



Responsible Mining for Sustainable Development

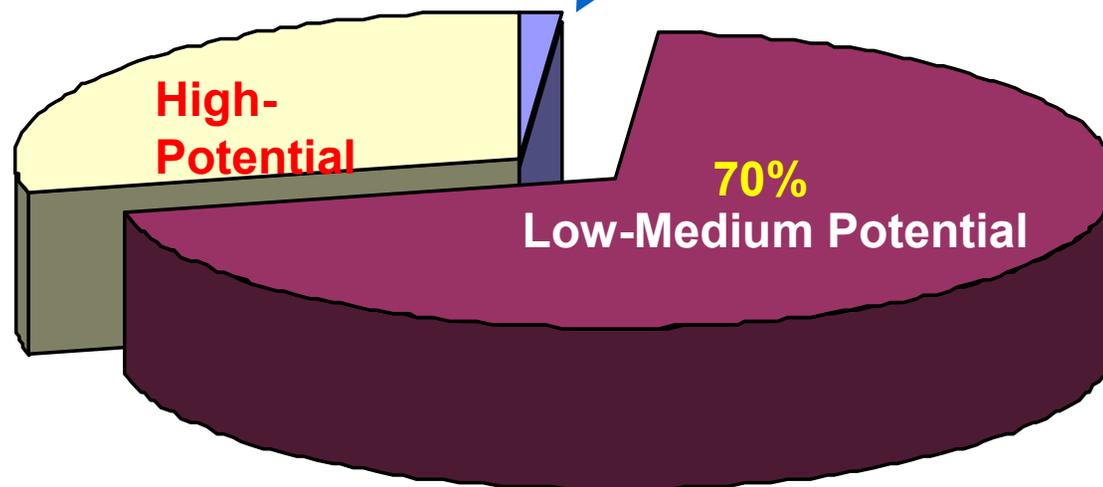
Department of Environment and
Natural Resources

MINERAL RESOURCES POTENTIAL

Mineral Land Distribution
(As % of Total Philippine Land Area)

30% or 9 Million Hectares

1.4% Covered w/permits



- 9 million hectares are high potential sites for copper, gold, nickel, chromite, etc.
- Only 1.4% covered by mining permits
- Has the potential to be one of the largest producer

ECONOMIC POTENTIAL

Medium- to Large-scale Priority Mining projects:

- **US \$ 90.8 B - Gross value of mineral deposits**
- **US \$ 6.5 B - Foreign direct investments**
- **US \$ 3.4 B - Annual sales/foreign exchange**
- **US \$ 61.4 M - Annual excise tax on minerals**
- **US \$ 432 M - Annual corporate income tax**
- **200,000 - Additional direct & indirect employment**

23 Priority Projects

11 Copper Projects

Tampakan, Cotabato	Amacan, Davao del Norte
Far Southeast, Benguet	Rapu-Rapu
Boyungan, Surigao del Norte	Didipio, Nueva Vizcaya
Carmen, Cebu	Padcal, Benguet
San Antonio, Marinduque	Kingking, Davao Oriental
Batong Buhay, Kalinga	

6 Gold Projects

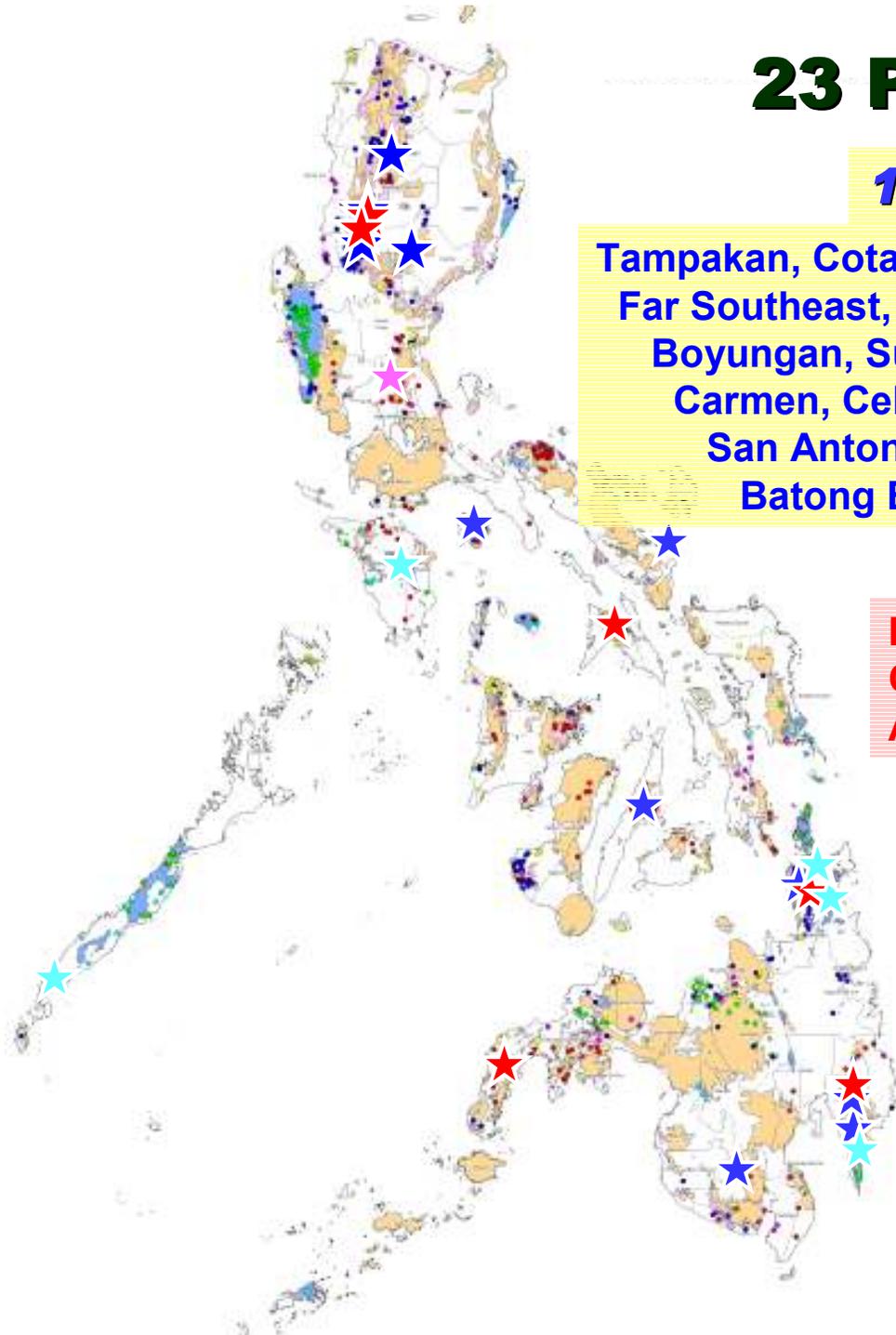
Itogon, Benguet	Diwalwal, Davao N.
Canatuan, Zamboanga	Siana, Surigao N.
Aroroy, Masbate	Teresa, Benguet

5 Nickel Projects

Mindoro	ACT, Surigao del Sur
Palawan (HPAL)	Pujada, Davao Oriental
Nonoc	

1 Cement Project

Eagle Cement, Bulacan



Responsible Mining...

- *“enhances economic growth, in a manner that adheres to the principles of sustainable development and with due regard for justice and equity, sensitivity to the culture of the Filipino people and respect for Philippine sovereignty”*

- **Executive Order No. 270**

Sustainable Development = economic growth + environmental protection + social equity



“We will make sure the reinvigorated mining industry comes hand in hand with the full protection of the environment and a sturdy umbrella of social and economic returns for host communities, especially the indigenous peoples.”

- Pres. Gloria Macapagal-Arroyo

Responsible Mining...

- “...require **good environmental stewardship in all activities**, from exploration and processing to decommissioning and reclamation.” — United Nations*
- “...includes actions at all levels to: support efforts to **address the environmental, economic, health & social impacts & benefits of mining**; enhance the **participation of stakeholders**; and foster **sustainable mining practices...**” — WSSD**

Note:

*Mining and Environment Guidelines - Berlin 1991

**Paragraph 46 of WSSD Plan of Implementation

Responsible Mining...

- *“...mining may be appropriate if implemented with the best practices and technologies available in a manner that contributes to local conservation and community development initiatives.”*

- Conservation International

Note:

Lightening the Lode: A Guide to Responsible Large-Scale Mining
by Amy Rosenfeld Sweeting and Andrea P. Clark
Conservation International, 2000

Parameters of Responsible Mining

UN Guidelines

ECONOMIC

- **Mining important to social, economic & material needs of society**
- **Avoid unnecessary environmental regulations that act as barriers to trade and investments**
- **Tax incentives for pollution reduction**

Parameters of Responsible Mining

UN Guidelines

ENVIRONMENTAL

- **Environmental & economic considerations in the decision-making process**
- **Environmental impact assessments, risk analysis and risk management**
- **Best practices and environmentally sound technologies**
- **Environmental accountability**
- **Funding to improve environmental performance**
- **Clear environmental standards**

Parameters of Responsible Mining

UN Guidelines

SOCIAL

- **Dialogues with stakeholders**
- **Social impact assessments**

Economic Principles for Responsible Mining (EO 270)

- **Critical role of investments**
- **Clear, stable & predictable investment & regulatory policies**

**Rio Tuba Nickel Processing Plant
Palawan**



**Union Cement
La Union**

- **Value-adding**
- **Promotion of small-scale mining as a formal sector**
- **Use of efficient technologies**

Environmental Principles for Responsible Mining (EO 270)



Tampakan Exploration



Environmental Monitoring at Marcopper

- **Protection of the environment**
- **Safeguarding the ecological integrity of areas affected by mining**
- **Multiple land use & sustainable utilization of minerals**
- **Remediation & rehabilitation of abandoned mines**

Social Principles for Responsible Mining (EO 270)

- Equitable sharing of economic & social benefits
- Sustained IEC campaign & respect for the rights of IPs & communities
- Continuous & meaningful consultations with stakeholders

Padcal Mine, Benguet



**Stakeholders training at
Canatuan, Siocon**

9-MONTH ENGAGEMENT PROCESS

14 Regional Consultations

3 Island-Cluster Workshops (Luzon, Visayas, Mindanao)
(297 participants from key stakeholder groups)

3 Local Mine Visits

International Mine Visits to Canada, Australia & Peru

National Mining Conference
(236 participants)

E.O. NO. 270 = POINTS OF CONVERGENCE

Executive Order No. 270

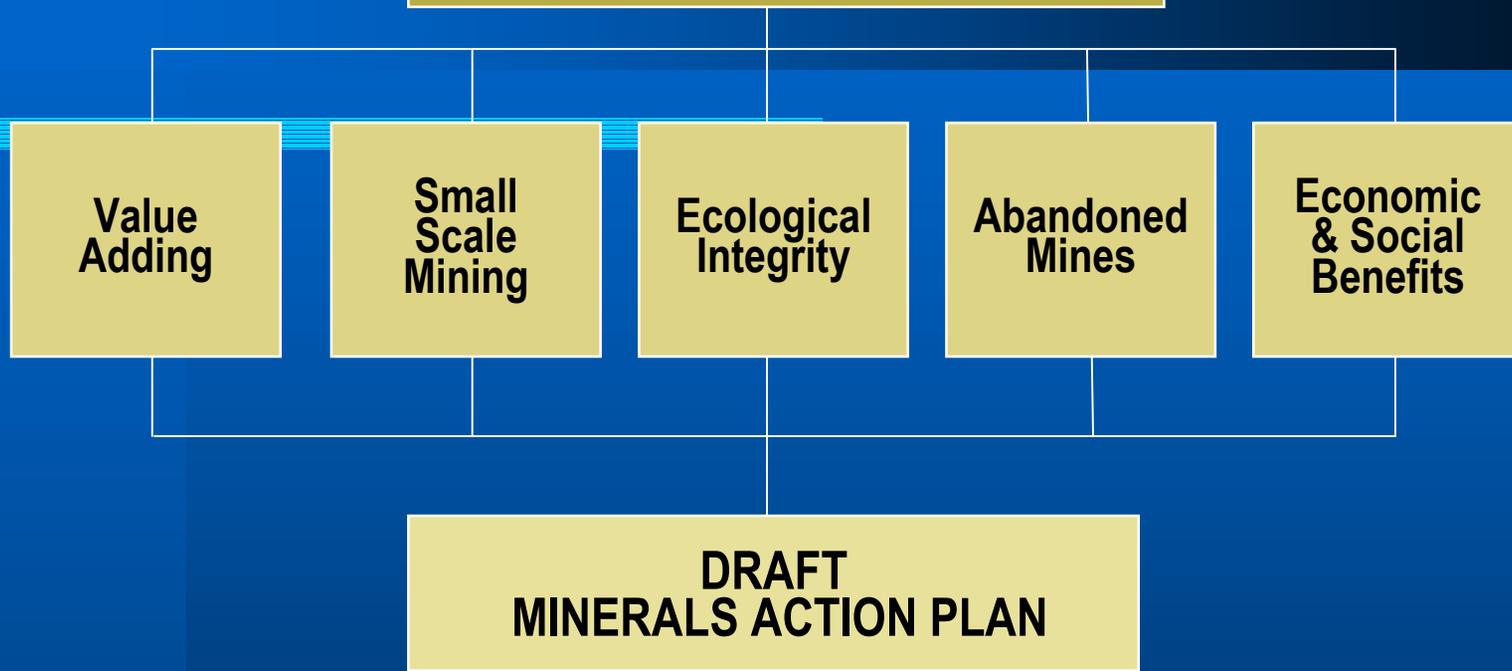
- Issued on 16 January 2004, with amendments on 20 April 2004 (containing stronger emphasis on IPs rights)
- Calls for formulation of **Minerals Action Plan**



Minerals Action Plan

- **Inter-agency formulation in consultation with industries and NGOs**
- **Contains 57 strategies & 126 activities to address the problems of mining**
- **Approved by the President thru MC No. 67 issued on 13 Sept. 2004**

INTER-AGENCY TWG



AGENCIES:

DENR, DTI, BOI, NEDA, DOST, NAPC, NCIP,
DILG, DBM, DOF-BIR, LEAGUES, NRDC, PMS

More than 30 meetings over 5 months

**Implementing
Responsible Mining
in the Philippines**

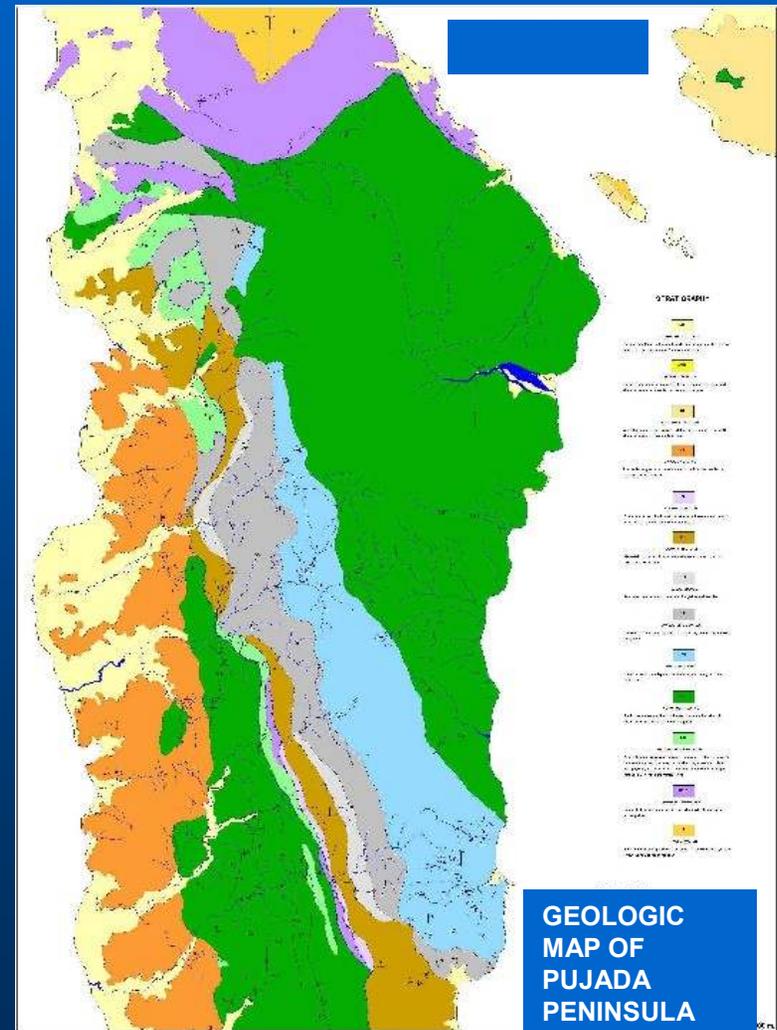
ECONOMIC: Resource Management

- **To promote rational use of mineral resources**

- **Implement comprehensive mineral exploration program (DENR/EO 270)**

- ❖ **Produced 1:50,000 geologic maps covering 40% of entire country**

- ❖ **Inputs to geohazard maps**



ECONOMIC: Resource Management

- **To promote rational land use:**
 - **Support National Land Use Act**
 - ❖ **Authored by Cong. De Venecia, Fua, Acosta, Solis & Rosales**
 - ❖ **To be endorsed by LEDAC to Congress**



ECONOMIC: Resource Management

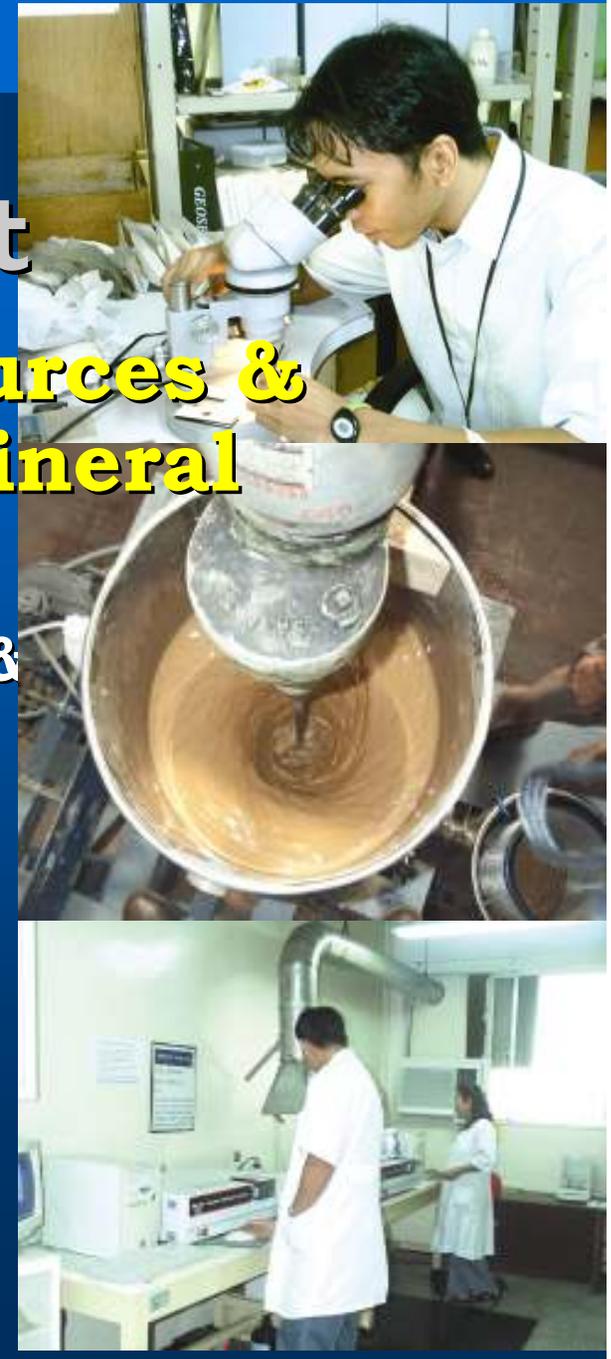
- **To conserve mineral resources & ensure optimum use of mineral products**

- **Develop downstream industries & promote value-adding, e.g. jewelry making, gold wires for semicon (EO 270)**

 - ❖ **Discussions with DTI/BOI and DOST ongoing**

- **Promote use of efficient technologies, e.g. efficient gold recovery processes (EO 270)**

 - ❖ **Discussions with DOST ongoing**



ENVIRONMENT

- **To prevent/mitigate the negative impacts of mining**
 - **Identify possible impacts/measures on environment & biodiversity before operations (Mining Act/Phil. EIA Law)**
 - ❖ **Impacts & mitigating measures identified in Environmental Impact Assessment of mining company & Environmental Compliance Certificate (ECC) issued by DENR prior to mining operation**

Environmental Impact Assessment & Management

▶ project activity
(sources of impact)

▶ environmentally sensitive resource
(receptors of impact)

▶ adverse impacts

▶ mitigation and management measures

▶ monitoring



loss of forest resources

price rises

traffic accidents

- ▶ temporary, permanent
- ▶ reversible, irreversible
- ▶ direct, indirect
- ▶ probability (% risk)



local employment

medical services

Mine and tailings rehabilitation

fully effective

partially effective

residual impact

Not significant

Significant

ENVIRONMENT

- **To ensure environmental protection upon operation & during the life of the mine**

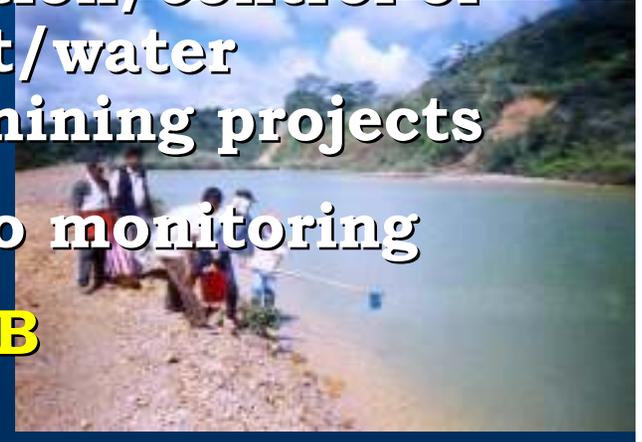
- Environmental work program for exploration projects (Mining Act)

- Protection and enhancement of environment during mine life through EPEP (Mining Act/ EO 270)

- ❖ Reforestation/slope stabilization/control of waste dumps/watershed dev't/water conservation required in all mining projects

- ❖ Multi-stakeholder approach to monitoring

- ❖ **Total EPEP budget = PhP14.3B
(mining sector commitment)**



ENVIRONMENT

- **To ensure environmental protection upon operation & during the life of the mine**
 - **Sufficient funding to mitigate social and environmental impacts through the Contingent Liability and Rehabilitation Fund (CLRF)**
 - ❖ **Deposited in government depository banks under company's name but can only be withdrawn with approval of multi-stakeholder committee**
 - ❖ **Total Deposited = P 233.8 Million**
 - ❖ **Multi-stakeholder approach to monitoring**

CLRF MANAGEMENT

CENTRAL
OFFICE

CLRF STEERING COMMITTEE

MGB – Chair	Bureau of Soils and Water Management
EMB	Bureau of Plant and Industry
LMB	Bureau of Fisheries and Aquatic Resources
FMB	National Irrigation Administration

➤ Approves EPEP, payment of claims for compensation for damages, etc.

REGIONAL
OFFICE

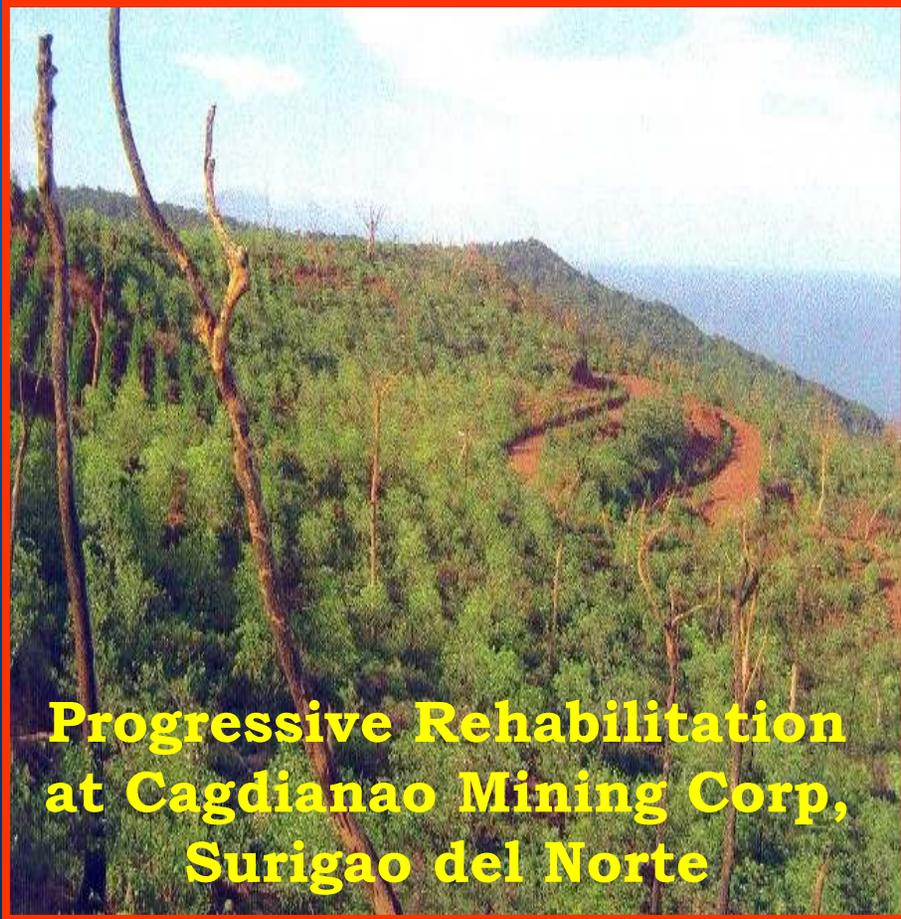
MINE REHABILITATION FUND COMMITTEE

MGB-RO/DENR-RO/ LGU/
NGO/PO/Church or Civic Org/
Mining Company

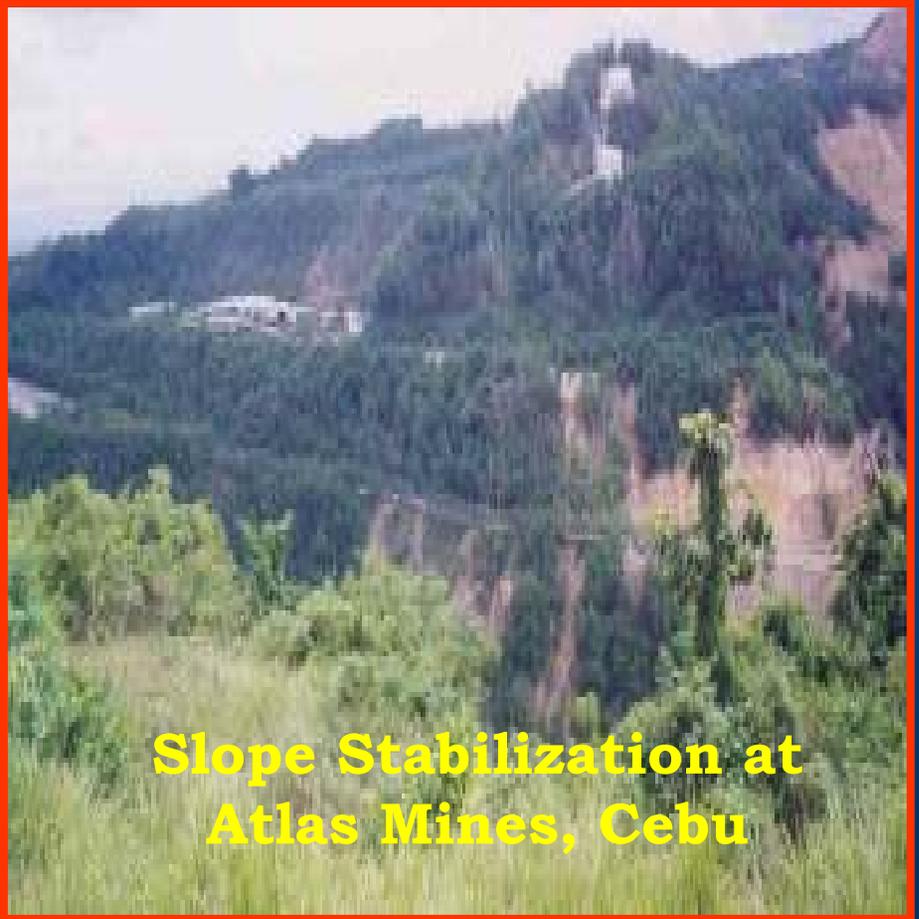
MULTIPARTITE MONITORING TEAM

MGB-RO	Company	NGO
DENR-RO		ICC/IP

ENVIRONMENT



**Progressive Rehabilitation
at Cagdianao Mining Corp,
Surigao del Norte**



**Slope Stabilization at
Atlas Mines, Cebu**

**Denuded area
above the Banget
Mill in the early 60's...**



**...revegetated
area today.**

**Philex Mines
Padcal, Benguet**



...vegetative method

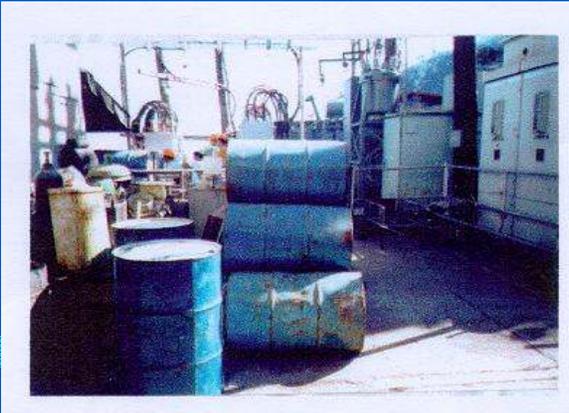


EROSION CONTROL AND SLOPE STABILIZATION

...engineering method

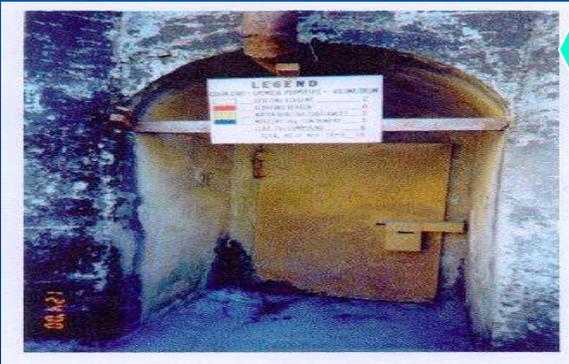


Philex Mining,
Padcal, Benguet



USED OIL & LUBRICANTS STORAGE

HAZWASTE STORAGE



MANAGEMENT OF CHEMICALS AND HAZARDOUS WASTES



...CHEMICAL STORAGE

ENVIRONMENT

- **To address environmental issues in existing/inactive problematic mines**
 - **Implement remediation measures (Mining Act/EO 270)**
 - ❖ **Dried up tailings pond of Maricalum planted with talahib, sugarcane cuttings and ipil-ipil to arrest dust pollution**

Maricalum

Sipalay, Negros Occidental



MARICALUM TODAY

Marcopper

Boac, Marinduque

- **Options for rehabilitation of Marcopper recently identified by USGS-led Team (funded from President's Social Fund):**
 - **Ensure integrity of certain infrastructure (e.g. silt dams, drainage tunnel)**
 - **Neutralize and rehabilitate waste-dump sites to prevent acid generation**
 - **Clean-up remaining tailings in rivers and ensure safe storage**
 - **Conduct further study on health concerns**

Status: **Marcopper directed by DENR to immediately implement USGS recommendations**

06/09/2003

ENVIRONMENT

- **To compel permit holders to continue proper care & maintenance for other inactive mines**

- Batong Buhay Gold Mine – Kalinga
- Amacan Copper Project – Davao del Norte
- Atok Gold Mine – Benguet
- Barlo Copper Mine – Pangasinan
- Itogon-Suyoc Gold Mines – Benguet
- Manila Mining Copper Mine – Surigao del Norte
- Philex Sibutad Gold Mine – Zamboanga del Norte
- Phil. Iron Mines – Camarines Norte
- United Paragon Gold Mine – Camarines Norte
- Vulcan Gold Mine – Isabela
- Hinatuan Chromite Mine – Eastern Samar

Status : DENR regularly monitoring these mines

ENVIRONMENT

- **To address 7 abandoned mines:**

(Responsible parties cannot be identified or are not financially/technically capable to undertake complete rehabilitation of mine sites)

- Basay Copper Mine – Negros Oriental
 - Bagacay Pyrite Mine – Western Samar
 - Thanksgiving Gold Mine – Benguet
 - Black Mountain Cu Mine – Benguet
 - Consolidated Mine – Marinduque
 - Palawan Quick Silver Mine – Puerto Princesa
 - Boneng-Lobo Copper Mine – Benguet
- ❖ **Old mining laws did not provide adequate requirements for mine rehabilitation**
 - ❖ **2 abandoned mines under the Privatization Mgmt. Office**

Abandoned Mines in Pre-Mining Act Regime



BAGACAY MINES

ENVIRONMENT

ACTION PLAN FOR ABANDONED MINES

- **Compel permit holders to undertake remediation/rehabilitation**
- **PMO and DENR will enter into a MOA by February 2005 to jointly address the 2 abandoned mines (Bagacay, Basay)**
- **Undertake clean-up of mines within 2005 (Priority: Bagacay) and conduct assessment for rehabilitation/redevelopment options (other uses)**

ENVIRONMENT

- **To prevent future abandonment**
 - **Approval of Mine Decommissioning Plan (MDP) 5 years before expected closure (Mining Act)**
 - ❖ **MDP ensures smooth transition from active mining operations to eventual closure**
 - ✓ **Formulated in consultation with stakeholders**
 - ✓ **Minimize social impact of mine closure on the community, LGU, employees, and dependents**
 - ✓ **Will transform the affected areas to alternative and final land use**
 - ✓ **Will ensure monitoring and maintenance fund for the next 10 years after mine closure**

MINE DECOMMISSIONING



**Bulawan Gold Project's
reforested area in
Sipalay, Negros Occidental**

02 25 2003

Mining is a temporary land-use



After: Crushing plant & wastewater facilities converted into a clubhouse and swimming pool

ENVIRONMENT

- **To protect biodiversity**
 - Mining in old-growth, virgin & mossy forests & other proclaimed protected areas (Mining Act/NIPAS)
 - ❖ Mining activities not permitted in protected areas and virgin forests.



ENVIRONMENT

- **To protect biodiversity**
 - Determine appropriate land use and incorporate biodiversity concerns through valuation tools (EO 270)
 - ❖ Valuation tools being developed by DENR in consultation with other stakeholders
 - ❖ For cost-benefit analysis



SOCIAL

- **To ensure economic & social benefits from mining for host communities & local governments**
 - Shares from mining accrue to national gov't, LGUs, Communities & IPs (Mining Act/Local Government Code)
- **To ensure timely remittance of LGU share**
 - House Bill 1445 by Cong. Domogan on direct remittance of LGU share approved on 12 Jan 2005 by Committee on Local Government
 - Endorsed by LEDAC to address delayed remittance
 - (Interim: Special GAA provision)



Benefits to Communities & Local Governments

- **Share from the taxes and fees paid by contractors (Local Government Code)**
 - Local taxes and fees
 - 40% of excise tax payment
 - 2003 excise tax : P156 M (P 62.5 M to LGUs)
- ❖ **US\$ 24.5Million out of US\$ 61.4 Million annual excise tax from 23 mining projects**



Benefits to Communities & Local Governments

- **Contributions covered by SDMP projects (Mining Act)**
 - At least 1% of total annual mining & milling costs
 - Total private sector commitment of P 222 M from 27 approved SDMPs
- **Direct financial contributions (voluntary)**
 - Seed money for livelihood programs
 - Donations to various socio-economic and cultural activities

Thrust: To ensure sustainability of communities after mine closure

Benefits to Communities & Local Governments

- **Royalty payments to IPs (Mining Act)**
 - **At least 1% of gross output (subject to negotiation with IPs)**



SOCIAL DEV'T PROJECTS



Philex Mining – Padcal, Benguet

SOCIAL DEV'T PROJECTS



Rio Tuba Nickel Mining Corp. - Palawan

SOCIAL DEV'T PROJECTS



Taganito Mining, Surigao del Norte

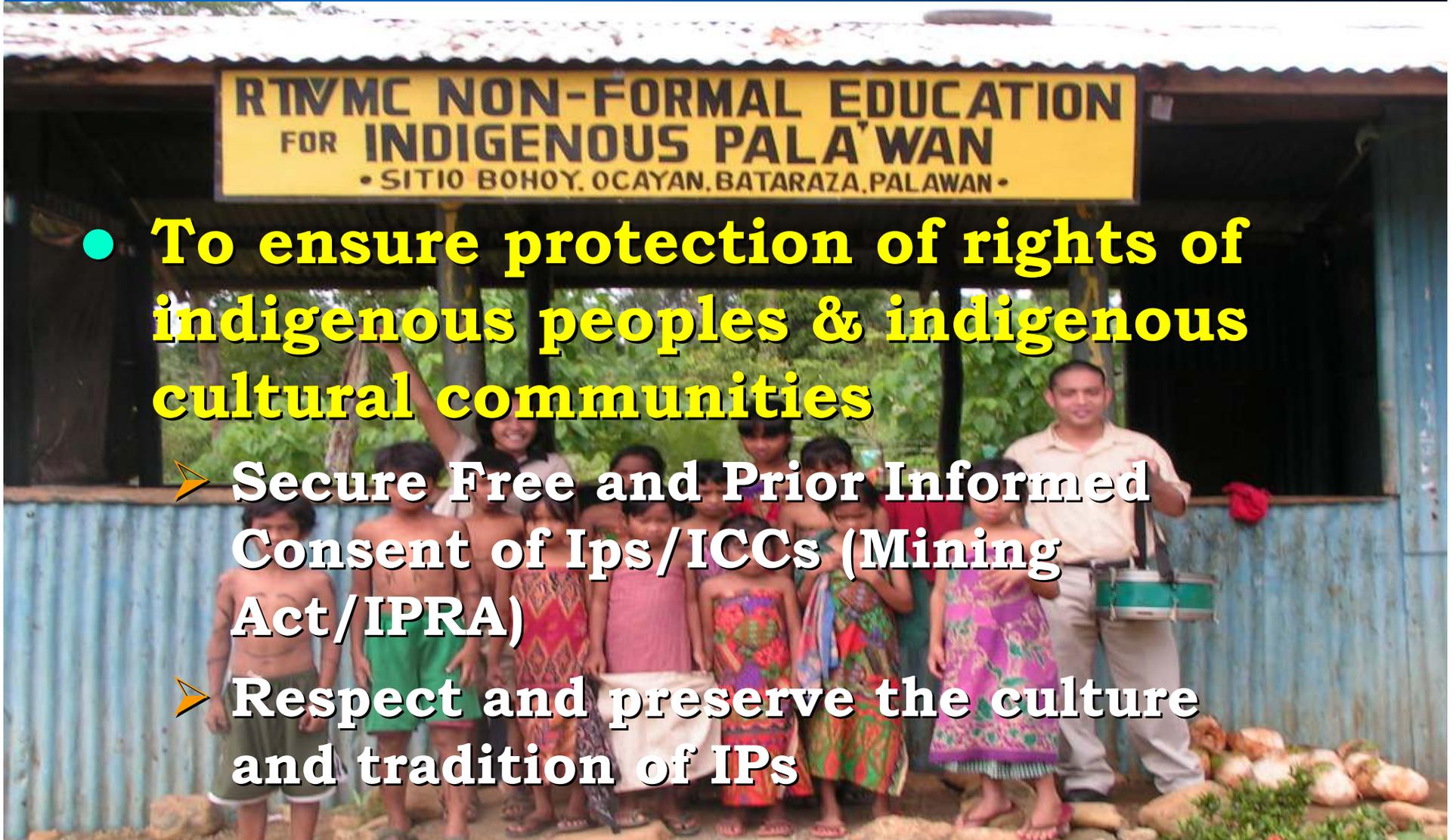


South Western Cement Corp. (Malabuyoc, Cebu) built new houses for affected residents prior to mining operations.

SOCIAL

**RTVMC NON-FORMAL EDUCATION
FOR INDIGENOUS PALA'WAN
• SITIO BOHOY, OCAYAN, BATARAZA, PALAWAN •**

- **To ensure protection of rights of indigenous peoples & indigenous cultural communities**
 - **Secure Free and Prior Informed Consent of Ips/ICCs (Mining Act/IPRA)**
 - **Respect and preserve the culture and tradition of IPs**



SOCIAL

- **To empower stakeholders to effectively participate in decision-making processes**
 - **Institutionalize stakeholders information and participation in decision-making (EO 270)**
 - ❖ **Conducted CSR trainings for stakeholders in pilot regions (Trainor's training completed)**
 - ❖ **Provided regular funding mechanism for IEC (new DENR requirement for mining companies)**



STAKEHOLDER CONSULTATION PROCESSES (Mandated)

	Pre-Exploration	Exploration	Feasibility	Construction	Operation	Mine Closure
Declaration of Mineral Reservation / Minahang Bayan						
Consent of landowner, etc. prior to entry (Mining Act)						
FPIC of ICCs/IPs (Mining Act / IPRA)						
Prior consent of small-scale miners (Mining Act)						
LGU endorsement (Mining Act / Local Gov't. Code)						
EIA consultation (PD 1586 / LGC)						
Environmental and social monitoring (Mining Act / LGC)						
SDMP formulation / implementation (Mining Act)						
Mine Rehabilitation Plan formulation (Mining Act)						

SOCIAL

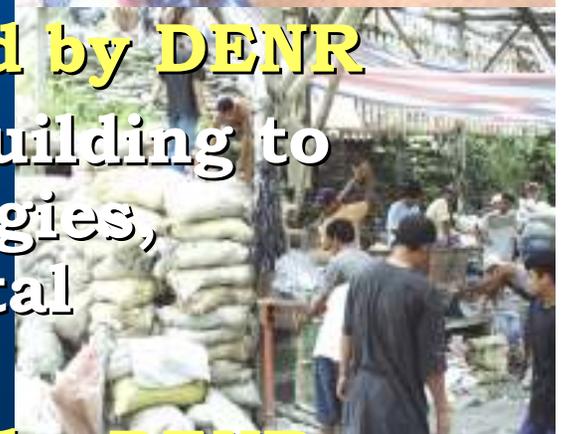
- **To strengthen capability of small scale miners to address environmental and social concerns and standards**

- **Amend RA 7076 & PD 1899 through a Magna Carta for Small Scale Miners to enhance protection of rights and provide new benefits**

Status: Proposal being formulated by DENR

- **Conduct trainings/capability building to small scale miners on technologies, safety, health and environmental measures**

Status: Ongoing implementation by DENR



“The apprehensions and fears can only be quelled with the collective effort of ensuring that we promote and advance sustainable development. The three pillars of economic development, social responsibility and the protection of the environment are the binding principles for a harmonious and progressive community.”



THANK YOU

**Department of
Environment and
Natural Resources**

