

Project No 305202

Project Pasoso

**Turtle Population Survey and Conservation Planning
for Pulau Pasoso Reserve and the West Coast of
Donggala Regency, Central Sulawesi, Indonesia**

Final Report



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Cover photograph: Team members including island family measuring female turtle after nesting by team member HartoDarwinto

Project Pasoso Background

Project Pasoso is located in Indonesia in the Province of Central Sulawesi, on the West Coast of Donggala Regency, bordered by the Straits of Makassar. Total funding requested is 6,949 pounds sterling.

The main Target Species is the Green Turtle (*Chelonia mydas*), an endangered species (IUCN Category EN A1bd) protected under CITES Appendix I and national Indonesian law. The project location is a known migration and nesting area. The a number of threats to the population from human activities have been identified, and the population is known to have declined, but quantitative data and much other data necessary for management was not available.

Pulau Pasoso, after which the project is named, is the main remaining turtle nesting ground in the project area. Together with it's surrounding seagrass beds, fringing reef and shallow waters, Pulau Pasoso been declared a Reserve with SMS designation (Suaka Marga Satwa, IUCN Category IV) at Provincial level since 1989. The main justifications were the nesting populations of Green Turtles and a megopode (*Megapodius reindwardii*). The Provincial level SMS designation carries little weight, there is no management and Pulau Pasoso to date is protected in name only. For management planning purposes there was already good survey data on the reefs and terrestrial fauna, but the turtle population data was limited to oral accounts from the island residents and local fishermen, plus sightings by various team members during coral reef survey activities. The main threat to adults was thought to occur outside the Reserve, in the wider West Coast area waters. Other nesting sites in this area had been reported but not yet verified.

A survey team from IPB (Institut Pertanian Bogor) and the Conservation sub-department of the DKP (Marine and Fisheries Department) was sent to re-assess the status of Pulau Pasoso in late 2002 and was facilitated on location by supporting institution YACL and team member Rusdin. The report recommended national confirmation of the SMS status and implementation of effective management at the local level. The entire project area is within one of the "pilot" locations selected by the MCRMP (Marine & Coastal resources Management Programme), a five-year ICZM project supported by The Asian Development Bank (ADB), and co-ordinated at National level by the DPK. YACL had been appointed to the MCRMP steering committee for Donggala Regency.

Local students from the nature lovers/outward bound group were amongst those concerned about the plight of marine turtles, especially *Chelonia mydas*. They decided to team up with the local marine-oriented NGO YACL (Yayasan Adi Citra Lestari). YACL has collected coral reef and other data at Pulau Pasoso and along the project area coastline, and taken steps to gain support for making Pulau Pasoso an effective DPL (MPA with community involvement) since 2000, to the point where there was local, national and international interest and support. A student-lead joint team was formed, which included a member of Pulau Pasoso resident family. A student-based green turtle (*Chelonia mydas*) data collection and conservation project, Project Pasoso (Program Pendataan Penyu di Pulau Pasoso dan Sekitarnya) which will work together with and make substantial contribution to YACL's long-term Pasoso and West Coast program was designed.

The Project Pasoso team aims were to contribute to long term conservation of the green turtle population through providing much needed quantitative and other data for effective conservation management of the *Chelonia mydas* population using the Pulau Pasoso Reserve and the West Coast of Donggala more generally, especially the Balaesang District where Pulau Pasoso is situated. Anticipated outputs included baseline population data for Pulau Pasoso reserve, nesting, habitat and threat data for Balaesang District, a draft long-term green turtle survey/monitoring and conservation plan for Pulau Pasoso Reserve, further survey/monitoring and conservation management recommendations for the wider project area. The Pasoso Island resident family and other local communities were to be involved at all stages as much as possible, and other "stakeholders" were to be involved where appropriate.

The data and recommendations produced by the project were expected to be a much needed contribution to the development of regulations and a management plan for Pulau Pasoso Reserve. More general regulations and management plans/systems were being designed for the MCRMP ICZM programme area. The project data was expected to be a valuable contribution to this process. Support for YACL's program including Project Pasoso had been expressed by key national and local institutions involved in the SMS and MCRMP processes, both publicly at meetings in Palu and in letters of support, and team involvement was seen as very likely to continue after the end of the one year project planned.

Summary of Project Pasoso Achievements

Project Pasoso took place over approximately one calendar year, from July 2003 to June 2004, and involved a core team of 8 people, 6 local young people and two UK citizens. In addition a local NGO, Yayasan Adi Citra Lestari (YACL), of which some Project Pasoso team members were also members played a major role, and most YACL members were involved at some point. The Pulau Pasoso resident family was involved from the start and played a major role in project activities. The family, assisted by YACL, are now carrying on much of the project work beyond the end of the project term.

Over this period population data was collected for the Green Turtles nesting on Pasoso Island. Seagrass data was also collected, both at Pasoso Island and over the entire coastline of Balaesang District. This was mainly extent and species data but also some quadrat sampling was carried out at Pasoso Island itself. Some information regarding other potential sites nearby was collected, but no other nesting sites were verified by actual sightings of turtles or tracks.

Progress has been made in raising the profile of this supposed marine protected area (MPA) especially at local level. Partly due to Project Pasoso activities, panels have been erected so that people know about the areas protected status. Posters produced and distributed in a major local awareness campaign included a poster on sea turtles, especially the Green Turtle, and project members played a role in ensuring that turtles were considered important enough to warrant a poster, in poster design and in the awareness campaign/poster distribution activities. Though not directly related to green turtle conservation, the installation of permanent mooring buoys largely as a result of team members and YACL data and lobbying, and implemented by YACL together with the island family, should reduce damage to the fringing reef and generally improve the turtles' underwater environment.

National level support was given a big boost when team members met the man in charge of turtle conservation at the DKP (Marine and Fisheries Ministry) at the ISTS (International Sea Turtle Symposium) in Kuala Lumpur, Malaysia, and project activities have contributed to progress towards National MPA status, or possibly improved local status, but in either case, the outcome should be high-level support complete with management plans, finance plans etc. It is anticipated this goal should be achieved during 2005.

Having the prestige of winning the BP Conservation Award, and especially proof in the form of the excellent poster produced by BP for the Awards Ceremony and Exhibition at the Museum of Natural History in New York, was enormously helpful to the team in gaining credibility with local Government especially top decision-makers such as the Regent (Bupati) of Donggala, where Pulau Pasoso is situated. The poster presented at the 24th ISTS in Costa Rica (produced by YACL in both English and Bahasa Indonesia) was also an excellent tool for local credibility.

One major programme output not initially foreseen was the excellent awareness and training materials set produced largely by Matilda Western, the UK volunteer with turtle conservation experience who was a team member for around 4 months. These materials have been used in the project, but team members are now looking for a possible sponsor to produce these in greater numbers and use them as the basis for a much wider education and awareness campaign. YACL has the equipment and skills to produce them, and to use them, but does not have the funds as yet.

Most members of the project Pasoso team have now gone on to other activities, but the project has made what should be a lasting contribution to green turtle conservation in Central Sulawesi. At Pasoso itself, activities are continuing, run by the local family and YACL with support from local government. Data collection is still ongoing and the conservation outlook improving. Other members and people involved have gained skills which are likely to be used at other locations in this and possibly other provinces.

I. AIMS & OBJECTIVES

This portion of the report evaluates the achievement of Project Pasoso relative to the aims and objectives. The original proposal material is in italic font, and the evaluation in normal font. This convention will be used throughout the Draft Final Report.

*The aim of the project is to contribute to the conservation of the green turtle (*Chelonia mydas*) population and habitat along the West Coast of Donggala Regency in Central Sulawesi Province, Indonesia with especial focus on Pulau Pasoso Reserve, the main remaining nesting location in the area.*

The project Pasoso team feel that this aim has been achieved, in that the outlook for the nesting population has been improved through conservation measures already taken and those now planned, although much still remains to be done particularly in widening the scope of conservation activities (geographical area, variety of activities and social groups involved) and ensuring "stakeholder" commitments are adhered to long-term.

The three main objectives of the programme are:

1) Collect Base-line Data for Pulau Pasoso Reserve: *Collect baseline data relevant to the conservation management of the highly threatened Green Turtle (*Chelonia mydas*) population nesting at Pulau Pasoso Reserve. The data are needed for the recently initiated process of establishing effective Reserve management.*

Population Data has been collected over one nesting season and local people including island residents have been trained in simple data collecting methods. The equipment is available for continuing data collection.

Habitat Data has been collected for Pasoso Island. Unfortunately tagging has not been carried out because although a tagging tool was obtained and team members were trained, the Ministry did not issue the permit and numbers to enable this activity to be carried out legally within the time-frame of the project. It is hoped that this activity will still take place later.

2) Collect Data for the surrounding area: *Collect data relevant to the conservation management of the Green Turtle (*Chelonia mydas*) population along the West Coast of Donggala Regency in the District of Balaesang in which Pasoso is situated, and if time and resources allow also in Damsol and Sojol Districts. Data will include identification and quantification of the threats to the West Coast Green Turtle population, identification of historical and current nesting sites other than Pulau Pasoso (if any), and habitat data. Basic Green Turtle population data will be collected where feasible and data gaps recorded. These data are needed as part of Pulau Pasoso Reserve Management in order to minimise threats occurring to the Green Turtle population while outside*

the Reserve, and for the wider ICZM planning process initiated through the Donggala Regency MCRMP programme.

Due to funding limitations, poor weather and problems within the MCRMP programme this data is not as extensive as had been hoped. Sojol and Damsol Districts have not been visited under this project.

Habitat data has been obtained for much of the surrounding District (Kecamatan) of Balaesang. Population and threat data is incomplete, but enough indications have been gained to allow initial conservation measures to be implemented and for planning of future survey and other conservation activities.

3) Application to Conservation Management: *Make recommendations for Green Turtle conservation, including an ongoing survey/monitoring programme for Pulau Pasoso Reserve and Kecamatan Balaesang, and draft a proposal for conservation management of the Green Turtle population within the wider framework of Reserve management. Together with YACL and other stakeholders, take part in the overall process to establish a workable management system for Pulau Pasoso Reserve to ensure that it takes full account of the conservation needs of the nesting Green Turtle population and involves the resident family. Work to promote turtle conservation along the West Coast of Donggala Regency in which Pasoso is situated as part of the MCRMP ICZM programme or in connection with other opportunities, such as by take part in awareness promoting (e.g. meetings, brochure distribution, school materials, media etc) and capacity building (e.g. skills training, workshops etc) activities. Make links and establish co-operation with other relevant organisations especially those working on similar activities or along known or suspected migration routes of the target *Chelonia mydas* population.*

Recommendations have been made. Stakeholders have been brought together and progress has been made on finding common ground and acceptable solutions. Some conservation measures have already been implemented, such as informative panels and permanent mooring buoys, others are underway or planned. After many false hopes and disappointments, mostly due to inter-agency conflicts and other problems related to the beaurocratic system, the MCRMP programme has eventually made a positive contribution, even if not as fully as should have been possible. Involvement with local communities for eco-tourism, coral reef survey/monitoring, under MCRMP and other projects, has all presented opportunity for promoting awareness in an informal way. Manuals, colouring books and posters have been produced and distributed. Links have been made with other organisations in potential migration areas. Plans are being made to reduce consumption through transmitting religious guidance from High Priests in Bali to the many Balinese transmigrant families who form the main market for green turtle meat, usually at least overtly for ritual useage.

There is still a long way to go before the turtles of Pasoso can be considered safe, or indeed before the majority of the population is aware of their plight, but at least a start has been made and support gained both among communities and policy makers.

II. PUBLIC AWARENESS AND PUBLICITY

UK volunteer team member Tilda Western BSc played a leading role in education and awareness building. She designed wonderful training and awareness materials, which the rest of the team put into simple Indonesian. The beauty of these materials is that most do not really need words to be understood. They have been incorporated into two bi-lingual books, one full colour and one in Black & White, suitable for cheap reproduction or for colouring by children. These books are included in Appendix IV on CD. She also had many ideas for involving children and provided great motivation to the team and local community members alike.

Project Pasoso activities on Pasoso Island itself will raise the awareness, knowledge and skills of the resident family through direct involvement, co-ordinated by Aris, team member from the island.

This aspect has been extremely successful, with two of the elder children of the family becoming key team members. Together with their father Pak Ahmad they carried out a major portion of data collection in the latter stages of the programme. The family have really taken to heart their role as "guardians of Pasoso", realising it is for themselves as well as everyone else, and taking great pride in their conservation achievements. The reactions of eco-tourists have greatly increased their innate pride in "their" island and their visits though infrequent provide much needed extra income. The family took leading roles in the mooring buoy and MPA panel programmes, particularly on appropriate site selection and in relations with the visiting fishermen and other users. They now act as conservation "ambassadors" to members of nearby coastal communities, especially the Bajo village of Awesang where they have family ties and get most of their fresh water.

While in the field at locations other than on the Island of Pasoso, awareness raising will of necessity be limited, as it is important to be "neutral" in order to obtain the best data without creating potential conflicts. However, post-survey there will be opportunities under YACL's wider community programme and via the MCRMP programme. For example, public meetings are planned, materials for primary schools are being compiled and likely to be produced, etc.

The Project Pasoso team will create public awareness largely through presenting the results of the survey as part of involvement in the Pulau Pasoso MPA and MCRMP processes. This should raise awareness directly amongst decision-makers and stakeholder representatives, indirectly much more widely. Press reports and possibly TV or radio items will appear, though the project does not anticipate having the funds to initiate them independently as most "news" items pay for inclusion here.

The press/local media coverage area was one of the least successful. Not least because sadly most "news" is only included because someone paid for it to be there, unless it is something of national importance.

However, this did not prevent much effective lobbying and outreach. Although the MCRMP process was fraught with pitfalls, the teams involvement in this project coupled with formal and informal approaches to well-placed stakeholders did serve to raise awareness of Pasoso MPA and the Green Turtle population. Sufficiently for there to be funds allocated, and practical action taken by local government, including several practical activities.

Opportunities were seized by team members whenever they were involve in any type of activity in coastal communities within the area to promote awareness. A series of posters on various coastal and marine conservation issues was produced and distributed through a project related to MCRMP,, and included a poster specifically on marine turtles. All the posters were designed by a team including Project Pasoso team members, with Harto Darwinto being the co-ordinator and doing most of the design work, and were printed by YACL.

The creation of a bi-lingual web-site and production of Pulau Pasoso information for the FIPA Indonesian protected areas website will be vehicles for reaching the growing number of internet

users, including locally as internet users in Palu are increasing exponentially and includes many of the younger generation and middle/upper classes as well as GOs and NGOs.

The website has been created. It is hoped that the use of it will grow, already there has been some positive feedback. More material should be available on the site soon.

The CORAL turtle facts brochure has been translated into Indonesian by YACL, and if funds can be obtained for production, as is looking likely, the team will distribute them.

The translated brochure has been made available on the web by CORAL, so anyone who wishes can download and print them. There is no support for local reproduction yet.

In addition to the public awareness and publicity items from the proposal the team has been fortunate in having additional opportunities. For example, at the local Fisheries Exposition in Palu, where YACL won the prize for best stand, Project Pasoso and the plight of marine turtles were prominently promoted. A poster on the project was presented at the 24th International Sea Turtle Symposium (ISTS) in Costa Rica in February 2004 thanks to additional support from BP Conservation for registration and The David & Lucille Packard Foundation for travel. The YACL poster at the 10th ICRS (International Coral Reef Symposium) in Okinawa also promoted the work of Project Pasoso and the support of BP Conservation Awards partners.

III. OUTPUTS & CONSERVATION ACTION ACHIEVED

The main outputs and conservation action anticipated as a result of Project Pasoso are:

❖ **Outputs:**

(i) Formal Reports:

- *Brief Initial report by email and Interim report in CD format to the BP Conservation Programme*

Initial and interim/draft final report sent.

- *Full Final Report to the BP Conservation Programme which will include textual data report in English in both printed and CD format, plus visual documentation and other materials in the form of a CD. Three copies are anticipated, for BP, the team and YACL, costs included in Budget.*

This report.

- *Reports in English to other supporting agencies in particular The David & Lucille Packard Foundation, NOAA, UNEP EAS/RCU, cost of reporting to be borne by relevant programmes and YACL.*

Completed.

- *Interim reports in Indonesian will be made based on local need, probably in a variety of formats including written, audio-visual presentations, etc. Funding under the Packard/NOAA/YACL programme.*

Completed.

- *Comprehensive Final Report in Indonesian including textual data report in both paper and electronic format, and visual documentation on CD. Estimated number 15 including archives for the team and YACL. Contribution to costs included in Budget. Summary Reports in*

Indonesian with analysed data summary and some visual documentation in CD form. Estimated number 20-25 plus archives for the team and YACL. Contribution to costs included in budget

Formal final report not produced in paper format. CD version produced, already useful and likely to be much used in future also. Not felt necessary to do two versions of final report, but a CD interim report has already been much used, as has other audio-visual footage.

- **(ii) Other dissemination and data products:**

- *A bi-lingual web-site with background information, data summary, action updates and visual documentation hosted by Webinspired UK as an addition to a wider Central Sulawesi website, in conjunction with the Packard/NOAA/YACL programme*

Website exists, anticipate future updates

- *Information on Pulau Pasoso Reserve and the Green Turtle population will have been posted and will be updated as appropriate throughout the project on the FIPA Indonesian protected areas website, in conjunction with the Packard/NOAA/YACL programme*

Still in progress

- *The data collected, survey and monitoring plans and other recommendations made will be entered into the updatable YACL GIS database, and be available to local planners and other relevant stakeholders, and as a basis for further information products or programmes. As a condition of use of the CMS system, the CMS data base (including input form this and other projects) will also be submitted to CMS headquarters in the UK on an annual basis, in conjunction with the NOAA/Packard/YACL programme*

The CMS database was wiped during major computer failure. The saving to CD done before the crash also did not work. Some progress has been made on rebuilding but it is far from complete. However the most important information is available in locally useable formats. If possible the database will be reconstructed, but not under this project.

- **(iii) Capacity building and Networking:**

- *Local capacity in Green Turtle and habitat survey monitoring and conservation will have been increased, within the team, the resident family on Pulau Pasoso and to varying extent amongst other people who come in contact with the project. The student team members will also have acquired or improved other skills such as computer/GIS use, first aid, etc which will be of long-term use.*

This has been a very successful aspect of the project, even more than expected. The resident family, team members, a number of YACL members and associates have all learned valuable skills, both for Green Turtle conservation/monitoring and other more general field and office skills, including in data collection, data analysis and production of relevant materials.

- *Links will have been made with other relevant conservation organisations and projects for long-term co-operation in Green Turtle data collection and conservation.*

The links have been made, locally, nationally and internationally. Now it remains to be seen how they endure and how much long-term benefit will be gained. In addition it is hoped that new links will continue to be built.

- ❖ **Conservation Action Post Project:**

- *Pulau Pasoso Reserve: by the end of the project, establishment of Pulau Pasoso as a DPL/MPA in reality should be well underway, at least partly based on project data and recommendations.*

This has certainly happened. One factor which has really made this possible is the election of a new Regent in Donggala who has come to share many of the views and aims of the team.

Members of the team and YACL are committed to long-term participation in this process, and funding will be available for a limited period (about 3-4 months) after the project end through The David & Lucille Packard Foundation programme. Ongoing funding will be actively sought.

Funding has already come to an end, and the project has been finished, including reporting, using funds borrowed from other programmes, on the understanding that this advance is to be repaid once the final instalment is received. However it looks as though local and national level funding is going to enable activities at Pulau Pasoso at least to continue through 2004, possibly to 2006 and further sources will continue to be sought.

The relationship built up with the island family and other local "stakeholders" should greatly facilitate the effectiveness of the Reserve. A monitoring system based on project recommendations will most likely be in place shortly after project completion, involving the family, especially team member Aris.

The increased involvement of the family has certainly happened. As of this report, monitoring by the island family, with some assistance from YACL is still ongoing, and longer term continuation is highly likely.

It is anticipated that Pulau Pasoso Reserve will join the MPA networks currently available, including LMMA, the UNEP EAS/RCU network linked to the START regional metadata-base, and the national FIPA network during 2003/2004.

These possibilities are currently being pursued, and to this end a place has been booked on an MPA management training course.

- *MCRMP: this programme will be ongoing until 2006/7, and the data collected by Project Pasoso will be submitted to the team drafting and implementing PERDA for the area. This should have an impact on Green Turtle conservation long-term throughout the area, if the PERDA are well designed and effectively implemented. YACL and the team have a commitment to participating in and overseeing the activities initiated under the MCRMP project for the programme duration and hopefully beyond.*

It is likely that the results of this project and the people involved will continue to have increasing influence in this area

- *Conservation activities throughout the area will be continued by YACL and as many team members as wish to be involved. One very likely activity, as the concept is already underway, though no funding is available to date, is the production of educational materials about the marine and coastal environment, including a section on Green Turtles contributed by the team, aimed at the "local content" section of the national curriculum at primary level. It is hoped this would be in use at pilot locations before the end of 2004 or during 2005.*

Conservation activities are underway. How much will depend on level of support. Materials have been produced. Introduction into any school curriculum is a long process, which may or may not succeed. However use in other community activities including youth groups is likely.

IV. LOCATION & LOGISTICS – EVALUATION

The location is shown on the attached maps. Logistics are based on experience of team members and the supporting organisation YACL in the project area.

Based on information from Aris, the main Green Turtle nesting seasons at Pulau Pasoso are between July and November, with infrequent nestings outside this period, at almost any time of year. It is anticipated that before the heavy nesting period the team will have been able to build the base and carry out field training, and that by the end of the main nesting period, Aris and his family will be competent to record low volume data, even if other team members are not always present.

Essentially correct.

During the main nesting months the team will aim to have at least 2 team members based on the Island, possibly more depending on other activities (e.g. coral reef surveying at the site) and workload (numbers of turtles). The non-resident members will be relieved at regular intervals, anticipated to be not longer than 1 month at a time, but flexible depending on circumstances such as other commitments, health etc. The team members not on the Island will endeavour to collect some data on nesting, habitat etc in Kecamatan Balaesang.

Due to reduced budget, on-site time for non-residents was reduced and involvement of resident family increased. There were unusually severe problems with weather this year, some unseasonable, but essentially necessary visits were possible.

In the remaining months, it is anticipated that the main team efforts will be directed at filling gaps in data for Kecamatan Balaesang and possibly gathering data further North (directly or through links with local NGO there), data entry and analysis, processing of visual data, and interaction with other organisations involved in Pulau Pasoso and MCRMP programmes.

This aspect had to be severely curtailed as funds, floods and pressure of other work on team members made it very difficult.

❖ **Facilities to be provided on Pulau Pasoso include:**

- *A simple building for accommodation, equipment storage and certain survey procedures including low-power lighting & A pit latrine (will need moving) or other more suitable sanitation if available*

Another NGO built accommodation including basic sanitation with support from the Marine & Fisheries Department (Provincial level) which we were able to use as well as using facilities belonging to the island family.

- *An “all-band” radio*

The aerial proved a major problem – high enough to work meant exposed to heavy weather. Worked some of the time, needs work on improving the setup. Useful when working.

- *Basic equipment for cooking, washing, sleeping and other everyday activities & A simple water filtration system to make the water from the brackish lake suitable for non-drinking use (trialled by YACL in 2002) & Equipment for carrying out the survey work as per “Methods” section & Video camera including waterproof casing and waterproof still camera & YACL sampan outrigger canoe for round-island transportation*

No problems

❖ **Transportation**

No significant problems other than during the severe flooding end 2003/early 2004 when many bridges were damaged or destroyed and a ferry sank. The sea was or was considered unsafe for some time.

❖ **Other logistics in the wider West Coast Project Area:**

• *Communications & Accommodation*

No significant unexpected problems.

❖ **General considerations:**

No major unexpected challenges on the safety side

V. METHODS - EVALUATION

The methods used in data collection will be based mainly on Eckert et al 1999. Wherever necessary advice will be sought from recognised turtle experts with experience in the appropriate area, including several of the authors contributing to this volume. The data to be collected and methods to be used in both data collection and analysis are outlined below.

1. **Data to be collected and rationale:**

.... *Ideally a data collection programme for designing a comprehensive conservation programme should include: [...]. To collect all the data listed above for the whole project area within the time and with the resources available to the Project Pasoso team would not be realistic.*

Correct assessment. Methods anticipated generally worked well. However not all data was collected as comprehensively as the team would have wished.

(i) ***Population and habitat data***

Basic population and habitat data has been collected, some is contained in Appendix IV. For nesting the data is fairly comprehensive.

(ii) ***Sources of mortality and other threats within and without the project area:***

Enough is known for initiating conservation measures and designing further programmes

(iii) ***Data on current regulations and responsibilities:***

Strong support from the Environment Department (BAPEDALDA) and other agencies greatly helped in this respect. However it does seem that regulations are often unclear, and simple clear local regulations would be most beneficial and are much desired by many local people.

(iv) ***Socio-economic data of relevance to conservation planning:***

Data gathered though not as complete as would be ideal has been used in outreach material and activity design.

(v) ***Information regarding effectiveness of management methods and tools***

This research was largely carried out at the 23rd ISTS in Kuala Lumpur and over the internet.

2. **Methods for Population, Critical Habitat and Threat Data**

❖ ***Primary Data***

The methods to be used include:

(i) ***Species identification:***

Only Green turtles (*Chelonia mydas*) were found nesting. However Hawksbill turtles (*Eretochmelys imbricata*) were also observed in the waters around Pasoso and along the West Coast.

(ii) ***Observation of nesting activity at Pulau Pasoso:***

Largely successful. Tidal access problems resulted in some incomplete data on the second nesting beach, which began to be used again after the beach cleaning started.

(iii) Data on nesting beaches throughout the project area:

Incomplete. Some previous nesting areas identified. Plans underway to gather additional data, outside of the project.

(iv) Data on seagrass beds in the project area:

Mainly done by manta tow. Comprehensive location and some qualitative data for Pulau Pasoso, GPS points of sea grass area limits and some dominant species data for other locations.

(v) Sightings, catch and threat data throughout the project area

Far from complete. Needs further work. Plans underway, outside of this project.

• **Secondary Data**

Largely through the internet. No data available for the Makassar Straits but plenty on the species.

3. Methods for Socio-economic data relevant to conservation planning:

Largely informal in practice. Much data collected by members during other work in the area has been used in assessing the situation and planning activities, including "socialisation" with communities and lobbying of specific individuals.

4. Methods for Data on current regulations and responsibilities:

Methods will include literature search (including use of the internet), interviews of key informants, visits to relevant organisations, and possibly other methods.

The information and data gathered will be used in planning activities during and post project, formulating recommendations and in targeting distribution of output from the project.

In practice, most done informally, with some internet/email searching and correspondence. Individuals and organisations identified as having official or real responsibility were targeted for awareness raising and lobbying, using largely informal approaches. This worked well.

5. Methods for Information regarding effectiveness of management methods and tools:

The main methods will be literature search including use of the internet and direct interaction with experienced people and organisations, including meetings, email and possibly other media.

The proposal text for 4. and 5. describes pretty well what happened.

6. Methods for Data Management and Production of Management Tools

(i) Data analysis

Still ongoing

(ii) Data management

Data and results of data analysis will be entered into the GIS and CMS software made available through YACL.

As mentioned above the CMS database was wiped, along with everything on the main computer used for this programme, and to re-enter everything is a massive task which may or may not be completed. Luckily most data was also on other computers or in hard copy. The ArcView GIS also had a "key" problem, and sadly this is still not resolved. To overcome this, the team has used other data organisation methods, and has saved as much data as possible on CDs in "raw" form.

(iii) Data Products

Many have been produced and used to good effect. More are anticipated in the future. Some have already been sent, and/or are shown in appendix III.

7. **Equipment:**

The table below shows the main items of types of equipment and the sources from which Project Pasoso expects to be able to obtain the necessary items.

This table has been annotated to show what really happened.

Table 1 - Equipment Needed and Sources

Item	Remarks	Source/Fund	Remarks
GPS	As Expected	YACL	loan
Camera		YACL	loan
Torches		YACL	loan
Batteries		BP fund	For all items above
Videocam		YACL	loan
Films, video cassettes and CDs	YES, but more digital used than expected	BP fund	
Binoculars	YACL	BP fund & YACL	Still fine & in use
Callipers	As Expected	BP fund	
Scales		BP fund	
Other measuring equipnt		YACL	loan
Tags and other tagging equipment	BP – tagging tool but no tags yet!	BP fund & YACL	From CMTTP or MTN (Symposium etc)
Waterproof paper	As Expected	BP fund & YACL	
Other stationery for data collection and report production etc		BP fund & YACL	Excess covered by YACL
Snorkel & SCUBA		YACL	Loan
Computer equipment		YACL	Loan
First Aid Kit		BP fund & YACL	excess by YACL
Radio equipment		Shared	BP fund & YACL
Car type batteries	As Expected	BP fund	Still fine
Generator		YACL	Charging equipment
Small boat (outrigger canoe)	As expected but reduction in anticipated transport forced because of reduced budget	YACL	Loan for most of project duration
Other marine and land transport		BP fund and YACL	YACL loan and cost-sharing for some hire
Water filtration system		BP fund	Lasted
Cooking, other basic survival kit, Storage for equipment etc		BP fund and YACL	Most loaned or provided by YACL

VI. PERSONNEL & RISK ASSESSMENT EVALUATION

The project team:

The team worked well in general, though there were some changes. Original members Siti and Ninis were replaced by Aco (fisheries) and Anchy (computer). In addition, Aris (also called Riswan) was replaced for part of the time, and then assisted by his brothers Risman and Ismet.

- Other YACL members and associates played substantial parts in the programme. The four young members of Tawaeli coastal community who run Dolphins assisted greatly in all field activities: Saiful, Dedy, Gafur and Sapril. YACL director Sofyan also took a major role especially in facilitating the relations with other stakeholders and getting the results used to influence local policies. All other YACL members made at least some contribution. Synergy was achieved with activities funded by other donors as had been hoped. Many other people made contributions in either time or kind.
- Peter Feehan of Webinspired UK Ltd has continued to provide support for the website.

Risk assessment:

- Precautions taken did avoid any major safety incidents. The worst incident we had was a case of severe constipation after all fresh foods were consumed by unforeseen visitors (without permission!) leaving the team to subsist on rice and fish alone for several days. If treatment had been delayed even another day the doctor said this could actually have been serious and was something we had not anticipated, though quite extensive preparations had been made for diarrhoea. After this, precautions were taken and no further health/safety incidents troubled the team.
- Regarding risks to the project outcomes, the team were over ambitious in regards **non-Pasoso** data collection, and the difficulties in this area were underestimated. Especially the effect of problems in other programmes (e.g. the MCRMP), in necessary co-operation (e.g. the permit for tagging) and of other commitments for individual team members (e.g. other work/study).

VII. LOCAL PARTICIPATION, PARTNERSHIPS & PERMITS

Permits have not been a problem to date (2000-2003) for YACL and associates, and difficulties are not anticipated, especially in view of the partnerships and relationships established to date.

Correct EXCEPT regarding tag authorisation and issuance of approved numbers.

Local participation:

- *On Pasoso Island:*

As expected

- *In the West Coast project area:*

Panggalaseang, the village nearest to the other reputed turtle nesting island, Pulau Mauputi.

The team did not get this far.

Kecamatan (District) level (Balaesang, Damsol and Sojol)

Only Balaesang, but much as described in proposal

- *In the Regency and Provincial Capitals:*

All relevant local bodies and organisations will be informed of the project and of the project results. A number will be further involved, particularly in respect of providing specific or general support to the team, e.g. as providers of information or permits, and/or as direct users of the data produced.

This is what happened.

The main organisations involved are listed below, together with their roles as supporters and/or beneficiaries of the project.

BAPPEDA: regional planning authority, at both Provincial (Tkt I) and Kabupaten (Tkt II) levels. These Government bodies have been given the role of co-ordinator for the MCRMP programme at their respective levels.

Dinas Perikanan: fisheries and marine authority at Regency (Tkt II) level. This Government body has the role of implementer of policy issued by the DPK (see below) and has the powers to decide local policies within this framework, including a prominent role in deciding the future of Pulau Pasoso as an MPA, and involvement in the MCRMP programme.

A change in leadership occurred part way through the programme, bringing in a supportive Regent in Donggala. This has made a huge difference and has been at least partly responsible for the positive involvement of local government which it is hoped will continue.

BAPPEDALDA: government authority at both Provincial (Tkt I) and Kabupaten (Tkt II) levels responsible for the implementation of environmental legislation, including prevention of environmental destruction and degradation, etc. Involved in MCRMP, Pasoso MPA, and, as a species covered under protective legislation, turtle conservation.

The department head who had provided much support for the project in planning and during the early stages of implementation was moved, but good relations have been maintained.

YACL has good relations with all the above and all support the aims of the project as it fits in with their current needs, particularly in connection with the MCRMP programme, Pulau Pasoso MPA, and protected species legislation implementation. All have some (very little) data which they are willing to share, are prepared to provide support in the form of necessary letters to other bodies and District/village levels, will be involved in the larger programme the project fits into, and will be direct project data users.

In general in spite of some challenges along the way this proved to be a correct assessment. With the exception of the failure to obtain tagging permit in time.

Other organisations which will be involved though most likely to a lesser extent, mainly through being invited to presentations and having access to the data produced include local Universities (especially UNTAD's fledgling Marine Department which has close links with several team members and YACL), other NGOs and other government departments. In addition all organisations and other stakeholders involved in the Donggala MCRMP programme and Pulau Pasoso MPA process will benefit from the data produced.

In the event UNISA (Universitas Alkhairaat) as well as UNTAD was involved, e.g. the "Fisheries Expo 2003" and participation of the Fisheries Faculty Head in some activities. Further co-operation with Universities including possible research by students at the site for final year theses etc is under discussion. Links with other NGOs were mixed – the NGO whose accommodation was used at times also was responsible for a poorly planned and executed "head starting" programme which made negative contributions to the turtle conservation as only 20 out of over 400 hatchlings were alive by the planned release date, all in poor health. In addition this venture resulted in a sharp decline in tridacna clam populations used as feed for the hatchlings, plus damage to the surrounding coral reef in the course of clam collecting. The situation now seems to be under control, and the teams recommendations for nest guarding rather than head-starting seem to have been accepted.

National & International Partnerships:

- *Institutes of Higher Education:*

The main University involved is IPB, through the Pulau Pasoso MPA process. Staff from IPB have already and will continue to assist with information and expertise, and IPB will be a data recipient.

Still accurate.

Government Departments:

The main National Government Department involved is the DPK, Marine and Fisheries Department. In particular, the Direktorat Konservasi & Taman Nasional Laut, the National sub division of the DPK is responsible for establishment and policy matters regarding all MPAs. Information and technical advice has already been and will continue to be supplied by both the DPK and the Direktorat, which have declared support for Pulau Pasoso MPA. The MCRMP programme is being managed at National level under the wing of the DPK, and YACL has close links.

Relations have remained very cordial but the necessary permit for tagging has still not been issued. Seems this is due to an inter-agency conflict between DKP and other departments, particularly the National level Conservation (KSDA) Department.

• *Funding Agencies:*

Two funding agencies will provide support, indirectly, through YACL, and therefore will receive some project data: The David & Lucille Packard Foundation, and NOAA.

Indeed support from these two agencies was invaluable, and data has and will be shared with them. Unexpected support from the David & Lucille Packard Foundation included a large contribution to travel costs for presenting at the 24th ISTS in Costa Rica.

Other assistance and resources:

The director of British company Webinspired UK, Peter Feehan, has generously offered to host a web-page for the project for free, as part of the larger Central Sulawesi site he is constructing for YACL, under the NOAA linked programme..

All went well in this respect.

The Marine Turtle Network (MTN), Coral Reef Alliance (CORAL), Dr Nicholas Pilcher of the University of Malaysia, the GBRMPA and other organisations and individuals have contributed or have (informally) committed to contributing valuable information.

In addition to the above, Dr Nicholas Pilcher as chair of the Asia-Pacific branch of the MTN awarded a travel grant towards the cost of presenting at the 24th ISTS in Costa Rica.

UNEP EAS/RCU which has assisted YACL in a programme for coral reef survey and monitoring since 2000 and is a valuable source of contacts, technical expertise and advice.

UNEP EAS/RCU continued to be an invaluable contact and resource.

Through YACL, CMS has provided a free copy of the CMS 2000 management database and license, WRI has provided a free copy of ArcView GIS system, both of which will be used for data management within and following this project.

Sadly there have been problems with both these generous gifts. As mentioned above the CMS was wiped during a major computer failure and the ArcView key was made inoperative through a misadventure (involving the Provincial DPK personnel).

Permits:

Permits will be needed for all operations on the Island of Pasoso. These will be arranged by Harto through YACL. Agreement in principle has already been given, but written documents cannot be

produced until dates are definite and imminent. A general letter of support from the permitting agency (Conservation Department of the DPK) is attached.

Data collected must be submitted to appropriate local and National Government agencies, as this is a general condition of all research in the area. Details given in Outputs section. No problems are anticipated in this regard. Harto and Cristoforus will be in charge of ensuring that this obligation is fulfilled.

Permits for most activities at Pasoso and elsewhere were indeed no problem, and all obligations to local Government agencies have been fulfilled. Tagging permits did become a (still unresolved) issue, because it is still unclear who has the final say in the matter. This is an internal Government problem, NOT a problem of poor relations with Project Pasoso or YACL. The team were just unlucky to get caught up in this high level "power struggle". Tagging is anticipated to take place at last in 2005.

Appendices on CD:

Some additional items have already been supplied as part of the interim draft final report submitted on CD or in printed format (ISTS Poster) in June 2004. Most of these are not reproduced in this report.

Appendix I – Final Financial Report

Appendix II – Pasoso Turtle Books (pdf files) in full colour and Black&White for colouring

Appendix III – Project Pasoso resume film

Appendix IV – Project Pasoso Data

Appendix V – Photographs and Presentations¹

¹ Much material already sent on interim CD. These photos and presentations are additional material mostly not included previously