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INVASIVE ALIEN SPECIES

Progress report on matters identified in decision V/5, paragraphs 5, 11 and 14, and an analysis of national reports

Note by the Executive Secretary

Executive summary

The Executive Secretary has prepared the present progress report on the matters identified in paragraphs 5, 11 and 14 of decision V/8 of the Conference of the Parties to the Convention on Biological Diversity. Comments on the interim guiding principles for the prevention, introduction and mitigation of impacts of alien species, developed by the Conference of the Parties at its fifth meeting, have been received from four countries and three organizations. Those submitting the comments sought wording changes to clarify or refine the principles, or sought additional principles, rather than fundamental changes. Issues relating the elaboration of the principles are addressed in the note by the Executive Secretary on options for future work on alien species (UNEP/CBD/SBSTTA/6/8).

As of 21 November 2000, thematic national reports on alien species had been received from 41 countries. In summary, these reports indicate that the effect of invasive alien species is a very important issue for biodiversity management, but that the ability for most countries to address the issue is extremely limited, and therefore both national capacity-building and facilitation of collaborative efforts are clearly important areas to be tackled.

Case-studies on invasive alien species were received from 22 countries and the Global Invasive Species Programme (GISP). The key findings are presented in this note in regard to detection, eradication, containment, and control of invasive alien species, as well as general issues.

The note also reports on progress on collaboration with relevant organizations, and other relevant international and regional binding and non-binding instruments to assist the Parties to the Convention in developing advice on a range of issues dealing with invasive alien species, as well as on progress in the development of standardized terminology, risk assessment criteria, developing means to enhance the

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capacity of ecosystems to resist or recover from invasions, developing reporting systems, and assessing priorities for taxonomic work.

Suggested recommendations

The Subsidiary Body on Scientific, Technical and Technological Advice may wish to:

(a) *Request* the Executive Secretary, to consider the comments received on the interim guiding principles and, in consultation with relevant organizations, develop proposed wording for guiding principles for consideration by Conference of the Parties at its sixth meeting; and

(b) *Invite* Parties that have not provided their national reports in response to paragraph 8 of decision V/19 to do so as soon as possible, and to continue to provide case-studies, for dissemination through the clearing-house mechanism.

Suggested recommendations on the elaboration of the interim guiding principles are being provided in the note by the Executive Secretary on the subject that will also be taken up by the Subsidiary Body under this item (UNEP/CBD/SBSTTA/6/8).

CONTENTS

Executive summary 1

Suggested recommendations 2

I. INTRODUCTION 5

II. MAIN FINDINGS FROM THEMATIC NATIONAL REPORTS 6

III. REVIEW OF CASE-STUDIES 7

A. Prevention 8

B. Detection 9

C. Eradication 9

D. Containment 9

E. Control 10

F. General points/issues 10

IV. REVIEW OF COMMENTS ON THE INTERIM GUIDING PRINCIPLES 12

A. Title and terminology 13

B. Extent of elaboration of the principles 13

C. Purpose of the principles 13

D. Information exchange 13

E. Guiding principle 1: Precautionary approach 13

F. Guiding principle 2: Three-stage hierarchical approach 14

G. Guiding principle 3: Ecosystem approach 14

H. Guiding principle 4: State responsibility 14

I. Guiding principle 5: Research and monitoring 14

J. Guiding principle 6: Education and public awareness 14

K. Guiding principle 7: Border control and quarantine measures 14

L. Guiding principle 8: Exchange of information 14

M. Guiding principle 9: Cooperation, including capacity-building 15

N. Guiding principle 10: Intentional introduction 15

O. Guiding principle 11: Unintentional introductions 15

P. Guiding principle 12: Mitigation of impacts 15

Q. Guiding principle 13: Eradication 15

R. Guiding principle 14: Containment 16

S. Guiding principle 15: Control 16

T. Additional principles 16

V. REVIEW OF PROGRESS IN COLLABORATIVE WORK 16

A. Potential joint programmes of work 16

B. Standardized terminology 17

C. Risk assessment criteria 17

D. Processes for assessing the socio-economic implications of invasive alien species 18

E. Furthering research on the impact of invasive alien species 18

F. Developing means to enhance the capacity of ecosystems to resist or recover from invasions 18

G. Developing reporting systems 18

H. Assessing priorities for taxonomic work 19

I. INTRODUCTION

1. At its fourth meeting, the Conference of the Parties agreed to address the implementation of Article 8(h) (on alien species which threaten ecosystems, habitats or species, referred to hereinafter as "invasive alien species") as a cross-cutting issue under the Convention on Biological Diversity. It decided to consider the issue in depth at its sixth meeting, drawing on advice from the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA). In particular, the Conference of the Parties requested SBSTTA to develop guiding principles.

2. The work of SBSTTA at its fourth and fifth meetings was reported to the fifth meeting of the Conference of the Parties. At that meeting, the Conference of the Parties took some initial decisions on the issue, and requested a further series of actions prior to a full consideration of the issue at its sixth meeting (decision V/8). In particular, the Conference of the Parties in decision V/8 urged Parties, Governments and relevant organizations to apply the interim guiding principles contained in the annex to decision V/8, as appropriate, in the context of activities aimed at implementing Article 8(h) of the Convention on Biological Diversity, and in the various sectors. The Conference of the Parties also requested Parties, other Governments, relevant bodies and other relevant international and regional binding and non-binding instruments, in the light of discussions by SBSTTA at its fifth meeting, to submit to the Executive Secretary written comments on the interim guiding principles, to be taken into account, together with the case-studies, in the further elaboration of the interim guiding principles, to be considered by the Subsidiary Body prior to the sixth meeting of the Conference of Parties, and requested the Executive Secretary to distribute those comments through the national focal points.

3. In paragraph 14 of decision V/8, the Conference of the Parties requested the Executive Secretary to collaborate with the Global Invasive Species Programme (GISP), the Food and Agriculture Organization of the United Nations (FAO), the International Maritime Organization (IMO), the World Health Organization (WHO) and other relevant organizations, and other relevant international and regional binding and non-binding instruments to assist the Parties to the Convention in:

(a) Developing standardized terminology on alien species;

(b) Developing criteria for assessing risks from introduction of alien species;

(c) Developing processes for assessing the socio-economic implications of alien invasive species, particularly the implications for indigenous and local communities;

(d) Furthering research on the impact of alien invasive species on biological diversity;

(e) Developing means to enhance the capacity of ecosystems to resist or recover from alien species invasions;

(f) Developing a system for reporting new invasions of alien species and the spread of alien species into new areas;

(g) Assessing priorities for taxonomic work.

4. In decision V/8, paragraph 15, the Conference of the Parties also requested the Executive Secretary, in collaboration with the GISP, FAO, IMP and WHO and other relevant organizations and instruments to develop a paper for consideration by the Subsidiary Body on Scientific, Technical and Technological Advice and the Conference of the Parties at its sixth meeting, comprising:

(a) A comprehensive review on the efficiency and efficacy of existing measures for prevention, early detection, eradication and control of alien invasive species and their impacts;

(b) A progress report on the matters listed in paragraphs 5 and 14 of decision V/8;

(c) All options for future work on alien invasive species under the Convention on Biological Diversity, which would provide practical support to Parties, Governments and organizations in the implementation of Article 8(h) of the Convention and lead to the full and effective implementation of Article 8(h);

5. In carrying out his work, the Executive Secretary, in accordance with paragraph 9 of the *modus operandi* of SBSTTA (decision IV/16, annex I), established a liaison group on invasive alien species. This group comprised experts from the United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Plant Protection Convention (IPPC), the Global Environment Facility (GEF), CAB International, the Convention on Wetlands of International Importance Especially as Waterfowl Habitat, GISP, DIVERSITAS, IMO, UNEP, IUCN, China, Brazil, South Africa, Norway, New Zealand, and the Chair of SBSTTA. The meeting was held back to back with the synthesis meeting on phase I of GISP, in Cape Town in September.

6. Bearing in mind the requests of the Conference of the Parties outlined in paragraphs 2, 3 and 4 (b) above, this paper provides an overview of progress made in the preparatory work for the Conference of the Parties. Section II presents the main findings from the analysis of the thematic national reports on alien species requested by decision V/19, and a more detailed analysis is provided in part A of information document UNEP/CBD/SBSTTA/6/INF/2. Section III reviews the case-studies received. Section IV is a compilation of the comments received on the interim guiding principles. Section V provides a review of progress of collaboration to assist Parties on invasive alien species (as requested in decision V/8, paragraphs 11 and 15), including potential joint programmes of work.

7. To facilitate the work of SBSTTA with regard to the request of the Conference of the Parties referred to in paragraph 4 (a) above, the Executive Secretary has prepared a note (UNEP/CBD/SBSTTA/6/7) containing a comprehensive review of the effectiveness and efficiency of existing measures for prevention, early detection and control of alien invasive species and their impacts. With regard to the request in paragraph 4 (c) above, SBSTTA will have before it a note by the Executive Secretary (UNEP/CBD/SBSTTA/6/8) setting out options for future work on invasive alien species under the Convention.

II. MAIN FINDINGS FROM THEMATIC NATIONAL REPORTS

8. In its decision V/19, the Conference of the Parties requested Parties to provide thematic reports in a standard format on the issues to be considered in depth at meetings of the Conference of the Parties. The first thematic report due was on alien species, requested by 30 September 2000. As of 21 November 2000, national reports had been received from a total of 41 countries. The main findings of the national reports are summarized below, with a more detailed analysis provided in part A of information document UNEP/CBD/SBSTTA/6/INF/2.

Priority of the issue

9. Most countries reported that they attached high or medium priority to the implementation of Article 8(h) and the associated decisions.

Available resources

10. Only 11 per cent of reports stated that resources were good or adequate. All others expressed the view that resources were a limiting or severely limiting factor.

Identification and assessment of species

11. Most countries reported that only major species of concern had been identified. Only 14 per cent reported that a comprehensive tracking system was in place.

12. All but two countries had assessed either no alien species or only a few species of particular concern.

13. Lack of knowledge about the species present and their effects was identified as a significant issue in a number of reports.

Strategies and measures

14. Almost all countries reported that they had some national policies in place or in preparation, usually as part of the national biodiversity strategy. In general, however, it appears that those strategies are limited in scope and effectiveness, often focused on species of economic interest rather than on species of significance for biodiversity.

15. Most countries had some measures in place, or were developing measures, but only 11 per cent reported comprehensive measures.

Shared problems and collaboration

16. While most alien species issues are to some extent unique, the responses indicate a high potential for collaborative effort on shared problems. Knowledge of the similarity of problems is variable, however.

17. There is a relatively low level of current collaborative activity.

Provision of case-studies

18. Only a few countries provided case-studies, but the majority had case-studies available.

III. REVIEW OF CASE-STUDIES

19. At its fourth meeting, SBSTTA requested the Executive Secretary to invite Parties, other Governments and relevant bodies urgently to submit available case-studies on invasive alien species to the Executive Secretary in order to contribute to the Secretariat's work of preparing advice for the fifth meeting of the Subsidiary Body. At its fifth meeting, the Conference of the Parties endorsed the outline for case-studies proposed by SBSTTA, and urged Parties, Governments and relevant organizations to submit case-studies to the Executive Secretary. The clearing-house mechanism of the Convention was requested to disseminate and compile those case-studies.

20. Thirty case-studies had been received as of December 1999 and were used by the Executive Secretary in the preparation of his note on the subject for the fifth meeting of SBSTTA (UNEP/CBD/SBSTTA/5/5). Three further case-studies were received prior to the fifth meeting of the Conference of the Parties. Twenty-seven additional case-studies were received by 30 October 2000 in response to the call by the Conference of the Parties at its fifth meeting. These additional studies came from Argentina, Australia, GISP, India, Japan, Mexico, New Zealand, Seychelles, Sweden, United Kingdom, and the United States of America.

21. Part B of information document UNEP/CBD/SBSTTA/6/INF/2 lists all case-studies submitted. Set out below is an analysis of the main issues broken down into six main areas: prevention, detection, eradication, containment, control and general issues/points.

A. Prevention

22. Attempts to develop tools to predict whether a species is likely to become invasive have had some success. In some cases, it may be possible to identify that a species is highly likely to be invasive, for example, because it has been invasive in a similar habitat. Saying with certainty that a species will not be invasive appears to be more difficult, however, and the case-studies include examples of where predictions about behaviour were incorrect. For this reason, it can be concluded that a precautionary approach would be to treat every alien species as potentially invasive until there is evidence to indicate that it is not.

23. Case-studies and scientific literature provide examples of invasive alien species in all major taxonomic groups. It is therefore apparent that no such group can be treated as a low risk, and prevention, detection and management systems would ideally be able to handle all groups, including microorganisms. An understanding of the reproduction strategies and habitat requirements of the species is needed to assess its invasiveness, and general rules based on its taxon type do not apply.

24. The case-studies indicate that species in their natural environment may exhibit quite different characteristics when they are translocated elsewhere. Therefore, while behaviour in the originating environment may indicate potential problems, it is unlikely to be an indicator of safety. In many cases, species that became invasive outside of their natural range did not show invasive characteristics in their natural environment. In some cases, the species even became endangered in their natural habitat. The scientific literature includes discussion of a number of reasons why a species may behave differently in a new environment. Lack of natural predators and diseases is a frequently cited reason, and successful biological control operations illustrate this point. Another reason may be differences in the ability of the native species in the invaded habitat to cope with the tactics used by the invader.

25. All regions of the world and most countries have been the origin for invasive alien species causing problems in other locations. Thus, every country is a potential risk to its neighbours and trading partners.

26. It is not just alien species that have crossed national boundaries that are potentially invasive. The case-studies include species that have become invasive when moved to areas outside their home range within national boundaries (and are therefore alien to their new location).

27. Speciation is in part the result of natural barriers to the movement of genetic material. These include the isolation of habitats such as lakes, islands, reefs, and estuaries by distance or physical barriers. Any species that is moved across that barrier through human intervention can be treated as alien to its new home. Political borders and biological borders do not always coincide. In many cases, political borders cut across continuous habitat, or encompass areas that are not biologically connected. Most “border control” work has been focused on political borders, but increasingly countries are developing regional or subnational controls on the movement of alien species.

28. Cross-border movements of goods and people are frequent, and increasing. This means that even a fairly ineffective vector can result in a high rate of invasions over time. Prevention systems are not able to detect all possible importations of alien species, although with sufficient effort it may be possible to reduce the risk to levels close to zero. Less than perfect systems may still greatly reduce the rate of invasion, and therefore the effort needed for management. Interim guiding principle 2 states that prevention is generally the most cost-effective approach. The rate of invasions can be reduced by a

border control system, backed up by surveillance around the entry points to allow early detection of failures, and immediate eradication of new incursions. The border used for this purpose may match the political border, or be within the country, or be regional. Prevention systems can significantly reduce the number of problems that need to be tackled, even if some failures are inevitable. Alien species can be moved by people deliberately or accidentally. They can also spread naturally from an original invasion site.

B. Detection

29. Normal decision-making processes for activities such as eradications can be protracted. In the cases considered, it would be necessary to allow considerable time for technical assessments, public consultation, and any necessary legal processes. In addition, the response may be slowed by lack of available funding, and by uncertainty about what agency is responsible and has the necessary authority. An early response is facilitated if contingency procedures are in place.

30. The guiding principles recognize that early detection is an important component of any prevention/eradication approach. Information document UNEP/CBD/SBSTTA/INF/3 sets out a range of ways in which the rate of early detection can be increased. Several case-studies show that the ability to undertake eradication successfully is often dependent on early action. In addition, case-studies show that rapid response to an invasion may be essential to prevent irreversible damage occurring. The case-studies and information document UNEP/CBD/SBSTTA/INF/3 include examples where early detection can be achieved through formal monitoring/surveillance programmes, as well as through less formal means, including public reporting of new species.

31. Several case-studies indicate that the ability to mount a rapid response would be greatly enhanced if there already existed:

(a) A clear allocation of responsibilities to agencies with the ability to undertake the work;

(b) Authority to take actions already established (e.g. the use of certain types of poisons may have already been approved through the normal process, ready for when they are needed, or relevant laws may be in place);

(c) Established funds, or access to a fast-track funding process;

(d) The ability to undertake actions that would not normally be allowed (e.g. blocking the movement of goods and vehicles, destroying private property) where such actions are needed to respond to an emergency;

(e) Clearly understood and established procedures for responding to new incursions that outline who is responsible for taking initial actions, rules for gaining additional government funding, how decisions will be taken on an appropriate response, and what actions can be taken to prevent further spread.

C. Eradication

32. Eradication is recognized in the interim guiding principles to be the preferred method for dealing with invasive alien species if prevention is not successful. The guiding principles recognize that this depends on it being cost effective. The case-studies include examples where eradication was difficult and expensive. They also include examples, however, where eradications were successful and cost-effective, and show that our knowledge base and capacity to undertake eradication is increasing. In a number of cases where eradications were undertaken, the benefits reported were wide-ranging, including prevention of expected damage, and recovery of ecosystems.

D. Containment

33. Containment is recognized in the interim guiding principles as a useful approach, and the case-studies provide a number of circumstances where this approach has been employed. These include its use as a temporary measure while long-term measures are being decided, to prevent the spread of the species to new areas, or to allow localized eradication without the cleared area being immediately re-invaded.

E. Control

34. There is a wide range of control measures available, which can be used to mitigate the impacts of alien invasive species. The most frequently mentioned methods for mitigating the effects of alien species are mechanical removal, biological control, poisoning, and trapping. However, the case-studies provide a variety of other options, including the development of physical barriers to the movement of species and changing the nature of potential vectors. Sometimes measures have been adopted which produce significant short-term impacts (for example, damage to other biodiversity), or have had significant social effects (for example, restricting the movement of people, animals or goods). As well as the success stories, the case-studies include failed programmes, which also provide valuable information for other Parties.

35. Some case-studies showed that where an area is subject to more than one invasion, the removal of one species may result in changes in the populations of the other species that may then result in a greater overall problem for biodiversity. This would suggest that it is important for the planning of a control programme to include consideration of the likely effects of the programme on other invasive alien species present in the area.

36. Information document UNEP/CBD/SBSTTA/6INF/3 suggests biological control may be a valuable option, but not without risks. The case-studies include both successful use of biological control, and problems created by poorly designed projects. Careful research and assessment is necessary in any proposed biological control programme.

F. General points/issues

37. The case-studies include examples where failure to take early enough action resulted in intractable problems and potentially irreversible impacts. They also include examples that indicate that eradication, containment and control of invasive alien species become progressively more difficult as the population of the species, and its geographic extent, increase. The case-studies show that established invasive species can cause significant impacts to biodiversity, and those impacts may sometimes be irreversible.

38. Many invasions documented in the case-studies did not occur by direct transfer from the country to which the species is indigenous. Often the species spread from an earlier invasion source. In some cases, invasions have resulted in very high population numbers, and active dispersal behaviour, increasing the likelihood of spread to new areas. In addition, the case-studies indicate that the chance of humans moving the species deliberately or accidentally is increased if there are more potential sources.

39. Some cases studies identified genetic contamination of indigenous species as a significant impact from alien species invasions. In some cases, such contamination has resulted in the effective extinction of the native species. Even where the effect was not as severe, the case-studies cite a loss of fitness of some species, or impacts on the ability to undertake recovery work on threatened species.

40. A number of case-studies documented the direct economic costs of alien species invasions. The economic costs of some of these invasions were very high. Identifying costs was cited in some cases as a major factor in gaining support for prevention and management programmes. Most of the economic

studies focused on alien species in the primary production sectors, rather than those affecting biodiversity, but these species often also have biodiversity impacts. The economic costs of alien species identified in the case-studies included:

(a) The direct and indirect costs of prevention, eradication or control (including delays to the movement of goods and passengers);

(b) The direct effects on economic sectors (e.g. agriculture, forestry, shipping);

(c) Effects on human health, resulting in lost productivity and medical costs;

(d) Indirect costs to the economic sector, for example from loss of markets or damage to the tourism industry.

41. Economic cost analyses were seen in some case-studies as being helpful input to decision-making processes and in generating commitment to management programmes.

42. While there is a wide range of prevention, eradication and control options available, the overriding message from the scientific literature (see UNEP/CBD/SBSTTA/6/INF/3) indicates that the best option needs to be carefully chosen, taking into account effectiveness, costs, and impacts of its use. The successful operations reported generally included careful planning and design. Sometimes drastic measures were considered to be justified. In addition, some case-studies indicate that the effect of managing one invasive species on the impacts of other invasive species must be considered. Experience from the case-studies suggest that the planning process should be able to draw on relevant experience elsewhere, but that the approach taken needs to be tailored to the particular circumstances of the affected country. Information collection and research were important elements of some of the successful case-studies provided, as were public consultation and involvement.

43. Several case-studies state that cost-effective and/or acceptable control or eradication techniques were not available for many existing or likely alien species problems. While there is evidence in the case-studies of significant work being undertaken to manage the effects of alien species on biodiversity, they also showed that in some cases the ability to undertake this work is limited by the lack of a technique which is effective, affordable, acceptable to the public, and does not have unacceptable negative effects on other biodiversity values or on other sectors.

44. Some case-studies included information indicating that prevention, eradication and control can be very costly, and that therefore prioritizing actions was an important element in that country's alien species work. Prioritizing was used to allow scarce resources to be targeted to where they would achieve optimal benefit. This included deciding what actions would not be taken in the foreseeable future, and what actions would be deferred. In some cases, partial actions were undertaken to retain future options, but with a complete response deferred (until a suitable management method was available).

45. The case-studies show that alien species may threaten many sectors of society. Several case-studies identified the need for integration between the sectors to increase the cost-effectiveness of alien species work. Key sectors mentioned were health, agriculture, forestry, fisheries, aquaculture, tourism, shipping, and construction. In addition, there were examples showing that the way in which invasive species were managed had implications for affected sectors, including implications for economic and social development.

46. Many of the alien species described in the case-studies were reportedly introduced as a result of a deliberate decision, or by the unintentional introduction of the species where that could have been prevented. Subsequent problems created by the species led to costs for parties not involved in the decision that resulted in importation. In some cases, equitable sharing of costs between those creating the problem and those suffering as a result of the problem was seen as an important part of planning

responses to an invasive alien species. Case-studies included steps to internalize for the party responsible for the problem.

47. Several case-studies exemplified how public attitudes to alien species problems can greatly affect the effectiveness of prevention, eradication and control programmes. Public willingness to comply with border control restrictions, for example, was cited as having a major influence on their effectiveness. Several case-studies show that the public affected political decision-making, and/or had a direct control over the ability to undertake management actions. Public opinion was cited in several cases as a major factor in determining accessibility to management methods such as the use of poisons, the killing of vertebrates, and the temporary destruction of habitat (e.g. draining a pond to eradicate fish). Case-studies ranged from examples where public opinion resulted in opposition to the work, to those where it resulted in active support for alien-species management. Public-awareness campaigns in some cases were reported to have greatly enhanced public understanding of the impacts of alien species, and the practicalities and risks of various management options.

48. Almost all the thematic national reports identified a lack of resources as a major limiting factor for alien species response work. Some case-studies included examples of the use of community and international volunteers in detection and management programmes. These case-studies suggest that the use of communities and volunteers may represent a significant untapped resource for other programmes.

49. The case-studies included examples showing that cooperative efforts between countries provided major benefits, and in some cases was essential for the effective treatment of the problem. The reasons for cooperative arrangements varied, and included:

(a) The countries share biodiversity that was threatened;

(b) The countries were the source of the alien species, and the site of the invasions (this was particularly relevant for biological control work);

(c) The countries faced similar problems, and sharing of experiences or cooperative development of new information or techniques benefited both;

(d) The countries had political relationships, for example, a donor-recipient relationship;

(e) The work (for example, management of border-control arrangements) needed to be operated at a regional level;

(f) Mitigation effort in one country was considered to be fruitless because of the threat of constant re-invasion from a neighbouring country that was not carrying out mitigation actions.

IV. REVIEW OF COMMENTS ON THE INTERIM GUIDING PRINCIPLES

50. As noted in paragraph 2 above, the Conference of the Parties has requested Parties, other Governments, relevant bodies and other relevant international and regional binding and non-binding instruments, to provide written comments on the interim guiding principles to help in the further elaboration of the interim guiding principles. The Executive Secretary wrote to all national focal points on 6 July 2000, requesting comments on the interim guiding principles by the end of September, to allow time to compile the results. As of 13 November 2000, comments had been received from the following countries: Australia, New Zealand, Seychelles, and the United States of America; and the following organizations: FAO, GISP and IPPC. All comments received by that date have been distributed to the national focal points for the Convention on Biological Diversity, and are available through the Convention's clearing-house mechanism at www.biodiv.org/alienspecies/html/ntf-2000-11-27-alien-e.html, and a detailed breakdown for each point is provided in part C of information document UNEP/CBD/SBSTTA/6/INF/2. The following summary of major issues is a compilation of those comments.

A. Title and terminology

51. A range of changes to the title was suggested, in order to clarify the English, provide a more appropriate description of the content, and to emphasize that these are non-binding guidelines rather than binding principles. Australia and GISP suggested that the term "guidelines" might be more appropriate than "guiding principles", in order to emphasize their non-binding nature. Alternatives to the term "alien invasive species" were offered in a number of comments, including to achieve greater consistency with GISP terminology or to achieve consistency with the Convention wording.

52. Given the comments, alternative wording options could include: "Guiding principles/Guidelines on invasive alien species/the implementation of Article 8(h)/alien species which threaten ecosystems, habitats or species/the intentional or unintentional introduction of invasive alien species, and for the mitigation of any adverse effects of invasive alien species".

53. IPPC noted inconsistency in the use of the terms, particularly the word "introduction". It was suggested that the term "introduction" be used in relation to the intentional or unintentional movement of the species into the area to which it is alien. FAO expressed the view that the word "invasive" may be confusing.

B. Extent of elaboration of the principles

54. Comments received from one Party, New Zealand, proposed that the document should contain the minimum possible explanatory material, with any elaboration placed in supporting documents. GISP suggested that SBSTTA consider whether further guidance is required for each of the guiding principles. The issue of further guidance is considered in the note by the Executive Secretary on options for future work on invasive alien species (UNEP/CBD/SBSTTA/6/8).

C. Purpose of the principles

55. GISP suggested that SBSTTA might consider clarifying the purpose of the principles. All the comments from Governments that addressed this issue (New Zealand, Australia, the United States of America) supported the concept of guiding principles which provided a non-binding aim or objective for Parties to move towards in their implementation work. This is compatible with the call from GISP to recognize the variability in the ability of countries to address the issue of alien species.

56. FAO suggested that the guiding principles refer to, and be developed in harmony with, the FAO Code of Conduct for Responsible Fisheries and the codes of practice of the International Council for the Exploration of the Sea (ICES). FAO also noted the role of alien species in food production and economic benefits.

D. Information exchange

57. FAO noted that several principles deal with information exchange. They consider that there needs to be further examination of the issue of databases.

E. Guiding principle 1: Precautionary approach

58. Some countries, together with GISP, argued for changes to the wording to achieve greater consistency with the Rio Declaration on Environment and Development. The Seychelles strongly endorsed the statement of the precautionary principle in terms of the text used and in its position as the first principle. FAO suggested that the term should be defined operationally.

F. Guiding principle 2: Three-stage hierarchical approach

59. Countries suggested a number of wording changes to improve the clarity of the principle, in particular in relation to cost-effectiveness, and to emphasize that all three approaches would be used in appropriate circumstances.

60. In addition, there were differing views on whether the issue of movement of species outside their natural range but within the national boundaries of the country should be included.

G. Guiding principle 3: Ecosystem approach

61. Wording changes were proposed to recognize that the ecosystem approach may not be relevant to some alien species work (e.g. prevention at the border).

H. Guiding principle 4: State responsibility

62. There were concerns about the practicability of addressing aspects of this principle, particularly in relation to controlling exports of species. There were also concerns about possible implications for liability. In addition, it was suggested by the United States of America that this principle and principle 9 could be combined.

I. Guiding principle 5: Research and monitoring

63. Comments raised concerns about the capacity to implement this principle.

J. Guiding principle 6: Education and public awareness

64. The comments on this principle sought to make it more comprehensive, and emphasize participation as well as awareness.

K. Guiding principle 7: Border control and quarantine measures

65. Comments raised issues relating to capacity to implement the principle, and the movement of species within national boundaries. They also suggested wording changes to improve clarity and complementarity with other international instruments.

L. Guiding principle 8: Exchange of Information

66. Issues were raised in the comments relating to

(a) Screening and verification of any information placed in databases;

(b) The need for inventories of existing databases, and for making comprehensive databases that are standardized, comparable and easily adapted to new technologies;

(c) Making databases useful;

(d) Other information sources; and

(e) Making information widely and freely available.

M. Guiding principle 9: Cooperation, including capacity-building

67. The United States suggested combining this principle with principle 4. Other comments sought greater clarification of the intent, and a widening of capacity-building to issues other than risk assessment.

N. Guiding principle 10: Intentional introduction

68. Changes were sought to:

(a) Remove duplication with principle 1;

(b) Address issues relating to the responsibility for effects on neighbouring States;

(c) Address the issue of species already present and invasive;

(d) Address issues related to risk assessment;

(e) Recognize rights and obligations under other international conventions.

O. Guiding principle 11: Unintentional introductions

69. Changes were proposed to incorporate the use of existing quarantine systems, to recognize capacity issues, and to remove the link between legislation and environmental impact reporting.

P. Guiding principle 12: Mitigation of impacts

70. Comments covered:

(a) The need to recognize the potential to use existing systems;

(b) The higher risk that already naturalized species pose compared to new introductions;

(c) Potential problems with the words “socially, culturally and ethically acceptable”;

(d) Concerns about the term cost-effective;

(e) The definition of “safe”;

(f) Capacity limitations;

(g) Potential limits on the use of effective tools;

(h) Duplication with principle 1;

(i) The need for prior risk assessments and environmental impact assessments before deciding on mitigation measures.

Q. Guiding principle 13: Eradication

71. Comments covered:

(a) The need to recognize the potential use of existing systems;

(b) The term cost-effective;

(c) Capacity issues;

(d) Issues related to consultation.

R. Guiding principle 14: Containment

72. Comments covered:

(a) The need to recognize the use of existing systems;

(b) When containment is practical.

S. Guiding principle 15: Control

73. Comments covered:

(a) The need to recognize the use of existing systems;

(b) Capacity issues;

(c) Clarification of the wording on techniques;

(d) The inclusion of consideration of a regional response.

T. Additional principles

74. Two additional principles were suggested:

(a) A user-pays guideline; and

(b) A polluter-pays guideline

User-pays guideline

75. Australia suggested that under the user-pays concept, domestic users benefiting from the import of an alien species could be asked to meet some of the cost of risk assessment and any specified import measures. The suggested text is:

> "Consideration should given to arrangement such that the domestic users who will benefit from the introduction of an alien species pays for risk assessment and any management measures specified. Consideration of cost recovery would need to be balanced against public benefits and the likelihood that high risk assessment and management costs could significantly increase illegal imports."

Polluter-pays guideline

76. Australia suggested that under the polluter-pays concept countries should seek assistance from the domestic user of an alien species to meet the costs associated with clean-up and biodiversity restoration where the user has failed to comply with the regulatory environment and address the risks associated with the use of the species. The suggested text is:

> "The polluter pays guideline should be applied to the domestic use of alien species. The user should bear costs of clean up and biodiversity restoration where it is established that they failed to comply with the regulatory environment, and/or failed to take management measure specified."

V. REVIEW OF PROGRESS IN COLLABORATIVE WORK

A. Potential joint programmes of work

77. The Secretariat is exploring the possibility of effective cooperative arrangements with the secretariats of IPPC and the Ramsar Convention.

78. In addition, the secretariats of the Ramsar Convention, the Convention for the Conservation of Migratory Species of Wild Animals, the UNESCO Man and the Biosphere programme and the UNESCO World Heritage Convention are currently developing joint activities at sites managed under those instruments, focusing on capacity-building, by enhancing training frameworks for invasive alien species, but linked to the operational requirements of each agreement. These activities could provide a useful platform for collaboration with the Convention on Biological Diversity, which could provide an umbrella for these activities with the other relevant bodies being involved in each of the areas as relevant to their needs. The Convention's clearing house mechanism could be used by those activities to facilitate exchanges of information, and development of common techniques.

79. Contact has been made between the Secretariat and IMO in relation to collaboration on issues surrounding invasive alien species. IMO has been working on ways to prevent the spread of marine alien organisms in ballast water and sediments since the mid-1970s.

B. Standardized terminology

80. In order to assist Parties in developing standardized terminology, the Secretariat is cooperating with relevant organizations and conventions such as IPPC to prepare an annotated glossary of key words on invasive alien species. IPPC has already devoted much effort in this area, and the Interim Commission on Phytosanitary Measures endorsed a Glossary of Phytosanitary Terms in October 1999 (see http://www.fao.org/waicent/faoinfo/agricult/agp/agpp/pq/default.htm). Other key players include IMO (sensitive marine ecosystems), WHO/OIE (issues impinging on human health) and the IUCN Environmental Law Commission (legal implications), as well as FAO, who will be involved in further collaborative efforts on terminology.

81. GISP phase I reported the need to develop harmonization and linkages among the international institutions dealing with phytosanitary, biosafety, and biodiversity issues related to invasive alien species and to support these by strong linkages to coordinated national programmes and their focal points. A working list of terms has been developed during phase 1 of GISP (see http://jasper.stanford.edu/GISP/).

82. The liaison group advised that while harmonization of terminology with other bodies is desirable, it is not essential. Rather, there should be a focus on providing information on the key terms used in relation to invasive alien species by the various organizations/conventions, and how the terms used by different bodies relate.

C. Risk assessment criteria

83. The FAO (especially IPPC) is much involved in the activity of risk assessment. The development of risk assessment criteria relevant to alien species that are characterized as pests or diseases has been undertaken by the IPPC and has been adopted as a mechanism under the 1995 World Trade Organization (WTO) Agreement on the Application of Sanitary and Phytosanitary Measures (the SPS Agreement). Cooperation is being explored on this issue with the Convention on Biological Diversity, through the development of a joint work plan between the secretariats of the Convention and IPPC. The joint work programme is expected to address the issue of risk assessment criteria for biodiversity values.

84. The Ramsar Convention is also involved in issues of risk assessment in connection with potential ecological change to its sites (wetlands of international importance), and there is potential for three-way cooperation on this issue with the Convention on Biological Diversity, IPPC and the Ramsar Convention for relevant ecosystems.

85. Recommendations for the control of alien species movement in ballast water are currently applied on a voluntary basis.

86. Historically, the development of risk assessment criteria has focused on cultivated species, and criteria for ecological aspects of survival and spread and their impacts on species outside cultivated areas were rarely considered. Information note UNEP/CBD/SBSTTA/6/INF/3 provides a report on procedures, criteria and capacities for assessing risk from invasive alien species.

D. Processes for assessing the socio-economic implications of invasive alien species

87. Under GISP phase 1 a workshop was convened in September 2000 on the human dimensions of invasive alien species, which included discussion on the assessment of socio-economic effects of invasive alien species. One product of GISP phase 1 is a Global Strategy that describes the dimensions of invasive alien species problems, discusses the implications, identifies those economic sectors that should be involved in action, suggests approaches to management, and recommends appropriate strategies.

E. Furthering research on the impact of invasive alien species

88. The GISP phase 1 synthesis meeting in September 2000 addressed this issue, and through the resulting Global Strategy called for effective research programmes to be established at local, national, and global levels, including on the taxonomy of each nation's biota, research on invasion pathways, and research on management measures. GISP phase 1 has revealed that current knowledge about invasive alien species is inadequate to enable accurate risk assessment and design of effective management responses. Research into the problem of invasive alien species requires close collaboration among all countries to address the problem effectively and two elements were identified; the need to build the capacity to do the research; and deciding on priorities for the research to be undertaken.

F. Developing means to enhance the capacity of ecosystems to resist or recover from invasions

89. UNESCO and the secretariat of the Ramsar Convention have proposed a pilot study in Africa. This project could use the Convention on Biological Diversity as a focal point for ensuring a common purpose and continuity of effort in coordinating and facilitating work at the ecosystem level. It is proposed that the pilot project involve two sites between Senegal (Djoudj) and Mauritania (Diawling), which are both World Heritage Convention/Man and the Biosphere and Ramsar sites. A joint mission will be set up to assist developing site-based management approaches focusing on prevention (including resistance) and methods for recovery from alien species invasions, both of which are key among the current management challenges for these sites. Furthermore the project would ensure that guidance disseminated to each convention focal point is consistent, and would investigate ways to facilitate achieving consistency in national legislation with respect to invasive alien species issues and obligations under the respective Conventions.

G. Developing reporting systems

90. GISP phase 1 recommended the development of a global early warning system, including notification of new and/or predicted occurrences of invasive species.

91. IPPC supports the establishment of surveillance systems as part of national phytosanitary frameworks.

92. Members of the IMO Assembly have requested the IMO Marine Environment Protection Committee to work towards completion of legally binding provisions on ballast water management,

either as an annex to the International Convention on the Prevention of Pollution from Ships, or as a completely new instrument. At present there is no international system for the early detection of species introduced to new areas by ballast water. A few countries have instituted port biota surveys including Australia and the United Kingdom, and IMO is assisting six ports in developing countries to carry out port surveys through the GloBallast programme. These are Brazil - Sepitiba, China - Dalian, India - Mumbai, Iran - Kharg Island, South Africa - Saldanha and Ukraine - Odessa.

93. There is currently no international system for the reporting, recording and communication of newly detected marine invasions, although some databases are expanding beyond the national level.

H. Assessing priorities for taxonomic work

94. GISP phase 1 identified that knowledge of invasive species, the ecosystems, habitats or species they effect, and the development of means to control invasive alien species, is hampered by a lack of taxonomic information. It therefore recommended two priorities for taxonomic work:

(a) Expanding research in systematics (including taxonomy), thereby building the capacity to identify, record and monitor invasions; and

(b) Providing up-to-date lists (for instance through the establishment of an international committee to update taxonomic nomenclature for all invasive alien species).

95. The inclusion of planned activities on invasive alien species issues in the Global Taxonomy Initiative draft programme of work is the appropriate mechanism for addressing these recommendations (see UNEP/CBD/SBSTTA/6/10, annex).
