

**CROCODILE CONSERVATION, MANAGMENT
AND FARMING IN THE SOCIALIST REPUBLIC OF
VIET NAM: A REVIEW WITH RECOMMENDATIONS**

Summary Report of the IUCN-SSC Crocodile Specialist Group
Review Mission to Vietnam (28 April - 5 May 2008)

Dietrich Jelden, Charlie Manolis, Toshinori Tsubouchi and Nguyen Dao Ngoc Van

(22 December 2008)

CROCODILE CONSERVATION, MANAGEMENT AND FARMING IN THE SOCIALIST REPUBLIC OF VIET NAM: A REVIEW WITH RECOMMENDATIONS

Dietrich Jelden, Charlie Manolis, Toshinori Tsubouchi and Nguyen Dao Ngoc Van

(28 April - 5 May 2008)

1. Executive Summary

With full cooperation from the Government of Viet Nam, the IUCN-SSC Crocodile Specialist Group carried out a review of crocodile conservation, management and sustainable use within Viet Nam, with a view to formulating such recommendations as it saw appropriate. The recommendations fall into two classes, general and specific.

1.1. General Recommendations (G1 to G5)

Recommendation G1. The Government of Vietnam needs to be fully aware that the status of wild populations of Siamese crocodiles (*Crocodylus siamensis*) in Viet Nam is a major concern for international wildlife conservation organisations, including the IUCN-SSC Crocodile Specialist Group (CSG). That this extinction is directly related to international trade in skins among other factors, is a serious issue given the aims and goals of CITES. Current conservation efforts in Viet Nam, which includes identification of remnant populations and identification of sites where *C. siamensis* is extinct but where habitats may be suitable for the release of *C. siamensis*, needs to be maintained and where possible strengthened.

Recommendation G2. The historical and/or present status of the saltwater crocodile (*C. porosus*) within Viet Nam needs to be investigated. The species may now be extinct in Viet Nam, and international trade may have been involved. Captive stocks of *C. porosus* on some farms need to be identified, as they may contain the last genetic stock of *C. porosus* from Viet Nam. The Forest Protection Department (FPD) needs to consider the reintroduction of the species into some wild areas within Viet Nam.

Recommendation G3. Improving the management of crocodile farming and trade in crocodile products from Viet Nam, and improving compliance with CITES, are considered essential prerequisites to improving crocodile management action in Viet Nam. Mandatory reporting for all farms, verification of data reported by all farms and implementation of a registration system for all establishments holding crocodiles are considered a priority. The development and implementation of a training programme on how to operate farming facilities in compliance with CITES provisions by making use of the international NGO expertise available in Viet Nam should be considered as another priority.

Recommendation G4. Communication and information exchange between all stakeholders in Viet Nam with an interest in the conservation, management or sustainable use of crocodiles, needs to be improved. The current lack of open communication is a serious impediment to improved management in Viet Nam, and constrains public education about the link between crocodile conservation and crocodile trade.

Recommendation G5. Cross-border co-operation between neighbouring countries of the Mekong River basin is essential to improving the management and conservation of crocodile populations in the wild and in captivity, within and outside Viet Nam, particularly with Cambodia. A regional, international stakeholders workshop should be implemented as soon as possible to improve trans-boundary conservation efforts.

1.2. Specific Recommendations (S1 to S19).

Specific recommendations summarised here are derived from the text of the report and are listed in the order in which they appear and are numbered. The main general subject to which each specific recommendations refers is indicated in square brackets:

CITES= CITES compliance and National Legislation;

Captive = Management and trade in captive populations;

Wild = All matters concerning wild population;

Illegal Trade = Trade undertaken in contravention of National and International laws.

Most specific recommendations are directed at specific actions the CSG review team considers Viet Nam will need to take. If these specific recommendations are accepted by the Government of Viet Nam, then the CSG suggests a responsible government agency be identified to address each one. If Government believes that assistance from outside agencies may be needed to address some of the recommendations, then this would clearly be acceptable.

Specific recommendations are summarised as:

Recommendation S1. Ensure appropriate legal actions are taken (e.g. confiscation, penalties, publicity) if the farm monitoring program identifies illegal stocks [CITES].

Recommendation S2. Assess all breeding farms, including CITES-registered operations, to ensure compliance with CITES and National legislation [CITES].

Recommendation S3. Continue close monitoring through FPD during the CITES registration process and beyond for MHCF and YCF to ensure that both operations are in full compliance with the resolutions on captive breeding and registration for operations that breed CITES Appendix-I animal species for commercial purposes [CITES].

Recommendation S4. Continue close monitoring through FPD of HCF in particular with regard to the farm's remaining potential of producing hatchlings on its own [CITES].

Recommendation S5. As satellite farms would be considered as the easiest avenue for undetected illegal trade in hatchling crocodiles across borders with neighbouring countries, a significant increase of regular monitoring efforts of satellite farms on behalf of Government authorities is recommended [Captive, CITES]

Recommendation S6. Establish under the FPD a Vietnamese Captive Breeding Monitoring Unit to monitor farms and wild populations. [Wild, Captive].

Recommendation S7. Review and improve reporting system of farm data to the FPD. Any reporting review should also consider reviewing all transport permits issued over the past 10 years in Vietnam to determine which crocodile farms, including all satellite operations, comply with National and international regulations [Captive, CITES]

Recommendation S8. At its earliest convenience, the centralisation, ongoing computerisation and analysis of farm records should be undertaken by FPD [Captive]

Recommendation S9. Review the licensing system to ensure coverage of all farming operations (ie anyone with crocodiles), tanneries, traders and exporters [Captive]

Recommendation S10. Strengthen enforcement capability of relevant agencies (e.g. customs, police, fisheries, market control, communities, forest protection and judiciary system) through training, capacity-building, information sharing and co-operation on CITES issues [Captive, Wild, CITES]

Recommendation S11. Consider seeking CITES registration of all established crocodile farms that are producing *C. siamensis* through captive breeding and exporting. Exporting through other registered farms creates difficulties with control, reporting and compliance with CITES [Captive, CITES].

Recommendation S12. Consider reviewing Government policy with regard to implementation of CITES Resolution Conf. 12.10 (Rev. CoP 14) registration of captive breeding operations for *C. siamensis* [CITES].

Recommendation S13. Continue and intensify dialogue process with neighbouring States, through a regional working group under an appropriate body (e.g. ASEAN wildlife trade initiative and/or Mekong River Sub-regional CITES Working Group), to address regional issues and problems with *C. siamensis* [CITES].

Recommendation S14. Establish a Crocodile Farming Association of Viet Nam, through which Government and Industry can communicate more effectively [Wild, Captive].

Recommendation S15. Develop and implement a National Crocodile Management Plan with clear targets and objectives for the management of the wild and the captive crocodile population of Viet Nam [Captive, Wild, CITES].

Recommendation S16. Derive clear criteria for recognizing hybrids and assess and quantify the extent of hybridisation between *C. siamensis* x *C. rhombifer* on farms in Viet Nam [Captive, Wild]

Recommendation S17. Implement actions to contain, reduce or eliminate hybridisation in order to minimise or eliminate the possibility of *C. siamensis* x *C. rhombifer* genetic material entering the wild Siamese crocodile population [Wild, Captive].

Recommendation S18. Identify new protected areas and/or sanctuaries for future reintroduction or recovery programs for *C. siamensis*, and possibly *C. porosus* [Wild].

Recommendation S19. Continue regular systematic monitoring of re-introduced populations of *C. siamensis* so that the success of this conservation initiative can be assessed objectively, and used to underpin other reintroduction programs [Wild].

2. Background to Review

On 4 October 2006 the CSG Chairman wrote to the Viet Nam Minister for Agriculture and Rural Development (MARD) concerning allegations of illegal trade in crocodiles between Cambodia and Viet Nam, and Viet Nam and China, which if found to be correct would have serious implications for the legal production and trade in crocodiles from Viet Nam in the future.

Vietnam responded that there has no evidence been found of illegal trade in crocodiles between Viet Nam and Cambodia, but that the control of cross border trade with Cambodia was difficult due to the length of the border and the numerous access points, both on land and water. These are understandable realities.

In order to strengthen the control of illegal trade, MARD directed the CITES Management Authority (MA) to develop a specific national action plan to 2010 and to collaborate with other law enforcement agencies to prevent and stop illegal trade of wildlife, including crocodiles.

On 14 February 2007, the CSG Chairman wrote to the Vice Minister for Agriculture and Rural Development, indicating that “The case for a thorough review of crocodile management and farming in Vietnam, with recommendations for improving controls, would seem to be strong”. The CSG Chairman, met with Vietnam officials at CITES CoP14 (The Hague, June 2007) and entered into subsequent discussions with Mr. Nguyen Huu Dzong, Vice-Director, Forest Protection Department, Viet Nam, about the need to support legal trade and constrain illegal trade.

The CSG Executive Officer met with Viet Nam officials in Hanoi on 26 September 2007, who confirmed their support for a formal CSG Review, and sought formal approval of the Minister for Agriculture and Rural Development.

On 26 February 2008, Dr. Ha Cong Tuan, Director General, Forest Protection Department, CITES MA of Viet Nam, wrote to the CSG inviting them to participate in a mission to review the conservation, management and farming of crocodiles in Viet Nam. A CSG review team was formed in consultation with Vietnamese authorities draft Terms of Reference developed (**ANNEX 1**). The major aims were to:

- Assemble available statistics on crocodile farms and farm stocks in Viet Nam and on the number of crocodiles and crocodile skins traded internationally;
- Visit a selection of large and small CITES-registered, non-registered and village level farms;
- Undertake consultations and interviews with major stakeholders;
- Formulate a review with recommendations; and,
- Present and discuss the findings and recommendations with all stakeholders (e.g. Government officials, the crocodile industry, representatives of local people and NGOs).

Although *C. siamensis* was the focus of the mission, information on *C. porosus* was also sought.

The mission was carried out between 28 April and 5 May 2008, following an itinerary mutually agreed upon before mission member’s arrival (see **ANNEX 2**).

3. Chronology of Crocodile Farming and Management

The chronology of key events in crocodile farming and management within Viet Nam is summarised in Table 1.

Table 1. Chronology of key events involving crocodile farming and management in Viet Nam (information mainly from: Jenkins and Sung 1998).

Early 1980s	First crocodile farms established.
1985	100 Cuban crocodiles (<i>C. rhombifer</i>), donated by Government of Cuba, distributed amongst various zoos and farming operations.
1990	Three (3) <i>C. rhombifer</i> sold to Siem Reap Crocodile Farm in Cambodia for display purposes.
Mid-1990s	Approximately 20 crocodile farms in operation.
April 1994	Vietnam accedes to CITES.
1998	Review mission undertaken by CITES Animals Committee Chairman Hank Jenkins (see Jenkins and Sung 1998).
1999	Five (5) crocodile farms registered as captive breeding operations for <i>C. siamensis</i> by CITES Secretariat (see Table 2).
2004	Around 50,000 crocodiles on farms in Ho Chi Minh City alone, and many thousands more being raised on satellite farms throughout the Mekong delta.
Feb 2008	CSG invited to undertake review of crocodile conservation, management and farming in Viet Nam.
May 2008	CSG review undertaken.

4. Institutional Structure

The CITES Management Authority is the Forest Protection Department (FPD) of MARD.

There are four CITES Scientific Authorities with clearly defined but different responsibilities:

- Institute of Ecology and Biological Resource (IEBR), Vietnam Academy of Sciences and Technology (VAST).
- Forestry Sciences Institute of Vietnam (FSIV), MARD.
- Research Institute for Marine Fisheries (RIMF), MARD.
- Centre for Resources and Environmental Studies (CRES), Hanoi National University (HNU).

5. Legal and Regulatory Procedures Governing the Production of and Trade in *Crocodylus siamensis* in Viet Nam

Recommendation 1

Ensure appropriate legal actions are taken (e.g. confiscation, penalties, publicity) if the farm monitoring program identifies illegal stocks.

Viet Nam's legislation has been reviewed under the CITES Legislation Project. It had been determined to meet the criteria of Resolution Conf. 8.4 (Rev. CoP14) (National Laws for the Implementation of the Convention) and has been listed in Category 1 under the process established under the CITES Standing Committee's direction.

The specific National legislation pertaining to the implementation of CITES and farming of crocodiles in Vietnam is:

- (a) Penal Code 1999, Chapter VII, Article 190 - Breaching the regulations on the protection of precious and rare wild animals. Paragraph one states that those who illegally hunt, catch, kill, transport and/or trade in precious and rare wild animals which are banned under Government regulations or illegally transport and/or trade in the products made of such animals, shall be subject to a fine of between VND5 million and VND50 million, non-custodial reform for up to two years or a prison term of between six months and three years.
- (b) Decree No. 32/2006/ND-CP dated 30 March 2006 on management of endangered, precious, rare Terrestrial Species of Wild fauna and flora.
- (c) Decree No. 82/2006/ND-CP dated 10 August 2006 on management of export, import, re-export, introduction from the sea, transit, breeding, rearing and artificial propagation of endangered species of precious and rare wild fauna and flora.
- (d) Decree 159/2006/ND-CP dated 30 October 2006 on administrative sanctions in the field of forest protection and management and forest products management.
- (e) Directive No. 359/TTg dated 29 May 1996 by the Prime Minister on the urgent measures to be taken to protect and develop the wild species of fauna and flora.
- (f) Decision No. 59/2005/QĐ-BNN dated 10 October 2005 by and MARD on issuing the regulations on inspection of the transportation, production and trade in timber and forest products.
- (g) Official Letter No. 390/KL-BTTN dated 9 September 1999 by FPD to the Provincial FPDs on guidelines and procedures towards registration of crocodile captive breeding farms for export.
- (h) Official Letter No. 604/KL-BTTN dated 9 November 2001 by the Central Forest Protection Department (FPD) on killing, skinning of farmed crocodiles and exportation of their skins and processed products. The regulations in Official Letter

No. 604/KL-BTTN comply with Decree No. 12/2006/ND-CP dated 23 January 2006 on implementation of commercial law regarding international goods sale and purchase and goods sale, purchase, processing and transit agency activities with foreign countries.

- (i) Decision No.83/2007/QD-UBND dated 8 June 2007 by the Ho Chi Minh City People's Committee on the issuance of regulations on management and safety conditions for raising and transporting of live crocodiles and cruel wild animals.
- (j) Circular No. 22/2007/CT-UBND dated 10 August 2007 by Ho Chi Minh City People's Committee on strengthening measures to protect and develop wild animals in Ho Chi Minh City.

Under Decree No. 32/2006/ND-CP, both *C. siamensis* and *C. porosus* are listed in Group II B as precious species. As such, farming of *C. siamensis* for domestic consumption must be registered with FPD at the Provincial level. However, as *C. siamensis* is also listed in CITES Appendix I, the farming of this species for export must be CITES-registered. In accordance with this decree, the exploitation of animal species, including *C. siamensis* from the wild to supplement the captive breeding parental stocks is allowed. The exploitation plan must be approved by the Minister of MARD if the animals are taken from the habitats managed by MARD and by the People's Committee if they are taken from the habitats under the Provincial management. Furthermore transportation of crocodiles across provinces requires a special transportation permit issued by FPD at the Provincial level, coupled with a quarantine certificate issued by the Provincial animal health department.

Article 10 of the Decree 82/2006 by the Government regulates the conditions for the captive breeding, ranching, artificial propagating farms of wild species of animals and plants listed in CITES Appendices.

- (k) Paragraph 10b stipulates the necessity to register the captive breeding of animal species which are certified by the CITES Scientific Authority to be able to reproduce offsprings continuously through several generations in the controlled environment.
- (l) Paragraph 10c stipulates the necessity to register the ranching of wild animals which are certified by the CITES SA that the ranching of these species will not bring any conservation impacts to their survival in the wild.

Decree 82/2006/ND-CP stipulates the tasks and functions of the CITES MA and SA of Viet Nam. Among the tasks and functions of the MA which are directly involved in the management and farming of crocodiles are:

- (m) issuance, withdrawal of CITES certificate, CITES permit, export and import permits of endangered wildlife in accordance with the existing laws;
- (n) registration of captive breeding and artificial propagating farms of CITES Appendix-I species;
- (o) checking captive breeding, ranching, artificial propagating farms for commercial purposes; checking the export, import, re-export, transit and introduction from the sea of endangered, precious and rare species of animals and plants;

- (p) checking the import and export, re-export, transit of specimens of endangered, precious and rare wild species at the airports, train stations, sea ports and land ports.

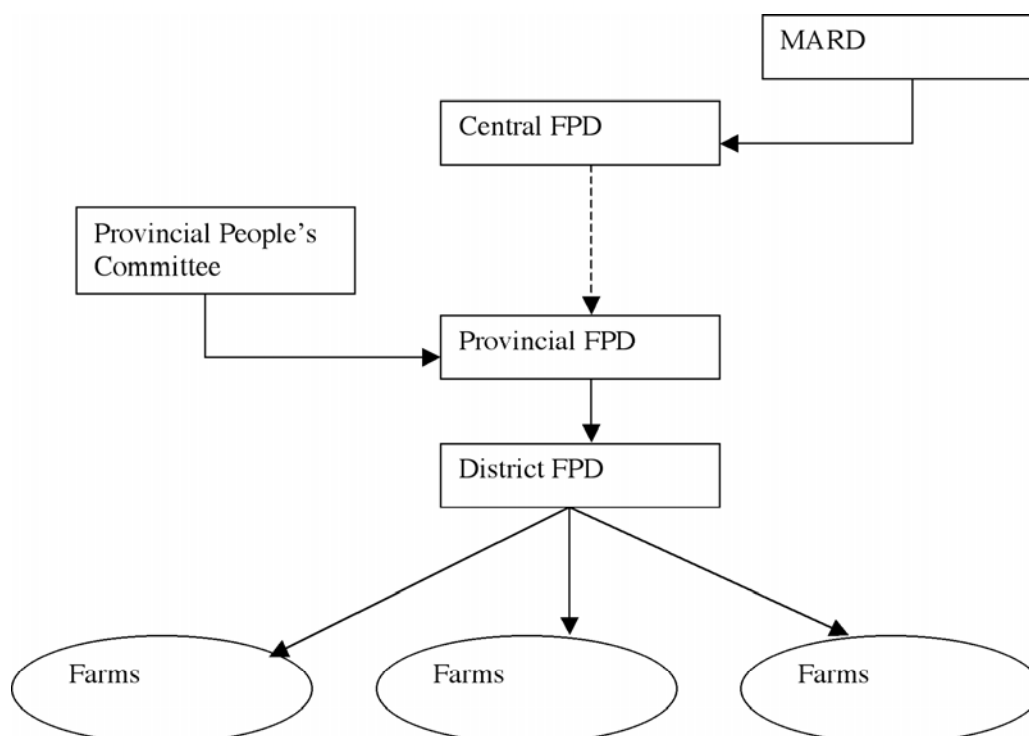
Furthermore under Decree 82/2006/ND-CP, the functions and tasks of the SA relating to captive breeding of crocodiles are:

- (q) providing scientific consultancy to the MA in issuance of CITES permit and certificates for import, export, re-export, introduction from the sea of the crocodiles;
- (r) providing scientific consultancy to the MA on the captive breeding of the crocodiles; appraisal of application for crocodile farming;
- (s) when authorized by the MA, conducting the checking of captive breeding and ranching facilities as well as export, import, re-export or introduction from the sea of the crocodiles.

Also under this Decree, there are four SAs, namely: Institute of Ecology and Biological Resources (IEBR); Centre for Natural Resources and Environmental Studies (CRES); Forest Science Institute of Viet Nam (FSIV); and, Research Institute for Marine Fisheries (RIMF), the latter two are under MARD.

Article 44 of the Forest Protection Law dated 3 December 2004 stipulates the trade in, transportation of, export, import, re-export, transit of forest plants and animals and their products. In the absence of the national legislations, the international laws which Viet Nam has ratified will govern the activities.

Under the Forest Protection Law 2004 and Decree 82/2006/ND-CP, the management of crocodile farming can be illustrated in an organizational chart as follows:



While there is a complete legislation system in place to control the farming activities of wild animals in Viet Nam, the level of sanctions and fines levied on violations may not be sufficiently heavy to suppress illegal trade in wildlife. Although the Penal Code 1999 does not include the crimes of illegal captive breeding, farming and keeping plants and animals, Decree 159/2006/ND – CP (Article 20) stipulates punishment regarding illegal captive breeding, including confiscation of specimens and withdrawal of farm license.

6. Farms

Recommendation 2

Assess all breeding farms, including CITES-registered operations, to ensure compliance with CITES and National legislation.

6.1. Breeding Farms including CITES-registered Operations

Recommendation 3

Continue close monitoring through FPD during CITES registration process and beyond for MHCF and YCF to ensure that both operations are in full compliance with the resolutions on captive breeding and registration for operations that breed CITES Appendi- I animal species for commercial purposes.

Recommendation 4

Continue close monitoring through FPD of HCF in particular with regard to the farms remaining potential of producing hatchlings on its own.

As in Cambodia the commercial use of crocodiles, including their skins and associated international trade, had intensified significantly during colonial times, with detrimental impacts on the wild populations. Commercial crocodile farming in Viet Nam on a larger scale began in the early 1980s, mainly around Ho Chi Minh City. Crocodile farming was viewed as a means of economic development, and Ho Chi Minh offered good climate and conditons for this purpose. By the mid-1990s there were around 20 farms in operation (J. Thomson, in prep.). There are currently now over 1000 crocodile farms in Vietnam, which vary greatly in size - from large captive breeding facilities with thousands of crocodiles to small household farms holding low numbers of crocodiles.

Five large farms were registered with CITES as captive breeding facilities in 1998 (Table 2), of which four were visited during the review. One of the registered farms (STCBF; Table 2) is partly owned by the Government of Viet Nam (45%).

A further two farms were seeking CITES registration under Resolution Conf. 12.10 (Rev. CoP 14) at the time of the review; one (My Hiep Crocodile Farm - MHCF) was visited. However due to logistic difficulties and time constraints the other farm (Yangbay Crocodile Farm – YCF) could not be visited - but, informative video and oral presentations were provided to the review team on 1 May in Ho Chi Minh City.

Table 2. CITES-registered captive breeding farms for *C. siamensis* in Vietnam, at May 2008. HCMC = Ho Chi Minh City; LXC = Long Xuyen City; * = visited during CSG review.

Farm	Location	Established
Forimex Crocodile Breeding Farm	HCMC	1981
Hoaca Crocodile Farm (HCF) *	HCMC	1987
Long Xuyen Crocodile Farm LXCF) *	LXC	1987
Suoi Tien Crocodile Breeding Farm STCBF) *	HCMC	1989
Ton Phat Crocodile Conservation & Development Farm (TPCCDF)*	HCMC	1989

On-site visits and information provided on large breeding farms confirm large numbers of breeding stock and the capacity to produce large numbers of hatchlings. Incubation facilities at one farm were not shown to the review team (HCF), and the number of nests within the incubator of another farm's older establishment (MHCF) did not match hatchling production figures provided. However the latter operation had recently begun the establishing of an entirely new designed facility which the review team didn't visit, but of which photographs were viewed, may have the potential of producing hatchlings in the numbers reported. CITES Resolution Conf. 12.10 (Rev. CoP14) provides mechanisms for the CITES MA of Viet Nam to unilaterally remove an operation from the register by simply notifying the CITES Secretariat in Geneva, Switzerland (see paragraph h) when it becomes aware of that a captive breeding operation is no longer complying with the requirements of Resolution Conf.10.16 (rev.) on 'Captive Breeding'.

With trade now encompassing finished products (see later), a continuing in-depth on-site assessment of all large breeding farms to ensure compliance with CITES Resolutions Conf. 12.10 (Rev. CoP14) and 10.16 (rev.) would be beneficial, and the initiated CITES registration process under Resolution Conf. 12.10 (Rev. CoP 14) for two operations should only be further followed-up until on-site verification missions by the FPD have provided sufficient evidence that both operations are in full compliance with the resolutions on captive breeding and registration for operations that breed CITES Appendix-I animal species for commercial purposes. Comments received by the FPD on a first draft of the mission report indicate that Ho Chi Minh City FPD had verified 2008 hatchling production data submitted by HCF on 29 September 2008. Similar data verification was undertaken for MHCF by Dong Thap FPD on 7 May and 15 July 2008.

6.2. Satellite Farms

Recommendation 5

As satellite farms would be considered as the easiest avenue for undetected illegal trade in hatchling crocodiles across borders with neighbouring countries, a significant increase of regular monitoring efforts of satellite farms on behalf of Government authorities is recommended.

Similar to the situation in Thailand, large breeding farms utilise small to medium satellite farms to raise hatchlings to culling/selling size. These satellite farms tend to raise crocodiles only, and only a few have limited captive breeding. Arrangements between the large farms and the small household farms, typically involve contractual agreements,

where the latter purchase hatchlings for an agreed price and sell back grown crocodiles to the former.

Three large farms indicated that contracts are sometimes not honoured by satellite farms, which may sell crocodiles to other farms, or export the animals directly to China, particularly if higher prices are available at the time. Export of crocodiles or products by satellite farms would be in contravention of the provisions of CITES Resolution Conf. 12.10 (Rev. CoP14) and Resolution Conf. 10.16 (rev.) which defines the term ‘controlled environment’.

The system may involve large numbers of satellite farms for a single breeding farm to deal with (eg 147 in the case of TPCCDF; 32 for HCF), and it appears that breeding farms may now be shifting away from this concept. For example, TPCCDF indicated that its goal was to eventually undertake all crocodile raising itself, rather than rely on satellite facilities. LXCF informed the team that it would no longer be providing hatchlings to satellite farms, but would be retaining all of its hatchlings from this year onwards. These actions reflect the difficulties that have been encountered getting stock back from satellite farms, but also the desire of some large farms to have better control on raising and skin quality. Although not visited, the team was advised that FCBF does not utilise satellite farms.

Due to logistic constraints, the review team was only able to visit one household farm. This was not considered a typical of household farms, as it had higher numbers than most (around 500), and the owner had decided to raise crocodiles from hatchlings to a certain stage in communal enclosures and finish off raising in individual enclosures (ie one crocodile per pen). The individual pens are intended to improve skin quality by eliminating negative social interactions (eg biting) that typically occur in communal pens, and thus raise the final selling price. One breeding farm indicated that it sold 15-20% of its hatchlings to satellite farms for \$USD15 each (VND 240,000 in 2008).

The system of satellite farming is in line with Provincial and National policy and efforts to encourage economic development of local, rural communities through crocodile farming. However it is not consistent with CITES guidelines with respect to the registration of captive breeding facilities in accordance with the provisions of CITES Resolution Conf. 12.10 (Rev. CoP14) and Resolution Conf. 10.16 (rev.). The system of satellite farms which in principle is an excellent concept to improve the livelihoods of local people in remote areas requires resources to be expended on monitoring of large numbers of small facilities, and potentially creates an avenue for illegal trade. A recent survey of a sample of crocodile farms by WCS (Robertson and Nguyen 2008) revealed that although many household farms derived their stock from breeding farms in Viet Nam, some obtained hatchlings from Cambodia. Because of a long and open common border and insufficient enforcement efforts at Provincial and District level to control trans-border trade there is little deterrence for such activities. Any acquisition of such animals whether for CITES-registered and for non-registered breeding facilities would be illegal. FPD officials need to address this issue as a priority in their enforcement work program.

One informant indicated that in his area the number of satellite farms now numbered several “dozens”, whereas it used to be “hundreds”. The activity was now considered to be marginal, in part due to increasing food costs (see paragraph 12.3).

7. National Management

7.1. Monitoring of Farm Stocks and Licencing

Recommendation 6

Establish under the FPD a Vietnamese Captive Breeding Monitoring Unit to monitor farms and wild populations.

Recommendation 7

Review and improve reporting system of farm data to the Forest Protection Department. Any reporting review should also consider reviewing all transport permits issued over the past 10 years in Viet Nam to determine which crocodile farms including all satellite operations comply with National and international regulations.

Recommendation 8

At it earliest convenience, centralisation, ongoing computerisation and analysis of farm records should be undertaken by FPD.

Recommendation 9

Review the licensing system to ensure coverage of all farming operations (ie anyone with crocodiles), tanneries, traders and exporters.

Recommendation 10

Strengthen enforcement capability of relevant agencies (e.g. customs, police, fisheries, market control, communities, forest protection and judiciary system) through training, capacity-building, information sharing and co-operation on CITES issues.

Total stocks of captive *C. siamensis* held on farms, at November 2007, was reported as 374,775 individuals. Around 50% of these (approximately 186,000) were associated with the CITES-registered farms (Table 2) and two other breeding farms that are seeking CITES registration. The remaining stocks are distributed amongst almost 1000 small-medium facilities, most of which are household farms, each holding low numbers of animals. From an enforcement and compliance point of view this situation must be considered as a significant challenge to any Government authority. In particular the legality of the stocks in such small and medium type of holding facilities gave reason of concern for the CSG review team and it was perceived as an important issue which should be put high on the agenda of the enforcement agencies of the Government of Viet Nam.

The majority of *C. siamensis* are held on farms in the provinces of Ho Chi Minh City (36.5%) and An Giang (13.5%). Numbers of crocodiles on farms have increased greatly over the last few years, but the industry is not growing as fast now. This trend confirms information from Cambodian farmers who reported decreased demand from Vietnamese traders for *C. siamensis* hatchlings over the last 2-3 years.

There appear to be relatively few *C. porosus* on farms. Some juvenile/sub-adult *C. porosus* were observed at TPCCDF and MHCF (from Can Gio Biosphere Reserve). Although there appears to be some interest in farming *C. porosus*, the species is not considered to be as easy to farm as *C. siamensis* (eg growth rates are lower).

Reporting of farm stocks to local FPDs is legally mandatory for all-sized farms. However it was not entirely clear to the review team whether and to what extent it was self-

regulated by industry. Certainly for large facilities FPD personnel indicated that monthly reporting is required at the district level, with provinces reporting on an annual basis to the central office. Breeding farms are visited by FPD officers twice per year, at the time of egg-laying and at hatching. This is considered a good procedure, as it allows monitoring of egg and hatchling production. However, culling information (meat, skin production) does not appear to be included within the regular monitoring system despite the fact that there are regulations on processing and exportation of farmed crocodiles, their skins and processed products (Official letter No. 604/KL_BTTN of 9 November 2001). The review team felt that such activities would merit being integrated in future improved monitoring activities. However any improved monitoring would require substantial capacity building among those individuals responsible to undertake such activities.

To register as a crocodile farm, applicants must show proof of ownership; proof of resources/facilities to maintain the animals; and, a certificate from the District Environmental Authority that there is no pollution. Once approved, applicants receive a permit and stock record booklet. Household/satellite farms use the stock record booklet, which is obtained from the local FPD, into which crocodile purchases, sales, etc., are entered. These are open to inspection by FPD, and thus provide a reasonably good means of monitoring movement of crocodiles through the small establishments. Regular inspection of the 1000 or so household farms to ensure compliance with National regulations requires expenditure of Government resources. Records are kept at a District level, but monitored at the Provincial level.

Traders are required to be licensed to trade in wildlife including crocodiles. Whether this also applies to middlemen remained unclear to the CSG review team. In principle a more extensive licensing system to cover all operators is one means through which monitoring of farm stocks and transactions could be improved. Reporting obligations could be a condition of permits/licences. The system of reporting to FPD should be reviewed whether there is any scope to improving it to cover all people participating in the crocodile industry. Greater attention to the verification of reports would also improve regulation and monitoring of stocks.

Consideration should be given to the establishment of a taxon specific Vietnamese Crocodile Monitoring Unit that would be responsible for all "crocodile-related" issues, including monitoring of farm stocks and the wild population, reporting to the CITES MA, liaison with enforcement agencies, etc. The review team felt that strengthening of enforcement capability through training and capacity building would no doubt assist authorities in improving compliance and enforcement of National and international regulations.

Record-keeping which is an obligation according to national regulations and which had been shown to the review team members during the visit of some large breeding farms was perceived to be of an outstanding high standard, with parental stock being marked for identification with plastic tags and sometimes scute-clipping. Sources of original breeding stock and first generation progeny are identified through appropriate record-keeping. However the review team felt that there seems to be room for improvement in record-keeping on the MHCF-level if it is to operate the way CITES requires.

Transport permits are required where crocodiles are moved between Provinces. However the review team felt that this powerful enforcement tool could more sufficiently be used by Government authorities to ensure a better control and compliance of the crocodile farm and skin industry throughout Viet Nam.

7.2. CITES Registration

Recommendation 11

*Consider seeking CITES registration of all established crocodile farms that are producing *C. siamensis* through captive breeding and exporting (eg through other farms).*

Recommendation 12

*Consider seeking CITES registration of all established crocodile farms that are producing *C. siamensis* through captive breeding and exporting. Exporting through other registered farms creates difficulties with control, reporting and compliance with CITES.*

Unlike the situation in Cambodia, the majority of captive breeding of *C. siamensis* is restricted to the low number of large farms, and few of the small-medium satellite farms appear to be involved in captive breeding. However, regardless of the volume of trade involved, export of specimens originating from non-CITES registered captive breeding operations is not compliant with Resolution Conf. 12.10 (Rev. CoP14). The CITES MA should seek registration of large breeding farms, to increase compliance with CITES, until such times as more longer-term options can be considered for small-medium operations that are captive breeding.

One such future option for such small-medium operations which are captive breeding could be that the Government of Viet Nam considers the adoption of a new policy, to allow international trade in truly captive-bred CITES Appendix-I species which have originated from non-CITES registered captive breeding operations. However this change in Government policy would involve refraining from further adherence to Resolution Conf. 12.10, but would allow Viet Nam to simply issue CITES export documents under Article VII, Paragraph 4 (see 6.7.1), only for those *C. siamensis* farms that had been specifically nationally licensed for this purpose. The source code on the respective CITES export permits for such specimens could be “D”, in accordance with the provisions of Resolution Conf. 12.3 (Rev. CoP13). If the Government of Viet Nam should decide to change its policy it is strongly recommended to notify accordingly the CITES Secretariat and the Parties to the Convention.

7.3. Markets

Live Crocodiles: The export of live crocodiles to China, for the food market, is a key aspect of the operation of a number of the large farms visited. Only one farm clearly indicated that it was not interested in exporting live crocodiles. The demand for live crocodiles to China still appears to be high, and some farms indicated that they are unable to supply enough crocodiles to meet that demand.

Skins: The demand for *C. siamensis* skins is currently high. However, attaining good skin quality is a problem for farms, mainly due to scars, bites (other crocodiles) and scratches (enclosure substrates). At least two large farms are known to be using individual pens for the last stage of raising (see above), to improve skin quality. The scale of investment in these pens reflects the demand for high quality skins.

One farm has experimented with unitised cages for the final stage of raising, but felt that they did not work, and instead has opted for modified communal raising pens (eg with smooth concrete, low density) in order to minimise defects on skins – crocodiles need about 6 months for skins to clean up under this raising regime.

There is a demand for large skins (35-50 cm belly width), which require crocodiles to be grown to larger sizes (22-32 kg bodyweight), and thus result in higher raising costs.

Meat: Crocodile meat is sold to local restaurants and supermarkets. Moreover according to UNEP-WCMC's CITES Trade Database over the past few years Viet Nam has also been increasingly exporting crocodile meat to member states of the European Union (Belgium, Germany and Netherlands in order of magnitude of trade), Canada and China. The potential of meat sale outside of Viet Nam would merit further market research on the potential to improve economic performance of those captive breeding operations having invested into this market segment.

Products: The manufacture of crocodile products in Viet Nam has been underway to some extent since at least the 1990s. Two large farms own and operate their own tanneries and manufacture a variety of products, and other farms have their skins tanned and manufactured by other facilities. In two cases, tanning and manufacturing expertise has been obtained from other foreign companies (eg Italy).

Products are exported (eg Europe) or sold locally. There is interest in the US market, but *C. siamensis* is unable to be exported to that country's listing of the species on the US Endangered Species Act. It was interesting to note that a number of shops specialising in high quality crocodile products had opened in one particular area in Ho Chi Minh City since a previous visit by one of the review team members, suggesting significant investment and expansion into the local market, particularly for tourists.

The quality of products (eg belts, wallets, handbags) seen at HCFarm and TPCCDF was reasonably high, and is clearly an important means of value-adding. Farms were in principle aware of CITES Personal Effects provisions for crocodylian leather products. For overseas tourists purchasing crocodylian leather products both selected farms and shops have been provided by the FPD with pre-signed blanket forms of CITES permits for which the private sector has to provide account for on request.

Tourism: Tourism is an important aspect of at least four breeding farms on which the review team had its focus during the mission, eg HCF, STF, LXCF and YBF. Such operations are providing an avenue for the sale of finished products, meat, etc., but visitors can also enjoy crocodile performances and plays such as at the Suoi Tien amusement park which attracts a large amount of tourists within and from outside the country each year.

8. Regional Dialogue

Recommendation 13

*Continue and intensify dialogue process with neighbouring states, through a regional working group under an appropriate body (eg ASEAN wildlife trade initiative and/or Mekong River Sub-regional CITES Working Group), to address regional issues and problems with *C. siamensis*.*

Valuable insights have been obtained on the nature of trade in *C. siamensis* between Cambodia, Viet Nam, Thailand and China in recent years. However, a more detailed understanding of illegal trade is needed to assist future management and enforcement actions, and a firm commitment to investigate this problem in detail at the highest levels of Government may be needed.

The review team was informed that the Forest Protection Department, the lead national agency in wildlife management, is fully aware of this problem and is committed to addressing the issue. For example, in 2005, FPD received a letter from the CITES Secretariat providing information on illegal trade in crocodiles between Viet Nam and Cambodia. The FPD had promptly responded and sent investigation missions to the southern provinces and border areas. Following these increased enforcement efforts the FPD instructed provincial FPDs to strengthen law enforcement activities and supervision of farms breeding CITES protected specimens in captivity.

The demand for *C. siamensis* in the region is considered to be driving the deliberate take of wild *C. siamensis* in Cambodia – the last remaining naturally occurring wild population of the species on mainland Asia. The CSG review of crocodile management in Cambodia (2005) identified a range of issues that required attention, including extensive trade in captive-bred crocodiles from CITES-registered and non-registered farms to Viet Nam, often without appropriate CITES permits. This trade purportedly involves animals between smuggled over the border, in part to evade export taxes imposed by Customs.

The difficulty of monitoring wildlife trade over the long border between Cambodia and Viet Nam is recognised, though improved monitoring of farm stocks and transactions for all operations would reduce the ease by which some of the illegal trade may be occurring.

Recommendations of a resolution on Illegal and Unsustainable International Trade in the “Association of the Asian Nations (ASEAN) and Mekong River Riparian States” include calls on ASEAN and Mekong River riparian states to initiate an immediate, collective international effort to identify and implement the most appropriate solutions to control the illegal trade in wildlife and wildlife products throughout the region. Further, ASEAN States are urged to enforce legislation to control the illegal trade in wildlife, focusing particularly on strict enforcement of CITES regulations through establishment and implementation of appropriate legislation. Within this context, serious dialogue with Cambodia, China and Thailand is urgently required to address trade issues between these States.

The establishment of a working group under an appropriate body such as the ASEAN wildlife trade initiative and/or the Mekong River sub-regional CITES Working Group may be an avenue through which dialogue could be initiated, in order to address regional issues and problems with *C. siamensis* and improve significantly the current situation. Both ASEAN and Mekong Sub-region States have already started common collaborative initiatives to better control illegal wildlife trade through various mechanisms. However the review team felt that there is ample scope for the Region and Sub-region to further improve the intensity and effectiveness of such collaborative efforts. A working group with representatives from all Mekong River Riparian States and related NGO’s would possibly be the best way forward to quantify the amount of trade, the ways in which it is occurring and to identify key players and/or organisations involved within or outside Viet Nam.

9. Crocodile Farmers Association

Recommendation 14

Establish a Crocodile Farming Association of Vietnam, through which Government and Industry can communicate more effectively.

There is currently no crocodile farmers association in Vietnam. Experience in other countries has shown that an association (eg Crocodile Farmers Association of Vietnam) can deliver benefits to industry members and provide a single contact point for Government. A farming association could play a major role with conservation and management by:

- Organising regular meetings, seminars and workshops to disseminate information and discuss issues of concern;
- Organise National workshops on crocodile production, husbandry and the international skin industry (including CITES);
- Development of general industry guidelines and standards (eg reporting, disease control, incubation, hatching, feeding/nutrition, raising);
- Participating in international meetings (eg CSG meetings held every two years) and other forums;
- Making crocodile farms, fishermen and the general public aware of the need to maintain and conserve wild crocodile populations;
- Cooperating with Government departments, police, NGOs and others, by reporting infractions, and encouraging members not to accept illegal crocodiles;
- Actively assisting Government with efforts to conserve wild crocodiles and their habitats (eg establishment of crocodile sanctuaries, protected areas);
- Providing pure *C. siamensis* for potential re-stocking programs; and
- Considering the establishment of a Crocodile Conservation Fund, to raise funding for conservation projects.

10. Management Program

Recommendation 15

Develop and implement a National Crocodile Management Plan with clear targets and objectives for the management of the wild and the captive crocodile population of Viet Nam

There is currently no crocodile management plan covering both captive and wild populations of *C siamensis*, and *C. porosus*. The review team felt that such a crocodile management plan which could be legally binding implemented through a government decree could significantly assist by guiding private and public sectors, Government, and international conservation bodies involved in captive and wild management of both crocodilian species native to Viet Nam.

As the CSG has in the past already developed general applicable standards for drafting crocodilian management plans the Government of Viet Nam could readily build on these standards. However during the drafting process of such a crocodilian management plan any stakeholder involvement through a transparent process is crucial in order to ensure later proper implementation and compliance with its objectives.

11. Farming Issues

11.1. Incubation

Observed incubation facilities ranged from simple beds of humus and/or soil (as used in Cambodia and Thailand) to technologically sophisticated incubators with fine temperature and humidity control. Regardless of the incubation method,

hatching success was reported to be high, with 90-97% of “good eggs” hatching. The proportion of eggs that ultimately produce hatchlings is about 60-75%, depending on the farm.

11.2. Mortality

Hatchlings (0-1 years): Most mortality occurs in the first year of life. Disease-related mortality appears to be a problem at some farms, with the main symptoms being conjunctivitis and inflammation of the mouth (“red mouth”), similar to symptoms reported from farms in Cambodia. At one facility the disease had accounted for 25% of hatchlings, but another farm appeared to have overcome the disease by treating hatchlings with antibiotics. Fungus was also reported as a cause of mortality. Without disease, hatchling mortality can be as low as 3-5%.

Juveniles (1-4 years): Mortalities after one year of age appear to be low, at around 2-3%.

Adults: Adult mortality is reportedly low, and mainly occurs as a result of social interaction (fighting) in communal breeding pens.

11.3. Food

The cost of food typically comprises a high proportion of the running costs of a crocodile farm. In the case of Viet Nam, marine and freshwater fish (eg whole small fish, catfish, catfish offal) are the main food items used by farms, although use is also made of offal of cattle and pigs. As in many other countries, the cost of feed for crocodile farming is increasing significantly, which has affected the economic viability of many small satellite farms in Viet Nam. LXCF indicated that the cost of feed had increased 150% over the last 4-5 years.

11.4. Hybrids

Recommendation 16

*Derive clear criteria for recognizing hybrids and assess and quantify the extent of hybridisation between *C. siamensis* x *C rhombifer* on farms in Viet Nam.*

Recommendation 17

*Implement actions to contain, reduce or eliminate hybridisation in order to minimize or eliminate the possibility of *C. siamensis* x *C rhombifer* genetic material entering the wild population of the Siamese crocodile.*

In 1985 altogether 100 Cuban crocodiles (*C. rhombifer*) were donated by the Government of Cuba as state gift to the Government of Viet Nam . The animals were distributed amongst various zoos and farming operations. Hybridisation with *C. siamensis* has occurred and the review team was informed that this issue has not been investigated in detail but that FPD officials consider the phenomenon of hybridisation a geographically restricted matter.

No hybrids were recorded by the review team at those farms visited. However given the extent of trade amongst farms within Viet Nam and taking into consideration the past trade across the border with farms involved in Cambodia that had been involved

in the production of hybrids, it is likely that hybrids are more widespread through many farms in Viet Nam.

Before the release of *Crocodylus siamensis* in Cat Tien National Park (Polet 2002) all animals were tested with regard to their genetic integrity which resulted in the detection of cross-bred animals which were phenotypically identical to pure animals - these were segregated. Any further re-stocking of the wild population would therefore clearly require that selected crocodiles be DNA-tested prior to their release.

It is unclear how easily hybrids can be detected on visual appearance alone. As extensive cross breeding between hybrids may also have occurred, they may not be identifiable on the basis of external characteristics alone (see above).

12. Establishment of Wild Populations

Recommendation 18

Identify new protected areas and/or sanctuaries for future reintroduction or recovery programs for C. siamensis, and possibly C. porosus.

Recommendation 19

Continue regular systematic monitoring of re-introduced populations of C. siamensis so that the success of this conservation initiative can be assessed objectively, and used to underpin other reintroduction programs.

Efforts to re-establish wild *C. siamensis* in Viet Nam to date are highly commendable, and reintroduced animals have begun to breed in Cat Tien National Park (Polet 2002, 2004).

Two farms, TPCCDF and HCF, were involved in the project in Cat Tien National Park, and additional farms indicated to the review team their willingness to be involved also. Indeed, YCF indicated that it was willing to commit a proportion (10%) of its stock to “conservation” of the species, as part of its registration as a CITES captive breeding operation. LXCF also indicated its desire to contribute to conservation.

Any *C. siamensis* intended for reintroduction should continue to be DNA-tested to ensure that they are not hybrids (Fitzsimmons *et al.* 2002). Escapes from crocodile farms such as from YCF raised concerns on the possible introduction of hybrids into the wild.

A systematic monitoring program for reintroduced populations would provide more detailed information on current status of wild populations (Cat Tien NP, Can Gio Biosphere Reserve, Tay Son Lake, Sere Pok River, Yok Don Reserve, Lac Lake) and success of the reintroduction program. Training of Provincial staff in crocodilian population monitoring techniques could assist future efforts in this regard.

Identification of additional sites that could qualify for reintroduction or recovery programs would enhance conservation efforts, and potentially establish viable wild *C. siamensis* (or *C. porosus*) populations.

13. Acknowledgements

Financial and logistic assistance for the CSG review mission was provided mainly by the Government of Vietnam and the Vietnamese crocodile farming industry, for which we are most grateful. In-kind and financial support was also provided by: the Federal Agency for Nature Conservation (Germany), Wildlife Management International (Australia), TRAFFIC South East Asia - Greater Mekong Programme (Vietnam) and Seisa University (Japan).

Tom Dacey (CSG Executive Officer) assisted significantly in the planning and organisation of the review mission.

Special thanks are extended to all Government officers and farmers who assisted in the review – we thank them all collectively also with regard to their great indulgence for the unfortunately delayed report.

14. References

- Fitzsimmons, N.N., Bucan, J.G., Phan Viet Lam, Polet, G., Ton That Hung, Nguyen Quoc Hang & Gratten, J. (2002). Identification of pure bred *Crocodylus siamensis* for reintroduction in Vietnam. *J. Exp. Zool.* 294 (4): 373-381.
- Jenkins, R.W.G. (2002). Operational manual for inspections of closed-cycle captive breeding operations: crocodiles and pythons. TRAFFIC Southeast Asia: Cambridge.
- Jenkins, R.W.G. and Sung, C.V. (1998). Crocodile Farming in Vietnam: Development, Administration and Control of the Industry (with recommendations for improvement & CITES registration). CITES: Geneva.
- Platt, S.G. and Ngo Van Tri (2000). Status of the Siamese crocodile in Vietnam. *Oryx* 3 (3): 207-221.
- Polet, G. (2002). *Crocodylus siamensis* re-introduced in Cat Tien National Park. Crocodile Specialist Group Newsletter 21(1): 9-10.
- Polet, G. (2004). Re-establishment of *Crocodylus siamensis* in Cat Tien National Park, Vietnam. Crocodile Specialist Group Newsletter 23(4): 12-16.
- Robertson, S.I. and Nguyen, D.H. (2008). Commercial wildlife farms in Vietnam: a problem or solution for conservation? Unpublished WCS report.

15. Abbreviations:

FCBF:	Forimex Crocodile Breeding Farm
FPD:	Forest Protection Department
HCF:	Hoa Ca Crocodiles Farm
LXCF:	Long Xuyen Crocodile Farm
MHCF:	My Hiep Crocodiles Farm
MARD:	Ministry of Agriculture and Rural Development
STCF:	Suoi Tien Crocodile Farm
TPCCDF:	Ton Phat Crocodile Conservation and Development Farm
YCF:	Yang Bay Crocodiles Farm

ANNEX 1

Terms of Reference for the CSG Review of Crocodile Conservation and Management in Vietnam

1. Objective

Review the conservation, management and farming of crocodiles in Vietnam and provide recommendations as necessary.

2. Members of the CSG Review Mission

- Dr. Dietrich Jelden, CSG Deputy Chairman, Germany: JeldenD@bfm.de
- Mr. Stratis (“Charlie”) Manolis, CSG Regional Chairman, Australia & Oceania: cmanolis@wmi.com.au
- Dr. Toshinori Tsubouchi, Consultant, Sabah Wildlife Department: t_tsubouchi@seisa.ac.jp
- Mrs. Nguyen Dao Ngoc Van, TRAFFIC, South East Asia – Greater Mekong Programme, Ha Noi: nvan@traffic.netnam.vn

3. Methods

Stage 1: Assemble available statistics on crocodile farms and farm stocks in Viet Nam and on the numbers of crocodiles and crocodile skins traded internationally.

Stage 2: Visits a selection of large and small CITES registered, non-registered and village level farms;

Stage 3: Consultations and interviews with major stakeholders;

Stage 4: Formulation of review and recommendations; and,

Stage 5: Presentation and discussion of findings and recommendations with all stakeholders (eg government officials, the crocodile industry, representatives of local people and NGOs)

4. Issues to be addressed during review mission

- **Administration.** Legal framework, institutional structure (including staff and authorities involved) and/or policy to monitor and regulate the crocodile trade.
- **Law Enforcement and Implementation**
 - Local
 - National
 - International
- **Reporting and Monitoring on government level**
 - Wild populations
 - Stocks
 - Captive breeding
 - Raising
 - Culling
 - Imports and Exports (live and products)
- **Management.** Evaluation of current crocodile management in Viet Nam
 - Management plan

- Implementation of and compliance with CITES provisions including relevant resolutions on captive breeding, registration of commercial captive breeding operations (mortality, monitoring, adding of additional animals, marking, marketing of product, etc.) or universal tagging of crocodylian skins.
 - CITES permits and tags, including reporting on the national and international level
 - Internal and international trade in live animals
 - Legal and illegal trade
 - Role and involvement of local people in crocodile management, including economic incentives
- **Wild Species Issues.** Conservation and management of wild populations
 - *C. siamensis* distribution (historical and now), biological status and protection
 - *C. porosus* distribution (historical and now), biological status and protection
 - Monitoring
- **Captive Production Issues.**
 - Species (*C. siamensis*, *C. rhombifer*, *C. porosus*)
 - Historical assessment
 - Captive breeding
 - Incubation
 - Hatchling to Year 1
 - Year 1 to culling/sale
 - Mortalities
 - Growth rates
 - Food
 - Husbandry assessment
 - Skins versus live trade
- **Capacity assessment/training**
 - Wild populations
 - Captive populations

5. Host Agency

Forest Protection Department (FPD), Ministry of Agriculture and Rural Development, Viet Nam.

6. Funding

To be provided largely from Viet Nam, perhaps through the national industry stakeholders, who have the most to gain and/or lose if trade with Viet Nam is restricted because of concerns about illegal trade? Perhaps some funding can be accessed through outside sources.

7. Timing

The review is planned to be undertaken in early 27 April – 5 May 2008

ANNEX 2

CSG Review Mission Itinerary

- 27 April - Arrival of CSG Review Team members in Ha Noi.
- 28 April - Consultations and Interviews at the Ministry of Agriculture and Rural Development (MARD);
- Meeting with representatives from non- and intergovernmental organizations (WWF, IUCN, WCS);
- Meeting with representatives from the Forest Protection Department (FPD).
- 29 April - Travel of CSG Review Team to Ho Chi Minh City;
- Consultations and interviews with the Provincial Government at the FPD office and meeting with a non-government organization (WAR).
- 30 April - Visits to CITES registered and non-registered farms (Ton Phat, Hoa Ca and Suoi Tien Farms);
- 1 May - Meeting and discussions with representatives from Yang Bay Farm at FPD office in Ho Chi Minh City.
- 2 May - Travel to Dong Thap Province and visit to My Hiep Farm;
- travel to An Giang Province and visit Long Xuyen Farm.
- 3 May - Return to Ho Chi Minh City.
- 4 May - Work on presentation for stakeholders meeting and work on review report.
- 5 May - Stakeholders meeting at the FPD office including presentation of preliminary mission findings (see **ANNEX 3**) and discussion including 'where to go from now'.
- CSG Review Team members leave from Ho Chi Minh City.

ANNEX 3

**Power Point Presentation
on Preliminary Findings of the CSG Review Mission
presented on 5 May during the stakeholder meeting
held at the FPD Provincial Government office in Ho Chi Minh City**

**Crocodile Conservation and Management
in the Socialist Republic of Viet Nam**

A Review with Recommendations

Summary Presentation of the IUCN-SSC Crocodile
Specialist Group Review Mission to Viet Nam

Dietrich Jelden, Charlie Manolis, Toshinori Tsubouchi
and Ngyuen Dao Ngoc Van
(28 April - 5 May 2008)

Review Agenda

- **Administration**
- **Management**
- **Law Enforcement & Implementation**
- **Monitoring**
- **Wild Species Issues**
- **Captive Species issues**

Administration

- Legal framework (eg Decrees 32 and 82).
- CITES National Legislation Project (*see CITES CoP 14 Doc. 24*) - Category 1.
- Institutional structure (including staff and authorities involved) and/or policies to monitor and regulate crocodile trade.

Management (1)

- Management plan could assist by guiding private and public sectors, government, and international conservation bodies.
- Implementation and compliance of CITES legislative frameworks, such as resolutions on captive breeding, farming and registration of captive breeding operations seem to be adequate (eg monitoring, addition of live animals).
- Stricter domestic measures (eg F2 generation, personal effects certificates).
- CITES permits and tags (could facilitate more rapid process of acquisition, such as private sector paying directly for tags).

Management (2)

- **Reporting at National level**
 - reporting is not mandatory for ALL farms, and is essentially self-regulated by industry.
 - room for improvement in verification of data reported by farms and satellite and/or cooperating operations.
 - complete registration of all establishments holding crocodiles.
- **Internal and international trade in live animals**
 - current situation allows non-CITES registered farms and satellite operations (nationally registered and non-registered) to circumvent CITES with respect to international trade
 - review all transport permits issued during last 10 years in Viet Nam to determine which crocodile farms or satellite farms are complying with national and/or international regulations.

Management (3)

- **Illegal trade**
 - no direct evidence of illegal trade was detected, but long and open border and insufficient enforcement efforts at Provincial and District FPD levels to control trans-border trade do not deter such activities.
 - Large numbers of widely distributed satellite farms provide avenues for undetected illegal trade.
- **Consider formation of a “Crocodile Farming Association of Viet Nam”.**
- **Any further registration of captive breeding operations** under CITES must be carefully evaluated to ensure full compliance with respective CITES provisions.
- **Role and involvement of local people in crocodile management, including economic incentives.** There is a responsibility by Government to ensure sustainability of use (eg through effective enforcement).

Law Enforcement & Implementation

- Regional Cooperation on cross-border trade with neighbouring Range States (Viet Nam, China, Laos, Cambodia, Thailand) e.g. through ASEAN-WEN or other cooperative approaches such as through international donor organisations.
- Role of Customs (increase cooperative efforts)
- Role of Economic Police, Environmental Police and FPD at National, Regional, Provincial and District levels (increased cooperative efforts strategically).
- Sanctions: revision of penal code to define violations in keeping wildlife (incl. farming).

Monitoring

- Wild *C. porosus* and *C. siamensis* populations (eg Cat Tien NP, Can Gio Biosphere Reserve, Tay Son Lake, Sere Pok River, Yok Don Reserve, Lac Lake)
- Captive breeding stocks, including number and category of crocodile farm in Viet Nam (total of 374,775 crocodiles in late 2007). Reporting system is good (eg stock record booklets), but more attention required on verification of reports.
- Culling (meat, skin production) and live sales should be included within reporting system.

Wild Species Issues

- Conservation and management of wild populations - implement systematic monitoring of re-introduced populations (eg Cat Tien NP).
- Identify additional sites (based on historical and current data) that could qualify for recovery and/or reintroduction programs.
- Implement appropriate management actions at these sites.
- Hybridization with *C. rhombifer* (and *C. porosus*?)

Captive Species Issues (1)

- Species (*C. siamensis*, *C. porosus*, *C. rhombifer*)
- Incubation - possibly room for improvement
- Raising of crocodiles - hatchling to 1 year: disease responsible for relatively high mortalities at some farms.
- Raising of crocodiles - 1 year to culling size and sale: possible disease affecting some farms.

Captive Species Issues (2)

- Food: increasing prices (similar situation as in other countries), impacting on economic viability of raising.
- Skins versus live trade (for meat): demand for skins and increased raising costs are shifting industry more towards skin exports and/or local product manufacture and export.
- Skin quality: generally low for export. Some farms are working to improve this situation.
- Tanneries: registration, monitoring of production.

