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Bachelor Thesis

Empowerment Strategies for Environmental Sustainability

*Proposal of Concepts to master Social and Environmental Impacts
of the Large-Scale Gold and Copper Mining Project in Didipio,
Philippines*

Presented to:

M.A. Conrad Kunze
Daniel Häfner

By:

Carolin Möller
Matr. Nr.: 2833096
Date of Birth: 20th September 1983
Address: Breiter Weg 1, 38640 Goslar, Germany
Email: moeller.carolin@googlemail.com

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Ermächtigungsstrategien für Umweltbezogene Nachhaltigkeit

*Konzeptuelle Vorschläge zum Bewältigen sozialer und
ökologischer Auswirkungen des großflächiger Abbau von Gold
und Kupfer in Didipio, Philippines*

Betreuer:

M.A. Conrad Kunze
Daniel Häfner

Verfasser:

Carolin Möller
Matr. Nr.: 2833096
Geb. Datum: 20.09. 1983
Anschrift: Breiter Weg 1, 38640 Goslar, Deutschland
Email: moeller.carolin@googlemail.com

Cottbus, den 15 September 2011

Declaration

I herewith declare that this thesis is my own work. To the best of my knowledge no work of others has been used without being specifically attributed to given references. All used sources were publically accessible. I further declare that the work has not been submitted for the purpose of academic examination, either in its original or similar form anywhere else.

Carolin Möller

Cottbus, 14. September 2011

*The hottest places in Hell are reserved for those who,
in times of great moral crisis, maintain their neutrality.*
Dante

*Peoples' minds have gone low. Fooled. No food, no light, no water, no government. People are
hungry. There is no solid situation. The roots are being lost.*
Fela Kuti

*We carry in our worlds that flourish
Our worlds that have failed.*
C. Okigbo

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List of Abbreviations

ADB:	Asian Development Bank
ALG:	Alternative Legal Groups Inc.
AMB:	Alternative Mining Bill
AnthroWatch:	Anthropology Watch
Au:	Gold
CADT:	Certified Ancestral Domain Title
CAMC:	Climax Arimco Mining Company
CMS:	Civil Society Movements
CNI:	Commission on National Integration (invalid name nowadays)
CSOs:	Civil Society Organisations
Cu:	Copper
DENR:	Department of Environment and Natural Resources
DESAMA:	Didipio Earth-Saver's Multi-Purpose Association
Dinteg:	Cordillera Indigenous Peoples Legal Centre
EIA:	Environmental Impact Assessment
FAO:	The Food and Agriculture Organisation
FPIC:	Free, Prior and Informed Consent
FTAA:	Financial and Technical Assistant Agreement
GDP:	Gross Domestic Product
GIS:	Geo-Information Systems
HRBA:	Human Rights Based Approach
IAP:	Individual Action Plan (Philippine Agenda 21)
ILO:	International Labour Organisation
IP:	Indigenous People
IPMAP:	Indigenous People's Master Plan
IPRA:	Indigenous People's Rights Act
IWRM:	Integrated Water Resource Management
LRC:	Legal Rights and Natural Resources Centre – Kasama sa Kalikasan
MASL:	meters above sea level
MCM:	million cubic meters
MDG:	Millennium Development Goals 2000
MGB:	Mines and Geosciences Bureau
MTPDP:	Medium Term Philippine Development Plan
NCIP:	National Commission on Indigenous People (previous CNI)
NGO:	Non Governmental Organization
NLSDC:	North Luzon Sustainable Development Corporation
NSOP:	National Statistics Office of the Philippines
NWRB:	National Water Resource Board

OGPI:	OceanaGold Philippines Incorporated
OHCHR:	Office of High Commissioner for Human Rights
PEM:	Philippines Environment Monitor
PD:	Presidential Decree
PO:	People's Organization
RA:	Republic Act
TNC:	Trans-National Companies
UDHR:	Universal Declaration on Human Rights
UNEP:	United Nations Environmental Programme
UNICEF:	United Nations International Children's Emergency Fund
WEPA:	Water Environment Partnership in Asia
WB:	World Bank
WUC:	Water Use Case

I Acknowledgement

I would like to thank 'Legal Rights and Natural Resources Centre – Kasama sa Kalikasan' for giving me the opportunity to work, learn and achieve an holistic insight of Philippine democratization process via environmental and social struggle with the people and their ideals of this institution for over a year. Especially I would like to give a huge thanks to Ronald Gregorio for patience and mental as well as informative support.

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II Abstract

Conflicts emerging through large-scale mining projects among government, industry and affected population are common all over the world. Especially the indigenous communities and their strong human-nature relation are threatened by the land transformation due to mining operations. Open pit gold mining performed by transnational companies TNCs and supported by the Philippine government aligning decisions on economic standards and market orientated legislative period, have been imposing tremendous damage on the Philippine indigenous communities and the national environmental resources for many decades, from colonial times, dictatorship, and new democracy .

This thesis displays and discusses the interwoven web of socially and environmentally degrading impacts introduced to the small village of Didipio in the north of the Philippines by a planned gold and copper mining project. After describing influencing sectors of industry and government for decision making in mining projects and introducing interests and purposes of all stakeholders, assessment of changes in water quality and quantity, which are associated with technical requirements of open pit gold mining, is used to specifically relate the initiation of a punctual impact, on a natural good, and its provoked tremendous environmental and furthermore social degradation.

A central assertion of this thesis is the call for recognizing human-rights based participation of all affected stakeholders via emphasizing indigenous people's rights, balancing market-centred development aggression and foreign control over national markets, as well as implementing sustainable environmental awareness management by industry and government.

Further recommendations are related to the resignation of defining nature merely according to its function under the utilization concept, to TNCs' application of post-modern understanding of reason based on flexibility and versatility, and to the promoting of indigenous self-determination and individual initiative.

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1 Statement of Relevance and Hypothesis

Large-scale mining is a globally known threat for social and environmental structures while addressing needs for consumptions. Human activities have an impact within the essential and aspired needs for survival and everyday living. There is no reason trying to ignore or extinguish the human footprint. Nevertheless the emerging consequences must be understood for creating objective and realistic empathy to evoke social and environmental responsibility.

The main objective of this thesis is to provide an informative overarching background collage for legal empowerment support by quantitative and qualitative statements on ongoing and planned mining activities in a rural indigenous community in the Philippines.

All over the world, livelihoods of marginalized and/or indigenous groups are often endangered by large-scale projects such projects as dams, mines, infrastructure, or resource development (DFID 2000). These are frequently implemented by foreign or locally not attached parties. By using the in-hand thesis example the global human responsibility could be addressed via inductive research conclusion. Therefore this thesis deals with the common circumstances of a conflict between rural communities and influential industry and government fuelled by land grabbing and other marginalizing processes.

The hypothesis of this thesis is that there is a high potential of combating these globally occurring conflicts with all its related social and environmental threats via honest and transparent participatory approaches based on full acceptance of international legal frameworks such as the Universal Declaration of Human Rights.

1.1 Environmental Movements and Democratization in the Philippines

'Inang kalikasan' is the Tagalog¹ word with the meaning 'Mother Earth' and symbolizes an Philippine attitude towards environmental respect of nature and nature's characteristics of nourishment, care taking and being amicable. The strong cultural Philippine alliance with nature has emerged especially during the last three decades in a society aiming at ecological and community sustainable living (Magno 1999: 165). Though, besides the nature-close cultural structures, the Philippines are afflicted by environmental struggle embedded in the occurring political context. Social demands which are key aspects in the interface of managing environment and political decision making are livelihood security and equity guarantee. Especially the battle over resources and their monetary potential, through exploration defined by environmental degradation due to economic development, causes social grievances which again is affecting traditional knowledge and customary property rights (Magno 1999: 172).

Until present days, political systems and their decisions have always been stimulating for environmental movements. The end of the dictatorship of Marcos in 1986 was accompanied by the emergence of various interwoven social and environmental movements. These strongly designed and governed the democratization process and the liberation from centralized government decision making attitudes while aiming at people power and self determination of the Philippine people. In the 1990s even more grass roots movements, such as more specific environmental movements, economic justice movements, feminist movements and consumer protection as well as the Civil Society Movements CSM, joined the freshly born democratization (Magno 1999: 231). The interdependency of democratization and environmental movements in the Philippines and also the rest of East Asia therefore should be understood and enhanced to gain and promote general civil justice and holistic sustainability.

Due to the political shift in 1986 the environmental needs, urges and movements acquired an individual detached status from being a restrictive subsidiary aspect in political discussion making towards being a coequal partner. The new position rendered feasible and facilitated an open and more honest expansion and realization

¹ First language in the Philippines

of citizens' participation via exertion of community empowerment as well as general sustainable development focused on land rights and governing of the commons, such as essential resources (Magno 1999: 240). Beside the driving force on the side of people's movement, institutional and legal changes such as the new Constitution in 1987 enhanced the strength of the linkage of environmental sustainability and democratization. In this period, People's Organization and Non-Governmental Organizations took over the representative political institutional position to form an opposition and fight for the implementation of existing environmental and social legal tools to guarantee civil community empowerment (Magno 1999: 249). Furthermore the general restriction of empowerment of communities and citizens as well as ignorance of environmental concerns were and still are created by the antagonistic and concordant relationship between corporate and governmental interests, and also environmental and social activists.

In the Philippines the process of victimization displays especially the issue of antagonism through for example the introduction of hazardous industry and environmental destructive measures on behalf of economic orientated development goals, and elicits confrontation and challenging realized by local affected communities and their facilitators and supporters in form of NGO's and PO's. Action, according to victimization, may emerge from local affected people who became victims through corporate or governmental activity or they apprehend to become victims, all which is based on lessons learned in historical course of environmental and social threats in the Philippines (Magno 1999: 186). To avoid confrontation and a bad local and global image, corporates started to implement proactive environmental and social policies such as Corporate Social and Environmental Responsibility.

On the contrary the ongoing controlling task over governmental and industrial decision making and practise by a strong people action, activities movements and academic support, the environmental movement attitude among Philippine society can be steered towards sustainable capacity building, especially in community control over local resources, for real democratised participation in environmental and social politics in all dimensions leading towards a human rights based nation.

Endorsement of decision making power injected by the button up concept in social and political structures including land management, social equity by economic opportunity

provision should therefore be charged with self regulating governance aiming towards implementations such as the 'Sustainable Rural District Development Programme in 1990' (Magno 1999: 154).

Via demanding state recognition of small nature-close communities and their traditional knowledge while promoting their socio-economic right, settled Philippine environmental and social active groups target the 'conservation of nature through people, rather than protection of nature from people...' (Magno 1999: 159).

The history of Philippine environmental movements, already gained experience and established ideas can be turned to account to manage this thesis' core issue via promoting and emphasising on participatory management of society, economy and nature.

1.2 Mining History

Briefly the role of the mining industry in the Philippines has to be discussed for understanding social insurrection and the struggle for transforming mining into a people and nature concerned industry. The experienced and occurring mining all over the country displays worry of realising further large-scale mining projects.

The Philippines were always regarded as a global provider of precious and important resources such as timber, skilled humans, agricultural products, and strategic minerals especially gold, silver, zinc, molybdenum, copper (Carreon, Ilagan 2009: 104), as well as resources of bauxite, marble and limestone (Rovillos 2003: 2).

Before independency 1965, Philippines were occupied by the industry implementing countries: Japan, Spain and the USA. Besides other reasons for occupation, resources and large scale exploitation of mineral deposits were driving factors to operate on these remote islands. Before the invasion of the occupants only small scale mining was practised by various more nomadic tribes in the Philippines. The first legal framework related to mining purposes was set by the Spanish by deputising the Spanish government as the owner of all public land and also by encouraging unconfined ability of dismantling all kinds of resources by colonial Spanish representatives. In 1905 under US American occupation the first mining act was introduced and revised in 1935 towards commercial mining (Carreon, Ilagan 2009: 116). The revised mining act was a

consequence of declaring the economic potential of Luzon Island (Island of Gold) and the Philippine gold rush lasting two decades, during the 1930s and 1940s. Not before 1965, the first large-scale commercial copper deposit was mined (Rovillos 2003: 10).

In the region Didipio, Nueva Viscaya, North Luzon, the indigenous tribe of Igorots was economically based on gold that was gained via small-scale mining and panning. At the end of Marcos' dictatorship in 1980s, more and more indigenous people came to this region to perform additional income activities via gold. However the local community in charge (the tribe called Ifugao) intervened by hampering mining to protect local environment for ensuring their main livelihood pillar: agriculture. Since 1987 when the Australian based company Climax Arimco Mining Company CAMC started to show interest in the gold and copper deposits of the region small-scale mining was transformed into aforethought large-scale mining (LRC-KSK/FoE~Phils 2008).

The legal and commercial history in Philippine mining is furnished with incidents affecting nature and society tremendously. Due to Anthrowatch around 70 % of Philippine indigenous groups undergo degradation of living standard based on mining operations (ALG, AnthroWatch et al. 2009: 33). The United Nations Environmental Programme UNEP declares the Philippines one of the countries experiencing the worst and most dreadful breakdowns of tailing dams² all over the world (Rovillos 2003: 17). All projects related to experienced accidents can be classified with the global change Katanga syndrome³, characterized by loss of biodiversity, soil degradation and scarcity and pollution of freshwater (WGBU 1996: 5). Names like Marinduque, an island covered under tailings for two decades with no environmental and social compensation or even recovery considered, effectuates the outrage and struggle of small local communities nowadays in such an extent. The general governmental incapability of managing mining incidents can be underlined by the fact that between 1983 and 2003, 16 very severe incidents with tailing dams destroyed entire landscapes and community structures and also approximately 800 relinquished old mining areas have not been treated and handled according to any environmental or social standard (Doyle, Nally, et al.2006: iv). In Didipio the combat of indigenous people against large-scale mining of alien operators supported by the national government started in 1992,

² Dams storing slurry waste of mining, residuals of ore and mineral separation

³ Utilisation Syndrome

even before the legal framework was transformed into an entire sell out and a short term profit orientated tool for foreign investors and omnipotent Philippine government (Corpuz).

1.3 Target Group

This thesis aims to be an informative basic tool addressing various stakeholders and purposes. The initiator of this work was the given task to assess changes of the local water conditions of the Barangay⁴ Didipio in general quality, as well as commenting on the impact on the national water household which are implemented and evoked by the governmental and economic tool called FTAA (Financial and Technical Assistance Agreement). The awarding authority was the Non-Governmental Organization 'Legal Rights and Natural Resources Centre – Kasama sa Kalikasan LRC-KsK/Friends of the Earth-Philippines' LRC which is defined by its legal research, policy assessment, and advocacy attitude. LRC therefore is the direct target group which defines the structure of the thesis and puts emphasize on Chapter 3 about water changes according to the Gold and Copper Project in the local environment of Didipio. Due to the general mission of LRC working for 'the empowerment of marginalized indigenous peoples and rural communities directly dependent on natural resources', the superordinated target group is defined as the by the Gold and Copper project affected indigenous people of Didipio and furthermore all indigenous people fighting for their cultural heritage being affected by degradation of natural resources. The aspired approaches by LRC, supporting the viability of 'sustainable, equitable and gender-just use and stewardship of our natural resources' (LRC 2011) by dint of the application of the rights of the indigenous people and rural communities towards 'sustainable development and more importantly, social justice and human rights', as well as empowerment of individuals and entire marginalized communities forthright related and depending on natural resources. To implement people's ambition and quest sustainable empowerment mechanisms have to be integrated in the decision making processes and legal frameworks of the State via assessing and processing policies and legal structures (LRC 2011).

4 A Barangay is the smallest political active unit in the Philippine administrative segmentation

Furthermore, this thesis aims towards awareness creation for indirectly involved as well as directly involved stakeholders such as global consumers and industrial and governmental representatives by displaying consequences of production and consumption of goods and services for the globalised free market.

Besides the directly affected target groups, governmental and industrial, as well as consumer informing is aimed for in this thesis by stating and combing the most importing aspects and influencing factors according to the Gold and Copper Mining Project in Didipio as a blue print example for many other resource projects around the globe.

1.4 Approaching Method

Designated methods for accomplishing the desired assessment of the issue are based on quantitative and qualitative research to embrace all influencing factors. Qualitative research such as the Grounded Theory strongly determined by Barney Glaser and Anselm Strauss are going to support the understanding of the conflict between the stakeholders as well as conflicts within affected communities of this thesis' issue (Dilger 2000:1). For a holistic statement on the discussed conflict qualitative research assisted by additional quantitative statements as much as data collection is possible. Besides basic ideas and approaches of the Grounded Theory, phenomenological, ethnological and case studies were used to comprehend reasons for conflicts and for creating suggestions how to handle the conflict while aiming for the maximum of social and environmental justice and not forgetting about economic necessities.

The work is determined by lived experience dimensions, by mere experience description of people geared to phenomenological assessment like the approaches of Kakulu and Bryne (2009). Conclusive statements are influenced by inductive qualitative research orientating on assessing from specific conditions towards general argumentation augmented with deductive quantitative assumptions from general level to the individual person (Trochim 2006). This is feasible due to the fact that the discussed issues are globally similarly occurring while being very locally specific.

Information used in this thesis are collected via various different approaches. Besides pure literature research according to the legal framework and economic purposes, site

observation, small scale physical and chemical measurements according to water bodies and natural surroundings, excursions including the conflict region, topic related conferences and meetings, as well as political and industrial events, conversations with affected indigenous people, governmental representatives from the DENR, and environmental and human rights activists have been performed to established a well informed and detailed knowledge fundament for assessment of the regarding conflict. Most theoretical knowledge has been gained from case studies, position papers, technical reports, environmental statements and government documents.

The topic of this thesis is based on and influenced a complex ramified web of factors which cannot be discussed in all details. For not going beyond the scope of this discussion thesis, background information are going to be compromised and emphasis will be set on the most important and trend-setting examples of in decision making.

After providing a strong descriptive overview, detailed water qualitative and quantitative measures will be introduced leading to conclusive establishment of potential solutions of the ongoing conflict

2 Descriptive Contemporary Situation

2.1 Pertaining Project

The core of this thesis is a proposed and partially accomplished mining project with the applied mineral commodities gold and copper in the Barangay Didipio, North Luzon, Philippines by an Australia based transnational company named OceanaGold Philippines Incorporated OGPI initiated by the governmental approval via the Financial and Technical Assistance Agreement FTAA handed over to Climax Arimco Mining Corporation CAMC in 1994 (CAMC 2004a: 1). According to the economic-political segmentation of the Philippines into regions, the Barangay Didipio is located in North Luzon, Region II, province Nueva Viscaya, as one of the 2,311 barangays of the municipality Kasibu. Topographically and geologically Didipio is defined by the largest Philippine watershed the Cagayan River and (CAMC 2004b: 1) its surrounding mountains (NSCB 2010: 1). The National Statistics Office of the Philippines recorded 2,095 inhabitants in the barangay composed of various indigenous groups with the majority of Ifugao people, a tribe known for its rice terrace agriculture. This mining

project orbits around one of the globally highest-graded (OGPI 2011) gold and copper ore bodies, still existing, declared as a 450 m long and 150 m wide porphyry style gold-copper mineralisation with a depth of around 800 m named Dinkidi, aborigine translation: the Great Deal (Wolfe 2001: 3). The entire removing of the mountain Dinkidi takes place in a range of cutting off from creek ridge of 830 masl to pit base at 550 masl transforming the entire region (Gaia South Inc. 2004: 4-17), a difference of 280 meters. The mineral resources of the mountain Dinkidi are assumed to generate the amount of 29.7 million tons with grading 1.48 g/t Au and 0.57% Cu. Once in process approximately 70,000 oz (1984.5 kg) per year of gold is intended to be mined and processed (OGPI 2011). The affected mining area integrates issues of land and water use management⁵ directly linked to social Ifugao livelihoods security and environmental protective welfare also bound to agricultural performance. Land use patterns in this area tangles the different pillars of the Cagayan Valley watershed household, local food supply by Ifugao agriculture, as well as the natural heritage. The region of the south of Nueva Viscaya is labelled as the Citrus Bowl of the Philippines and embraces a total agricultural area of 35,000 hectares (LRC-KSK/FoE~Phils 2008) which displays the ramified web of the mining projects, social security according to livelihood maintenance, and of course natural protection due to threats by mining operation such as tailing dams, water diversion, and land transformation.

2.2 Involved Stakeholders

The planned project embraces and integrates three groups of stakeholders who are involved in the project by different purposes, concepts and ideas. The government sector is mainly represented by its laws coming into effect in the case of the gold and copper mining project in Didipio especially the ones displayed in the chapter of the embedded legal environment. Core governmental institutions regulating legal frameworks are the Department of Environment and Natural Resources with its affiliated institutions such as the Mines and Geosciences Bureau MGB, the National

⁵ open pit design: cutting of mountain Dinkidi from 830 masl to pit base at 550 masl (meters above sealevel); 520m long in the north-south axis and 420m wide in east-west axis (Gaia South Inc.)

Water Resource Board NWRB, as well as local governmental units and institutions focusing on human rights and various kinds of economic and social development. The State representatives involved in issues linked to the mining project align their decision making to the current attitude of the present government and promote public welfare through economic and social development with tools like the Medium Term Philippine Development Plan 2004 to 2010 MTPDP or the Indigenous People's Right Act while performing environmental protection for the purpose of sustainability of the nation. In general the Philippine Government, ascribed corruptive attitude, focuses encouraged by institutions such as the World Bank, very strongly on fast GDP growth for joining the globalised free markets.

The second stakeholder, who is the initiator of the project encouraged by legal and economic incentives set by the governmental framework, is the Australian based transnational company TNC OceanaGold Philippine Inc. OGPI (see chapter on embedded legal environment), exploring mainly the commodities gold, copper and molybdenum (OGPI 2011). OGPI's operational framework is enriched by affiliated companies such as the North Luzon Sustainable Development Corporation NLSDC, an under the Philippine legislation registered company, as well as smaller externals such as the Gaia South Inc., an environmental consultancy preparing environmental Assessment for OGPI and DENR. OGPI is the digit emitter by proposing the mining project in its current design, partially inherited by CAMC (see chapter on embedded legal environment) of the project and its aspirated implementation and profit gaining. The company's driving concept is manifested in the company's slogan 'Unlocking Embedded Values' (OGPI 2011). Besides the Didipio project, OGPI possesses 22 tenement or ongoing applications all over the Philippines.

The last of the directly involved interest groups are the local indigenous Ifugao inhabitants and also additional small communities of other indigenous people of Didipio. During the 1960's Ifugao people being forced to migrate due to large scale mining in surrounding regions of Quirinio to Didipio to earn a living through agriculture performance as well as small-scale mining. Ifugao people are recognized by the National Commission on Indigenous People NCIP as indigenous people IP with the right to a free, prior and informed consent FPIC essential while third parties aim to operate on their land. The cultural relation of Ifugao and their land is based not on specific

territories rather than on practices such as inheritance and land management for livelihood creation (Zeballos 2009). Furthermore other reasons for Ifugaos resettling in Didipio are determined by the primogeniture law which pressures other members, ignored by the law of inheritance, finding a new place to settle, as well as by the emerging demographic pressure on small origin regions (Zeballos 2009). The original land occupation in the Kasibu municipality was defined by the indigenous ancestral domain proclamation of the nomadic hunting Bugkalots who handed their lands over to the migrating Ifugao people. The Bugkalots and the Ifugao agreed on a peaceful coexistence based on different livelihood approaches and sufficient non-occupied land in Didipio. The resettlement was legitimised by the then entitled government of President Marcos in 1964 and the Commission on National Integration CNI (nowadays Commission on Indigenous People).

The survival of the Ifugao people is directly threatened by this gold and copper mining project by land transformation, changes in the water household and diminishing socio-economic opportunities for all inhabitants. This last group compared to other stakeholders is very vulnerable and can easily be disregarded by others. Therefore various Non-government and Non-profit Organisations NGO/NPO such as Christian Aid and Legal Rights and Natural Resources Centre – Kasama sa Kalikasan provide legal and technical support for indigenous people for self empowerment. The Ifugao people of Didipio are attaining empowerment structures and values with the support of these NGOs which set operational frameworks of the legal self established Incorporation Didipio Earth-Saver's Multi-purpose Association Incorporated DESAMA. LRC and the partner NGOs working on the case Didipio proclaim values aligned and motivated by general human and indigenous rights with detailed emphasis on socio-economic, political and also gender justices enriched with the concepts of unity, diversity and interdependency while implementing individual and collective professionalism to impel a holistic, just and sustainable orientated legal framework by at the same time incorporates and facilitates development opportunities of marginalized communities by capacity building towards empowerment (LRC 2011).

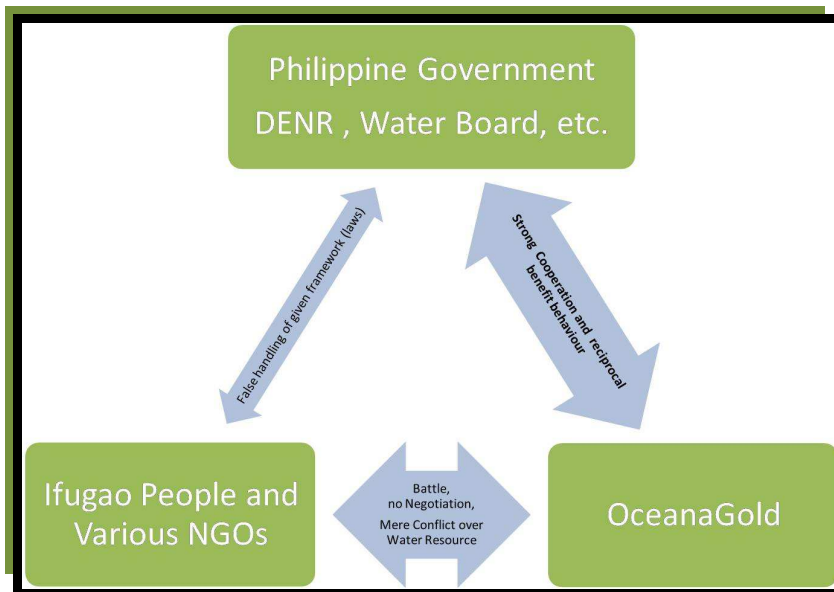


Figure 1: Stakeholders and their Relations

The relations among the three stakeholder groups are displayed in Figure 1. Due to the various interests and everyday needs, the relations are strongly polarised towards aspired outcome and influenced by potential socio-ecological and economic impacts. The relation between the indigenous people including all their supporters and OGPI is impregnated with a mere conflict while neither any negotiations nor real compromises over water and land resources, which display livelihood maintenance, are taking place. The role of the government is affirmative with false recognition and realisation of existing legal framework towards indigenous peoples and their rights, and on the other hand a reciprocal beneficial cooperative relation with OceanaGold Philippines Incorporated.

2.3 Embedded Legal Environment

The guiding legal approach consulted in the conflict between the Ifugao people of Didipio and OceanaGold Inc. is urged by the framework and concepts of the Declaration on Human Rights (UN General Assembly on 10 December 1948). Enriching the social legal framework with environmental ideas lead through assemblies of globally influencing organisation such as the United Nations Environment Programme (UNEP) together with the Office of the High Commissioner for Human Rights (OHCHR) emphasized on the arborisation of the ideal sustainable concept of human rights

together with environmental concerns and needs to adapt the occurring new generation of environmental impacts in human rights (Limon 2009: 3). The aspired statements focus on the highlighting of the linkage, or even more the prerequisite, of a healthy environmental condition and the contemporaneous ability of guaranteeing humans’ wellbeing aligned to human rights regulations. Especially essential and indispensable sanctions and responsible liability of each and every state, as well as other legal national and international human rights representatives, to set legal environmental and human rights friendly conditions are being strived for by the named high commissions (Limon 2009: 2). Besides the aspect of the environmental wellbeing as a prerequisite for honest human rights application, via legal national support and protection, two additional approaches are taking over an important consideration in the case of Didipio. First, human rights according to ‘making the voices being heard’ by introducing the participatory approach and enabling access to information, judiciary and decision making in environmental discussion, and second the aim to establish an ecologically-orientated environment as one specific legal aspect of human rights (Limon 2009: 4). For the Philippines the Declaration on Human Rights and its related International Covenants on Economic, Social and Cultural Rights as well as on Civil and Political Rights are active and legally valid via incorporation and transformation in national legal framework.

The project related legal framework is directly defined and prescribed by the national Philippine government, as one of the main stakeholders, and each decision and legal admissions according to their national and international accepted and ratified legal standards. For Didipio the most important governmental actors as well as legal conditions can be summed up and explained in detail.

Table 1: International Legal Tools (Source: OHCHR 1996)

Law	Description
Human Rights Declaration	The Universal Declaration on Human Rights with all instruments customarily or legally binding via incorporating and transforming international human rights instruments constitutionally into Philippine Legal Framework
Human Rights Instruments	International Covenant on Economic, Social and Cultural Rights International Covenant on Civil and Political Rights
ILO Agreement 169	International Labour Organization on protecting rights for Indigenous people (not ratified in the Philippines yet but providing a guiding framework for IPRA of the Philippines)

	Human Rights Instrument	Adoption	Signature	Ratification	Entry into Force
Customarily Binding Instruments	Universal Declaration of Human Rights (UDHR)	1948 Dec 10	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>
	Declaration on the Right to Development (Declaration on RTD)	1986 Dec 4	<i>Not applicable</i>	<i>Not applicable</i>	<i>Not applicable</i>
Legally Binding Instruments	International Covenant on Economic, Social and Cultural Rights (ICESR)	1966 Dec 16	1966 Dec 19	1974 May 17	1976 Jan 03
	International Covenant on Civil and Political Rights (ICCPR)	1966 Dec 16	1966 Dec 19	1986 Feb 28	1987 Jan 23
	First Optional Protocol (ICCPR-OP1)	1966 Dec 16	1966 Dec 19	1989 Aug 22(a)	1989 Nov 22
	Second Optional Protocol aiming at the abolition of the death penalty (ICCPR-OP2-DP)	1989 Dec 15	2006 Sep 20	2006 Nov 20	2006 Nov 20
	International Convention on the Elimination of All Forms of Racial Discrimination (CERD)	1965 Dec 21	1966 Mar 07	1967 Aug 15	1969 Jan 04
	Convention on the Elimination of All Forms of Discrimination against Women (CEDAW)	1979 Dec 18	1981 Jul 15	1981 Jul 19	1981 Sep 04
	Optional Protocol (CEDAW-OP)	1999 Oct 06	2000 Mar 21	2003 Nov 12	2004 Feb 12
	Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment (CAT)	1984 Dec 10		1986 Jun 18(a)	1987 Jun 26

Figure 2: Human Rights Instruments in the Philippines (Source: <http://www.hrbatoolkit.org/wp-content/uploads/2011/02/table2a.jpg>)

The most important governmental institution for the conflict in Didipio is the DENR and its affiliated subordinated Mines and Geosciences Bureau. Regulatory for the entire Philippine terrain the centralised DENR accomplishes and certifies Environmental Impact Assessments while the subordinated Mines and Geosciences Bureau hands out mining permits.

The national legal fundament for discussing water issues in the Philippines, such as the issue occurring in Didipio, is the existing Constitution of the Philippines from 1987. In Section 2, Article XII rights over water resources are assigned to the State without becoming alienated. However operations according to water resources are possible under the entire control of the Philippine Government. Other aspects written down in this part of the Constitution are additionally implemented and activated in other governmental tools especially in the Financial and Technical Assistance Agreement FTAA from 1994 (attached to the Mining Act of 1995). Managed in the FTAA and the Constitution are the specific resource operations over a time span of maximum 50

years, joint venture and production sharing agreements of the State with representatives of the private sector which have to be at least 60% owned by Philippine citizens.

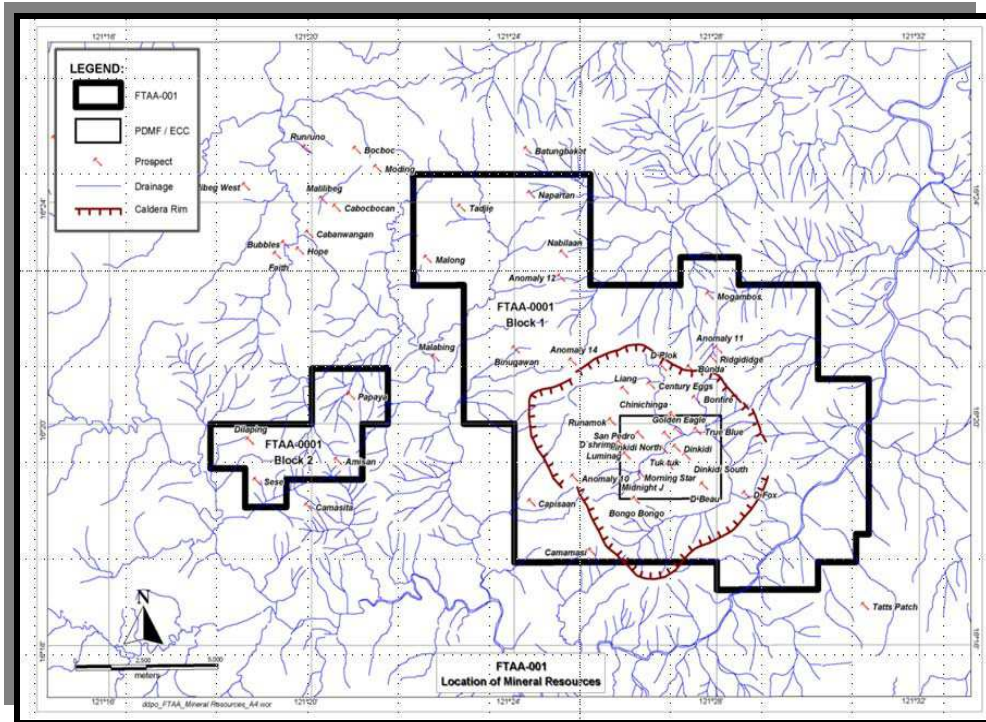


Figure 3: FTAA 001, Initiated Area (Redden, Moore 2011: 29)

Two main laws for water are the Presidential Decree 1067 known as the Water Code of the Philippines and the Republic Act 9275 known as Clean Water Act. Additionally laws such as Republic Act 8041 on National Water Crisis ratified in the same year as the Mining Act of 1995, emphasize the need on enriching water management with legal support. The mentioned Mining Act of 1995 or Republic Act 7942, based on Article XII Section 2 of the Constitution of 1987, and hands over mineral resource management entirely to the State represented by the DENR and its Mines and Geosciences Bureau. The DENR generally promotes nature protection and sustainable management, and ecological awareness combined with project implementation via conducting Environmental Impact Assessment. The affiliate Bureau of Geosciences of the DENR is in charge of handing out mining permits also furnished with the FTAA. Not only water rights but also land rights, especially the once according to protection of indigenous people and nature, are being affected and their conflicting ideas behind the FTAA.

The FTAA incorporates easement rights according to large scale mining operations for monetarily highly ranked minerals such as gold, copper, nickel, lead and chromite for foreign project conductors. The potential operation area can maximally measure 81,000 hectares on-shore being provided from the State as the owner under the Constitution of the natural resources for a time span of 25 years, potentially being exceeded for further 25 years (MGB 2005: 2). The main organizer of the application processes of a FTAA is the Mines and Geosciences Bureau. The DENR with its mission of nature conservation and protection is only selectively assessing the concerned project via an Environmental Impact Assessment which has been accomplished in the case of Didipio by a third party Gaia South Inc. in 2004 commissioned by OceanaGold Philippines Inc. OGPI.

Due to the objectives of the Philippine government and the World Bank, the FTAA as a sub-regulation of the New Mining Act from 1995 (the same year the national water crises was declared) with foreign investment incentives are determining principles to enhance national GDP growth. Entire and complete return of all spent investment and 100% transferring of the achieved revenue with at the same time high ability of amortization and no expropriation incidents are the monetary benefits of the FTAA for foreign project investors. Only small amounts of taxes in form of corporate income and excise taxes, inaugurating after investors-satisfying revision of pre-operating financial burdens provide a share under the FTAA for the Philippine nation. The net profit during operation on a commercial scale is being shared into 60% for the government and 40% for the operator. However the governmental share is being offset with accruing taxes. Mismanagement and governmental corruptive obstinacy display the FTAA as an entire sell out of the Philippine resources for short term profit making (PESC-KSP 1999:4).

The First FTAA was handed to Amrico Mining Corporation AMC by the government under President Ramos in 1994. This FTAA covered an initial area of 37,000 hectares and entitled the commodities gold and copper for 25 years with the ability of 25 years more. One year later AMC merged together with Climax Mining Limited, both Australian based and changed their name into Climax-Arimco Mining Corporation CAMC. In 1996 CAMC handed its FTA-Agreement to the company Australasian Philippine Mining Incorporated APMI (since 2007 named OceanaGold Philippines Inc. OGPI which was accepted and registered by the DENR in 2004) (CHR Philippines

2011:1). Currently the FTAA data changed to an area of 17,626.26 hectares of land, but affecting 112,311.38 hectares in total (MGB 2011), because of contract aspects such as the compulsory relinquishment of 10 % of the initial area of 37,000 hectares each year. Due to the statement of the Mining Tenements Management Division, Mines and Geosciences Bureau, DENR, published in the complete list of issued FTAA's, the actual area affecting directly the village Didipio, its inhabitants and nature as well as its surrounding region embraces 19,363.26 hectares in 2008 (MGB 2008) where mining and all related activities will be realised.

While discussing the FTAA as a governmental mining primer all affected important sectors such as water and land rights which are furthermore strongly related to economic and civil rights and especially the potential impacts on these basic rights should be assessed. In the pertained project in Didipio, the Philippine Company North Luzon Sustainable Development Corporation applied for four water permits at the National Water Resource Board under the purposes of environmental and flood control, as well as mining and milling operations. North Luzon Sustainable Development Corporation NLSDC has been initiated to facilitate OceanaGold Inc. of possessing water usage rights as a foreign company via its affiliated company NLSDC (Corpuz). Due to various permits and legal regulations hence the livelihoods of local people and nature itself are diversely threatened according to land, water and human rights.

The legally binding human rights instruments, the Covenant on Economic, Social and Cultural Rights International Covenant on Civil and Political Rights as well as the ILO 169 are influencing the legal condition in the conflict over Didipio's resources. Under the economic, social and cultural rights the right to freedom from arbitrary deprivation of property and the right to an adequate standard of living pointing out the right to water and sanitation are valuable for the case. The human rights Covenant on civil and political rights can be used in term of its assigned right to liberty and security of a person addressing the issue of demolished houses (see Chapter on social threats) and impeding livelihood creation via self regulation and empowerment (Oxfam Australia 2007: 12). Nationally many water regulations, as mentioned, before are used for watershed and water resource protection and at the same time civil protection is manifested in national laws such as the Indigenous People's Right Act R.A. 8371 (IPRA)

orientated on the ILO 169 which is not yet ratified in the Philippines. The Didipio case is an obvious representation for the tremendously strong interwoven dependencies of social and environmental well-being. The international and national rights of communities, groups and peoples, illustrated under the in the IPRA imply the right to consultation through their own representative institutions regarding government conduct which may affect them, with the objective of achieving agreement or consent. Didipio Earth-Saver's Multi-Purpose Association, Inc. DESAMA is the active legal representative of the local indigenous Ifugao and also Bugkalot people of Didipio (DESAMA 2006).

The creation and maintenance of livelihoods for the affected inhabitants of the FTAA region is directly linked to the legal framework according to land and water as well as economic rights. Additionally to the laws promoting the rights of the industrial sector and the Philippine government institutions, laws occur which focus on the rights of individual civilians for empowering them. These are based on civil, economic and legal rights of indigenous people condensed in the IPRA and explicitly formulated in R.A. 7076 the people's Small-Scale Mining Act or the national legal approach of creating decentralized governmental units via R.A. 7160 from 1991, not valid and realized for the DENR, the so called dinosaur of the Philippines and its sub-institutions. In the declaration of policy, section 2, of R.A. 7076 is formulated the essential need of the State to promote small-scale mining as a measure for sustainable empowered work abilities and therefore livelihood support.

Table 2: National Legal Tools

Law	Name	Year and Comments
Republic Act 7942	Philippine Mining Act of 1995	<ul style="list-style-type: none"> Based on Article XII of the Philippine Constitution State manages mineral resources as owner and administrator Government controls/supervise exploration, development and utilization of mineral resources Grant mining rights
Instrument of Republic Act 7942	FTAA	<ul style="list-style-type: none"> Financial and Technical Assistance Agreement Agreement between Philippine government and the private sector
Republic Act 7076	People's Small-Scale Mining Act	1991
Republic Act 8371	Indigenous Peoples Rights Act	<ul style="list-style-type: none"> Focus on promoting civil, economic and legal rights of indigenous peoples Aligned and guided to the principles of ILO 169 Ratified in 1997 (Fischer 2011: 18)
Part of Republic Act 8371	Certificate of Ancestral Domain Title (CADT)	•
Republic Act 9275	Clean Water Act	<ul style="list-style-type: none"> Coalition and Substitute of House Bill Nos. 199, 215, 443, 522 and 1025 Ratified 2004
Presidential Degree 1067	The Water Code of the Philippines	<ul style="list-style-type: none"> Ratified 1976, by NWRB (Redden, Moore 2011: 146) Rule II: Control, conservation, protection of waters, watersheds, and related land resources Section 41, 48,49, 55:Handling Tailings
DENR Administrative Order 97-39	Chemical Control Order For Cyanide And Cyanide Compounds	• 1997
Republic Act 8041	National Water Crisis Act	<ul style="list-style-type: none"> Ratified 1995 (same year as Mining Act) Adopting urgent and effective measures relevant to the nationwide water crisis
Republic Act 7160	Local Government Code	<ul style="list-style-type: none"> 1991 Decentralization of governmental institutions

Small-scale mining and water access needs reliable land property or usage rights to promote sustainable long-term social and environmental security. For indigenous people in the Philippines the IPRA Republic Act 8371 and its aligned certificated ancestral domain title CADT provides legal access to land. However obstacles hampering CADTs to be honestly handed out to indigenous groups are claims of the Department of Agrarian Reform or FTAA areas. Due to migration history of Ifugao people to Didipio in the 1960s, OceanaGold Inc and governmental representatives

ignore the potential of Didipio becoming a CADT region. Only the Bugkalot people are able to apply for a CADT because their origin is in Didipio. However even so CADTs became a legal tool, applications are mainly ignored and only some have been registered and legally accepted with all their attached advantages for the local community.

However under the IPRA Section 3a indigenous communities should not be stopped or hindered from ‘...continuously and exclusively [use] certain tract of land for their use and exploitation since time immemorial’. Due to the difficult and unclear landownership, in Didipio based on internal agreements among Bugkalot and Ifugao representatives the only currently legal acceptable proof for Ifugaos becoming landowners in the 1960’s of Didipio’s estates, are tax declarations of individual Ifugaos (Zeballos 2009).

After achieving a rough minimized overview of the most essential legal frameworks and tools which determine judicial conditions in the case of Didipio, legal activity and reasons for these legal actions should shortly be highlighted to show livelihood threatening impacts of the planned project. Three water related cases have been filled during the last six years by the Ifugao people of Didipio, represented by DESAMA and individual interest persons. The first case is called the Mother Water Case WUC CASE no. 2007-148 where DESAMA files against the four water permits applications, WPA Nos. 45363, 45364, 45365 and 43566 (DESAMA 2007a: 1) handed over to North Luzon Sustainable Development Corporation by the NWRB emphasizing the tremendous environmental and social impacts due to water consumption by the planned project. Additional to this water case another water permit application no. QUI-2007-01-046 activated by NLSDC is trying to be stopped by three inhabitants of a small district of Didipio named Tubo (DESAMA 2007c: 3). The third filed case is the water case, WUC CASE NO. 2007-156, by three individuals and DESAMA against NLSDC’s water permit application nos. II-NUV-2007-01-047 and II-NUE-2007-01-051. due to the essential characteristic of water for people and the long term dependency of locals on the project affected water bodies. Under the Water Code Section 2(a) Implementing Rules and Regulations, it is stated that for domestic water use no application for permits are needed. The filed water permits of NLSDC are seen as illegal by DESAMA and various NGOs due to the fact, that the entire initiation of the mining project occurred illegally

lacking social local project approval enhanced by no legal opportunity enabling locals to make their voices be heard and by hindrance of raising issues during project establishment.

Besides the access to water resources and water rights the Philippine Water Code discusses the handling of tailings from mining operation in various articles for example Chapter VI, Article 77 and Chapter VIII article 91(b) about dumping tailings in water bodies displaying the seriousness of the potential tailings impact of the Gold and Copper Mining Project Didipio.

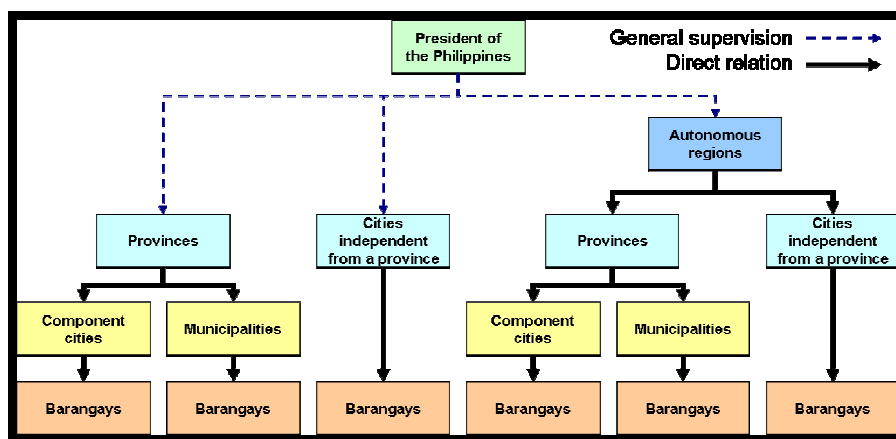


Figure 4: Administrative Divisions of the Philippines (Source: About Philippines)

Another legally filed case is the Forest Case claiming that due to the definition of the Constitution from 1987 which is strongly adjusted to the Constitution of the USA. Under the Constitution and the Presidential Decree No. 705 Revised Forestry Code, forest areas are defined by the local topography, stating that only land above 18% slope is defined as forest, leaving lowland forest unprotected in the constitutional legal system (Supreme Court Blog 2009). Section 15 in the Revised Forestry Code states that '[l]ands eighteen percent (18%) in slope or over which have already been declared as alienable and disposable shall be reverted to the classification of forest lands by the Department Head, to form part of the forest reserves, unless they are already covered by existing titles approved public land application, or actually occupied openly, continuously, adversely and publicly for a period of not less than thirty (30) years as of the effectivity of this Code,...'. Didipio, lying in the mountainous region of the Cagayan Valley, is strongly characterised by a steep slope and the majority of the inhabitants

are living on estates with a slope greater than 18% which is a direct effect of Ifugao culture and their relation to land management (Zeballos 2009).

Even so the pertained Project of OGPI accomplished environmental studies, as well as applications for permits and also social impact assessment research (McIntyre, Moore, Wyche 2010: 146) which are legally accepted, the thesis will question. In addition to mere questioning of the existing governmental policies and laws, which are regulating the entire life of Philippine citizens while sometimes ignoring human rights to promote merely economic goals and short term decision making to benefit in the legislative period, institutions and organizations such as the Alternative Law Groups Incorporated scrutinize and revise these laws . Also an objective of the members of this group is to develop and manifest just and sustainable policies and laws such as the Alternative Mining Act or the Manila Declaration (see chapter 4.2.5) to create a better participatory legal environment for the Republic of the Philippines.

2.4 Embedded Economic Environment

For a holistic assessment and full understanding of the impact of the mining project, socio economic facts of Didipio and economic governmental ideas for the nation have to be understood. This needs an evaluation of economic capacity and opportunities according to work and income, therefore entire livelihoods of individuals and the comprehensive community including health and educational institutions, roads, electricity, and water systems. Furthermore decision making of the government and industry according to the Didipio mining project should be examined and analysed on economic proposes and background to track intellectual inadequacy and conclusively counteract on behalf of human rights, sustainable and just decision making in cohabitation of all stakeholders.

Didipio's economic structure is determined by the majority of farming families and workers depending on supporting agricultural performance of these farmers. Furthermore small-scale mining is being practised by exclusive individuals or smaller groups of mainly male indigenous people of other tribes which came to Didipio only for mining but not for living. For Ifugao farmers the main crop resources are rice and citrus especially pomelos and oranges, but also kamotes, a staple Philippine food (Zeballos 2009). Numbers for the entire municipality of Kasibu including the Barangay Didipio

state that there are aside of rice, four main agricultural cash crops-also used for private demand: beans, citrus, ginger, and squash. Individual families are working in small scale trading or other community tasks such as driver. Didipio is lacking direct connection to a public infrastructure which is compensated by local organisation of Didipio’s inhabitants (Möller, fieldwork 2010a).

Table 3: Agricultural Products and Farmers involved in Kasibu (Source: LRC-KSK/FoE~Phils 2008)

Primary Agricultural Products in the Municipality	No. of Farmers Involved
Beans	664
Citrus	22
Ginger	288
Squash	643

Only one relatively newly constructed road links Didipio to other barangays, such as Barangay Wangal, which hampers the locals being engaged in market business of cash crops and therefore making the people more depending on their own agricultural land. Another infrastructural device for Didipio was the initiation of a partial supply of electricity to certain families of the Barangay in 2003 by Nueva Viscaya Electric Cooperative NUVELCO. Domestic water demand is being addressed by natural water sources such as small springs in the area. Irrigation for agricultural land is based on rain harvesting and traditional knowledge about crops with a low specific water demand and adequate water saving field constructions (Möller, fieldwork 2010b). The most important economic sector of Didipio therefore is family based sustainable agriculture which addresses private demand, provides small additional income through cash crops, and protects water and natural resources by adapting to local conditions and focusing on sustainable management to guarantee family survival, an Ifugao traditional value.

This small-scale economic structure is threatened and influences by the national economic guidelines. Understanding the government economically and why laws often align to economic benefit, various aspects should be pointed out. Especially the Medium Term Philippine Development Plan 2004-10 MTPDP displays the attitude of governmental representatives towards decision making for all kinds of projects.

The Philippines population is measures in 2010 at a total of 93 617 000 inhabitants with a female share of 49.6% and a rural share of 33.6%. In this year less than half the

population, 39 967 000 persons, was recorded as economically active. In 2008, 13 317 000 persons were economically active in agriculture throughout the nation (FAO 2011a: 1) and in 2011 total agricultural holders were accounted at an amount of 4 768 317 (FAO 2011b: 92) with a female share of 10.8%. The economically active female share of the 2010 total was set at 38.8%. Out of these 38.8% only 20.9% (compared to 37% in 1980) of the women were economically active in agricultural activities (FAO 2011b: pp. 99- 106).

Table 4: Total Population and Sections of Economic and Social Distribution. Based on data of 2010

Total Population	Female Share	Rural Share	Economically Active	Economically Active Female Share
93 617 000	46 434 032 (49.6%)	31 455 312 (33.6%)	39 967 000 (42.6%)	15 507 196(38.8% of total economically active)

Table 5: Distribution of Economically Active in Agriculture

Economically Active in Agriculture 2008	Economically Active Female Share in Agriculture 2010	Total Agricultural Holders 2011	Agricultural Holders Female Share 2011
13 317 000	3 241 004 (20.9% of economically active females 15 507 196)	4 768 317	514 978 (10.8%)

On an international scale, economic purposes have to be performed on the basic principles of the human rights. The Commission on Human Rights Philippines declares that the ‘ultimate goal of economic development is to raise the quality of life of all people when private entities violate the fundamental rights and entitlements of the people in the name of economic development, they not only lose their moral legitimacy’ (CHR Philippines 2011: 2). Additional the statements of the Universal Declaration on Human Rights on general economic freedom are linked to social security and human specific dignity including the right to work, adequate just salaries to address family needs and guarantee survival. Creation of trade union and dignified working conditions should be given as well as economic opportunities to achieve an appropriate living standard based on food supply, enabling health care and educational purposes, community maintenance while guarding moral as well as material demand (UNGC 2006).

However, the predominant governmental attitude towards economic development is studded with contradictive decisions and means opposing the interdisciplinary international framework (Ingelson et al 2005: 3). The Philippines is a nation full of all

kinds of resources, especially natural resources, but is not able to transform this potential into social, economic and natural security. This can be especially seen in the mining policies of the government which started twenty years ago to entirely focus on GDP growth and by this, creating dependencies on foreign investment and project practice. The sell-out mentality of its natural heritage to foreign countries was encouraged by reports and powerful urging statements of the World Bank WB (Rovillos 2003:7) and its affiliated Asian Development Bank ADB. Both reprehend the nation's climate to attract especially foreign investors, and pressure the government to create neo liberalized economic markets (Rovillos 2003: 7). Foreign investment causes in long term assessment a financial drainage of a nation which is larger than the amount invested like displayed in the paper of Rovillos 'When the Island of Gold turns to the Island of Dissent' (Rovillos 2003: 2).

R.A. 7942 consists of foreign and local mining investing incentives such as importing capital tax free, tax exemptions, no income taxes for four years, tax adaptation to losses, and the ability of return of all revenue which all again is manifested in the FTAA (Ingelson et al 2005: 3).

The ADB stretched the point of encouraging the Philippine nation changing their Constitution to enable foreign investors the entire access to Philippine resources and to promote throughout export-orientated and market liberalization to become a powerful participant of the globalised economy (Rovillos 2003: 8).

By the approaches and attempts of free-market implementations by the ADB, WB and the Philippine government, the aim was to revive the economic strong era of gold and copper mining in the 1970s and 1980s where only 45% active mining projects enriched the Philippine export value by 21%. In 1986 the export-contributing value reached 7.25% (Rovillos 2003: 4). The total of metallic minerals accounts approximately 7.1 metric tonnes while the non-metallic recorded resources are set at 51 metric tonnes. Gold resources are estimated at 110 000 tonnes whereas copper takes in 4.8 billion tones transformed into potentially 840 billion US dollars which is equal to ten times of the Philippine GDP or 14 to 17 times the foreign debt of the nation based on data from 2009 (Ilagan 2009: 116). This accounted economic potential was one of the main reasons to establish a mining aligned MTPD Plan, as well as setting up the Individual Action Plan IAP in 1996, also known as Philippine Agenda 21. The MTPDP for 2004 -

2010 and the IAP oblige the nation to accomplish a satisfying economic powerful situation while not harming nature. This is specifically stated in the MTPDP 2004 to 2010, Thrust no. 4: Create a healthier environment for the population. The trouble of sensible holistic development based on economic force is the short-term decision making attitude to gain profit while ignoring long-term consequences for the environmental and social pillars in development.

Governmental targets of the MTPD Plan 2004-2010 were aiming at creating employment opportunities and generally stimulating economic growth. Under the MTPDP furthering responsible mining inhering to the three pillars of sustainable development, one strategy was established to ‘launch a major program to revive the mining industry’. Non-governmental Organisations, such as Alyansa Tigil Mina, assessed the aimed at targets and the really achieved aspects at the end of 2010.

Table 6: MTPDP 2004-2010, Reviving Mining Sector Strategy (Source: Alyansa Tigil Mina, CSO Assessment of MTPDP, 2010)

	Government Target	Actual Output
Strategy 1	- 18 to 23 large-scale mining projects developed	- 9 mining priority projects already in operation
launch a major program to revive the mining industry	- US \$ 5 to 7 billion foreign exchange generated	- PhP 26 ⁶ billion in taxes, fees and royalties are collected in 2004 to 2007
	- US \$ 5 to 7 billion in excise taxes are collected	- 13,642 jobs created in mining
	- 239,000 in indirect and direct employment generated	- PhP 2.6 billion total paid-up investment in mining
	- US \$ 4 to 6 billion worth of investment	- US \$ 1.62 billion worth of investment as of 2008

As shown in the tabular listening the gap between aspired outcome and realized tasks and measures is big. The targeted jobs of 239,000 has only been realized by 12,810 (Code-NGO 2010a: 30) in 2008 and 13,642 employments in 2010 (in two years time, only approximately 832 jobs have been created) compared to an approximately amount of 13 317 000 persons economically active in the agricultural sector, a number around 1000 times bigger. Even so numbers are from different years comparison is valuable due to average values and minimal changes in quantity which does not devaluate or contradict quality of the statement. Further quantitative assessment of

⁶ 58.91 Philippine Peso= 1 €, 09/11/2011 (<http://www.umrechner-euro.de/umrechnung-philippinische-peso>)

aspired yield of the MTPDP can be enlisted with reference to the GDP of the Philippines (Code-NGO 2010b). The government with the forcing drive of the ADB wanted to enrich the GDP by focusing on increasing the share of the mining industry. Numbers from 2008 show the share of economic importance of mining compared to agriculture whereas mining projects all together were able to add 1.4% to the GDP likening to 16.5% by the agricultural sector. Stated tax outcome was not reached by lacking 5.000.000.000 Philippine Peso in the period of 2004 to 2008 due to foreign investor benefit orientating tools such as the FTAA (Code-NGO 2010b). The MTPD plan 2004 to 2010 and the currently establishing MTPDP 2012 to 2016 can be directly described as a mere investment concept focusing only on economic development via natural resources located in ancestral lands while ignoring the traditional indigenous owners of this land. Ongoing more and more indigenous groups with the support of environmental and social activists make their voices be heard to push the principles and ideas of the new development plan embracing political decision making of the upcoming four years towards recognition of environmental needs and an urge of indigenous peoples' participation (Blantyre 2011).

The National Commission on Indigenous People revised the governmentally established new MTPDP 2012 to 2016 by integrating indigenous peoples' right by emphasizing on their human nature relation. The result is the Indigenous Peoples Master Plan IPMAP. The registered group Civil Society Organizations CSOs believes that the honest transcription of the indigenous people policy agenda of the Philippines integrated in the IPMAP failed. Also CSOs among others criticise the exclusion of non-governmental active specialists from the implementation process and declaring the IPMAP as an image amelioration of the present government and not a real step towards sustainable holistic development. Government and mining industry simulate economic importance and relevance of the mining sector by focusing and stating on short term benefit and covering up economic opportunity costs for long term livelihood creation as well as other social and environmental costs (Rovillos 2003: 24). Governmental and industrial economic assessment and monetary accountancy have to be questioned and in detail analysed before being used as argumentations to achieve sustainable development and citizens well being, and always having in mind research of many economists concluding that strong dependency of the foreign interest in

national natural resources does not create a fast increase in per capita economic growth, as well as that mining revenues invading a country through foreign investments often destroy other investment-convenient, locally oriented, more independent, sustainable sectors or projects. Additional foreign management outshines national opportunities of value creation via processing resources in the country itself because of direct export by foreign investors to other nations (Earthworks, Oxfam America 2004: 30). Among others Rovillos stated in his work 'When the 'Isles of Gold' turn into Isles of Dissent' the tremendous sell out of the nation's resources which until recent times prebends economic targets over social and environmental security.

2.5 Project Related Concerns

As the previous chapters show the complex influencing sectors and aspects according to only one single mining project, project related concerns can be summarized in the phrase of the resources curse. Possessing resources as a nation can be the tool to maintain and provide a society's livelihoods for as many as possible individuals, families, communities and therefore the entire nation. However the mere holding of resources without constitutional legality, good governance and smart sustainable resource management (Messmer 2011: 1) cannot establish and manifest resource based development with integrated social and environmental awareness or even long-term economic benefit as stated by economists such as Jeffrey Sachs. Mostly desultory realised corporate responsibility of social and environmental standards of OceanaGold Philippines Incorporate, such as tree planting (OGPI 2011) or investing in the local hospital, seems to be more green washing and social image boosting measures while assessing the holistic web of impacts of the project.

Defining sustainable development by two main pillars, environmental and social, while recognising economic development more as a tool or mean for social and conclusively environmental development, this chapter will comment on real and potential sinister consequences of the planned open-pit mining project in Didipio's agricultural and living centre.

2.5.1 Environmental Threats

The environmental threats of open-pit mining can be attuned to water and soil related changes of the directly and indirectly affected surrounding and furthermore to environmental exposure of generated waste. Physical changes of the region mainly emerge by specific site acquisition including introduction of mining infrastructure, overburden and top soil removal and allocation affecting fauna and flora, and soil structure destructive measures (drilling etc.) with all essential mechanical equipment. Furthermore a mining project carries along impacts on water resources by water demand and pollution (acidifying rivers and water bodies), acoustic stress and air quality degradation by ejecting dust and operating vehicles, modified ecological conditions, as well as human security according health and everyday living (Singh 2008: 5). In the case of gold mining as intended in Didipio, high intensive water usage (DESAMA et al. 2007b: 2), heap leaching via cyanide trickling on ore subtracting gold from it (Earthworks, Oxfam America 2004: 2), and the related tailing storage will be a direct and severe threat to environmental health potentially affecting water, soil, and vegetation and concluding human health. Besides cyanide other chemical substances would be used in different production steps for various procedures such as milling. Even so these substances might not be defined as toxic under R.A. 6969, large amounts are still able to influence ecological performance (Gaia South Inc. 2004: 5-10). The most relevant and most dreadful threat can be caused by generated tailings stored in a tailings dam close to the open cut and therefore close to agricultural and social areas. In Didipio the storing of tailings will be done by an earth fill dam located at the Dinauyan River cutting through community structure of Didipio (Gaia South Inc 2004:4-12). Mismanagement or breakdowns of the dam leads to an ejection of the cyanide rich tailings. The planned changes in surface water bodies in Didipio by water division and implementation of stagnant water, as well as groundwater changes by drainage measurements and groundwater use (McIntyre, Moore, Wyche, 2010: 152/153) are likely to cause flooding of the Dinauyan River and general changes of water dynamics of the region. Discussing water pollution and encroachment not only surface water bodies as being the fastest transporters for pollutants but rather all involved water bodies and their transport properties should be considered. Especially groundwater which on the one hand is directly addresses by mining operations for mining purposes

via drainage or processing should not be underestimated as a complex long lasting pollutant and risk carriers once injected or disturbed (Singh 2008: 7). Direct danger emerges when tailing dam, waste rock dumps and groundwater bodies are connected and intermingle in quantity and quality by leakage (Gaia South Inc 2004: 5-9). Groundwater bodies are besides changes in quality strongly affected by water table lowering and due to geological and topographically changes a disturbed hydrodynamics again linked to surface water conditions (Singh 2008: 2). The water web affected by the OGPI gold and copper mining project is linked to three watersheds (Dupax Watershed Reservation, 425 hectares; Casecnan River Watershed, 85,519 hectares; Magat River watershed (KPN, DP! 2008: 15). Environmental stress by mining projects was also put on flora and the depending fauna of the region. In 2009 deforestation procedures were permitted to OGPI for over thousands of trees in Didipio's region, as well as the transformation of agricultural land into a mining suitable operation area (KPN, DP! 2008: 14). By changing local water conditions in quantity and quality, local vegetation and micro-climatic conditions and water cycle processes are influenced causing cumulative effects on nature and humans. The DENR itself recognized the biodiversity enriched Republic of the Philippines as a tremendously endangered environmental hotspot and displays the unavoidable necessity for environmental protection, while at the same time the affiliated Mines and Geosciences Bureau hands out open-pit mining permits, and the NWRB provides water permits for mining purposes ignoring possible adverse effect (see water permit application, section 20) (Doyles, Nally et al. 2006:11). This defined recognition of the DENR indicates the environmental sensitivity occurring in the Philippines and also in Nueva Viscaya and poses the question of adaptive capacity of local flora and fauna recovering or surviving the pertained mining project. Degradation of vegetative cover is accompanied by higher risk of flooding, erosion, as well as siltation, threats already more or less naturally endangering living of locals caused by annually appearing natural disasters.

Besides the contamination and over-consumption of open-pit surrounding water resources and other environmental stresses, environmental costs of gold mining will increase more and more. These environmental costs can be partitioned into energy, water, cyanide and solid waste, as well as greenhouse gas costs (Mudd 2008). The

environmental costs are strongly depending on the grade of the mined resource which determines the mining technique and necessary measures according to demand of water and energy and the emitting pollutions.

Table 7: Average Environmental Costs for Gold Production (Source: Mudd, 2008)

Energy Consumption	Water Consumption	Greenhouse Emissions	Cyanide Consumption
143 GJ/kg Au	691,000 L/kg Au	11.5 t CO _{2-e} /kg Au	141 kg cyanide/kg Au

Nowadays the most gold mines are low-grade deposits and therefore the environmental costs increase with a lower-graded resource. Even so that Dinkidi Mountain is a nowadays high-grade gold deposit with grading at 1.48 g/t Au (actual definition: high grade >6 g/t Au; lower grade <2 g/t Au) (Mudd 2007: 9), it is still linked to environmental costs such as shown in the table (OGPI 2011). Also while mining the high-graded gold deposit Dinkidi, a huge amount of waste rocks, tailings, and water consumption not adequate and compensational for the Barangay Didipio and its nature results. An additional environmental stress will emerge from greenhouse gas emission, especially CO₂ by fossil fuel essential for open-cut operations. The general Asian Pacific assessment shows worst mining conditions compared to other global regions and very high environmental costs caused among others by decreasing grade of resources which cannot be adjusted by better technological approaches and measures. Cyanide demand for gold deposit with grade lower than 2g/t Au can go up to 1,000 kg Cyanide for only 1 kg of gold. Carbon Dioxide is emitted during milling processes and is calculated per mined ton of ore (around 25 kg CO₂/ t ore) (Mudd 2007: 9).

An Environmental Impact Assessment EIA for the OGPI gold and copper project has been accomplished but not published by a third party, named GAIA South Incorporated, Environmental Consultancy. Hence the validated EIA is exhibiting a deficiency on recognizing biodiversity sensitivity and the possible loss in natural capital by the mining operations. Also the long-term cumulative ramified effects are not assessed or mentioned wholeheartedly and the important potential of renewable natural capital in the region especially crops and water quantities are ignored (Ingelsson 2005: 11). The environmental protection polices and measures are declared as a tool in environmental-image tokenism of general Philippine governments (Ingelsson 2005: 11).

Until now, even pronounced in the MTPDP 2004 to 2010 in strategy 2 'resolve the issues involving mining accidents in abandoned and idle mine areas', environmental degradation from past mining projects and even from past dreadful mining incidences are not compensated, recovered, restored or even managed in some way Code-NGO (2010a). On this base, new environmental changing mining projects are aimed at being realized in the name of economic growth (see chapter on embedded economic environment) whereby detailed knowledge about environmental impacts of mining related threats such as tailing dams can easily be anticipated (Singh 2008: 3). The Food and Agriculture Organisation FAO compiled checklists for water affecting projects, especially large-scale water use and threat by irrigation in rural areas, concerning precariously aspects of quality and quantity, competition over water resource conflict including legal (water licences and land tenure), economic, environmental and social standards. The environmental and social calibration of irrigation projects can also be transferred to mitigating conflict emerging in mining projects. For discussion over Didipio's conflict, the check box number 9 of the FAO, as a questioning of potential environmental threats due to irrigation projects, also unfold high extent of environmental and concluding social degradation. While answering these environmentally and socially related questions, out of 27, three questions do not apply to Didipio (no. 5; 25; 27), two questions cannot be answered (no. 9; 21), one is negated (no. 20), and 21 environmentally concerned question are relevant for a basic rough socio-environmental assessment of OGPI's project (FAO 2005: Chapter 4).

BOX 9: CHECKLIST FOR ENVIRONMENTAL IMPACT OF WATER DEVELOPMENT PROJECTS				
IS THE PROJECT LIKELY TO:		Yes	No	Not known
1.	affect any natural feature, surface water hydrology, surface water quality, soils, erosion, geology, climate or water resource adjacent to the activity area?	Y		
2.	affect wildlife or fisheries?	Y		
3.	affect natural vegetation?	Y		
4.	affect or eliminate land suitable for agricultural or timber production?	Y		
6.	affect the quality of water resources or catchment areas within or adjacent to the activity area through change in the water supply downstream of irrigation or through human or animal toxins?	Y		
7.	affect air quality in the activity area or adjacent areas?	Y		
8.	require relocating the existing population, community facilities, and housing?	Y		
9.	lead to changes in the supply of, or demand for, infrastructural items?			NK
10.	cause substantial change in income and traditional source of livelihood of existing population?	Y		
11.	include provisions to investigate the impact on regions where resettlement is occurring?	Y		
12.	result in potential conflicts or affect physical, demographic or attitude/value cohesion?	Y		
13.	affect archaeological sites or structures of historic or cultural significance?	Y		
14.	induce or exacerbate erosion in the watershed area?	Y		
15.	exacerbate water rights conflicts?	Y		
16.	provoke a significant reduction in downstream flow, impairing aquatic life or endangering wetland water supply?	Y		
17.	create or exacerbate insect disease hazards?	Y		
18.	be designed without prior consultation or participation of affected populations?	Y		
19.	provoke a shift in crop pattern in the region?	Y		
20.	provoke a shift from low-input to high-input farming practices?		N	
21.	ignore provisions for post-project monitoring?			NK
22.	require long-term extension services?	Y		
23.	be formulated outside the framework of a global strategy for development?	Y		
24.	induce new migration towards the projects area (around reservoirs)?	Y		
26.	create or exacerbate soil salinity problems?	Y		

Figure 5: Checklist for Environmental Impacts (Source: FAO, in press)

In Didipio due to traditional rain water harvesting and small scale furrow and paddy irrigation using water very efficient (Möller 2010b), water stress is induced by land transformation, water body modification, and sector competition enhanced by the tremendously high water consumption of and possible pollution by gold mining techniques.

The discussed environmental aspects which are very likely to be negatively generated by open-pit gold mining are essential elements of the day-to-day life maintenance in a nature depending community such as the Ifugao people in Didipio. Therefore all environmental threats impose and induce indirect negative consequences on the local community while indicating the cumulative power of environmental degradation on

human well being, as it can be concluded by the combination of questions in the checkbox.

2.5.2 Social Threats

'[W]hile development facilitates the enjoyment of all human rights, the lack of development may not be invoked to justify the abridgement of internationally recognized human rights.' This fundamental statement, manifested internationally in 1993 in Vienna at the Conference on Human Rights (Gatmayatan, Gorre 2004:33), combined with the leader of DESAMA stating that '[m]ining means destruction of our farmlands, our water systems and demolition of our houses. We usually equate the entry of mining in our community as a threat to our displacement, a bad omen that has become real as what happened in 2008 when OceanaGold demolished more than 180 houses of our indigenous Ifugao brothers and sisters coupled with the shooting of one of our member in the community and the harassment of the others including myself' (Gregorio 2009) summarize the dimension of living standard degradation in Didipio by already occurring and most likely-to-happen environmental deterioration introduced by the open-pit gold and copper mining by OGPI.

The Ifugao social solicitude is based on emerging and emerged human insecurity aligned to indicators of human vulnerability according to inclining of essential human sustenance (water etc.) (DEA 2009), of the local economy, as well as deterioration of health and education standards, self-regulating decision making, cultural and traditional withering, economic livelihood opportunities, gender justice (MDG no. 3 of 2000), and introducing of potential of expropriation, ignoring right to land, shelter and family and other basic human and indigenous rights. As shown in the initial chapter on 'Environmental Movements and Democratization in the Philippines', social and environmental quality and the struggle to maintain an appropriate level of standards are historically an omnipresent intermingled issue in the Philippines which guides environmental impact assessment directly to social living security. Due to the mining project introduces environmental changes, Didipio's community changes as well. The local community lost a high potential of social capital due to competitive behaviour in labour force. The previous peaceful coexistence and trans-family support declined imposed by unequal compensation payments and different focus on arguments

(Möller 2011). The small share of Igorot people who mainly perform small-scale mining since the 1970s (LRC-KSK/FoE~Phils 2008) and desirable approve to the mining project based on potential employment by OGPI, stand oppose to the Ifugao agricultural group which did not experience any compensation payment or job offering or mere participation yet. Ifugao women complain about Igorot women not being interest at all in environmental security. As stated by representatives of the Ifugao women group, the Igorots lay aside human-nature relation and merely focus on short term income and additional benefits such as alcohol handed over by safety guards of OGPI (Möller 2011). This is only one example of how the pertained project holds the potential of destroying the high social capital among Didipio's inhabitants consisting of various indigenous groups. Furthermore social exclusion occurs based on different levels of profiting and loosing from mining. One of the main conflict drivers is the lack of economic activity for locals as a consequence of converted agricultural land, destruction of fertile soil, and changes of local water household. The policy ILO 169 (defining the IPRA) relates to economic, social and cultural rights under the Universal Declaration on Human Rights and calls for governments cooperating with the rights of indigenous people (Article 2 (1)), as well as protecting and improving socio-economic living standards (Article 2 (2c)). This cannot be realised in Didipio without a healthy environment and a promoted human-nature relation as long as development aggression is performed by Philippine governmental representatives and industries, causing a severe lack of economic opportunities in this region. The potential of economic opportunities for locals, in the case of mining, reflects at the same time injustice of gender issues. All over the world especially women are affected very negative by mining projects due to their inability to work for mining projects, the destruction of their economic independency by omnipotence of mining operation in an entire region, health issues, and family-destroying aspects such as increasing alcoholism (Carreon, Ilagan 2009: 107) and domestic violence often related to mining employment (Carino 2002: 6). Female concerns of mining embrace all issues of care economics (Agarwal, B. 2000: 892) and livelihood maintenance. Besides the case filed by Didipio's Ifugao women on water security, the case on housing in Didipio represents an additional social threat. In 2007, while the MTPDP 2004 to 2010 was promoting

sustainable development, 187 houses, of Didipio's Sitio⁷ Dinauyan, were illegally demolished by OGPI hired personal supported by violent action of OGPI's safe guards for land preparation for mining operation. Demolishing of houses was the incipience of land grapping in Didipio by OGPI (Möller 2010b). All over the world, depletion of food availability in developing countries occurred when TNCs (Carreon, Ilagan 2009: 72) entered a country, and also it has been recorded that indigenous people experience suffering such as in Didipio because of competition of claiming ancestral domains and natural resource derivation and record depletion (Wessendorf 2011: 266).

Besides violating Philippine and human rights in the demolishing case (Constitution 1987: 'no person shall be deprived of life, liberty, or property without due process of law,...'; Covenant on Economic, Social, and Cultural Rights Article 11 (1)) and forcing migration of many families, hence imperilling food (LRC 2009) security of the resettled families by losing their food supplying land, the various filed water cases by DESAMA and individuals symbolize as well social vulnerability by environmental degradation. The huge amount of water being used or polluted during mining (see Chapter 3) directly competes with essential domestic and agricultural demand (DESAMA et al. 2007b: 2) and mitigating food security more and more. Regardless to highlighted argumentations of industrial surface water pollution as a severe long-term environmental and human health issue (Greenpeace Southeast Asia 2007), stated by globally appraised organizations, such as the World Health Organization, UNICEF, and Greenpeace International, the cumulative and interwoven environmental and social costs, such as education mitigation and soil degradation, are often ignored or allayed. Decreasing water access in any way leads to a higher burden of workload for women of a community, affecting general family wellbeing and therefore livelihood creation again (Carreon, Ilagan 2009: 142).

With the implementation of the gold and copper mining project, due to globally experiences knowledge, the entire local subsistence economy will be replaced by non-locally-orientated economic profit (neo-liberal market structures) making, excluding local community and creating discord by enhancing marginalization of indigenous community from the national point of view and also especially women as main link for families to water, food, and health, and furthermore farmers not suitable for mining

⁷ Sitio is small integrated district of a Barangay without any independent representatives

work. Tremendous migration will be a result of OGPI's project putting pressure on migrating families and addressing new settle communities by increasing land and work competition and sharing economic capacity (Carreon, Ilagan 2009: 118).

The socio-economic consequences of governmental short-term profit orientated development defined the Philippines as a nowadays rice importing country by ignoring the essential and strong agricultural potential in natural and human resources (Goodland, Wicks2008: 4). As displayed in the chapter on 'Embedded Economic Environment', the economy behind mining is positioned wrongly by not integrating socio-economic opportunity costs and falsifying achieved monetary and human resource goals. For Didipio, compensation can only have small short-term economic strengtheners not at all equal to socio-economic security through sustainable land and water management, honest property rights, capacity building and enabling a healthy living.

3 Water Household Assessment

Due to the Dublin Conference also known as the International Conference on Water and the Environment ICWE, 1992, the access to water is declared as a basic human right and the interconnection between life-essential water and food security is emphasized and valued (FAO 1995: chapter 1). This chapter emphasizes on the potential social and environmental impacts according to changes of the local water resources potentially evoking by the planned mining project of OceanaGold Inc. in the Barangay Didipio.

The interwoven relation of water resources and livelihood sustaining measures such as health care, as well as irrigation, and therefore food security, becomes directly obvious in conflicts over resources in rural communities which mainly practice subsistence and small scale economic agriculture. Especially the consequence of water use of an area's defined resources as a ramified process, the creation of externalizing negative impacts by one user upon other stakeholders often occurs (FAO 1995: chapter 2) and causes tremendously steep cuts. Handling and managing water for economic or even life sustaining purposes pose, due to its fugitive natural characteristic and the difficulty to

identify static quantities, a great blurry range of argumentative approaches in decision making processes according to sole property rights.

Therefore decision making over water resource use should be based on a holistic and well considered environmental and social impact assessment to balance and value impacts and long term consequences in respect of the overall goal of sustainable development.

Water can be defined as a public good with an economic value, governed by the state representatives by appropriate legal principles and tools addressing public interest even so being partial in private management for industrial purposes. The contradiction of long term sustainable decision making for environmental welfare and conclusively social security via health and food security, and governmental short term decision making attitude hampers honest holistic implementation of sustainable development measures. Governing water resources should integrate its various operational areas, more or less essential for life, such as food and health security, sanitation, agriculture, power generation, industrial purpose, general municipality need, or mere recreation, ecosystem and biodiversity value and religious values.

Commonly known is the huge water demand and quality impact by agriculture enriched with increasing water scarcity and considerations and ideas related to the Malthusian catastrophe or general slowly increasing food demand while environmental degradation globally takes place and stress is being put on nature and all directly and indirectly depending communities.

The water sector should align decision making processes on hydrological, economic and environmental aspects to establish appropriate holistic strategies characterized by inter-sectorial decision making (mitigating water conflicts among stakeholders), self-sufficiency in food supply, long-term international interests, mode of management (centralized vs. decentralized/ public vs. private), and/or supply-demand management (FAO 1995: chapter 4).

From the social point of water management should embrace inseparable water and land rights security, customary legal rights for water access, pollution control, and just water allocation among all stakeholders (FAO 1995: chapter 5)

The Philippines are known for being a nation of many very good environmental laws whereas implementation is not performed well or at all. Water shortage and conflicts

over water mainly can be explained by governmental mismanagement (UNDP 2006b: 4).

The FAO declared in 2006 East Asian countries, including the Philippines as a region where water deficiency but not water shortage occurs. Due to FAO calculations between 1000 and 1.700 cubic meters per one Philippine citizen a year can be assumed in the Philippines in average whereas most water is captured in the hydrological cycle as flooding or other inaccessible resource. Even so the agriculture applies as the most water consuming sector, agriculture does loose share of total water consumption shown by the predicted trend in non-agricultural water consumption in East Asian countries which will increase up to almost six times more, 6 % from total water consume to 35 % from 2000 to 2050 (UNDP 2006b: 173). Actually due to the national water household the Philippines is a water rich nation, therefore water contamination and site-specific water conflicts are more in the focus of water management professionals.

Generally the water management framework should be based on integrated water resource management IWRM concepts. This assimilated human water demand to ecological water demand by implementing valuation of environmental services as economically measurable elements and appreciating environment as natural capital for decision making. Decision making has to be based on the Millennium Ecosystem Assessment idea of directly calculating loss and gain of water resources and their use to eliminate environmental and social harm imposed by mere market-orientated decision making (UNDP 2006b: 176). IWRM, if used properly, has the potential of overcoming institutional and system failures and create just water allocation for humans and the environment. In the Philippines especially the strongly divided and distributed responsibility machinery in environmental and water management poses injustice and trouble among stakeholders of water resources. Besides the two main policy-formulating regulatory and administrative bodies the National Water Resources Board NWRB and the Presidential Task Force on Water Resource Development and Management (PTFWRDM), the DENR is directly involved in water management with being in charge of watersheds, an issue directly related to the pertained project. Additionally many other institutional representatives possesses a share in water

management making conflicts easily to emerge based on lack of transparency, no communication and high administrative effort (Madrazo 2002:4).

Due to these negative attributes of Philippine water institutions, reliable data cannot easily be assessed. The following will provide an as much as possible detailed quantitative but rather more qualitative statement on impacts of local water resources by stakeholders' demand. The Focus therefore will be set on the possible interference of mining operation on local water household conditions.

3.1 Water in Mining Operations

The German omniscient Georgius Agricola stated already in 1556 "...the strongest argument of the detractors is that the fields are devastated by mining operations...Also they argue that the woods and groves are cut down... And when the woods and groves are felled, then are exterminated the beasts and birds, very many of which furnish a pleasant and agreeable food for man. Further, when the ores are washed, the water which has been used poisons the brooks and streams, and either destroys the fish or drives them away. Therefore the inhabitants of these regions, on account of the devastation of their fields, woods, groves, brooks and rivers, find great difficulty in procuring the necessaries of life ...Thus it is said, it is clear to all that there is greater detriment from mining than the value of the metals which the mining produces" (Hoover, Hoover 1950: 59/60)

Mining, especially gold mining, cannot work without using or modifying surrounding fresh water resources. Each process step in mining has a different demand on fresh water depending on operation being preceded such as mine area preparation, overburden removal, milling and grinding, refining, transporting or storing. The specific impacts on fresh water bodies depend on the kind of mining method being used (Ashton, Love et al. 2001: xlix). But nevertheless, the direct cut into local fresh water hydrological regimes cannot be denied especially during open-pit gold mining (Corpuz). A substitution with salt water cannot be realised due to technical problems of corrosion (Earthworks, Oxfam America 2004: 12).

The main steps affecting local environment of mining regions are the extraction of the desired natural mineral resources, the generating and handling of waste rocks and other by-products, cyanide leaching or other chemical methods separating mineral

treasures from ore bodies, as well as refining processes. Before preparing mining area often drainage has to be performed to facilitate extraction of resources in open-pit mines changing the sub-surface flow regime and soil structure of the surrounding by dewatering soil pores. During production, also permanent water regulation via pumping is necessary, which, due to the interwoven and exchanging system of groundwater and surface water, causes change in surface water up to drying out entire rivers. These rivers are not linked to the groundwater body anymore, cannot maintain their discharge and are not able to address water demand of soil, vegetation and humans.

Also drilling and other extraction measures demand permanent water access and use. Mine waste in form of waste rocks acidifies groundwater aquifers easily while being stored next to operation area by infiltrating or leaching toxic substances into the ground. The most dangerous process in gold mining is the cyanide based gold separation from ore. After grinding down the excavated gold-ore blocks, a cyanide solution which enables the gold deposition trickles through the ore body, and run out as a gold-cyanide solution. This so called Heap Leaching ejaculates cyanide which can already be harmful or even fatal in very small quantities (see chapter on tailings) (Earthworks, Oxfam America 2004: 5).

Mining affects water in different ways, but always leading towards negative environmental and social impacts. By demanding water for processing, competition among all involved stakeholders can emerge easily, while by contaminating water bodies the health risk for communities and the surrounding nature increases fast. Mining declares water as a measure for higher valued economic purposes and disclaims water's holistic value for sustainable development according to environmental services water can provide, especially for nature and local communities and the hydrological cycle.

3.2 Water Household of Didipio

As depicted in the descriptive chapter the village Didipio is located in the municipality Kasibu, province Nueva Viscaya, political Region II of the Philippines. This geographical area is assigned to the largest national watershed based on the longest river named Cagayan with a basin area of 25,469 km² (Kundell 2008) and connected to the biggest

groundwater reservoir, Cagayan reservoir 10,000 km² (see Appendix). The entire Cagayan Valley holds a total water resource potential of 11,335 MCM composed of 2,825 MCM of groundwater potential and 8,510 MCM surface water potential (Greenpeace East Asia 2007:). This river itself, beside the province Nueva Viscaya, flows through the three other Philippine provinces Isabela, Cagayan and Quirinio. One of its main tributaries is the Addalam River which contributes water to around 35,000 hectares of fertile land used for agriculture (Corpuz) including municipality of Kasibu. Other regional streams which link Didipio's water resources with surrounding communities and their nature conditions are the Camgat Rivers and its inflowing Dinayan (also known as Diduyon) River. Directly related to the Barangay Didipio are the small scale Didipio River and other local unnamed runnels essential for addressing water demand for the local community (DESAMA 2008). Not only the local Ifugao and Bugkalot indigenous people but also the entire Cagayan Valley communities will directly or indirectly affected by change in water quantity and quality especially of the two large watersheds of the Addalam and the Cagayan River due to their relation to water by agricultural activities and domestic needs. In less than 15 years a water deficit for the defined Cagayan watershed area is predicted by the Philippines Environment Monitor PEM institution and by the Japan International Corporation Agency JICA. Water deficiency is already declared for the entire Philippines by the FAO as mentioned in chapter 3 (Greenpeace Southeast Asia 2007).

The tropical and maritime climate of the region in south Nueva Viscaya, especially the precipitation, forms essential contributions to the local water household conditions. In average the mean annual rainfall ranges between 965 to 4,064 mm and accompanied by the mean annual temperature of 26.6° C depending of course on location and topography of each monitored region (Hilario 2010).

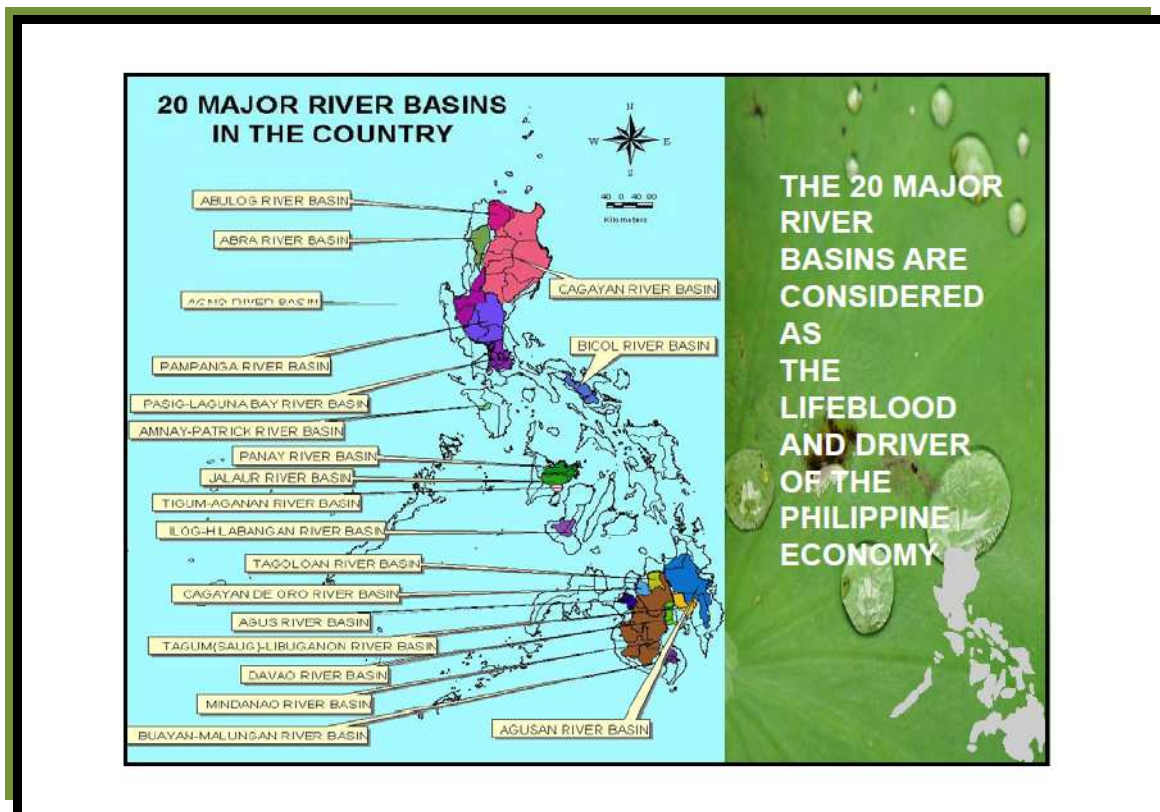


Figure 6: Mayor River Basins in the Philippines (Source: River Basin Control Office)

Climatically, the Philippines are divided into four climate types whereas Didipio and the surrounding region is accorded to zone Type 2 characterized by bringing along no dominant dry season but a strong prevalent rain period in December/ January of each year (Moog 2005). Furthermore, the region of Didipio, and 47.6 % of the entire Luzon, is classified by its agro-ecological condition by the Bureau of Soils and Water Management (BSWM) as a wet zone based on very high rainfall (above 2,500 mm per annum on average), cool temperatures at around 19.0° to 22.9 °C, and an agricultural growing period of 270 up to 320 days a year.

The Cagayan Valley is determined and shaped by its mountains and slope. Fertile undergrounds which are very convenient for food production (Moog 2005) (see Appendix: Soil Types of the Philippines) are assessed in the region, causing a high biodiversity and rich vegetation in this region characterized by tropical and moderate plants such as low-density forests including fern and pine trees, grasslands, and riparian brushland (GAIA South Inc 2004: chapter). The rich vegetation and the fertile soils in Didipio provide a large share of environmental services, especially air and water purification, for human well-being and ecosystem survival.

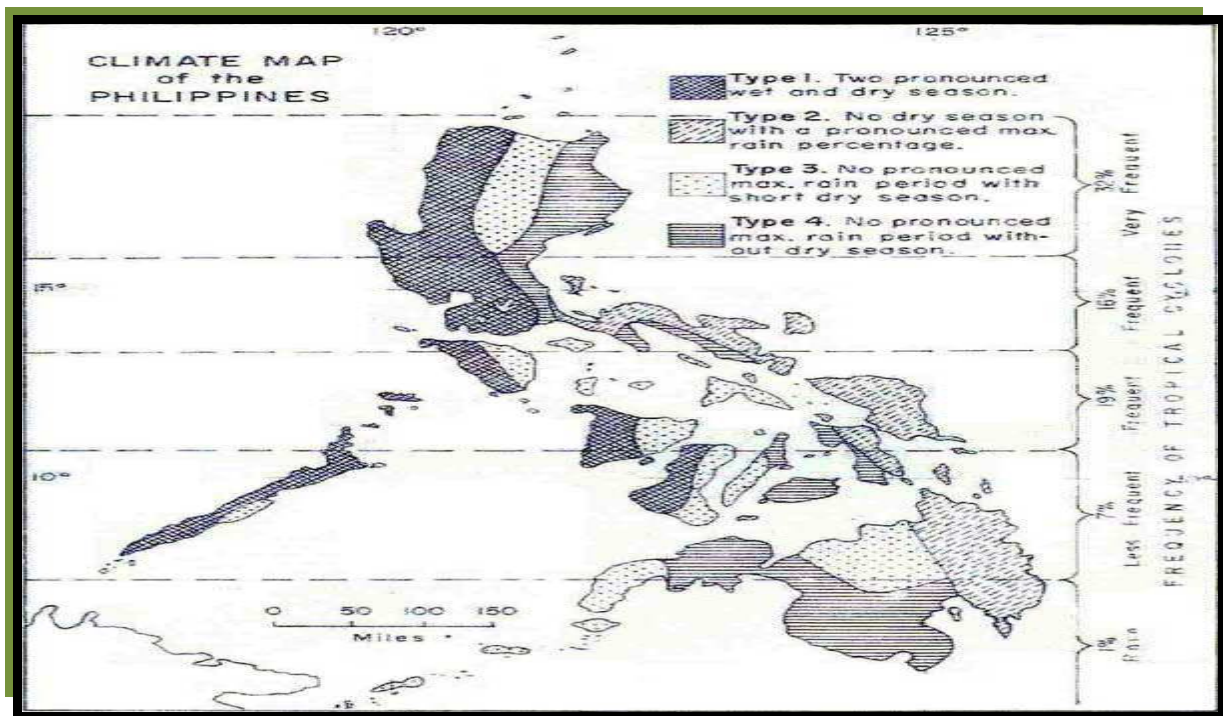


Figure 7: Climatic Zones (Source: FAO, Country Profiles)

Furthermore it is know that the Philippines are exposed to various extreme weather events such as typhoons and floods. Without discussing the background and cause of these events, it has to be stated that the entire community has to adopt its operations to these weather and climate conditions to mitigate potential damage. The best examples in the Barangay Didipio are the high frequency of tropical cyclones (Moog 2005) and the opposite of the occurrence of the weather phenomenon El Niño which causes severe drought and therefore threatens food security (DESAMA et al. 2007b: 3). Displayed by the announcement of the National Disaster Coordinating Council NDCC whereby last year March 16,688.7 hectares of Nueva Viscaya’s land suitable for agricultural purpose including aquaculture the dimensions of environmental vulnerability related to human well being can be seen (DESAMA et al. 2007b: 3).

The seriousness of maintaining a healthy water-orientated environment, defined by indicators such as water quality and humans’ socio-economic local water demand (FAO 1995: chapter 1), is given by Didipio as not being able coping with industry using an intensive quantity of water from local resources also due to ‘El Nino’ effects, even so the region is declared as a wet region (PD 1067 1976: CHAPTER VI). The Philippine Water Code forewarns industrial or over-consumptive use of water based on the

deteriorating conditions of the general water household, like mentioned by the FAO and Greenpeace International.

The water household of Barangay Didipio is threatened by climate change and direct human activities enhanced by the local high environmental vulnerability. Even so quantitative measures of water resource describe sufficient water availability for socio-economic activities, environmental water demand and long-term impacts of changes in water conditions need to be considered.

3.2.1 Water Demand of Local Community

The local community of the Barangay Didipio interferes with the local water household and its natural water resources via agro-economic and domestic use. Agro-economic water purposes are kept at a minimum due to traditional Ifugao integration of agricultural approaches and demands into natural water cycle via rain harvesting and naturally occurring vegetation as subsistence and small-scale cash crops (LRC-KSK/FoE~Phils 2008). Modifying land and water irrigation systems are based on paddy rice farming for domestic use of local indigenous people. This kind of irrigation method is entirely premised, until now, on gravity supported by designed shallow cascading land forms. Only a few Didipio inhabitants are practising rice cultivation (Möller 2010b), also for avoiding high labour intensity and the high specific rice water demand of around 2,500 litres for 1 kg rough rice taking account of all affecting water cycle elements for an average Asian country (IRRI 2009: 29).

Furthermore artificial vegetative crops for agriculture are kamotes (sweet potato) and squash (LRC 2009), both do grow on rain fed harvesting, are drought and low temperature resistant and do not strongly demand land and water modification. Other crops are coffee and citrus trees, as well as ginger which do not need to be taken care of a lot and no irrigation is necessary (Möller 2010b). The primary source for water in agriculture is surface water, rain water or from local rivers, especially the Camgat and the Dinauyan rivers (LRC 2008). The chosen crops planted by the Ifugao people are tolerant to all kinds of soils and are able to be planted in soils not directly relevant for other purposes (Amante, O'Sullivan). In the Philippines kamotes/sweet potato agriculture has a very high production (617.920 tons with a low yield of 4.5 tons per hectare) due to extended cultivation opportunities, kamotes can be planted in dry

season of paddy farming, compared to other nations all over the world. The Cagayan Valley contributes 5% of the Philippine sweet potato (kamotes) land (Huaccho, Hijmans 2000: 48). Concluding from these factors, Ifugao people in Didipio performed, until land occupation of OGPI, efficient agriculture by practising natural rain fed irrigation, by planting non-sensitive crops and by practising efficient use of soils lacking fertility while avoiding environmental stress (Amante, O'Sullivan).

Planted crops by local farmers are suitably adjusted to the natural conditions. The local environmentally adapted agriculture of the Ifugao is not extracting water amounts from the water household in an exploiting or irreversible manner and cannot be negatively related to the computation of water use with a share of 88% for national irrigation (Earthtrends 2003: 1).

The second pillar of water usage by the community is for domestic needs embracing the four defined purposes of essential ingestion and hygiene, enriched with compulsory amenity, and productive use. In 2001 the WHO together with UNICEF manifested a minimum amount of 20 litres per day per capita as basic requirement (Aiga 2003: 4). The Philippine per capita water withdrawal from the national freshwater resources accounts approximately 902.7m³ as assessed in 2009 (FAO 2011a) and the average per capita water demand is ranging around 160 litres per day including industry and agricultural amounts from the entire nation (Data 360). Didipio's per capita consumption arranges in average around 30 litres per day per capita (Möller 2011). There is no formal water supply system or proclaimed drinking water source in the Barangay and also no governmental institution represented via Barangay Water Services Associations AWSAs or Rural Water Supply Associations RWSAs. Didipio could be denoted as a waterless area⁸ and insufficient water availability and access due to poor governmental action (Coulby 2009: 3). The main water resources, for domestic and crop demand, are small unnamed surface runnels and wells, as well as the water of the Camgat and Dinauyan Rivers being used for around four decades (LRC 2008: 1). No data for water consumption of local community has been established. However a holistic assessment is intended to be performed based on questionnaires established by Möller in 2011, delving into direct water concerning community issues including demand according to family, gender, small

⁸ Defined by access to safe potable water of at least 50 litres per day per person

scale mining and subsistence farming base⁹ (see Appendix). This questionnaire is going to emit data on Didipio's water condition by collecting everyday water use information of each household and its specific habits¹⁰. This research approach is able to identify the direct and indirect affected farmlands and households providing basic data for the mentioned inductive qualitative research as mentioned in chapter 1.3 and continuously using the gained results for deductive statements enabling other indigenous people to make their voices by heard, as well as to show all levels of marginalizing impacts by mining on indigenous to administrative decision makers.

By asking residents about the current water situation compared to the water situation before OGPI started interfering in Didipio obviously in 2006, approximating quantitative statements are tried to be recorded, enriched by qualitative assessments especially by statement of women and general perception of change survey. Data collection is still in process and cannot be used at this moment. However, due to already performed oral interviews and discussions¹¹, general perception of dramatic change in water accessibility and availability, especially because of water ways being cut-off by fences from community and cannot be accessed anymore. Ifugao women complained collectively in a special women's meeting¹² about constrains in everyday life due to lack of water quantity and quality.

Even so the local Ifugao community is a waterless community with a nature adapted water use, already small changes in local water household, especially of access to and availability of surface runnels, outline the competitive relation of community and industry over water resources.

3.2.2 Water Demand of Mining Project of OceanaGold Inc.

OGPI's mining project design is based on the local water household conditions and water demand is calculated aligned to gold mining water needs using surface and ground water bodies. Therefore the water footprint (virtual water) of gold is going to be assessed. Stress and intervention of water yield is introduced by mining operations

⁹ Questionnaire was developed by C. Möller according to information interest of LRC staff, still in progress due to governmental and OGPI intervening activities

¹⁰ One questionnaire per household has been distributed

¹¹ NGO trips to Didipio have been done three times with meeting local women group and DESAMA members; also NGO meetings in Manila with Ifugao people contributed to information exchange

¹² Meeting of C. Möller and Women's group in Didipio, 14th until 16th November 2010

such as drainage of open-pit area (average discharge approximately 0.9m³/s) (GAIA South Inc. 2004: 4-15), diversion of surface running waters, tailing dam establishment, as well as land occupation and cutting of runnels. Water input and output determine the water quality and quantity in different manners. The enormous water consumption of the planned gold and copper mining project is going to be assessed by combining published OGPI information about the planned design and general mining and water research data of global gold mining experience and engineering.

Commonly accepted water use (virtual water of gold) computation in mining varies due to researcher between 691,000 litres (Mudd 2008) up to 773,000¹³ litres of fresh water needed to produces one kilogramme of gold from ore. Normally around six tons of ore stone have to be proceeded to get one ounce¹⁴ of gold, depending on the mineral grade of the ore body. For dismantling one single ton of ore stone around 1,690 litres of process water are flowing in the mining operations (Corpuz).

Comprising environmental costs such as water consumption are compiled very reliable by long-term mining research by the Australian mining engineer Gavin M. Mudd in detail.

Table 8: Average Environmental Costs for Gold Production (Mudd, 2008)

Energy Consumption	Water Consumption	Greenhouse Emissions	Cyanide Consumption
143 GJ/kg Au	691,000 L/kg Au	11.5 t CO _{2-e} /kg Au	141 kg cyanide/kg Au

Table 9: Didipio's Annual Values for 70,000 ounces of Produces Gold

Energy Consumption	Greenhouse Emissions	Cyanide Consumption
283,807.81GJ	22,823.71t CO _{2-e}	279,838.47 kg cyanide

OGPI developed a production frame of 2.5 million tonnes ore being processed every year aiming at gaining 70,000 to 120,000¹⁵ (around 1,984.67 to 3,402 kg) ounces of Au valorised by achieving a target of 15,000 tonnes of Cu annually (OGPI 2011).

The results for calculating water demand for processing one ounce of gold reveal an approximately amount of at least 19,591 litres¹⁶ for only dismantling gold from ore. Further production water is not yet included.

¹³ 19,591 to 21,914 liters of water for one ounce
¹⁴ One ounce (oz.) equals around 0.0283 kilogramme (28,35 g) (Source: <http://metricconversion.biz>)
¹⁵ Quantity has been changed from 120,000 ounces in August 2010 to 70,000 ounces in January 2011
¹⁶ Based on water consumption by Mudd; assuming 1kg contains 35,27 ounces

Andre Ballesteros concluded in its position paper ‘All that Glitters: Understanding the Myth of Sustainable Mining’ an annual fresh water demand of 3,846,480, 000 litres¹⁷ (DESAMA et al. 2007b: 3) for both commodities gold and copper, pursue for the first ten years¹⁸ of the planned project according to OGPI project design (Gopalakrishnah 2008). Based on approachable data, approximate assessment calculates between 1,371,370 m³ and 2,350,920 m³ of water needed annually and therefore roughly ten times more for the entire project period of ten years only for gold extraction not including copper water demand and operation water.

For water extraction permits, as shown in chapter on ‘embedded legal environment’, the applicant has to be registered as Philippine citizens. Therefore the only active water permits, which are addressing the mining water demand, are licensed under the OGPI affiliated NLSDC and coping with purpose of allowing mining and milling, as well as environmental and flood control via dam, drain tunnels, pumps, drill, and weir dam as method of diversion (See Appendix: Water Permits). In total NLSDC applies for 3025.8 litres per second withdrawal (See Appendix) (Corpuz). This amount is represented by NLSDC for managing the desired water amount according to aimed at ounce quantity being mined. Both data are difficult to compare because of un-transparent and different references for calculation.

Table 10: Water Permit Applications NLSDC

Water Permit Application	Water Withdrawal	Purpose and Method	Name of Water Source
45363	500	- Allow mining operation - Dam and tunnel	- Tubo Creek
45364	983.8	- Allow mining operation - Pumps and drain tunnel	- Groundwater
45365	42	- Allow mining and milling operation - Drill and pumps	- Groundwater
45366	1,500	- Environmental and flood control - Weir dam	- Didipio River

In the water permit applications, water purpose statements commentates that only application no 45365 is appointed to water use beyond mining addressing domestic company water demand. Only two applications handle section no. 20 of ‘possible adverse effect to public and /or private interest’, by answering that no impact is being

¹⁷ Equals water demand for production of 1,538 592 kg rice (International Rice Research Institute IRRI)
¹⁸ Contradiction to Gaia South Inc.’s affirmation of four years operation phase

expected signed by the NWRB. The other two permits ignore these boxes to be filled in entirely (See Appendix).

Besides the pure water withdrawal, five constructions of OGPI will change water flow regime and household entirely: tailings dam, diversion dam, diversion tunnel, drainage tunnel, and the open-pit area (Gaia South Inc. 2004: 4-10). The Dinauyan Valley will be the most affected area of Didipio by the implementation of the tailings dam (Corpuz), constructed by excavation material, and the diversion dam. The EIA of GAIA South Inc. provides data about the assumed tailings disposal of around 24 million tonnes (13,600,000 m³ of tailings) and a daily discharge of 7,250 m³¹⁹ tailings water, as well as a tailings dam height of around 68.657 m and diversion dam height of 18.78 m (Gaia South In. 2004: 5-8). These two dams affect Camgat River and the Dinauyan River, which are connected by a diversion tunnel diverting and transporting tailings water from the Dinauyan River to the Camgat watershed over a distance of around 0.8 km. The implementing of the diversion dam and tunnel will cause an entire dry out of the Dinauyan River downstream of the diversion²⁰ (GAIA South Inc 2004: 4-11). Also a strong increase by factor eleven in stream flow discharge of the Camgat River will take place from a mean annual flow of 0.06 m³ /s to 0.66 m³ /s. The drainage tunnel should drain open-pit body, transporting water to Dinauyan River and the Addalam Catchment (GAIA South Inc 2004: 4-12).

Concluding, water stress introduced to the region by the mining project can be diverted into various impacts, combined in the aspects of land arrangement for mine water management and water withdrawal for all mining purposes opposes, in quality and quantity, the daily water use of local environment and community, by introducing mining discharge into water community essential bodies or intervening with natural water flow regime by land transformation (DESAMA et al. 2007b: 3).

Not only the mere water usage and potential contamination of local water resources should be considered but also ramified indirect consequences by changing local vegetation and all hydrosphere aspects, leading towards entire modified Didipio environment.

¹⁹ 40 % reuse ability = 2900 m³ depending on technological investment

²⁰ Stream flow before diversion = 0.6 m³ /s

Furthermore a field investigation with Dr. Buenaventure Dargantes, water expert from the Institute for Social Research and Development Studies, Visayas State University, Cebu City, contributed to general hydrological information and understanding of local surrounding. During the area inspection, GIS measures helped to identify the positions of OGPI's constructions plans for the entire open pit mining project including processing plant, tailing dam and water division measures. At three local streams water velocity, pH value, and temperature have been recorded.

With field-kit devices, the pH value of the water samples was measured at 10 (alkaline) and indicated the occurrence of many mineral components²¹. This fact initiates the understanding of mineral richness of Didipio's locality emphasizing the lopsidedness of the application processes and formulations of OGPI's extraction purposes. The application procedure only includes the extraction of copper and gold, therefore facilitating OceanaGold PI extracting the other minerals without legal and monetary recognition and no recognition of water demand. Also, one out of the three investigated springs was cut off by a fence of OGPI so that the locals are detained from reaching this water source they directly depend on for hygiene and other domestic use purposes (compare previous chapter).

3.3 Tailings in Didipio

One very strong devastating threat of gold mining is given by incidents related to the spilling from tailing dams. The Philippines have already experienced tailing accidents with entire destruction of flora, fauna and community life not being compensated or managed by recovery means. The most known tailing case took place in the mid 1990s on the small island Marinduque where the foreign company Marcopper introduced large-scale mining. The consequences of the incident are horrifying and therefore further tailing dam failures or mismanagement has to be avoided with all means.

This chapter is going to provide background information on tailings and to give a qualitative and quantitative assessment of tailing management for the planned project by OGPI.

²¹ Additional profit for mining operators because application fees only for two commodities (gold and copper)

Tailings are defined as a conglomerated muddy mixture of left-over minerals enriched with process water and chemicals during mining techniques have been applied to ore bodies (Davis, Lighthall, et al. 2002: 2). The processing chemical pollution in gold mining is mainly determined by cyanide compounds, which is characterized by a very high toxicity (EPA 1985: 14), but also by water interacting with heavy metals contained in exploited ore which acidifies nature (SafewaterDrinkingFoundation 2009: 1).

Every year around 66,000²² metric tons of hydrogen cyanide²³ is applied as reagents in gold mining all over the world because stabilizing cyanide and oxidant are perfect for extracting gold from ore by dissolving it (ICMC 2006-2011).

The cyanide containing solution (0.015 % of sodium cyanide/ 0.035 %) (NWMGP: 2) ejected from Heap Leaching is highly alkaline and highly volatile. A buffering alkali counteracts emerging of dangerous hydrogen cyanide of gaseous aggregate state (Marsden, John, et al 1992: 2).

Once contaminated with very persisting tailing seepage, restoration is very unlikely to be able compensating and reach appropriate environmental standards. The slurry mostly fine grained tailings are planned to be stored in an earth dam in the area of Sitio Dinauyan.

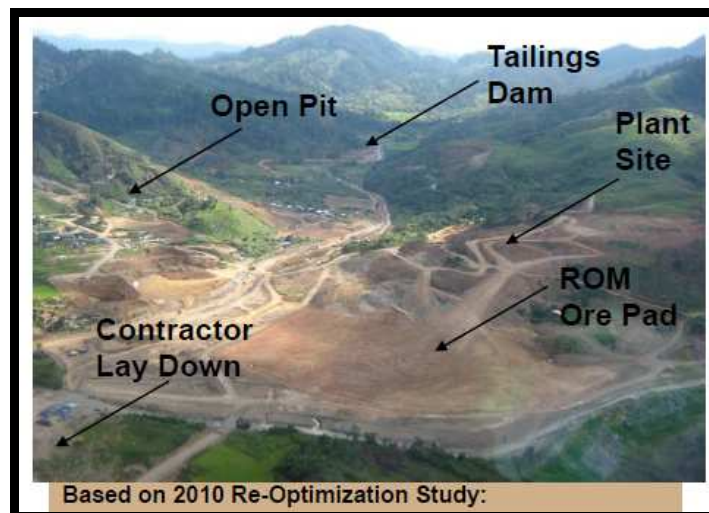


Figure 8: OGPI Conceptual Mining Arrangement (Source: OGPI Company profile November 2010)

²² 'Approximately 1.1 million metric tons of hydrogen cyanide are produced annually worldwide, with approximately 6% used to produce cyanide reagents for gold processing' (ICMC 2006-2011)

²³ Cyanide components are managed under the DENR Administrative Order 97-39

Technically the tailings slurry can be managed partially by dewatering or thickening to mitigate leakage capacity of viscous mud (Blowes 1997: 889), as one essential aspect of managing water balance of the tailing storage via hydrological flow measurements or mere in-flow/out-flow to minimize environmental threats.

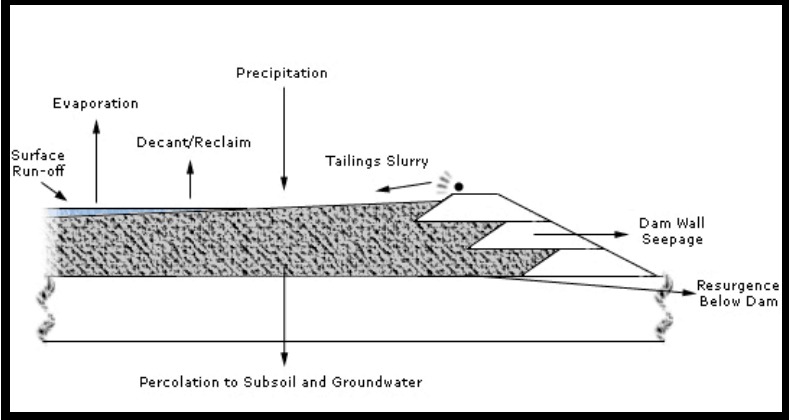


Figure 9: Tailing Dam Water Balance (Source: www.tailing.info)

Without careful water balancing of tailing storage facilities, water movement elements such as evaporation and leakage bias natural fresh water bodies everlasting. Besides cyanide, leaking seepage might carry other acid toxic chemicals into groundwater which is again linked to surface water and local flora and fauna (Earthworks, Oxfam America 2004: 4).

However even if an appropriate water management is handling toxic effluent emissions, physical failures of tailing dams constitute to large-scale punctual devastation of operation region. In Didipio, a dam breakdown would lead to the poisoning of the entire Sitio Dinauyan including the Dinauyan River which again is linked to the ramified watershed’s fresh water bodies (GAIA South Inc 2004). A failure of the planned Diversion Tunnel would impose tailing discharge into the Camgat River. Even if all essential technical precaution was highly advanced, the guarantee of no tailing leakage is utopian (Engels, Dixon-Hardy 2011).

In the Philippines legally cyanide threshold is set at 0.3 mg/l for inland water class C for New/Proposed Industry NPI (Greenpeace Southeast Asia 2007: 36). OceanaGold Philippines Inc. is going to operate annually with 279,838.47 kg cyanide if gold mining is set at a quantity of 70,000 kg, as announced in January 2011. The environmental

threat cannot be formulated in detail due to impeded investigations by safe guards of OGPI. However it can be testified by collective utterances of scientific LRC-sympathising researchers and local community representatives that due to soil condition and topography, the planned unsealed earth dam (GAIA South Inc 2004) for tailings disposal cannot be defined as environmental protective according to tailings seepage, erosive accidents, or entire tailing spilling due to construction breakdowns²⁴. An incident as an entire break down would cause inexorable and unfiltered tailings discharge into Dinauan River, or even a flooding of Didipio River, affecting the entire watershed (GAIA South Inc 2004: 4-12) by affecting Addalam River (CulturalSurvival 2009). A total amount of around 13,600,000 m³ (Gaia South Inc 2004: 5-13) tailings over project lifespan is expected due to Gaia South Inc.'s environmental impact assessment. Direct remarks of tailings discharge distribution over a year and recycling or treatment concepts, besides compaction and partial drainage measures, are not given or named by OGPI.

3.4 Water Household Conclusion

Combining the collected argumentations and aspects the pivotal difference between water rights and right to water becomes obvious in the water allocation of Didipio's stakeholders. The required mining water quantity constrains the domestic and agricultural water access for local people. The drying out of water bodies is often triggered by and correlates with large-scale mining intervention with natural environments in the Philippines (Corpuz). Economic governmental tools such as the FTAA are covertly but directly related with social and environmental water wealth. Handing out licenses according to land modification and transformation in large dimensions always affects the national water household and the available amount of accessible freshwater resources accounting for 145,900 million m³ each year as calculated via NWRB's Strategic Planning and Management.

OceanaGold Philippines Inc., as one out of many mining licensees holder, alloys this water quantity by its production. The water applications of NLSDC aim at a water

²⁴ Improper information about tailing dam design and general operation purpose makes direct quantitative statements difficult

withdrawal of 3.03 m³ per second²⁵. More computable data are given by Andre Ballesteros²⁶ for the overall amount of 3,846,480 m³ water (including all process water and operational water for ensuring mining operation and administrative realization²⁷), with at least 1,371,370 m³ (or 2,350,920 m³) depending on mined gold quantity by OGPI) merely for gold production.

Table 11: Ratio of Fresh Water Use of National Fresh Water Resources

Available freshwater resources in the Philippines	145,900,000,000 m ³ (100%)
Annual expected water consumption of OGPI in Didipio	3,846,480 m ³ (0.0026 %)

The percentage of tended water amount used by OGPI in Didipio is relatively small, however the impact grosses up to a severe amount considering all applications filed and handed out all over the Philippines. The MGB and the DENR published a list²⁸ of all existing FTAA licences at the end of 2010, providing superficial data of the six contractors and their mining projects. Out of these six, four projects are characterised by gold mining and comprise a mining area of 90,341.42 hectares in total all over the Philippines. Whereas due to different initiation dates the primarily affected and secondary affected areas cannot be easily distinguished²⁹. This FTAA list however is being criticized and completed by various NGOs by revealing the actually in process FTAA³⁰ applications including a potential mining affected are of 850,000 hectares. Additional to the FTAA licences, around 381³¹ other water extractive permits for industrial permits are legally used by various industrial sectors and put stress on the national water household, which already suffers according to overconsumption, pollution, and natural deterioration of weather, topographic, soil and vegetation changes (Greenpeace Southeast Asia 2007: 21).

²⁵ OGPI and NLSDC do not provide information over timeframe of water use in operation, nor required water demand per annum, no comparison possible
²⁶ Book: 'All that Glitters: Understanding the Myth of Sustainable Mining'
²⁷ Also extinguishing water, water for workers and houses, etc.
²⁸ MRMS Report No. 004-A
²⁹ FTAA: 10% area relinquishment. FTAA application, date of approving varies between 1994 and 2009
³⁰ 43 FTAA applications under process in 2002
 2.16 million hectares of some 8% of Philippine territorial land.²⁸ It is interesting to note that there were already six (6) FTAA's filed, even before the Mining Act was approved by the Senate
³¹ 180 Mineral Production Sharing Agreements (MPSAs); 70 Exploration Permits; 126 Industrial Sand and Gravel Permits; and 5 Special Mineral Extraction Permit

Also it has to be said that the local impact of water consumption, as discussed in the two previous chapters, is much more ramified with other natural and social factors and needs. Opportunity costs of industrial mining use of water are dramatic for local environment and community due to social security aspects and economic opportunities for promoting indigenous empowerment.

Governmental admission of water crisis started being publicised via Republic Act 8041 the National Water Crisis Act from 1995 giving domestic water demand highest priority in case of emergency (Greenpeace Southeast Asia 2007). The irrational contradiction is the artificial created water emergency in local communities in the name of economic fast development based on mining and the commonly recognition of Philippine watershed vulnerability.

However, due to governmental delivered environmental permits to OGPI, partially shown in table 12, the EIA of GAIA South Inc., and OGPI project responsibility statements, it can be assumed that the planned entire mining of mountain Dinkidi does not carry along negative social or environmental constraining consequences.

Table 12: Environmental Relevant Permits and Programmes for Didipio given to OGPI (Source: Technical Report)

Environmental Impact Statement (EIS) 2004
Environmental Compliance Certificate (ECC) 2004
Permit to Construct and Operate TSF, Waste Treatment Facility (WTF), Pollution Source Equipment (PSE) and Pollution Control Equipment (PCE)
Annual EPEP (AEPEP) based upon EPEP Environmental Management Plans and Programs (7)
Land Surface Rights Acquisition
Water Permits

Especially pronouncements of GAIA South Inc. about the expected tailings not being enriched with any hazardous or toxic substances and the easily manageable tailings disposal and agricultural use of tailing slurry have to be susceptible apprehended due to global highly-technical research of tailing dam design and management to avoid environmental and social contamination.

Opportunity costs according to livelihood management related to mining operations as a Katanga syndrome can be declared as too high also while assessing economic argumentations for holistic development. Integrated watershed management is therefore an environmentally friendly and socially aware conceptual approach

minimizing the opportunity costs and making decision making according to water resources use. This will be supported by preserving or even recovering freshwater sources while at the same time advancing economic and social gains deriving from these water resources.

4 Scenarios

Based on the previous explained technical, legal, social, environmental as well as economic circumstances in the case of the gold and copper mining project in Didipio with all its potential consequences, possible solutions for the existing conflict should be discussed. As mentioned in chapter 1, social and environmental marginalizing processes, introduced to the Barangay Didipio by a cooperative and self-interested behaviour of the Philippine government and the mining industry represented by OGPI, should be addressed and combated by honest and transparent participatory approaches based on full acceptance of international legal frameworks such as the Universal Declaration of Human Rights.

Since especially 2006, Barangay Didipio displays a stagnating loss-loss situation. This chapter therefore will comment on the potential scenarios able to emerge during upcoming times and also will itemise appropriate methods for solution finding based on sustainable development by recognizing cultural integrity and environmental vulnerability.

Three possible progressions explaining positions of both opponents will be described.

4.1 Eventual Scenarios

4.1.1 Project Realization according to OceanaGold Data

The first likely to emerge situation would be characterised and determined by the desired project realisation standing fast to established and applied mining design, commodities, regional modification for mining purpose and corporate responsibility. The Barangay Didipio therefore would be subjected to the demands and needs of land transformation allowing water resources to be diverted, stored, drained, processed and augmented with various chemicals. The already introduced changes would be

completed to start mining operation in the first quarter of 2013 as intended (OGPI 2011). Sitio Dinauyan would be destroyed entirely for water related construction such as diversion and tailings dam. Further migration would take place due to lack of economic opportunities and livelihood security, also endangered by increasing human and environmental health risk.

Assuming the initiation of developing the mining project with the entire removal of the mountain Dinkidi will besides the discussed social and environmental threats fully arise and transform an area of at least 17,626.26 hectares³², containing a defined direct impact region of 325³³ hectares with an expansion area (secondary impact zone) of 650 hectares, measured from the core point of the planed open pit (GAIA South Inc 2004: 2-2). The FTAA assigned area contains further mining sites in small scale dimensions and fences regional economic areas and infrastructure to the mining project.

A worst case scenario for the situation where the aspired OGPI gold and copper mining project will be totally realized is difficult to quantitatively asses by constrained access to reliable, honest data and general lack of transparency of the governmental involved agencies and OceanaGold Philippines Incorporated³⁴.

By cutting off access to water wells which have been domestic and also small scale agricultural water sources, transforming entire agricultural fields by removal of overburden, and destroying locally growing vegetation, the entire social life of Didipio is threatened to migrate and resettle without any compensation payments for already performed damages and likely to develop damages related to loss of livelihood and other marginalising processes, making the Ifugao people of Didipio land-, home- and opportunity-less in a new surrounding, or exposing them to the danger of health risk based on environmental and economic (mainly subsistence and care economics) and therefore social degradation.

³² Effective 2010, recorded by MGB in the complete list of FTAA, further area relinquishment will continue

³³ DESAMA claims a primary impact area of 425-hectare

³⁴ Interviews and data access has been denied various times by DENR and OGPI

4.1.2 Entire Ban of Mining Project

The second potential scenario would be the entire adjudication of the Barangay Didipio and its resources to previous indigenous Ifugao management and cultivation, accepting statements such as the recognition of the CHR of human rights violation in Didipio, as omnipotent and beyond compromises. For this scenario it has to be understood that there is no possibility achieving a situation without already introduced impacts due to irreversible damage being exposed onto Didipio's and especially Sitio Dinauan 's community and the local nature.

The difficulty cropping up, considering an entire ban of the mining project supported by legally denying OGPI the targeted and already initiated mining project, is to establish and fixate an orientation of referring to a potential aimed at local condition in the region. Land has been modified and transformed by changing water ways and water resources, by removal of overburden and flattening area partially for processing plant and other project essential facilities. Especially reforging and recovering the situation in Sitio Dinauan will be difficult. The 187³⁵ houses have been destroyed and physical as well as psychological damage has been experienced by many inhabitants. Families already migrated to other places outside Barangay or even left the municipality and the social capital of the Barangay has been shattered strongly³⁶ (Kalikasan People's Network for the Environment 2011).

Even if OGPI will be dismissed from Didipio community displacement, human rights violation³⁷, economic dislocation by destroying agricultural potential, and environmental devastation cannot be reversed entirely or compensated adequately. Only aspects of access to land and water can be enabled leading to the question of usability of the natural resources after the intervention of OGPI for livelihood security of residual residing Ifugao and other indigenous people.

Environmental devastation and also social degradation are compared to the previous scenario are less strong and severe. The mountain Dinkidi would remain and tailings would not introduce threat to the community. Various measures, depending on human and financial capital could help to establish a healthy living condition in the area, trying

³⁵ Demolishing of houses during 2007 and 2009

³⁶ Among opponents and proponents (related to compensation payments) of the mining project

³⁷ Especially the shooting of Ifugao Eilio Pumihic and other bodily and mental injury due to conflict situation

to compensate damage and adjust to new situation. A severe concern will be the management of already destroyed economic potential, mainly focused on subsistence and care economics, as well as small business structures.

Furthermore the recreation of biodiversity has to be determined by versatility and ecological richness with a minimum environmental standard of pre-mining operation level. Mere reforestation cannot meet the ecological quality of a natural ecosystem, even so modified by agriculture³⁸.

The question in the case of an entire ban of OGPI is the re-establishment of local community life based on economic opportunities, social security, livelihood creation and environmental health in an appropriate quality to previous multifarious condition³⁹ a situation in which traditional Ifugao community life based on self-regulation and life opportunity was able (Kalikasan 2011).

So, by OceanaGold Philippines Incorporated leaving the Barangay an improvement or a decline of living condition can be the consequences. While searching for an adequate reference niveau, an impact balance should provide argumentations and priority settings for handling consequences and therefore the new situation. A local potential of excelling the awarded development potential, even so only single-sided, to gold mining, and especially mining of Dinkidi, has to be achieved to address needs of community and environment, and not leaving the region in poverty.

4.1.1 Compromising between all Stakeholders

The third possible scenario is a balance and conciliation of the stakeholders' interests. As mentioned in the statement of relevance the consumption of human beings and their ecological footprints cannot be neutralised totally.

This scenario would cause a situation where the active self-regulating empowered local community of Ifugao and the other locally dwelling tribes are able to practise a livelihood characterised by self-determination and choice on behalf for the purpose of their traditional standards and expectations of standard of living while benefiting from their social capital.

³⁸ As mentioned before, agriculture of Didipio was environmentally integrated and impacts were minimized

³⁹ Approximately before 2006, when severe struggle for recognition of human, indigenous and environmental rights occurred

While addressing community needs and values, the government and OGPI should be considered with their desired outcome of the planned project. The government's interest concentrates on economic embedded values aligning on GDP growth, tax income, employment rate, foreign investing potential, status of an active member of global free liberalized markets, World Bank's and ADB's perception of the Philippines being a strong economic and political nation, as well as fast legislature period monetary strength.

The third stakeholder group of industry and therefore consumers is represented by OGPI. This company wants to merely mine the mountain Dinkidi for enriching the company's market value, ensuring survival of company and employment rate, offering resources in the global market according to market prices to meet the needs of consumers⁴⁰.

Fact is that the mountain Dinkidi is a precious ore body for mining purpose due to grading, legal support, technical practicability, and highly demanded commodities.

The establishment of this compromising situation would lead to a ramified system of two separately approaches for meeting the individual needs of the actively practising stakeholders in the region. Desires of the government should be sub-conjugated to OGPI objectives. However, compromising stakeholders espouse for their own ideas while being integrated in a holistic decision making environment based on reciprocal but different responsibility for other stakeholders and the environment. Each and every decision should include impact assessment affecting the others to balance and mitigate non-sustainable management.

Compromises in the case of gold mining are difficult to meet due to technical necessities such as open pit mining. Integrated systems should rely on recognising need for coexistence of agriculture, biodiversity, human security and technical implementation.

Tailings design and water resource modification by OGPI represents the bottleneck for integrated compromising approach into project planning. Furthermore real compensation and recognition of local community by addressing their needs not only financially but rather culturally are additional aspects.

⁴⁰ Not end-consumers, processing industry, further electronics and jewelry production

Tools for compromising, while aiming for a win-win situation, based on acceptable tradeoffs, depend on capacity building according to environmental and human security assigned on economic benefit without forgetting on international standards. The golden thread is the achievement of holistic sustainable development for Ifugaos and their land, the entire Philippines by avoiding of doing tremendous development mistakes again, and OGPI market position.

4.2 Social, Economic and Institutional Tools for Solutions

Due to the discussion over possible continuation of the situation in Didipio, the general consensus of involved non-governmental experts focuses not on the total ban of OGPI from Didipio, rather on a compromising solution. However the comparison of opportunity costs related to each scenario, complicates a sheer plea for a single scenario. Creating a win-win situation, while not focusing on a total maximization of beneficial profit for both interest groups, should be addressed by a dynamic participatory communication. As the affected party, Ifugao people with the support of various NGOs, need to make their voices be heard and point out case positions of duty bearing and rights claiming. LRC as the legal vocalizing institution supporting indigenous Didipio group adumbrates the inevitable character of mining according to the global demand of mineral resources. Responsible mining is key approach from the view point of holistic development promoted in the Philippines via active human and environmental representatives. Profiteers and bearers of mining projects have to be holistic understood to balance situations and mitigate negative consequences offloading on humans and nature in any kind of dimension.

Vulnerable groups affected by mining⁴¹ have to be recognised as well as their relation to the environment, to find solutions against social and environmental poverty, rather than solutions for poor marginalized people. A people centre solution, however cannot be accomplished on a mere household scale and should be driven by thinking big, starting small, and scaling fast while increasing targets and reduce inefficiency in project implementation. This cannot be realised by a single involved stakeholder, such as NGOs and indigenous people, rather than via integration of all stakeholders,

⁴¹ Women are strongly affected by mining due to environmental and social change, as well as minimized male-dominated economic opportunities

especially governmental representatives, to aim for a sustainable paradigm shift in an often unjust imbalanced globalised world with a nation being its active member framing the social, economic and environmental condition of affected citizens (Möller 2011b). Sensitivity, rather than pure education, among all stakeholders for others sentience is a basic attribute to sustainable create this paradigm shift at all levels.

International legally recognised statements from the Universal Declaration on Human Rights §1 (2) or even UNEP's definition on environmental refugees pertain Didipio's structural mining destruction. The important norms are universally valued but depend on local action and align on inductive research and making conclusions for understanding interwoven relations and chain reaction of industry, government and community.

Maslow's concept of basic needs does not respond to conflicts such as incidents of mining in Didipio. Postponing human rights merely to address basic needs cannot be declared as sustainable. Therefore the potential solutions are based on integration of human rights and how these are able entailing environmental security.

In development management a shift developed during the last decades from aid towards cooperative empowerment, defining affected human beings as claimers for their rights and not anymore as pure group of beneficiaries based on the welfare or third world approach (Moser 1993: 67). Unicef underlines this idea by stated that '[w]ithout imbuing management with values- and rights-based principles, there will be no sustainable change' (Unicef 2000: 153). 'Human rights are an integral element of the development agenda' (Jonsson 2004: 2) but besides their necessity they are not solely capable of achieving holistic human development.

Especially people power and the relation of environmental movements and social development⁴² in the Philippines nurture the strong adjustment of non-governmental and Philippine academic focus on participation of all affected stakeholders in decision making processes, aiming for a more decentralised and button up political management⁴³.

⁴²Here: Social development integrates economic development as a tool

⁴³ Philippine government strongly segmented, only responsibility in decision making is not yet honestly realized because of supremacy of National Government

4.2.1 Participatory Approaches

The conflict in mining operations provides a clear urge to discuss and communicate among all stakeholders to mitigate social, environmental and economic impacts on communities, nations, and the environment in short and long term scales. For managing the conflict in Didipio participation and participatory principles can be assumed enabling implementation of holistic development. Participation should be introduced on the level of community engagement and participation, because the mining impacts affect the local community of Didipio as an unity. The combination of mining activities, lack of governmental reliance enriched with lack of assuring human rights' ubiquitous presence, OGPI's project is able causing degradation of well-being and livelihoods of the directly affected local communities. Transparency and corporate social and environmental responsibility should be realised as previous standards of each stakeholder before focusing on participatory communication. Referring to Connor and Desmon (1997), the initiation and realization of participatory engagement of stakeholders is in the responsibility of the more capable and powerful⁴⁴ interest groups represented by government and industry. Convincing to participate in project engagement via awareness creation and education therefore is essential for further holistic participatory approaches. For Didipio, there is no need to arouse willingness for participating and engagement in decision making.

The lack of communication and participation lead to a stagnation⁴⁵ of livelihood and industrial performance on all sides, creating high costs and risk. Enhancing access to new opportunities for host communities such as other economic and social activities, in best case is leading to independency and self-realization of single households, families and individuals, as well as the entire community (Connor, Desmon, 1997). One of the main constraints of realizing participatory concepts is the gap of engagement and information. The lack of transforming the theory of judicial and governmental systems into practicable methods without proper guidance, intensified by insecure feeling of the community, is mitigating the chance of claiming rights of holistic and powerful participation. LRC among others is minimizing this gap by providing legal support for enabling empowerment of Ifugao people represented by DESAMA and

⁴⁴ In terms of decision making and capacity opportunity; Stakeholders who initiate projects

⁴⁵ OGPI repels any communication with DESAMA or other NGO members

individual judicial persons from Didipio. Even so community participation defines a community by a single unit, not everyone in the community will end up speaking out the same considerations and will not develop the same characteristic view for the project. This constrains the potential of community participation as shown by the disturbance of Didipio's social capital. Mining projects in general can create this gap among the locals who might focus more on the one hand on economic opportunities and employment structure or on the other hand more on sustainable traditional, environmental and social livelihood ideas. Another constrain, beside lack of knowledge and participatory framework in the community, can be found in a lack of the given time and budget to the community from the persons in charge to realize satisfyingly participation in forms of setting short time abjuration and too much bureaucracy (DESAMA et al 2007b: 1). In the case of permits given to OGPI or its affiliated institutions, time span was short and due to bureaucracy even much more difficult to stick to. Also lack of information for project proponents how to implement and realize efficiently community participation and engagement ideas in a social, cultural, political, environmental and economical existing framework, is hampered by government and industry. Because until now in mining projects it is not common to make the running in engagement and participation of communities due to anguishes of being exposed to inquest and being accuracy constraints and maybe experiencing impediment in their economic and business goals. Guiding principles of community participation should aim for a total benefit of a project by also empowering locals in order to guarantee reasonable and eminent contribution to project design and implementation. An overarching community involvement, in the realization of a mining project, will built up relations and trust mastering resolutions and leading to opportunities for locals according to employment, safety for cultural heritage, health, education, as well as economic skills. Avoidance of resistance and protest, while handling risks, reducing costs and creating reputation⁴⁶, will be the result of community participation (Foti, De Silva, 2010: 24/25). Herbertson et al. (2009) named the seven essential principles for ensuring effective participation.

⁴⁶ Important for consumer acceptance and therefore sales market

Table 13: Principles for Community Engaging Participation

Participatory Principles
Prepare communities before engaging
Determine what level of engagement is needed
Integrate community engagement into each phase of the project cycle
Include traditionally excluded stakeholders
Gain free, prior and informed consent
Resolve community grievances through dialogue
Promote participatory monitoring by local communities

All these principles rely on good governance and real corporate responsibility willing to adapt targets and profits to local needs. OGPI and the Philippine government should shift their attitude towards recognition of social and environmental impacts on the Barangay Didipio and start implementing the principles, listed in table 13.

Although participation and participatory approaches were promoted largely during the last two decades, indeed by the World Bank (Parfitt 2004: 537), voice of dissents or objections are also considered among many experts. Parfitt (2004: 539) discusses the scepticism of the adjudicated power of participation realizing emancipation of vulnerable and marginalizing groups. Thoughts of participation being purely a method integrating marginalized affected groups into the development aggression high-impact projects define the sceptical argumentations. Counter-argumentations are also emphasising the hidden top-down mentality of fake empowerment, by using participation as an end, rather than a mean (Parfitt 2004: 540). Participation as a mean towards concern-specific empowerment should be therefore addressed not as the end target of collaboration of involved stakeholders.

The danger of participation concepts is given by declaring relations of stakeholders as dyadic and ascribing active and reactive characteristic roles onto the interest groups.

To avoid potential top-down mentality of participation implementation, essential frameworks based on ‘...margins against the centre, the local against the elite, and the powerless against the powerful’ (Parfitt 2004: 542) should be sustainably established for defining participation a mean and not an end. OGPI misuse the image of participation by promoting their environmental project of tree planting and their social engagement in the local school and hospital. This distracts from not compensable impacts of the mining.

Furthermore dichotomous conditions of, on the one side decisive power stakeholders and on the other side power-subjugated stakeholders, will cause the rejection of recognizing local knowledge throughout cooperative development project management. All this will result in a project focus of efficiency aiming at the aspired project target while integrating affected groups rather than promoting the desired urge for empowerment. Participation therefore should be used as a mean of achieving empowerment and self-determination embedded in the framework of certain standards such as the declared human rights.

4.2.2 Human Rights Based Approach

A step further to implement participation as a mean and not an end of development project, the merging together of the participatory concept with the Human Rights Based Approach⁴⁷ HRBA is desired as a profitable tool establishing a just situation in cases such as Didipio. The participatory principles, especially the Free, Prior, and Informed Consent FPIC, therefore have to cooperate directly with IPRA chapter 4 sections 16 and 17⁴⁸ and Human Rights and the ascribed Covenant on Economic, Social, and Cultural Rights. Furthermore capacity development and knowledge management as operational issues form a base of addressing the MDG and lead towards paradigmatic sustainable development (UNDEP 2009: 52).

The HRBA shifts the focus from needs to rights, introducing beneficiaries becoming rights claimers while promoting the undeniable existence of rights for each and every global citizens equally (UDHR, Article 1) and by positioning duty bearers represented by government mainly and indirectly by the industry such as OGPI (UNFPA 2011a) via respecting, protecting, and fulfilling.

⁴⁷ Beyond Aid; beyond basic needs approaches

⁴⁸ IPRA, Chapter 4, SEC.: 16. Right to Participate in Decision-Making - ICCs/IPs have the right to participate fully, if they so choose, at all levels of decision making in matters which may affect their rights, lives and destinies through procedures determined by them as well as to maintain and develop their own indigenous political structures. Consequently, the State shall ensure that the ICCs/IPs shall be given mandatory representation in policy-making bodies and other local legislative councils. SEC. 17. Right to Determine and Decide Priorities for Development. - The ICCs/IPs shall have the right to determine and decide their own priorities for development affecting their lives, beliefs, institutions, spiritual well-being, and the lands they own, occupy or use. They shall participate in the formulation, implementation and evaluation of policies, plans and programs for national, regional and local development which may directly affect them



Figure 10: Human Rights Stakeholders (UNFPA 2011a)

The Human Rights Based Approach presupposes that all action of assertive stakeholders must be aligned on the protection of human rights as a fundament for decision making (Hickey, Mitlin 2009: 201). Elements of the HRBA are characteristics from the human rights themselves, such as transparency and participation which again is the direct link of implementing participatory approaches as means for human rights aligned development. HRBA however aims for in-process and outcoming moral standards according of development creation (Hammanson, Nilsson 2008: 1). By putting the declared human rights into practical use, indigenous people's rights have to be integrated and equally valued by the also recognized culturally sensitive approaches CSA (UNFPA 2011b). CSA is a mean to adapt the Human Rights Based Approach in a cultural sensitive and people centred method for development. For the Ifugao people in Didipio the HRBA combined with CSA is until now not yet granted neither from the government nor from ODPI. IPRA and CADT are mere images in the context of governmental decision making in Didipio and OGPI market-orientating proceeding. A culture- or even value- free development decision making cannot be sustainable all over the world (UNFA 2009: 10). While playing around with actually manifested and ratified national and international laws, and forgetting about culture and human values, development aggression of the Philippine government and OGPI harms sustainably and irreversibly not only the Ifugao but also all indigenous and vulnerable groups in the Philippines by ignoring their needs and rights. The best example for discrepancy of the established image and real politics of the government

of the Philippines, by creating a national legal framework focussing on social and environmental values, can be perceived by ignorance of the government of their own legal tool CADT and the ratified IPRA, especially Section 2 (b). Even so indigenous people are able to apply for a CADT, there are not many so far licensed, and the idea of IPRA connecting indigenous tradition of interdependent human nature relation, is used by the government only by physical definitions of direct lands and not the indigenous essential value (UNFDA 2009: 11). The fusion and honest recognition of HRBA and CSA could help the Ifugao people escaping from one-sided cultural perceiving conditions, towards circumstance-specific acquittal.

OGPI violated various human rights in Didipio and counteracted MDG such as 'ensure environmental sustainability' (no.7) and 'eradicate extreme poverty and hunger' (no. 1). The violated human rights are roughly displayed by naming the threatening and rejecting the right to water⁴⁹, human security, cultural integrity, freedom of movement⁵⁰, adequate housing⁵¹, self-determination, participation in government, work, freedom of hunger, and economic and political self determination UNDP (2006a: 3).

The fact of OGPI human rights violation has been recognized by the CHR Philippines in January of 2011 with the Resolution (IV) No. A2011-004⁵².

⁴⁹ CESCR General Comment no 15, as water as a part of standard of living; PD 1067: Article 22 Priority of Domestic Water Security

⁵⁰ Covenant on Civil and Political Rights, Article 12 (1), By disturbing infrastructure

⁵¹ Covenant on Economic, Social, and Cultural Rights, Article 11 (1)

⁵² 'This case is about the alarming human rights situation in Barangay Didipio, Kasibu, Nueva Viscaya. At the center of the controversy are the 6iping operations of Oceana Gold Philippines, Inc. (OGPI), a foreign owned

corporation, with which the national government of the Philippines has entered into a Financial and Technical Assistance Agreement (FTAA)'

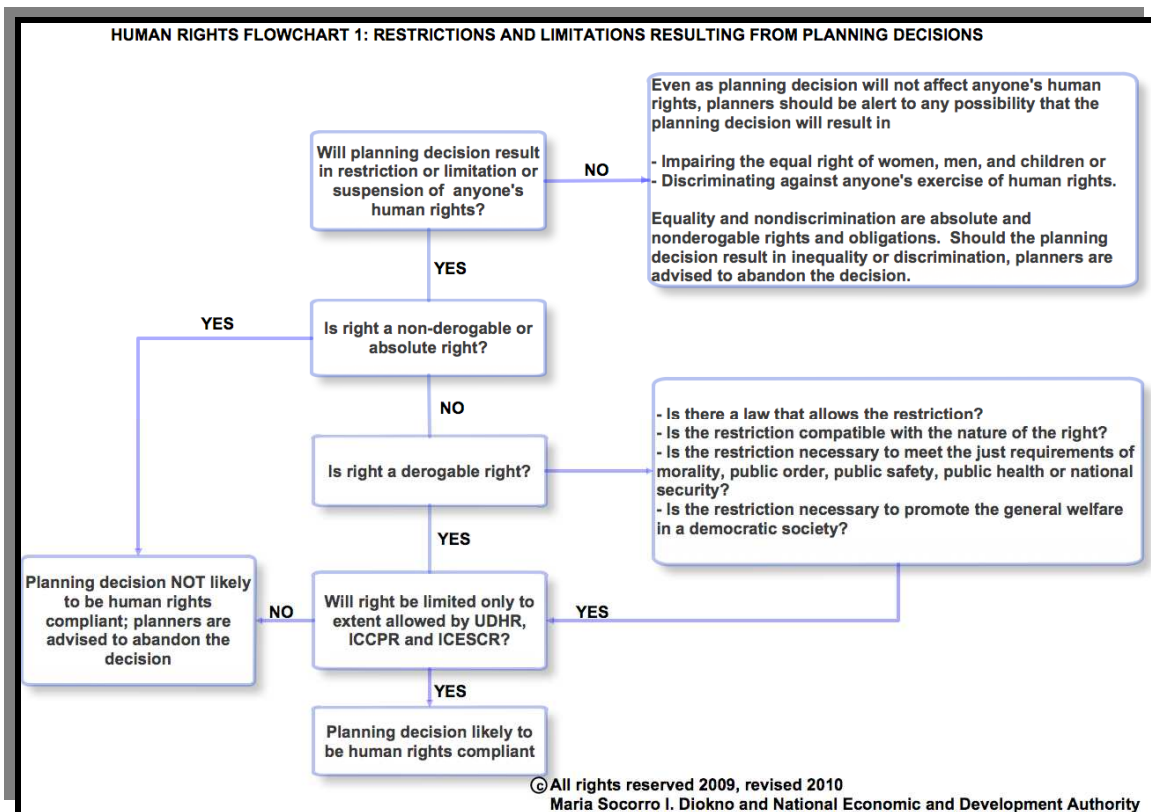


Figure 11: HRBA Planning (Source: www.hrbatoolkit.org)

The planning process for the mining operation can be roughly assessed as shown in Figure 11. For the gold and copper project in Didipio following the flow chart would lead to the result of 'Planning decision NOT likely to be human rights compliant; planners are advised to abandon the decision'.

HRBA, CSA, and honest participation as means for development depends on the capacity comprehension of affected and concerned communities or individual representatives as rights claimers, on the one side and duty bearers on the other side (UNDP 2006a: 1).

This situation is enhanced by the fact that the Ifugao case is traversed by event-based data of human rights violations by the State's representatives and external, non-governmental parties (duty bearers) ignoring aspects of respecting, protecting and fulfilling (UNDP 2006a: 8). By balancing and contrasting related confessions with omissions of the Philippine government, the absence of human rights, as well as any kind of HRBA in decision making according to the gold and copper mining project of OGPI, can be directly seen. The combination of qualitative narrative reports, journalistic statement⁵³, and expert comments provides a detailed portrayal of human

⁵³ ,Who did what to whom' data

rights violation in various dimensions and on various levels inflict on the local community and nature of Didipio. For the powerful and effective implementation of HRBA, governmental institutions involved in legal framework setting have to shift from buzz words and shallow policies handling sustainable development, towards transparency and real commitment to needs of national citizens as well as nature by rejecting economic short-term profit.

4.2.3 Reducing Vulnerability

As embedded in the title of this thesis social security is directly linked to environmental sustainability. Indigenous people as the Ifugao are being marginalized by development aggression and being exposed to becoming more and more vulnerable due to mainly environmental but also socio-economic change. Therefore environmental sustainability can only be guaranteed by the creation of non-vulnerable societies based on reciprocal support and stewardship. 'Vulnerability represents the interface between exposure to the physical threats to human well-being and the capacity of people and communities to cope with those threats. Threats may arise from a combination of social and physical processes' (UNEP 2002: 302).

The potential impact of vulnerability is built upon an individual's capacity of handling environmental degradation (natural or anthropogenic). Removing this vulnerability of Ifugao people would form an effective stepping stones for an equal human-rights based participation over the debate of implementing the gold and copper mining project. Judicial empowerment via recognising the HRBA and CSA can be used for further discussion over needs and interest of stakeholders. Warranting the web of social and environmental security for further action of fighting for basic needs, human rights and self-determined livelihood creation is hampered in the management of Didipio. This can be seen not only by mitigated transparency or even opaqueness of duty bearers in decision making and objective setting but also because of tokenism⁵⁴ (Cornwall, A., Brock, K. 2005: 3) according to environmental statements and measures implemented by the Philippine government, not leaving a chance, from the technical and legal point of view, for the emerging of a invulnerable Ifugao and Didipio society.

⁵⁴ Precautionary Principle is a tool from the Rio Declaration on Environment and Development. OGPI and the government use buzzwords for green washing and social washing

Especially the EIA of GAIA South Incorporated and NRW arguments which understate potential environmental threats in Didipio ignore the named impacts and consequences.

Postponing rights, no matter for reasons of development aggression or rather for addressing basic need first in a short-term vision, cannot be accepted anymore in Didipio. Even so statements on environmental and social impacts of the gold and copper mining project published by the government and OGPI do not accept the tremendous impacts recognized and recorded by NGOs and the local community, the Precautionary Principle should be activated substantiated on mining history and event-based Didipio data. Besides the above mentioned ideas, the government should implement the concept of capacity building defined as ‘...encompass[ing] the country’s human, scientific, technological, organizational, institutional and resource capabilities. A fundamental goal of capacity building is to enhance the ability to evaluate and address the crucial questions related to policy choices and modes of implementation among development options, based on an understanding of environment potentials and limits and of needs perceived by the people of the country concerned’(UNCED 1992). If governmental decision aligns to aspects such as capacity building, precautionary principle, HRBA, as well as CSA, sustainable development standards can be met. This develops an accepting balancing decision making among stakeholders needs and potential consequences and impacts.

Especially women are affected by mining industry presenting a highly vulnerable group among all resource rich nations. Mere empowerment of indigenous women has social and environmental advantages, underpinned by Dublin Principle 3⁵⁵ at the International Conference on Water and the Environment (1992)⁵⁶. Mining impacts have effects upon women in an exaggerating pronounced dimension differently compared to the impacts on men’s life (Hill 2009: 5). Mainly women are more vulnerable to the change imposed by mining operations because of mitigated economic opportunities. Mining is determined by male employment while destroying the fundament of female livelihood security especially agriculture. Burdens women have to manage are furthermore constrains in land and financial management which

⁵⁵ ‘Women play a central part in the provision management and safeguarding of water’

⁵⁶ Enriched by MDG on women MDG 3 and the environment MDG 7

tremendously disempowering women participating in the local economy and politics. Loss of land and environmental degradation lead to an increase of women's workload in care economics/ unpaid labour⁵⁷. Kamla Bhasin stated in 1993 the fact of women being assumed for catering to the basic needs of society, concluding the urgency and necessity of development being women-centred to be sustainable (Shiva 1988: 33). The invasion of OGPI caused as described a degradation of community life as traditionally known and practiced by Ifugao people. The Ifugao tribe has been defined as gender-just and equal livelihood cooperation. The decline of indigenous structures, evoked by the mining project, destroyed local social control, also by seizure of the economic structures by migration of non-local male employees. Women became especially vulnerable in Didipio by constrains for the women performing their tasks according to care economics. The realisation of the mining project would cause much more burden upon women by increasing difficulties ensuring living standards for their families (Hill 2009: 5). Derogation of females' productive position and capacity especially in agriculture therefore is minimised with the entry of large-scale mining (Carino 2002: 17). Minimising water availability and access is the main factor of burden increase in the context of women and mining. 'The loss of traditional livelihood opportunities [forces] women, as well as men, to look for informal work outside the communities' (Carino 2002: 17). But women are compared to men not mobile and undergo a more severe economic grievance by a destroyed local structure. The high vulnerability of women and their children forces them making their voices be heard by OGPI and the government. OGP and the Philippine government, by ignoring human rights and sustainable development, are damaging the lives of women in Didipio. Reducing vulnerability of affected individuals and groups, especially women and children, must be integrated in a participatory approach if it should be long-lasting and efficient. For this OGPI and the government have to emphasize on gender aspects of human rights, IPRA aspects, and MDG as one main approach including human rights for a compromise in the case of Didipio.

⁵⁷ Water, Nutrition, Education, Health, Social Life

4.2.4 Social Action Tools

The potential of social capital and participation is very high in Didipio as in the entire Philippines. In chapter 1.1 the people power of environmental and social revolution is presented as effected and powerful and is able to set standards for national conditions. Bina Agarwal analysed the impact of collective action for decision making in resource management. The question asked by Agarwal (2000) displays the fundament for Ifugao people's most effective approach combating the Goliath-like opponent, fused OGPI and Philippine government: 'How do social networking, moral values, norms of trust and reciprocity, and related proclivity toward altruism versus self interest, impinge on prospects for sustained cooperation in managing natural resources?' (Agarwal 2000: 283). Morality, empathy, and trust as attributes of a community provide a perfect condition for cooperative problem management. The answer to this question is characterised by the strong social interaction and traditional community values and structure of Ifugao people, putting community wealth and sustainable livelihood creation over individual short-term decision making. The extended interest and willingness of participation in environmental and social decision making is transformed into reality by the establishment of DESAMA and individual action taking for protecting local community. All affected groups have to define their interests in environmental decision making. These groups in Didipio are the Ifugao as a unity, the entire Didipio population, farmer association, and women groups. Lack of participation would cause inefficiency in achieving sustainable targets. The interest groups of Didipio therefore should state individually the certain ideas and needs, combining them without cutting back on some aspects, and use this collective resource management engagement for initiating an equal debate among all three main stakeholders as shown in chapter 2.2. However lack of recognition on the side of OGPI and the governmental representatives urge locals to integrate collective action into legally manifested and honest long-term economic assessment. By excluding indigenous people and their collective action potential impregnated with traditional knowledge, OGPI and the government evoke a condition based on disadvantageous impacts for addressing efficiency as well as sustainability (Agarwal 2000: 288). Women and indigenous people possess the potential of teaching TNCs, such as OGPI and hegemonic governments, a more egalitarian approach of decision making based also

upon the high focus of women’s solidarity on every day and overall social capital (Agarwal 2000: 292). The previously more informal nature protection of the marginalized groups turned into loud proactive action taking of indigenous people of the Philippines. Created vulnerability of Didipio by OGPI can be counteracted by maintaining local community homogeneity supported by strong social capital existence which can facilitate dynamic social cluster decision making.

Social action however depends on recognition of dominant decision makers. Legally in the Philippines the IPRA Sect. 3,g introduced the Free, Prior and Informed Consent FPIC as a tool to provide a judicial stage by intervene in capacity exclusion of indigenous people. The FPIC demands that indigenous people are able to establish their customary law, are protected from external manipulation and interference, and are entirely informed and involved in the concept of a planned activity according to their culture-specific needs in language and tradition (Gariguz 2009: 11). The FPIC requires the holistic priming of an affected community ‘about development projects in a timely manner [while] given the opportunity to approve (or reject) a project prior to the commencement of operations’ (Martin 2007: 4) enriched with a participatory HRB approach for ‘setting the terms and conditions that address the economic, social and environmental impacts of all phases of mining and post-mining operations (Martin 2007: 4).

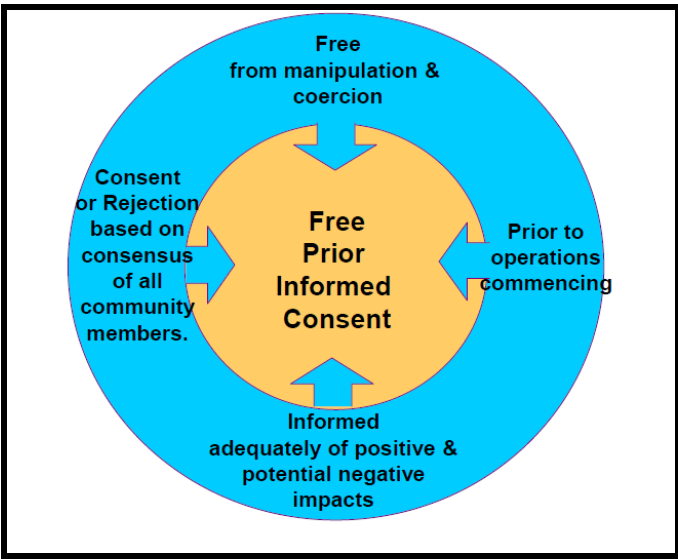


Figure 12: Free, Prior and Informed Consent (Source: Gariguz 2009: 10).

4.2.5 Alternative Legal Approaches

The Republic of the Philippines holds plenty of environmental and social policies, standards, laws, and economic tools. Being in the Philippines, words such as community participation, environmental awareness, corporate responsibility, and sustainable development are omnipresent. However due to the legal pluralism especially in the water sector and the generally high segmentation of the Philippine government while not distributing decision making and power among legal units, all people centred and environmental aware legislative aspects are easily abrogated in behalf of economic value creation for governmental short-term decision making.

Due to incompetence and unreliability of governmental social and environmental frameworks, NGOs, united under the ALGs, started to establish alternative legal concepts. Most severe examples for alternative established laws are the 'Alternative Mining Bill AMB 2009' and the 'Filipino People's Water Code 2004'. Furthermore the 'Declaration of the International Conference on Extractive Industries and Indigenous Peoples 2009'⁵⁸ is a part of the alternative legal action of nature and people centred laws. The AMB⁵⁹ is 'anchor[ing] on land and natural resources management and human rights-based approach' (Alyansa Tigil Mina National Secretariat 2009: 1) and aims for transforming the Mining Act 1995 into a sustainable environmentally and socially just law. The Filipino People's Water Code embraces aspects of meeting the needs of environmental water consumption and quality while ensuring human water consumption with the priority on domestic and agricultural use while aiming for sustainable national development.

Furthermore all active NGOs and experts espouse the real implementation of existing international and national legal conditions while disabling green- and human rights-washing of governmental decision making and diminishing buzzwords in corporate responsibility. The activities are not against mining, but rather against eyewash according to the facilitation of responsible mining and sustainable development only by market orientated measures. Intrinsic legal power and purpose distribution and not searching for loopholes to promote mere market centred decision should be aimed for.

⁵⁸ Also called the 'Manila Declaration'

⁵⁹ House Bill 6342; The Philippine Mineral Resource Act of 2009

These legal proposals show that the most people are not against mining or economic development but aim for reliable legal structures and sustainable decision making.

5 Conclusion

Taking no notice of globally accepted and nationally ratified human rights by the Philippine government, while not even abiding by national social and environmental legal standards, provides an appealing economic condition for OceanaGold Philippines Inc.. Referring to general and specific moral standards verbalised in laws and policies such as IPRA or the Covenants of the Declaration on Human Rights, the described scenario of 'Project Realization according to OceanaGold Data' cannot be accepted. The situation in Didipio developed to current conditions is urging for a compromise of all stakeholders. Already inflicted negative impacts can only partially be reversed and inadequately compensated. Damage has been done physically and psychical to the inhabitants of Didipio and their nature. The conclusion out of the described circumstances in this thesis only leads to the introduction of transparency and honest holistic decision making according to economic-orientated development projects, while banning tokenism and hollow politics. Mitigating the negative aspects in the conflict in Didipio can only be done by applying Philippine attributes which already have been proven successfully in recognition of all interests of involved stakeholders and establishing a reconciliatory compromise among social, economic, and environmental values. Participation based on the Human-Rights Based Approach combined with collective action is the only applicable mediation method addressing satisfying decision making by aiming for balancing interests and targets. Implementing participation would require an open receptive attitude of OGPI towards interests of Ifugao people and a realisation of cooperative tools such as the FPIC.

Due to the potential of collective action of NGOs and Ifugao people, the government has to recognise its laws and transform political decision making into a locally oriented, people- and environment- centred sustainable development construct. Yes to appropriate resource consumption and yes to human rights is the core of the compromise in Didipio (Wessendorf 2011: 267/268).

Steps towards sustainable decision making in Didipio is based on taken more into account the Ifugao stakeholder group and taking away their vulnerability which has been implemented by the gold and copper project. Ensuring the invulnerable character of the Ifugao as a self determining society should be addressed by responsible and aware action on the side of OGPI and the government, and also by action of self responsibility of Ifugao via social action. Approving gender concerns in the circumstances of Didipio is a basic approach of accepting impacts on local society by open-pit mining.

Gender awareness, participatory decision making and human rights recognition will help to overcome the top-down management of the government meeting the needs not only of OGPI but also of Ifugao people in Didipio. 'Dialogue, collaborative development of alternatives, joint decision making in co-management and delegation of specific authority and empowerment of communities to make autonomous or independent decisions' (Bruns 2007: 30) would be the essential initiation of solving the conflict via participatory HRBA. The compromising solution in reality however will be endowed with limited participation and balanced agreements. (Bruns 2007: 30). However before discussing about accomplishment of the mining operations, based on a compromised design, the legal conditions have to be enriched and characterized by resource related rights, capacity building via FPIC, as well as established possibilities of influence of the marginalized affected Didipio inhabitants (Foti 2010: 23). Besides general claims according to mining and marginalized groups by Hill (2009: 13), Oxfam Australia (2007: 38) calls for essential recognition and implementation by OCPI and the Philippine government. These recommendations are the unavoidable concession of current decision making and condition shaping stakeholders to use their active role of project realisation to include the Ifugao people as equal stakeholders in the decision making processes. Hill requires an 'immediate ban on destructive mine practices including the dumping of mine waste into waterways, open-pit mining, block-carving, and cyanide heap-leaching', 'respect for the right of Indigenous peoples and local and affected communities to give or withhold their free, prior and informed consent to mining operations, and especially the right of women to participate in decision making', and also higher emphasis on water security (Hill 2009: 13). The feasibility of these statements for Didipio is hard to achieve. Therefore especially the urge of honest

implementation of the FPIC is taken up by experts for powerful cooperation. The FTPI for Didipio is complied by 'access to comprehensive information in an accessible form and to independent legal and technical advice; written information on all aspects of the mine is easily available in a range of appropriate and accessible languages (including the local language Illocano); (...); all documents (in English and Illocano) are released to the community and supporting non-government organisations' (Oxfam Australia 2007: 38). Concluding that escaping from the stagnating situation, ejecting no winners, merely can be realised by the initially introduced FPIC as a base for further cooperation.

However the indefeasible character of trans-national companies such as OceanaGold Philippine Inc. cannot be denied but coped with by calling for the legally bound factors influencing decision making in the Philippines, embracing gold mining and indigenous people. If the project is going to be realised, Didipio will be merely a mine site without any social and environmental live. Consequences for the locals will be long-lasting constrains in their lives. The nature will never recover to the standard before mining operation started. An entire ban of the project now, with OGPI leaving right away, can only be stated as efficient if conditions for locals are able reaching adequate living standards including agricultural performance. A compromise of interests will be difficult, due to technical requirements in gold mining which cannot yet be substituted. A compromise which would still include open-pit and tailing dam construction cannot guarantee a life for locals as traditionally known. The conceptualised environmental collective action of the Ifugao and all other affected groups over the world can use its power to make responsible persons understand the great impact of mining on entire natural and social communities. Tribes like the Ifugao do not know mismanagement, such as the 'tragedy of the commons', therefore the mind-altering change has to be done by industry and government. Awareness creation by NGOs is one tool to create a global responsibility, ushering mining operates and economic politicians towards sustainable and aware decision making and social and environmental honest and binding standards and making social and environmental corporate responsibility not shallow. In all conscience, even while accepting economic needs and resource development, the gold and copper mining project cannot be accepted. After introducing HRBA, CSA, and other discussed social decision making tools, the

conclusion leads to OGPI not implementing open-pit mining, but recreating an adequate living surrounding in Didipio. The advantages of the gold and copper mining in Didipio cannot nearly balance, excuse or compensate social and environmental consequences. OGPI should use alternatives of gaining there targets, such as recycling already in use gold and copper quantities. Especially gold, mainly used for jewellery, cannot be identified as essential resource and therefore the benefits of mining of gold cannot excuse any of the mentioned impacts on Didipio.

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7 Appendix

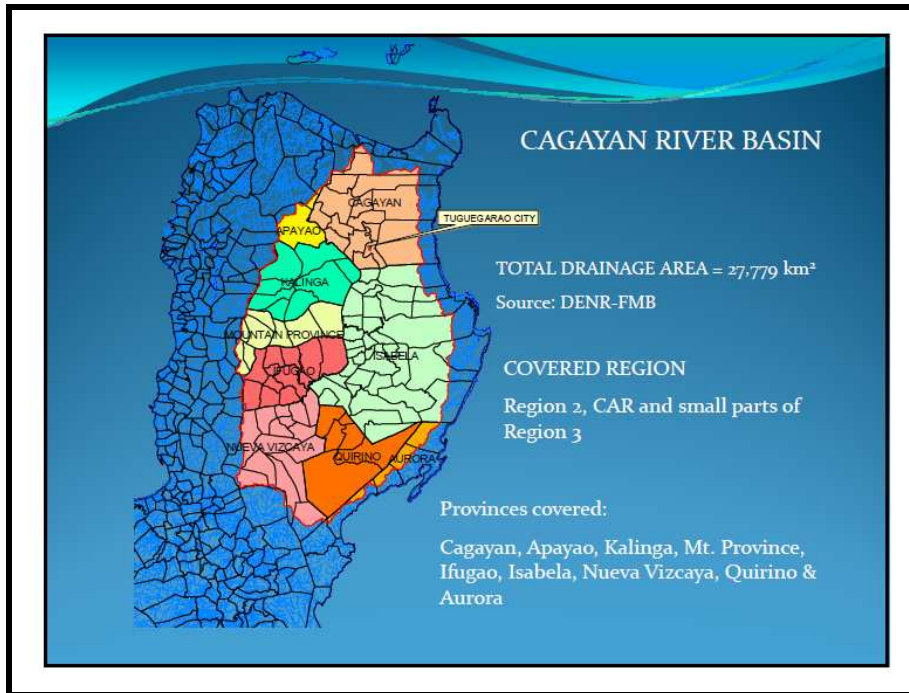


Figure 13: Cagayan Watershed (Source: River Basin Control Office)

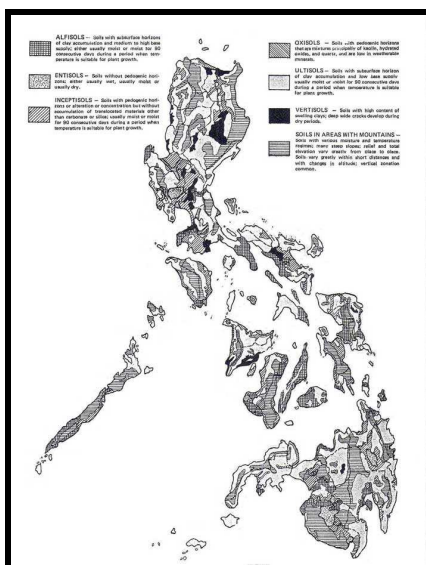


Figure 14: Soils of the Philippines (Source: FAO, Country Profiles)

Questionnaire, Water Conditions in Didipio

This questionnaire wants to collect the everyday habits in water use in Didipio.

Each household is going to be provided with one questionnaire.

This Questionnaire consists of three main parts with subparts.

1 Current Situation

Please answer all following questions according to the current conditions (year 2010/11)

1.1 Family Profile

Family Name	
Head of the Family	
How many people belong to the family? How many male and how many female family members?	
Number of children?	
Occupation of the adult members of the family?	
Income source(s)	
For how long do you and your family live in Didipio?	
Are or were the members of your household involved or contributing politically to life in Didipio? In What form?	

1.2 Farming Profile

Is your household involved in farming?	
How many hectares of land are owned by your household?	
Do you operate farming for purchasing and/or domestic demand?	
How does the agricultural activity contribute to your livelihood?	
How are the tasks and responsibilities shared in your household according to agricultural performance on your land?	
How are the female members financially involved in agricultural activities? Earning and investing money?	
How are the female members of the household involved in agricultural performance? According to water, crop and land. <ul style="list-style-type: none"> • Tasks • Responsibilities • Invested Time per day • Invested time per agricultural activity 	
How much time is required per day to perform agriculture? How many hours for each activity?	
Where is your land exactly located? Will it be affected directly by suggested and planned mining operations?	
How is the area of your land characterised? <ul style="list-style-type: none"> • Water bodies • Slope • Boundaries • Fertility and Soil type 	
What is the land used for? How much of the hectares are used for what purpose? <ul style="list-style-type: none"> ○ Housing, ○ Agricultural use, 	

<ul style="list-style-type: none"> ○ Small scale mining, ○ Other purposes (waste, storage area) and uses. 	
<p>What do you plant and how much of each crop?</p> <ul style="list-style-type: none"> • What amount of each crop contributes to purchase and income regulations of your household? 	
<p>What is your general water source for irrigation?</p> <ul style="list-style-type: none"> • Do you use different water sources? In which extent? 	
<p>How do you irrigate each crop?</p> <ul style="list-style-type: none"> • Rain fed • Furrow • Paddy field • Water basin • Etc 	
<p>Do you vary your irrigation techniques? If yes, why do you do it?</p>	
<p>Do you know specific how much water is being needed for your planted crops?</p>	
<p>How do you harvest?</p> <ul style="list-style-type: none"> • Method and timing • Do you use Circulating planting 	
<p>Do you possess any live stock?</p>	
<p>If yes, how much water is needed for the supply of the live stock every day?</p>	
<p>Where do you get the water from for the live stock?</p>	
<p>How is your live stock being exposed to water? Where does your livestock get the drinking water from?</p>	
<p>How much water does your household approximately require every day for irrigation of farm land and supply for live stock?</p>	
<p>Does your family perform certain indigenous rituals according to farming?</p> <ul style="list-style-type: none"> • Praying • Scarifying • Traditions <p>If so, who is responsible for performing the traditions?</p>	

1.3 Domestic Profile

<p>For what kind of domestic use you need water and in which quantity?</p>	
<p>How much water does your household use every day for cooking?</p>	
<p>How much water does your household use every day for bathing?</p>	
<p>How much water does your household use every day for drinking?</p>	
<p>How much water does your household use every day for washing clothes?</p>	
<p>How much water does your household use every day for irrigation of food according to personal requirements/demand?</p>	

Where do you get your water from for your domestic use?	
How is the water being supplied to your house? <ul style="list-style-type: none"> • Pipes • Well • River 	
Do you have to fetch water for domestic use? Whose responsibility is fetching the water?	
What are gender specific responsibilities and tasks in domestic water use in your household, according to fetching water, washing, cooking, cleaning, drainage etc.?	
How much water does your household approximately require every day for the domestic water demand?	
How much time is required per day according to domestic water related activities? How many hours for each activity?	

1.4 Small Scale Mining Profile

Is your family involved in small scale gold mining?	
Do you possess land as your own property to practise small scale mining?	
How many hours per day are needed to perform small scale mining by male and by female members?	
How many sacks of ore (luyot) does your household mine per day?	
How much water do you use for the small scale mining operations of your family?	
How does small scale mining contribute to your income? In which amount?	
Are female family members involved in small scale mining? What are the specific tasks of female members in small scale mining?	

2 Previous Situation

Now try to go back to 2006 (around five years) and try to answer the questions according to the conditions and facts according to the agricultural status during this time.

2.1 Farming Profile

Was your household involved in farming?	
How many hectares of land were owned by your household in 2006?	
If there is a change compared to today, why do you possess more or less land in comparison?	
Did the land structure and location change during the last five years?	
Did you operate farming for purchasing and/or domestic demand?	
How did the agricultural activity contribute to your livelihood?	
How were the tasks and responsibilities shared in your household according to agricultural performance on your land?	
How were the female members financially involved in agricultural activities? Earning and investing money?	
How were the female members of the household involved in agricultural performance? According to water, crop and land. <ul style="list-style-type: none"> • Tasks • Responsibilities • Invested Time per day • Invested time per agricultural activity 	
How much time was required per day to perform agriculture? How many hours for each activity?	
Where is your land exactly located? Will it be affected directly by suggested and planned mining operations?	
How was the area of your land characterised? <ul style="list-style-type: none"> • Water bodies • Slope • Boundaries • Fertility and Soil type <p>Are their significant changes in the last five years according to your land structure? Do you know the reasons for the change?</p>	
What was your the land used for? How much of the hectares are used for what purpose? <ul style="list-style-type: none"> ○ Housing, ○ Agricultural use, ○ Small scale mining, ○ Other purposes (waste, storage area) and uses. 	
What do you plant and how much of each crop? <ul style="list-style-type: none"> • What amount of each crop contributes to 	

purchase and income regulations of your household?	
What was your general water source for irrigation? <ul style="list-style-type: none"> • Did you use different water sources? In which extent? Why? 	
How did you irrigate each crop? <ul style="list-style-type: none"> • Rain fed • Furrow • Paddy field • Water basin • Etc 	
Did you vary your irrigation techniques? If yes, why do you do it?	
Did you know specific how much water is being needed for your planted crops?	
How did you harvest? <ul style="list-style-type: none"> • Method and timing • Do you use Circulating planting 	
Did you possess any live stock?	
If yes, how much water was needed for the supply of the live stock every day?	
Where did you get the water from for the live stock?	
How was your live stock being exposed to water? Where did your livestock get the drinking water from?	
How much water did your household approximately require every day for irrigation of farm land and supply for live stock?	
Did your family perform certain indigenous rituals according to farming? <ul style="list-style-type: none"> • Praying • Scarifying • Traditions If so, who is responsible for performing the traditions?	

2.2 Domestic Profile

For what kind of domestic use did you need water and in which quantity?	
How much water did your household use every day for cooking?	
How much water did your household use every day for bathing?	
How much water did your household use every day for drinking?	
How much water did your household use every day for washing clothes?	
How much water did your household use every day for irrigation of food according to personal requirements/demand?	
Where did you get your water from for your domestic use?	
How was the water being supplied to your house? <ul style="list-style-type: none"> • Pipes • Well 	

• River	
Did you have to fetch water for domestic use? Whose responsibility is fetching the water?	
What were gender specific responsibilities and tasks in domestic water use in your household, according to fetching water, washing, cooking, cleaning, drainage etc.?	
How much water did your household approximately require every day for the domestic water demand?	
How much time was required per day according to domestic water related activities? How many hours for each activity?	

2.3 Small Scale Mining Profile

Is your family involved in small scale gold mining?	
Do you possess land as your own property to practice small scale mining?	
How many hours per day are needed to perform small scale mining by male and by female members?	
How many sacks of ore (luyot) does your household mine per day?	
How much water do you use for the small scale mining operations of your family?	
How does small scale mining contribute to your income? In which amount?	
Are female family members involved in small scale mining? What are the specific tasks of female members in small scale mining?	

3 Perception of Change Profile

Additional Questions according to general well being.

How did your everyday life changed during the last five years?	
<ul style="list-style-type: none"> • Freedom of movement 	
<ul style="list-style-type: none"> • Income opportunities 	
<ul style="list-style-type: none"> • Safety conditions 	
<ul style="list-style-type: none"> • Health conditions 	
<ul style="list-style-type: none"> • Others 	
<p>Did you observe changes in the water conditions in Didipio region?</p> <ul style="list-style-type: none"> • Groundwater and surface water • Quantity and quality • Accessibility to water bodies • Flowing regime and structure of water bodies 	
<p>Can you name personally felt impacts on your personal live by OceanaGold?</p> <ul style="list-style-type: none"> • Direct: Physical violations, House destruction, etc • Indirect: change in living conditions: Work performance, freedom of movement... 	
<p>How did the social situation change in Didipio according to</p> <ul style="list-style-type: none"> • Health • Food • Freedom of movement and speech • Peaceful living • Employment • Future security • Livelihood conditions • Family structure 	
How did the general situation of women in Didipio and region change during the last five years in your personal perception?	