Elephant management and conservation in the Mahaweli project areas

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The Accelerated Mahaweli Development Programme (AMDP) is the largest and most ambitious development project that Sri Lanka has undertaken. The Master Plan for this programme provides for the development of 900,000 acres of land with the provision of irrigation facilities. Over 200,000 farmer families were to be settled in the newly developed areas. It was also envisaged that 500 megawatts of hydro-power would be generated by the many dams that were to be constructed across the Mahaweli river, under this programme.

The initial step is to clear the jungle lands before the irrigation system can be constructed and the landless families settled. With the progressive clearing of the jungles, it became obvious that the flora in the area would be destroyed and the fauna would lose their habitats. With regard to the reptiles and smaller mammals this was not too much of a problem in that they were able to inhabit the small patches of jungle that were left when clearing work was done.

The bigger problem however was with regard to larger animals, especially the elephant, whose habitat was being destroyed. When the Master Plan for the AMDP was formulated no thought seemed to have been given to the impact that such a massive development scheme, which necessitated the clearing of large tracts of forest, would have on the environment. When System H, (Fig. 1) the first Mahaweli settlement project, was started, it was obvious that there would be serious problems with the herds of elephants that were being displaced as a result of jungle clearing. With the decision to accelerate the Mahaweli programme and the feasibility studies that were then necessary, it was possible to have a survey of the impact that this programme would have on the environment and obtain recommendations of the measures that could be taken to mitigate these adverse effects.

With jungle clearing and settlement moving forward the herds of elephants were also pushed further and further. In addition to the herds there are also loners and small groups of elephants, who also get pushed along. Initially the elephants move away but with progressive clearing, when the pressure for food and water is felt, they come back to the areas they had inhabited, in search of food and water. With their return they are chased away by the settlers and the elephants go away. The settlers shout, light fireworks and flares, beat tom toms and light fires to keep the elephants away as most elephant forays are in the night. The elephants move away at first as they are not aggressive animals by nature. This is proved by the fact that a wild elephant when caught can be tamed very easily.

When the elephants are continuously chased off and they have nowhere to go, they naturally turn round and retaliate. At first their charges and attacks are not severe or dangerous. Later on they become more determined to get at this tasty and easily available food like banana, papaw and paddy. When their efforts at protecting their crops and habitations from the depredations of the elephants fail, the farmers are compelled to use guns. Guns in the hands of inexperienced farmers will not kill the elephants as intended but will only injure and maim them. Here too the animals are repelled only temporarily. After a while they come back.

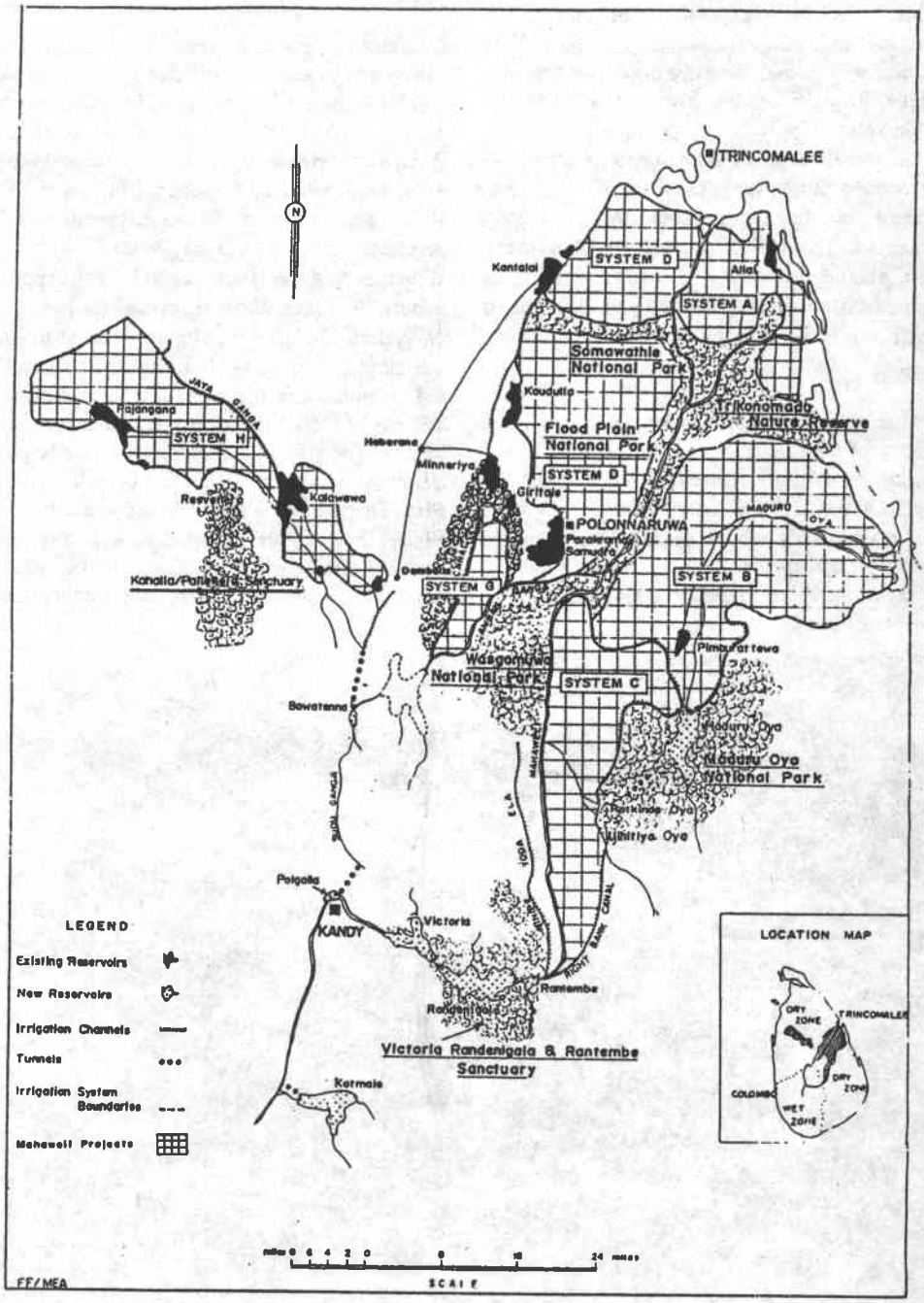

Fig. 1 Map of Mahaweli project area and adjacent reserves.

Meanwhile the gunshot wounds will fester and irritate the animal who will be maddened by the pain and suffering it has to undergo. This situation will turn a normally docile animal into a rogue. Rogues, as they are popularly known, are lone elephants, who do not behave as normal elephants do, but attack human beings and cause destruction. It is very easy to kill a rogue elephant by having it shot by an expert marksman. The point, however, is that every effort should be made to prevent harmless elephants from turning into rogues because of the ill conceived actions of man.

Another very significant point is that a large number of elephants have been killed in and around the Mahaweli areas over the last 10 years. Of the animals killed nearly 75% have been males. This would degrade the breeding quality of the species due to the reduction in the breeding male elephant population.

Elephant Drives

Constant forays by elephants into settlers' cultivations and habitations were reported regularly from System H. The situation got worse as time went on. The Department of Wildlife Conservation, after may requests to do something positive, decided in the interests of all concerned, to drive the elephants causing problems in and around System H to the Wilpattu National Park. This Park is approximately 50 miles away from the furthest point in System H. The Department decided to drive the elephants because noosing and tranquillising, which were the other methods available, had not in earlier instances yielded the expected results. The size of the herds were too large for trapping by individuals as had been done in the past. This would in any case have taken a long time. Driving the elephants was the most humane and sensible approach in the effort to save these animals. Driving the elephants also

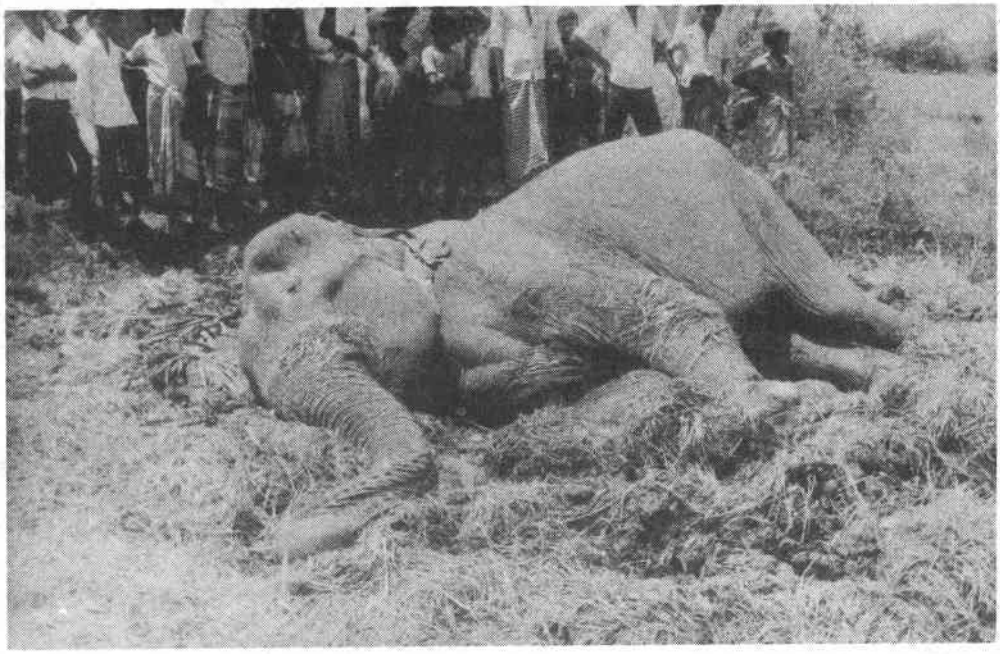

Fig. 2 An elephant killed at Kalawewa in system H.

ensures that all the animals are moved away and no animals are pocketed in small patches of jungle after land development. This happened in earlier settlement projects like Gal Oya and Uda Walawe and caused a lot of problems.

In 1979, about 130 elephants in the Nochchiyagama area in System H were driven across the Puttalam-Anuradhapura road to the Wilpattu National Park and it environs. However, as no precautions were taken to ensure that the animals did not leave this area, most of them returned. These elephants had to be driven back again. In 1981, it was decided to drive the elephants which had collected in the Resvehera jungles to the Wilpattu National Park. Careful and detailed planning was necessary prior to driving elephants. The behaviour and attitudes of the elephants had to be studied before making an attempt to translocate them. There had been no drives of this magnitude in the past, so there was no previous experience to draw on at all.

Driving the Resvehera herd, which was scheduled to commence in 1981, had to be delayed due to unusual rains. Certain parts of the route had not been cleared of scrub etc. and this too contributed to the decision to postpone the drive for the dry period in July-August of the next year 1982. The drive ultimately started in August 1982 when 60 odd elephants were driven towards Wilpattu National Park. Progress was slow. The monsoon rains at the end of the year prevented any effective driving of elephants. All efforts during this time were directed at keeping the elephants from going back.

In March, 1982, Prince Phillip, Duke of Edinburgh, who was the President of World Wildlife Fund, visited Sri Lanka to watch the elephant drive. He viewed it from a platform built in the Kathnoruwa jungle within the System H project area.

In March 1983, the Resvehera herd was finally moved into the Wilpattu National Park, together with several small herds from patches of forest in the Mi Oya basin. They were pushed as far as Pomparippu, but some of them kept returning to the banks of the Kala Oya. The severe drought in early 1983 kept the elephants near the Kala Oya, as this was their only source of water.

The University of Colombo and the Department Wildlife Conservation carried out a project to study the behaviour of the translocated herds and the ecology of the Wilpattu National Park. This study has revealed that the vegetation in the southern sector of the Park is too woody and that certain feeding grounds do not have sufficient water during periods of drought.

A number of problems were encountered during the course of these drives. There were no previous experiences of drives of this nature which the Department could draw upon. There was a great deal of resistance from the villagers all along the drive route, mainly because the elephants, going through their lands caused much damage to property and cultivations and also as they were a threat to the villagers' lives. The curiosity of the people also hampered the drive in that they got in the way, thus creating a big risk for the Wildlife Department staff. In spite of all this, the achievements by the staff have been very creditable.

Towards the latter part of 1984 conflicts within the Department of Wildlife Conservation caused many changes in staff and as a result the wide experience gathered from the elephant drives by a number of their staff was lost. This set back any programme to reduce the man/elephant conflicts that were increasing in the Mahaweli areas. In May 1988 the Department of Wildlife, together with the Mahaweli Economic Agency carried out a pilot elephant drive in System B. This was under the Mahaweli Environment Project (MEP). This drive was to be from the Dimulagala Block area to the Maduru Oya National Park. The drive started off with a herd

of twenty three elephants. However at the end of the drive over 150 animals which were collected as the 20 kilometre drive progressed, were driven into the Park. Most of these animals came out of the Park at different times due to inadequate precautions to prevent them from returning.

A number of objectives necessitated this pilot drive. The main objective was to drive these elephants which were causing considerable damage, to the confines of the Maduru Oya National Park where they could live undisturbed. This would also give the Departmental staff the necessary experience that would be useful in all Mahaweli development areas. It would also give the staff an opportunity to study some aspects of elephant behaviour at first hand. With this drive the staff of the MEP would help educate the settlers in practical elephant conservation. This education and the resultant attitudinal change among the settlers would also help reduce the conflicts betwee settlers and elephants.

Immobilization and capture

The elephants which were left behind in the System H area from the first two drives continued to cause depredations in the project area. Numerous complaints were made by the project management to the Department of Wildlife Conservation regarding the serious problems created by these elephants. These complaints were not acted upon as the Department was hindered by the lack of experienced staff who could deal with the problem. On representations made by the project management, the Director General of the Mahaweli Authority of Sri Lanka summoned the Senior officials of the Wildlife Department, the Mahaweli Authority and local experts on elephants, to a series of meetings designed to find a permanent solution to this problem, which was getting worse. He offered the Department of Wildlife Conservation all the financial assistance they needed. He even agreed to finance any foreign experts who might be able to help solve the problem.

The Department however, was unable to decide on possible solutions, although during the meetings the options had been narrowed down to two (1) to conduct another drive; or (2) to tranquillize the animals and transport them to new locations. The possibility of having another elephant *kraal* was also discussed but this idea was shelved as not being practical in the context of System H.

In early 1985, the Department of Wildlife Conservation decided to conduct a pilot project to immobilise some of the Resvehera (System H) elephants and transport them to the Wilpattu National Park. An elephant drive was not attempted because of the lack of experienced staff. Ten elephants were captured after tranquillisation. One was sent to Wilpattu and another to the Uda Walawe National Park. The others were sold by public auction. All the animals that were sold died subsequently.

In February 1991, the Department of Wildlife Conservation launched a programme to tranquillize and translocate the pocketed and problem-causing elephants in and around System B and H. This was a big and ambitious programme starting initially with the capture of six animals pocketed in Bogaswewa in System B and five elephants that were responsible for the deaths of 12 people in the Resvehera forests. This operation was called off after sometime due to (a) the deaths of most of the animals that were captured, (b) the programme being ill planned and inadequate preparations made and (c) the irresponsible actions of a senior official of the Department.

The tranquillisation and capture programmes carried out so far have given the Department of Wildlife Conservation a wider but yet inadequate experience in the capture of elephants. The problems of translocation and domestication have still to be solved. This can only be achieved with experience. Translocation to the wildlife parks after tranquillisation is one alternative, but there are limits to the number

of animals that these parks can take. There is also the problem of the distances involved. Taming wild elephants has been practised for a very long time in this country and therefore is not problem.

(a) The preferred method, where possible, of translocation to be adopted should be the elephant drive;

Fig. 3 An elephant captured in Resvehera

Recommendations of special committee

In the meantime, the Ministry of State, under which the Department of Wildlife Conservation functioned at that time, appointed a Committee for the translocation of elephants. They were requested to look into the problem of translocating the elephants pocketed in the Mahaweli 'H' area and to make suitable recommendations for its solution. The Committee in its report recommended the following actions and gave reasons for making these recommendations.

"On the Basis of the documentary material available and the knowledge and experience of the members of the Committee, the Committee considers that:

(b) This should be supplemented by immbilisation and movement of immobilised elephants after remobilisation, by monitor elephants and haulage, using suitable vehicles. This method is to be adopted only in regard to elephants which:

- the drive team is unable to dislodge from their habitats;

- having joined the drive, nevertheless backtrack or move away from the other elephants in the drive;

- are troublesome and do not fall in with the drive;

The Committee also stated that;

"It has to be remembered that the Mahaweli

Authority now beset with the problem of these elephants that are the subject of our deliberations, have given what may well be the last opportunity to have these elephants not merely out their way but safely into conservation and propagation. Should the elephants go back, the Mahaweli Authority would, we feel, well be justified from their purely agricultural development and colonisation standpoint, in thereafter viewing the elephants as only an impediment to their progress. They may then either resort to or permit less merciful methods of disposing of their pachydermic obstacles".

Jungle corridors

The Flood Plains National Park, at the northern end of System B, was set up to facilitate the movement of elephants from the Somawathiya-Thrikonamadu area to the Wasgomuwa National Park and vice-versa. Another corridor was proposed with the initial Mahaweli plan, to join up the Wasgomuwa and Maduru Oya National Parks. This was to be through Elakotaliya in System C. Due to the irrigation channels and roadways having to go through this corridor, plans to leave the jungle uncleared was abandoned and the jungles were cleared for settlement.

Corridors need not be National parks or Sanctuaries in the strict sense. It would suffice if they facilitate the unhindered movement of elephants through them. Limited human activity could be allowed. The limited availability of food in an elephant corridor would ensure that the elephants move through quickly. Elephant corridors are important in that they ensure a link between elephant habitats and make their seasonal movements easy. The free movement of elephants between habitats facilitates the gene flow between the breeding herds.

It is now very heartening to note that the Department of Wildlife Conservation has been able to stop all tobacco and paddy cultivation within the Floodplains Nation Park. Cultivation especially during the dry Yala season, was rampant in this Park earlier. This activity together with sand collection and brick making, prevented the elephants from using the Park as a corridor between the Wasgomuwa and Somawathiya National Parks as was intended.

Present status

System H

At present there are three large herds of elephants in the periphery of the project area. There is one herd of approximately 40-45 elephants in the newly declared Kahalla-Pallakele Sanctuary. This herd migrates to Galkiriyagama which is the catchment area of the Kalawewa Reservoir. Seven deaths caused by elephants have been reported from the Galkiriyagama-Madatugama area over the last ten years. With the development of the Kahalla-Pallekelle Sanctuary the problems caused by this herd are likely to be reduced.

The second herd of approximately 25-35 elephants are in the Resvehera area. This was a much larger herd. A part of this herd was driven to Wilpattu in 1984, whilst a part has stayed on in the Karuwalagaswewa AGA's area after the drive. The Resvehera herd deaths have been reported along with constant damage to dwellings and crops.

The third herd is in the northern part of System H. This is a small herd of 10-15 elephants which migrates down from the southern part of the Wilpattu National Park. They too cause damage to crops in the Nochchiyagama area when they are there.

System G

Groups totalling at times up to 50 elephants come across the Amban Ganga from the Wasgomuwa national Park and cause extensive damage to crops in System G. In a few instances there had been damage to the settlers' houses. Five deaths have been reported in the last three years. There are a large number of elephants

in the Dambulukelle/Giritale forest, but due to the barrier caused by the main irrigation channel none of these elephants come across to the settlement area of System G. They however go towards the Naula, Pubbiliya and Kabarawa areas and cause a lot of damage to crops. In fact in 1990 the Department drove some of these elephants across the Amban ganga to the Wasgomuwa National Park. However they all came back soon after. Some of the animals were driven to the Giritale Reserve.

A dangerous trend that has started in this area is the poisoning of elephants by irate farmers. They cut a hole in a pumpkin and put in a large dose of poison and leave the pumpkin in the field for the elephant to consume. The bodies of a number dead elephants have been found around System G in the last two years. The most recent one was at the north end of Dambulukelle in September 1992. If this effective method of elephant destruction catches on there will be mass poisoning of elephants by farmers. Fortunately most farmers are averse to killing elephants. They only want to drive them away from their cultivations.

System B

One group of over 130 elephants from the Somawathiya National Park and the Thirikonamadu Sanctuary come into the settlement area of System 'B' and cause a lot of damage to both humans and crops. The houses of the settlers too have been destroyed. These animals come into the project area mainly because they cannot use the Flood Plains National Park as a corridor to the Wasgomuwa National ark due to intense human activity.

There is another herd that comes from the Wasgomuwa National Park across the Mahaweli river and cause a lot of damage to crops in the western parts of Systems B and C. An elephant drive conducted in 1988 drove around 150 elephants to the Maduru Oya National Park. Most of These animals however seem to have returned. This is because adequate precautions were not taken to keep them in the Park. Most of the deaths reported from System B have been caused by lone elephants. Another group of about 30 elephants come out of the Maduru Oya National Park and cause a lot of damage to houses and crops in the area where Systems B and C share a common boundary.

The Department of Wildlife Conservation was engaged in an exercise to tranquillise and capture the elephants that were causing problems within the System B area. This has been detailed under the earlier section on immobilisation and capture.

System C

The Department of Wildlife Conservation has decided to erect electric fences along some of the boundaries of System C to prevent elephants from the surrounding areas, including the Wasgomuwa and Maduru Oya National Parks, from coming into the cultivated lands and destroying the crops. The proposal is to have 70 kilometres of electric fencing in strategic areas, to prevent elephant entry. One section of the fence has already been erected. This is from the confluence of the Ulhitiya and Mahaweli rivers going northwards to the confluence of the Hungamala ela and the Mahaweli. This fence of 10 kilometres was put in at the most popular elephant crossing. It will be extended southwards to Weragantota and northwards to Yakkure. At present the elephants walk along the 10 km. electric fence and come into System C where it ends.

An electric fence will also be erected on the other side of System C bordering the Ratkinda canal, taking in Pussellawinna and Henanigala and going upto the Maduru Oya National Park. Limited finances have prevented the Department from continuing their electric fencing programme.

There is a herd of 30 elephants at Kuda Sigiriya which is at the north end of System C. These animals come in from the Maduru Oya National Park, which is just across the Ratkinda canal. They come along a small bridge across this

canal and cause a lot of damage to a large cashew plantation that has been started and to cultivations in the southern part of System B. The Department has advised the plantation company and the Mahaweli farmers in that area to organise themselves and make suitable arrangements to prevent the elephants from crossing the bridge.

A number of elephants come into the Zone 2 cultivation areas of System C. Last year around 18 elephants that were in the Hebarawa area were driven across the Mahaweli river to the Wasgomuwa National Park from where they come. Only three animals were left at the end of the drive. However now all these animals have come back. In fact reports seem to indicate that there are now more elephants in System C than were last year.

Proposed solutions

In the Mahaweli areas the farmers expect the officials of the Department of Wildlife Conservation and the Mahaweli to protect their crops. They do not seem to see any obligation on their part to help. The is an attitude that has to be changed early if lasting solutions are to be found to the elephant problems not only in Mahaweli but all around the country.

The following suggestions are proposed for consideration in an attempt to reduce the problems caused by elephants.

1. In the Mahaweli areas, the Department of Wildlife Conservation should, through the Mahaweli community development staff, conduct a programme to educate the farmers on why the elephant population should be conserved and not killed indiscriminately. In addition, there should be a programme to train the farmers to organise themselves to protect their crops.

2. Human activity in the Flood Plains National Park should be reduced greatly so that the elephants could use this Park freely as a corridor between the Somawathiya and Wasgomuwa National Parks.

3. The Department of Wildlife Conservation should ensure that the present elephant habitats are not degraded or reduced in extent through illegal and unauthorised human activity.

4. Every effort must be made by the Department of Wildlife Conservation to develop, enrich and manage the elephant habitats depending on the needs of each individual location. Buffer zones are very important and the Department should actively pursue the development of these wherever possible.

5. A census of the elephant population, at least those in and around the Mahaweli projects, must be taken initially. This would give the basic data on which any elephant management and conservation plans should be formulated.

6. The excess and troublesome elephants should be moved out to another location. This is not easy considering the numbers involved and the limited experience in translocation. There is also a paucity of suitable locations. There are four methods by which elephants could be moved from one location to another. They are:

(i) Driving the elephants to a new habitat.

(ii) Capturing with the aid of tranquilizers for translocation and taming.

(iii) Capturing by the *kraal* method and taming. Kraaled elephants can even be immobilised and translocated to new habitats.

(iv) Capturing elephants by engaging elephant trappers or Pannikars. Due to noosing not being practised very much now, there are only a few experience Pannikars.

There have been suggestions earlier with regard to the setting up of Captive Breeding stations. The forest in the catchment of the Kalawewa/ Balaluwewa reservoir is a suitable location for such a station. This area consists of over 500 acres of forests which a re linked to the newly declared Kahalla-Pallakelle Sanctuary. There is also an abundance of water throughout the year. These are some suggestions that should be taken into account when plans are drawn up to solve the many problems the Department of Wildlife Conservation is faced with. It is imperative that the problem of elephants in Mahaweli be looked at in its totality and initially an over all plan for future conservation and management formulated. Then a prioritised implementation plan based on the available resources (finance, manpower, vehicles, equipment etc.) should be drawn up. Plans to conserve the Mahaweli elephant, which constitutes a large percentage of the island's elephant population, will no doubt be an important segment of this plan.

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A new technique to transport elephant herds

Throughout Asia, as a result of high human population growth and high rates of deforestation, elephant habitats are shrinking year by year thereby leading to the fragmentation of hitherto continuous populations of elephants. An extreme result of such fragmentation is the development of so called "pocketed" herds of elephants. Such animals have no long-term future and are responsible for much of the crop depredation. At times, these "pocketed" elephants attack people. The people then become very hostile and often take the law into their own hands. A number of elephants have been killed by farmers in India, Sri Lanka and Indonesia as a result of the escalation in the human-elephant conflicts.

Now a new technique pioneered by Clem Coetsee of Zimbabwe's National Parks and Wildlife Management Department, to immobilize and transport entire families of elephants from one area to another hundreds of miles away, could be applied in Asian countries too. Coetsee has proven that even middle-aged elephants could be safely sedated up to 48 hrs. using **haloperidol** and **trilafon**, two relatively new tranquillizers. More than 600 elephants have been relocated from Zimbabwe to Bophuthatswana in South Africa, across a distance of 1,050 km overland, with a loss of only 15 animals. As long as there is sufficient water and food available en route to the elephants, there is no limit to the distances sedated elephants could be transported across. This new technique could become useful in relocating chronic crop raiding elephants from an area to more secure reserves **(Ch. S)**.