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Consideration of the draft risk management evaluation on endosulfan

Comments and responses relating to the draft risk management evaluation on endosulfan

Note by the Secretariat

Annex I to the present note contains a table listing the comments and responses relating to the draft risk management evaluation on endosulfan set out in document UNEP/POPS/POPRC.6/9, while annex II contains comments and responses relating to the supporting document (UNEP/POPS/POPRC.6/INF/12). The annexes have been reproduced as submitted by the intersessional working group and have not been formally edited by the Secretariat.

* UNEP/POPS/POPRC.6/1/Rev.1.

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Annex I

Comments and responses relating to the draft management evaluation on endosulfan (UNEP/POPS/POPRC.6/9)

Minor grammatical or spelling changes have been made without acknowledgment. Only substantial comments are listed. All adjustments that have been made in the draft risk management evaluation document have correspondingly been made in the supporting document (UNEP/POPS/POPRC.6/INF/12).

A. Comments on the second draft of the endosulfan risk management evaluation received from Parties and observers

Source of Comment	Page	Para	Comments on the endosulfan draft risk management evaluation (SECOND DRAFT)	Response
Switzerland		90 to 93 and Annex III	The document is already very good and very comprehensive; I have only one comment related to "risk" that could clarify some paragraphs. Paragraphs 90 & 91 (in chapter 2.3.5) could be re-written more precisely: 90. Alternatives should be safer than the currently used endosulfan. For an evaluation of the safety of alternatives, a risk profile for the chemicals under consideration should be developed. As this might be difficult if there is a lack of information on hazard properties or exposure data, a simple analysis of risk should be performed, taking into consideration the weight of available evidence. It should first be confirmed that the alternatives do not have POPs properties and thus should not meet the screening criteria of Annex D of the Stockholm Convention (persistence, bioaccumulation, potential for long-range transport, and adverse effects). Pollinator management is a relevant issue if endosulfan will be replaced by alternatives. Therefore, as additional information with particular relevance for alternatives for endosulfan, information on the toxicity of the alternatives to bees is relevant. 91. Furthermore, the alternative should not possess hazardous properties such as mutagenicity, carcinogenicity, reproductive and developmental toxicity, endocrine disruption, immune suppression, neurotoxicity. Consideration should also be given to the exposure situation under actual conditions of use by workers, farmers and consumers. For further guidance see "General guidance on considerations related to alternatives and substitutes for listed persistent organic pollutants and candidate chemicals" [UNEP/POPS/POPRC.5/10/Add.1]. General comment on the use of the terms "risk" and "risk indicators": cf Paragraph 92, 93 and Annex III of the supporting document incl. Table 14: Risk = effect x exposure. Here "risk" is often used when "hazard" is meant. Neither the POPs criteria nor the hazard criteria such as mutagenicity include exposure and therefore do not reflect risk. I would suggest rewriting these paragraphs and the table to reflect these comments. Esp. in the domain of plant protection products, risk indicators such as Synops (Germany) or PERI (Sweden) are being developed. These include exposure in some way and the "risk indicators" in this document should not be confused with those.	Paragraphs 90 to 93 and Annex III have been re-written according to the comment (corresponding adjustments were made in the short version of the document where relevant)
Australia	2	8	The sentence “Possible cost impacts seem to be acceptable” is very subjective and should be deleted. Unless this statement is supported by a more substantive cost-benefit analysis, deletion of this sentence will strengthen the document as use of the word “seem” introduces an element of doubt in the	The sentence has been deleted as expected cost impacts based on a cost impact assessment are specifically addressed in the previous paragraph.

Source of Comment	Page	Para	Comments on the endosulfan draft risk management evaluation (SECOND DRAFT)	Response
			mind of the reader.	
Australia	5	15 & 23	There are three different production volumes given for India. Which one is the correct value?	In the Annex F information different annual production amounts are indicated ranging from 9.500 t [India 2010 Annexure I] to 10.500 t [India 2010, Annex F submission form]. In the draft risk profile an amount of 9.900 t is indicated [UNEP/POPS/POPRC.5/10/Add.2]. This information is reflected in the document and the information sources are specified. Current production can be considered approximately 10.000 tonnes per year. The corresponding paragraph is re-written in order to be more clear.
Australia	6	22	The sentence "The use of endosulfan is now banned in at least 60 countries with former uses replaced by less hazardous products and methods." could be rewritten as "The use of endosulfan is now banned in at least 60 countries with former uses replaced by products and methods considered less hazardous." It is our understanding that the possible risks from the available alternatives have not yet been fully evaluated, therefore the statement needs to be qualified. The same comment applies to paragraph 21 of the Supporting Document 1.	The sentence has been adjusted accordingly.
Australia	9	47	The sentence: "The destruction of endosulfan does not pose a technical problem" Are there scientific studies demonstrating complete (100%) destruction without by-product formation? If so, the studies should be cited. Otherwise, the sentence should be deleted.	The drafting team is not aware of specific studies demonstrating 100% destruction of endosulfan without by-product formation. However, analogue to the use for other POP pesticides, controlled hazardous waste incineration is considered an appropriate destruction technology for endosulfan which does not pose a technical problem. Hazardous-waste incineration uses controlled flame combustion to treat organic contaminants, mainly in rotary kilns. Typically, a process for treatment involves heating to a temperature greater than 850°C or, if the chlorine content is above 1 per cent, greater than 1,100°C, with a residence time greater than two seconds, under conditions that assure appropriate mixing. Dedicated hazardous-waste incinerators are available in a number of configurations, including rotary kiln incinerators, and static ovens (for

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				liquids only). High-efficiency boilers and lightweight aggregate kilns are also used for the co-incineration of hazardous wastes. Destruction removal efficiencies of greater than 99.9999 per cent have been reported for treatment of wastes consisting of, containing or contaminated with POPs. Destruction efficiencies of greater than 99.999 and destruction removal efficiencies of greater than 99.9999 per cent have been reported for aldrin, chlordane and DDT. (see http://www.basel.int/meetings/sbc/workdoc/techdocs.html; Basel Convention - Updated general technical guidelines for the environmentally sound management of wastes consisting of, containing or contaminated with persistent organic pollutants
Australia	10	51	The phrase "the problem could be overcome in foreseeable time" is subjective and would be better phrased "therefore that alternatives could be eventually registered." Note that this paragraph is specifically talking about Australia and Canada. The same comment applies to paragraph 80 of the Supporting Document 1.	In order to reflect the comment, the sentence has been complemented with the following specification: ..."if alternatives could be registered for the relevant crop-pest combinations".
Australia	10	53	The sentence "However, according to comments from PAN& IPEN, cashew crops are very limited in Australia, producing only 25 tonnes per annum" should be removed as the size of the industry is not a reason/justification to remove a chemical. The same comment applies to paragraph 82 of the Supporting Document 1.	The drafting team agrees that the size of the industry is not necessarily a reason to remove a chemical. However the relevance of an activity may be a relevant piece of information. The drafting team proposes to delete the sentence and to introduce this information in the previous sentence.
Australia	10	53	The sentence beginning "There are two actives registered …": The highly complex situation of minor use of pesticides in Australia should not be simplified by the phrase "only require extension". To extend the registration for any of the compounds, as proposed, into other tropical fruit commodities would require the initiation of a significant residue trial program, at a considerable cost. To undertake such a program from initiation to final regulatory determinations could take as long as 3 to 5 years and require a significant financial commitment from the affected industries. Therefore, the sentence must be deleted. Further, there are in fact five different compounds with registrations for fruit spotting bug in Australia. These are trichlorfon, methidathion, acephate, azinphos-methyl and beta-cyfluthrin. Three of the organophosphates (methidathion, acephate and azinphos-methyl) are currently subject to reviews by the federal regulator with trichlorfon indicated as a priority for a future review [Reference: http://www.apvma.gov.au/products/review/a_z_revie	The sentence has been rewritten according to the proposed suggestions.

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			ws.php]. Given the nature of concerns raised over the use of these organophosphate insecticides their future availability is problematic. The synthetic pyrethroid beta-cyfluthrin is only approved for use in macadamia nuts, avocado and papaya (PER11642). We suggest that the sentence be rewritten to: "There are actives registered for fruit spotting bug in other tropical fruit and nut crops that could potentially be registered for other crops after significant research." The same comments apply to paragraph 82 of the Supporting Document 1.	
Australia	10	53	The sentence "Similarly, a product made from the clay kaolin is being used by tropical fruit growers and has resulted in greatly reduced damage" must be removed as it is misleading. A kaolin based product is used in Australia as a protectant against sunburn and heat stress. There are no Australian regulatory approvals for the use of such products as insect control tools. Further, it is understood that research has shown that kaolin based products can adversely affect beneficial insect populations [Pascual et al 2009] and can lead to secondary pest infestations [Joubert 2004], e.g., mite – flare. In addition, the cited hyperlink is not relevant to Australia as it indicates a Canadian website and the cited document does not refer to tropical fruit. The same comments apply to paragraph 82 of the Supporting Document 1.	The sentence has been deleted.
Australia	10	53	The sentence about Rural Industries Research and Development Corporation: The aim of the RIRDC funded rambutan IPM [Ref: https://rirdc.infoservices.com.au/items/05-187] project was not to identify endosulfan replacements, but in part to: • Identify major pests and beneficial insects unique to Australian rambutan orchards • Identify the seasonal pest pressures over the growing season in Qld and NT • Develop monitoring strategies for the major pests of economic importance • Develop insect identification and monitoring tools to assist grower adoption. • Screen insecticides that have a safe environmental profile and unique mode of action to cover the pest spectrum and assist with insecticide resistance management. etc Regarding the last point, 16 insecticides were screened where beta-cyfluthrin was identified as an "effective alternative" to endosulfan. However, synthetic pyrethroids such as beta-cyfluthrin are recognised as being highly disruptive to beneficial insects [Ref: www.cottoncrc.org.au/files/46c4352a-b530-49be-8911.../file.pdf]. In this and other reports [Ref: https://rirdc.infoservices.com.au/items/09-154] a number of potential options for fruit spotting bug management have been identified, e.g., sex pheromones, plant attractants and biopesticides, carrying the caveat that solutions will only come from considerable research investment. Such research is occurring but unlikely to provide the needed solutions in the short-term. Industry would prefer to apply its research funds to identify and develop sustainable pest management tools rather than fund a residue trial program aimed at gaining regulatory approval for potentially problematic organophosphate and or synthetic pyrethroid insecticides. The same comments apply to paragraph 82 of the Supporting Document 1.	The sentence has been rewritten and complemented by further explanations in order to reflect the comment.

Source of Comment	Page	Para	Comments on the endosulfan draft risk management evaluation (SECOND DRAFT)	Response
Australia	10	Footnote 8	The footnote must be removed as it does not provide justification for the statement and it is misleading as the website does not state that azinphos-methyl is an alternative for endosulfan for any crop. The risk management evaluation should not imply that any chemical alternative for endosulfan in lychees and longans is available in Australia as no research has been conducted to support this claim. The same comment applies to footnote 16 of the Supporting Document 1.	The footnote was deleted
Australia	10	Footnote 11	The reference http://www.aanro.net/VRESEARCH.html is not specific enough to locate the study.	The specific reference has been inserted: https://rirdc.infoservices.com.au/downloads/09-154.pdf
Australia	12-15	63-96	Section 2.3: This section needs to be improved as it does not provide a strong case for the available alternatives. The discussion needs to clearly demonstrate that the available alternatives are reliable and safer, plus the costs and related regulatory processes for each alternative should be discussed in more detail. Perhaps a brief discussion on all the advantages and disadvantages (for each option) could be included to summarise the stage of knowledge for each option?	The drafting team is of the opinion that the document and the supporting document already contains very substantial information on alternatives (section 2.3) i.e. on the description of alternatives, their technical feasibility, related costs, efficacy and safety (risks). However, specific suggestions to improve the document would be highly appreciated.
Australia	13	77	The sentence: "These exist for a wide range of crop-pest complexes and for each specific crop-pest complex an appropriate combination of chemical, biological and cultural control action may be taken". Is this statement correct? Has POPRC examined every crop-pest combination and found alternatives? If not, the statement is misleading. The sentence: "In addition, the previous chapter demonstrates that the use of endosulfan can be replaced by several chemical and non-chemical alternatives." The previous chapter demonstrates that options are available but at this stage we don't know if these options are good enough to replace endosulfan. Therefore the words "can be" should be qualified. The same comments apply to paragraph 188 of the Supporting Document 1.	The POPRC has not examined every crop-pest combination and it can therefore not be excluded that there are specific crop-pest combinations where the replacement of endosulfan will be related to specific difficulties. This is, however, already reflected in the wording of the statement: "...appropriate... ...control action **may be** taken" The drafting team considers that this sentence and the words "can be" are qualified in the context of the paragraph. It is specifically mentioned that "These (note: chemical and non-chemical alternatives) exist for a wide range of crop-pest complexes and for each specific crop-pest complex an appropriate combination of chemical, biological and cultural control action may be taken. However, for specific crop-pest complexes appropriate alternatives may not be available."

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				Therefore the drafting team proposes to keep the two sentences as they are.
Australia	14	84	In the sentence: "Efficacy is how well the alternative performs in a particular functionality including any potential limitations." it is not clear what is meant by "functionality".	The drafting team understands the functionality as the function which a plant protection product fulfils in a particular application. In pest control, efficacy can be considered as how well the alternative performs in a particular crop-pest complex including any potential limitations.
Australia	15	90	The final sentence is confusing and should be rewritten.	The final sentence is rewritten as follows: "Therefore, as additional information with particular relevance for the risk of alternatives for endosulfan information on the safety of the alternatives for pollinators (i.e. particularly for bees) is relevant. As a consequence bee toxicity should be considered when assessing the safety of alternatives to endosulfan."
Australia	15	93	The sentence "However, the distribution of bee toxicity among possible chemical alternatives allows to conclude that in many situations it will be possible to replace endosulfan by chemical alternatives with no or lower bee toxicity." would read better if it read "However, the range of toxicity to bees among possible chemical alternatives indicates that in many situations it may be possible to replace endosulfan by chemical alternatives with no or lower bee toxicity." Replacing endosulfan with a chemical alternative would include consideration of much more than just toxicity to bees.	The sentence is rewritten according to the proposal. Yes, and accordingly much more is considered in the screening safety assessment as explained in the previous paragraphs of the document and in the corresponding sections of the supporting document 1.
Australia	16	100	The first sentence would read better if reworded to: "Possible annual cost impacts on agriculture are estimated to be up to 40 million USD if endosulfan is replaced by chemical and non-chemical alternatives."	The sentence is rewritten according to the proposal.
Australia	16	100	The sentence: "The replacement with chemical alternatives could have negative impacts amounting up to 40 million USD." would be more believable if possible negative impacts were specified or exemplified.	Possible negative cost impacts are specified and exemplified in section 2.3.3 of the supporting document 1.
Australia	16	104	With respect to the last sentence, has an economic cost-benefit analysis been conducted to substantiate this statement? The high cost of registering alternatives and other factors must be accounted for. The sentence "Positive economic impacts can be expected because of the substitution of alternatives for endosulfan includes the savings made on health and environmental costs resulting from exposure to endosulfan, and improved incomes for those no longer using endosulfan." Have the "positive economic impacts" been demonstrated in a full economic cost-benefit analysis? If not, the statement needs to be	The drafting team agrees that costs of registering alternatives should be accounted for. Therefore it is mentioned in this paragraph: "Time and cost required to register suitable alternatives are not quantified." This does not mean that non quantified cost impacts should be neglected. Specific information on costs for the registration of

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			qualified so that it is not misleading. If a cost-benefit analysis is available, it should be referenced and the key results presented. The same comments apply to paragraph 321 of the Supporting Document 1.	alternatives to endosulfan are not available. Such information would be appreciated. A cost impact assessment is outlined in section 2.2.3 of the document 1 and is further detailed in the corresponding section of the supporting document. The following sentence has been inserted in this section: “In the same sense Australia states that the high cost of registering alternatives and other factors must be accounted for.” An overview on expected cost impacts is given in Table 1 of the document and includes “non-quantified costs for the registration of suitable alternatives” as well as “significant, non-monetarised long term benefits for environment and health”. A quantification of environmental and health benefits is not available. However, according to the risk profile on endosulfan, the substance causes significant adverse effects on human health and the environment. As a consequence it can be expected that the current use of endosulfan causes significant non quantifiable environment and health costs.
Australia	16	105	The sentence “Cost impacts on industry are expected to be in balance” is not clear. Nor is it clear upon what basis this statement is made. Justification should be provided or the sentence deleted	The justification for the statement is outlined in section 2.2.3 of the supporting document 1: “...manufacturers in countries where endosulfan is still produced will have losses if they have to stop selling endosulfan containing products. The losses can be estimated based on production volume and market value. The economic impact for the estimated annual world production from 18,000 to 20,000 t/y ranges from 104.6 to 125.2 million USD. The corresponding impacts for Indian endosulfan producing industry would be 62.61 million USD and for China 31.30 million USD. The impact on the endosulfan producing industry in the rest of the world (i.e. in Israel, Brazil and South Korea) would range

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				between 10.64 and 31.30 million USD. It is expected that the corresponding losses of sales of products containing endosulfan will be more or less outweighed by sales of chemical and non-chemical alternatives.
Australia	16	108	This paragraph states that endosulfan is deemed to be a POP. This appears to be pre-empting the COP's decision on the matter. The words "such as endosulfan" should be deleted. The same comment applies to paragraph 329 of the Supporting Document 1.	The words "such as endosulfan" are deleted.
Australia	18	116	The "availability of economically viable, technically feasible, efficient and safer alternatives" has not been demonstrated for all crop-pest combinations and therefore the claims in this paragraph should be qualified. The same comment applies to paragraph 348 of the Supporting Document 1.	The wording of the paragraph reflects that the availability of economically viable, technically feasible, efficient and safer alternatives is not demonstrated for each individual crop pest combination. Accordingly it is stated in the paragraph that economically viable alternatives are available in many situations and that these **may be** technically feasible, efficient and safer and that they **may be** available for all current applications. It is noteworthy that "availability" is considered something different than "accessibility". Accessibility to chemical alternatives may e.g. be limited because the alternatives are currently not registered. This does not mean that they are not available. However, it has to be considered that the situation of registering pesticides is complex.
Japan	7	33-41	Comment on page 7 Section 2.5: While there are some descriptions about the measures taken in Africa, Australia, Europe, North America and South America in the item, there is no information about Asian region, such as actions taken in Asian countries. From the viewpoint of the regional balance, comments from Asian countries should be included if they had submitted any comments on Annex F related information by January 2010. The same comment applies to page 10 of the Endosulfan supporting document-1.	Information submitted on measures taken in Asian countries is fully considered in the updated draft risk management evaluation. Please note also the response to the next comment.
Japan	7	33-41	Comment on page 7 in the short version of the RME and 84 in the Compiled Annex F submission (file 4) for reference: While Japan provided information specified in the item (g) of the Form for Annex F related information in January 2010, it seems that the comment is not included in the document, so Japan would like to add the comment in (g) to the document as follows; "Endosulfan is designated as an Agricultural Chemical causing water pollution under Order for	The drafting team was not aware of an Annex F submission made by Japan and apologises that the information provided by Japan was therefore not considered for the 2nd draft risk management evaluation. Recently the drafting team has received the Annex information

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			Enforcement of the Agricultural Chemicals Regulation Law of Japan. Local governments can restrict use of the agricultural chemicals causing water pollution."	submitted by Japan and has now incorporated the relevant information in the 3rd draft risk management evaluation.
Costa Rica			The document does not consider that Endosulfan is restricted in the Central American countries. In Costa Rica, as an example, Endosulfan has a restricted use and must be accompanied by a professional prescription. For rice production it is prohibited and it is only permitted in liquid or microencapsulated formulations with concentrations less than or equal to 35% of active ingredients for use in the agriculture.	The corresponding information is now considered in the document (see sections 1.1.2 and 1.5.6 of the supporting document and section 1.5 of the risk management evaluation document).
Costa Rica			As far as alternatives are concerned, the document does not address the cultural alternatives used in countries such as Costa Rica and Mexico, which is for the collection of the damaged grains or remnants of the harvest.	The corresponding information is now considered in the document (see section 2.3.1.6 of the supporting document 1).
Costa Rica			This risk assessment does not include anything about the economic losses of Endosulfan residues in consumer products, it is important because the demands on the producer are significantly high.	The comment is considered in the document (see section 2.2.3 of the supporting document 1).
Costa Rica			The document does not include the health costs of pollution of Endosulfan in water supply for human consumption.	The comment is considered in the document (see sections 2.2.3 and 2.4.1 of the supporting document 1).
PAN & IPEN	3	2	"Production takes place in India, China, Israel, ~~Brazil~~ and South Korea." Comment: Information supplied by Brazil indicates only formulation of products, not production of endosulfan	Yes, the Annex F submission of Brazil does not contain information on production. However, the information that endosulfan is produced in Brazil is taken from the risk profile on endosulfan [UNEP/POPS/POPRC.5/10/Add.2]. Brazil will be asked to confirm if production is still ongoing or not.
PAN & IPEN	3	2	"[...] usually established in order to control health and environmental risks in the country concerned."	Adjusted according to the proposal
PAN & IPEN	3	5	"However, some information indicates that it may be difficult to substitute endosulfan for some specific crop-pest complexes~~, e.g. in soybean, […] and its broad spectrum of targeted pests.~~" Comment 1: Brazil was the only country in South America to indicate a need for endosulfan. Comment 2: There is plenty of information to show that endosulfan adversely effects pollinatiors and beneficial insects, and is not appropriate for IPM precisely because it is broad spectrum.	Comment 1: Adapted according to the comment. Comment 2: The drafting team agrees and this is discussed in section 2.3.4 of the supporting document 1.
PAN & IPEN	3	6	"[…] by safer alternatives. Information provided indicates that some alternative pesticides are less toxic to bees and some are more toxic. ~~However, a clear conclusion whether alternatives to endosulfan are more or less toxic to bees is not possible on the basis of the present information.~~ Non-chemical alternatives generally have no or lower risk."	Partly adapted according to the comment. The drafting team is of the opinion that a clear conclusion is not possible for some of the alternatives.
PAN & IPEN	3	7	"These costs have to be considered in contrast to high, non-monetarised long term benefits for environment and health, and savings for some farmers."	Adjusted in the sense of the proposal in the following way: "…and positive cost impacts such as savings for farmers."
PAN & IPEN	5	15	"Current production is judged to be significantly higher than in 1984 and is estimated to range between 18,000 to 20,000 tonnes per year." Comment: This information is not referenced. ISC estimates usage of 15,000 tonnes per annum – see point 23. Either, one of these figures is inaccurrate, or there are some very alarming stockpiles being built up.	The indicated worldwide production figure is based on the Annex F information submitted by India [India 2010 Annexure I] The specific reference is inserted in the updated document.

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PAN & IPEN	5	15	"India is regarded as being the world's largest producer (9,900 tonnes per year (Government of India 2001-2007)) and exporter […]." Comment: Further down in same paragraph it says India produces 10,500 tonnes. It would be best to use just one figure, or else combine them as 9,900-10,500 tonnes per year.	In the Annex F information different annual production amounts are indicated ranging from 9.500 t [India 2010 Annexure I] to 10.500 t [India Annex F 2010 submission form]. In the draft risk profile an amount of 9.900 t is indicated [UNEP/POPS/POPRC.5/10/Add.2]. This information is reflected in the document and the information sources are specified. Current production can be considered approximately 10.000 tonnes per year. The corresponding paragraph is re-written in order to be more clear.
PAN & IPEN	5	15	"[...] China (2,400 tonnes), Israel, ~~Brazil~~ and South Korea [...]." Comment: Information supplied by Brazil indicates that it formulates product rather than produces endosulfan.	See comment related to paragraph 2
PAN & IPEN	5	16	"Endosulfan production stopped in the Czech Republic, Germany, the Netherland and in Italy in 2006/2007. It has never been produced in Croatia, Cyprus, Estonia, Sweden and Ukraine ." Comment: Is this production of technical grade endosulfan or formulation of product? There is an important distinction.	The information is based on the outcome of a UNECE questionnaire survey. The corresponding questions concerns "production of endosulfan" without further specification.
PAN & IPEN	5	18	"Prior to its ban in Colombia endosulfan was produced until 2001 (production quantities from 1994 to 2001 were: 1994: 198.5 t; 1995: 268.8 t; 1996: 216 t; 1997: 181.9 t; 1998: 382.6 t; 1999: 279.0 thousand litres; 2000 and 2001: 505.4 thousand litres) [Colombia 2010]." Comment: Is this production or formulation of product? The quantities do not tie in with global production estimates.	The original document talks about "Producción nacional de endosulfán" without further specification.
PAN & IPEN	5	20	"It is used on ornamentals and forest trees, and has been used in the past as an industrial and domestic wood preservative, and for controlling earthworms in turf." 	This is already mentioned in the paragraph 19.
PAN & IPEN	5	22	"The production and use of endosulfan is now banned [...]."	Adjusted
PAN & IPEN	5	23	"Out of an estimated annual production of 9,500 tonnes, 4,500 to 5,000 tonnes are consumed domestically." Comment: Or should this be 10,500?	This is cited from [India 2010 Annexure I]
PAN & IPEN	6	32	a) "The COP in 2008 was not able to reach consensus on inclusion of endosulfan due to the opposition of a small number of ~~some~~ Parties [UNEP/FAO/RC/COP.4/24], and […]." Comment: This is exactly how the meeting report described this result. http://www.pic.int/cops/Reports/Z36%29/English/K0842462%20PIC%20COP%204%20REPORT.pdf	Adjusted
PAN & IPEN	7	32	h) "In the Third North Sea Conference (Hague Declaration) (date?), endosulfan […]."	8th March 1990; Adjusted
PAN & IPEN	7	36	"restricted availability to persons with appropriate training [Australia 2010]. However, these measures were not designed to prevent long-range transport of endosulfan to the Arctic or Antarctic regions."	Adjusted
PAN & IPEN	10	50	"[…] coffee, cane sugar and sunflower in ~~South America~~ Brazil ([Brazil 2010], [ISC 2010]) or in general [...]."	Modified as "Brazil and Argentina" as ISC states also for Argentina.
PAN & IPEN	10	52	"According to member companies of ISC, endosulfan [...]." Comment: For transparency, it is important for	Adjusted

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			readers to understand that ISC has current endosulfan producers as member companies.	
PAN & IPEN	10	55	"[…] due to its efficacy and competitive properties [Brazil 2010]. However, a wide range of biological control organisms are being used to replace endosulfan for coffee berry borer (*Hypothenemus hampei)* in coffee cultivation in Brazil and near-by countries, including the parasitic wasps *Cephalonomis stephanotheris* and *Phymastichus coffea*, the entomopathogenic fungus *Beauvaria bassiana*, as well as neem. Biological controls are also being used to replace endosulfan in soybean, cotton and sugar cultivation in Brazil (Bejarano et al. 2009)." Comment: Bejarano et al. 2009. Alternatives to Endosulfan in Latin America. International POPs Elimination Network (IPEN) and Pesticide Action Network in Latin America (Red de Acción sobre Plaguicidas y sus Alternativas en América Latina, RAP-AL).	Adjusted
PAN & IPEN	10	56	"According to some countries ~~currently~~ using endosulfan the technical feasibility of substitution is currently restricted due to specific advantages of endosulfan (see chapter 2.3.4)."	Adjusted
PAN & IPEN	11	58	"[…] (5) Cost impacts on environment and health. Some of these costs can be difficult to monetize."	Adjusted
PAN & IPEN	11	60	"Information on costs of some chemical alternatives […]."	Adjusted
PAN & IPEN	11	Table following para 62	General comment: It would be helpful to place an explanation somewhere in the document of how these numbers were derived. "One time administrative costs could range from 0.82 to 4.53 million USD. Realistic estimate: below 1.65 million USD" Comment: It is not clear if these are global estimates or costs for each country. It is also not clear how the number was estimated or the assumptions used to estimate it. "Non-quantified positive annual cost impacts if endosulfan will be replaced by non-chemical alternatives Positive annual cost impact due to decreased plant protection costs where endosulfan is replaced by organic management systems: in India replacing endosulfan and other pesticide use with the Community Managed Sustainable Agriculture System reduced costs by 33%, providing estimated savings of 38.6 million USD for the State of Andra Pradesh alone.[X]" Footnote X: Kumar TV, Raidu DV, Killi J, Pillai M, Shah P, Kalavadonda V, Lakhey S. 2009. Ecologically Sound, Economically Viable Community Managed Sustainable Agriculture in Andra Pradesh, India. The World Bank, Washington DC.	General comment: Details and assumptions are explained in section 2.3 of the supporting document 1. Therefore it is stated in paragraph 62 of the risk management evaluation: "Details and assumptions for the assessment are explained in the informal document [RME Endosulfan 2010, long]". This estimate is related the signatories of the Stockholm convention. The Table is an overview table on possible cost impacts. Details of the cost impact assessment are explained in the supporting document 1. The information cited is already contained in section 2.3 of the supporting document 1. (see particularly section 2.3.3.2)
PAN & IPEN	13	82, Table	General comment: It would be helpful to place an explanation somewhere in the document of how these numbers were derived. "Significant non-quantified annual economic benefit India: replacing endosulfan and other pesticide use with the Community Managed Sustainable Agriculture System reduced costs by 33%, providing estimated savings of 38.6 million USD for the State of Andra Pradesh alone.[X]" Footnote X: Kumar TV, Raidu DV, Killi J, Pillai M, Shah P, Kalavadonda V, Lakhey S. 2009.	See previous comment

Source of Comment	Page	Para	Comments on the endosulfan draft risk management evaluation (SECOND DRAFT)	Response
			Ecologically Sound, Economically Viable Community Managed Sustainable Agriculture in Andra Pradesh, India. The World Bank, Washington DC.	
PAN & IPEN	16	105	"[…] annual costs for some agriculture and corresponding impacts on society (up to 40 million USD) and one time costs for waste management (range from approximately 0.10 to 0.23 million USD) have to be considered in contrast to high, non-monetarised long term benefits for environment and health, and savings for some farmers."	1st insertion: not adjusted 2nd insertion: adjusted in the sense of the suggestion as follows: "…, and positive cost impacts such as savings for farmers"
PAN & IPEN	18	113	"Production takes place in India, China, Israel, ~~Brazil~~ and South Korea. Endosulfan is used as a plant protection product in [...]."	See comment related to paragraph 2
PAN & IPEN	18	115	"[…] annual costs for some agriculture and corresponding impacts on society (up to 40 million USD) and one time costs for waste management (range from approximately 0.10 to 0.23 million USD). These costs have to be considered in contrast to high, non-monetarised long term benefits for environment and health, and savings for some farmers."	See comment related to paragraph 105
PAN & IPEN	5	22	Additional information prvided in e-mail on 6 August 2010: In Morocco, the Pesticides Committee decided at its last meeting that pesticide preparations containing endosulfan will be withdrawn from the Moroccan market. The deadline is December 31, 2010. The information relating to this action can be found at the following links: http://www.onssa.gov.ma/onssa/fr/pesticides_a_usage_agricole.php and: Procès Verbal de la Commission des Pesticides à Usage Agricole (22/04/2010) <http://www.onssa.gov.ma/onssa/fr/doc_pdf/PV_CPUA_GLOBAL_22_AVRIL_2010.pdf> .	Information inserted in footnote to paragraph 22
US EPA	3	3	"The ban of endosulfan in more than 60 countries demonstrates that economically viable alternatives are available in many different geographical situations and in developed and developing countries." Comment: The US EPA does not believe that is necessarily the case. It may be that countries banned endosulfan despite the lack of viable alternatives. A risk management decision does not depend on a lack of benefits from the use of a chemical. It depends on the relative magnitude of the risks and benefits. Further, some countries may not have statutes or policies requiring the consideration of benefits – and may, in fact, have statutes precluding the consideration of benefits. See comments for Para. 46 of this document.	The drafting team is of the opinion that the ban of endosulfan in more than 60 countries demonstrates that economically viable alternatives exist. Economical viability can be considered if a social, economic or political unit is capable to develop and survive as a relatively independent unit. This is the case because agriculture in these countries is still working under competitive conditions without the use of endosulfan. The drafting team agrees that this is not necessarily the case in each individual case. The sentence has been adjusted according to the suggestion: "…alternatives are **likely** available…"
US EPA	3	5	"However, some information indicates that it may be difficult to substitute endosulfan for specific crop-pest complexes e.g. in soybean, cotton, coffee, cane sugar	Not applicable

Source of Comment	Page	Para	Comments on the endosulfan draft risk management evaluation (SECOND DRAFT)	Response
			and sunflower in South America or in general due to specific properties of endosulfan such as appropriateness for pollinator management, IPM systems, insecticide resistance management and its broad spectrum of targeted pests." Comment: The US EPA appreciates this statement as it believes this statement is a more "balanced" statement than some statements found later in the document. For example, see comment for Para. 8 of this document.	
US EPA	3	7	"However, examples concerning production of cotton and other crops where the use of endosulfan was banned indicate that alternatives are economically comparable or can even lead to reduced costs for farmers and increased incomes." Comment: See comments at Paras. 211 and 220 of the Supporting Document.	This statement is not related to paras 211 and 220 but refers to examples as mentioned in section 2.3.3.2 of the supporting document (see in particular paras 226 to 233 of the supporting document)
US EPA	3	8	"Available information indicates that alternatives are technically feasible, efficient and safer and that they could be available for all current applications of endosulfan, however, as noted in Para 5, substitution may be difficult and/or costly." Comment: Given the statement in Para. 5 above, the US EPA believes that this statement is unbalanced. The proposed additional text inserted into the statement is meant to provide more balance.	Adjusted in the sense of the suggestion as follows: "…However, as noted above substitution may be difficult and/or costly for some specific crop pest complexes."
US EPA	5	22	"The use of endosulfan is now banned in at least 60 countries with former uses replaced by less hazardous products and methods." Comment: The US EPA would like to know how do the authors of this document know the replacement products and methods for endosulfan are "less hazardous". The USG would appreciate the supporting documentation for this statement to be included in this draft Risk Management Evaluation (RME).	The alternatives are generally considered less hazardous according to the outcome of the screening risk assessment (see section 2.3.5 of the risk management evaluation and the supporting document) In order to express the likelihood that alternative are less hazardous, the sentence has been adjusted as follows: "…former uses replaced by products and methods **considered** less hazardous."
US EPA	8	42	"The following control measures are possible for endosulfan (1) Prohibition or restriction […]" Comment: The US EPA would like this statement to be clarified to convey that these control measures are either "potentially available" or "potentially feasible" and suggests using one of options noted above. "[…] (3) Termination of processes which could lead to unintentional release of the chemical (such as specific use conditions and restrictions, through trainings, and better labellings); […]."	Adjusted
US EPA	8	46	"The ban of endosulfan in more than 60 countries, including both developed and developing countries, demonstrates that viable alternatives are likely available in many different geographical situations." Comment: The US EPA does not believe that this is necessarily true. A ban may indicate that the country determined that the risks of endosulfan outweighed any benefits derived from its use. But it may be that, by statute or policy, a country did not consider benefits of use in the decision. The US EPA suggests incorporating additional text "likely" to express this uncertainty. (#in Supporting Document Para 68 and 347) "However, the efficacy and efficiency of possible control measures is country-dependent." Comment: The US EPA appreciates that this statement recognizes the potential for localized	See comment related to paragraph 3

Source of Comment	Page	Para	Comments on the endosulfan draft risk management evaluation (SECOND DRAFT)	Response
			impacts, but it appears to contradict the preceding statement if some amount of uncertainty is not expressed. Therefore, the US EPA reiterates its suggestion to incorporate the additional text "likely" in the preceding statement.	
US EPA	9	58	"Possible costs related to the ~~use~~ ban of endosulfan versus chemical and non-chemical alternatives include (1) […]" Comment: The US EPA interprets Para. 58 as relating to the inclusion of endosulfan in the Stockholm Convention. "[…] (5) Cost impacts on environment and health." Comment: The US EPA assumes that by this statement, the author(s) of this document entertain the possibility that an alternative might have more adverse effects than endosulfan.	Comment 1: Adjusted Comment 2: Yes
US EPA	10	60	"Information on costs of chemical alternatives indicates that these alternatives are significantly higher. However, examples concerning production of cotton and other crops where the use of endosulfan was banned indicate that alternatives are economically comparable ~~or can even lead to reduced costs for farmers and increased incomes~~." Comment: The US EPA finds this statement is counter to economic theory and suggests the deletion of certain text, as indicated.	According to the practical examples mentioned in section 2.3.3.2 of the supporting document 1 (see in particular paras 226 to 233 of the supporting document) it is a fact that in specific situations where the use of endosulfan was stopped, the economic situation of the farmers improved. Therefore the drafting team proposes to maintain this statement.
US EPA	10	62, Table	"Non-quantified positive annual cost impacts if endosulfan will be replaced by non-chemical alternatives" Comment: The US EPA believes that this conclusion is not supported by an objective analysis and suggests deleting the text. Further, addition of highlighted text: "Significant, non-monetarised long term benefits for environment and health. Possible short-term or localized negative effects, depending on alternative pest control measure employed."	According to the explanations given to the previous comment the drafting team proposes to maintain this conclusion. The Table is an overview table on possible cost impacts. The overall expected impacts are long term benefits. Details of the impact assessment are given in the supporting document 1. Benefits and limitations of a substitution are discussed in section 2.3.4 of the supporting document. This includes possible negative effects e.g. if there is a need for several chemical alternatives instead of one substance. However, generally it is considered, that alternatives are safer compared to the use of endosulfan.
US EPA	12/13	82, Table	"Significant plant protection cost in~~de~~crease" Comment: The US EPA believes that this conclusion is not adequately supported by documentation. Cultural and biological pest control products and actions are not costless. Some entail substantial labor costs. Therefore, the US EPA suggests the change in text from decrease to increase.	The drafting team agrees that plant protection costs may also increase particularly due to labor costs. However, the information available to the drafting team (see supporting document 2.3.3.2, information on "Impacts on yields and production costs" suggests that if non-chemical alternatives are used the incomes of farmers

Source of Comment	Page	Para	Comments on the endosulfan draft risk management evaluation (SECOND DRAFT)	Response
				increase. Therefore the expected overall impact for farmers is economically beneficial. The drafting team proposes to change the statement on production costs as follows: "Significant change of plant protection costs possible"
US EPA	14	93	"However, the distribution of bee toxicity among possible chemical alternatives allows the conclusion ~~to conclude~~ that in many situations it will be possible to replace endosulfan by chemical alternatives with no or lower bee toxicity and/or less persistance." Comment: The US EPA believes that this might be "possible" but it is not assured. The US EPA, for example, cannot dictate which alternative would replace endosulfan domestically. However, the US EPA is required to ensure that use of all available pesticides does not result in unreasonable adverse effects.	This sentence is not related to persistence but only to bee toxicity. The sentence has been adjusted in the sense of the suggestion as follows: "However, the range of toxicity to bees among possible chemical alternatives indicates that in many situations **it may be possible** to replace endosulfan by chemical alternatives with no or lower bee toxicity." See also corresponding comment made by Australia
US EPA	14	Chapter title 2.4.1	"Human Health and Environment"	The drafting team proposes to maintain the established wording for risk management evaluation documents.
US EPA	14	97	"Several parties and observers state that the current use of endosulfan gives rise to adverse health and environmental effects and expect that the control of endosulfan will positively impact ~~on~~ health and the environment. Others do not expect ~~corresponding risks~~ adverse effects or are in the state of evaluating the risks."	Adjusted
US EPA	14	100	"The replacement with chemical alternatives could have negative impacts amounting up to 40 million USD. The replacement with non-chemical alternatives could have significant positive economic impacts." Comment: The US EPA would like the supporting documentation for this statement to be included in the Risk Management Evaluation (RME). In the absence of supporting documentation, the US EPA suggests this text be deleted.	Details and assumptions for the cost impact assessment are explained in section 2.3 of the supporting document 1. Therefore it is stated in paragraph 62 of the risk management evaluation: "Details and assumptions for the assessment are explained in the informal document [RME Endosulfan 2010, long]". Therefore the drafting team proposes to maintain the statement.
US EPA	17	115	"The ban of endosulfan in more than 60 countries demonstrates that economically viable alternatives are available in many different geographical situations and in both developed and developing countries." Comment: The US EPA's comments above would seem to apply here as well. See comments on Para. 46. "Available information indicates that these alternatives may be technically feasible, efficient and safer and that they may be available for all current applications of endosulfan, however, use of these alternatives may entail higher costs." Comment: The US EPA believes that this statement should be more balanced. For example, while this statement might be true in some situations, it may not	Adjusted ("likely" inserted) Adusted in the sense of the suggestion and in line with adjustment of para 8:

Source of Comment	Page	Para	Comments on the endosulfan draft risk management evaluation (SECOND DRAFT)	Response
			always be true for individual alternatives/crops. See suggested additional text. (#analog Supporting Document Para 347)	"However, substitution may be difficult and/or costly for some specific crop pest complexes."
US EPA	17	119	"Control measures are also expected to support the goal agreed at the 2002 Johannesburg World Summit on Sustainable Development of ensuring that by the year 2020, chemicals are produced and used in ways that minimise significant adverse impacts on the environment and human health." Comment: The US EPA believes that the goals of the World Summit on Sustainable Development (WSSD) were not adequately explained in the body of the document. Therefore, the US EPA believes that this conclusion appears unrelated to arguments presented in the draft RME. The US EPA suggests adding a discussion of the WSSD goals in the document – perhaps in Section 2.4.5 "Movement towards sustainable development".	The drafting team is not opposed to add a corresponding discussion in section 2.4.5. and would appreciate to receive a text proposal.
ISC			ISC submitted extensive information in response to the call for Annex F information in January. From a review of the posted information on the POPS web site we observe that a number of Parties also submitted information including but not limited to Brazil, India, China, Australia, and the United States of America. Each of these countries indicated they have significant and important uses of endosulfan in their countries and that in many cases they cite there are no alternatives available or that if so they are not cost effective. These countries also state that they have the systems in place to manage any risk presented by the use in the registered applications. We see in the Draft Risk Management Evaluation some mention of the comments of Brazil, but we don't see where the comments have been addressed. We see no place in the document where any of the comments of ISC or a number of the Parties have been taken into account or included. This same line of comments was made by the Indian Member of the POPRC at the POPRC-5 meeting. He accurately stated that of all the comments made by India, none were considered in the Draft Risk Evaluation. CropLife International's comments on the Draft Risk Evaluation were treated in the same manner. This practice must be corrected if the integrity of the Convention is to be upheld. Rather than restate all the comments made previously, we urge the Secretariat to instruct the drafting work group to re-evaluate the comments submitted by the Parties and ISC and give appropriate weight and recognition to them. We will be happy to meet with the working group to help them understand the application of our comments and effectively incorporate them in the Risk Management Evaluation.	The drafting team believes that the information provided by ISC is adequately and transparently represented and addressed in the risk management evaluation and the supporting documents. The drafting team would appreciate to consider specific proposals on where and how to improve the documents.
Canada	3	5	We suggest the following changes to the Executive Summary which is on page 3 of the document: "Considering the whole spectrum of chemical and non-chemical alternatives ~~it can be assumed~~ growers in some countries have found that endosulfan can in most cases be substituted by equally or more efficient alternatives."	From the information provided by parties and observers a wide range of technically feasible alternatives has been identified. The identified alternatives are listed in Annex I to the supporting document 1. A high number of chemical alternatives and a considerable number of biological control measures and semio-chemicals have been identified for a very wide range of applications, geographical situations

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				and level of development. The statement in question is not based on the findings of growers in some countries but on a broad basis of information from parties and observers (including the experience of growers). Therefore the drafting group proposes to maintain the statement as it is.
Canada	3	6	"On the basis of the results of a screening risk assessment alternatives are generally safer than endosulfan ~~it can be assumed that if endosulfan would not be available for plant protection it would be replaceable by safer alternatives~~. However, a clear conclusion [...] basis of the present information."	The text has been adjusted in the sense of the suggestion as follows: "According to the results of a screening risk assessment alternatives are generally considered safer than endosulfan."
Canada	3	7	"Several countries [...] It can be estimated that a ban of endosulfan could cause one time costs ~~for implementation (realistic estimate: below 1.65 million USD)~~ to government to implement the ban and facilitate access to alternatives, annual costs for agriculture [...]."	Adjusted according to the suggestion
Canada	3	8	Comment 1: "An analysis of possible control measures [...] Available information indicates that alternatives for many site-pest complexes are available and technically feasible~~, efficient and safer~~ and that they could be available for all current applications of endosulfan. Comment 2: Exemptions may be required for several years for some site-pest complexes to permit the development of feasible and efficient alternatives. Possible cost impacts seem to be acceptable. A harmonised ban of production and use would contribute to balanced agricultural markets."	Comment 1: This statement is generally related to the identified alternatives and to technical feasibility, efficiency and safety as demonstrated in sections 2.3.2, 2.3.4 and 2.3.5 of the risk management evaluation and of the supporting document 1. The drafting team believes that on the basis of the information in these sections the statement can be made and proposes to keep it. Comment 2: The drafting team agrees and has inserted the statement correspondingly.
Canada	9	51	We also suggest deleting sentence "This does not mean that they are not available and the problem could be overcome in foreseeable time." The fact that a pesticide is available as an alternative somewhere does not mean that it is potentially available everywhere.	The sentence has been complemented in order to consider that the registration of alternatives may be related to specific obstacles and may not always be possible: "This does not mean that they are not available and the problem could be overcome in foreseeable time **if alternatives could be registered for the relevant crop-pest combinations."**
Canada			In response to the Secretariat's request for additional info **related to costs and benefits of implementing control measures as well as alternatives to endosulfan,** we could also say that: - Growers in Canada have indicated that no alternative is available for the following pest management uses: 1. plant bug on pepper, cherry and cucurbits, 2. beet webworm and green peach aphid on sugarbeets, 3. in rotation with synthetic pyrethroids for tarnished plant bug on celery, lettuce and strawberry, 4. in rotation	The supporting document 1 already contains a compilation of 16 crop-pest combinations where

Source of Comment	Page	Para	Comments on the endosulfan draft risk management evaluation (SECOND DRAFT)	Response
			with neonicotinoids for potato leafhopper on apple. Endosulfan is the only registered insecticide for a few other site-pest combinations in the Canadian use pattern. - In countries where pesticide products are prohibited unless permitted, and where endosulfan continues to be used but several alternatives have been withdrawn, the process of developing alternative pest control products and conducting the necessary risk assessments to allow their registration will probably be lengthy, consultative, and unpredictable. In Canada, these activities could include consulting growers on a transition strategy, registering minor uses on pre-registered active ingredients and registering new active ingredients... a process which could be costly.	currently no alternative is registered (see section 2.2.2 of the document) The drafting team has already considered "Non-quantified costs for the registration of suitable alternatives". In order to give more details on this issue, the following paragraph has been inserted in section 2.2.3 of the supporting document: "In addition to these implementation costs significant efforts may be required in some countries for making alternatives accessible. In countries where pesticide products are prohibited unless permitted, and where endosulfan continues to be used but several alternatives have been withdrawn, the process of developing alternative pest control products and conducting the necessary risk assessments to allow their registration will probably be lengthy, consultative, and unpredictable. In Canada, these activities could include consulting growers on a transition strategy, registering minor uses on pre-registered active ingredients and registering new active ingredients. This could be a costly process"
China			China has submitted to the Secretariat information on socio-economic considerations for endosulfan required by Annex F of the Convention, yet we noticed that none of this information was presented in the draft. So we suggest adding the information to the draft where suitable, if not, explanations will be highly appreciated. The existence of environmentally friendly and technically feasible alternatives/ alternative technology is a key factor in evaluating whether endosulfan can be completely eliminated. Taking into account that the information on alternatives to endosulfan is scattered without systemic analysis, we suggest further studying the application areas, accessibility, environmental friendliness, alternative costs, benefits and efficiency of alternatives/ alternative technology and explain their specific regional adaptability. The draft provides no basis for the cost analysis of eliminating endosulfan. Therefore, we suggest supplementing examples to illustrate how different types of alternatives affect costs, the cost calculation	By mistake the Annex F information submitted by China was omitted in the draft risk management evaluation documents. The drafting team apologizes for this unintentional omission. The updated draft contains all relevant information submitted by China. The drafting team is of the opinion that the present draft and the supporting documents already contains much information on the issues stated such as availability and

Source of Comment	Page	Para	Comments on the endosulfan draft risk management evaluation (SECOND DRAFT)	Response
			method for each, and the expenditure items within each costs calculation. Your kind attention to the above comments while revising the draft risk management evaluation on endosulfan is appreciated. As for the additional information on human health adverse effect of endosulfan, China can't not provide any information because we didn't organize such kind of research.	accessibility of alternatives to endosulfan (sections 2.3.1 and 2.2.2), their technical feasibility (section 2.3.2), efficacy (section 2.3.4) and environmentally friendliness (section 2.3.5) and a systematic evaluation of these issues and related costs on the basis of the available information. Costs for substitution are assessed in section 2.3.3 of the risk management evaluation and the supporting document. Specific information to improve the cost impact assessment would be appreciated.
Croatia			Use of endosulfan has been banned in the Republic of Croatia since 1 January 2007 because of the adverse effects on human health and environment. By this measure risk management evaluation in our country is finished, and we do not have any further information on negative impacts on health and environment.	The information that the use of endosulfan in Croatia has been banned in 2007 is considered in section 1.1.2 of the supporting document 1.

B. Comments on the third draft of the endosulfan risk management evaluation received from the working group members

Source of Comment	Page	Para	Comments on the endosulfan draft risk management evaluation (THIRD DRAFT)	Response
PAN & IPEN	3	2	"Its use as a plant protection product is the most relevant emission source for endosulfan."	Adjusted
PAN & IPEN	3	3	"In countries where endosulfan is still applied, use is restricted to specific authorised uses and specific use conditions and restrictions are usually established in order to control health and environmental risks in the country concerned." Comment: Although the drafters said they adopted this addition from our previous submission, it was not in the 3rd draft. [See Compilation of Comments 2nd draft, page 3]	Adjusted
PAN & IPEN	3	5	"However, some information indicates that it may be difficult to substitute endosulfan for specific crop-pest complexes in some countries or in general due to specific properties of endosulfan such as appropriateness for ~~pollinator management, IPM systems,~~ insecticide resistance management and its broad spectrum of targeted pests." Comment: Although the drafters said they agreed with our previous submission, that endosulfan is not appropriate for IPM this is not reflected in the 3rd draft. [See Compilation of Comments 2nd draft, page 3]	Adjusted
PAN & IPEN	3	8	"However, as noted above substitution may be difficult and/or costly for some specific crop pest complexes in certain countries. ~~Exemptions may be required for several years for some crop pest complexes to permit the development of feasible and efficient alternatives.~~" Comment: There may be a need for some regulatory changes to allow for these complexes but this should not require exemptions. Data gathered by the POPRC indicates that technically feasible alternatives for endosulfan are widely available and have been already in use in many countries in all stages of development indicating their economic feasibility.	The sentence which is proposed to be deleted was introduced according to a proposal made by Canada which is of the opinion that such exemptions may be required (see comments and responses relating to the 3rd draft). The drafting team proposes to maintain the sentence for the time being and to discuss this issue at the POPRC meeting.

Source of Comment	Page	Para	Comments on the endosulfan draft risk management evaluation (THIRD DRAFT)	Response
PAN & IPEN	3	9	"Having prepared a risk management evaluation and considered the management options, the POPRC recommends that the chemical should be considered by the Conference of the Parties for listing in Annex A." Comment: The drafter might consider using language from other RMEs such as: In accordance with paragraph 9 of Article 8 of the Convention the Committee recommends to the Conference of the Parties to consider listing endosulfan (CAS 115-29-7) and its related isomers (CAS 959-98-8 and 33213-65-9) in Annex A of the Convention.	The drafting team agrees that it is reasonable to use the wording from other RMEs and has replaced paragraph 9 according to the comment but has added endosulfan sulfate to the relevant chemicals: "In accordance with paragraph 9 of Article 8 of the Convention the Committee recommends to the Conference of the Parties to consider listing **technical** endosulfan (CAS 115-29-7), ~~and~~ its related isomers (CAS 959-98-8 and 33213-65-9) **and endosulfan sulfate (CAS 1031-07-8)** in Annex A of the Convention."
PAN & IPEN	4	Table "Names and registry number"	~~e~~Endosulfan sulfate	Adjusted
PAN & IPEN	5	21	"[...] bollworms, bugs, white fliers, leafhoppers, snails in rice paddies, earthworms in turf and tsetse flies." Comment: Earthworms in turf is an historic use	Adjusted
PAN & IPEN	5	22	"It is used on ornamentals and forest trees, and has been used in the past as an industrial and domestic wood preservative, and for controlling earthworms in turf."	Adjusted
PAN & IPEN	5	23	"It was is used as an ear tag in cattle and occupieds less than 25% of the US market share of cattle ear tags [KMG Bernuth 2009]. However, that use has now been disallowed, along with all other endosulfan uses in the USA."	Adjusted The drafting team would be grateful to receive the corresponding information source.
PAN & IPEN	5	Footnote 4	"[...] Mauritius, Morocco, [...], United Kingdom, United States of America." and "In USA, the Environmental Protection Agency has withdrawn approval for all uses of endosulfan."	Adjusted As mentioned above, the drafting team would be grateful to receive the corresponding information source.
PAN & IPEN	5	25	"Countries using varying amounts of endosulfan, include ~~USA,~~ Australia, Argentina, Brazil, Cameroon, Canada, Chile, Costa Rica, Ghana, Guatemala, India, Israel, Japan, Kenya, Madagascar, Mexico, Mozambique, China, Paraguay, Pakistan, Sierra Leone, South Africa, South Korea, Sudan, Tanzania, Uganda, Venezuela, Zambia, Zimbabwe, USA."	Adjusted
PAN & IPEN	7	35	I. "h) In the Third North Sea Conference (Hague Declaration) (1990), endosulfan was agreed on the list of priority substances."	Adjusted
PAN & IPEN	7	38	"The nine CILSS country members [...]"	Adjusted
PAN & IPEN	7	40	"In the 27 EU Member States [...]"	Adjusted
PAN & IPEN	8	42	"USA EPA's Reregistration Eligibility Decision (RED) was in 2002; post reregistration evaluation of risks and risk management options is on going [USA 2010]. In 2010 US EPA decided to withdraw approval for all uses of endosulfan."	Adjusted (what is the information source?)
PAN & IPEN	8	45	"In 2001 the exemption was abrogated and the authorisations for plant protection products containing endosulfan where cancelled [Colombia 2010]."	Adjusted

Source of Comment	Page	Para	Comments on the endosulfan draft risk management evaluation (THIRD DRAFT)	Response
PAN & IPEN	9	48	"[...] (3) Termination of processes which could lead to unintentional release of the chemical (such as specific use conditions and restrictions, through trainings, and better labellings);"	Adjusted
PAN & IPEN	10	56	"According to some parties and observers it could be difficult to substitute endosulfan at the present time for specific crop-pest complexes e.g. in soybean, cotton, coffee, cane sugar and sunflower in Brazil and Argentina ([Brazil 2010], [ISC 2010]) or in general due to specific properties of endosulfan such as appropriateness for pollinator management, IPM systems, insecticide resistance management and its broad spectrum of targeted pests ([Brazil 2010], [China 2010], [India 2010], [ISC 2010]). Other information indicates endosulfan is not appropriate for pollinator management or IPM." Comment on the term `specific´: These properties are not unique to endosulfan as the wide variety of substitutes indicates.	Adjusted
PAN & IPEN	10	57	"Australia and Canada Malaysia provided information on specific crop-pest combinations for which a chemical alternative is currently not registered. This does not mean that they are not available and the problem could be overcome in foreseeable time if alternatives chemicals could be registered or non-chemical alternatives implemented for the relevant crop-pest combinations." Comment: Endosulfan has been banned in Malaysia since 2005; no uses are permitted.	Comment 1: Malaysia is maintained. Justification: Malaysia provided a list of chemical alternatives to endosulfan. Despite the ban since 2005, it is indicated in this list, that for the crops mango, banana and bok choy/mustard green and their corresponding pest there are no registered alternatives (see Annex F submission Malaysia 2010) Comment 2: Adjusted
PAN & IPEN	10	59	"~~Loss of endosulfan could mean loss of control and economic loss for growers until alternatives are adequately in place [Australia 2010].~~ There are ~~actives~~ alternative pesticides already registered for fruit spotting ~~bug in other tropical fruit and nut crops that could potentially be registered for other crops after significant research. The Rural Industries Research and Development Corporation has also undertaken research into IPM for rambutans and other exotic fruit. Sixteen insecticides were screened where beta-cyfluthrin was identified as an "effective alternative" to endosulfan. However, synthetic pyrethroids such as beta-cyfluthrin are recognised as being highly disruptive to beneficial insects. A~~ that could serve as substitute along with a number of other potential options ~~for fruit spotting bug management have been identified, e.g.~~ including sex pheromones, plant attractants and biopesticides whose feasibility is currently under research. ~~carrying the caveat that solutions will only come from considerable research investment. Such research is occurring but unlikely to provide the needed solutions in the short term.~~"	The paragraph has been re-written according to the comments by Australia on the 2nd draft risk management evaluation. The drafting team proposes to maintain the sentence for the time being and to discuss this issue at the POPRC meeting. A possible solution might be to shorten the paragraph in the RME document and to maintain it in the supporting document.
PAN & IPEN	10	61	For three crop pest complexes there are currently no alternatives registered in Malaysia [Malaysia 2010]. Comment: Endosulfan has been banned in Malaysia since 2005. No uses are permitted.	Not adjusted; see comment related to paragraph 57
PAN & IPEN	16	112	"According to the cost impact assessment one time costs for implementation (realistic estimate: below 1.65 million USD), annual costs for some agriculture and corresponding impacts on society […]"	Not adjusted; The drafting team is not focusing this statement on specific sectors of agriculture but on agriculture as a whole.
PAN & IPEN	18	120	"Production takes place in India, China, Israel, Brazil and South Korea. Endosulfan is used as a plant protection product in varying amounts in Argentina, Australia, Brazil, Canada, China, India and the USA."	A corresponding footnote has been inserted (what is the specific information source?)

Source of Comment	Page	Para	Comments on the endosulfan draft risk management evaluation (THIRD DRAFT)	Response
			Comment on `USA´: This statement does not reflect the recent prohibition of endosulfan for all uses in the USA	
PAN & IPEN	18	122	"However, substitution may be difficult and/or costly for some specific crop pest complexes in some countries."	Adjusted
PAN & IPEN	18	122	"It can therefore be expected that the current use of endosulfan causes significant non quantifiable environment and health costs and positive cost impacts such as savings for some farmers whilst other farmers have experience reduced costs when they replace endosulfan."	Adjusted as follows: "...such as savings for some farmers who experience reduced costs when they replace endosulfan."
PAN & IPEN	19	125	"A thorough review of control measures that have already been implemented in several countries shows that risks to health and environment from exposure to endosulfan can be significantly reduced by eliminating production and use of endosulfan."	Adjusted

C. Additional comments on the final draft of the endosulfan risk management evaluation received from the working group members

Source of Comment	Page	Para	ADDITIONAL comments on the endosulfan draft risk management evaluation	Response
USG	3	3	"[..] economically viable alternatives are likely available in many different geographical situations." Comment: The US Government (USG) believes that some degree of uncertainty is warranted and has suggested that text be inserted ("likely''). Also see the USG's comment on Para. 52.	Accepted
USG	3	5	"However, some information indicates that it may be difficult to substitute endosulfan for specific crop-pest complexes in some countries or in general due to specific properties of endosulfan such as appropriateness for pollinator management, IPM systems, insecticide resistance management and its broad spectrum of targeted pests." Comment 1: The USG is providing vegetable and alfalfa seed producers six (6) years to develop appropriate measures using syntheitic pyrethroids, which are more toxic to bees than is endosulfan. Please see the following website for more information: http://www.epa.gov/pesticides/reregistration/endosulfan/endosulfan-agreement.html Comment 2: The USG disagrees with this deletion. According to recent assessments, endosulfan does provide benefits for pest control due to lower toxicity to bees than available alternatives. For more information, please see the following document: Assessment of the Impacts...on Production of Vegetable Seeds, http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262, document 156).	On comment 1: accepted On comment 2: The deletion is not made according to the comment from USG. The information on the cited document is included in the supporting document in section 2.2.2
USG	3	8	"Available information indicates that alternatives are technically feasible, efficient and potentially safer and that they could be available for all current applications of endosulfan." Comment: Please see the USG's comment at Para. 100.	Accepted
USG	3	8	"Exemptions may be required for several years for some crop-pest complexes to permit the development of feasible and efficient alternatives." Comment 1: According to the Compilation of	Accepted

Source of Comment	Page	Para	ADDITIONAL comments on the endosulfan draft risk management evaluation	Response
			Comments, the USG notes that PAN/IPEN wants this text deleted. However, the authors of the document also note that Canada proposed its inclusion. The USG supports the Canadian suggestion that this text be included (and not deleted, as suggested by PAN/IPEN) as it fits with the USG's recently announced phase-out policy available at: http://www.epa.gov/pesticides/reregistration/endosulfan/endosulfan-agreement.html Comment 2: The USG agrees with Canada that some period of time may be required to transition to alternative control measures.	
USG	5	23	"In 2006, the US EPA registered the use of endosulfan as a veterinary insecticide to control ectoparasites on beef and lactating cattle. It is ~~was~~ used as an ear tag in cattle and ~~occupied less than~~ accounts for almost 25% of the US market share of cattle ear tags [KMG Bernuth 2009]. ~~However, that use has now been disallowed, along with all other endosulfan uses in the USA~~" Comment: The USG insists that it speak for USG policy -- not PAN and IPEN. Please see the text provided by the USG elsewhere in this document and please see comment bubble directly below for suggested text. Suggested text: The USA completed a re-evaluation of endosulfan in June 2010 and has signed a formal Memorandum of Agreement with manufacturers of the agricultural insecticide endosulfan that will result in voluntary cancellation and phase-out of all existing endosulfan uses in the United States. The phase-out period will be six years with the vast majority of endosulfan's current use sites being phased out by the end of 2014. The phase out period takes into consideration the time needed for growers to transition to lower-risk pest control practices. EPA is also requiring additional mitigation measures during the phase-out period to minimize worker risks associated with endosulfan use on these crops [USA 2010]. http://www.epa.gov/pesticides/reregistration/endosulfan/endosulfan-agreement.html	Suggested text inserted. "In 2006, the US EPA registered the use of endosulfan as a veterinary insecticide to control ectoparasites on beef and lactating cattle. It is used as an ear tag in cattle and accounts for almost 25% of the US market share of cattle ear tags [KMG Bernuth 2009]. The USA completed a re-evaluation of endosulfan in June 2010 and has signed a formal Memorandum of Agreement with manufacturers of the agricultural insecticide endosulfan that will result in voluntary cancellation and phase-out of all existing endosulfan uses in the United States.y The phase-out period will be six years with the vast majority of endosulfan's current use sites being phased out by the end of 2014. The phase out period takes into consideration the time needed for growers to transition to lower-risk pest control practices. EPA is also requiring additional mitigation measures during the phase-out period to minimize worker risks associated with endosulfan use on these crops [USA 2010]." New footnote y: See http://www.epa.gov/pesticides/reregistration/endosulfan/endosulfan-agreement.html
USG	5	24	"The production and use of endosulfan is now banned in at least 60 countries[x] with former uses replaced by products and methods considered by [these countries/the authors/many toxicologists?] less hazardous." Comment: The USG would like the authors of the document to specify **who** considers the replacement products/methods to be less hazardous.	The products and methods are considered less hazardous according to a screening risk assessment carried out by the authors of the study considering the "General guidance on considerations related to alternatives and substitutes for listed persistent organic pollutants and candidate chemicals" [UNEP/POPS/POPRC.5/10/Add. 1]. The risk assessment is explained in detail in chapter 3.4.5 and in the corresponding chapter in the supporting document. New text: "The production and use of endosulfan is now banned in at least 60 countries[x] with former uses replaced by products and methods which are considered less hazardous on the basis of a screening risk assessment.[y]"

Source of Comment	Page	Para	ADDITIONAL comments on the endosulfan draft risk management evaluation	Response
				New footnote [y]: See chapter 2.3.5 of the present document and of the supporting document
USG	6	25	"[...], Uganda, USA, Venezuela, [...]"	Accepted
USG	7	38	"The nine (9) CILSS [...]"	Aceepted
USG	8	42	"USA EPA's Reregistration Eligibility Decision (RED) was completed in 2002. In 2010, following a post-reregistration evaluation of risks and benefits, the US EPA determined that endosulfan posed unacceptable risks to agricultural workers and wildlife. US EPA has signed a formal Memorandum of Agreement with manufacturers of the agricultural insecticide endosulfan that will result in voluntary cancellation and phase-out of all existing endosulfan uses in the United States. The phase-out period will be six years with the vast majority of endosulfan's current use sites being phased out by the end of 2014. The phase out period takes into consideration the time needed for growers to transition to lower-risk practices. EPA is also requiring additional mitigation measures during the phase-out period to minimize worker risks associated with endosulfan use on these crops. More information can be found at http://www.epa.gov/pesticides/reregistration/endosulfan/endosulfan-cancl-fs.html." Comment: In light of the US EPA's recent decision on endosulfan, the USG urges the authors to adopt the suggested text **verbatim**, as suggested in the track changes here in Para. 42. Additional information can be found at: http://www.epa.gov/pesticides/reregistration/endosulfan/endosulfan-agreement.html and http://www.epa.gov/pesticides/reregistration/endosulfan/endosulfan-cancl-fs.html#decision and http://yosemite.epa.gov/opa/admpress.nsf/d0cf6618525a9efb85257359003fb69d/44c035d59d5e6d8f8525773c0072f26b!OpenDocument	The text has been adopted verbatim as suggested by the USG. The indicated references are included in a footnote. New footnote [y]: More information can be found at http://www.epa.gov/pesticides/reregistration/endosulfan/endosulfan-cancl-fs.html http://www.epa.gov/pesticides/reregistration/endosulfan/endosulfan-agreement.html http://www.epa.gov/pesticides/reregistration/endosulfan/endosulfan-cancl-fs.html#decision http://yosemite.epa.gov/opa/admpress.nsf/d0cf6618525a9efb85257359003fb69d/44c035d59d5e6d8f8525773c0072f26b!OpenDocument
USG	9	52	"[...] that viable alternatives are likely available in many different geographical situations." Comment: The USG believes that some uncertainty is warranted and suggests that the following text be inserted. See the corresponding USG comment on Para. 3.	Accepted
USG	10	56	"According to some parties and observers it could be difficult to substitute endosulfan at the present time for specific crop-pest complexes e.g. in soybean, cotton, coffee, cane sugar and sunflower in Brazil and Argentina ([Brazil 2010], [ISC 2010]) or in general due to ~~specific~~ properties of endosulfan such as appropriateness for pollinator management, IPM systems, insecticide resistance management and its broad spectrum of targeted pests ([Brazil 2010], [China 2010], [India 2010], [ISC 2010]." Comment: The US EPA has also identified a limited number of situations where endosulfan has advantages over available alternatives for pollinator management and insecticide resistance management. See, for example, information on vegetable seed production and cattle ear tags at http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262, documents 156 and 161.	Accepted: "[...], [ISC 2010], US EPA 2010[x])." New footnote [x]: The US EPA has also identified a limited number of situations where endosulfan has advantages over available alternatives for pollinator management and insecticide resistance management. See, for example, information on vegetable seed production and cattle ear tags at http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262, documents 156 and 161.
USG	10	57	"Australia, Canada and Malaysia provided information on specific crop-pest combinations for which a chemical alternative is currently not registered." Comment: The US EPA has also identified situations where specific crop-pest combinations currently lack adequate registered alternatives. See, for example, information on apple, pineapple, strawberry, and blueberry, at http://www.regulations.gov/search/Regs/home.ht	Accepted: "Australia, Canada, Malaysia and the USA[x] provided [...]" New footnote [x]: The US EPA has also identified situations where specific crop-pest combinations currently lack adequate registered alternatives. See, for example, information on

Source of Comment	Page	Para	ADDITIONAL comments on the endosulfan draft risk management evaluation	Response
			ml#docketDetail?R=EPA-HQ-OPP-2002-0262, documents 113, 157, 158, and 175.	apple, pineapple, strawberry, and blueberry, at http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262, documents 113, 157, 158, and 175.
USG	11	65	"Possible costs related to replacing the ~~ban~~ use of endosulfan ~~versus~~ with chemical and non-chemical alternatives include (1) Implementation costs for governments and authorities; (2) Cost impacts on industry (manufacturing and retailing of plant protection products); (3) Cost impacts on agriculture (costs for use of alternatives and costs due to altered productivity in terms of quantity or quality); (4) Cost impacts on society (consumer costs for agricultural products, costs for management of obsolete pesticides and remediation of contaminated sites, waste disposal costs); (5) Cost impacts on environment and health. Some of these costs can be difficult to monetize." Comment 1 on (1)-(4): The USG appreciates the examples provided for each of the cost impact categories. Comment 2 on (5): The USG is unsure what types of cost impacts would be included in environment and health. **The USG suggests that authors of the document provide examples of the cost impacts.**	Accepted; new text highlighted: "Possible costs related to replacing the use of endosulfan with chemical and non-chemical [...] (5) Cost impacts on environment and health (e.g. costs due to contamination of water and other natural resources including food resources and costs due to health impacts from acute (including poisoning) and chronic risks for the whole population and particularly exposed population groups). Some of these costs can be difficult to monetize."
USG	11	Table 1	"Cost impacts on agriculture: - ~~Negative~~ aAnnual cost impact due to increased plant protection costs in a range between 0 and 40 million USD (for Brazil: 0 to 13.87 mio USD, for [...] chemical alternatives ~~in contrast to~~ –Non-quantified ~~positive annual~~ reductions in cost ~~impacts if~~ in certain situations where endosulfan will be replaced by non-chemical alternatives" Comment: The USG believes that this is likely to be a very rare situation. Non-chemical alternatives may be quite costly, especially in farmer-supplied labor. "Cost impacts on environment and health: - Significant, non-monetarised long term benefits for environment and health, but possible short-term or localized negative effects, depending on alternative pest control measure employed." Comment: The USG believes that the statement, as written, was incomplete and suggests that the authors add the text suggested. Further, the USG would like to note for the authors that a US EPA assessment and several biological opinions published by other US agencies (e.g., National Marine Fisheries Service (NMFS)) identify several situations where currently available alternatives to endosulfan may pose risks to pollinators or endangered species (e.g., pome fruit, vegetable seed). Please see documents 156 and 113 at the following website: http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262	The text has been added as suggested. The reference to possible risks from currently available alternatives is considered in the supporting document in chapter 2.3.5
USG	14	Table 2	"Production and cost: Likely overall increase ~~Significant plant protection cost decrease~~" Comment: The USG believes that the authors of this document have provided no evidence to support this hypothesis. Cultural and biological pest control are not costless. Some cultural practices entail substantial labor costs. The USG believes that the usefulness of this document for risk management purposes is seriously undermined by the bias shown by the authors in this statement.	Several examples show that the use of non-chemical alternatives has lead to significant decreases of plant protection costs in several practical cases and do support this hypothesis. See chapter 2.3.3.2 of the supporting document. However the drafting team agrees that non-chemical alternatives are not costless and in other cases the plant production costs may increase.

Source of Comment	Page	Para	ADDITIONAL comments on the endosulfan draft risk management evaluation	Response
				Therefore the production costs may decrease, remain stable or increase. The statement on the expected impact has been adjusted as follows "Significant change of plant production costs possible".
USG	15	100	"On the basis of the results of this screening risk assessment it can be expected that if endosulfan would not be available for plant protection it would be replaceable by safer chemical alternatives" Comment: The USG agrees that the issue of "safer" or "less hazardous" alternatives to endosulfan is difficult since different chemicals may have different toxic effects on different human and environmental endpoints. Further, the USG cannot domestically dictate which of the available alternatives will be adopted by those who currently use endosulfan. All pesticides registered by the US EPA for use in the US meet the current safety standards, given currently available information. See the USG's comments to Paras. 8 and 122. "However, the range of toxicity to bees among possible chemical alternatives indicates that in many situations it may be possible to replace endosulfan by chemical alternatives with no or lower bee toxicity and/or less persistence in the environment [see http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262, document 156]."	Accepted. "[...] lower bee toxicity and/or less persistence in the environment.[x]" New footnote [x]: see for example http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262, document 156
USG	16	107	"The replacement with non-chemical alternatives could have significant positive economic impacts, if combined with substantial investment in extension and infrastructure." Comment: The USG would like to note that Para. 107 contains no citations. Upon analysis of the statements in Para. 107, the USG deduced that the information basis for this Para. was a PAN/IPEN document discussing case studies in West Africa on cotton production [PAN & IPEN 2010 Ref 2]. However, the case studies in the PAN/IPEN document do not seem to be directly linked to endosulfan's use. Rather, the case studies involved generic pest control and reductions in pesticide use, in general, along with other economic development activities. The USG suggests to either include the suggested text in the Para., as noted, or provide the appropriate citation(s) if the USG has incorrectly identified the source of information of this Paragraph.	This statement is related to (a) the use of IPM in Africa [PAN & IPEN ref 2] (no specific link to endosulfan but without use of chemical pesticides), (b) the replacement of endosulfan use in cotton production in India [PAN & IPEN ref1], (c) organic cotton farming in India without use of endosulfan [PAN & IPEN 2010], [Eyhorn 2007] , (d) CMSA farming of several crops in India without use of endosulfan [PAN and IPEN 2010 ref4]. The underlying information can be found and is referenced in chapter 2.3.3.2. This has been made clear in a footnote. However, the successful implementation of corresponding non-chemical alternatives has usually to be combined with investment e.g. for training and support of farmers. Therefore the following statement has been added: "… , if combined with investment for implementation."
USG	16	Title 2.4.5	"Movement towards sustainable development" Comment: Please see the USG's comment with relation to Para. 126. The authors of this document might want to insert some information about the 2002 World Summit on Sustainable Development (WSSD) goals in this section.	Adjusted as new paragraph (115): "The "Plan of Implementation of the World Summit on Sustainable Development"[x] of the Johannesburg World Summit on Sustainable Development encourages specific actions in order to change unsustainable patterns of consumption and production. Governments, relevant international

Source of Comment	Page	Para	ADDITIONAL comments on the endosulfan draft risk management evaluation	Response
				organizations, the private sector and all major groups should play an active role in changing unsustainable consumption and production patterns. A specific commitment in this context is to "... sound management of chemicals throughout their life cycle and of hazardous wastes for sustainable development as well as for the protection of human health and the environment, inter alia, aiming to achieve, by 2020, that chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment, using transparent science-based risk assessment procedures and science -based risk management procedures, taking into account the precautionary approach, as set out in principle 15 of the Rio Declaration on Environment and Development,..." New footnote [x]: http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/WSSD_PlanImpl.pdf
USG	18	120	Comment on footnote: Please see the new footnote with our new website that explains our recent phase-out MOA: www.epa.gov/pesticides/reregistration/endosulfan/endosulfan-agreement.html	Accepted
USG	18	122	"Available information indicates that these alternatives may be technically feasible, efficient and potentially safer and that" Comment: See USG comment at Para. 100.	Accepted
USG	19	126	"Control measures are also expected to support the goal agreed at the 2002 Johannesburg World Summit on Sustainable Development of ensuring that by the year 2020, chemicals are produced and used in ways that minimise significant adverse impacts on the environment and human health." Comment: The 2002 World Summit on Sustainable Development (WSSD) was not discussed or explained anywhere within the body of this (draft) report. Therefore, the USG was surprised by the fact that it is mentioned in a concluding statement and feels that this statement unconnected to any of the discussion contained in this draft RME. The USG suggests to either delete this reference or add a brief discussion of the 2002 WSSD goals somewhere in the document. Section 2.4.5 might be a good place to insert some new text on the 2002 WSSD.	Adjusted
Brazil	11	Table 1	"[...] range between 0 and 40 million USD (for Brazil: 0 to 13.87 mio USD[x], for [...]"	Addition of footnote [x]: According to an estimate provided by Brazil in August 2010, the annual cost in Brazil to replace endosulfan with chemical alternatives would amount to ~34 mio USD (for details of the estimate and possible reasons for discrepancy see chapter 2.3.3.1 of the supporting document).

Annex II

Comments and responses relating to the supporting document for the draft risk management evaluation on endosulfan (UNEP/POPS/POPRC.6/INF/12)

Minor grammatical or spelling changes have been made without acknowledgment. Only substantial comments are listed. All adjustments that have been made in the draft risk management evaluation document have correspondingly been made in the supporting document-1.

A. Comments on the second and the third draft of the supporting document for the endosulfan draft risk management evaluation received from Parties and observers

Source of Comment	Page	Para	Comments on the supporting document for the endosulfan draft risk management evaluation (SECOND DRAFT AND THIRD)	Response
US EPA	2/3	Table of content	Page numbers	
US EPA	13	76	"In China, where endosulfan is used on cotton, wheat, tea, tobacco and apples, it is used on only 25% of the acreage grown of each crop, indicating that alternatives are used on the remaining 75% of crop [Jia 2009]." Comment: The US EPA believes that this statement contains flawed logic. It may be that the pest problem associated with the use of endosulfan is only present on 25% of the acreage. Therefore, the US EPA suggests deleting the text.	In the context it is clear that the statement is a citation from Jia 2009. The drafting team proposes to maintain the citation or to delete the final part of the sentence ", indicating that alternatives are used on the remaining 75% of crop". For the updated risk management evaluation the text is kept without change.
US EPA	20	142	"According to the USA, chemical and non-chemical alternatives ~~and technologies are other alternative pesticides, which~~ are generally available and already in use in the agricultural sector. Economic impact studies have been conducted and are continuing ~~implemented~~."	Adjusted according to the proposal
US EPA	21	149	"Alternatives are affordable and available now. ~~In addition, the example of California shows that tomatoes can be produced affordably without resorting to endosulfan [PAN & IPEN 2010].~~" Comment: With regards to the suggested deletion below, the US EPA believes that this comparison is not valid. The states of California and Florida have distinctly different climates, pest problems, and production systems.	Deleted
US EPA	29	201	"It can be assumed that the use of chemical alternatives will not have negative impacts on yields as alternatives are assumed to be at least equally efficient compared to endosulfan (see chapter 2.3.4). If this assumption is not true, then the impact analysis will underestimate the effects of a ban on endosulfan." Addition of highlighted text and comment on previous sentence: The US EPA believes that there are some strong assumptions in this statement that may not hold in all situations. Therefore, the US EPA suggests including the statement explaining effect of making an incorrect assumption.	It is very general to state that conclusions based on wrong assumptions are also wrong. The assumption is justified and based on evidence as explained in chapter 2.3.4. The drafting team proposes not adding the comment.
US EPA	29	202	"The use of chemical alternatives will not enable to achieve higher output prices for crops. Prices of output crops will likely remain stable." Comment: The US EPA believes that it is also possible that the use of alternatives will provide insufficient pest control leading to a decrease in	Adjusted

Source of Comment	Page	Para	Comments on the supporting document for the endosulfan draft risk management evaluation (SECOND DRAFT AND THIRD)	Response
			quality and reducing the price received by farmers. Therefore, the US EPA suggests including some expression of uncertainty – and has suggested adding the text "likely".	
US EPA	30/31	210, Table	Conclusion on apples: "~~Appropriate lower cost a~~Alternatives are available; a reasonable selection of alternatives let expect that no substantial ~~negative~~ cost impacts would occur. ~~In contrast, about 50% of the alternatives are cheaper and even positive impacts are possible.~~" Comment: The US EPA does not believe that this statement makes sense economically unless the author(s) of the draft RME assume that growers make inefficient cost/financial decisions. If a cheaper alternative is not currently selected/used by growers, then this statement implies that growers do not find it acceptable for some reason -- e.g., the alternative product is less effective, it conflicts with other pest control measures or production activities, there are regulatory restrictions, etc. See suggested revisions in additional text and deleted text. Conclusion on cantaloupe, cucumber, melons and potatoes: "~~Appropriate lower cost a~~Alternatives are available; a reasonable selection of alternatives let expect that no substantial ~~negative~~ cost impacts would occur." Conclusion on cotton: "~~Appropriate lower cost a~~Alternatives are available; a reasonable selection of alternatives let expect that no substantial ~~negative~~ cost impacts will occur. ~~In contrast, about 50% of the 31 chemical alternatives are cheaper and even positive impacts are possible.~~" Comment on "Grapes": The US EPA cancelled (i.e., banned) the use of endosulfan on grapes under the 2002 Reregistration Eligibility Decision (RED). Comment on "Pecans": The US EPA cancelled (i.e., banned) the use of endosulfan on pecans under the 2002 Reregistration Eligibility Decision (RED). Conclusion on strawberries: "Only very limited data are available. ~~These indicate the availability of one lower cost alternative; a reasonable selection of alternatives let expect that no relevant cost impacts would occur.~~" Conclusion on tomatoes: "~~Only one lower cost a~~Alternatives are available. However several alternatives have only slightly higher costs compared to endosulfan; a reasonable selection of alternatives let expect that no substantial ~~relevant~~ cost impacts would […]"	The drafting team agrees to the proposed changes. These were adjusted in the updated risk management evaluation.
US EPA	31	211	"In practice endosulfan will be replaced by the most appropriate alternative at low costs. ~~In many cases even cheaper alternatives will be used instead of endosulfan. Only~~ ~~i~~In most ~~a few specific~~ cases, the use of a higher cost alternative will~~may~~ be necessary, but the magnitude of the increase may not be substantial. As a consequence it can be expected that ~~in some cases the net cash return will slightly increase (if cheaper alternatives~~	The drafting team would not exclude that growers may take inefficient decisions and that in specific cases even positive impacts are possible. Growers may e.g. stick to endosulfan because they have used it for a

Source of Comment	Page	Para	Comments on the supporting document for the endosulfan draft risk management evaluation (SECOND DRAFT AND THIRD)	Response
			~~will be used) and in other cases no or only~~ moderate impacts on the costs for pest control (e.g. increase for tomatoes, pecans and tobacco by 9 to 40%) and corresponding low impacts on net cash return (decrease for tomatoes, pecans and tobacco by 0.4 to 1.7%) will occur. ~~Positive impacts may outweigh the negative impacts. Cotton is one of the main appliances of endosulfan. In this specific case more than 50% of the alternatives are cheaper and even positive impacts are possible. These conclusions are derived from US EPA data and can at least be applied to the USA.~~" Comment on first highlighted text: The US EPA believes that this statement is highly unlikely. If cheaper alternatives are not currently used in lieu of endosulfan, then those growers are unlikely to find them appropriate in the absence of endosulfan. See suggested additional and deleted text. Comment on last highlighted text: The US EPA considers this a gross misrepresentation of its data and assessments. See suggested deletion of text, as indicated.	long time and they have achieved good results of pest control with it. Only if endosulfan will not be available they may consider the full spectrum of chemical and non-chemical alternatives and may even come to more cost efficient solutions. However the drafting team agrees that the wording of the paragraph could be adjusted in order to provide a more balanced picture of the situation. The paragraph has been adjusted in order to reflect the comments.
US EPA	34	220	"[…] no relevant negative cost impacts will occur. ~~In contrast, about 50% of the 31 chemical alternatives are cheaper and even positive impacts are possible.~~ Accordingly the US EPA concluded in 2009 that "there will be minimal impacts on cotton producers that are not likely to exceed 1% of net operating revenue if endosulfan is not available" [PAN & IPEN 2010]. The authors of this document ~~It is~~ expect~~ed~~ that ~~also~~ in other regions no or insignificant economic impacts will occur for cotton if endosulfan would be replaced by a reasonable selection of chemical alternatives. However, the US EPA has not made such conclusions. " Comment on last highlighted text: The US EPA makes no claims that viable alternatives in the US are equally viable in other countries with different pest problems. The US EPA suggests incorporating the embedded text.	The second part of the paragraph has been adjusted as follows in order to reflect the comments: "It has been shown that appropriate alternatives are available and a reasonable selection of alternatives let expect that no substantial cost impacts will occur. Accordingly the US EPA concluded in 2009 that "there will be minimal impacts on cotton producers that are not likely to exceed 1% of net operating revenue if endosulfan is not available" [PAN & IPEN 2010]. The authors of the present document expect that also in other regions no substantial economic impacts may occur for cotton if endosulfan would be replaced by a reasonable selection of chemical alternatives.
US EPA	35	234	"Farmer price premiums for organic farming products in the EU range from 20 to 257% [FIBL 2005]. However, if there were a substantial increase in organic production, this price premium may disappear due to competition."	The drafting team would not expect that the price premium would disappear but that it may decrease. The text has been adjusted as follows: "However, if there were a substantial increase in organic production, this price premium may decrease due to competition."
US EPA	35	236	"It can be expected that non-chemical alternatives will significantly reduce production costs at slightly decreased, stable or slightly	This comment is related the US EPA comment on para 82

Source of Comment	Page	Para	Comments on the supporting document for the endosulfan draft risk management evaluation (SECOND DRAFT AND THIRD)	Response
			increased yields. Moreover non-chemical alternatives enable in specific cases (particularly in organic farming systems) to obtain higher product prices due to price premiums payed for organic products. The use of non-chemical alternatives let therefore expect significant, non-quantified economic benefits." Comment on first highlighted text: The US EPA believes that there are very strong assumptions in this statement. Non-chemical alternatives can often be substantially more expensive, especially outside regions of low pest pressure. Comment on second highlighted text: The US EPA believes that this conclusion is not supported by substantiated facts.	(Table). The drafting team agrees that plant protection costs may also increase in specific cases if non-chemical alternatives are applied. However, the information available to the drafting team (see particularly supporting document 2.3.3.2, information on "Impacts on yields and production costs") suggests that if non-chemical alternatives are used the incomes of farmers increase. Therefore the expected overall impact for farmers is economically beneficial. The drafting team would appreciate to receive useful specific information.
US EPA	36	244	"According to PAN & IPEN, implementing substitutes for endosulfan has been found to result in either very small increases in costs (e.g. 0–1% changes in net revenue in US tomato production, [U.S.EPA 2009 G]) no additional costs, projected reductions in costs, or increases in income for farmers. The U.S EPA, however, has not found cases where increases in farm income would be expected." Addition of highlighted sentence and comment: This statement is not substantiated by any US EPA analysis.	Added as proposed
US EPA	36	248	"The US EPA noted, in 2009, that alternative chemicals exist for most ~~all~~ endosulfan uses, and estimated that should endosulfan become unavailable, the financial impacts on farmers would generally be small." Comment: The US EPA believes that this conclusion does not apply to all uses of endosulfan. Assessments have not been completed for all uses.	Adjusted
US EPA	38	263	"[…] (3) not be persistent, it can be concluded that endosulfan (not target specific, broad spectrum, persistant) is comparatively inappropriate for use in IPM systems." Comment: The US EPA appreciates this statement as it is an excellent example of a reasoned and objective conclusion.	No comment
US EPA	38	266	"The information provided indicates that the value of endosulfan in insecticide resistance management is dependent on the specific situation ~~therefore contradictory~~." Comment: The US EPA does not see this as "contradictory" statement. Endosulfan has a unique mode of action and can, therefore, contribute to resistance management in situations where there are only limited alternatives. In situations where many alternatives are available, however, this contribution may be minimal. See suggested additional & deleted text.	Adjusted according to the suggestion

Source of Comment	Page	Para	Comments on the supporting document for the endosulfan draft risk management evaluation (SECOND DRAFT AND THIRD)	Response
US EPA	42	309	"The replacement with non-chemical alternatives could have significant positive economic impacts." Comment: The US EPA would like the supporting documentation for this statement to be included in the Risk Management Evaluation (RME). In the absence of supporting documentation, the US EPA suggests this text be deleted.	See comment on para 236 The information available to the drafting team (see particularly supporting document 2.3.3.2, information on "Impacts on yields and production costs") suggests that if non-chemical alternatives are used the incomes of farmers increase. Therefore, the replacement with non-chemical alternatives could have significant positive economic impacts.

B. Additional comments on the final draft of the supporting document for the endosulfan draft risk management evaluation received from Parties and observers

Source of Comment	Page	Para	ADDITIOANL comments on the supporting document for the endosulfan draft risk management evaluation	Response
USG	5	23	"In 2006, the US EPA registered the use of endosulfan as a veterinary insecticide to control ectoparasites on beef and lactating cattle. It is ~~was~~ used as an ear tag in cattle and ~~occupied less than~~ accounts for almost 25% of the US market share of cattle ear tags [KMG Bernuth 2009]. ~~However, that use has now been disallowed, along with all other endosulfan uses in the USA~~" Comment 1: The USG insists that it speak for USG policy -- not PAN and IPEN. Please see the text provided by the USG elsewhere in this document and please see comment bubble directly below for suggested text. Comment 2: In the US, this product is still available. Although US EPA has determined that all registrations of endosulfan will be cancelled, this process does not happen instantaneously. Comment 3: The USG notes that 25% of this market constitutes a substantial share, given the products recent introduction. Suggested text: The USA completed a re-evaluation of endosulfan in June 2010 and has signed a formal Memorandum of Agreement with manufacturers of the agricultural insecticide endosulfan that will result in voluntary cancellation and phase-out of all existing endosulfan uses in the United States. The phase-out period will be six years with the vast majority of endosulfan's current use sites being phased out by the end of 2014. The phase out period takes into consideration the	"In 2006, the US EPA registered the use of endosulfan as a veterinary insecticide to control ectoparasites on beef and lactating cattle. It is used as an ear tag in cattle and accounts for almost 25% of the US market share of cattle ear tags [KMG Bernuth 2009]. The USA completed a re-evaluation of endosulfan in June 2010 and has signed a formal Memorandum of Agreement with manufacturers of the agricultural insecticide endosulfan that will result in voluntary cancellation and phase-out of all existing endosulfan uses in the United States.[y] The phase-out period will be six years with the vast majority of endosulfan's current use sites being phased out by the end of 2014. The phase out period takes into consideration the time needed for growers to transition to lower-risk pest control practices. EPA is also requiring additional mitigation measures during the phase-out period to minimize worker risks associated with endosulfan use on these crops [USA 2010]." New footnote [y]: See http://www.epa.gov/pesticides/reregistration/endosulfan/endosulfan-agreement.html

Source of Comment	Page	Para	ADDITIOANL comments on the supporting document for the endosulfan draft risk management evaluation	Response
			time needed for growers to transition to lower-risk pest control practices. EPA is also requiring additional mitigation measures during the phase-out period to minimize worker risks associated with endosulfan use on these crops [USA 2010]. http://www.epa.gov/pesticides/reregistration/endosulfan/endosulfan-agreement.html	
USG	6	Table 1	"Cost impacts on agriculture [...] Non-quantified positive annual cost impacts if endosulfan will be replaced by non-chemical alternatives" Comment: The USG suggests that the authors **either** delete this statement **or** provide a reference for it. "Cost impacts on society […], but possible short-term or localized negative effects, depending on alternative pest control measure employed" Comment: The USG believes that the statement, as written, is incomplete and suggests that the authors add the text suggested. Further, the USG would like to note for the authors that a US EPA assessment and several biological opinions published by other US agencies (e.g., National Marine Fisheries Service (NMFS)) identify several situations where currently available alternatives to endosulfan may pose risks to pollinators or endangered species (e.g., pome fruit, vegetable seed). Please see documents 156 and 113 at the following website: http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262	Table deleted. The supporting document provided to the secretary [UNEP RME Endosulfan 3rd draft long 100621_TC] contained the table which is now again inserted here: "Overview on known annual use quantities of endosulfan in the world and in countries of major use". The table on cost impacts, which was shown here by mistake, is part of chapter 2.2.3.
USG	12	73	"The USA completed a re-evaluation of endosulfan in June 2010 and has signed a formal Memorandum of Agreement with manufacturers of the agricultural insecticide endosulfan that will result in voluntary cancellation and phase-out of all existing endosulfan uses in the United States.[y] The phase-out period will be six years with the vast majority of endosulfan's current use sites being phased out by the end of 2014. The phase out period takes into consideration the time needed for growers to transition to lower-risk pest control practices. EPA is also requiring additional mitigation measures during the phase-out period to minimize worker risks associated with endosulfan use on these crops ~~Is currently evaluating endosulfan and indicates that the following as possible control measures: (1) cancel any or all uses and revoke any or all tolerances, (2) restrict application rates for any or all uses, or (3) extend restricted entry intervals to mitigate worker exposure for any or all uses.~~ [USA 2010]."	Accepted
USG	13	85	"[...] apples, it is used on only 25% of the acreage grown of each crop ~~indicating that alternatives are used on the remaining 75% of~~ [Jia 2009]." Comment: The USG believes that this statement contains faulty logic. The targetted pests may not be present everywhere the crops	Adjusted

Source of Comment	Page	Para	ADDITIOANL comments on the supporting document for the endosulfan draft risk management evaluation	Response
			are grown. The USG suggests to delete some text, as indicated.	
USG	18	123 (2)	"The conversion from conventional farming to certified organic farming due to a ban of endosulfan can be expected to be low." Comment: Very good point. The USG agrees that restrictions on a single pesticide are unlikely to result in significant shifts toward organic production.	
USG	19	127	"Parties and observers have provided information that can contribute to evaluating possible costs of control measures. Several countries expect increased costs for agricultural production and price increases for agricultural products. Information on costs of chemical alternatives indicates that these ~~are~~ may be significantly higher. However, other examples ~~concerning production of cotton and other crops where the use of endosulfan was banned~~ indicate that alternatives are economically comparable or can even lead to reduced costs for farmers. One report found that use of alternative led to increased incomes among cotton producers [PAN & IPEN 2010 Ref 4]." Comment: The USG believes that the sentence, as drafted here, was difficult to follow. We believe that a simpler sentence structure will make the point without limiting it to the case of cotton or where endosulfan has already been banned.	Adjusted
USG	20	132	"[...] contaminated sites [USA 2010]. A US EPA assessment and several biological opinions published by other US agencies (e.g., National Marine Fisheries Service (NMFS)) identify several situations where currently available alternatives to endosulfan may pose risks to pollinators or endangered species (e.g., pome fruit, vegetable seed[x] [USA 2010]. It should be kept in mind that risks related to alternatives may also cause cost impacts on environment and health." Footnote [x]: See documents 156 and 113 at the following website: http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262	Adjusted text
USG	21	142	"In an assessment related to cotton production US EPA concluded that "endosulfan's current role in resistance management is minimal and that the loss of endosulfan will not result in adverse resistance management outcomes" [U.S.EPA 2009 A]. However, endosulfan plays an important role in managing pest resistance to insecticides for the control of horn fly in cattle [http://www.regulations.gov/search/Regs/home.html#documentDetail?R=0900006480afefa1]."	Adjusted as follows: "However, endosulfan plays a relatively important role in managing pest resistance to insecticides for the control of horn fly in cattle.[y]" New footnote [y]: See http://www.regulations.gov/search/Regs/home.html#documentDetail?R=0900006480afefa1
USG	21	151	"According to the USA, chemical and non-chemical alternatives ~~and technologies are other alternative pesticides, which~~ are	Adjusted; addition of footnote [x] for the

Source of Comment	Page	Para	ADDITIOANL comments on the supporting document for the endosulfan draft risk management evaluation	Response
			generally available and already in use in the agricultural sector. Economic impact studies have been conducted ~~implemented~~. Impact varies according to crop and region of country. ~~Recent i~~Impact assessments conducted in 2009 for apple, cotton, curcurbits, potato, and tomato are available; ~~as well as~~ assessments on some other crops were conducted in 2002[1] (see [UNECE 2010 USA]). Studies on blueberry, eggplant, pineapple, strawberry, sweet potato, tobacco, and vegetables grown for seed, among other uses, were completed in 2010 [http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262]."	reference: http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262
USG	23	159	"[...] control of most of these pests on apples, however only one alternative is currently available for the wooly apple aphid. For apple growers in the Pacific Northwest, US EPA concluded that "use of alternative [chemical]s should not increase costs although there may be regulatory issues that make the alternative less desirable." For other apple growers, US EPA acknowledged that "effective chemical alternatives are available" but noted that those alternative "are somewhat more costly and managerially complex." [U.S.EPA 2009 H] The US EPA also recently (June 2010) identified endosulfan uses on several crops for which there are few good alternatives, including blueberry, pineapple, perennial strawberry, and vegetables grown for seed [http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262]."	Adjusted; addition of footnote [x] for the reference: See http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262
USG	24	172	Comment on (Comment USA 2010): The USG appreciates that the authors accepted many of the comments the USG submited on earlier drafts and revised the document accordingly. However, the USG noted that this was the only time that the authors cited the change in the document to a comment from the USG. The USG suggests that the authors delete this reference and cite the U.S. EPA 2009 H document since that is the source of the information contained in the statement.	Adjusted
USG	30	214	"[...] (see chapter 2.3.4). However, this assumption may not hold in all situations." Comment: Again, the USG belives that the bias shown by the authors in this statement undermines the usefulness of the document. The purpose of the document should be to provide an objective analysis of the purpose and value of endosulfan, not to make assumptions that subscribe to the authors' views.	The assumption that alternatives are usually more efficient is based on the evaluation of scientific literature. The evaluation showed, that in the majority of individual cases the alternative was more efficient (see chapter 2.3.4). This means implicitly that in the minority of cases alternatives are equally or less efficient and as a consequence that the assumption does not hold for all situations. The suggested text is therefore accepted and slightly adjusted in the following way: "However, this assumption does not hold in all situations".
USG	30	215	"The use of chemical alternatives will not	The intention of the drafting team was

Source of Comment	Page	Para	ADDITIOANL comments on the supporting document for the endosulfan draft risk management evaluation	Response
			enable [whom?] to achieve higher output prices for crops. Prices of output crops will likely remain stable." Comment: The US EPA notes that it is possible that the use of alternatives may not provide sufficient pest control resulting in a decrease in quantity and/or quality, which could alter the price received by farmers. Therefore, some expression of uncertainty is warranted. [See, for example, document 156 available at: http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262.]	to express that it will not be possible to obtain e.g. price premiums for crops produced without endosulfan but with a chemical alternative. The drafting team acknowledges that other factors may impact on prices and agrees to the expression of uncertainty.
USG	31	Text below table 4	"[Recent US assessments for blueberry, eggplant, pineapple, strawberry, sweet potato, tobacco, vegetables grown for seed, and others are available at http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262, documents number 175, 154, 157, 158, 159, 155, 156, and 161.]"	Adjusted as follows: "Recent US assessments for blueberry, eggplant, pineapple, strawberry, sweet potato, tobacco, vegetables grown for seed, and others are available at http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262, documents number 175, 154, 157, 158, 159, 155, 156, and 161.] Expected impacts on growers range from minimal to relevant."
USG	32	219/ 220	"Table 15 in Annex IV gives an overview on alternatives to endosulfan, their pest control spectrum for individual crops and the corresponding costs per application in the USA. The overview is based on US EPA data sources where specific information on costs per crop and pest specific application are available. An assessment of the information contained in Table 15 in Annex IV is summarised in Table 5." (219) Comment: The USG would like the authors to explicitly state the US EPA data sources that provided them the information for Para. 219 and Table 5. "[...] most appropriate alternative considering efficacy and ~~at low~~ costs. In ~~some~~ most cases, ~~even cheaper alternatives may be used instead of endosulfan. In other cases~~ the use of a higher cost alternative may be necessary, but the magnitude of the increase may not be substantial. As a consequence, it can be expected that ~~no or~~ only low or moderate impacts on the costs for pest control (e.g. increase for tomatoes, pecans and tobacco by 9 to 40%) and corresponding low impacts on net cash return (decrease for tomatoes, pecans and tobacco by 0.4 to 1.7%) will occur. ~~In some cases positive impacts may outweigh the negative impacts.~~" (220) Comment: The USG considers the paragraph, as written, to be a significant misrepresentation of US EPA's data and assessments. The USG strongly urges the authors to **either** revise, as indicated, **or** completely delete the paragraph. Further, if	The text has been adjusted as suggested ("[...] US EPA data sources [U.S.EPA 2009 A to H] where […]") and the paragraph (former paragraph 220) was moved before table 5. (now: paragraph 219).

Source of Comment	Page	Para	ADDITIOANL comments on the supporting document for the endosulfan draft risk management evaluation	Response
			the authors choose to keep the paragraph, they might want to consider that Para. 220 might be better suited **before** Table 5."	
USG	32	Table 5	Comment: The authors frequently misrepresent the US EPA's conclusions in Table 5. See assessments available at: http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262 . The USG strongly urges the authors to **either** revise Table 5 by accepting all comments and changes as indicated below **or** completely delete Para. 219 and Table 5.	The drafting team has based the figures in table 5 on the US EPA data and has drawn its own conclusions on the basis of the figures. This explains possible differences in the authors and in US EPA's conclusions. However, the authors agree with the US EPA's conclusions and all comments and changes as indicated are accepted. (The drafting team would like to note that this has already been done during the 2nd draft update – see compilation of comments on 2nd draft, comment USA on para 210 and the table. However the changes were not taken over in the 3rd draft document distributed by the secretariat. This explains why the changes were not already adjusted in the 3rd draft document)
USG	35	231	"[…] and prices are likely to remain stable […]."	Adjusted
USG	36	244	"[…] Moreover, non-chemical alternatives enable in specific cases (particularly in organic farming systems), ~~to obtain~~ higher product prices to be obtained due to price premiums ~~payed~~ paid for organic products. The use of non-chemical alternatives ~~let~~ therefore lead to the expectation of significant, non-quantified economic benefits where there is significant demand for organic produce and appropriate supporting infrastructure." Comment: The USG believes that the authors of the document have made sweeping generalizations in this paragraph that are unsupported beyond a few case studies that involve significant changes beyond reduction or elimination of endosulfan. The USG suggests to either update the text, as indicated, or delete the paragraph.	The drafting team agrees to the suggested changes.
USG	37	255	Comment on reference: The USG appreciates the fact that other organizations are citing our work. However, it seems more appropriate here that if the authors would like to cite documents published by the USG (e.g., US EPA), then the authors should directly cite the USG document.	Adjusted
USG	39	269	"[...] spectrum endosulfan. However, transitioning to a new system may require additional research and **extension** [See http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262, document 156]."	Adjusted, reference added as footnote.
USG	39/ 40	275	"[...] This allows concluding that the occurrence of resistance may ~~also~~ usually be managed with available (chemical) alternatives. [See	Adjusted as follows: „This allows concluding that the

Source of Comment	Page	Para	ADDITIOANL comments on the supporting document for the endosulfan draft risk management evaluation	Response
			http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262, document 161, cattle ear tags.]"	occurrence of resistance may usually be managed with available (chemical) alternatives. In the case of horn fly control, the US EPA reports on resistance problems to alternatives and states that endosulfan plays a relatively important role in resistance management.[x]" Reference addes as footnote [x]: See http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262, document 161
USG	43	New paragraph (298)	"According to the USA, a US EPA assessment and several biological opinions published by other US agencies (e.g., National Marine Fisheries Service (NMFS)) identify several situations where currently available alternatives to endosulfan may pose risks to pollinators or endangered species.[x]" Footnote x: E.g. in the case of pome fruit and vegetable seeds. For more information see documents 156 and 113 at: http://www.regulations.gov/search/Regs/home.html#docketDetail?R=EPA-HQ-OPP-2002-0262	Insertion of new paragraph (298) based on USG information submitted according to paragraph 132
USG	43/ 44	321	"The replacement with non-chemical alternatives could have significant positive economic impacts, if combined with substantial investment in extension and infrastructure." Comment: The USG would like to note that Para. 321 contains no citations. Upon analysis of the statements in Para. 321, the USG deduced that the information basis for this Para. was a PAN/IPEN document discussing case studies in West Africa on cotton production [PAN & IPEN 2010 Ref 2]. However, the case studies in the PAN/IPEN document do not seem to be directly linked to endosulfan use. Rather, the case studies involved generic pest control and reductions in pesticide use, in general, along with other economic development activities. The USG suggests to either include the suggested text in the Para., as noted, or provide the appropriate citation(s) if the USG has incorrectly identified the source of information of this Paragraph.	This statement is related to (a) the use of IPM in Africa [PAN & IPEN ref 2] (no specific link to endosulfan but without use of chemical pesticides), (b) the replacement of endosulfan use in cotton production in India [PAN & IPEN ref1], (c) organic cotton farming in India without use of endosulfan [PAN & IPEN 2010], [Eyhorn 2007] , (d) CMSA farming of several crops in India without use of endosulfan [PAN and IPEN 2010 ref4]. The underlying information can be found and is referenced in chapter 2.3.3.2. This has been made clear in a footnote. However, the successful implementation of corresponding non-chemical alternatives has usually to be combined with investment e.g. for training and support of farmers. Therefore the following statement has been added: "… , if combined with investment for implementation."
Brazil	36	New paragraph 229	On 2nd August 2010 the Permanent Mission of Brazil to the United Nations Office and other International Organisations in Geneva provided recent cost impact estimations for the substitution of endosulfan with other products according to an analysis of the Agricultural Defense National Sindicate (SINDAG).	Insertion of new paragraph (229) according to information submitted by Brazil concerning the cost-impact assessment: "On 2nd August 2010 the Permanent Mission of Brazil to the United Nations Office and other International Organisations in Geneva provided

Source of Comment	Page	Para	ADDITIOANL comments on the supporting document for the endosulfan draft risk management evaluation	Response
				recent cost impact estimations for the substitution of endosulfan with other products according to an analysis of the Agricultural Defense National Sindicate (SINDAG). The information is based on different sources (cited as CONAB 2008, Kleffmann 2008 and Agrianual 2009 in the corresponding document). Reported costs for endosulfan per hectare for soy bean, sugar cane, cotton and coffee are 7.85 USD/ha for soy bean, 56.19 USD/ha for sugar cane, 12.54 USD/ha for cotton and 10.66 for coffee. The corresponding average pesticide cost increases for use of alternatives were 51% for soy bean (alternatives: metamidophos, Thiametoxan + Lambacyhalotrin, Imidachloprid + Betacyflrrithrin), 214% for sugar cane (alternative: Fipronil), 6% for cotton (alternatives: Methylparathion, Malathion) and 107% for coffee (alternative: chlorpirifos). The reported overall increased production costs for Brazil are estimated to amount to ~17.7 mio USD for soy bean, ~10.3 mio USD for sugar cane, ~2.1 mio USD for cotton and ~3.9 mio USD for coffee. This results in a total annual production cost increase amounting to ~ 34 mio USD for Brazil. According to the data provided by Brazil, the current annual expenses for endosulfan amount to ~ 78 mio USD. Considering a price of 6.26 USD/kg active substance this would correspond to approximately 12,460 tonnes endosulfan annually applied in Brazil. According to the data provided by Brazil ~ 7.6 mio ha are annually treated with endosulfan (calculated on the basis of the reported cost per ha and the total costs). Considering an average use of 2kg active substance per ha and year this would correspond to 15,200 tonnes annually applied in Brazil. These use figures are significantly higher than those used in the cost impact scenario (see Table 9) according to known use quantities in Brazil (4,400 to 7,200 t/year; see chapter 1.1.2) and may be the most important reason for the discrepancy between the cost impact estimate in table 9 and the estimate provided by Brazil.“