

## **ECO-AGROFORESTRY BUSINESS MADE BY COLLABORATION OF PT BUMN HIJAU LESTARI I AND ITS MITER FARMERS**

Muhammad Arief Budiman, Nur Syamsiah, and Pandi Pardian,

Faperta Universitas Padjadjaran, Jl Raya Sumedang KM.21, Bandung, Indonesia

email: [muhammad@unpad.ac.id](mailto:muhammad@unpad.ac.id)

### **Abstract**

Specially for Java and Bali, Citarum river stripe watering has an important role for Indonesian life's communities. However, along with the high population pressure and demand for natural resources continues to increase, the level of pollution and environmental degradation in the watershed is increasing too. That requires prevention efforts as early as possible. One effort to rehabilitate it is by eco-business agro-forestry. PT. BUMN Hijau Lestari I is one of the companies engaged in the greening of the environment (eco-business) based agro-forestry and cooperatives. The company is developing and helping local farmers to improve the welfare of farmers as well as to prevention of environmental damage occurring in the upper Citarum Watershed. The purpose of this study was to determine how the strategy of the company, find an alternative development strategy and knowing what benefits could be obtained by partner farmers. The study was conducted in the Cimaung District, Bandung Regency, West Java, which is one of the built area of PT. BUMN Hijau Lestari I which is located in areas along the Cisangkuy sub-watershed. Cimaung farmers are partners in representative district and have managed to harvest the coffee from their agro-forestry that has been running for 3 years. The design used are qualitative and quantitative with case studies methods by using an I-E analysis, SWOT analysis and QSPM for determining alternative development strategy of the company. Informant determination is done purposively. Data analysis shows that the company is using strategy with the seven principles of agro-forestry and cooperative. The results obtained score weighting environmental analysis of internal factors 2.949 and 3.077 external factor score weights. This indicates that the company is in cell II, which is growing and developing. So, the alternative strategies can be applied that based on the SWOT matrix and QSPM are expanded work area, maintaining quality of products / services to attract the public, improve marketing and promotional activities, maintain cooperation with partner farmers and improve the quality and the quantity of their human resources.

**Keywords:** eco-agroforestry, miter farmer, watering, strategy, collaboration

### **BACKGROUND**

It is along with necessary and population pressures height about increasingly natural resources, mainly land necessary either as an agriculture or settlement lands, those have impacted on pollution and ecosystem damage level higher is occurred at upper Citarum DAS.

Based on upper Citarum study result (2002) at Wikarta (2001), land erosion height at Upper Citarum DAS has caused pollution burden for lower and upper areas. Lost land is height at Upper Citarum DAS about 127-351 ton/ha/year with average is reached about 205 ton/ha/year per Sub-DAS.

It was narrowing forest acreage as a water reserve and absorption areas were one of main causes ecosystem damage is occurred as long as Upper Citarum DAS. Forest acreage decreased would be caused water availability unbalance. In basically, water availability is determined by interaction among climates, rain falls, and land contours through water flowing. Water availability in West Java at raining season is reached about 81.4 milyards m<sup>3</sup>/year, while at dry season is 8.1 milyards m<sup>3</sup>/year. It has potential to cause flooding at rain season and is lack water at dry season (BPLHD, 2008). Critical land wide at Upper Citarum Das is reached 52.527,706 ha or 42% from wide critical land total at DAS (table.1)

Table 1. Wide Critical Land DAS Citarum in 2007/2008

District	Land category (ha)					Total (ha)
	Production Non-forest Cons.	Conservation Forest	Forest for Protection	Forest for Production	Forest non protection	
<b>Bandung</b>	<b>14.432,70</b>	<b>18.481,80</b>	<b>18.461,90</b>	<b>90,50</b>	<b>16.506,00</b>	<b>67.972,90</b>
Bekasi	335,20	-	8.217,80	-	12,00	8.565,00
Bogor	1.547,40	9,50	10.618,50	364,80	1.917,10	14.457,30
Cianjur	9.118,50	388,70	7.299,60	4.300,00	7.921,70	29.028,50
Karawang	1.649,90	5,70	9.492,00	627,60	784,10	12.559,30
<b>Kota Bandung</b>	<b>426,20</b>	<b>16,20</b>	-	-	<b>24,90</b>	<b>467,30</b>
<b>Kota Cimahi</b>	<b>577,00</b>	-	-	-	-	<b>577,00</b>
Purwakarta	2.453,40	-	1.714,70	485,00	2.763,40	7.416,50
<b>Total</b>	<b>30.540,30</b>	<b>18.901,90</b>	<b>55.804,50</b>	<b>5.867,90</b>	<b>29.929,20</b>	<b>141.043,80</b>

There is some efforts could be carried out to overcome the environment issue for Upper Citarum DAS. One of steps can be carried out toward environment issue at Upper Citarum DAS is by through agro-forestry eco-business development. Agro-forestry land using pattern and system can be given great benefit for environment, like as it can be decreased as population pressure toward forest, efficient air cycle, to decrease both surface flowing rate and erosion. Agro-forestry is having also great enough benefit for people either it is seen from social and economic sides, that are farmer productivity increasing, diversity increasing or component combination, product stability increasing and also farmer autonomy increasing. It is expected that by using this system it can be decreased a critical land numbers at upper Citarum DAS and also is given economic value for people. On this system the people cannot be contributed only in environment conservation, but also be obtained that agro-forestry crop so that it is able to increase farmer income.

One company is doing tree planting activity through agro-forestry system, specially existing at Upper Citarum DAS area is PT. Bakti Usaha Menanam Nusantara Hijau Lestari I (PT. BUMN Hijau Lestari I). This company is joint venture of the 5 bigs BUMN (state-owned corporation) in Indonesia where it is founded to manage Social Responsibility activities of that five BUMNs, that are Perum Perhutani, PT. Perkebunan Nusantara VIII (Persero), Perum Jasa Tirta II, PT. Pupuk Kujang, PT. Sang Hyang Seri (Limited). It is not that five BUMNS only, now PT. BUMN Hijau Lestari I has been made partnership[ with some parties and other company which is doing company social responsibility such as reforestation activity, mainly tree is planting with agro-forestry system.

PT. BUMN Hijau Lestari I is not just doing tree planting only but also has moved on eco-business field in agro-forestry base using partner farmer empowerment approaches. Empowerment approaches were doing to build people autonomy in order to an activity can be carried out in sustainability way for their self welfare. This company is doing critical land reforestation and tree planting applying empowerment principle where a farmer who cooperation in planting activity not given facility and capital aid only, but also it is continued

to develop and train and to control in order to program has run in according to goal. Farmer who cooperation with PT. BUMN Hijau Lestari I has called as work partner or partner farmer.

At Sub-DAS Cisangkuy, Upper Citarum DAS, there is 16 villages in 6 sub-districts have built by PT. BUMN Hijau Lestari I. Each village is having Work Partner Group that having. Those farmers have built and empowered to develop agro-forestry eco-business with PT. BUMN Hijau Lestari I. It is expected that by this agro-forestry eco-business program available could be given benefit for Upper Citarum DAS ecology environment or to make local and people autonomy for increase their welfare.

It is based on above explain, an author is interested to do a research about PT. BUMN Hijau Lestari I Agro-forestry Eco-business development Strategy is one solution to overcome environment damage occurred at upper Citarum DAS, specially at Cisangkuy Sub-DAS Cisangkuy, that is through partner farmer empowerment.

This research in basically would be reviewed about strategy has been carried out by PT. BUMN Hijau Lestari I to develop agro-forestry eco-business through partner farmer empowerment, to know its development strategy and also to know an obtained benefit by farmer from that agro-forestry eco-business activity.

## METHODS

Research design would be did on this research is quantitative and qualitative descriptive using case study technique. It is also did using structured interview guidance has purposed to know about PT. BUMN Hijau Lestari I agro-forestry eco-business strategy, and also to know an obtained benefit from that agro-forestry eco-business development for its built farmer.

It is used data like as primary data and secondary data. This research data source or informant is taken purposively. Purposive sampling is data source sampling technique with certain considering. (Sugiyono, 2009).

Table.2 Research data informant

No	Description	Total (person)
1.	Manager Board	1
2.	Human Resource Manager	1
3.	Vice Manager on Planning and Business Development	1
4.	Staff on Planning and Business Development	2
5.	Representatife of Coeoperative	1
6.	Farmer	8
<b>Total</b>		<b>14</b>

This research analysis plan is processed qualitatively and quantitatively. To analyze a company strategy is applied and its benefit used qualitative descriptive analysis. To determine agro-forestry eco-business development strategy is analyzed use IFE (Internal Factors Evaluation) and EFE (Eksternal Factors Evaluation) matrices have processed using I-E (Internal-External) matrix. Then it is used SWOT and QSPM (Quantitative Strategic Planning Matriks) analysis.

## RESULT AND DISCUSSION

### Natural Resources Potential

It is plantation plant commodity available at Cimaung sub-district is coffee and clove. Both those commodities are main trading commodity at this sub-district. The clove plant total numbers in Cimaung sub-district is 228 trees, while coffee plant total number is 8700.

Table.3 Plantation Crops/ Commodity to consume

No	Crops	Number of tree (unit)			Number of production(ton)
		Immature	Mature	Non-productive	
1.	Clove	69	150	9	9
2.	Coffee	5.000	3.700	-	4

Source: Cimaung in Figures 2011

### Human Resources Potential

Cimaung sub-district population number is 72.959 persons consisting of 37.108 males and 35.851 females. Family head number 21.856 Family Head. It is based on counting result, Cimaung sub-district population density in year 2011 is 18 person/km<sup>2</sup>, its mean that in every 1 km<sup>2</sup> is obtained 18 person in average, so that population density in Cimaung sub-district can be said rare. This is caused much Cimaung sub-district area is rice cultivation land and hills/mountain ranges that still potential for worked on.

*Sex ratio* is comparison about male number and female number at certain place. It is based on counting result, Cimaung sub-district sex ratio rate in 2011 is 104. It is meant that every 100 females inhabitant, there is 104 mans inhabitant. So that it can be said male labors in Cimaung sub-district much more than female labors.

### PT. BUMN Hijau Lestari I General Condition

PT. BUMN Hijau Lestari is moved company on eco-business field in agro-forestry and cooperative bases with business brand APPEL (Water, Food, woof, energy and environment). This company is doing forestation activity through tree planting at critical lands in Indonesia that is at Citarum DAS, Cimanuk DAS and Ciliwung DAS. PT. BUMN Hijau Lestari I is first company applying eco-business model in agro-forestry and cooperative bases, is empowerment model to increase that community welfare, not just doing planting and giving fund aid only.

PT. BUMN Hijau Lestari I is located at 107 Ir. H. Juanda Street (Dago), West Java. Company operational activity is focused at Dago Office has rented from PT. Perkebunan Nusantara VIII. While it field operational activity, company is having Communication and Information Saung Sarana (SASIKOM) offices at each work area that is Banjaran, Arjasari and West Bandung. SASIKOM has been functioned as site to do direct technical activity at field and also as communication and information infrastructure for company and Work Partner Group (WPG).

### PT. BUMN Hijau Lestari I Agro-forestry Eco-business Strategy

PT. BUMN Hijau Lestari I has been done 7 wok steps or work principles to develop agro-forestry eco-business. Those seven steps are: Rebah Tuntas (Bottom Plan, Top Demand), Agro-forestry, Pinter (Continuing Building) and, Cooperative. Productive Business, Profit Sharing, and Rounded Fund, as well as Production and Operational.

### Company External Environment Analysis

#### Economic

PT. BHL I is a company in agro-forestry business field based on environment (eco-business) as one of sustainability business forms that become world main issue at the present.

#### Technology

Technology change can be given either an opportunity or threat for company position. If a company can be used technology then company can be competed and increase its sale yield,

but if company cannot be followed technology change, then company would be left behind by epoch and others competition. In this globalization era, it is habit to use very much so fast internet service or online and practical is more developed. PT. BHL I has been used internet medium for its service and product marketing, or to draw partners for cooperation. Website has had by PT. BHL I is [www.bumnhijau.com](http://www.bumnhijau.com).

### **Social-Culture**

Environment and global warming issues glowing more change world people mind set even Indonesia at the present. Now days, people is more care toward environment conservation and has more interested on body health. So that it is occurred community consumption expenditure pattern change. Community is tended first to pay attention how is that product impact for health and environment.

### **Political**

At the present, there is planting issuing program for 1 Milliard trees carried out by Forestry Department has been run since year 2010. This program is very supported by at that time President of RI, that is Mr. Susilo Bambang Yodhoyono. Through President Decree Number 24 Year 2008, Government has been determined date 28 November as a Indonesian Tree Plant Day. Beside that program, there is also others tree planting movement and program such as One Man One Tree program that also has been conducted by Forestry Ministry since year 2009.

### **Competition**

At the present, there is no much company that moved in eco-business field. One company is also moved in this eco-business field is PT. BUMN (Badan Usaha Menanam Nusantara) Hijau Lestari II. PT. BHL II is having different work area coverage with PT. BHL I that is Brantas DAS and Bengawan Solo DAS (River flowing Area). Nevertheless PT. BHL II is also doing promotion and proposal submission for company to be partner or funder from PT. BHL I. There are also some institutions and instances to do tree planting activity and cooperation with other company to manage Company Social Responsibility (CSR), one popular is *Green Radio*. *Green Radio* (PT. Suara Melin Perdana) is having Tree Adoption Program at 7000 hectare of Gede Pangrango mountain National Park acreage. For every price of itself tree is Rp 108.000 per tree, while price offering from itself PT. BHL I is Rp. 56.023 only per tree.

### **Demand**

An agro-forestry eco-business demand or consumer by PT. BHL I is interested instance in tree planting field, mainly in agro-forestry pattern and empowerment or is called as business partner. PT. BHL I has made responsibility the plant growing percentage about 90% where growing percentage BUMN Ministry certainty is 60 % only. Government policy for 1 million planting in year can be carried out by PT. BHL I where PT. BHL I in year can be plant about 2.500 ha critical land, and every hectare that land has planted on 400 trees, so that plant total can be planted on by PT. BHL I is 1 million tree (fulfill tree planter demand). It is PT. BHL I superiority because it planting performance can be more targeted than should be, so work partner is braved for cooperation with this company.

### **Farmer**

Farmer is a supplier to prepare needed input by company, beside it a farmer is also as a agro-forestry eco-business work partner with PT. BHL I and is having in raw material supporting activity and it can be had role as supplier all at once, like as seed supplier farmer, compost and organic fertilizers supplier farmer, and others infrastructure for rice production supplier farmer. Each party has right and each obligation has written in Cooperation Agreement legalized by public notary. Each party right and obligation has been formulated together in PRE activity has carried out before program implementation. Cooperation period is 10 years or one time plant life cycle, where if they are wont to decide of cooperation they must be through deliberation. Beside it is supplied from self-partner farmer, it is also obtained infrastructure for rice production from outer party such as seeding in Ciwidey and Garut. It is

caused partner farmer is still not able yet to fulfill all required input necessities, but for further it is hoped all necessities would be obtained from self-partner farmer. Therefore, PT. BHL I continue to build partner farmers.

#### **Internal-External Factor Evaluation Analysis**

Internal-External Factor Evaluation Analysis is used tool to evaluate and formulate internal environment factor or company key external. IFE Matrix has formulated company main weakness and strength, while EFE matrix has formulated opportunity and threat from a company. Both IFE and EFE matrices have formulated company strategic giving weight and rating for known internal factor based carried out additional weight by company side and company outer expert side who understood about agro-forestry and environment, then it is known weight score numbers each factors. That additional weight result is used in IFE matrix and EFE matrix counting.

External environment analysis as PT. BHL I EFE matrix can be known that most influence opportunity company operation is community truth toward increasingly program, that is with weight score 0,324. Other key opportunity factor that is policy available about environment protection, sustainability economic (*green economic*) and forest reforestation, with weight score 0,316. Company main threat is depend on funder policy, with weight score 0,258. Government commitment is less toward program running is also main threat factor for company with weight score 0,246.

#### **Internal-External (I-E) Matrix Analysis**

Internal-Exsternal matrix can be helped to know more detail company position. I-E matrix based on weight score total value from IFE and EFE matrices. It is based IFE and EFE matrices evaluation result, so it is obtained internal factor weight score that is 2,941 and external factor weight score is 3,071. Those are shown that from internal side a company already in middle/average position, while from external side a company already in high position, that is already at its I-E matrix cell II.

David Fred R (2005) has been explained that cell II is shown that company already at growth and develop position. It is meant that strategy to its self company growth and development is needed (*growth strategy*). Following Rangkuti (2002), *growth strategy* is designed for growth reach, either in sale, asset, or profit. Strategy can be carried out if company already at cell II is doing horizontal integration and intensive strategies. *tensif dan strategi integrasi horizontal*. Intensive strategy can be carried out by market penetration, market and product expansions. Market penetration can be done by increase a market share through much more marketing activity. Market expansion can be done by introduce at the present company product into new area. Product development can be done with looking for sale increase by improving already product. Horizontal integration strategy is strategy for expanded company work area by build at other location and to increase a service/product kind of. Strategy can be done among them is market expanded market, technology and production facilities through company external or internal developments.

It is based on QSPM analysis result, then firstly priority strategy has to do by company is expanding work area. To expand work area or is often called horizontal integration strategy has purposed to increase a company profit, either through production increasing or profit. Based on QSPM analysis result this strategy is having highest TAS (*Total Attractiveness Score*) value that is 6,069.

Second alternative strategy is maintained service/product quality to make community attractive. Following is strategy alternative priority series can be did by PT. BUMN Hijau Lestari I on QSPM analysis result base:

- 1) *Strategy 2* : to expand work area (TAS = 6,069)
- 2) *Strategy 1* : to maintain product/service quality to make community attractive (TAS = 5,513)
- 3) *Strategy 4* : to increase promotion and marketing activities (TAS = 5,451)
- 4) *Strategy 3*: to maintain cooperation with partner farmer (TAS = 4,876)
- 5) *Strategy 5*: to increase quality (management & *skill*) and SDM quantity (TAS = 4,463)

## **Benefit Analysis for Partner Farmer**

### **Social Benefit**

It is based on reaserch result known that 3 respondents (37,5 %) are recognized not understood yet meaning and purpose of partner farmer empowerment carried out by PT. BHL I. They are considered that this agro-forestry planting program is just like as giving fund aid only, not actually empowerment. Nevertheless, all respondents have recognized that given training by PT. BHL I provide positive impact for them, that is insight about good agro-forestry cultivation method and technique increasingly.

Respondent contribution level is high enough in performed activity by PT. BHL I, where 87.5 % respondent has followed activity and training given by BHL. One respondent has recognized that never follow training because age factor, so cannot be traveled too far. Respondents feel helped and their knowledge has increase if follow this PT. BHL I activity. Some knowledge and skill given by PT. BHL I have been direct practiced by that partner farmer, like as coffee and sugar palm cultivation techniques, compost fertilizer making, road map making and cooperative management.

From organizing side, 25 % respondent is still less understood about formed cooperative institutional function and presence in organize partner farmer frame wit company it is just partner farmer only to be cooperative management only that understood about cooperative. It is seen from farmer strength development side, five from respondents (62.5 %) have recognized engage in decision-making activity, such as engaged in meeting and knowledge. 50 % respondent is also recognized unable to take decision in activity. Wholly, partner farmer empowered by PT. BHL I can be said success, because some empowerment principles has been successes felt by respondents. Benefit can be felt by respondent is presence as forcefulness, autonomy and capability increasing of partner farmers like as skill and knowledge increasingly. Other social benefit is felt by all respondents is strong friendship presence among farmer partner so that have new family sense of belonging by partnership with PT.BHL I.

### **Economic benefit**

From economic side, all respondents have said that is not occurred yet cultivation income increasing at the present. It is tolerated by respondents, because this agro-forestry planting program is still new and they are very expected 2 years ahead income increasing would be seen really. Respondent has felt very helped in their cultivation capital access where PT. BHL I has given capital aid such as cultivation capital is given, that is planting cost: Rp1.800 per tree, maintain cost: Rp 1.100,- per tree and embroidering cost: Rp.1300,- per tree. These costs are paid into partner farmer after that activities has completed, that is three times a year (in according to cultivation cost requirement).

Partner farmer is also obtained infra- and supra-structure aid and cultivation crop marketing access of PT. BHL I. If partner farmer has been cropped their production then PT. BHL I through cooperative would be collected that product and sale it into business partner who has made contract with PT.BHL I. It is recognized by respondens very benefit, that is by presence as production crop sale access often to be main problem for farmers.

## **CONCLUSION**

Strategy has carried out by PT. BUMN Hijau Lestari I that is by cooperative and agro-forestry approaches. This strategy consisting of 7 work principles, that are Rebah Tuntas (Bottom Plan, Top Demand), Agro-forestry, Pinter (Continuing building), Cooperative, Productive Business, Profit Sharing and Rounded Fund and SMEP (Supervision, Monitoring, Evaluating and Reporting).

There are three alternative strategies applied by PT. BUMN Hijau Lestari I to develop agro-forestry eco-business on internal-external environment factor analysis result, SWOT

and QSPM base are horizontal integration and intensive strategy, that is to expand work area, to maintain service/product quality to make community attractive and (3) to increase promotion and marketing activity. Priority strategy from those three strategies is expanding work area, with attractive value total is 6,069.

Benefit is obtained by partner farmer through agro-forestry eco-business with PT. BUMN Hijau Lestari I at the present; among them from social side are presence friendship, forcefulness and autonomy (as a benefit from partner farmer empowerment). From economic side, obtained benefit by partner farmer is presence a marketing and capital access, while income increasing cannot be measured yet at the present because this program is still three years in run (not productive yet).

## REFERENCES

- BPLHD. 2008. Buku Status Lingkungan Tahunan/Aser. Melalui <http://www.scribd.com/>. [5/01/12].
- Dinas Kehutanan Provinsi Jawa Barat. 2008. Luas Lahan Kritis DAS Citarum. Melalui <http://dishut.jabarprov.go.id>. [05/01/2012].
- Djajadiningrat, dkk. 2011. Ekonomi Hijau. Bandung: Rekayasa Sains.
- Hairiah, K., Sardjono M.A., Sabarnurdi, S., 2003. Pengantar Agroforestri. Bahan Ajaran Agroforestry 1. World Agroforestry Centre (ICRAF). Bogor. Indonesia
- Hill, Charles W.J. and Jones, Garet R. 2001. Strategic Management Theory, An Integrated Approach Fifth Edition. New York: Houghton Mifflin Company.
- Hunger, J. David dan Wheelen, Thomas L. 2001. Manajemen Strategis. Yogyakarta : ANDI.
- Huxley, P.A. 1999. Tropical Agroforestry. London: Blackwell Science Ltd.
- Indriatmoko, dkk. 2004. Evaluasi Lingkungan Air Tanah di DAS Citarum. Melalui [www.ejurnal.bppt.go.id/](http://www.ejurnal.bppt.go.id/). [05/01/2012].
- Kartasasmita, Ginandjar. 1997. Pemberdayaan Masyarakat: Konsep Pembangunan Yang Berakar pada Masyarakat. Melalui [www.ginandjar.com/](http://www.ginandjar.com/). [21/01/12].
- Kotler. P. 1997. Manajemen Pemasaran: Analisa, Perencanaan, Implikasi dan Kontrol, Jilid I. Jakarta: PT Prenhallindo,
- Mahendra, Fidi. 2009. Sistem Agroforestri dan Aplikasinya. Yogyakarta: Graha Ilmu.
- Owen, Anthony D. 2004. Environmental Externalities, Market Distortions and The Economics of Renewable Energy Technologies. *The Energy Journal*, Vol.25, No. 3.
- Rangkuti, Freddy. 2006. Analisis SWOT Teknik Membedah Kasus Bisnis. Jakarta: PT. Gramedia Pustaka Utama.
- Soemarwoto, Otto. 1989. Ekologi Lingkungan Hidup dan Pembangunan. Jakarta: Djambatan.
- Wikarta, E. Kusnadi, Tuhpahwana P. Sendjaja, Yayat Dhahiyat, Abdul Rodjak. 2010. Eksternalitas Pencemaran Sumber Daya Air. Bandung: Unpad Press.
- Wikarta, E. Kusnadi. 2011. Dampak Pencemaran Sumber Daya Air Terhadap Aktivitas Ekonomi akuakultur di Waduk Saguling Daerah Aliran Sungai Citarum Provinsi Jawa Barat Indonesia. Disertasi Program Doktor Ilmu Pertanian Program Pascasarjana Universitas Padjadjaran.