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The Corundum Conundrum: Artisanal mining threatens an ecologically sensitive forest corridor

**Treasure, Turf and Turmoil:
The Dirty Dynamics of Land and Natural Resource Conflict**

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PART I

Background

Madagascar : Island at the Crossroads of the World



Madagascar : Biodiversity hotspot

Madagascar has been declared one of the world's top 5 biodiversity "hot-spots."


90% of its mammals and 98% of its reptiles are endemic to the island : they are found naturally nowhere else on earth.

90% of its original primary vegetation has been lost.

The pressure on natural resources continues: in 1995 Madagascar had 11 million hectares of forest and 11 million people. Today it has 9 million hectares of forest and 20 million people.



The Forests of Madagascar

An aerial photograph showing a winding river with white rapids flowing through a vast, dense green forest in Madagascar. The river starts from the top left and flows towards the bottom right, creating a stark contrast with the surrounding lush vegetation.

A hectare of forest lost in Madagascar has a greater negative impact on global biodiversity than a hectare of forest lost virtually anywhere else on earth.

U.S. Forest Service

Natural wealth, national poverty

Despite its natural wealth, Madagascar has remained a persistently poor country, consistently ranked as among the 20 poorest countries in the world.

>70% of its population lives in rural areas where they practice subsistence agriculture and live on <\$1 per capita per day.



Madagascar has a history of weak governance

Fragile democratic systems contribute to recurrent political crises: as people lose faith in democratic processes they increasingly take their frustrations to the street, rather than counting on the ballot box.

Poor compensation of government officials has resulted in a “culture of corruption” where many officials circumvent the official rules for private gain. This is particularly common in the issuance of permits for resource exploitation at various levels.



Donor support for the Environment

For the past 25 years, the international donors have worked with Madagascar to try to stop the relentless destruction of its forests and the biodiversity they shelter.

In 1990, Madagascar drafted its first National Environmental Action Plan, with a 15 year donor supported program to conserve the country's national resources **and** reduce poverty.

Over that 15 year period, a consortium of donors contributed > \$450 million to environmental interventions in Madagascar.

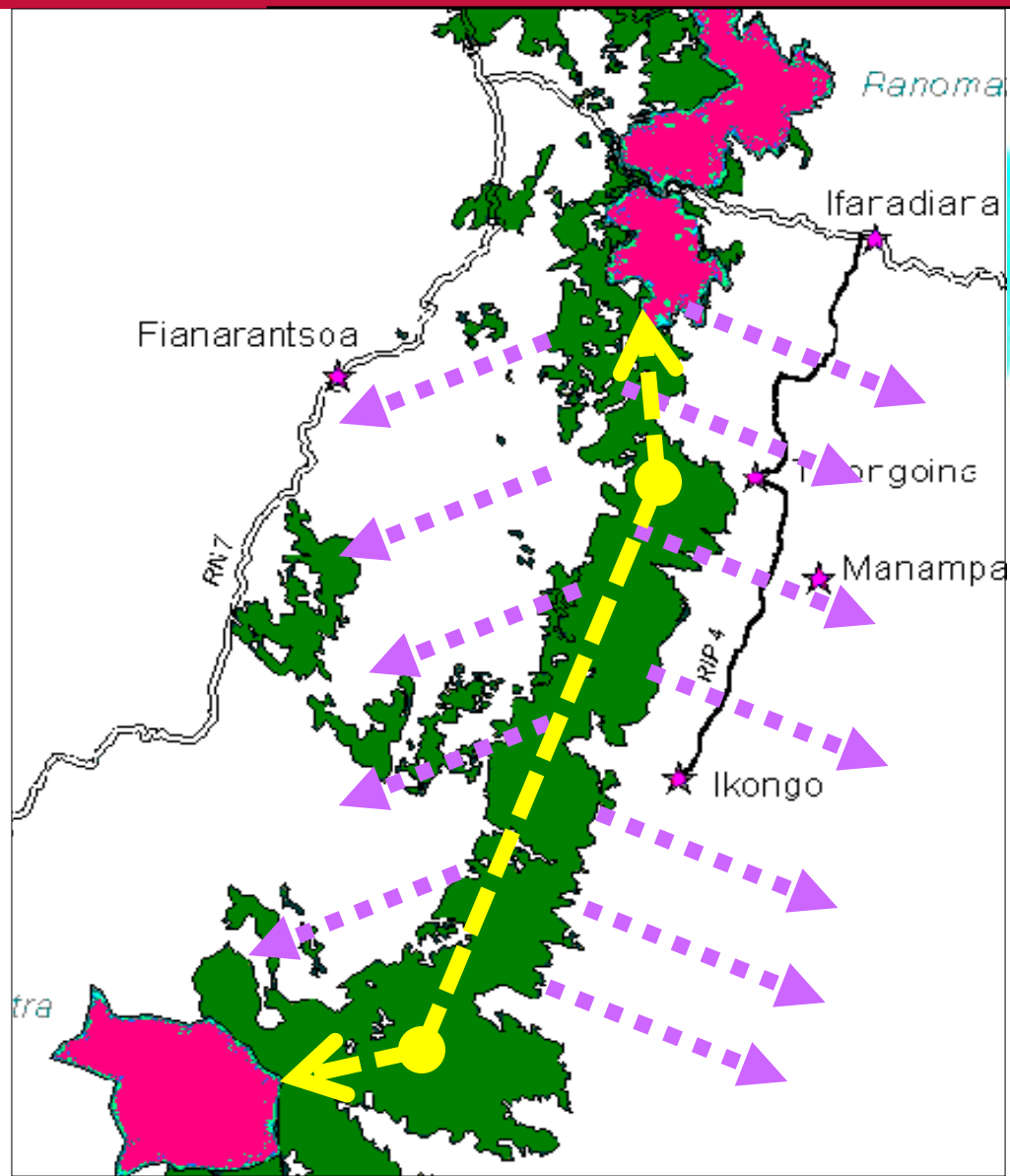


Protection of the forest corridor

One of USAID's focal interventions was to protect a critical forest corridor that connects two major national parks.

Maintaining an ecological corridor between the protected areas is considered critical to the long-term survival of biodiversity.

The corridor also provides vital ecosystem services to local communities (e.g. irrigation water to rice production zones).



1. LA FORÊT À MADAGASCAR AVANT L'ARRIVÉE DE L'HOMME



Source : Green and Sussman 1990

The corridor is the vestige of a vast forest that once covered the highlands of Madagascar.

It has now been reduced to a narrow band, 5-20 km wide with villages pushing up against the forest along both sides.

3. LA FORÊT À MADAGASCAR 1984



Source : Green and Sussman 1990

Overlapping tenure regimes

The corridor is a classic example of an area that is governed by multiple tenure regimes:

Statutory tenure rules: the forest belongs to the State, which allocates use rights (mining, logging, etc).

Customary tenure rules: the forest belongs to the clans or villages that initially delimited their boundaries.

- agricultural production
- forest reserved as the “community land bank” with the idea that future generations will need to expand their agricultural holdings
- In the meantime, local people harvest natural resources (medicinal plants, poles, firewood, etc.)



Co-management strategy

Faced with evidence of massive pressures on the corridor, USAID's strategy was to engage the government and local communities in a strategy to "co-manage" the corridor.

The community agrees to :

cease unsustainable exploitation of forest resources (no new slash and burn agriculture)

and

protect / monitor the health of the corridor.

The GoM/Eaux et Forêts cede certain management rights to local communities who are allowed to :

exclude outsiders

Sustainably harvest forest products (in some areas)

Financially gain from the forest (e.g. eco-tourism ventures).

The arrangement is validated by a co-management contract.

Contested rights

In fact, this pleasantly simplistic dichotomy of interests (state/community), belies a far more complex stakeholder reality in which the corridor is a place of contestation over by various interest groups

	Land	Trees	Subsoil minerals	Water	Forest products
National authorities (Mining vs Forestry/Water ministries)					
Local authorities					
Local community (rich vs poor, landed vs newcomer)					
Projects/donors					
Miners (large scale vs artisanal)					
Loggers (large scale vs artisanal)					



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PART I

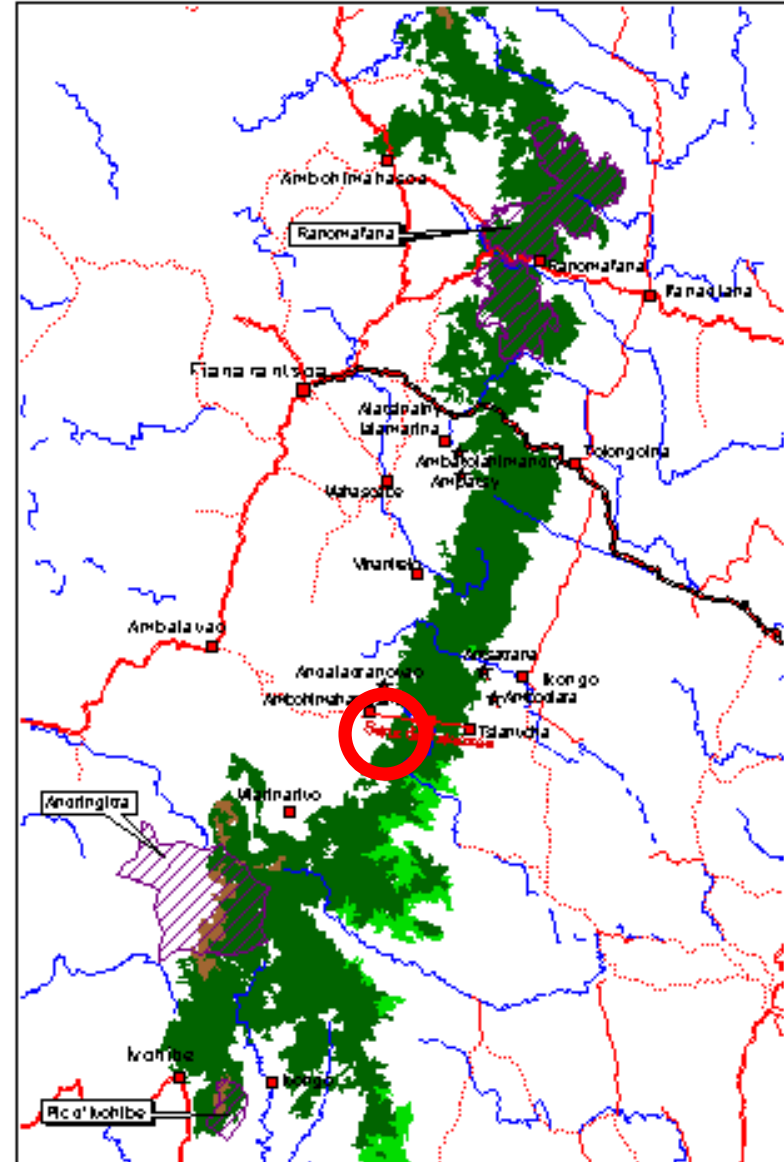
Case Study

Case Study: Location

The commune of Miananarivo is in a remote area of the corridor where resource extraction has traditionally been out of the public eye.



The village is a 3-6 hour drive from the nearest small town, on very bad roads over rickety wooden bridges that are often broken by overloaded trucks.



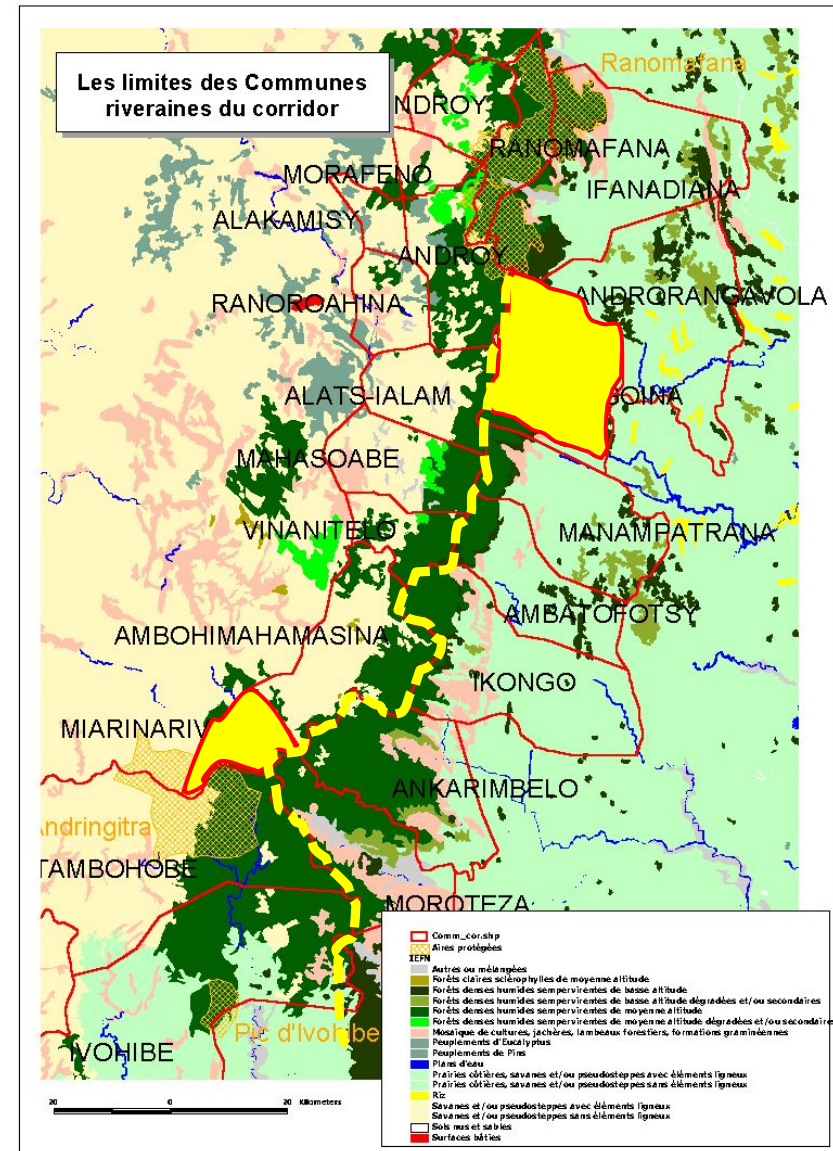
Case Study: Background

By the time this story heats up, USAID and other conservation projects had been working in the area for more than 7 years.

They had :

Set up **Co-management (COBA) committees** in many communities along the corridor: delimited community boundaries and established resource management contracts.

Implemented **small scale development interventions** (improved water catchment, promotion of agricultural diversification, implemented a small credit scheme, opened an agricultural supply center).



Case Study: Background (2)

They had also :

Worked with regional authorities to establish the **CMP** (2002), a **multi-stakeholder regional committee** with the mandate to coordinate actions in defence of the forest corridor.



- Regional authorities
- Technical agencies (forestry, mines, population, health)
- Commune mayors
- COBA (co-management) federations
- Conservation projects

Case Study : Stakeholders/Interest groups

Among the key stakeholder groups involved in this incident were:

Stakeholder	Primary concern
National and regional water and forest authorities (E&F)	Concerned that any activity resulting in deforestation be stopped (though in some cases bribery was known to alleviate this concern).
National and regional mining authorities (MoM)	Concerned that their authority to manage mining issues not be dominated by the power of the forest authorities (an interest that was reinforced by pay-offs from mining permit seekers).
President Ravalomanana and the Chef de Region who represented his interests locally	While the depth of his real environmental commitment has been debated, he was strongly desirous of presenting himself as an environmentalist in order to engage maximum donor support.

Case Study : Stakeholders/Interest groups

Stakeholder	Primary concern
Two USAID projects: LDI was a regionally based environment /development project specifically focused on the conservation of the corridor. Jariala was a national project oriented toward environmental policy reform.	Both projects were judged, in part, on their ability to demonstrate that the projects were reducing deforestation in the corridor.

The CMP: This fledgling regional committee tried to unite all the groups working on environmental issues in the area. They were in a delicate position of balancing multiple interests without being seen as the “proxy” for any one group. In addition, they had no real decision making power and were only an advisory commission.

Powerful/wealthy local interests: M. Rado had arrived in the community about a decade earlier. In 2001 he had built an illicit 7 km road into the forest in order to extract precious hardwoods.	He was now closely involved with the miners, having cut a deal whereby he would serve as the middleman for any commercial products coming out of the Mianananarivo forest.
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Case Study : Stakeholders/Interest groups

Stakeholder

Outside mining interests: these were primarily opportunistic, independent, smallholder miners seeking a very small fortune in backbreaking work. They typically moved around the country in response to emerging mining sector opportunities.

Local mining interests: these were community members who either personally participated in the mining (relatively few) or in some way gained from having the miners in their community (e.g. selling food, services).

Local (village) farmers and environmentalists: these people, often members of the COBA, were concerned that the devastation of forests was reducing the availability of irrigation water and that miners were “consuming” forest resources that rightfully belonged to the community and future generations.

Case Study : It was all about corundum



Corundum is a very hard mineral (a derivative of sapphires) that is used for sharpening stones, sand paper, and other industrial purposes.

Case Study: Lead-up to the Conflict

As early as 2001, LDI begins to receive complaints that scattered small-scale corundum mines have been opened within the forest corridor near Miananarivo. The project recommends that the newly formed COBA lodge an official complaint with E&F and MoM.

The COBA does write, but primarily to say that they object to outsiders working in the “their” corridor, and they want to do the mining themselves. (LDI is against all mining in the corridor, believing it impossible to mine corundum without significant environmental damage.)

Case Study: Lead up to the Conflict

Project staff report that there is a split in the COBA between the 2/3 who are adamantly against mining in the corridor and the 1/3 (including the COBA president) who do not oppose it and are more concerned that they should be the “gatekeeper” for these types of operations.

The mayor of the village takes leadership, but not to stop the mining. Instead, he tries to regulate it to avoid social disruptions, disallowing drunkenness, prostitution, etc.



Case Study: Lead up to the Conflict



In September 2003, President Ravalomanana surprises the world and shocks many in Madagascar by announcing, at the World Parks Congress (Durban, South Africa) that he will put **6.2 million additional hectares of forest under protected area status.**

With little or no preparation of the announcement in the field, there is massive confusion and concern. In local communities, many fear that the corridor will become a new park and they will lose their rights.

There is a **rush to occupy the corridor** and exploit its resources “before the government gets it all.” Small farmers move into the corridor to clear fields and establish land rights and miners seek to establish claims while permits are still available. Within a year, “exploratory” mining permits cover vast areas of the corridor.

Case Study: It's time to Act

Alarmed by reports from the field, LDI contacts CMP and together they send a team to the field where they discover encampments lodging as many as 800 miners. Massive cuts scar the forest and streams run red with erosion.



Initial estimates suggest that as much as 2T of corundum per day are being extracted from the site.

Together, LDI and CMP decide that something must be done...but what?



Key questions

Some of the miners are entirely illicit, but many mining permits have also been issued. How should these cases be dealt with?

What are immediate strategies to address the environmental devastation?
What are medium-term strategies to prevent a recurrence of the problem?

What needs to happen at the local? regional? national levels?

Who should be involved and how?



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PART II

What Actually Happened

The Context for the Incident

Social and ecological learning about corridor issues / monitoring

Build a consensus around need for Corridor Co-management

Institution building (COBA, CMP)

Local development interventions

Miners expelled

Inter-ministerial collaboration

Corridor mining policy

Urgent Intervention: **Focus attention on the problem,** define a common strategy, remove the miners

Step 1 : Get all the local actors on board

LDI funded and organized with CMP a site visit for local authorities, technical services (E&F, MoM), and environmental projects.

More than 12 people participated in this visit that was designed to **highlight the problem** and **get “buy-in”** for whatever strategy was agreed upon.

The visit included consultations with local stakeholders.



Urgent Intervention: Focus attention on the problem, define a common strategy, remove the miners

Step 2 : Expulsion strategy defined under government leadership

Following the field visit and further consultations, it was decided to officially order the miners to leave the site, with a warning that they would be forcibly removed if they did not leave within 48 hours.

Responsibilities for notifying the miners as well as their eventual removal were allocated among the participants. LDI played a key role in negotiations, but always behind the scene. The project also ended up paying for certain costs of the operation (e.g. per diems, travel expenses).

Urgent Intervention: Focus attention on the problem, define a common strategy, **remove the miners**

The operation took place under the leadership of the civilian authorities but with a large military presence. Most miners voluntarily left the site, destroying their houses and taking their possessions as they left.

The military then burned the remaining houses at the site.



Occasional follow up visits over the next year confirmed the seriousness of the operation and served as a warning to both local people and outside miners that such operations would no longer be tolerated. No further mining in this immediate area was detected.

Medium–Term Intervention: Deal with confusion over the status of the corridor

It was clear that confusion over the legal status of the corridor was contributing to non-sustainable use of its resources.

Was the area to be made into a park? Co-managed?

How were conflicts between the E&F and MoM to be resolved?

LDI's medium term strategy was to work (in conjunction with the Jariala policy project) to clarify these issues and ensure that local concerns were taken into consideration by national level decision makers.

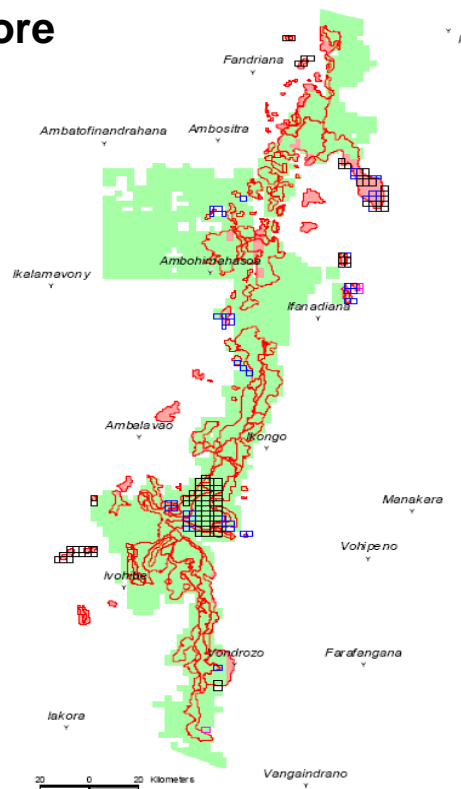
Mining Permit Strategy

Some miners (usually those from the formal sector) had obtained official mining exploration permits. Few of these were actually working the land when the expulsion took place.

Situation before October 2004

Légende
v Chef-lieu District
Carrés miniers octroyés avant 19/10/04
E.C. - Permis d'Exploitation
P.E. - Permis d'Exploitation type II - AL
P.R. - Permis Réservés aux Petits Exploitants
P.R. - Permis de Recherche
R. - Permis de Recherche
Ligne N.A.P.
Sc. 1955 d'imp.
NAP en dehors du S.C.

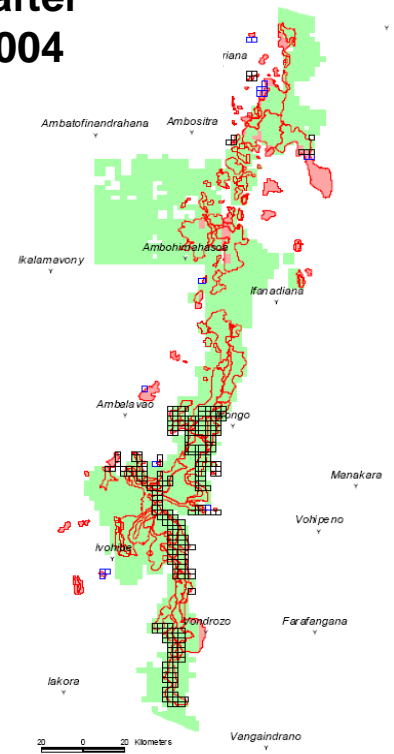
Sources : BCMM, FTM, DGEF



Situation after October 2004

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Sources : BCMM, FTM, DGEF



Exploratory Mining Permits: 2.5km X 2.5km or 625 ha per permit

Mining Permit Strategy

The Jariala project, working with the MoM, identified the holders of these permits and individually met with them to request that they **voluntarily renounce mining in the corridor** and relinquish their permits. Most agreed, given that not doing so would defy the President's clear intention to protect the corridor and result in significant conflict.

Mining Permit Strategy (2)

Simultaneously, The World Bank, USAID, and conservation projects began pressuring the GoM to create an **Inter-ministerial Mining-Forestry Commission** to clarify roles and responsibilities on forest lands.

One of the first acts of the Commission was to issue an edict in October 2004 **suspending all logging and mining permits** in areas that were designated as potential protected areas (i.e. the entire corridor).

Clarification of Management of the Corridor

LDI and other regional actors invested considerable effort in persuading the national SAPM committee (responsible for implementing the President's Durban announcement) that **local actors should be active participants in defining the terms of the new Protected Area.**

In October 2004, the GoM gave the CMP and local authorities 2 years to come up with a **sustainable management plan** for the corridor. They agreed that no mining or logging permits would be issued during this period.



Definition of the **Corridor Management Plan**

Over the next two years, LDI and CMP piloted an elaborate and comprehensive **process** to prepare a participatory management plan. This included:

Fly-overs of the corridor to facilitate analysis by various stakeholders

Hosting **field visits/consultations** of the Mining-Forest Interministerial Commission

Participatory research with local communities (RRA etc.)



Regional consultations that included local authorities, community representatives, project representatives to zone the corridor for different uses and users (e.g. commercial exploitation, pure conservation, local access only, etc.)

Results of the Management Plan

In the end, the corridor was not made into a park as feared, but continues to be **co-managed** . With the exception of one COBA that is still suspected of being complicit with mining interests, the others all take their role as protectors of the corridor seriously.

While the principal of co-management has been widely accepted, the official status of the corridor has not yet been validated.



Reinforce **community and economic development activities** in the ex-mining zone

A 2005 visit to Miananarivo area by LDI, CMP, and the Inter-ministerial Commission revealed that while mining had been entirely halted, agricultural (slash-and-burn) incursions into the forest were continuing.

This was partly due to loss of revenues from mining related activities.

LDI increased funding for **community development** in Miananarivo (e.g. installing a rice dehuller to add value to the surplus rice produced in the region) but also lobbied the GoM to **rehabilitate the road into the community**, as needed to expand economic activities.



The Situation Today

Today, corundum mining seems to have largely ceased. The environmental community continues to do battle with artisanal gold mining interests that have now expanded in the corridor (stimulated by high international gold prices).

The institutions (CMP) and approaches (participatory) established to deal with the corundum problem have so far been fairly effective in limiting major gold mining damage, even in the absence of the project, which closed its doors in 2009.

CMP is a vulnerable institution as it has no independent or sustainable funding and depends on donor support. So far, other donors have filled the gap left by USAID's departure but uncertainty remains for the future.

The absence of effective national government continues to cloud the situation.

Summary of Major Strategies



Summary of Major Strategies

Key Characteristics of the strategy:

- Was based on **long-term, trusting relationship** that offered **palpable benefits** to the community.
- The project fostered good **communications between policy and field level**

The project was able to “**level the playing field**” and ensure that local participants were heard

- The project always acted as part of a **consortium of actors** but played a vital role in providing “institutional cover” for politically risky interventions

