

**Project: Combining Research and Local Community Involvement to Save
Lemur in Madagascar**

Sahamalaza-Iles Radama National Park, Madagascar
Project Duration: August 1, 2014- 30 September 2015



Final Report of Conservation Leadership Programme (CLP ID: 01187114)

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Section 1:

Summary

The Sahamalaza-Iles Radama National park is the unique protected habitat of the blue-eyed black lemur. This lemur is primarily threatened by habitat destruction. In order to advance the conservation actions of the lemur we conducted a conservation project which aimed to improve the local community involvement in protection of the blue-eyed black lemur. Our objectives included implementation of education and outreach programme, a full assessment of lemur population size and vegetation survey and training of the park rangers. We sensitized more than 1500 local communities about the need of the conservation of the lemur, its forest habitat and the cost of deforestation during four (4) different events that we conducted in villages and town close to the park. We have recorded a total of 376 individuals of the blue-eyed black lemur within the forest of the park. Forty (40) park rangers were trained about the forest control, biodiversity data collection and park regulations. The main impact of this project is the increase of the local communities' awareness about the importance of the conservation of the lemur and the protection of the forest.

Introduction

The distribution of the blue-eyed black lemur is limited in the north-western part of Madagascar and the Sahamalaza-Iles Radama National Park (SIRNP) is its main habitat. The species was discovered and named by Gray in 1867 but no detailed research was done until its rediscovery in 1985 (Koenders et al., 1885). The study of Koenders and colleagues focused on the description of the species' morphology and distribution. The blue-eyed black lemur (*Eulemur flavifrons*) is one still among the least-studied diurnal lemurs due to its recent rediscovery. Previous studies on the blue-eyed black lemur provided mainly essential data on the natural history of the lemur and its habitat including the social organization; diet; behavior; home range; population size; habitat use; threats (e.g: Rakotondratsima 1999; Volampeno 2003, Schwitzer et al. 2007, 2007b, Volampeno 2009).

Although the SIRNP is legally protected the local communities surrounding the Park are still practicing illegal forest exploitation within the park for their basic and business needs. Therefore, the lemur is mainly threatened by habitat destruction including slash and burn agriculture for rice growing, logging and uncontrolled fires. Due to these threats, the lemur is classified as Critically Endangered on the IUCN Red List. This project contributed to the long-term conservation efforts on the blue-eyed black lemur by combining ecological research and local community involvement.

During the realization of the project we worked closely with key partners mainly the park manager (Madagascar National Parks), a conservation organization working in the site (Association Européenne pour l' Etude et la Conservation des Lémuriens), local associations (Association Volamaintso) and local stakeholders such as head of villagers.

The project site which is the Sahamalaza-Iles Radama National Park (SIRNP) is one of the 30 priority sites for the lemur conservation in the IUCN/SCC Lemur Conservation Strategy 2013-2016. The SIRNP is located in the northwestern part of Madagascar, within the Sofia Region and province of Majunga. This protected area is a complex of terrestrial and marine parks. The forest of the SIRNP is fragment composed of block of forests including forest of Ankarafa, and forest of Anabohazo. Each block of forest is composed of small fragments isolated or connected by corridors. The villages are located along the coast and inside the Park.



Figure 1 Map of Sahamalaza-Iles Radama National Park (source: WCS 2013)

Project members

Sylviane Volampeno (37y)

Sylviane received her PhD in 2010 from the University of KwaZulu-Natal, South Africa. Her PhD research focused on the critically endangered blue-eyed black lemur. Since then she has worked in conservation of the biodiversity of Island. Actually she is I am the founder and currently the president of the Madagascar-based conservation association "Mikajy Natiora". She is also a part-time lecturer at the Department of Animal Biology, Faculty of Sciences, and University of Antananarivo. Her areas of interests include primate conservation, biological research, local community development and education. Sylviane is the the CLP project leader, her task consisted on the supervision and management of the CLP project both activities and budget.

Rindra Ramanankirahina (36y)

Rindra got her PhD in 2013 from the University of Hannover , Germany. Her PhD research focused on the wolly lemurs. She is teaching Zoology at a private University in Antananarivo and a student advisor at the expedition in Mariarano forest organized by the Operation Wallacea. Rindra is an active member of the Mikajy Natiora Association. Rindra has experiences in data collection in both nocturnal and diurnal lemurs. During the CLP project, Rindra was involved mainly to the park rangers training and responsible for all activities in education and outreach.

Fano Ratsoavina (35y)

Fano received her Phd from the University of Braunschweig, Germany in 2013. Her PhD study focused on the leaf-tailed gecko. She is a lecturer at the Department of Animal Biology, Faculty of Sciences, and University of Antananarivo. She is an herpetologist but has experiences of leading field team during the

various field work including lemurs, fish and aquatic macro invertebrates. Fano was involved the lemur data collection and awareness rising during the CLP project.

Mamy Razafitsalama (33y)

Mamy got his MSc in Antropology Biology, University of Antananarivo in 2013. He is now the country director of the organization Planete Madagascar. Mamy has experiences in managing project and supervising team. Mamy was involved to the education and outreach during the CLP project.

Section 2

Aim and Objectives

The aim of this project is to improve the local community involvement in protection of species. The main objectives were :

- To gain local support for lemur conservation
- To assess the lemur size and vegetation
- To train conservation agents or Park Local Committees (PLC) conducting forest monitoring

Changes to original project plan

There was no change regarding the objectives of the project. We changed only some activities from the objective 1 after gaining knowledge and skills from the CLP training in Calgary.

Methodology

Objective 1: To gain local support for lemur conservation

During 2014 and 2015 we conducted several activities during 4 events including visit of Ambalahonko village, fire-break event, celebration of the annual lemur festival and celebration of the Earth Day. These events took place in villages and town surrounding the SIRNP. The activities composed of talks on lemurs, Sahamalaza-Iles Radama National Park and pollution, carnival with lemur mask, lemur coloring and drawing contest, environmental quiz, competitive games, distribution of T-shirts and handbooks, beach cleanup and installation of educational plaques. All materials and equipments used are prepared and purchased in Antananarivo. All talks are prepared in PowerPoint, illustrated with pictures and written in Malagasy language. We collaborated with the NGO working in the park (AEECL), local conservation association and local stakeholders such as head of villages for the realization of all activities.



Photo 1: Preparation of the lemur mask

Objective 2: To assess the lemur size and vegetation

Lemur and vegetation surveys were carried out in February and March 2015. Line transect method was used to estimate the population of the blue-eyed black lemur. Eight (8) transects of 1.5km and 3km were followed during the survey in the forests of Anabohazo and Ankarafa. The observations took place during the following times: 06h00-11h30 in the morning, 14h00-17h00 in the afternoon when the blue-eyed black lemur was most active. We also did nocturnal visit from 18h00-22h00pm to observe the nocturnal lemur species. Each trail was walked twice. During the counting, observers walked slowly and silently and when a group was sighted the observers remained with the group and followed until all individuals have been counted. During the observation the following information were noted: date and time of observation, the place where a group was found, the group size and group composition, the GPS waypoints. Quadrat method was used to assess the vegetation. Twenty (20) plots of 20m x 20m were established near the forest core and forest core. Trees having DBH > 5 cm were recorded; any anthropogenic present within the plots was also noted recorded. Each plot was spaced approximately 100m apart.



Photo 2: On the way to the forest

Objective 3: To train conservation agents or Park Local Committees (PLC) conducting forest monitoring

Training of the Park Local Committees (PLC) or conservation agents was conducted in November 2015 in collaboration with the park manager, the Madagascar National Parks. The PLC were informed in advance and gathered in one place for the workshop training. Four (4) topics were learnt during the training including forest control, biodiversity data collection, use of GPS and park regulations.

Outputs and Results

During the project period, 8 different activities of awareness rising were conducted. More than 1500 local communities from 15 villages surrounding the park were sensitized. The majority of the audience was children and youth. Two hundred (200) T-shirts were distributed for persons of all sex-age classes. Three (3) permanent plaques were installed close to the forest and to the nearest village of the park. Forty (40) environmental handbooks were distributed to the local primary schools within the villages surrounding the park. Four (4) environmental quiz and 4 PowerPoint presentations were carried. Three hundred (300) lemur masks were performed, it is noted that these masks were worn during a carnival. We installed 3 permanent educational plaques.



Photo 3: The audience during the different activities



Photo 4: Carnival during the annual lemur festival



Photo 5: beach cleanup during the Earth Day



Photo 6: Educational plaque

We estimated 146 individuals of the blue-eyed black lemur from 19 groups at the forest of Anabohazo. The group size ranged from 3 to 14 individuals with an average of 7 individuals. In Ankarafa forest we recorded 230 individuals with a group size ranging from 4 to 11 individuals and a mean of 8 individuals. Over 900 trees with diameter at breast height (dbh) > 5cm were recorded in Ankarafa and Anabohazo forest. The vegetation of the SIRNP is dominated by *Mangifera indica*, *Garcinia pauciflora*, *Sorindeia madagascariensis*, *Grangeria porosa*, *Bambusa vulgaris*. and *Mascarenhasia arborescens*. The mean of tree height is 10m and the tree height ranged from 5 to 20m. We found 2 old lemur traps, clearance for slash and burn agriculture and selective logging during our survey in Anabohazo forest.



Photo 7: Taking GPS waypoints at Anabohazo forest



Photo 8: Female blue-eyed black lemur

We trained 40 Park Local Committees (PLC) in collaboration with the park manager (Madagascar National Parks). These PLC are from 14 villages at the commune of Maromandia.



Photo 9: Participants during the training



Photo10: Explanation about the park regulations by the director of the park



Photo 11: A CLP team member (Rindra) explained data collection on lemur survey

Communication & Application of results

Beyond the CLP project period we are still doing conservation activities at the park and within the villages surrounding the park. We have applied for conservation grants thus the CLP project's results served us as reference (evidence of our success) at the grant proposal. We have also communicated the results of our CLP project to the local stakeholders and partners who are working with us to continue our conservation work. Regarding the results of the education and outreach activities, we shared the results to other conservation NGOs during the environmental education workshop that we participated last November 2015. It served as exchanging materials.

Monitoring and Evaluation

To assess the effectiveness of the project's activities we conducted interview using questionnaires and voice recorder. The evaluation took place during the 10th anniversary of the annual lemur festival which gathered at least 1000 persons from all the villages surrounding the park. We asked the perception of the local communities at the end of second day of the event. The questionnaires contained information about the interviewee (age, sex, profession and village), the performance of the activity and the perception of the audience. The questionnaires allowed us to know the number

of attendees to each event, response of the audience and recommendations for future events. In order to find out the decrease of anthropogenic activities within the park, we collaborated with the PLC who did patrol in the forest so the method used was the direct observation.

Achievements and Impacts

We are the first to implement annually sensitization activities within the villages surrounding the park. We started in 2013 and our activities have covered the majority of the villagers surrounding the SIRNP. Through the various activities that we carried out within the villages surrounding the park, people have learnt about the blue-eyed black lemur including its ecology, biology, its threats, and the benefits from the protection of the forest. The schoolchildren really enjoyed the environmental quiz and gained information about the lemur and the protection of the environment. Adult and youth people were also interesting to attend the quiz. The majority of the people who participated to the beach cleanup in Analalava town were adults, they really enjoyed the beach cleanup; they were motivated during the cleanup and were aware about the necessity of the protection of their environment. The celebration of the Earth Day was the biggest environmental event since the creation of the Park. More than 1000 people attended this event and all regional authorities were present during this event such as Head of Sofia Region, Head of district and representatives of other NGOS working in the Region. In addition, this event was broadcasted at the national TV channel (TVM). It was the first time that Earth Day was celebrated in the Sofia Region so the regional authorities asked us to organize it again in 2016 but in another place.

We are the first to conduct survey the population of the blue-eyed black lemur within the block forest of Anabohazo since the inauguration of the sahamalaza-Iles Radama as National Park in 2007. Our results provided an idea to the conservation NGO (AEECL) working in the park about the construction of research camp in Anabohazo forest.

The Park Local Committees (PLC) were interested and enjoyed the training, we expected 30 participants but we reached 40 people. This was a good indicator of the project success. The workshop training was very helpful for PLC, they now follow all instructions given to them for reporting and practiced the skills that they gained during the training.

At the beginning of the project we had 300 likes in our Facebook page and now we reached 1766 likes.

Capacity Development and Leadership capabilities

Through the CLP project the team members have learnt and gained new skills such as managing field team, developing education materials and communicating with local stakeholders. The lemur and vegetation survey coincided with the rainy season, despite the difficulty of working during the rain the field leader managed in his own the field team and the survey schedule. After finishing one conservation activity, the team members developed new ideas about the improvement of the next activities. The team also managed to discuss with the local stakeholders during the project.

Section 3

Conclusion

Our results contributed to the conservation of the blue-eyed black lemur and its forest habitat. Most of our activities fell to those written at the action plan for the SIRNP at Lemur Conservation Strategy 2013–2016. Therefore, our project helped to achieve the objectives of that strategy.

By conducting several education and awareness activities, the local people became aware the importance of the biodiversity of the park especially the blue-eyed black lemur, the protection of the forest and environment. Involving the local communities to the conservation activities such as beach cleanup allowed the local communities to take action for the protection of their environment.

The Park Local Committees (PLC) training has increased their capacity for their work. They gained knowledge about the biodiversity.

This project allowed us to develop an excellent network with other conservation organizations and a good partnership with the park manager the Madagascar National Parks.

Due to lack of spare time of the team members, we did not yet publish the outputs of our project through scientific journals. We will plan to publish this year 2016.

Problems encountered and lessons learnt

- *Which project activities and outcomes went well and why?*
In general, the awareness activities went well because it was well-organized. At each activity we gathered much audience as expected. The organizations partners such as the AEECL and the park manager were informed in advance about our activities schedules. In addition they were very collaborative during the realization of the activities. They provided us support such as advices and logistically.
- *Which project activities and outcomes have been problematic and in what way, and how has this been overcome?*
The major problem that we encountered was the realization of the lemur and vegetation survey. This activity coincided with the rainy season thus transportation to the field site was difficult. At least 3 cyclones hit Madagascar over a period of 3 months from January to March and the rain was abundant throughout the Island. As result, travel was very difficult as some roads to go to the field site were blocked due to the rising water thus any type of was not able to go. We supposed to start our field work in January but due to the weather condition we postponed it in February 2015. We listened regularly the weather forecast and then once the weather was good the team left immediately, they prepared in advance their equipments and other materials needed. As the site is located in a remote site, during the lemur field work the team had to take 3 kinds of transportation including car, speedboat and hiking. Our team is aware of the field condition so they are prepared to be strong physically and mentally.
- *Briefly assess the specific project methodologies and conservation tools used.*
We changed and developed more educational materials as previously planned. The CLP training had provided us new skills about education and outreach.

- *Please state important lessons which have been learnt through the course of the project and provide recommendations for future enhancement or modification to the project activities and outcomes.*

The partnership with the conservation NGOs, local stakeholders was very important. In addition we developed a good relationship with the local communities. In addition understanding and speaking the local dialect was an advantage for us. In order to implement long-term conservation project within the park, this partnership and good relationship with the local communities should be kept. As mentioned above the problematic that we encountered during the project, for future activities it is important to organize carefully the schedule when working during the rainy season.

In the future

Overall, this project allowed us to plan further conservation activities which are appropriate for a sustainable conservation of the blue-eyed black lemur and for management of its habitat in the long-term.

Following this project, we have the following actions that should be implemented after the CLP project:

1. Alternative livelihoods project should be implemented within the villages surrounding the park. It will decrease the dependence of the forest resources.
2. Education and outreach project should be continued and sustainable. One year will not change the local communities' behavior. They need to learn taking responsibility for conserving and managing the natural resources in their vicinities.
3. Reforestation of native trees within the forest and exotic trees around the villages should be carried out. Reforestation of native trees is needed to extend the remaining forest habitat of the lemur while the reforestation of exotic trees will decrease the illegal forest exploitation. Exotic trees can be used for basic needs of the local communities such as construction of houses, pirogues and charcoal.
4. Implementation of health project is also needed because it will allow the local communities to be healthy and productive.

Financial Report

Please see below

Itemized expenses	Total CLP requested (USD)	Total CLP used (USD)
PHASE I - PROJECT PREPARATION		
Field guide books, maps, journal articles and other printed materials		
Insurance (field medical kit and mobile phone credit)	500,00	553,00
Visas and permits	150,00	0,00
Team training (Please detail:)		
Medical supplies/First Aid		
Other (Please detail:)		
EQUIPMENT		
Scientific/field equipment and supplies	500,00	427,00
Photographic equipment		
Camping equipment (Kitchen utensils and tents)	550,00	691,00
Vehicle Hire (E.g. Boat/Truck/Engine)	2 500,00	2 641,00
Other (stationery: notebook, pens, pencils, printer ink and papers)	300,00	345,00
PHASE II – IMPLEMENTATION		
Accommodation for team members and local guides		
Food for team members and local guides	5 400,00	5 892,00
Travel (Including fuel costs)		
Outreach/education activities and materials (t-shirts, carnival, lemur contest, T-shirt, quiz ..)	2 500,00	2 743,00
Workshops	1500,00	1392,00
Other (Please detail:)		
PHASE III - POST-PROJECT EXPENSES		
Report production and results dissemination	600,00	240,00
Other (Please detail:) newsletter, workshop	500,00	0,00
Total	15 000,00	14 924,00

Bank commission (US\$)

78

Details and justification of the budget difference:

We did not pay our research permit because the one we had was still valid during the CLP project thus we re-allocated this budget to cover the cost of the outreach/education activities and materials.

The budget of the camping equipment was higher than the budget expected because the cost of tents are higher than those written on the CLP budget proposal , the budget at the phase III covered the difference of the budget.

We re-allocated the remaining budget at the post-project expenses to cover the cost of vehicle hire and outreach/education activities and materials.

The bank took 78US\$ as transfer commission during the transfer of the first installment of the grant.

Section 4

Appendices

Appendix 4.1 : CLP M&E measures

Output	Number	Additional Information
Number of CLP Partner Staff involved in mentoring the Project		
Number of species assessments contributed to (E.g. IUCN assessments)		
Number of site assessments contributed to (E.g. IBA assessments)		
Number of NGOs established		
Amount of extra funding leveraged (\$)		
Number of species discovered/rediscovered		
Number of sites designated as important for biodiversity (e.g. IBA/Ramsar designation)		
Number of species/sites legally protected for biodiversity		
Number of stakeholders actively engaged in species/site conservation management	3	local teachers, local association "Volamaintso", PLC (Park Local Committees)
Number of species/site management plans/strategies developed	1	Sustainable conservation of the blue-eyed black lemur
Number of stakeholders reached	30	Head of villages, mayors, head of region, head of district, regional director of the environment, park manager,
Examples of stakeholder behavior change brought about by the project.	2	Involvement of the local teachers to the awareness raising activities, PLC became motivated during forest control and patrol.
Examples of policy change brought about by the project		
Number of jobs created	4	Field assistants and cook during the lemur survey
Number of academic papers published	0	We are planning to publish as soon as we can .
Number of conferences where project results have been presented	1	TBA African Alumni Group Conference in Conservation Science in Ghana (June 2015)

Appendix 4.2: List of lemur species in Sahamalaza-Iles Radama National Park

English name	Scientific name	Conservation status
Blue-eyed black lemur	<i>Eulemur flavifrons</i>	Critically endangered
Sahamalaza sportive lemur	<i>Lepilemur sahamalazensis</i>	Critically endangered
Sambirano mouse lemur	<i>Microcebus sambiranensis</i>	Endangered
Northern dwarf lemur	<i>Mirza zaza</i>	Endangered
Fat-tailed dwarf lemur	<i>Cheirogalus medius</i>	Least concerned

Appendix 4.3: List of plants recorded in the Sahamalaza-Iles Radama National Park

Vernacular name	Scientific name	Family
Manga	<i>Mangifera indica</i>	Anacardiaceae
Gidroa	<i>Mascarenhasia arborescens</i>	Apocynaceae
Taranta	<i>Garcinia pauciflora</i>	Clusiaceae
Mandrirofo	<i>Hymenaea verrucosa</i>	Fabaceae
Morasiro	<i>Grangeria porosa</i>	Chrysobalanaceae
Harongana kely	<i>Psorospermum sp</i>	Clusiaceae
Harongambe	<i>Harongana madagascariensis</i>	Clusiaceae
Kitata	<i>Bridelia pervilleana</i>	Euphorbiaceae
Ramy	<i>Canarium madagascariensis</i>	Burseraceae
Kindro	<i>Dyopsis lutescens</i>	Arecaceae
Sondririny	<i>Sorindeia madagascariensis</i>	Anacardiaceae
Sambalahy	<i>Albizia gummifera</i>	Fabaceae
Korontsana	<i>Macarisia lauciolata</i>	Rhizophoraceae
Kimotimoty	<i>Garderus runterbergiana</i>	Rubiaceae
Lonjo	<i>Terminalia perrieri</i>	Combretaceae
Ambarasaha	<i>Burasaia madagascariensis</i>	Menispermaceae
Maroampototra	<i>Macphersonia gracilis</i>	Sapindaceae
Tsitindry	<i>Streblus dimepate</i>	Moraceae
Tsitindro	<i>Treculia perrieri</i>	Moraceae
Kiropoka	<i>Petalodiscus platyrachis</i>	Euphorbiaceae
Taindalitra	<i>Antidesma petiolare</i>	Euphorbiaceae
Tsimitombo	<i>Bosqueia sp</i>	Moraceae
Adabo	<i>Ficus tiliaefolia</i>	Moraceae
Hazomainty (Hazo joby)	<i>Diospyros sp</i>	Ebenaceae
Voantsilatsaka	<i>Polyscias sp</i>	Araliaceae
Lazalaza	<i>Croton mobilis</i>	Euphorbiaceae
Taitsindambo	<i>Dalbergia sp</i>	Fabaceae
Amanin'omby	<i>Olax sp</i>	Olaceae
Amanin'ombilahy	<i>Xylopia sericolampra</i>	Annonaceae
Vakakoana	<i>Strychnos madagascariensis</i>	Loganiaceae
Fotsiavadika	<i>Monanthes pilosa</i>	Annonaceae
Moramena	<i>Campylospermum anceps</i>	Ochnaceae
Janganito	<i>Homalium axillare</i>	Flacoutiaceae
Tainkilotra	<i>Mucena pruriens</i>	Fabaceae
Selivato	<i>Grewia boinensis</i>	Tiliaceae
Sely kely	<i>Grewia amplifolia</i>	Tiliaceae
Selibe	<i>Grewia sp</i>	Tiliaceae

Tsibabena	<i>Rinorera spinosa</i>	Violaceae
Valiha	<i>Bambousa sp</i>	Poaceae
Manary	<i>Dalbergia sp</i>	Fabaceae
Harositra	<i>Ficus sp</i>	Moraceae
Hazoambo	<i>Xylophia sp</i>	Annonaceae
Valotra	<i>Breonia sp</i>	Rubiaceae
Fatinkahitra	<i>Canthium sp</i>	Rubiaceae
Tampika	<i>Erythroxylum platycladum</i>	Erythroxylaceae
Katrafay	<i>Rusea orienthalis</i>	Connaraceae
Tsitafototra	<i>Cassytha filiformis</i>	Lauraceae
Mokarana	<i>Plagioscyphus caudiflorus</i>	Sapindanceae
Hasina	<i>Dracaena reflexa</i>	Liliaceae
Jingoma	<i>Flacourtia ramontchii</i>	Flacoutiaceae
Rotro	<i>Eugenia sakalavarum</i>	Myrtaceae
Laingomantsina	<i>Paederia sp</i>	Rubiaceae
Vaheny	<i>Landolphia tenius</i>	Apocynaceae
Fanazava	<i>Turraea sericea</i>	Meliaceae
Ravimbofotsy	<i>Alphloia theiformis</i>	Aphloiaceae
Hazomamy	<i>Scolopia madagascariensis</i>	Saliaceae
Ravinala	<i>Ravenala madagascariensis</i>	Strelitzeaceae
Mahabibo	<i>Anacardium occidantale</i>	Anacardiaceae

Appendix 4.4: Data collection sheet for lemur survey

Date	Number of Transect	GPS waypoints	Group size	Group composition	Remark/ comment

Appendix 4.4: Data collection sheet for vegetation survey

Date	Plot No/GPS	Vernacular name	Height (m)	DBH (cm)	Type of terrain	Anthropogenic activity

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Address list and web links

Facebook Page : <https://www.facebook.com/pages/Mikajy-Natoria/627729040611463>

Distribution list

Conservation Leadership Programme

Association Européenne pour l'Etude et la Conservation des Lémuriens (AEECL)

Madagascar National Parks (MNP)