AMENDMENT TO APPENDICES I AND II OF THE CONVENTION

ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA

(CITES)

A. PROPOSAL

Maintenance of the Indonesian population of *Crocodylus porosus* in Appendix II, with increased annual quotas of skin exports to 5,000 for 1990 and 6,000 for 1991.

B. PROPONENT

The Republic of Indonesia

C. SUPPORTING STATEMENT

1. Taxonomy

1.1 Class : Reptilia

1.2 Order : Crocodylia

1.3 Family : Crocodylidae

1.4 Species : *Crocodylus porosus* Schneider, 1807

1.5 Common names : English - estuarine crocodile
saltwater crocodile

French - crocodile marin

Spanish - crocodilo poroso

Indonesian - buaya muara
buaya laut

2. Biological Data

2.1 Distribution and Habitat: In Indonesia *Crocodylus porosus* is distributed throughout coastal lowlands of the archipelago in estuaries and large freshwater rivers, and also occurs in large bodies of freshwater and associated swamps, sometimes far inland from saline habitats (Cox, 1988; Frazier, 1989). Indeed, primary breeding habitat for the species appears to be swamps associated with large freshwater lakes and rivers (Cox, 1988), where the species is sympatric with *C. novaeguinese*, the New Guinea freshwater crocodile. Saltwater crocodiles are occasionally seen in the vicinity of coral reefs near Irian Jaya, Sumatera and Kalimantan. In Irian Jaya, a planametric measurement estimates that swamp habitats cover some 6,250,000 hectares (IPB, 1986). Only about 10 percent is thought to be perennially suitable for crocodiles; nonetheless, the extensive and intact character of most saltwater crocodile habitat in Irian Jaya creates much opportunity to conserve the species.

2.2 Population Status

The dispersed distribution of crocodiles throughout the country and the limitations of survey methods in tropical swamps (especially those in Irian Jaya), make it exceedingly difficult to arrive at an accurate estimate of population abundance. However, in Irian Jaya, where the largest stocks persist, a regime of repeated night counts in representative habitat samples is yielding baseline data to

monitor population trends. Indications to date are that due to recent moderate/heavy and indiscriminate hunting, *C. porosus* populations have declined significantly when compared to recovered populations in similar habitats of Australia, and to a lesser extent, Papua New Guinea (Frazier,1989). Even so, considerable stocks appear to remain, especially in the stronghold areas of Bintuni Bay, Etna/Arguni Bays and Kimaam Island.

3. Trade Data

Estimation and interpretation of the crocodile skin harvest in Indonesia (and particularly in Irian Jaya) is complicated by (at least until recently) continued, large illegal exports of *C. novaeguineae* and *C. porosus*, the great majority of which appear destined for regional state(s). For the period 1982-1987 this illegal trade is estimated to range from 11,000 to 29,000 skins per annum (TRAFFIC-Japan unpubl data; Frazier 1989). Of these totals, some 25 percent (or about 3,000 -7,500 skins per annum) are estimated to be comprised by *C. porosus*. Since 1988 fewer undocumented skins from Indonesia are apparently going beyond immediate destinations, due in part to initiation of controlled purchasing of wild harvested skins within Irian Jaya, but possibly also attributable to greater numbers of skins being processed and marketed in transit points outside Indonesia.

Table 3.1 details legal exports of crocodile skins from Indonesia since 1987. These figures include ranched as well as wild-harvested skins, for which respective proportions will be further clarified for the Seventh Meeting of the Parties.

Table 3.1 Indonesian Crocodile Skin Exports from January 1987 through July 1989

Year	Number of Skins		
	C. porosus	*C. novaeguineae*	Total
1987	1,389	1,131	2,520
1988	3,104	8,603	11,707
1989	648*	2,411**	3,059

* of which 349 (53.8%) were wild harvested

** of which 2,405 (99.8%) were wild harvested

4. Management Aims and Policy

Crocodile resource management in Indonesia centers around the development of a country-wide farming and rearing industry. This policy is being complemented in Irian Jaya with a controlled wild harvest in order to displace industry threatening illegal trade, stabilize wild populations and better meet the daily needs of communities in crocodile producing areas.

The Management Authority (PHPA) is being broadly assisted by the Food and Agriculture Organization of the United Nations (FAO) to develop the crocodile resource on a sustainable basis. This cooperative project encompasses the comprehensive objectives of establishing through technical expertise a crocodile ranching and farming industry from the levels of village holding pens to commercial farms; monitoring wild populations of crocodiles; regulating the skin trade to insure sustainable utilization; establishing a system of protected areas for crocodiles; promoting rural development in crocodile producing areas via the establishment and pilot management of village cooperatives; assisting the development of processing and marketing of industry products; and, most important, training and deployment of a team of Indonesian counterparts in the above mentioned skills.

The three year FAO-PHPA project runs until October 1989, but the need for at least a two-year extension is widely recognized, and recently was approved in principle by the cooperating parties.

4.1 Illegal Trade Control

To arrest the probable decline of wild crocodile stocks in Irian Jaya a trial scheme was instituted in July 1988 to steer the crocodile skin trade towards a sustainable basis from largely indiscriminate practices. Purchasing is being conducted by a parastatal and established crocodile rearing enterprises, with three of the latter licensed as exporters. Skins are authorized for purchase

throughout the province on a 10 - 18 inch (25 - 46 cm) bellywidth basis. This strategy was endorsed by the IUCN Crocodile Specialist Group in a resolution passed at the Ninth Meeting of the Group in Lae, Papua New Guinea on 23 October 1989. Provision for initial tolerances of size limits (in order to clear stocks and accommodate hunter inaccuracy) and inclusion of purchase quotas have since been added by the Government of Indonesia. To date the scheme has met with limited but increasing success. It is the intention of the Proponent to extend controlled purchasing in Irian Jaya for an additional two years. The scheme will be bolstered by enhanced enforcement efforts and an expanded and intensified village extension program.

The main obstacle to development of a sustainable crocodile industry in Indonesia is clearly the continuing illegal trade in crocodile skins, which is destabilizing supplies of young for rearing and breeding ventures, depleting local crocodile populations, denying the country full export value for its resource and, indeed, undermining the long term viability of the crocodile industry.

Indonesia's task of sustainably managing its crocodile resource would be made infinitely easier if access to uncooperative markets was denied. Towards this important end, and in the spirit of Resolution Conf. 5.21, Indonesia will henceforth authorize crocodile skin exports only to CITES Parties and only to those Parties not holding reservations on *C. novaeguinea* and *C. porosus*.

4.2 Ranching and Breeding Enterprises

Development of rearing and farming of crocodiles in Indonesia is proceeding along the lines of a people's enterprise system (Pola PIR), the structure of which is derived from forest plantation management in Java (IPB, 1986). Commercial rearing and breeding centers are known as 'nuclei', which have sole rights of export. Nuclei are supplied with crocodiles from sub-units termed 'plasmas', which are also expected to rear and breed crocodiles. The third and most basic level of Pola PIR is a network of 'collectors' to catch young crocodiles for forwarding to plasmas and nuclei. Plasmas are intended to supply collectors with tools such as torches, batteries, outboard motors and pen construction equipment, in addition to acting as a principle force behind establishment of village cooperatives.

There are currently 24 licensed crocodile enterprises in Indonesia, most of which are located in Irian Jaya, with a government demonstration farm in Sorong which emphasizes husbandry research. Table 4.2.1 details rearing and breeding stocks of crocodiles as of July 1989. It is expected that by the end of 1990 some 2,000 *C. porosus* which are in excess of breeding stock requirements will have reached cullable sizes. This figure will increase to approximately 3,000 for the year 1991. Taken together with estimated yields from the controlled wild harvests in Irian Jaya, this clearly shows the need for an increase in annual quotas of *C. porosus* skins to 5,000 for 1990 and 6,000 for 1991.

Table 4.2.1 Crocodile Rearing and Breeding Stock as of July 1989

No.	COMPANY	LOCATION	STOCK		
			C. porosus	C. novaeguineae	Tomistoma schlegelii
1.	PT Alam Murni Bahana	Medan, Sumatera	1,170		12
		Sorong, Irian Jaya	2,281	1,375	
2.	CV Bintang Sakti	North Sumatera	364		
3.	CV Perkasa Jagat Karunia	Pulau Bulan, Batam	650*	18	
4.	CV Stock Borsuma Co. Ltd.	Palembang, Sumatera	611		
5.	Yayasan Taman Buaya	Jakarta, West Java	524		4
6.	CV Pembangunan Jaya	West Kalimantan	171		
7.	PT Makmur Abadi Persai	East Kalimantan	746		
8.	PT Harapan Kaltim Utama	East Kalimantan	1,640*		
9.	CV Sumber Daya Alam	South Kalimantan	231		
10.	PT Alam Waktu Utama	South Kalimantan	unaubstantiated		unaubstantiated
11.	PA Modan Baru	Sorong, Irian Jaya	450*	150*	
12.	PT Reptilindo Eka Pratama	Dabra, Irian Jaya	374	3,140*	
13.	PT Bintang Mas	Jayapura, Irian Jaya	880	5,350	
14.	CV Nikmat	Merauke, Irian Jaya	550*	450*	
15.	CV Kaltim Indah Raya	Merauke, Irian Jaya	unavailable	unavailable	
16.	CV Ridha	Nabire, Irian Jaya	400*	600*	
17.	CV Jaya Abadi	Merauke, Irian Jaya	300*	200*	
18.	CV Trinaga Kreasi	Merauke, Irian Jaya	250*	250*	
19.	CV Sikoway Jaya	Doyo, Irian Jaya	150*	600*	
20.	CV Sinar Asahan Raya	Jayapura, Irian Jaya	150*	300*	
21.	CV Dwi Tunggal	Serui, Irian Jaya	500*	400*	
22.	PT Sentani Valley	Jayapura, Irian Jaya	100*	300*	
23.	CV Ramlie	Biak, Irian Jaya	60*	40*	
24.	PHPA/Forestry Dept. Project	Sorong, Irian Jaya	451	787	
25.	CV Sumber Karya	Ujung Pandang, Sulawesi	800*	300*	
* approximate count		Total	13,803	14,260	16

To realize added value from skin exports, processing technology is being sought from manufacturing countries. Beginning in 1990 the Management Agency will stipulate that all crocodile skins for export be at least partially tanned (i.e. wet blue or crust).

Potential for in-country use and export of crocodile by-products also exists, especially for meat and organs. Identification of markets and regulatory options for this trade are being investigated.

Associations of skin crocodile producers at the national and provincial (Irian Jaya) levels are being formed to seek mutually beneficial working relationships between crocodile enterprises, liaise with government in advancing sustainable development of the crocodile resource, and to promote negotiating strength with international markets.

4.3 Restocking

To counter possible detrimental effects on wild crocodile populations of live harvests to supply rearing and farming ventures, all crocodile enterprises are obliged to set aside 10 per cent of stock culls for release to the wild. This percentage is currently under review as it appears to overly burden crocodile rearing and farming ventures, and will likely be reduced with the additional requirement that a portion of reared stock be selected and maintained for captive breeding. In addition, restocking has been temporarily suspended

as secure release areas have yet to be identified. Plans are being developed to require crocodile enterprises to establish quasi-natural areas to rehabituate stock before eventual release into the wild.

Efforts are also underway to identify depleted areas with the best potential for restocking and to establish field monitoring posts, which will also serve as bases for extension patrols.

4.4 Protected Areas Establishment

To ensure that genetic reservoirs of crocodile populations are maintained in perpetuity, a system of protected areas representing the variety of habitats available to crocodiles is being established. There already exist four protected areas in Irian Jaya which harbour important crocodile populations: 1) Mamberamo-Foja National Park (1.66 million ha), offers refuge primarily to *C. novaeguineae* but a significant population of *C. porosus* in the Idenburg River and Mamberamo River delta is included; 2) Rouffaer Strict Nature Reserve (531,000 ha) is also primarily for freshwater crocodiles, but includes some some saltwater crocodiles in the middle-lower reaches of the Rouffaer River and associated lakes; 3) Bintuni Bay Nature Reserve (261,000 ha), most of which has been reclassified as production forest, may still potentially protect *C. porosus* in appreciable numbers; and 4) Kimaam Island Wildlife Reserve (720,000 ha), created primarily to protect saltwater crocodile and wader populations.

The current FAO-PHPA project will assist with preparation of management plans for these protected areas during the 1990-1991 extension phase.

Additional areas meriting protection status may well be identified in the course of project field activities.

5. *C. porosus* Action Plan

Increasing concern regarding the status of saltwater crocodiles in Indonesia behooves the FAO-PHPA project to place more emphasis on investigation and management of this species. A *C. porosus* Action Plan has been formulated and will be implemented with the following priority activities:

1) More extensive and repeat surveys of saltwater crocodile strongholds in Irian Jaya including an estimate of population abundance, will be developed by the end of 1991.

2) Initial surveys of crocodile populations in Sumatera, Kalimantan and the Maluku Islands will be conducted during 1990-1991.

3) Identification of saltwater crocodile nesting ecology in Irian Jaya, for which until present there is a paucity of data and general knowledge.

4) Selective promotion of *C. porosus* for captive breeding.

5) A Conservation Awareness Campaign as a major aspect of extension services will be carried out at the village level to clarify and enforce controlled hunting restrictions and conservation needs.

6) Restocking potential will be closely examined with a view towards identifying secure release areas for juvenile *C. porosus*.

6. References

Cox, J. 1988. Crocodile Management in Indonesia: Problems, Policies and Progress. Paper prepared for presentation at the Ninth Meeting of the IUCN Crocodile Specialist Group. 19-22 October 1988. Lae, Papua New Guinea.

Frazier, S. 1989. Crocodile Monitoring Consultancy in Irian Jaya, Indonesia. Final Report. Food and Agriculture Organization of the United Nations. FAO-PHPA Project GCP/INS/060/JPN. Jayapura, Irian Jaya, Indonesia.

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