detection and rapid action are crucial to prevent its establishment. The preferred response is often to eradicate the organisms as soon as possible (principle 13). In the event that eradication is not feasible or resources are not available for its eradication, containment (principle 14) and long-term control measures (principle 15) should be implemented. Any examination of benefits and costs (environmental, economic and social) should be done on a long-term basis. |
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The three-stage approach is also addressed in the European IAS Strategy in the Parts dealing with Strengthening national policy, legal and institutional frameworks (Part 3); Prevention (Part 5); Early Detection and Rapid Response (Part 6); and Mitigation of Impacts (Part 7).

As discussed above in relation to GP1, the Community has competence in relation to the Single Market as well as external trade, and accordingly in relation to preventing export/import of IAS between Member States and their import into the Community from non-Member States.

Introductions into the wild within MS, and eradication, containment and control decisions involve a mix of Community and MS competence. Community-level measures which incorporate a three-stage approach are in place in relation to 'harmful organisms' as classified under the plant health Directive (2000/29/EC), and for animal

diseases as controlled by the species-specific and general Directives containing precautions against animal disease introductions. The proposed new Regulation on the use of alien and locally absent species in aquaculture²⁶ would also apply a type of three-stage approach, but its scope is limited to fish stocks regulated under the Common Fisheries Policy. In addition, the three-stage approach is incorporated into the EU Directives and Regulations relating to genetically modified organisms (GMOs).

The habitats and birds Directives contain provisions requiring that MS control the introduction of IAS that may affect native habitats and species. MS are also responsible for maintaining the values of protected sites, and this may extend to taking control and eradication actions in relation to IAS if necessary.

8.2.3 GP3: Ecosystem approach

Measures to deal with invasive alien species should, as appropriate, be based on the ecosystem approach, as described in decision V/6 of the Conference of the Parties.

This GP is reflected in the Parts of the European IAS Strategy that deal with Strengthening national policy, legal and institutional frameworks (Part 3), Regional cooperation and responsibility (Part 4), Prevention (Part 5), and Restoration of native biodiversity (Part 8).

The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. The CBD has recommended application of the ecosystem approach to help reach a balance of its three objectives: conservation; sustainable use; and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.

The European Community has recognised the value of the ecosystem approach in some areas where it may be applied to environmental problems that include IAS. Specifically, the ecosystem approach is a feature of:

- the water framework Directive, and the proposed marine strategy Directive, which also include the possibility for MS to address IAS in water bodies and European marine waters; and
- the Sixth Environmental Action Programme which requires application of the ecosystem approach 'wherever appropriate' and contains a key action in relation to IAS: 'developing measures aimed at the prevention and control of invasive alien species including alien genotypes'.

Outside the WFD and MSD, there are no specific Community-level coordinated actions related to IAS that apply the ecosystem approach. MS have competence in relation to design of their own control and monitoring programmes and for deciding whether these are based on the ecosystem approach.

8.2.4 GP4: The role of States

1. In the context of invasive alien species, States should recognize the risk that activities within their jurisdiction or control may pose to other States as a potential source of invasive alien species, and should take appropriate

²⁶ COM (2006) 154 final.

- individual and cooperative actions to minimize that risk, including the provision of any available information on invasive behaviour or invasive potential of a species.
2. Examples of such activities include:
 - a. The intentional transfer of an invasive alien species to another State (even if it is harmless in the State of origin); and
 - b. The intentional introduction of an alien species into their own State if there is a risk of that species subsequently spreading (with or without a human vector) into another State and becoming invasive;
 - c. Activities that may lead to unintentional introductions, even where the introduced species is harmless in the state of origin.
 3. To help States minimize the spread and impact of invasive alien species, States should identify, as far as possible, species that could become invasive and make such information available to other States.

This GP is reflected in the European IAS Strategy in the Parts dealing with the Collecting, managing and sharing information (Part 2), and Regional cooperation and responsibility (Part 4).

GP4.2.a refers to the intentional transfer of alien species to other States, which could either be other MS or third countries. GPs 4.2.b and 4.2.c concern the risks, through intentional or unintentional introductions, of a potentially invasive alien species spreading to another State (again, these could be MS or third countries).

Controlling the movement of species between Member States relates to the operation of the Single Market and is therefore within EC competence. Regarding exports and intra-Community movements, some Community instruments (the plant health Directive; the species-specific and general Directives containing precautions against animal disease introductions; and the Directives relating to contained use, release and transboundary movements of GMOs) mandate harmonised measures to minimise risks of exporting pests/diseases/organisms to other countries as well as spread of such organisms within and between countries. The proposed Regulation on the use of alien and locally absent species in aquaculture will provide for the assessment of risks associated with intentional and non-intentional introductions of aquaculture organisms.

In addition, the export of certain micro-organisms and GMOs can be restricted for dual use items (Regulations 1334/2000/EC and 394/2006/EC). Unintentional transboundary movements of GMOs can be regulated through Regulation 1946/2003/EC.

In contrast, no biodiversity-related or other Community instruments are in place to provide a basis for assessing and managing the risks of transferring potentially invasive alien species to third countries. This is true both for intentional introductions and for trade- and transport-related pathways for unintentional introductions.

In the area of EU development cooperation activities, the risks related to IAS could be addressed as a part of the SEAs that the Community has committed to carry out on a systematic basis as part of its development policy ('European Consensus on

Development' (2006/C 46/01). However, carrying out SEAs is not a statutory obligation.

None of the Member States' instruments summarised in this report seem to address IAS risks associated with export and transboundary spread.

The spread of potential IAS between MS is basically a matter for MS competence except for organisms covered by the plant health Directive, the species-specific and general Directives containing precautions against animal introductions, and the GMO-related instruments. Although the habitats and birds Directives require MS to control introductions that may have a negative effect on flora, fauna, habitats or species, these Directives do not explicitly refer to consideration of possible impacts on other countries.

8.2.5 GP5: Research and monitoring

In order to develop an adequate knowledge base to address the problem, it is important that States undertake research on and monitoring of invasive alien species, as appropriate. These efforts should attempt to include a baseline taxonomic study of biodiversity. In addition to these data, monitoring is the key to early detection of new invasive alien species. Monitoring should include both targeted and general surveys, and benefit from the involvement of other sectors, including local communities. Research on an invasive alien species should include a thorough identification of the invasive species and should document: (a) the history and ecology of invasion (origin, pathways and time-period); (b) the biological characteristics of the invasive alien species; and (c) the associated impacts at the ecosystem, species and genetic level and also social and economic impacts, and how they change over time.

The European IAS Strategy also includes requirements for research (Part 2).

Research on IAS is currently being undertaken at both MS and Community level. Significant Community-level projects include DAISIE, ALARM, and the work being carried out in relation to SEBI2010. Resources for IAS research at MS level appear to vary significantly.

With regard to monitoring, and reporting of incursions, mandatory requirements are limited to plant pest and animal pathogen frameworks. There is no EU-wide system to support general IAS monitoring or reporting. Although it is unclear how monitoring is addressed in individual MS, the review of MS measures found little evidence of large-scale coordinated activity.

8.2.6 GP6: Education and public awareness

Raising the public's awareness of the invasive alien species is crucial to the successful management of invasive alien species. Therefore, it is important that States should promote education and public awareness of the causes of invasion and the risks associated with the introduction of alien species. When mitigation measures are required, education and public-awareness-oriented programmes should be set in motion so as to engage local communities and appropriate sector groups in support of such measures.

The European IAS Strategy includes key actions in relation to education and public awareness in the Parts dealing with Building awareness and support (Part 1), and Mitigation of impacts (Part 7).

This is an area where both MS and the Community can play an active role. However, although the Commission has produced one publication on IAS (LIFE Focus: Alien species and nature conservation in the EU), the issue does not have high prominence in discussions of nature and biodiversity in Europe. MS vary in the level of activity underway in relation to IAS, some having launched significant awareness initiatives, and others devoting very limited resources to the issue.

8.2.7 GP7: Border control and quarantine measures

1. States should implement border controls and quarantine measures for alien species that are or could become invasive to ensure that:
 - a. Intentional introductions of alien species are subject to appropriate authorization (principle 10);
 - b. Unintentional or unauthorized introductions of alien species are minimized.
2. States should consider putting in place appropriate measures to control introductions of invasive alien species within the State according to national legislation and policies where they exist.
3. These measures should be based on a risk analysis of the threats posed by alien species and their potential pathways of entry. Existing appropriate governmental agencies or authorities should be strengthened and broadened as necessary, and staff should be properly trained to implement these measures. Early detection systems and regional and international coordination are essential to prevention.

The European IAS Strategy includes similar requirements in the Part dealing with Prevention (Part 5).

It is clear that the operation of the European Community's Single Market means that opportunities for MS to implement individual border control and quarantine measures in relation to IAS are limited. Risk analysis systems as envisaged under this GP do not generally exist in relation to the import of alien species from outside the EC, except for:

- 'harmful organisms' as defined in the plant health Directive;
- animal pathogens covered by the species-specific and general Directives containing precautions against animal disease introductions; and
- GMOs.

Similar measures are included in the proposed Regulation on the use of alien and locally absent species in aquaculture.

The only species (outside the groups listed above) that are currently prohibited for import into the EC on the basis of invasiveness are the four invasive animal species that are listed under the wildlife trade Regulations.

With regard to the introduction of IAS within EU Member States, the assessment of MS legislation and policies set out in chapter 7 showed that most MS have measures

in place to control introductions. However, very few of the measures in place seem to be based on risk analysis.

There is currently no EU-wide alert system to facilitate early detection and rapid response for IAS that fall outside plant pest/animal pathogen frameworks. However, work to develop such a system is underway in the ALARM and DAISIE projects, and is one of the recommendations in the recent Biodiversity Communication (COM(2006)216) (see Box 4).

As noted earlier, sub-regional and regional coordination mechanisms are under-developed within Community territory.

8.2.8 GP8: Exchange of information

1. States should assist in the development of an inventory and synthesis of relevant databases, including taxonomic and specimen databases, and the development of information systems and an interoperable distributed network of databases for compilation and dissemination of information on alien species for use in the context of any prevention, introduction, monitoring and mitigation activities. This information should include incident lists, potential threats to neighbouring countries, information on taxonomy, ecology and genetics of invasive alien species and on control methods, whenever available. The wide dissemination of this information, as well as national, regional and international guidelines, procedures and recommendations such as those being compiled by the Global Invasive Species Programme should also be facilitated through, inter alia, the clearing-house mechanism of the Convention on Biological Diversity.
2. The States should provide all relevant information on their specific import requirements for alien species, in particular those that have already been identified as invasive, and make this information available to other States.

Information exchange is considered in the European IAS Strategy in the Parts dealing with Collecting, managing and sharing information (Part 2) and Regional cooperation and responsibility (Part 4).

As with GPs 5 and 6, information exchange is an area where both the Community and MS can act. The research projects discussed in relation to GP5 are relevant here, as is the North European and Baltic Network on Invasive Alien Species (NOBANIS). NOBANIS is a network for cooperation between competent authorities of the region, but does not by definition cover all MS. One of its goals is to provide administrative tools for making the precautionary approach operational in preventing the unintentional introduction of IAS. NOBANIS also establishes a regional cooperation system to aid countries in early detection, eradication, control and mitigation of ecological effects of invasive alien species. The main tool for achieving this goal is an internet portal with a database containing information on c5000 alien species recorded within the region. NOBANIS does not cover all MS.

8.2.9 GP9: Cooperation, including capacity-building

Depending on the situation, a State's response might be purely internal (within the country), or may require a cooperative effort between two or more countries. Such efforts may include:

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| <ul style="list-style-type: none"> a. Programmes developed to share information on invasive alien species, their potential uneasiness and invasion pathways, with a particular emphasis on cooperation among neighbouring countries, between trading partners, and among countries with similar ecosystems and histories of invasion. Particular attention should be paid where trading partners have similar environments; b. Agreements between countries, on a bilateral or multilateral basis, should be developed and used to regulate trade in certain alien species, with a focus on particularly damaging invasive species; c. Support for capacity-building programmes for States that lack the expertise and resources, including financial, to assess and reduce the risks and to mitigate the effects when introduction and establishment of alien species has taken place. Such capacity-building may involve technology transfer and the development of training programmes; d. Cooperative research efforts and funding efforts toward the identification, prevention, early detection, monitoring and control of invasive alien species. |
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The European IAS Strategy also considers cooperation in the Parts dealing with Collecting, managing and sharing information (Part 2), Regional cooperation and responsibility (Part 4), and Prevention (Part 5).

In relation to GP9.a, MS are free to undertake programmes relating to information-sharing, capacity building and research in cooperation with other MS or with third countries. In relation to GP9.b, agreements to regulate trade in alien species, the common commercial policy limits competence to the European Community. No such agreements have been concluded.

In relation to GP9.c with regard to third countries, both the Community and MS can carry out activities supporting capacity-building and research for improved identification, prevention, early detection, monitoring and control of IAS as part of Community/national development cooperation. Even though IAS are not specifically mentioned in Community development policy (2006/C 46/01), IAS-related concerns and issues fall under the general biodiversity/environment related scope of the policy.

The same applies to cooperation with ACP countries and Overseas Countries and Territories (OCTs) (see Article 22 of the Cotonou Agreement and 'Overseas Association Decision' (2001/822/EC)). Addressing IAS is also possible under the other geographical frameworks for EU-third country cooperation (see Annex 4). In particular, the EU Strategy for Africa mentions IAS as one of the focal areas for possible cooperation (Chapter 3.1.3.2 of the Strategy (COM(2005)489))

8.2.10 GP10: Intentional introduction

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| <ul style="list-style-type: none"> 1. No first-time intentional introduction or subsequent introductions of an alien species already invasive or potentially invasive within a country should take place without prior authorization from a competent authority of the recipient State(s). An appropriate risk analysis, which may include an environmental impact assessment, should be carried out as part of the evaluation process before coming to a decision on whether or not to authorize a proposed introduction to the country or to new ecological regions within a country. States should make all efforts to permit only those species that are unlikely to threaten biological diversity. The burden of proof that a proposed introduction |
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is unlikely to threaten biological diversity should be with the proposer of the introduction or be assigned as appropriate by the recipient State. Authorization of an introduction may, where appropriate, be accompanied by conditions (eg, preparation of a mitigation plan, monitoring procedures, payment for assessment and management, or containment requirements).

2. Decisions concerning intentional introductions should be based on the precautionary approach, including within a risk analysis framework, set forth in principle 15 of the 1992 Rio Declaration on Environment and Development, and the preamble of the Convention on Biological Diversity. Where there is a threat of reduction or loss of biological diversity, lack of sufficient scientific certainty and knowledge regarding an alien species should not prevent a competent authority from taking a decision with regard to the intentional introduction of such alien species to prevent the spread and adverse impact of invasive alien species.

This GP covers introduction not only into a particular country but also translocation of alien species to different ecological regions within that same country. Equivalent provisions relating to intentional introduction of alien species are included in the European IAS Strategy in the Part dealing with Prevention (Part 5).

As discussed earlier (see 6.1-6.3, 7.2, earlier sections of Chapter 8), measures involving trade/movement restrictions between and within MS need to be compatible with the rules and operation of the Single Market. At present, Community legislation applying risk analysis requirements to intentional introductions is limited to plant pests ('harmful organisms'), animal pathogens and GMOs. The proposed Regulation on the use of alien and locally absent species in aquaculture would extend controls (including requirements for risk assessment) to the introduction of new aquaculture organisms.

There are no equivalent Community measures based on risk analysis for other categories of intentional introductions into and between MS. There is currently no evidence that decision-making at the Community level regarding intentional introductions is based on the precautionary approach (also see discussion of GP1).

A very small number of Member States have adopted species-specific measures to control intentional introductions to or within national territory on explicit grounds of invasiveness. The limited amount of European case law available indicates that such restrictions are potentially justifiable for reasons linked to plant and animal health. However, very little guidance is available to MS regarding design and scope of appropriate measures.

Decisions relating to the introduction of alien species into the wild are within the competence of MS, although the provisions of the habitats and birds Directives limit this if such introductions could affect native habitats and species. Most MS have legislation in place to regulate intentional introductions, but it seems that the enforcement of national provisions varies widely.

Based on this summary, it should be noted that existing Community provisions address imports/intentional introduction of potential IAS into the Community and within individual Member States. However, they do not directly address the issue of

introductions between MS. There is currently no requirement for MS to consider the risks to neighbouring states when carrying out a risk analysis regarding intentional introductions (see discussion of GP4 above).

8.2.11 GP11: Unintentional introductions

1. All States should have in place provisions to address unintentional introductions (or intentional introductions that have become established and invasive). These could include statutory and regulatory measures and establishment or strengthening of institutions and agencies with appropriate responsibilities. Operational resources should be sufficient to allow for rapid and effective action.
2. Common pathways leading to unintentional introductions need to be identified and appropriate provisions to minimize such introductions should be in place. Sectoral activities, such as fisheries, agriculture, forestry, horticulture, shipping (including the discharge of ballast waters), ground and air transportation, construction projects, landscaping, aquaculture including ornamental aquaculture, tourism, the pet industry and game-farming, are often pathways for unintentional introductions. Environmental impact assessment of such activities should address the risk of unintentional introduction of invasive alien species. Wherever appropriate, a risk analysis of the unintentional introduction of invasive alien species should be conducted for these pathways.

The European IAS Strategy covers unintentional introductions in the Part dealing with Prevention (5).

Some pathways for unintentional introductions of IAS are regulated for certain categories of organisms ('harmful organisms' in relation to plants under the plant health Directive; animal diseases through the species-specific and general Directives containing precautions against animal disease introductions). In addition, there is potential to consider risks of unintentional introduction of IAS in the context of EIAs and SEAs, though there is no evidence that this has been done.

MS are not generally free to place restrictions on the passage of goods in order to limit risk from IAS, as this is a function of the operation of the Single Market where they are bound to respect the basic principle of the free movement of goods.

The environmental liability Directive can cover some unintentional releases of IAS, but only where the person responsible has been negligent or is at fault. In addition, the requirements in relation to causation are so strict that this Directive will be very difficult to apply to IAS in practice.

MS have competence to develop policies and programmes to address pathways for unintentional introductions. These could include establishing codes of practice, with or without statutory backing, with sectoral organisations such as horticultural traders, hunting federations and ornamental fish and pet retailers. Further options relate to statutory control of alien species within national territory, penalties for negligent introductions and new approaches to compliance and liability for unintentional introductions (eg introducing new charges for users of high-risk pathways).

8.2.12 GP12: Mitigation of impacts

Once the establishment of an invasive alien species has been detected, States, individually and cooperatively, should take appropriate steps such as eradication, containment and control, to mitigate adverse effects. Techniques used for eradication, containment or control should be safe to humans, the environment and agriculture as well as ethically acceptable to stakeholders in the areas affected by the invasive alien species. Mitigation measures should take place in the earliest possible stage of invasion, on the basis of the precautionary approach. Consistent with national policy or legislation, an individual or entity responsible for the introduction of invasive alien species should bear the costs of control measures and biological diversity restoration where it is established that they failed to comply with the national laws and regulations. Hence, early detection of new introductions of potentially or known invasive alien species is important, and needs to be combined with the capacity to take rapid follow-up action.

The European IAS Strategy deals with mitigation of impacts in the Parts related to Early detection and rapid response (Part 6) and Mitigation of impacts (Part 7).

Both MS and the EC have competence in relation to mitigation of the effects of IAS, though primary responsibility lies with MS. The environmental liability Directive is in line with GP12, but as discussed above, its application to IAS will be difficult in practice. The EC has a role in licensing plant protection products and biocides, some of which could be used for IAS control. The phaseout of some chemical control methods (eg rotenone which can be used for control of freshwater fish) could have implications for the future control of such species.

The habitats and birds Directives require the avoidance of deterioration of habitats and disturbance of species at protected sites. Meeting these requirements could require MS to control or eradicate IAS in some circumstances where IAS are affecting site values.

There has been very little coordination of efforts for mitigation of impacts of IAS on the EC level. Capacity for early detection and rapid response remains limited at EC level, and within most MS.

8.2.13 GP13: Eradication

Where it is feasible, eradication is often the best course of action to deal with the introduction and establishment of invasive alien species. The best opportunity for eradicating invasive alien species is in the early stages of invasion, when populations are small and localized; hence, early detection systems focused on high-risk entry points can be critically useful while post-eradication monitoring may be necessary. Community support is often essential to achieve success in eradication work, and is particularly effective when developed through consultation. Consideration should also be given to secondary effects on biological diversity.

This GP states that where feasible, eradication is often the best course of action to deal with the introduction and establishment of IAS. The European IAS Strategy considers eradication in Part 7.

The habitats and birds Directives require the avoidance of deterioration of habitats and disturbance of species at protected sites, and the water framework Directive requires maintenance of good ecological status in designated water bodies. Meeting these requirements could require MS to eradicate IAS in some circumstances where they are affecting site values. The plant health Directive, the species-specific and general Directives containing precautions against animal disease introductions, and the Directives on contained use and release of GMOs may require eradication of certain organisms if detected.

Outside specified sites, and for the categories of organisms discussed, eradication of IAS is within the competence of individual MS. However, if this is not coordinated between MS, reinvasion will often be a continuing problem and may make eradication impossible.

8.2.14 GP14: Containment

When eradication is not appropriate, limiting the spread (containment) of invasive alien species is often an appropriate strategy in cases where the range of the organisms or of a population is small enough to make such efforts feasible. Regular monitoring is essential and needs to be linked with quick action to eradicate any new outbreaks.

The European IAS Strategy considers containment in the Part dealing with Mitigation of impacts (Part 7).

The habitats and birds Directives require the avoidance of deterioration of habitats and disturbance of species at protected sites. Meeting these requirements could require MS to contain IAS in some circumstances where IAS could affect site values. The plant health Directive, the species-specific and general Directives containing precautions against animal disease introductions, and the Directives on contained use and release of GMOs may require containment of certain organisms if detected.

Containment of IAS is clearly within the competence of MS, however, as with eradication, regional coordination will often be necessary in order to maintain containment and prevent spread to other areas.

8.2.15 GP15: Control

Control measures should focus on reducing the damage caused as well as reducing the number of the invasive alien species. Effective control will often rely on a range of integrated management techniques, including mechanical control, chemical control, biological control and habitat management, implemented according to existing national regulations and international codes.

Control is considered in the European IAS Strategy in the Part dealing with Mitigation of impacts (Part 7).

Control of IAS is within the competence of individual MS (outside the requirements for site management that are contained in European legislation). However, it should be noted that some Community instruments (eg in relation to regulation of plant

protection products and biocides) can impact on the means of IAS control available to MS.

In addition, the habitats and birds Directives require the avoidance of deterioration of habitats and disturbance of species at protected sites. Meeting these requirements could require MS to control IAS in some circumstances where those IAS are affecting site values.

The plant health Directive, the species-specific and general Directives containing precautions against animal disease introductions, and the Directives on contained use and release of GMOs may require control of certain organisms if they are detected in Community territory. As with the GPs relating to eradication and containment, effective control may require regional coordination in many cases.

8.3 Parts of the European IAS Strategy that are not covered by the Guiding Principles

The European IAS Strategy sets out proposals for action in more detail than that given in the CBD's GPs. All the EU MS are also parties to the Bern Convention, and have undertaken to implement the provisions of the European IAS Strategy. The only area where the European IAS Strategy goes significantly outside the GPs is in relation to its Part 8: 'Restoration of native biodiversity'. This Part discusses restoration of ecosystems that have been affected by IAS, promotion of use of native plants for revegetation and erosion management, and issues related to reintroduction of species.

The habitats and birds Directives and the water framework Directive contain requirements for the maintenance of specified sites, and European waters at a certain good status. MS are required to avoid deterioration in the status of these sites. In some cases, they may be required to improve site status, and this could include restoration of sites that have been affected by IAS. However, at sites outside those covered by these three Directives, the choice of whether to restore sites affected by IAS is one for the national or regional authority responsible, and is outside Community jurisdiction.

8.4 Summary

For the majority of the GPs, MS and the EC share competence. In most cases this is because actions are required in areas that affect external trade and the operation of the Single Market in addition to actions within the territory of the MS themselves. In relation to GP7, the EC has exclusive competence, in that this relates to regulation of the Community's external borders. Table 13 summarises competence in relation to the GPs.

Table 13: Summary of competence in relation to CBD Guiding Principles

CBD Guiding Principle	Competence: EC or MS?
1. Precautionary approach	EC & MS
2. Three-stage hierarchical approach	EC & MS
3. Ecosystem approach	EC & MS
4. The role of States	EC & MS
5. Research and monitoring	EC & MS
6. Education and public awareness	EC & MS

7. Border control and quarantine measures	EC
8. Exchange of information	EC & MS
9. Cooperation, including capacity-building	EC & MS
10. Intentional introduction	EC & MS
11. Unintentional introductions	EC & MS
12. Mitigation of impacts	EC & MS
13. Eradication	EC & MS
14. Containment	EC & MS
15. Control	EC & MS

9 GAPS IN THE EXISTING FRAMEWORK

The results of the preceding analysis indicate that the current international, European Community and Member State legal framework in relation to IAS is not sufficient to fulfil the Community's obligation to implement Article 8(h) of the CBD through the GPs or its commitments with regard to the Bern Convention's European IAS Strategy.

Some of the gaps are in relation to areas where the European Community has competence to act, but most are in areas where competence is shared between the Community and MS (see analysis in chapter 8). A summary of the gaps apparent at different levels in the framework is set out below (section 9.1).

Each of the GPs may require specific legal and policy interventions in order for the individual MS and the EC to comply with their obligations. An analysis of the specific gaps in the European framework, and some discussion of activity at MS level is set out in Table 14. Gaps in relation to specific GPs are discussed in section 9.2.

9.1 Summary of gaps in the framework at different levels

9.1.1 *International level*

In the international context, some work has already been done under the auspices of the CBD Ad Hoc Technical Expert Group to identify gaps in the international regulatory framework (see discussion in section 4.7). This group identified a lack of formal standards for some IAS pathways, but the key issue overall seems to be lack of national capacity for implementation.

9.1.2 *European level*

Robust and well-established systems exist at the European level for managing the risks associated with some limited categories of potential IAS (animal diseases, pests of plants²⁷, GMOs). For aquaculture organisms, the new proposed Regulation for use of alien and locally absent species in aquaculture will establish a new system for assessment and management of the risks associated with the introduction of new

²⁷ Pests of plants, meaning 'harmful organisms' as defined in the plant health Directive.

organisms for aquaculture. Four invasive animal species²⁸ are currently listed under the wildlife trade Regulations and cannot be introduced into EU territory.

For organisms outside these categories, there are no Community-backed controls on import and export. There are also no restrictions on intra-Community trade and movement of IAS for organisms outside the categories mentioned.

With regard to controls on introduction of alien organisms to the natural environment, the habitats and birds Directives contain restrictions on deliberate introductions of alien species into the wild (MS are required to regulate introductions of alien species to ensure that natural habitats within their natural range or wild native fauna and flora are not prejudiced).

In relation to European level requirements for control and eradication of IAS, the habitats, birds, and water framework Directives may impose some obligations through requirements to maintain the status of certain sites. It appears that the proposed marine strategy Directive may impose similar obligations for marine waters.

More fundamentally, the issue of IAS lacks visibility (or indeed, inclusion) in many relevant European policies and documents, including those related to development cooperation and international aid.

9.1.3 Member State level

Although most MS have legislation in place in relation to some aspects of IAS, few have a comprehensive and streamlined national framework.

MS provisions in all areas vary widely in terms of scope and purpose (eg taxonomic groups affected, countries of origin for species to be imported, scientific and procedural safeguards applicable etc.). There are no mechanisms to support harmonisation or basic consistency of approach between neighbouring countries or countries in the same sub-region, and the fragmented measures that are in place do not appear likely to make a substantial contribution to lowering the risks posed by IAS to European ecosystems. Some MS with Federal systems lack measures at the national level to promote consistency in control of introductions by sub-national authorities, or even the constitutional authority to introduce such measures.

There is still a lack of ECJ case law in relation to control of IAS, meaning that MS lack certainty regarding the controls they can or cannot put in place. Although MS are required to control introductions to the wild of potential IAS where these may affect native habitats and species (under the birds and habitats Directives), the measures actually implemented to date vary significantly between MS. In some cases there are exceptions for introductions of alien species for commercial uses (eg forestry, agriculture) even though species introduced for these purposes may still be invasive. There are also no formal requirements for risk analysis for these sorts of

²⁸ Species listed are the red-eared slider (*Trachemys scripta elegans*); the American bullfrog (*Rana catesbeiana*); the painted turtle (*Chrysemys picta*); and the American ruddy duck (*Oxyura jamaicensis*).

introductions. Accidental and negligent introductions remain largely unregulated at MS level.

9.2 Summary of gaps in relation to specific Guiding Principles

There is considerable overlap in the subject matter of the GPs and the European IAS Strategy, and also between the GPs themselves. Table 14 contains an analysis of coverage of the current European legal and policy framework in relation to each of the GPs, along with comment on MS activities in relation to each of the GPs, and the gaps in relation to each GP. A summary of key gaps related to each GP is presented after the table.

Table 14: Analysis of Community and MS activities in relation to GPs, and assessment of gaps.

CBD Guiding Principle and competence	Relevant Community instruments ²⁹	Comments
<p>1. Precautionary approach</p> <p>Competence: both EC and MS</p>	<p>EC Treaty, Article 174(2)</p> <p>EIA Directive SEA Directive</p> <p>Sustainability Impact Assessment (SIA)</p> <p>Commission Communication on the Precautionary Principle</p>	<p>The EC Treaty states that Community policy on the environment shall be based on the precautionary principle.</p> <p>The EIA and SEA Directives are both potentially applicable to IAS, but at present there is no evidence that the potential impacts of IAS are included in assessments under these Directives.</p> <p>As with the EIA and SEA Directives, it appears possible to include the potential risks of IAS in Sustainability Impact Assessments, but there is no evidence of this being done in practice.</p> <p>The Communication on the Precautionary Principle does not mention IAS specifically. Although it is supportive of GP1, it has no binding legal status.</p>
<p>Gap analysis for GP1: There is no evidence that a precautionary approach is in fact being applied to decisions related to the export/import of IAS into or out of the EC, or to decisions about introductions of IAS within the EC. MS are not generally able to impose restrictions on the import of new organisms into their territory, due to the operation of the Single Market, which means that the EC has competence for application of the precautionary approach in this context. Although it appears possible to include the impacts of IAS in EIAs, SEAs and SIAs, IAS are not specifically mentioned in the relevant Directives and policies and there is no evidence of IAS being regularly considered in their application.</p> <p>The analysis of MS activities did not show that all MS are using a precautionary approach in their domestic decisions about IAS, although some (eg the UK) do appear to be applying it to some extent. In consequence there appears to be a gap relating to the application of GP1 at both Community and MS level.</p>		
<p>2. Three-stage hierarchical approach</p> <p>Competence: both EC and MS</p>	<p>plant health Directive</p> <p>species-specific and general Directives containing precautions against animal disease introductions</p>	<p>The Directive supports the three stage approach. However, it applies only to 'harmful organisms' of plants, as defined.</p> <p>As with the plant health Directive, but application is limited to animal pathogens.</p>

²⁹ References to the Community instruments referred to are given at the end of the table.

	<p>proposed Regulation for use of alien and locally absent species in aquaculture</p> <p>Directives on contained use and deliberate release of GMOs, and Regulation on transboundary movement</p> <p>wildlife trade Regulations</p> <p>habitats and birds Directives</p>	<p>The proposed Regulation supports the three stage approach. However, it applies only to aquaculture organisms.</p> <p>These Directives support the three stage approach, but their application is limited to GMOs.</p> <p>The wildlife trade Regulations allow for restrictions on imports of IAS into the Community (Article 4(6)), and for restrictions on the holding or movement of IAS (Article 9(6)). However, Article 4(6) has only been used in relation to four species which all already have established populations within Community territory. Article 9(6) has not been used at all. Analysis by Adrados & Griggs (2002) concluded that the Regulations were not adequate to deal with problems related to IAS, and were not preventing ecological impacts from the two species listed under Article 4(6) at the time of the analysis.</p> <p>The habitats and birds Directives contain provisions relating to introductions of IAS that may affect local flora, fauna, habitats or species. The habitats Directive (Article 22) provides that MS should prohibit such introductions if necessary.</p>
<p>Gap analysis: The three-stage hierarchical approach is currently supported by the sector-specific Directives on plant health, animal health and GMOs, and by the proposed Regulation for use of alien species in aquaculture. The wildlife trade Regulations also support the approach, but currently only limit imports of four listed species. The habitats and birds Directives support restriction on introductions of potential IAS, but it appears that MS apply these restrictions to varying degrees. Imports of other organisms into the European Community (eg aquatic plants, ornamental fish, garden plants, pets, etc) are not assessed for invasiveness, and therefore the three stage approach cannot be said to be applied. In addition, MS cannot generally impose conditions on the movement of IAS between EU Member States, as this is the area of operation of the Single Market. For these reasons, the three stage approach giving priority to prevention cannot be said to be adequately applied at Community level.</p> <p>With regard to the introduction of IAS within EU Member States, it does not appear that many MS apply the three-stage approach³⁰. There are few records of eradication attempts, and containment and long-term control measures are not consistently applied to particular organisms. It is possible that MS authorities consider there is little point in controlling IAS when the constant threat of reinvasion is present.</p>		
<p>3. Ecosystem approach</p> <p>Competence: EC and MS</p>	<p>water framework Directive (WFD)</p>	<p>The WFD is based on an ecosystem approach and deals with European water bodies. It requires MS to achieve good status for European waters by 2015. Guidance documents relating to the WFD refer to IAS specifically</p>

³⁰ There are some exceptions, eg, the application of the three stage approach was supported by the Defra Review of Non-Native Species in the UK (2003).

	<p>Proposed marine strategy Directive</p> <p>Sixth Environment Action Programme</p>	<p>as a pressure affecting taxonomic composition in water bodies.</p> <p>As with the WFD, the proposed MSD is based on an ecosystem approach and deals with European marine waters. The proposed MSD will require the identification of measures to support the achievement of good environmental status, and this could include control of IAS, or prevention of introductions.</p> <p>The 6EAP requires application of the ecosystem approach 'wherever appropriate'.</p>
<p>Gap analysis: The ecosystem approach is currently applied in relation to IAS in European water bodies under the WFD, and may be applied to European marine waters under the proposed MSD. MS have the option of applying the ecosystem approach in their control measures for IAS, but it appears this is not always being done, with a piecemeal approach to IAS control being more common. The 6EAP supports application of the ecosystem approach, but this has not been followed up in actions to-date.</p>		
<p>4. The role of States</p> <p>EC and MS</p>	<p>EC Treaty plant health Directive species-specific and general Directives containing precautions against animal disease introductions Proposed Regulation for use of alien and locally absent species in aquaculture Directives on contained use and deliberate release of GMOs, and Regulation on transboundary movement wildlife trade Regulations habitats and birds Directives Sustainability Impact Assessment EIA and SEA Directives</p>	<p>Although this GP relates to the role of States, this should be interpreted to cover the EC as a regional economic integration organisation with competence in the area of environmental protection and trade policy. As the ability of MS to control import and export of organisms is governed by the operation of the Single Market, the role they can play in relation to implementation of GP4 is limited to domestic activities. It also appears that the potential impacts of IAS are not commonly considered in EIAs, SEAs, or SIAs (for external EC activities). The EC is taking actions to comply with IPPC and OIE requirements in relation to spread of pests of plants and animal diseases to third countries, but these actions are limited in their scope of application to certain groups of organisms. Some information is being collected and shared at EC level (eg within SEBI2010, European research projects mentioned below).</p> <p>Some MS have begun to gather information on current and potential IAS (eg Austria, Poland, UK), and some are working together to share information and resources (eg within NOBANIS, ALARM, DAISIE).</p> <p>Although most MS have restrictions on introduction of alien species to the wild, there is no requirement to assess the potential impact on neighbouring States when considering whether to authorise a release. In addition, scope and enforcement of restrictions varies between MS</p>
<p>Gap analysis: The EC's actions to prevent transfer and spread of IAS to third countries (and between MS) are not sufficient to fulfil its responsibilities under</p>		

<p>this GP. Outside relevant provisions of sector-specific legislation (ie, the plant health Directive, the species-specific and general Directives containing precautions against animal disease introductions, the Directives on contained use and deliberate release of GMOs), no Community level instruments are in place to manage the more general risks of introduction of alien species to third countries and between MS. This is the case both for intentional transfers of potentially invasive species and for pathway-based measures to restrict unintentional introductions. However, activity is underway at both MS and EC levels in relation to information collection and sharing.</p> <p>None of the MS instruments summarised in this report seem to address risks associated with export of potentially invasive alien species. Whilst IAS could be addressed as a part of SEAs that the Community has committed to carry out on a systematic basis as part of its development policy, this is not a statutory obligation.</p>		
<p>5. Research and monitoring EC and MS</p>	<p>Relevant research projects (DAISIE, ALARM, SEBI2010)</p>	<p>Research on IAS is underway at both Community and MS level. Significant projects include DAISIE, ALARM, and the work being led by the EEA on SEBI2010.</p>
<p>Gap analysis: Research on IAS is currently underway at both MS and Community levels, although this subject may not receive the same level of priority in all MS. Projects currently funded by EC will end in 2008 and their future funding is not secured. Monitoring is not underway except in relation to some animal diseases and pests of plants. There is no coherent and interoperable European monitoring or early warning system.</p>		
<p>6. Education and public awareness EC and MS</p>	<p>LIFE fund</p>	<p>Education and public awareness is largely a MS responsibility, and any information campaigns will need to be tailored to local conditions. Some MS have been active in this area (eg Austria, Poland, UK). The European Commission has published a report on <i>Alien species and nature conservation in the EU</i>, but the issue of IAS lacks visibility or even any mention in the majority of EC communications relating to the environment.</p>
<p>Gap analysis: Education and public awareness activity is underway in many MS, and in some this work is well advanced. In terms of Community-level education and public awareness, this issue has not received a lot of attention.</p>		
<p>7. Border control and quarantine measures EC</p>	<p>EC Treaty</p> <p>plant health Directive species-specific and general Directives containing precautions against animal disease introductions</p> <p>wildlife trade Regulations</p>	<p>The operation of the Single Market generally limits the opportunity for MS to put border control and quarantine measures in place in relation to IAS. MS may be afraid that such measures would constitute a breach of the EC Treaty and lead to legal action. However, it seems that some measures could be justifiable under Article 30 of the Treaty (see 'Danish bees' case)</p> <p>The plant health and species-specific and general Directives containing precautions against animal disease introductions include provisions for border control, quarantine and monitoring. However, they are limited in their scope to particular types of organisms ('harmful organisms', animal pathogens).</p> <p>Four animal species are currently banned from import into the EC under</p>

	DAISIE and NOBANIS projects Biodiversity Communication	the wildlife trade Regulations. No invasive plants have been listed to date. One of the objectives of the DAISIE and NOBANIS projects is using distribution data and the experiences of individual MS as a framework for considering indicators for early warning. The Action Plan accompanying the Communication includes the following priority action: 'establish early warning system for the prompt exchange of information between neighbouring countries on the emergence of IAS and cooperation on control measures across national boundaries.'
Gap analysis: Border control and quarantine measures are in place for GMOs, and the organisms covered under the plant health Directive, the Species-specific and general Directives containing precautions against animal disease introductions and the wildlife trade Regulations. There is currently no coherent European early warning system but this is now proposed through the Action Plan accompanying the Biodiversity Communication. Border control and quarantine measures do not currently apply to species outside the instruments listed. This means that many potential IAS are not subject to restrictions on import. No risk analysis system is in place at Community level for groups of organisms not covered by the Directives and Regulations discussed. Most MS have restrictions in place in relation to introduction of alien species into the wild, but these vary in coverage, and in enforcement and impact 'on the ground'. There are no instruments in place to cover situations relating to movement of species whose native range covers part of the EC, but which in other areas could be IAS.		
8. Exchange of information EC & MS	plant health Directive species-specific and general Directives containing precautions against animal disease introductions SEBI2010 DAISIE NOBANIS	These instruments include data management and rapid alert systems which are available to all MS, and also to neighbouring countries. The expert group working on the alien species indicator is developing a list of the 100 worst invasive species threatening biodiversity in Europe. The DAISIE research project is aiming to create an inventory of invasive species that threaten European terrestrial, freshwater and marine environments. NOBANIS operates a portal providing data on approx. 5000 alien species in 13 countries of northern Europe and Baltic region.
Gap analysis: Work under DAISIE, NOBANIS and SEBI2010 will be valuable in promoting information exchange in relation to European IAS. However, it is clear that the robust rapid alert systems in place to deal with pests of plants and animal pathogens currently have no equivalent in relation to IAS that threaten biodiversity.		
9. Cooperation, including capacity-building	Relevant research and network projects	DAISIE and ALARM include consortia with representatives from many MS. NOBANIS is another regional network that deals with IAS.

<p>EC & MS</p>	<p>EC Treaty, Arts 28, 29, 30</p> <p>Community development policy and relevant instruments for its delivery Cotonou Agreement (Article 22) Overseas Association Decision Geographical strategies for partnership and cooperation (eg with Africa, Latin America, Asia and the Caribbean)</p>	<p>GP9.b suggests the development of agreements between countries, used to regulate trade in certain alien species, with a focus on particularly damaging invasive alien species. The ability of MS to implement such agreements appears to be limited by the provisions of the EC Treaty.</p> <p>In the context of the EU and third countries, both the Community and MS can carry out activities supporting the identification, prevention, early detection, monitoring and control of IAS (eg capacity-building and research) as a part of Community/national development cooperation.</p>
<p>Gap analysis: There appears to be a lack of Community-level activity for capacity building, with consideration of IAS absent from instruments dealing with development. However, in some specific aid programmes, the EC has supported control of IAS and there has also been support for IAS projects through the LIFE fund. Cooperation between MS is underway in some areas (eg NOBANIS) but appears lacking in others (eg Southern MS). ALARM and DAISIE will make valuable contributions in this area. The ability of MS to make agreements relating to trade in certain IAS appears restricted by the operation of the Single Market (no such agreements were found to be in place).</p>		
<p>10. Intentional introduction</p> <p>EC & MS</p>	<p>habitats Directive</p> <p>birds Directive</p> <p>wildlife trade Regulations</p>	<p>The habitats Directive requires that MS ensure that deliberate introduction of alien species to the wild is regulated so as to avoid prejudice to native flora and fauna, and if necessary to prohibit such introductions (Article 22). Analysis of MS legal provisions shows that most have some provisions in place regulating the introduction of alien species to the wild, however, these provisions are likely to receive a varying amount of enforcement and political support. This Article was not well reported in the Article 17 reports under the habitats Directive.</p> <p>Article 11 provides that MS shall see that introductions of alien birds shall not prejudice the local flora and fauna.</p> <p>The wildlife trade Regulations allow for restrictions on imports of IAS into the Community (Article 4(6)), and for restrictions on the holding or movement of IAS (Article 9(6)). However, Article 4(6) has only been used in relation to four species which all already have established populations within Community territory. Article 9(6) has not been used at all.</p>

	<p>Directives on contained use and deliberate release of GMOs, and Regulation on transboundary movement</p> <p>Proposed Regulation for use of alien and locally absent species in aquaculture</p>	<p>These instruments contain controls related to the intentional introduction of GMOs</p> <p>The Regulation will apply to translocations and introductions of new aquaculture organisms. It provides for risk analysis, monitoring, and pilot releases.</p>
<p>Gap analysis: There are a number of Community-backed provisions in place dealing with imports and intentional introduction of IAS (or potential IAS) into the Community and within Member States. However, the issue of spread between MS is not directly addressed and there is uncertainty as to what measures an MS may take to prevent/minimise unwanted imports without breaching the provisions of the EC Treaty.</p> <p>Most MS have legal provisions in place to regulate introduction of some or all alien species into the wild. However, there is variation in taxonomic coverage of these provisions and in how they are implemented in practice.</p>		
<p>11. Unintentional introductions</p> <p>EC & MS</p>	<p>EIA Directive SEA Directive Sustainability Impact Assessment</p> <p>plant health Directive species-specific and general Directives containing precautions against animal disease introductions Directives on contained use and deliberate release of GMOs</p>	<p>The EIA and SEA Directives, and SIA may be used to assess risks of IAS introduction as an unintended side-effect of projects or plans, but at present there is no evidence that the potential impacts of IAS are included in assessments under these Directives.</p> <p>These Directives are focused on preventing the unintentional introduction and spread of certain categories of organisms ('harmful organisms' and animal pathogens, and GMOs).</p>
<p>Gap analysis: Unintentional introductions of IAS are well regulated in relation to GMOs, and the organisms considered under the animal health and plant health Directives. There appears to be a significant gap in relation to regulation of unintentional introduction of other groups of organisms (eg hitchhiker organisms such as spiders) within the EC and more generally, very little focus on a pathway-based approach to prevention and mitigation.</p>		
<p>12. Mitigation of impacts</p> <p>EC & MS</p>	<p>environmental liability Directive</p> <p>habitats and birds Directives</p>	<p>The definitions in the Directive are broad enough to include IAS (<i>release to the environment... of organisms</i>). However, the requirements for its application mean that it is unlikely to be an effective tool for regulation of IAS because causation would be very difficult to prove.</p> <p>The habitats and birds Directives require the avoidance of deterioration of habitats and disturbance of species at protected sites. Meeting these requirements could require MS to control or eradicate IAS in some circumstances where IAS are affecting site values.</p>

Gap analysis: There has been very little coordination of efforts for mitigation of impacts of IAS at the EC level and no mechanisms are in place to prioritise target IAS at the regional or subregional level. Capacity for early detection and rapid response remains limited at EC level, and within most MS. The EC also has a role in regulating the use of chemicals and pesticides, and restrictions on these may impact on the ability of MS to control IAS in some situations.

<p>13. Eradication</p> <p>EC & MS</p>	<p>water framework Directive & Guidance</p> <p>proposed marine strategy Directive</p> <p>habitats and birds Directives</p> <p>plant health Directive species-specific and general Directives containing precautions against animal disease introductions Directives on contained use and deliberate release of GMOs</p>	<p>Requirements in the WFD to achieve good ecological status may lead to MS being obliged to eradicate IAS from water bodies in some cases.</p> <p>Requirement under the proposed MSD to achieve good environmental status may lead to MS being obliged to eradicate IAS from some European marine waters.</p> <p>The requirement to take steps to avoid deterioration of natural habitats and disturbance of species (habitats Directive, Article 6(2)) could oblige MS to eradicate IAS in some cases (eg to eradicate predatory introduced animals where these are affecting vulnerable wildlife, such as feral cats on islands with seabirds breeding). This obligation will generally apply only at Natura 2000 sites. The birds Directive contains similar obligations.</p> <p>All of these Directives contain obligations to eradicate specific organisms if detected.</p>
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Gap analysis: MS obligations in relation to IAS eradication currently cover only aquatic environments and protected sites. However, IAS will often need to be addressed outside protected sites if only to prevent spread into such sites. Many MS do not have domestic legislation for compulsory eradication of IAS other than those covered in the plant health Directive, the species-specific and general Directives containing precautions against animal disease introductions, Directives on contained use and deliberate release of GMOs.

<p>14. Containment</p> <p>MS</p>	<p>water framework Directive & Guidance</p> <p>proposed marine strategy Directive</p> <p>habitats and birds Directives</p>	<p>Requirements in the WFD to achieve good ecological status may lead to MS being obliged to contain IAS in water bodies in some cases.</p> <p>Requirement under the proposed MSD to achieve good environmental status may lead to MS being obliged to contain IAS in relation to some European marine waters.</p> <p>The requirement to take steps to avoid deterioration of natural habitats and disturbance of species (habitats Directive, Article 6(2)) could oblige MS to contain IAS in some cases (eg to contain invasive plants where these could</p>
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	<p>plant health Directive species-specific and general Directives containing precautions against animal disease introductions Directives on contained use and deliberate release of GMOs</p>	<p>causing damage to a sensitive ecosystem). This obligation will generally apply only at Natura 2000 sites. The birds Directive contains similar obligations.</p> <p>All of these Directives contain obligations to contain specific organisms if detected.</p>
<p>Gap analysis: As with eradication, MS obligations in relation to containment of IAS currently cover only aquatic environments and protected sites. However, IAS may need to be addressed outside protected sites in order to prevent spread into such sites. Many MS do not have domestic legislation for compulsory containment of IAS other than those covered in the plant health Directive, the species-specific and general Directives containing precautions against animal disease introductions, Directives on contained use and deliberate release of GMOs.</p>		
<p>15. Control</p> <p>MS</p>	<p>water framework Directive & Guidance</p> <p>proposed marine strategy Directive</p> <p>habitats and birds Directives</p> <p>plant health Directive species-specific and general Directives containing precautions against animal disease introductions Directives on contained use and deliberate release of GMOs</p>	<p>Requirements in the WFD to achieve good ecological status may lead to MS being obliged to control IAS in water bodies in some cases.</p> <p>Requirement under the proposed MSD to achieve good environmental status may lead to MS being obliged to contain IAS in relation to some European marine waters.</p> <p>The requirement to take steps to avoid deterioration of natural habitats and disturbance of species (habitats Directive, Article 6(2)) could oblige MS to contain IAS in some cases (eg to control introduced herbivores where they are damaging sensitive vegetation). This obligation will generally apply only at Natura 2000 sites. The birds Directive contains similar obligations.</p> <p>All of these Directives contain obligations to control specific organisms if detected, and if eradication or containment fail.</p>
<p>Gap analysis: As with eradication, MS obligations in relation to control of IAS currently cover only aquatic environments and protected sites. However, IAS may need to be addressed outside protected sites in order to prevent spread into such sites. Many MS do not have domestic legislation for compulsory control of IAS other than those covered in the plant health Directive, the species-specific and general Directives containing precautions against animal disease introductions, Directives on contained use and deliberate release of GMOs.</p>		

References for the EU Documents referred to in Table 14:

Birds Directive (79/409/EEC)
Commission Communication on the Precautionary Principle (COM(2000)1)
Community development policy (2006/C 46/01)
Cotonou Agreement (Article 22)
Directives on contained use and deliberate release of GMOs (90/219/EC and 2001/18/EC), and Regulation on transboundary movement (1946/2003/EC)
EIA Directive: (85/337/EEC)
Environmental Liability Directive (2004/35/CE)
EU-Caribbean partnership (COM(2006) 86)
EU Strategy for Africa (COM(2005)489)
Habitats Directive (92/43/EEC)
New partnership with South-East Asia (COM(2003)399)
Overseas Association Decision (2001/822/EC)
Plant Health Directive (2000/29/EC)
Proposed Regulation for use of alien and locally absent species in aquaculture (COM(2006)154)
SEA Directive (2001/42/EC)
Species-specific and general Directives containing precautions against animal disease introductions (91/67/EEC, 82/894/EEC, 92/65/EEC, etc)
Strategic Framework for the EU and Asia (COM(2001)469)
Strategy for the EU-Latin America partnership (COM(2005)636)
Water Framework Directive (2000/60/EC)
Wildlife Trade Regulations (Council Regulation 338/97/EC and Commission Regulation 1808/2001/EC)

Key gaps in relation to specific GPs include:

- GP1:** there is no evidence that a precautionary approach is being applied to consideration of IAS issues at Community level (for imports of potential IAS) or by MS in implementation of Community legislation (eg through EIA, SEA, SIA). Not all MS apply a precautionary approach in relation to decisions about managing IAS domestically.
- GP2:** the three-stage hierarchical approach is supported by Community legislation in relation to the import of some groups of organisms into EU territory (ie GMOs, 'harmful organisms' as defined in the plant health Directive, animal pathogens, aquaculture organisms) but is not applied to a wide range of other high-risk groups (eg aquatic plants, ornamental fish, species in the pet and fur trades). There is little evidence that MS are applying the three-stage approach to decisions about managing IAS domestically.
- GP3:** the WFD and proposed MSD encourage application of an ecosystem approach, including for IAS control, and it is included in the 6EAP. However, there is little evidence of this approach being applied by MS in relation to IAS issues. Regional and subregional coordination is uncommon.
- GP4:** the operation of the Single Market appears to limit (or at least is perceived to limit) MS capability to act in relation to controlling export of IAS or potential IAS from their territory to other MS or third countries. References to IAS are absent from all but one of the Community documents relating to development and international aid. MS do not appear to consider the possible impact of transferred species on other States and third countries. There is no coordination or particular information-sharing in this regard, although some data collection and sharing initiatives are underway.
- GP5:** there is no coordinated IAS monitoring system at Community level. Monitoring of IAS in MS varies widely and is often fragmented.
- GP6:** the IAS issue has a low level of visibility at Community level and in some MS.
- GP7:** the operation of the Single Market limits (or is perceived to limit) the ability of MS to implement border control measures. The groups of organisms for which effective external quarantine measures are in place are those discussed in relation to GP2. Some effort in relation to developing a coordinated early warning system is underway (DAISIE, Biodiversity Communication); but such a system is not yet in place. There is little evidence of MS using risk analysis systems in relation to import of potential IAS.
- GP8:** information exchange is being promoted in the context of European research projects and networking activities such as NOBANIS (and on the global level, eg, GISP, ISSG, GISIN). However, at this point there is no single clear and coordinated source for information on IAS in Europe.
- GP9:** capacity-building activities, including with regard to development and international aid, seem limited. Opportunities for MS to conclude agreements relating to trade in specific IAS seem restricted by the operation of the Single Market. Coordination of efforts is most prominent in the northern MS (eg NOBANIS) and not as common in the southern MS.
- GP10:** the birds and habitats Directives require MS to ensure that natural habitats within their natural range or wild native fauna and flora are not prejudiced. Accordingly, most MS have legislation in place to regulate the intentional introduction to the

wild of alien species (only in Greece was this not found), but it appears that enforcement and penalties vary significantly. In addition, there is no requirement that MS consider potential risks to other, neighbouring states (including third countries) when carrying out any risk analysis (where this is required). There is no evidence that decisions related to introductions are based on a precautionary approach.

GP11: unintentional introductions are generally well regulated for the categories of organisms previously mentioned (ie GMOs, 'harmful organisms' as defined in the plant health Directive, animal pathogens). For other groups there is limited control. Although the EIA and SEA Directives and SIA process are broad enough to consider risks of inadvertent introduction of IAS, there is no evidence that this is done in practice. The Environmental Liability Directive appears applicable to IAS issues, but due to the stringent requirements for its application, it is unlikely to be widely applied in practice.

GP12: the Environmental Liability Directive could be applicable, but its application to IAS is likely to be difficult in practice (discussed above). The habitats and birds Directives require the avoidance of deterioration of habitats and disturbance of species, but at protected sites only. There has been very little coordination of efforts for mitigation of impacts of IAS at European level. Capacity for early detection and rapid response remains limited.

GP13, 14, 15: the European obligations in relation to these GPs are limited to the categories of organisms already mentioned (ie GMOs, 'harmful organisms' as defined in the plant health Directive, animal pathogens, aquaculture organisms), and to activities at specific sites (including Natura 2000 sites, water bodies under the WFD, and European marine waters under the proposed MSD).

9.3 Cross-cutting analysis of gaps identified

Throughout the analysis, the same gaps and constraints recurred in respect of more than one of the GPs, and at both Community and MS levels. The key gaps in the overall European legal and policy framework (as apparent from this analysis) are:

- varying coverage in relation to different groups of organisms;
- lack of coordination between MS, especially in relation to neighbouring MS;
- operation of the Single Market is (or is perceived to be) a barrier to MS actions in relation to IAS;
- no early warning system for IAS threatening biodiversity;
- low awareness/political attention/resourcing;
- lack of attention to IAS issues when dealing with third countries;
- insufficient MS implementation/understanding of existing Community instruments; and
- definitions of IAS used by MS are not always consistent.

Each of these is discussed in turn below.

9.3.1 Varying coverage in relation to different groups of organisms

In relation to several of the GPs, and at Community and often MS level, comprehensive legal frameworks exist only for certain specified groups of organisms. Generally, the groups that are well covered (or are covered by proposed legislation) are:

- pests of plants ('harmful organisms' as defined in the Plant Health Directive);
- animal pathogens (as covered by in the Species-specific and general Directives containing precautions against animal disease introductions);
- aquaculture organisms (considered in the proposed Regulation for use of alien and locally absent species in aquaculture); and
- genetically modified organisms (covered in the Directives on contained use and deliberate release of GMOs).

For other groups of organisms there are few provisions in place to address potential IAS, although MS address these to varying extents through their domestic controls on introductions. This leaves a gap in the framework in relation to several groups of organisms that are well known to be high-risk in terms of potential invasiveness (eg plants imported for horticulture, ornamental fishes and aquatic plants for the aquarium and garden pond trade, pets).

The current situation also means that there is a distinction in the treatment of genetically modified organisms compared with alien organisms that are not modified. For example, if a MS wished to release a genetically modified species of forest plantation tree it would need to comply with the strict requirements of the Directives on contained use and deliberate release of GMOs. If one of the MS introduces a new forest plantation tree species which is not genetically modified but still alien to Europe, no risk analysis is required under European law. In some MS, there are even exemptions from permit requirements for introduction of species used in forestry and agriculture so alien species could be introduced without any risk assessment or official approval needed.

In addition to the groups of organisms set out above, four animal species are banned from import into the European Community under the wildlife trade Regulations on the grounds that they 'present an ecological threat to wild species of fauna and flora indigenous to the Community' (Article 4(6)). This provision has been used on a very limited basis to date, and Article 9(6) which provides the possibility of establishing restrictions on the holding or movement of live specimens of species listed under Article 4(6) has not been used at all.

It is clear that additions to the current framework are needed to address the risk from potential IAS that fall outside the groups of organisms currently listed.

9.3.2 Lack of coordination between MS

MS actions in relation to IAS are not consistent or coordinated, and are consequently not achieving an adequate level of protection for European biodiversity. In addition, there appears to be some confusion in MS as to what they are legally able to do in relation to IAS. In some cases, comments received from MS contacts during this project indicated

that MS authorities may be waiting for Community action rather than pursuing their own initiatives.

There is no central organisation of information on IAS in the European Community and there are no common public awareness programmes. Due to varying levels of political commitment to this issue, it will be difficult for MS to achieve coordination without some European-level support.

Aside from the NOBANIS initiative, and several European research projects (and LIFE projects) there is also very little evidence of practical cooperation between MS in relation to IAS issues.

Especially in relation to control, containment and eradication of IAS, lack of coordination amongst MS (especially neighbouring MS) limits the possibility of success. It may dissuade MS from undertaking actions when they fear these will fail due to reinvasion from across borders.

Without coordination of MS activities in relation to IAS, it is unlikely that the EC will meet its commitment under Article 8(h) of the CBD. It is also unlikely that MS will meet their own individual commitments under the same Article.

9.3.3 Operation of the Single Market is (or is perceived as) a barrier to dealing with IAS

The Single Market is based on the principle of free movement of goods within the European Community. MS are not permitted to impose quantitative restrictions on imports or exports (Articles 28 and 29, EC Treaty), but this 'shall not preclude prohibitions or restrictions on imports, exports or goods in transit justified on grounds of [...] the protection of health and life of humans, animals or plants [...]. Such prohibitions or restrictions shall not, however, constitute a means of arbitrary discrimination or a disguised restriction on trade between Member States' (Article 30).

At least some Member States perceive the operation of the Single Market as a barrier to their taking actions in respect of IAS. Several of the experts from the new Member States commented that prior to EU membership their countries had robust border control systems, but these were not left in place when their countries joined the EU. One representative commented that since joining the EU, a number of new IAS had been recorded in his country due to the lack of border controls.

Although there is some case law from the European Court of Justice in relation to Article 30 – what constitutes a justifiable restriction on trade – areas of legal uncertainty persist, and MS may still be reluctant to put restrictions in place if these are likely to face legal challenges.

9.3.4 No early warning system for IAS threatening biodiversity

Under the plant health Directive and the species-specific and general Directives containing precautions against animal disease introductions, rapid alert systems are in place to deal with outbreaks of organisms harmful to horticulture and agriculture. There is no corresponding system in place to alert MS of the arrival of new IAS that could potentially harm European biodiversity. Early warning systems are required to undertake mitigation efforts, such as eradication programmes. Without early warning new introduced species may establish themselves and consequently eradication may be impossible.

9.3.5 Awareness, resourcing, and political attention for IAS is low

Many MS highlighted low awareness, resourcing and low political interest in IAS as a barrier to action. The issue has not received a high level of attention at EU level, although DG Environment's LIFE unit has published one document covering the issue. Although European funds may be available to IAS projects (and IAS projects have been funded through LIFE (European Commission (2004)), specific references to IAS are absent from the Fund Regulation proposals for 2007-2013.

References to IAS are not included in many of the potentially relevant pieces of legislation (eg EIA and SEA Directives, Environmental Liability Directive, proposed MSD), and in others, although mentioned are not prominent (eg WFD, habitats and birds Directives). Because of these gaps, greater awareness and political will are critically important to provide direction at the Community level and ensure rapid action to address these environmental threats.

Increased awareness should also result in improved regional cooperation between MS and the development of joint prevention and mitigation actions. Consequently, duplication of effort and waste of resources may be minimised and at the same time management options, such as eradication programmes, will be more efficient.

9.3.6 Lack of attention to and awareness in IAS issues when dealing with third countries

No Community level instruments are in place that would control the intentional or unintentional introduction of alien species to third countries, for example as part of EU trade, external assistance and development cooperation activities. Similarly, none of the Member States instruments summarised in this report seem to address this issue. At the Community level, these issues can, in principle, be considered in the context of general environment/biodiversity related provisions provided by different instruments, eg European Consensus on Development, Cotonou agreement, Overseas Association Decision and other geographical frameworks for cooperation with third countries. IAS can also be considered as a part of SEAs and SIAs that the Community has committed to carry out as part of its development policy (SEAs) and trade agreement negotiations (SIAs). However, none of these instruments pay particular attention to the possible risks posed by IAS.

Both the Community and MS can carry out activities supporting the identification, prevention, early detection, monitoring and control of IAS (eg capacity-building and research) as a part of Community/national development cooperation. However, only one Community instrument (the EU Strategy for Africa) explicitly mentions IAS as one of the focal areas for cooperation activities.

9.3.7 Insufficient MS implementation/understanding of existing Community instruments

Although actions in relation to IAS are already required under several Community instruments, the review of MS measures indicated that implementation of these requirements varies significantly between MS. However, no information is available on whether these variations have resulted in negative impacts from IAS in some MS.

An example of the inconsistencies can be seen in relation to the MS obligations to restrict introductions of alien species under the habitats and birds Directives (where these might threaten native habitats and species). In the review of MS measures, it was apparent that some MS have few legislative controls or systems in place in relation to introduction of potential IAS. Monitoring systems are also lacking, so reporting on new introductions or the impacts of these is likely to be poor.

The WFD also provides a platform for MS to establish measures for control of IAS in relation to reaching and maintaining the good ecological status of water bodies. It does not appear that all MS will include assessment of IAS in their characterisation of water bodies (although there is specific reference to IAS in relevant guidance documents).

9.3.8 Definitions of IAS used are not always consistent; protection given to some IAS

The definition of IAS used throughout this report is the one included in the CBD Guiding Principles and the European Strategy on IAS: an alien species whose introduction and/or spread threatens biological diversity. This definition is not, however, consistently applied in MS. For example, in some cases IAS are defined as only species that have arrived after a certain date (eg Germany, Flanders). In some MS legislation, definitions of 'alien species' are also absent.

In addition, some IAS appear to receive unnecessary protection through European Directives and Conventions, and sometimes through MS legislation which can hamper control efforts. For example:

- some species alien to the whole of Europe are protected by the European framework; eg. Canada goose *Branta canadensis*, is included in Annex II/1 of the birds Directive (and Annex III of the Bern Convention), although it is known to be an IAS;

- some habitats characterised under the habitats Directive include IAS, eg habitat 3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation includes mention of *Azolla*³¹;
- the annexes to the nature Directives include some species that, while native in parts of Europe, are potential IAS in other ecological regions of Europe where they are not yet present. This blanket legal protection at Community level, if strictly implemented, means that an MS does not have the power to take control measures if these species travel outside their native range and become invasive elsewhere in Community territory.

10 RECOMMENDATIONS AND WAY FORWARD

This section sets out a range of recommendations for the Commission to assess. These include actions to address the specific gaps identified above, as well as broader strategic and operational issues, both for the Community and for Member States. Some of these actions can be undertaken in the short term, but others will be achievable only in the medium to long-term. These recommendations should be considered both in the intra-Community context, and in the context of the EU and third countries. In order to avoid duplication of activities and make best use of scarce resources, careful consideration should be given to assessing which actions are best led within MS, and which need to be driven at Community level. Implementing the recommendations in this report will require the allocation of additional European funds in this area, and the question of adequate resourcing should be considered at the time that any actions are suggested by the Commission.

10.1 Develop and promote an EU Vision and Strategy to take forward the IAS agenda

10.1.1 Vision and strategy documents

There is a need for a single document that clearly sets out the Community position and objectives for IAS in a user-friendly way. The Commission's recent Biodiversity Communication (COM2006(216)final) includes an action to *develop a Community strategy to address IAS*. An initial step could be the development of a Communication setting out an agreed vision, and providing for the longer-term development of a strategy and/or action plan. The latter should be aligned, as far as appropriate, with the European IAS Strategy, and should also aim to complement existing strategies and actions underway in Member States.

In New Zealand, the development of a *Biosecurity Strategy* provided the opportunity for stakeholders to be involved in decisions on the future priorities and systems for IAS management. This has resulted in widespread buy-in to the New Zealand system from all sectors of the community, including environmental groups, industry stakeholders, and other government agencies (see section 7.7).

³¹ EU Habitats Interpretation manual, available at http://europa.eu.int/comm/environment/nature/nature_conservation/eu_enlargement/2004/pdf/habitats_im_en.pdf

Developing a Community IAS vision and strategy should provide a similar opportunities for public and stakeholder engagement and awareness-building in the European context.

10.1.2 Profile-raising on IAS issues

IAS issues do not have a high profile at European Community level, although some species are known to be problematic for biodiversity throughout Community territory and several are known to have caused significant economic loss.

CBD COP 9, which will be held in 2008 in Germany, will have a major focus on IAS issues. The COP will provide an excellent opportunity to raise the profile of IAS issues within the Community and for the EC to demonstrate regional leadership in coordination with the Council of Europe. The Commission could sponsor an event related to IAS, timed in order to receive global attention associated with the COP and the 2010 goal of halting biodiversity loss. Any such event should not limit participants to representatives of environmental agencies, but should include representatives from animal and plant health organisations, agriculture and fisheries ministries, transport and trade bodies, and other sectoral organisations, to reflect the cross-cutting nature of the IAS issue.

Other options for improving awareness of IAS issues in the Community context include:

- promoting awareness of the IAS issue at European level (eg through publications, DG-Environment's website, supporting further research projects in this area, funding of a coordinated and focused awareness campaign, through synergies with Countdown 2010 programme etc). The Commission's recent Biodiversity Communication (COM(2006)216 final) includes specific actions in relation to building public education, awareness and participation for biodiversity. In implementing these actions, some attention should be given to ensuring the risk to biodiversity from IAS is included in communications;
- promoting awareness in MS about opportunities to fund activities related to control of IAS through European funds (provide guidance, workshops – refer to project ENV.B.2/SER/2005/0020);
- strengthening reporting requirements on IAS measures (see 10.5.3);
- routinely including IAS in environmental impact assessment procedures (see 10.5.3; and
- including IAS in planning under the WFD and MSD (see 10.5.3).

10.2 Build institutional linkages and improve coordination

10.2.1 Within the Commission

IAS are recognised as a cross-cutting issue. Dealing effectively with IAS risks and impacts in the future will require coordination amongst many different policy agencies. The Commission has already developed an informal inter-DG working group on IAS, and a contact point on IAS has been nominated within DG-Environment. This is a very positive development. The working group should be encouraged to continue to function, preferably with a more formal mandate. IAS focal points should be nominated within

each DG to facilitate communication and enable future coordination of work in this area. In addition, Commission representatives who deal with Community funds (eg LIFE+, EAFRD, Regional Development funds) should be included in the group to ensure adequate Community resources are available to deal with this issue.

10.2.2 Between the Commission and Member States

Member State representatives would benefit from a single source of information and advice in relation to IAS. This would assist in:

- ensuring coordination between MS (especially neighbouring MS) in relation to efforts for control and eradication;
- developing proposals for lists of high risk species to be subject to restrictions on import/export, possession, sale and introduction; and
- developing sub-regional strategies if required.

The Commission's representative in DG-Environment could play this coordination role, but would need support from a technical expert or group of such experts. One option would be for this expert group to build on the membership of the Bern Convention IAS Expert Group (see discussion below). An alternative option would be to set up a new technical advisory committee along the lines of the Ornis Committee which assists the Commission in the implementation of the birds Directive.

10.2.3 Between the Commission and the Council of Europe

The European IAS Strategy sets out actions and priorities for the Contracting Parties to the Bern Convention in relation to IAS. All EU MS are parties to the Convention, and as such have formally undertaken to implement the IAS Strategy.

The Bern Convention has focused on policy and technical issues related to IAS (generally and for specific species) for over twenty years and had adopted a series of formal guidelines to help Parties take concrete actions on the ground (see Annex 1). It has also established an IAS Expert Group which meets regularly and provides advice to many countries that are developing systems, strategies and capacity in relation to IAS.

To avoid duplication of effort, and to facilitate wise use of Community resources, it is recommended that procedures for systematic contact and communication be established between the Commission and the Bern Convention Secretariat. There may also be an opportunity for the Bern Convention IAS Expert Group to play a similar role in the EU context (also discussed above).

10.2.4 Between the Commission and other regional institutions

Other regional institutions, notably the European and Mediterranean Plant Protection Organisation (EPPO) are taking an increasing role in dealing with IAS issues in Europe. The Commission will need to engage with these institutions in relation to IAS in addition to any other areas of ongoing cooperation.

Particular consideration should be given to the possible role that the European Environmental Agency could play in addressing IAS issues as an integrated part of its other areas of activity.

10.3 Foster partnerships and improve accountability

The recently released Biodiversity Communication (COM(2006)216) recognises that building partnerships will be necessary in order to reach the goal of halting biodiversity loss by 2010. The same approach will be necessary in order to make progress in dealing with the issue of IAS at Community level.

10.3.1 European Stakeholder forum

A stakeholder forum could be organised as part of the development of the EU Vision and Strategy documents, or as part of the suggested event in association with COP 9. Any such forum should include representatives from the main European groups that are affected by IAS issues (eg landowner organisations; hunting federations; pet, plant and aquatic species retailers; transport bodies etc.) and could be organised jointly with the Bern Convention, EPPO, and/or other regional organisations. Prior to the development of a forum, the question of whether stakeholder engagement is most appropriate at EU or MS level should be investigated (through consultation with stakeholder groups).

10.3.2 Promote innovation and voluntary partnerships

The Biodiversity Communication (COM(2006)216) suggests the development of partnerships with interests in farming, forestry, planning, business, and the financial sector (see actions B3.1.1-3.1.7). In addition, the Communication suggests the establishment of a Biodiversity and Climate Change Adaptation Task Force (action B3.1.4). These partnerships need to address IAS as well as other aspects of biodiversity. This is especially relevant in relation to climate change, as variations in climate are predicted to cause ecosystem disruptions that will increase the susceptibility of ecosystems to the negative impacts of IAS.

Some MS have already begun to promote voluntary actions in relation to IAS – eg the UK has promoted a code of practice for the horticultural industry. Community-level actions could build on and support MS actions to achieve wider coordinated programmes.

10.3.3 Education and public awareness

Some MS have developed education and public awareness programmes in relation to IAS, but Community-level coordination would improve the efficiency of such programmes. For example, awareness related to avian influenza has been addressed at Community level, with coordinated publicity material in place at external borders to the Community. A similarly coordinated approach to building awareness of IAS that could affect European biodiversity could foster the feeling that IAS risks and impacts are a Community issue in their own right.

The aim of education and awareness activities should be to build a sense of responsibility amongst European citizens with regard to imports and exports of potential IAS to and from third countries, their movement in intra-Community trade, and also in relation to eradication and/or control programmes where public support can be crucial in achieving a positive outcome.

10.3.4 Subregional and transboundary initiatives

Subregional cooperation is already foreseen in Europe with regard to implementation of the water framework and proposed marine strategy Directives, and in relation to regional advisory councils for fisheries. In addition, all Natura 2000 sites are included in one of seven biogeographic regions.

To effectively address IAS issues, a transboundary approach will often be necessary, and a formal system for subregional cooperation could deliver many benefits.

Options to improve subregional coordination on IAS could include:

- promoting (or requiring through new legislation) the development of sub-regional plans for control of IAS based on an ecosystem approach – these could be analogous to the plans required under the WFD and proposed MSD for achieving good environmental status in water bodies; and
- requiring more detailed reporting on Article 8(h) of the habitats Directive in the next reporting period to identify species and actions affecting neighbouring States..

10.4 Streamline and strengthen the Community policy/legislative framework and tools

The Community has recognised (Biodiversity Communication 2006, Action 5.1.1) the need to assess and fill gaps in the current EU legal, policy and economic framework to prevent, control and eradicate IAS and mitigate their impacts on biodiversity.

10.4.1 Adjustment of existing measures

Whenever existing Community legislation or policies are reviewed (eg when the birds and habitats Directive Annexes are reviewed in 2007/08), IAS should be specifically considered as a cross-cutting issue. All review processes should assess the need for:

- addition of references to IAS to legislation and policy documents where relevant; and
- removal of inconsistent provisions that work against IAS prevention and management (eg removal of IAS from protected species lists, see 10.4.3).

Existing Directives (eg the plant health Directive, the species-specific and general Directives containing precautions against animal disease introductions) could be amended to broaden their scope to include some/all of the groups of species or pathways that are currently not covered. At the international level, similar options were proposed

by the Ad Hoc Technical Expert Group established by the CBD to address gaps in the international regulatory framework for IAS (see discussion in section 4.7). In that context, the Group suggested expanding the mandate of the OIE beyond its limited application to animal diseases.

The current application of the wildlife trade Regulations should be examined in the light of this and previous reviews (eg Adrados and Griggs 2002), which have found them ineffective in relation to IAS (see 10.4.3). It is significant that no use has been made to date of an existing legal provision (Article 9(6)) to control the holding and movement of listed IAS within Community territory.

10.4.2 Adoption of new measures where necessary

New legislative instruments may be necessary to achieve a comprehensive European framework for IAS prevention and mitigation. In particular, many MS representatives suggested the establishment of a central European contingency fund and structures to coordinate IAS activities throughout European territory. The fund would make resources available to deal with new introductions of IAS in Europe, and would allow the implementation of the three-stage hierarchical approach (eradication, containment, control). New legislation would be needed to establish such a fund and structures.

New legislation could be developed to address risks associated with those groups of organisms that are not currently well addressed (ie organisms that are not pests of plants, animal diseases, GMOs or aquaculture organisms), and could also apply to control and eradication of species already established in the wild in Europe³². Legislation of this kind to deal with high-risk groups of organisms would complement and be consistent with the proposed Regulation to deal with the risks from aquaculture organisms that may become IAS, and in fact this could be used as a model for the new legislation.

10.4.3 Review of species lists

A review of species lists under the wildlife trade Regulations should be carried out as a priority. Although these Regulations cannot deal with the entire IAS issue in the long-term (eg they cannot deal with hitchhiker organisms), there is an opportunity to improve their coverage in relation to some key risk species in the short term. Consideration should be given to listing further species that carry a high risk of being invasive and causing negative impacts on biodiversity as prohibited for import into EC territory. Any expansion of this 'black list' of species prohibited for import should include consideration of acceleration of the risk assessment and listing procedure to respond more promptly to identified threats.

The scope to make effective use of reg 9(6) also needs urgent consideration. Species should be listed under this provision where assessment indicates that controls on their holding and movement would reduce risk of further spread or establishment in

³² Development of a specific EC Regulation and establishment of a European-level authority for IAS was recommended by Adrados and Griggs (2002) in their review of the application of the wildlife trade Regulations to IAS.

Community territory. An investigation of the feasibility of enforcing movement and possession restrictions should be carried out, and risks related to release of IAS if possession was made illegal should also be analysed (see Adrados and Griggs 2002). Some discussion with counterpart organisations in New Zealand, Australia and the USA could inform decisions on feasibility in Europe.

10.4.4 Tackling priority pathway gaps

At the global and regional levels, gaps in the regulatory framework have been identified in relation to many IAS pathways: There are, for example, no binding instruments to cover known pathways like hull fouling, civil air transport and aquaculture/mariculture.

Other pathways characterised by specific gaps and inconsistencies include military activities; emergency relief, aid and response; international development assistance; scientific research; tourism; pets, aquarium and garden pond species, live bait and live food; biocontrol agents; ex-situ animal breeding programmes; incentive schemes linked to reforestation (eg carbon credits); and inter-basin water transfer and canals. Associated problems relate to unintended protection of IAS as a part of national nature conservation legislation, international conventions and other agreements and to inconsistency in terminology and lack of clear guidelines on the interpretation of relevant legislation.

Virtually all of these pathways are linked to socioeconomic activities of vital importance to the European Union's wellbeing and prosperity. The Community and individual MS have a vested interest in minimising risks of IAS transmission into and out of the Community via such pathways. It is therefore critical for the Community to contribute actively to the development and strengthening of international instruments and standards that can most effectively address such gaps and inconsistencies.

A good example of this kind of leadership is found in the recent Biodiversity Communication in which the Community undertakes (Action 5.1.3) to encourage ratification and implementation by MS of the international Convention for the Control and Management of Ship's Ballast Water and Sediments under the International Maritime Organisation (see Box 4).

The analysis for this report highlighted a particular gap with regard to the IAS risk related to European development work. Possible options to improve the attention given to IAS in the context of third countries could include³³:

- addressing (when relevant) the risks related to the transfer and introduction of IAS as a part of the instruments and policies for cooperation with third countries (eg promoting risk assessments for species considered for deliberate introductions);
- including a specific reference to IAS as one of the themes for Community and Member States cooperation in all relevant instruments;
- promoting dialogue between MS and third countries in relation to IAS (eg by hosting/sponsoring regular meetings on issues related to IAS in Europe,

³³ Recommendations on addressing IAS in the context of development cooperation and external assistance can be also found in Murphy and Cheesman (2006).

- developing a specific expert advice group under the Habitats Committee or other forum); and/or
- developing more detailed guidance to actively address IAS in the context of development cooperation, including listing priority areas where IAS related issues should be specifically addressed, and developing guidance on assessing the role and potential risks (eg economic costs) created by IAS through development cooperation programmes.

10.4.5 Implementation of early warning and information exchange systems

The development of an early-warning system is included in the Action Plan annexed to the Biodiversity Communication (COM(2006)216) (action 5.1.4). This system should facilitate the prompt exchange of information between neighbouring countries on the emergence of IAS and cooperation on control measures across national boundaries, and should be in place by 2008. Any early warning system should include the establishment of a central database of information on IAS in Europe, including an 'inventory' of IAS in Europe, a database on control measures, and an alert system for new arrivals. Any such system should make use of available data of existing expertise and networks (eg those already in place through projects and networks such as DAISIE, NOBANIS, NEOBIOTA, ALARM), and through the Council of Europe.

10.5 Develop a practical toolkit for Member States aligned with Community rules

It is clear that MS have a key role in preventing negative effects of IAS on biodiversity but that a mix of factors (capacity constraints, low political and public awareness, legal and technical uncertainties) limit the effectiveness of their current frameworks.

As part of the EU Vision and Strategy on IAS, the Commission and other Community institutions need to guide and support MS, and enable them to treat IAS issues as a priority. Developing practical tools to assist MS could be an effective way to use limited Community resources to get results 'on the ground'. Facilitating sharing of knowledge and experience between appropriate bodies should also be a priority, and where MS have already developed good tools that are working in practice, these should be highlighted rather than 'reinventing the wheel'.

10.5.1 Design of IAS measures that potentially affect trade rules

MS remain unclear about the sorts of measures they may justifiably put in place to protect their biodiversity from impacts related to IAS without breaching the EC Treaty or infringing the proper operation of the Single Market.

It is strongly recommended that the following steps be taken to clarify the legal situation and assist MS in taking effective action:

- produce practical guidance on Article 30 of the EC Treaty, based on the principles that can be derived from the case-law of the ECJ, with regard to the kinds of restrictions that MS can legally put in place. This guidance could take the form of 'design principles for MS measures' and should address internal movement of

- potential IAS into sensitive areas (eg islands), national and subregional prevention measures and measures that could affect 'external' borders to the Community; and
- produce information on good practice where IAS are being addressed by MS within the current legal framework (eg through effective restrictions on introductions, permit systems for possession, etc).

10.5.2 Promoting Europe-wide consistency in definitions and approaches

The European Community has a role in ensuring that MS have a common understanding in relation to IAS terms and issues as they affect biodiversity. Actions for this purpose will complement the programme already initiated under the Bern Convention at the pan-European level.

It is recommended that the Commission produce a guidance document on the interpretation and application of the CBD definitions of alien species, invasive alien species, introduction and other relevant terms, and how these relate to terminology used in other fora (IPPC, OIE).

The use of these CBD definitions should be systematised at Community and MS level through fora such as the Habitats Committee, Ornithology Committee and Biodiversity Expert Group, and in future Community guidance and policy documents relevant to IAS affecting biodiversity.

A scientific audit of the birds and habitats Directives and of the Bern Convention and all relevant guidance documents needs to be conducted to identify possible inclusion of current or potential IAS in species protection frameworks. Some of the information received during the process of producing this report indicated that some IAS are receiving unintended legal protection pursuant to mandatory requirements of Community and/or Member State legislation.

10.5.3 Improving implementation of existing instruments in relation to IAS

The results of the analysis carried out for this report indicate that existing Community legislation could be used to better address IAS issues if MS were implementing all existing provisions effectively. Options to improve MS implementation and understanding of existing Community instruments include:

- providing guidance on best practice for implementation of the relevant Articles of the habitats and birds Directives;
- requiring detailed reporting in relation to the relevant Articles of these Directives, and ensuring that MS have transposed these and are implementing them effectively;
- challenging cases of inadequate implementation in the ECJ; and
- providing guidance to MS in relation to the inclusion of potential impacts from IAS in impact assessments (EIA, SEA, SIA).

The water framework Directive in particular offers a unique opportunity to address IAS in aquatic and riparian systems at an appropriate management scale (catchment/river basin). Without consistency across the EU and clear guidance from the Commission, there is a risk that some MS will not include IAS in their implementation of the Directive as control measures may be expensive. The Commission should assess all information on water bodies provided under the WFD, establish whether IAS have been included in the assessments, and follow up with any MS who have omitted consideration of IAS. The same process should apply to analysis of MS plans under the proposed marine strategy Directive.

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