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Review on Environmental Management System of CA and TWA Telaga Warna

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PREFACE

Pusat Penelitian Lingkungan Hidup - Institut *Pertanian Bogor* (PPLH-IPB) [Center for Environmental Research - Institut Pertanian Bogor (CER-IPB)]was established in 1976. One of the Center's goal is to develop policies and concepts for natural resources and environmental management based on ecosystem characteristics, community participation, local community tradition, economic justice, and global environmental change.

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Finally, we hope this publication will be valuable and beneficial for those who have interest in Indonesia's natural resource and environmental management.

September 2009,

Kukuh Murtilaksono

Director

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Review on Environmental Management System of CA and TWA Telaga Warna

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ABSTRACT

The implementation of an environmental management system (EMS) is intended to result in improved environmental performance. The objective of this research was to examine how far EMS of Management on CA and TWA of Telaga Warna in Bogor able to increase environmental performance. The study of EMS in this research used the EMS ISO 14001 standard, and was focused only on certain management elements considered relevant to the activities of CA and TWA Telaga Warna. The environmental policy on CA and TWA Telaga Warna has been set-up, and top management, in this case BKSDA and UKSDA, on behalf of the government had committed to environmental improvement. Although the legislation had already been set-up, howver, the condition had not fully guaranteed the implementation of the environmental policy and the achievement of the objectives and targets. However, the procedure for the identification of the environmental aspects had been prepared in the form of regulation for CA and TWA Telaga Warna. The existing EMS has not been fully complied with the international standard (EMS ISO 14001). however, several elements of environmental management have been implemented to improve the environmental performance.

Keywords: environmental aspects, environmental management system, environmental *performances, telaga warna.*

1. INTRODUCTION

1.1. Background

With the larger number in population and the more advanced development in technology, the nature's balance between biological (flora and fauna) and non-biological elements is becoming more urgent need that has to be considered and conserved. Started from the condition and understanding of the importance of the balance, the government appoints and establishes some areas of conservations having still relatively sound forests with protected flora and fauna, realm of nature in the forms of water falls, lakes, upstream of big rivers, mountains and hills, etc.

The establishment of the conservation area refers to certain criteria. In the area of West-Java Province, there are 52 locations appointed by the government as conservation areas with a total area of 118,392 ha, consisted of 1,710 ha marine waters and 116,682 ha forest areas or around 14.89% of the forest area in West-Java Province. Based on the Undang-Undang *No.5 tahun* 1990, the conservation areas consist of Kawasan *Suaka Alam* (wildlife reservation), Kawasan *Pelestarian Alam* (nature conservation area like national park, natural tourism park, jungle park) and hunting area.

One of the Cagar *Alam* (CA) and *Taman Wisata Alam* (TWA) located in Kabupaten *Bogor* is CA and TWA Telaga Warna. This conservation area is under the management of *Koordinator* Konservasi *Wilayah* (KKWJ *II Bogor* and under the supervision of *Balai* Konservasi Surnberdaya Alam *(BKSDA)*.

The area of the CA Telaga Warna is around 368.25 ha while the *TWA* Telaga Warna is around 5 ha. The area is located at Desa *Tugu, Kecamatan* Cisarua, Kabupaten *Bogor*. The uniqueness of this *TWA* and CA is that it has hilly forest and a lake in the middle. Other natural potential owned is flora like *puspa* (Schima *wallichi*), *saninten* (Castanopsis argentea), *liana, epipit* and others. Fauna exists in this CA Telaga Warna is *tekukur* (Streptopeliachinensis), puyuh (*Turnix suscitator*), kadanca (*Ducula* sp.), walet (*Collocalia* maxima) and others (Anonymous, 2002). Prospect of utilization of *TWA* and CA Telaga Warna is as the support for agricultural cultivation, especially those of walet birds and medicinal plants as well as natural tourism area.

Management on an area that has the implication on the improvement of environmental performance requires standard method especially in its management system. Environmental Management System (EMS) is a part of the whole management system that includes structures, plan of activity, program, responsibility, procedure, accomplishment/ application, achievement, review and protection to environmental policy of organization. The advantages of EMS application is management system structure that focused in continual improvement, attention to environmental issues and plan development, work plan in long term, and to improve understanding and responsibility interpersonal about impact that produced from environment.

The implementation of an EMS is intended to result in improved environmental performance. In case of Management of CA and TWA of Telaga Warna in *Bogor*, the organization could periodically review and evaluate its EMS to identify opportunities for improvement and their implementation. However, if the organization does not have any existing EMS, they could initially establish its current position with regard to the environment by means of a review. The aim of the review is to consider all environmental aspects of the organization as a basis for establishing the EMS. The organization could identify significant environmental impacts and aspects, set-up and achievement of the objectives and targets, and consistency in regulation compliance. To know the effectiveness of the implementation of EMS of CA and TWA of Telaga Warna in *Bogor* in increasing environmental performance, it needs a holistic management review

1.2. Objectives of the Research

The objective of this research was to examine how far EMS of Management on CA and TWA of Telaga Warna in Bogor able to increase environmental performance.

The expected result of this research was an evaluation of its EMS to identify the opportunities for improvement and their implementation.

2. RESEARCH METHODOLOGY

This research was conducted in July through December, 2006, by means of secondary data collection and descriptive analysis. Tools and methods for undertaking the review include checklists, conduct of interviews, direct inspection and measurement, results of previous audits or other reviews, depending on the nature of the activities.

In this study, the indicator used to measure EMS performance was effectiveness. The effectiveness was assumed as an indicator to measure how far the effectiveness of EMS in solving environmental problems involving activities, product, and services of CA and TWA of Telaga Warna in Bogor. To measure that indicator, the management review focused on principal examination and corrective action, i.e., the element of monitoring and measurement, nonconformance's, corrective and preventive actions, records and EMS audit.

Environmental performance was the performance of EMS implementation by management that involved with environmental policy, management of environmental aspects and environmental objectives and targets of an organization.

The bottom line in examining the effectiveness of EMS was in management review, as shown in Figure 1. Management review was a place and evaluation tools at management level in evaluating EMS performance. The management review covered the scope of the EMS, although not all elements of the EMS needed to be reviewed at once and the review process might take place over a period of time.

The study of EMS in this research used the EMS ISO 14001 standard, and was focused only on certain management elements considered relevant to the activities of CA and TWA Telaga Warna. The International Standard contains only those requirements that can be objectively audited. The standard does not establish absolute requirements for environmental performance beyond the commitments, in the environmental policy, to comply with applicable legal requirements and with other requirements to which the organization subscribes, to prevention of pollution and to continual improvement.

3. RESULTS AND DISCUSSION

3.1. Environmental Policy

Management of an organization has the responsibility to proof the capability of the organization in complying with the legislation through environmental policy and field implementation. Commitment of top management in the practice of environmental watch is stated in an environmental policy signed by the top executive of the organization and covers the vision of the organization about environment and continuous commitment on improvement (Oliveira, 1996 in Wulandari *et al,* 2002). The environmental policy has to be specific to form real action basis, not only a slogan. It has to be implemented, maintained and communicated to all parts of the organization and available for public.

In the EMS ISO 14001 (Technical Committee ISO/TC 207/SC1, 2004), it is stated that top management shall define the organization's environmental policy and ensure that, within the defined scope of its environmental management system, it:

1. is appropriate to the nature, scale and environmental impacts of its activities, products and services,
2. includes a commitment to continual improvement and prevention of pollution,
3. includes a commitment to comply with applicable legal requirements and with other requirements to which the organization subscribes which relate to its environmental aspects,
4. provides the framework for setting and reviewing environmental objectives and targets,
5. is documented, implemented and maintained,
6. is communicated to all persons working for or on behalf of the organization, and
7. is available to the public.

The environmental policy on CA and TWA Telaga Warna has been set-up, at least it contains the objectives of the management and outlines that support the efforts in protection, reservation and utilization of the area. The result of the study on the environmental policy showed that top management, in this case BKSDA and UKSDA, on behalf of the government had committed to environmental improvement, as contained in the Article 1 points 10 and 16 of the Undang-undang Nomor *5* Tahun *1990,* and Articles 53 and 8 of the *Peraturan Pemerintah* Nomor 68 *Tahun 1998* (Anonymous, 2002). However, the fact in the real world showed that several things had not been just right, particularly those related to the availability of information to public about the regulation (Anonymous, 2005).

3.2. Legal and Other Requirements

It is stated in the standard that the organization shall establish, implement and maintain a procedure(s) to identify and have access to the applicable legal requirements and other requirements to which the organization subscribes related to its environmental aspects. The legislation related to the conservation area is (see Glossary):

1. Undang-Undang *No.5 Tahun* 1990 *(UU* no **5** tahun 1990) *tentang* Konservasi Sumber Daya Alam *Hayati dan* Ekosistemnya,
2. Undang-Undang No.41 tahun 1999 *(UU* no 41 tahun *1999) tentang* Kehutanan,
3. Peraturan *Pemerintah* No.68 tahun *1998* (PP No.68 tahun 1998) *tentang* Kawasan Suaka *Alam* dan Kawasan *Pelestarian* Alam,
4. *Peraturan* Pemerintah No.18 tahun 1994 (PP No.18 tahun 1994) *tentang* Pengusahaan *Pariwasata Alam di* Zona *Pemanfaatan Taman* Nasional, *Taman Hutan* Raya, *dan Taman* Wisata Alam, serta
5. *Peraturan* Daerah *(Perda) Propinsi.*

Some regulations related to the establishment and management of KWA and CA Telaga Warna consist of (see Glossary):

1. Keputusan Menten' *Pertanian No.394/Kpts/Um/6/1*979 tentang *Penunjukan* Sebagian Kawasan *Hutan* yang *terletak di daerah Bogor dan Cianjur, Provinsi* Jawa *Barat* sebagai *Hutan* Suaka *Alam cq* Cagar *Alam* menggabungkannya *menjadi* satu *dengan* Cagar Alam Telaga Wama,
2. Keputusan *Menteri Pertanian* No.48*1/Kpts/Um/6/*1981 *dan* Keputusan *Dirjen Perlindungan Hutan dan Pelestarian Alam* Nomor *77/Kpts/Dj-VI/*1992 *tentang Tata Cara* Pengenaan. *Pemungutan,* Penyetoran, *dan Penatausahaan Pungutan* Masuk ke *Hutan* Wisata, *Taman* Nasional, *Taman Hutan Raya, dan Taman* Wisata *Laut,*
3. Keputusan *Menteri* Kehutanan *No.204/Kpts-II/1998 tentang Organisasi dan Tata Kerja Balai* Konservasi Sumber Daya Alam *dan* Unit Konservasi Sumber Daya *Alam*
4. Keputusan Kepala *Balai* Konservasi Sumber Daya Alam Jawa *Barat* **I** Nomor *SK.23/IV-K.*11*/Peg.*12005 *tentang Penataan Personil Balai* Konservasi Sumber Daya Alam Jawa *Barat* **I.**

Although the legislation had already been set-up, howver, the condition had not fully guaranteed the implementation of the environmental policy and the achievement of the objectives and targets. These were due to the fact that some regulations had not been well socialized yet and the application of the regulations had not been transparent (Anonymous, 2005).

3.3. Environmental Aspects

Environmental aspect is defined as the element of an organization's activities or products or services that can interact with the environment. While environmental impact is any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects.

It is stated in the standard that the organization shall establish, implement and maintain a procedure(s) to identify the environmental aspects of its activities, products and services, and a procedure (s) to determine those aspects that have or can have significant impact(s) on the environment (significant environmental aspects). The organization shall ensure that the significant environmental aspects are taken into account in establishing, implementing and maintaining its environmental management system (Technical Committee ISO/TC 207/SC-1, 2004).

The criteria of *TWA* and CA Telaga Warna refer to Article 8 of the PP No. 68 tahun 1998 as follows:

1. has diversity in species of flora and fauna and its ecosystem;
2. represents the formation of certain biota and or their composing units;
3. has natural condition; either its biota or physical, that is still original and not known or disturbed by human:
4. has enough area and certain shape in order to support effective management and assure the condition of natural ecological process;
5. has special characteristics of potential, and can be the example of ecosystem the existence of which needs conservation efforts, and or
6. has community of flora and or fauna together with their ecosystem that is rare and its existence is threatened to extinct.

According to Article 33 of the PP No.68 *tahun* 1998, an area is designated as Kawasan *Taman Wisata Alam* (Natural Tourism Park Area) if it meets the following criteria:

1. having natural appeal in the forms of flora, fauna or natural phenomenon ecosystem as well as attractive geological formation;
2. having sufficient area to ensure the conservation of potential and appeal to be utilized for natural tourism and recreation;
3. the surrounding environmental condition supports the effort in the development of natural tourism.

Referring to the existing regulation, it is seen that procedure for the identification of the environmental aspects had been prepared in the form of regulation for CA and *TWA* Telaga Warna. The regulation was related to the criteria to meet for an area designated as natural reservation area and natural tourism park, *i.e.,* Articles *8* and 33 of the PP no *68* tahun *1998.* In the book of *Informasi Konservasi Propinsi* Jawa *Barat* (Anonymous, 2002), it is stated that CA and *TWA* Telaga Warna is included in the conservation area under the management of *BKSDA* Jawa *Barat* **I.**

Implication of the designation of an area as conservation area is that the biological resources of the area can be utilized concertedly for the surrounding community without any necessity to occupy the area or part of the area. The facts showed that in the conservation area there were some forms of utilization of flora and fauna for medicines or cultivation supports natural tourism activity, science and education as well as research (Anonymous, 2002).

Several accidents in the field related to the significant environmental aspects were fire, landslide, destroying of vegetation, and clearing away that has serious impact on the damage and or result in losses in the conservation area. One of the problems that could be identified among others was the lack of sign of caution, appeal or ban, no efforts in involving NGO's, as well as the unclearness of the process of acquiring permit for the utilization of the conservation area (Anonymous, 2005).

3.4. Objectives, Targets, and Environmental Management Programs

3.4.1. Objectives and Targets

It is sated in the standard that 'the organization shall establish, implement and maintain documented environmental objectives and targets, at relevant functions and levels within the organization. The objectives and targets shall be measurable, where practicable, and consistent with the environmental policy, including the commitments to prevention of pollution, to compliance with applicable legal requirements and with other requirements to which the organization subscribes, and to continual improvement.

The objectives and targets of CA and *TWA* Telaga Warna have been established in accordance with the definition of natural reservation area and natural tourism park area. The natural reservation area that has uniqueness in flora, fauna and certain ecosystem needs to be protected, and its development goes naturally and compliance with its function. The natural reservation could be utilized for research, science, educational and supporting activity of cultivation.

Natural tourism area is natural reservation area with the main objective to be utilized for the interest of natural tourism and recreation. The area is managed by the government with efforts in the preservation of the diversity of flora and fauna together with their ecosystem based on a management plan on the basis of study on the aspects of ecology, technical, economy and socio-cultural.

3.4.2. Environmental Management Program

It is stated in the standard that the organization shall establish, implement and maintain a program(s) for achieving its objectives and targets. Program(s) shall include designation of responsibility for achieving objectives and targets at relevant functions and levels of the organization, and the means and time-frame by which they are to be achieved.

Some environmental management programs on CA *Telaga Warna* that had been established in the efforts of preserving the natural reservation area were conducted in the forms of activity as follows:

1. protection and security precaution of the area
2. inventory of the area potential, and
3. research and development that support preservation.

Some activities that are banned because of causing change in the function of the natural reservation area are:

1. to conduct hunting for wildlife living in the area
2. to introduce non-indigenous species of flora and fauna into the area
3. to cut, damage, take, fell and extinguish flora in and from the area
4. to dig holes on the ground that disturbs the life of flora and fauna in the area, or
5. to change the nature variety of the area that disturbs the life of the flora and fauna.

Several environmental management programs of *TWA Telaga Warna* related to the efforts of preservation of natural tourism area were conducted in the forms of activity as follows:

1. Protection and safety measures
2. Inventory of area potential
3. Research and development that support the potential conservation
4. Building of habitat and population of the wildlife, which includes the following activities:
   a. building of pasture
   b. construction of drinking water facility and or places for wildlife to roam
   c. planting and maintenance of protecting trees and feed source trees for the wildlife
   d. thinning out of wildlife population
   e. adding of indigenous flora and fauna, or
   f. extinction of disturbing species of flora and fauna.

To achieve the objectives and targets of the CA and TWA Telaga Warna, a working system was developed for the operation of forest safety measures, control on safety disturbance on the conservation area and action on law disobeyance. On the other side, for knowing the development of the area, activities of observation and report of inventory result on the potential of flora and fauna in CA Telaga *Warna* were conducted, i.e., 114 species of trees with several stages, fauna potential of 12 species of mammals, three species of primate, four species of reptiles and 32 species of avis (Anonymous, 1991).

The environmental management program of CA and *TWA* Telaga *Warna* has been established and implemented, which is also supported continuously by documentation system. A part of the implementation program has shown some result although some parts have not been perfect like unclear coordination and collaboration among the institutions and among the community in conjunction with task and responsibility in the conservation area (Anonymous, 2005).

3.4.3. Resources and Responsibility

It is stated in the standard that management shall ensure the availability of resources essential to establish, implement, maintain and improve the environmental management system. Resources include human resources and specialized skills, organizational infrastructure, technology and financial resources. Roles, responsibilities and authorities shall be defined, documented and communicated in 'order to facilitate effective environmental management

In conjunction with management, implementation and control as well as performance improvement of conservation of biological natural resources and its ecosystem, the government has established the organization and working procedure of *Balai Konservasi* Sumber *Daya Alam* (BKSDA) and conservation unit as contained in the *Keputusan Menteri Kehutanan No.204/Kpts-II/1998* and *Keputusan* Kepala BKSDA Jawa *Barat* I *Nomor SK.23/IV-K.11/Peg./2005*.

The structure of organization of BKSDA and Unit KSDA is of technical operation unit in the field of forest protection and natural conservation which are subordinated by and responsible to Kepala *Kantor* Wilayah Departemen *Kehutanan*. The BKSDA is schematically presented in Figure 1.

In order to conduct the management work the wildlife reservation area, natural tourism park, jungle park and hunting park as well as conservation of species of flora and fauna either inside or outside of the area, the BKSDA and Unit KSDA have the following functions:

1. Making of development program of natural reservation area, natural tourism park, jungle park and hunting park as well as promotion and information
2. Management of reservation area, natural tourism park, jungle park and hunting park

3. Implementation of conservation of the area and species of flora and fauna
4. Safety measures of the area and species of biological natural resources outside the area
5. Building of nature love and extension of natural resources conservation
6. Administrative work.

Referring to the Keputusan Kepala Balai KSDA Jawa Barat I Nomor SK.23/IV-K.11/Peg./2005 tentang Penataan Personil Balai Konservasi Sumber Daya Alam Jawa Barat I, the area of TWA and CA Telaga Warna is covered by Balai Konservasi Sumber Daya Alam (BKSDA) Jawa Barat I and Seksi Konservasi Wilayah (SKW) I, and the management is subordinated by Koordinator Konservasi Wilayah (KKW) Bogor II.

Seksi Konservasi Wilayah *(SKW) II* covers the administrative working area of Kabupaten *Bogor* covering Kecamatan Ciawi, Kecamatan *Megamendung,* Kecamatan Cisarua, Kecamatan *Caringin,* Kecamatan *Cijeruk* and Kecamatan Ciomas which in this case manages the *TWA* and CA Telaga Warna as well as *TWA* Jember.

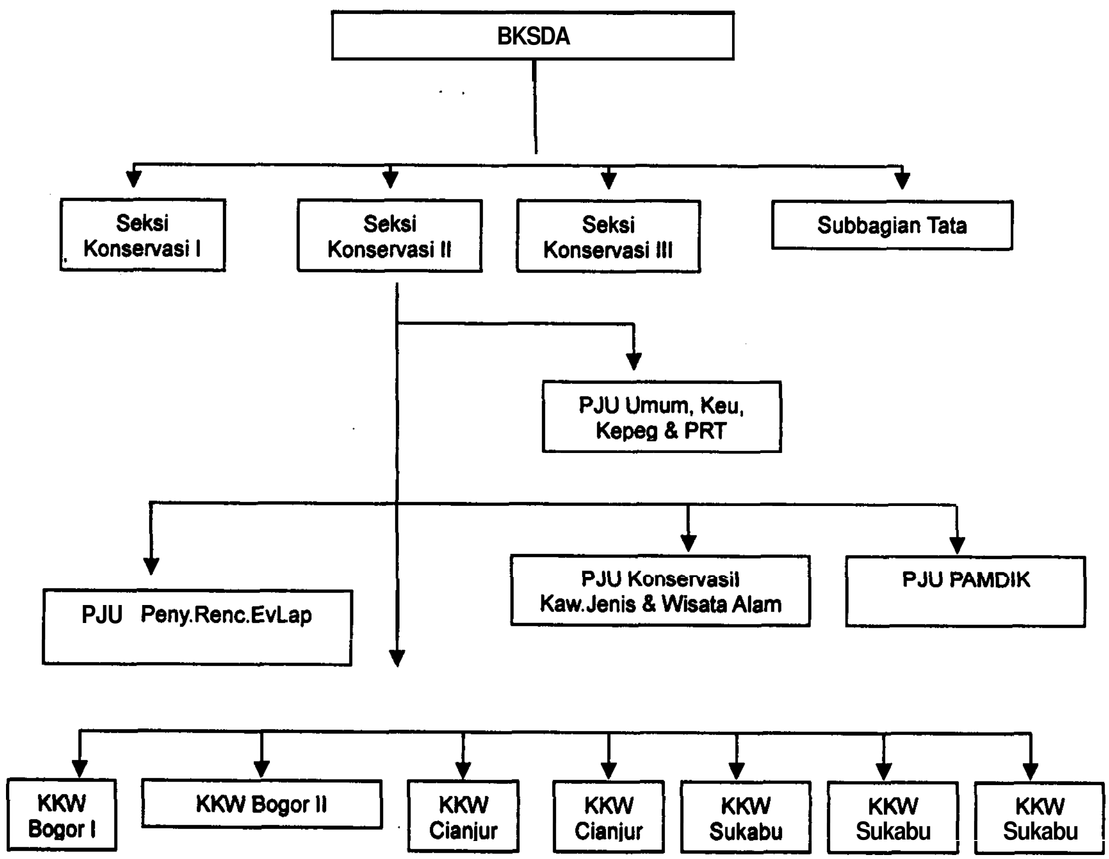

Figure 1. Structure of organization of BKSDA and Unit KSA

In conducting the task, the Koordinator Konservasi Wilayah *(KKW) Bogor II* including the area of *TWA* and CA Telaga Warna has the following functions:

1. to review and do the disposition of the person in charge
2. to coordinate the job of the personnel in KKW
3. to review and make resume of the dictum about KSDA
4. to collect, review, and prepare the materials for monthly, quarterly and annual reports
5. to make activity plan of *KSDAH&E* in the working area of KKW
6. to conduct the activities of monitoring, ordering, safety measures, and processing of criminal conduct in the field of TSL
7. to conduct monitoring, evaluation and building of breeding activity, TSL trading and conservation institution
8. to conduct management of *TWA* and CA Telaga Warna as well as *TWA* Jember
9. to conduct monitoring evaluation and building of natural tourism undertaking in *TWA* Telaga Warna and *TWA* Jember
10. to conduct the activities of guarding, patrol, functional safety, coordinated safety, special operation, and processing of criminal action in the field of area conservation
11. to conduct identification of promising conservation area
12. to conduct identification of the possibility of partnership development of *KSDAH&E* management
13. to conduct coordination with the local government and stakeholders
14. to conduct other tasks as ordered by the person in charge either written or orally
15. to be responsible to the Kepala Seksi Wilayah Konservasi *II*.

The organization of the management of *TWA* and CA Telaga Warna indicated the composition of the related personnel with its authority has been well made in accordance with the existing regulation. The success of the implementation of EMS was the commitment of all personnel in the organization started from the person in charge or leader. The implementation of role and responsibility in *TWA* and CA Telaga Warna had not been fully worked as expected. For instance, there was unclear role and task of the Department of Forestry and Perhutani in the case of forest conservation, inadequate number of forest police personnel, as well as the unclearness of the officer who was responsible for the socialization of forest conservation (Anonymous, 2005). Although the system of organization, job description and responsibility complied with the standard, the implementation still required some adjustment to the system.

In the implementation of the EMS, a partnership system between *TWA* and CA Telaga Warna and several parties had been built, among others were water user society organization, PT LDK, LSM RCS, *FMIPA-UNPAK, Polisi, Perhutani,* Pemda and the community (PAMSWAKARSA) (Anonymous, 2002).

However, there were still some problems in the partnership, i.e., the points in the partnership agreement had not all been fulfilled so that the management of the TWA and CA suffered from losses.

3.4.4. Nonconformity

It is stated in the standard that the organization shall establish, implement and maintain a procedure(s) for dealing with actual and potential nonconformity(ies) and for taking corrective action and preventive action. The procedure of inspection and measure of environmental performance of *TWA* and *CA Telaga Warna* had been established by the *BKSDA Jawa Barat I.*

In the implementation of EMS in *Telaga Warna,* some problems had been identified through dialog forum with the community surrounding the area and stakeholders of the natural resources. The dialog was conducted in the form of expose of management activity and conservation potential of the *TWA* and *CA Telaga Warna* area, with the results as follows:

1. Law enforcement was less transparent and not responsive
2. Community awareness towards the conservation and management of forest conservation area was considered low
3. The legislation on conservation had not been well socialized to the community
4. Extension from the *BKSDA* was considered very inadequate
5. Lack of signs of caution, appeal or ban in the forest conservation areas so that some parties made use of it which in turn disturbing the environment
6. Inadequate number of forest police personnel compared to the existing forest area
7. Low quality and quantity of BKSDA Posts resulted in weak information and communication
8. Role and task of Department of Forestry and *Perhutani* in forest conservation were not clear
9. Responsibility of the governmental institutions on the forest conservation was inadequate
10. Parties responsible for the socialization of forest conservation were not clear
11. Participation of the NGO's was not significantly involved
12. Collaboration in forest management between *BKSDA* and Perum *Perhutani* had not been significantly seen
13. Process of permit acquirement on the utilization of forest conservation area was not clear.

The unsuitability could be grouped into five elements of EMS, i.e., order and enforcement of regulation (points 1, 2), weakness in internal and external communication (points 3, 4, 5), limited resources (points 6, 7), and the unclearness of role and responsibility (points 8, 9, 10, 11, 12, 13)

4. CONCLUSION

The environmental management system built by the organization of TWA and CA Telaga Warna has not been fully complied with the international standard (EMS ISO 14001). However, several elements of environmental management have been implemented to improve the environmental performance. Effectiveness of environmental management system cannot be known because no record indicating the environmental performance trend can be obtained, especially about the significant environmental aspects as well as the achievement of the objectives and targets.

It is necessary to improve the performance of EMS in TWA and CA Telaga Warna related to several management elements consisting of order and enforcement of regulation, weakness in internal and external communication, limited resources and the unclearness of role and responsibility. Management review is required in the effort of conducting continuous improvement.

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